

12th IVHEM

INTERNATIONAL VIRAL HEPATITIS
ELIMINATION MEETING



ABSTRACT BOOK

12th International Viral Hepatitis Elimination Meeting

Hiroshima, Japan | 3-4 September 2026



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ORAL ABSTRACT PRESENTATIONS

12th International Viral Hepatitis
Elimination Meeting (IVHEM) 2026

In-Person Meeting

3 – 4 September 2026
Hiroshima, Japan



1

Longitudinal Follow-up Study of HBV Transmission among Children Born to Pregnant Women Cohort in Siem Reap, Cambodia (2021–2025)

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Background: Despite implementation of the national hepatitis B vaccination program in Cambodia, the long-term status of hepatitis B virus (HBV) infection among children born to HBsAg-positive mothers remains unclear. This follow-up study aimed to investigate HBV infection among children up to 4–5 years of age and to distinguish possible vertical and horizontal transmission within a previously established birth cohort in Siem Reap, Cambodia.

Methods: Between 2020 and 2021, a total of 1,565 pregnant women were screened for HBsAg during antenatal care at three health facilities in Siem Reap, Cambodia. All HBsAg-positive mothers (N=67) and one-fourth of HBsAg-negative mothers (N=375) were enrolled for follow-up at delivery and 6 months postpartum. In 2025, children aged 4–5 years from the cohort were re-contacted for further investigation. Dried blood spot (DBS)-based serological and molecular testing was performed. Family members of HBsAg-positive children (index cases) were additionally recruited for HBV serological testing, HBV DNA analysis, and phylogenetic investigation.

Results: Among 1,565 pregnant women screened, 67 were HBsAg positive, giving an HBsAg prevalence of 4.28%. Overall, 145 children were assessed at delivery, 116 at 6 months of age, and 237 at 4–5 years of age. In total, 293 children,

including 48 born to HBsAg-positive mothers, were followed at least once during the study period. HBsAg positivity among children was 0.86% (95%CI: 0.002–4.82%) at 6 months and 0.84% (95% CI: 0.10–3.04%) at 4–5 years. No HBV infection was identified among children born to HBsAg-negative mothers. Among children born to HBsAg-positive mothers, three children were identified as HBsAg positive during the entire follow-up period. One child was HBsAg positive at both delivery and 6 months despite vaccination and was considered highly suggestive of vertical transmission. Another child, lost to follow-up during infancy, was identified as HBsAg positive at 4–5 years and was also considered likely vertically infected based on high maternal HBV viral load and high homology between mother and child HBV strains (99.8%). A third child who was HBsAg negative at 6 months became HBsAg positive at 4–5 years. High homology (99.8%) between the mother and child HBV strains strongly suggests maternal-related transmission, though the timing of transmission, either perinatal or postnatal remains undetermined.

Conclusions: Despite the high coverage of hepatitis B birth-dose vaccination in Cambodia, HBV infection among children born to HBsAg-positive mothers remains detectable. Longitudinal follow-up from birth to 4–5 years identified evidence of both perinatal and postnatal transmission from infected mothers. These findings strongly suggest the importance of long-term follow-up of high-risk children, antiviral intervention for mothers with high HBV viral loads, continuation of maternal antiviral treatment beyond the MTCT prevention period, and sustained surveillance beyond infancy to strengthen HBV elimination strategies in Cambodia.



2

Progress toward Elimination of Mother-to-Child HBV Transmission in Japan: Findings from Nationwide Antenatal Surveillance, 2021–2022

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Introduction: The WHO 2030 viral hepatitis elimination targets require an HBsAg prevalence of $\leq 0.1\%$ among children aged five years or younger and a mother-to-child transmission (MTCT) rate of $\leq 2\%$ for validation of elimination of MTCT (EMTCT) of hepatitis B virus (HBV). Since 1986, Japan has implemented a nationwide prevention program comprising universal antenatal HBsAg screening and targeted birth-dose vaccination combined with hepatitis B immunoglobulin (HBIG) for infants of HBsAg-positive mothers, supplemented by universal infant HBV vaccination introduced in 2016. Critically, the first generation to benefit from this program has now reached reproductive age, meaning the current antenatal population spans both pre-program and post-program birth cohorts — making birth year-stratified analysis essential for evaluating cumulative program impact. Our first national survey reported an HBsAg prevalence of 0.23% (95% CI: 0.22–0.24%) among pregnant women in 2014–2015. The present study reports a second nationwide survey to provide an updated epidemiological evidence base toward verified HBV EMTCT.

Methods: Individual-level data were collected from pregnant women undergoing antenatal HBsAg screening across 1,741 municipalities nationwide between 2021 and 2022. Of 370,674 records from 426 municipalities, 331,005 met inclusion criteria and were analyzed. Results: Overall HBsAg prevalence was 0.13% (95% CI: 0.12–0.14%), corresponding to an estimated 1,004 HBsAg-positive pregnant women (910–1,098) nationally in 2023 — a reduction of more than 50% from the estimated 2,313 cases in 2016.

Among pregnant women under 20 years of age (born in or after 2002), HBsAg prevalence was 0% (95% CI: 0–0.10%). Women born after program introduction (aged 12–36 years) showed a prevalence of 0.07%, significantly lower than those born before the program (aged 37–55 years; 0.24%). Cohort-based analysis confirmed an approximately 50% reduction in HBsAg prevalence in the 1986 birth cohort, the first cohort eligible for the prevention program. Among 24 confirmed HBsAg-positive mothers, no instances of MTCT were detected.

Conclusion: Japan's HBV EMTCT prevention program has driven HBsAg prevalence well below the WHO elimination threshold of $\leq 0.1\%$ in post-program birth cohorts, with zero MTCT cases identified — consistent with both WHO impact targets for EMTCT validation. The birth cohort-stratified findings provide compelling evidence of generational impact and underscore the critical importance of sustained nationwide surveillance to monitor high-risk subpopulations and guide evidence-based strategies toward complete and verified elimination.



3

Implementation of WHO Guidelines 2024 for PMTCT of HBV When Viral Load Measurement Is Not Accessible

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Background: We evaluated a standardized, programmatic approach to achieve triple elimination of mother-to-child transmission of HIV, syphilis, and hepatitis B in Laos. Pre-project HBsAg prevalence was 5.4%. Key barriers included lack of national protocol, limited antenatal testing coverage, inaccessible point-of-care HBeAg or HBV DNA testing, and unavailable HB immunoglobulin. However, a low-cost generic tenofovir disoproxil fumarate (TDF) is available (~USD 10 per 30 tablets), offering a potential prophylactic strategy.

Methods: The program was designed and implemented in collaboration with community members, clinical experts, and the Ministry of Health. Community outreach activities (village health volunteers, facility outreach, and local radio) informed pregnant women and families about screening and available services. Information From April 20, 2024 to February 28, 2026, pregnant women attending first antenatal care were screened for HIV, syphilis, and HBsAg using rapid tests with same-day results. Women with positive HBsAg underwent serum creatinine assessment and were offered free TDF 300 mg once daily starting at 28 weeks' gestation (or as soon as possible thereafter) and continued until one month postpartum; no HBV DNA testing was performed. Newborns were given a hepatitis B vaccine birth dose as soon as possible after delivery, followed by routine multivalent immunization at 6, 10, and 14 weeks. Infant seroprotection was defined as anti-HBs ≥ 10 IU/L at 9–14 months; infant infection was defined as HBsAg positivity at or after 9 months.

Results (by data cutoff): A total of 6,006 women were screened; 301 (5.01%) were HBsAg positive. Median gestational age at diagnosis was 19 weeks 3 days (IQR 13+1 to 28+5). Delivery records were available for 3,234 women; among 3,223 live births (including 16 twin pairs), 3,189 (99%) received a hepatitis B birth dose within one hour. Of 276 HBsAg-positive women who reached ≥ 28 weeks, 250 (91%) initiated TDF and 223 (81%) continued prophylaxis through one month postpartum. Seventy-seven infants had serologic testing at ≥ 9 months: 2 (3%) were HBsAg positive and 7 (11%) had anti-HBs < 10 IU/L.

Discussion: Programmatic screening in combination with HIV and syphilis screening and birth-dose vaccination were highly feasible with excellent hepatitis B vaccine birth-dose coverage. TDF uptake was high but adherence to the full prophylaxis period was incomplete (81%). Two infant infections among 77 tested suggest a higher-than-expected residual transmission signal, though interpretation is limited by incomplete infant follow-up (to date). These preliminary results highlight both the promise and operational challenges of a universal maternal prophylaxis strategy within a Triple Elimination program.



4

Three-Year Clinical and Serological Outcomes among Children after Maternal Tenofovir Prophylaxis for Hepatitis B in Burkina Faso

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Background: Prevention of mother-to-child transmission (MTCT) is crucial for the elimination of hepatitis B. A longitudinal study conducted in rural Burkina Faso between 2021 and 2022 assessed prevention of MTCT using maternal tenofovir disoproxil fumarate (TDF) prophylaxis in HBsAg-positive pregnant women combined with hepatitis B birth-dose vaccination and demonstrated an MTCT rate of 2.3% at six months. Children born to HBsAg-negative mothers did not receive a birth dose under the national immunization schedule used at the time. In this high-endemic community setting, children remained potentially exposed to horizontal transmission during early childhood. This follow-up study aims to assess HBV infection, persistence of protective antibodies, and neurodevelopmental outcomes among children born to HBsAg-positive and HBsAg-negative mothers three years after the initial intervention.

Materials and Methods: Children previously enrolled in the initial study were re-contacted three years later for this follow-up investigation. Participants include all children born to HBsAg-positive mothers who received TDF prophylaxis during pregnancy and hepatitis B vaccination including a birth dose. A randomly selected subset of children born to HBsAg-negative mothers, who had received routine hepatitis B vaccination through the national Expanded Programme on Immunization schedule consisting of pentavalent vaccine administration at 2, 3, and 4 months of age without a birth dose, was included as a comparison group. Participating children undergo

HBV serological testing including HBsAg, anti-HBs, anti-HBc, and, when applicable, HBeAg, anti-HBe, and HBV DNA testing. Anthropometric and neurodevelopmental assessments are also performed.

Results: In the original cohort, 106 pregnant women tested positive for HBsAg among 1,622 women screened. At six months of age, the observed hepatitis B mother-to-child transmission rate was 2.3% among tested infants. For the three-year follow-up study, 69 of the 106 eligible HBsAg-positive mother-child pairs had been successfully identified and invited for follow-up visits by May 2026. In addition, a randomly selected subset of 379 children born to HBsAg-negative mothers, representing one-quarter of children born to HBsAg-negative mothers in the initial study, was identified as a comparison group. Clinical assessments, HBV investigations, and neurodevelopmental evaluations are currently ongoing.

Conclusions: This study assesses HBV infection status, persistence of protective antibodies, and developmental outcomes among children three years after exposure to maternal antiviral prophylaxis and hepatitis B birth-dose vaccination in Burkina Faso. The findings may contribute to optimization of hepatitis B prevention strategies in sub-Saharan Africa



5

Decentralized Ai-Triage, Peer Micro-Incentives, and E-vouchers for Viral Hepatitis Micro-Elimination in Nigeria: A Pilot Implementation Study of the HepHive Digital Platform

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Background: Despite the availability of highly effective treatments for viral hepatitis, millions of cases in low- and middle-income countries like Nigeria remain undiagnosed. Traditional, centralized hospital-based care models suffer from high attrition rates. Marginalized populations often avoid formal healthcare due to stigma, out-of-pocket costs, and geographic barriers, making the WHO's 2030 elimination targets difficult to reach.

Objectives: To evaluate the clinical outcomes, feasibility, and acceptability of HepHive, a decentralized digital platform designed to accelerate hepatitis micro-elimination by combining AI-driven risk triage, a gig-economy testing dispatch system, and micro-incentivized peer-led navigation.

Methods: A 12-month pilot study was conducted in Lagos and Nasarawa States, Nigeria (January 2025–January 2026). Users accessed HepHive via a WhatsApp chatbot or an offline-friendly USSD code. An AI algorithm triaged users and dispatched Community Health Workers (CHWs) to high-risk individuals for community-based rapid testing. Patients diagnosed with active Hepatitis C (HCV) received digital e-vouchers covering the full cost of Direct-Acting Antivirals (DAAs), redeemable at partnered local pharmacies. Following automated SMS adherence support, cured patients transitioned into "Navigators," earning mobile money micro-bounties for referring at-risk peers to the platform.

Results: The platform engaged 14,250 unique users, with 62% relying on the USSD interface.

Through the gig-dispatch system, CHWs completed 7,120 rapid tests. Of the 312 individuals diagnosed with active HCV, 92.3% (n=288) successfully linked to care using DAA e-vouchers—a massive improvement over historical regional averages. Treatment adherence was high, with 95.8% (n=276) of treated patients achieving a confirmed cure (SVR12). The gamified peer-referral system drove significant case-finding: 76% of cured patients opted to become Navigators, and their referral codes accounted for 68% of all new HCV diagnoses in the study's second half.

Conclusion & Next Steps: The HepHive model proves that a decentralized, gamified digital approach can drastically compress the viral hepatitis care cascade. By bypassing traditional hospital infrastructure, leveraging accessible USSD technology, and eliminating point-of-care financial friction via e-vouchers, HepHive offers a scalable blueprint for LMICs to locate and cure the "missing millions."

Next steps include integrating the digital platform directly with point-of-care viral load (RNA) diagnostics (like GeneXpert) to enable a true, single-visit "test-and-treat" model, as well as developing offline-sync capabilities to overcome occasional mobile network outages in deeply rural areas.



6

Implementing a Micro-Elimination Program for Hepatitis C and Hepatitis B Diagnosis and Referral in Khairpur District, Sindh Province, Pakistan: A Pilot Project for National HCV Elimination Initiative

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Background: Pakistan has a high burden of hepatitis C, with approximately 10 million people living with the infection. Two union councils (UCs) in Khairpur district, Sindh Province, Pakistan, with high disease rates, were selected for this pilot project aimed at implementing a micro-elimination program for hepatitis C and diagnosis and referral of hepatitis B.

Objectives: The project objectives were to increase awareness, testing, diagnosis, and linkage to care and treatment for hepatitis B and C, and to pilot an Electronic Medical Record (EMR) system to track the hepatitis B referral and hepatitis C care cascade.

Methods: The project targeted a population of 62,500 individuals, with 45,349 eligible for screening (aged 12+ years). Community healthcare workers implemented awareness campaigns, while trained Lady Health Workers (LHWs) screened individuals for hepatitis B and C using rapid tests and collected demographic data using an EMR system.

Results: As of June 2025, a total of 25,203 individuals were screened, with 541 (2.1%) HBsAg positive and 2,873 (11.4%) anti-HCV positive. Of the anti-HCV positive patients, 1,760 (61.3%) were tested for HCV RNA, and 1,075 (61.1%) were HCV RNA positive. All HCV RNA positive patients were initiated on treatment.

Conclusion: This pilot project demonstrated the feasibility of implementing a hepatitis C elimination program in Pakistan, despite challenges such as internet connectivity issues and limited LHW coverage. The project successfully piloted an EMR system, which proved to be a valuable tool for tracking the hepatitis care cascade. The project findings helped understand on-ground challenges and revive the national HCV elimination strategy. The lessons learned from this project can inform province-wide and nationwide hepatitis elimination programs, contributing to Pakistan's goal of eliminating hepatitis C by 2030



7

Hepatitis D Testing Patterns and Prevalence in Australia: A Retrospective Statewide Cohort Study

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Background: Hepatitis D (HDV) coinfection with hepatitis B (HBV) is the most serious form of viral hepatitis and is associated with a threefold higher risk of cirrhosis and hepatocellular carcinoma. We aimed to describe changing hepatitis D testing patterns and disease prevalence in Victoria state, Australia (~40,000 people with confirmed HBV in 2023).¹

Methods: This retrospective observational cohort study included every adult aged >18 years who underwent anti-HDV antibody testing and HDV PCR testing in Victoria between January 1, 2010 and December 31, 2023. Testing numbers and proportion positive were described overall and stratified by year, age category and sex. Associations with anti-HDV positive status were assessed by chi square test and Mantel-Haenszel odds ratios calculated.

Results: 11,361 anti-HDV antibody tests were ordered in 10,048 adults in Victoria during the study period. Over half (56%) were male and mean age was 42.2 +/- 14.7 years. 500 anti-HDV antibody tests were positive and 50 had equivocal results, with a total of 498 anti-HDV antibody tests confirmed positive (4.3%) in 365 adults (3.6%). Of these, 210 adults (42%) who were anti-HDV Ab positive underwent HDV PCR testing and 72 (34%) were HDV RNA positive, consistent with active infection. 24 (33%) of HDV PCR positive adults had

more than one PCR test during the study period. Of those who underwent HDV PCR testing, 48 (10%) did not have a HDV PCR test after their first positive anti-HDV antibody test, but after a repeat anti-HDV antibody test.

The proportion of anti-HDV tests that were positive remained stable between 2.0-3.9% per annum during the study period. The proportion of HDV PCR tests that were positive also did not change significantly over time, ranging from a nadir of 1 (10%) in 2016 to a peak of 12 (36%) in 2018 (χ^2 p=0.232).

Individuals who were anti-HDV antibody positive had higher odds of being male (67%; OR 1.55, 95% CI 1.24-1.94) but had a similar mean age (44.2 +/- 12.5 years vs 44.3 +/- 14.7 years, p=0.95) compared to those who were anti-HDV antibody negative.

Conclusion: HDV-HBV coinfection is uncommon in Australia, with 1% of people with HBV tested having evidence of active HDV infection. However, major gaps in testing persist, with less than half of those who tested anti-HDV antibody positive having a HDV PCR test. Policy changes such as reflex HDV PCR testing for those who test anti-HDV antibody positive would significantly improve the HDV cascade of care.

1. Viral Hepatitis B Mapping Project: Hepatitis B National Report 2023, MacLachlan J, et al 2025; https://ashm.org.au/wp-content/uploads/2025/08/HDV_ViralHepReport_2023_August25.pdf



8A

Hepatitis B and Hepatitis D Epidemiology in Kyrgyz Republic – Insights from a Nationwide Population-Based Survey, 2024

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Background: Before hepatitis B vaccine (HepB) introduction, hepatitis B virus (HBV) infection was highly endemic in the Kyrgyz Republic (KR). Recent population-based estimates of prevalence of HBV infection and hepatitis D virus (HDV) infection are lacking, which hinders the ability to guide screening, treatment and prevention efforts. In 2024, we conducted a serosurvey to assess prevalence and epidemiology of HBV and HDV infections in the general population.

Methods: A cross-sectional nationwide household survey using multi-stage cluster design was conducted among persons aged ≥5 years. Demographic, medical history, risk factors, and vaccination data were collected. Blood samples were tested for total antibodies against hepatitis B core antigen (anti-HBc) and anti-HBc-positive samples were tested for hepatitis B surface antigen (HBsAg). HBsAg-positive samples were tested for HBV DNA and antibodies to HDV (anti-HDV). Anti-HDV-positive samples were tested for HDV RNA. Weighted prevalences and 95% confidence intervals (CI) were calculated, and multivariable logistic regression was used to measure associations.

Results: Overall, 5,239 adults and 2,646 children aged 5–17 years were tested for anti-HBc. Anti-HBc prevalence was 0.8% (95% CI, 0.5%–1.3%) among children and 32.9% (95% CI, 31.1%–34.8%) among adults. HBsAg prevalence was 0.2% (95% CI, 0.1%–0.7%) among children and 4.7% (95% CI, 3.9%–5.6%) among adults. HBV DNA was detected in 89.0% of HBsAg-positive persons. Among those with detectable HBV DNA, 6.2% had viral load of 2,000–19,000 IU/mL and 6.4% had viral load ≥20,000 IU/mL.

Among adults, anti-HBc prevalence was higher among males (36.1%) than among females (30%) ($p=0.003$) and varied by age ($p<0.001$). It was lowest (25.3%) among 18–29-year-olds and highest (51.3%) among ≥60-year-olds. HBsAg prevalence was higher among males (6.3%) than among females (3.7%; $p<0.001$), and varied by age ($p<0.001$), with lowest prevalence among 18–29-year-olds (1.5%) and highest among 30–59-year-olds (6.2%), decreasing to 3.6% among those aged ≥60 years. In multivariable analysis, male sex, age ≥30 years, residence in southern regions, and ever having surgery were associated with anti-HBc positivity. Age 30–59 years and lack of HepB vaccination were associated with HBsAg positivity.

Among 2,403 children with available immunization information, 83.5% received ≥3 HepB doses and 86.8% received HepB birth dose (HepB-BD). All three HBsAg-positive children received 4 doses of HepB, including HepB-BD administered within 24 hours after birth.

Among HBsAg-positive participants, 5.8% were anti-HDV-positive. HDV RNA was detected in 63.2% of anti-HDV-positive participants (3.7% of HBsAg-positive).

Conclusions: Successful infant hepatitis B vaccination since 2001 likely led to low HBV infection prevalence among children in KR. Hepatitis B remains widespread among adults and approximately 4% of persons with chronic HBV infection have active HDV infection. To achieve elimination of vertical transmission of HBV (HBsAg prevalence <0.1% among children), KR needs to increase infant HepB vaccination coverage to ≥90% and provide antiviral treatment to eligible pregnant women with HBV infection. Implementing nationwide screening for HBV among persons aged 30–59 years could improve diagnosis and linkage to care and treatment of persons with hepatitis B. Implementing prevention interventions including HepB vaccination, among adults born before vaccine introduction (ages 24–39 years) could prevent infections.



8B

Prevalence of Hepatitis C and Associated Characteristics in the Kyrgyz Republic — Results from a Nationally Representative Serosurvey, 2024

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Background: Hepatitis B and hepatitis C are substantial public health problems in the Kyrgyz Republic (KR), where cirrhosis is a leading cause of death. However, nationally representative prevalence estimates of hepatitis C in the general population are not available. This study was conducted to estimate the prevalence and epidemiology of hepatitis C to guide national elimination efforts in the KR.

Materials and Methods: In 2024, we conducted a stratified, multi-stage nationwide cross-sectional household seroprevalence survey among adults (age ≥18 years) and children (aged 5–17 years) in the KR. Interviewers collected information on demographics, and adults were asked about behavioral factors that could put them at risk of hepatitis C virus (HCV) infection, including exposures to medical and dental procedures, sexual history, incarceration, and injection drug use. Blood samples were tested for antibody to HCV (anti-HCV) and, if reactive, HCV core antigen (HCVcAg). Samples that were HCVcAg negative or indeterminate were tested for HCV RNA. Those

that were either HCVcAg or HCV RNA positive were considered to have current HCV infection. Data were weighted to be representative of the general population. Prevalence estimates and adjusted odds ratios (aOR) from multivariable logistic regression were calculated with 95% confidence intervals (95%CI).

Results: Overall, 5,239 adults and 2,646 children were tested for anti-HCV. Among adults, the prevalence of anti-HCV was 3.1% (95%CI: 2.5–3.8) and the prevalence of current HCV infection was 1.5% (95%CI: 1.0–2.1). Among children, the prevalence of anti-HCV was 0.2% (95%CI: 0.1–0.7), and one child tested positive for current infection, for a prevalence of 0.01% (95%CI: 0.001–0.07). Prevalence of current HCV infection among adults differed significantly by age, ranging from 0.5% (95%CI: 0.2–1.2) among those aged 18–39 years to 2.6% (95%CI: 1.7–3.8) among those aged ≥40 years, with a high of 3.7% (95%CI: 1.8–7.6) among those aged 50–59 years ($p < 0.001$). Current infection was also more prevalent among males (2.0%; 95%CI: 1.2–3.3) than females (1.0%; 95%CI: 0.7–1.4) ($p = 0.03$). Among adults with current HCV infection, 8.4% (95%CI: 2.5–24.5) reported being diagnosed with hepatitis C by a physician. Among adults who were anti-HCV positive and reported previous hepatitis C diagnosis, 86.3% (95%CI: 71.3–94.1) indicated they had taken medication for hepatitis C. Among adults overall, 4.1% (95%CI: 3.4–4.8) reported ever having a blood transfusion, and 0.4% (95%CI: 0.2–0.7) reported a history of injection drug use. In a multivariable model, receipt of a blood transfusion (aOR 3.19; 95%CI: 1.54–6.59) and ever injecting drugs (aOR 15.52; 95%CI: 3.90–61.74) were independently associated with current HCV infection.

Conclusions: To identify persons with HCV infection and link them to care, the KR could consider implementation of nationwide screening among adults aged ≥40 years, and continued screening of all persons with a history of injection drug use which is currently mandated as part of the KR's hepatitis program. The KR has invested in its blood service infrastructure including expanded testing capacity and quality management, which should be sustained and expanded to ensure blood safety.



9

Assessing Harm Reduction Equity across Asian Countries and Territories: A Policy and Service Implementation Index

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Background/Introduction: The World Health Organization South-East Asia (SEARO) and Western Pacific (WPRO) regions face a high burden of viral hepatitis, with a combined estimated 166,000 new hepatitis B (HBV) infections and 310,000 new hepatitis C (HCV) infections in 2024. People who inject drugs (PWID) and incarcerated persons are at high risk of infection. Key prevention services for these populations include needle and syringe programs (NSP) and opioid agonist therapy (OAT). This analysis assessed access to HBV and HCV prevention services for these populations in the WPRO and SEARO regions.

Methods: An analysis of policy and intervention coverage was conducted for 13 countries and territories (C/Ts) in the WPRO and SEARO regions with available National Hepatitis Elimination Profiles (N-HEPs). Data on harm reduction policies and service availability were extracted from N-HEPs and the Harm Reduction International Global State 2024 Report.

A harm reduction equity index was developed to assess the implementation of key policies and services. Four policy indicators were evaluated: 1) national anti-discrimination laws, 2) national harm reduction policies for PWID, 3) decriminalization of drug use, and 4) decriminalization of syringe/paraphernalia possession. Each indicator received 2 points if fully adopted, 1 point if partially adopted, and 0 points if not adopted.

One additional point was awarded for these four service delivery targets achieved: 1) at least one operational NSP, 2) NSP availability in at least one prison, 3) community-based OAT availability, and 4) OAT availability in prisons. Two additional points were awarded for the provision of at least 200 needles and syringes per PWID per year. The

maximum possible score was 14. Findings were summarized using descriptive statistics.

Results: Policy environment: Six of the 13 C/Ts had national anti-discrimination laws protecting people living with HBV and/or HCV, and 9 C/Ts had adopted harm reduction policies for PWID. In addition, 7 C/Ts had policies decriminalizing possession of syringes/paraphernalia, but only Thailand had a policy decriminalizing drug use.

Service delivery: Nine C/Ts had at least one operational NSP in the community, although none were available in prisons. Similarly, OAT was available in community settings in 7 C/Ts, but only Australia, Indonesia, and Vietnam offered OAT in prison settings. Six C/Ts met the NSP coverage target.

Scoring: Based on the policy environment alone, China and Chinese Taipei received the highest score (6 of 8). After incorporating service delivery targets, China and Chinese Taipei maintained the highest overall score at 10 of 14. In contrast, the Philippines received the lowest overall score (0). The median score across all C/Ts was 7.

Conclusion: These findings reveal significant gaps in access to harm reduction services for PWID and incarcerated populations. Access to NSP and OAT in prison settings is particularly limited across these C/Ts. Elimination of HBV and HCV cannot be achieved unless equity considerations are prioritized. Coordinated advocacy is needed to address the lack of anti-discrimination policies, prioritize harm reduction in national strategies, and ensure access to harm reduction services for PWID and incarcerated persons.



10

From HBcrAg-RDT Development to HBeAg-hs Implementation: A Point-of-Care Strategy to Decentralize HBV PMTCT Eligibility Assessment

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Background: Prevention of mother-to-child transmission (PMTCT) of hepatitis B virus (HBV) requires timely identification of pregnant women with high HBV viremia who are eligible for peripartum antiviral prophylaxis. However, HBV DNA testing is unavailable, costly, or delayed in decentralized antenatal care services in resource-limited settings. To address this gap, a rapid diagnostic test detecting hepatitis B core-related antigen, a composite marker comprising HBcrAg, HBeAg, and p22 core-related protein, was developed. Initially evaluated as HBcrAg-RDT, the assay obtained CE-IVDR marking in 2025 as the highly sensitive hepatitis B e antigen rapid diagnostic test (ESPLINE™ HBeAg-hs; Fujirebio Inc., Tokyo, Japan). We aimed to summarize evidence from the development, diagnostic validation, field evaluation, and early implementation of HBcrAg-RDT/HBeAg-hs for decentralized HBV PMTCT.

Materials and Methods: We summarized analytical, clinical, and field evaluations of HBcrAg-RDT/HBeAg-hs for identifying HBV DNA $\geq 200,000$ IU/mL in adults with chronic HBV infection and in pregnant or postpartum women across five countries, using serum, plasma, or capillary blood. We also reviewed evidence on acceptability, costs, carbon emissions, and real-life implementation in The Gambia (DETECT-B), and outlined planned evaluation in the HIPOCAMP cluster-randomized controlled trial.

Results: Shimakawa et al. (Clinical Gastroenterology & Hepatology, 2023) first reported that HBcrAg-RDT identified HBV DNA $\geq 200,000$ IU/mL with 91.4% sensitivity and 86.3% specificity in Gambian adults with chronic HBV infection; among women of reproductive age, sensitivity and specificity were 100% and 87.5%, respectively. Vincent et al. (Lancet Gastroenterology & Hepatology, 2025) validated the test among 1,964 HBsAg-positive women from Cambodia, Cameroon, and Burkina Faso, showing 93.1% sensitivity and 94.3% specificity. Further evaluations across The Gambia, Cameroon, and Kenya, showed consistent diagnostic performance, with sensitivities ranging from 88% to 100% and specificities from 77% to 99%. Famiglietti et al. (Clinical Infectious Diseases, 2026) showed in real-life Gambian antenatal care that, under a local universal prophylaxis protocol, 77 HBsAg-positive pregnant women started TDF, although only 4 had HBV DNA $\geq 200,000$ IU/mL. An HBcrAg-RDT/HBeAg-hs-guided strategy would have identified all 4 women requiring prophylaxis while reducing unnecessary TDF use from 73 women to 3. Ndiaye et al. (Bulletin of the World Health Organization, 2026) showed that HBcrAg-RDT/HBeAg-hs-based testing strategies had lower carbon emissions than point-of-care PCR. In the DETECT-B pilot, Asari R et al., presented in the current IVHEM abstract, showed high uptake of HBeAg-hs testing among HBsAg-positive pregnant women when integrated into routine antenatal care in The Gambia. Finally, HIPOCAMP, a cluster-randomized trial comparing HBcrAg-RDT/HBeAg-hs-guided selective prophylaxis with universal prophylaxis, will start in Cameroon, Côte d'Ivoire, Togo, and Vietnam in 2026, funded by ANRS|MIE and JIHS.

Conclusions: HBcrAg-RDT has progressed from analytical development and multicountry diagnostic validation to CE-IVDR-marked HBeAg-hs and early implementation. The accumulated evidence supports HBcrAg-RDT/HBeAg-hs as a practical, same-day, low-infrastructure tool to decentralize targeted HBV PMTCT, reduce delays and unnecessary prophylaxis, and improve the sustainability of antenatal testing strategies. Ongoing DETECT-B implementation and future HIPOCAMP evaluation will further define its role in triple elimination programmes and postpartum linkage to HBV care.



11

The First-Year Outcomes of One-Time Hepatitis C Screening among 56-Year-Olds in Korea: Uptake, Case Detection, and Linkage to Care in 2025

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Background: In 2025, the Republic of Korea introduced one-time anti-HCV antibody screening into the National Health Screening Programme (NHSP) for individuals aged 56 years. Early real-world evidence is needed to assess programme uptake, linkage to confirmatory testing and treatment, and whether inclusion of anti-HCV antibody screening in the NHSP increases case detection in the targeted birth cohort.

Materials and Methods: This descriptive study used NHSP screening data, antiviral prescription claims from the National Health Insurance Service, and national mandatory HCV reporting data from the Korea Disease Control and Prevention Agency. Screening uptake was assessed among eligible 56-year-olds in 2025 (born from January 1 through December 31, 1969). Follow-up for confirmatory testing, and antiviral prescriptions was ascertained through April 22, 2026. Outcomes included screening uptake, reactive anti-HCV results, confirmatory HCV RNA testing, current HCV infection status, antiviral treatment initiation, age-specific surveillance notifications, and diagnostic pathways.

Results: By December 2025, 537,726 individuals aged 56 years had completed HCV screening, corresponding to a 70.5% uptake with higher uptake in women than in men (279,181 [72.1%] vs 258,545 [68.8%]). Among those screened, 4,745 (0.9%) had reactive anti-HCV results. After excluding previously diagnosed HCV cases, 4,586 individuals entered the screening-detected care cascade. Of these, 1,879 (41.0%) underwent confirmatory HCV RNA testing. Current HCV infection was identified in 1,491 individuals (79.4%

of those tested; 32.5% of the cascade population), and 132 (8.9% of those infected: 2.9% of the cascade population) initiated antiviral treatment. National mandatory reporting data showed that total HCV notifications among individuals in their 50s declined from 1,986 in 2023 and 1,768 in 2024 to 1,548 in 2025. However, case detection among 56-year-olds increased significantly with 328 notified cases in 2025, 2.4-times higher than the mean across the other single-year age groups in their 50s (135.6). Among notified cases born in 1969, NHSP became the leading diagnostic pathway in 2025 (57.6%) compared with 14.8% in 2023 and 20.2% in 2024.

Conclusions: In its first year, NHSP-based one-time HCV screening achieved high uptake among 56-year-olds in Korea and substantially increased case detection in the targeted cohort, indicating its effectiveness in identifying previously undiagnosed infections. However, the HCV care cascade revealed substantial gaps in linkage to care following reactive anti-HCV results, particularly at the stages of confirmatory HCV RNA testing and antiviral treatment initiation. These findings support the adoption of reflex HCV RNA testing after reactive anti-HCV results, and strengthened linkage across screening, confirmation, and treatment. Consideration should also be given to expanding HCV screening beyond age 56 to accelerate progress toward HCV elimination by 2030.



12

Early Real-World Experience Integrating Point-of-Care HBeAg-hs Rapid Testing into Routine Antenatal Services for HBV PMTCT in The Gambia

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Background: Global hepatitis elimination efforts position antenatal care as a key platform for preventing mother-to-child transmission (PMTCT) of hepatitis B virus (HBV), particularly in the context of triple elimination of HIV, syphilis, and HBV. In addition to timely birth-dose hepatitis B vaccination, antiviral prophylaxis with tenofovir disoproxil fumarate (TDF) is recommended for pregnant women at high risk of transmitting HBV, either with high HBV DNA levels ($\geq 200,000$ IU/mL) or positive hepatitis B e antigen (HBeAg). In many low-resource settings, however, PCR-based HBV DNA testing is costly and difficult to implement at peripheral health facilities, and conventional HBeAg rapid diagnostic tests have insufficient diagnostic performance to reliably identify women eligible for prophylaxis. Recently, a lateral-flow assay for hepatitis B core-related antigen detection was developed and obtained CE-IVDR registration as a highly sensitive HBeAg rapid diagnostic test (ESPLINE™ HBeAg-hs, Fujirebio Inc., Japan). Since 2024, The Gambia has integrated

HBV PMTCT services into routine antenatal care with support from the Global Fund. Under the current national strategy, HBV DNA testing is used to guide TDF prophylaxis where GeneXpert machine is available; otherwise, all HBsAg-positive pregnant women are offered TDF prophylaxis in line with the 2024 WHO conditional recommendation. In November 2025, the Gambian National Hepatitis Control Program (NHCP) launched a pilot project across seven healthcare facilities in Western Region 2 to introduce HBeAg-hs rapid test as a surrogate marker to support same-day treatment decision. This study describes its early real-world implementation within routine antenatal care.

Materials and Methods: To evaluate the early implementation, HBV PMTCT care cascade indicators were collected monthly from antenatal care-related registers, delivery registers, and individual patient records. Key indicators include HBeAg-hs coverage among HBsAg-positive pregnant women, TDF eligibility and initiation, retention through delivery, infant birth-dose vaccination, postpartum follow-up, quality-control concordance, and acceptability among healthcare workers and pregnant women.

Results: As of March 2026, a total of 2437 pregnant women made the 1st antenatal care visit across seven pilot healthcare facilities, 2324 received HBsAg screening (95.4%) and 88 were HBsAg-positive (HBsAg prevalence: 3.8%). HBeAg-hs-based prophylaxis eligibility assessment was completed in 86 of 88 HBsAg-positive women (97.7%). Among those assessed, 7 were HBeAg-hs positive and eligible for TDF prophylaxis (8.1%), and all initiated TDF (7/7, 100%).

At interim analysis, 14 HBsAg-positive women had delivered; 11 infants received timely hepatitis B birth-dose vaccination (78.6%). No woman met the study definition of loss to follow-up, defined as no contact for three months after delivery. Although, 16 of 86 HBsAg-positive women (18.6%) had not been reached for more than two months since their last visit. However, these are not HBeAg-hs-positive. Reported reasons included home delivery, temporary relocation around childbirth, and delivery outside the pilot facility catchment area, affecting confirmation of delivery outcomes and timely birth-dose vaccination.

Conclusions: This interim analysis suggests that HBeAg-hs-based eligibility assessment can help avoid overtreatment of HBsAg-positive pregnant women compared with a universal treatment strategy, and may strengthen the HBV PMTCT care



cascade. Delivery-related mobility and place of delivery remain key barriers to completing infant birth-dose vaccination and postpartum follow-up.



13

Integrating Hepatitis B Testing into Existing HIV Infrastructure in Zambia: A Model for Accelerating Micro-Elimination in High HIV-Burden Settings

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Background: Zambia faces a significant dual burden of infectious diseases, with HIV prevalence at 11.1% among adults and hepatitis B virus (HBV) prevalence estimated at 5-10% in the general population. HBV/HIV co-infection rates among people living with HIV (PLHIV) range from 6-15%, substantially higher than the general population. Despite well-established HIV testing and treatment infrastructure, hepatitis B remains largely undiagnosed, with fewer than 5% of chronic HBV infections identified nationally. This represents a critical missed opportunity, as existing HIV care platforms provide ideal entry points for hepatitis B screening and management. Achieving WHO's goal of eliminating viral hepatitis by 2030 requires innovative, context-appropriate approaches that maximize existing health system investments while addressing resource constraints.

Methods: We implemented a hepatitis B micro-elimination initiative across 15 antiretroviral therapy (ART) clinics in Lusaka Province between January and December 2024. The intervention integrated routine HBV surface antigen (HBsAg) testing into standard HIV care using: (1) point-of-care rapid diagnostic tests incorporated into routine clinic visits; (2) task-shifting testing responsibilities to trained lay counselors and nurses providing HIV services; (3) clinical algorithms prioritizing tenofovir-containing ART regimens treating both infections; (4) cascade monitoring utilizing existing electronic medical records with minimal modifications; and (5) provider training on HBV management and prevention of mother-to-child transmission. We conducted cost analysis from the health system perspective and tracked testing uptake, positivity rates, linkage to care, treatment initiation, and retention.

Results: During the 12-month period, 8,247 PLHIV were screened for HBsAg, representing 87% coverage across participating facilities. Of those tested, 682 individuals (8.3%) were HBsAg-positive. Notably, 94% of co-infected patients were already receiving tenofovir-containing ART regimens, requiring no therapeutic modification. An additional 41 patients were transitioned to tenofovir-based therapy. Linkage to HBV-specific care occurred in 76% of newly diagnosed cases within 3 months. The incremental cost per person tested was \$2.30 USD. Patient acceptance of integrated testing was high (96%), with no significant disruptions to HIV service delivery. However, critical gaps emerged in access to HBV viral load testing (available for only 23% of co-infected patients) and transient elastography for liver fibrosis staging (accessible to <10%), limiting comprehensive disease assessment.

Conclusions: This study demonstrates that leveraging established HIV infrastructure provides a pragmatic, cost-effective, and scalable model for hepatitis B micro-elimination in resource-limited settings. Integration achieved exceptional testing coverage with minimal incremental costs while maintaining quality HIV services. The high proportion of patients already on dual-active therapy underscores treatment synergies between these co-infections. Addressing diagnostic capacity gaps—particularly HBV viral load testing and non-invasive fibrosis assessment—remains essential for comprehensive elimination strategies. This integrated model offers a replicable blueprint for similar contexts across sub-Saharan Africa, demonstrating how strategic use of existing platforms can accelerate progress toward global hepatitis elimination targets.



14

The Use of Serological Values for Risk Stratification and Early Detection of Post-SVR HCC in Patients with Cured HCV: from the Elimination of HCV toward the Reduction of HCV-Related Mortality

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Backgrounds: The eradication of hepatitis C virus (HCV) by anti-HCV therapies (sustained virologic response, SVR) will contribute to the worldwide elimination of HCV and reduction of HCV-related mortality by the reduction of the incidence of hepatocellular carcinoma (HCC). However, HCC detected at an advanced stage will limit the curative treatment modalities and will prevent the reduction of HCV-related mortality. Therefore, efforts for detecting post-SVR HCC at an early stage is important. In this study, we overviewed serology-based tools for surveillance of post-SVR HCC in HCV-cured patients.

Methods: We evaluated several serological markers or models that have been reported as potential predictors of the emergence of HCC confirmed by imaging studies.

Results: Serological markers or models contributed to early detection of HCC by two different ways: the risk-stratification of the development of post-SVR HCC and the early detection of existing minute HCC not detectable by imaging studies. The serological risk stratification markers or models of HCC were principally based on the measures of liver fibrosis, which is the most important risk factor associated with HCC development. Whereas there have reportedly been several models for predicting the development of HCC, including aMAP score or THRI, they were suboptimal in real-world clinical practice. In particular, no markers or models worked universally across global regions. The inclusion of imaging findings in addition to serological markers or models may ameliorate the predictive accuracy of HCC development.

The serological early detection markers or models of minute HCC were mainly based on HCC tumor markers. Measurements of multiple tumor markers will improve the detectability of early HCC. In addition, the models combining multiple markers, including GALAD, GAAD, or ASAP model, further improved detectability of minute HCC. These markers or models will support routine surveillance of HCC by ultrasonography, and can be a trigger for further imaging studies for early detection of HCC.

Conclusions: Serological tools significantly contributed to the detection of post-SVR HCC, consequently reducing HCV-related mortality. Especially, ones consisted of routinely available values as components will be useful in regions or countries with less medical resources. However, the effectiveness of these markers or models remained suboptimal. Further exploration for new serological markers or effective serological models of HCC surveillance in cured HCV patients will be necessary toward the prevention of liver-related mortality due to HCV.



15

Nationwide Clinical Indicator Monitoring Demonstrates Progress and Remaining Gaps in Standardizing Hepatitis Care in Japan

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Background: Achieving viral hepatitis elimination requires not only expanded testing and treatment but also sustainable systems that ensure standardized, high-quality care across regions and institutions. In Japan, designated regional core centers for liver disease management play a central role in coordinating hepatitis care networks and promoting quality improvement. Hepatitis clinical indicators were developed through a national initiative and have been monitored repeatedly. We evaluated longitudinal changes in these indicators to assess progress toward equitable hepatitis care, clarify whether nationwide standardization has advanced over time, and identify persistent implementation gaps requiring targeted intervention.

Methods: Annual nationwide surveys were conducted among 72 designated regional core centers in Japan. We analyzed 29 hepatitis clinical indicators and 6 care coordination indicators covering general hepatitis and cirrhosis management, hepatitis B, hepatitis C, hepatitis-related support systems, and referral-based care coordination. Trends in indicator achievement were assessed from fiscal year 2018 onward, focusing on 17 indicators classified as important for quality assessment. National achievement rates were evaluated against a benchmark threshold of 0.80. Regional variation was examined across geographic healthcare blocks. In

2025, 67 centers responded, yielding a response rate of 93.1%.

Results: Overall performance improved over time, suggesting progressive standardization of care at regional core centers. Among the 17 important indicators, the number failing to meet the national benchmark decreased from five in 2018 to one in 2025. The only remaining underachieved indicator in 2025 was regular upper gastrointestinal endoscopic surveillance in patients with cirrhosis, with a mean achievement rate of 0.69. No responding center considered this surveillance unnecessary; all centers recognized its clinical importance. Reported barriers included examinations being performed at other institutions, limited time for obtaining consent, and complicated ordering procedures, suggesting that the remaining gap reflects workflow and care coordination challenges rather than lack of clinical awareness. Across major domains, performance was generally high and stable, and regional differences had narrowed compared with earlier surveys. Referral and reverse-referral rates for newly presenting HBV and HCV patients increased in 2025, whereas ongoing care coordination with other institutions declined. Participation in information and communication technology systems increased from 31 centers in 2024 to 37 centers in 2025, but actual use for liver disease care decreased from 17 to 13 centers. These findings indicate that infrastructure development alone may be insufficient without practical implementation strategies. Overall, the reduction in underachieved indicators supports repeated indicator-based evaluation and feedback as a quality-improvement mechanism.

Conclusions: Repeated nationwide monitoring using hepatitis clinical indicators demonstrated substantial progress in the standardization and equalization of hepatitis care in Japan. The marked reduction in underachieved indicators supports indicator-based quality improvement as a practical framework for hepatitis elimination programs. Persistent gaps in cirrhosis-related endoscopic surveillance, care coordination, and effective use of information technology highlight the need for targeted strategies addressing workflow, referral coordination, and operational barriers beyond treatment-focused care. National indicator systems may provide a scalable model for monitoring care quality and guiding elimination-oriented health system improvement.



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Innovative Strategies for Hepatitis B and C Elimination: Integrated Care Models and Micro-Elimination Approaches in Resource-Limited Settings

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Background: The USAID Fahari ya Jamii Program, in partnership with the University of Nairobi (UoN), aimed to contribute to the global goal of eliminating viral hepatitis B and C by 2030. This study focused on implementing integrated care models to enhance hepatitis prevention, testing, and treatment outcomes for vulnerable populations. The program incorporated several innovative interventions, including mobile testing units, peer-led outreach, and the integration of mental health services, all designed to address barriers to hepatitis care.

Methods: Between March 2024 and September 2025, the program was implemented across 104 facilities in Nairobi and 63 in Kajiado, reaching a total population of 1.3 million clients. The intervention utilized mobile hepatitis testing units to provide on-site testing, ensuring access to care in rural and underserved urban areas. Additionally, peer-led outreach programs were employed to engage at-risk populations, reduce stigma, and promote hepatitis testing and treatment. The integration of mental health services addressed the psychosocial needs of patients, improving retention and adherence to treatment. Finally, the program applied hepatitis micro-elimination strategies targeted at high-risk groups, such as young women, adolescents, and men who have sex with men (MSM), to eliminate hepatitis within these communities.

Results: Baseline data indicated:

Hepatitis testing rates: 40% (520,000 clients)
Hepatitis treatment initiation: 30% (390,000 clients)

Retention rates: 50% in rural areas (195,000 clients) and 60% in urban areas (780,000 client)

Post-intervention data showed significant improvements:

Hepatitis testing rates increased to 75% (975,000 clients, $p < 0.01$)

Hepatitis treatment initiation rose to 70% (910,000 clients, $p < 0.05$)

Retention rates improved to 60% in rural areas (234,000 clients, $p < 0.05$) and 75% in urban areas (780,000 clients, $p < 0.05$)

A 25% reduction in hepatitis-related stigma ($p < 0.01$)

Conclusions: The USAID Fahari ya Jamii Program's use of mobile testing units, peer-led outreach, mental health integration, and micro-elimination strategies proved effective in improving hepatitis care outcomes. These interventions played a crucial role in overcoming access barriers, reducing stigma, and increasing patient engagement and retention in care. The success of this integrated care approach provides valuable insights for scaling hepatitis elimination efforts in other resource-limited regions, contributing to the global goal of hepatitis elimination by 2030.



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A Cascade-of-Care Analysis for Hepatitis B and C in a 1.9-Million-Person Nationwide Program, Uzbekistan, 2022–2025

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Background: Viral hepatitis B (HBV) and C (HCV) remain major contributors to liver cirrhosis, hepatocellular carcinoma, and premature mortality worldwide, with WHO estimating 1.3 million deaths each year from viral hepatitis. Uzbekistan has historically faced a substantial hepatitis burden and initiated a nationwide hepatitis elimination response under Presidential Decree No. PD-243 in 2022, aligned with WHO 2030 elimination targets and combining screening, confirmatory diagnosis, and access to treatment.

Methods: This pooled analysis combines two national screening waves conducted in Uzbekistan from July 2022 through December 2025 across all 14 administrative regions. A total of 1,889,168 individuals underwent testing for hepatitis B surface antigen (HBsAg) and antibodies to HCV (anti-HCV) using rapid immunochromatographic assays. Individuals with reactive anti-HCV results underwent confirmatory PCR testing for HCV RNA, while HBsAg-reactive individuals were referred for further clinical evaluation. Patients with confirmed HCV RNA positivity were assessed for direct-acting antiviral therapy and treated with sofosbuvir plus daclatasvir free of charge when eligible. Prevalence estimates were calculated using the Wilson score method with 95% confidence intervals.

Results: Among 1,889,168 screened individuals, 45,501 were HBsAg-positive, corresponding to a pooled HBV prevalence of 2.41% (95% CI: 2.39%–2.43%), and 58,161 were anti-HCV-positive, corresponding to a pooled HCV seroprevalence of

3.08% (95% CI: 3.05%–3.10%). Active HCV infection confirmed by PCR was identified in 30,422 individuals, yielding a pooled HCV RNA prevalence of 1.61% (95% CI: 1.59%–1.63%). Clear geographic heterogeneity was observed after pooling both waves. For HCV, prevalence ranged from 1.18% in Jizzakh region to 5.54% in Tashkent city, with other high-burden regions including Andijan (4.75%), Kashkadarya (3.32%), Fergana (3.31%), Namangan (3.21%), and Navoi (3.21%). For HBV, pooled prevalence ranged from 1.76% in the Republic of Karakalpakstan and 1.80% in Tashkent city and Khorezm to 3.36% in Andijan and 3.18% in Namangan. The HBV vaccination program was associated with a decline in prevalence from 3.25% in persons born before 2000 to 0.72% in those born after 2000. Among treated HCV cases, sustained virological response exceeded 98.8% regardless of fibrosis stage.

Conclusion: These pooled national findings indicate meaningful progress toward hepatitis elimination in Uzbekistan. However, persistent regional concentration of infection, especially for HCV in Tashkent city and Andijan, supports the need for more targeted regional interventions and stronger linkage to confirmatory testing and care.



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Fibulin-3 as a Predictor of Hepatocellular Carcinoma Development during Nucleos(t)ide Analog Therapy in Chronic Hepatitis B Patients

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Background and Aim: Although nucleos(t)ide analog (NUC) treatment has substantially lowered the risk of hepatocellular carcinoma (HCC) in patients with chronic hepatitis B (CHB), HCC remains a persistent complication despite effective suppression of HBV DNA. Therefore, the identification of reliable biomarkers for predicting HCC occurrence during NUC therapy is clinically important. In this study, we conducted a proteomic analysis of serum-derived extracellular vesicle (EV) proteins to identify novel predictive biomarkers associated with HCC development.

Methods: A total of 242 patients with CHB were enrolled in the present study. All patients had archived serum samples available, had received NUC therapy for at least one year at the time of sample collection, showed serum HBV DNA levels below 3.0 log IU/mL, and had no previous history of HCC. Proteomic profiling of serum-derived EV proteins was conducted using the archived serum samples to identify candidate biomarkers predictive of HCC development. The serum concentrations of the selected candidate proteins were subsequently quantified by enzyme-linked immunosorbent assay (ELISA) to assess their utility as predictive biomarkers.

Results: The median age of the cohort was 55 years, and 144 patients (59.5%) were male. During follow-up, 44 patients (18.2%) developed HCC. Proteomic profiling identified five candidate EV proteins associated with HCC development: epidermal growth factor-containing fibulin-like extracellular matrix protein 1 (fibulin-3), vascular cell adhesion molecule 1 (VCAM-1), fibronectin,

von Willebrand factor (vWF), and fibroblast growth factor-binding protein 2 (FGFBP2).

Serum concentrations of these five proteins were subsequently measured by ELISA. In univariate Cox proportional hazards analysis, both fibulin-3 and VCAM-1 were significantly associated with HCC development. However, multivariate analysis identified male sex (HR 2.70, 95% CI 1.21–6.05), γ -GTP (HR 1.01 per 1 U/L increase, 95% CI 1.004–1.011), AFP (HR 1.05 per 1 ng/mL increase, 95% CI 1.01–1.08), fibulin-3 (HR 1.06 per 1 μ g/mL increase, 95% CI 1.02–1.11), and FIB-4 index (HR 1.24 per 1-point increase, 95% CI 1.05–1.42) as independent predictors of HCC, whereas VCAM-1 was not retained as a significant factor. In a subgroup analysis restricted to patients aged ≥ 65 years, sex, γ -GTP, FIB-4 index, and AFP were not identified as significant predictors of HCC development, whereas serum fibulin-3 remained significantly associated with HCC occurrence ($p = 0.039$). In an additional subgroup analysis restricted to patients with non-advanced fibrosis (FIB-4 index < 1.45), serum fibulin-3 ($p = 0.0142$) and γ -GTP ($p = 0.0279$) were identified as significant factors associated with HCC development.

Using the Youden index, a cutoff value of 10.8 μ g/mL was determined. The cumulative incidence of HCC was significantly higher among patients with fibulin-3 ≥ 10.8 μ g/mL, AFP ≥ 3.0 ng/mL, γ -GTP ≥ 22 U/L, FIB-4 index ≥ 1.93 , and male gender. Among patients with none or more than three of these five risk factors, the 10-year HCC cumulative incidence rates were 0% and 37.2%, respectively.

Conclusion: Serum fibulin-3 was identified as a novel predictive biomarker for HCC development in patients with CHB receiving NUC therapy.



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Long-Term Transition in Etiology of Liver Cancer in Kyushu, Japan: Impact of Viral Hepatitis Elimination and the Emerging Burden of Non-Viral Liver Disease

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Background: The global effort to eliminate viral hepatitis is expected to substantially reduce liver cancer incidence. However, the long-term impact of these interventions and the evolving etiological landscape of liver cancer remain incompletely understood. We analyzed a large-scale, prospective registry from Kyushu, Japan, to clarify temporal trends in liver cancer incidence and underlying etiologies.

Methods: A total of 24,104 newly diagnosed primary liver cancer cases between 1996 and 2024 were prospectively registered across 19 high-volume hepatology centers in the Kyushu region. Annual incidence trends were analyzed according to etiology (hepatitis C virus [HCV], hepatitis B virus [HBV], and non-viral causes), as well as age distribution.

Results: The incidence of liver cancer peaked in 2009, largely driven by HCV-related cases, which accounted for 61.0% of all cases at that time. During the decade from 2000 to 2009, more than 600 HCV-related liver cancer cases were reported annually. Following this peak, HCV-related liver cancer declined steadily, coinciding with the widespread use of interferon-based therapies and, subsequently, direct-acting antivirals (DAAs). By 2024, the number of HCV-related liver cancer cases had markedly decreased to 164 per year. In contrast, non-viral liver cancer, including cases associated with metabolic dysfunction-associated steatotic liver disease (MASLD), diabetes, obesity, and alcohol-related liver disease, showed a gradual but consistent increase, approaching 500 cases annually in recent years. HBV-related liver cancer demonstrated a relatively stable or modestly declining trend over the study period.

Notably, the age distribution of liver cancer shifted toward older populations, with patients in their 80s accounting for approximately 25% of cases in recent years. This demographic shift has important implications for treatment strategies and healthcare resource allocation.

Conclusions: In this large, long-term regional registry, the elimination of HCV has led to a substantial decline in virus-related liver cancer, marking a major public health success. However, this achievement is offset by a rising burden of non-viral liver cancer and a rapidly aging patient population. These findings highlight the need for a paradigm shift in liver cancer prevention and management, focusing not only on viral hepatitis elimination but also on metabolic liver disease and age-specific treatment strategies.



POSTER ABSTRACT PRESENTATIONS

12th International Viral Hepatitis
Elimination Meeting (IVHEM) 2026

In-Person Meeting

3 – 4 September 2026
Hiroshima, Japan



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A Prefecture-Wide Initiative for Hepatitis C Micro-Elimination in Dialysis Facilities and the Potential Role of Clinical Engineers

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Background: Direct-acting antivirals (DAAs) have enabled safe and highly effective treatment of HCV infection. Dialysis facilities are an important setting for HCV micro-elimination because routine hepatitis virus screening is already implemented and patients are longitudinally followed. However, some individuals with confirmed HCV infection remain untreated after screening. This study evaluated a prefecture-wide initiative to improve HCV management in dialysis facilities in Oita, Japan, and examined the potential role of clinical engineers in supporting the HCV care cascade.

Materials and Methods: Questionnaire-based surveys were conducted among all dialysis facilities in Oita Prefecture in 2020, 2022, and 2024. Facility-level data included the number of patients receiving dialysis, anti-HCV-positive individuals, HCV RNA testing, detectable HCV RNA, and treatment status. In addition, an anonymous survey was administered to 369 clinical engineers to assess knowledge of viral hepatitis, post-test management, referral pathways, and interest in becoming hepatitis medical care coordinators, trained personnel in Japan who support hepatitis testing, referral, and treatment.

Results: The response rate of the facility surveys was 100% at all three time points. The number of participating facilities was 72 in 2020, 72 in 2022, and 68 in 2024, with 4,086, 4,120, and 3,934 dialysis patients, respectively. The number and proportion of anti-HCV-positive individuals decreased from 189/4,086 (4.6%) in 2020 to 147/4,120 (3.6%) in 2022 and 113/3,934 (2.9%) in 2024. Among these individuals, the HCV RNA

testing rate increased from 97/189 (51.3%) in 2020 to 107/147 (72.8%) in 2022 and 85/113 (75.2%) in 2024. The number of individuals with detectable HCV RNA decreased from 35 in 2020 to 23 in 2022 and 18 in 2024. Based on the 2020 survey, facilities with patients who had tested positive for anti-HCV but had not undergone HCV RNA testing received letters recommending RNA testing, and facilities with untreated individuals with detectable HCV RNA received information on regional liver disease specialist hospitals and a simplified referral form. After this intervention, HCV RNA testing was performed in 59 of 86 previously untested individuals, and DAA therapy was initiated in 8 of 12 untreated individuals with detectable HCV RNA. Among 369 clinical engineers, 128 responded to the survey (response rate, 35%). Among the respondents, 66/128 (51.6%) knew that oral DAA therapy can cure more than 95% of HCV infections with a favorable safety profile, and 90/128 (70.3%) knew that anti-HCV antibodies remain positive after successful treatment. Only 30.5% reported that HCV RNA testing was consistently performed after anti-HCV positivity at their facilities, while 35.9% were unsure. Although only 36.7% knew about hepatitis medical care coordinators, 58.6% expressed interest in obtaining certification.

Conclusion: A prefecture-wide approach in Oita improved HCV RNA testing and reduced the number of individuals with detectable HCV RNA in dialysis facilities, but gaps remained between screening, RNA confirmation, specialist referral, and treatment. Clinical engineers may represent an underutilized workforce to support patient education and linkage to care. Continuous education and expansion of hepatitis medical care coordinator training among clinical engineers may further accelerate HCV micro-elimination in dialysis settings.



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Resistance-Driven Barriers to HCV Elimination in Pakistan

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Background: Direct-acting antivirals (DAAs) have significantly improved treatment outcomes for patients with hepatitis C virus (HCV), yet patients with genotype 3 (GT3) remain at increased risk of treatment failure. Resistance-associated substitutions (RASs) in the NS5A region of HCV GT3 likely contribute significantly to these failures. This study determines the prevalence and predictors of NS5A RASs selection after unsuccessful treatment and evaluate the influence of liver cirrhosis and prior DAA exposure on resistance persistence.

Methods: We conducted a multicentre, prospective cohort study at tertiary centres affiliated with Pakistan's national hepatitis control programmes. Adults (≥18 years) with chronic HCV were enrolled in 2022–23 and followed to 2025. The primary outcome was sustained virological response 12 weeks after treatment (SVR12), compared by treatment status (treatment-naïve [TN] vs treatment-experienced [TE]) and by cirrhosis (compensated cirrhosis [CC] vs no CC). Among patients with treatment failure, NS5A RASs were identified by Sanger sequencing; RAS prevalence at failure and persistence to 24 months were compared across TN/TE and CC/no CC subgroups. In-silico docking and molecular dynamics examined inhibitor binding stability across mutant NS5A dimers.

Results: Of 2000 enrolled, 1390 completed follow-up and were analyzed (TN, 972; TE, 418); 127 (9.1%) had cirrhosis. Overall, 93.3% achieved SVR12 (95% confidence interval [CI]: 92.0–94.6), higher in TN than TE (96.3% [94.9–97.3] vs 86.4% [82.7–89.3]). SVR12 was 99% in TN without CC (915/924) versus 43.8% with CC (21/48); among TE, SVR12 was 94.1% without CC (319/339) versus 53.2% with CC (42/79). 68.6% of treatment failures were in the cirrhosis group. For treatment failures

(n=93), NS5A RASs were frequent (single 31%, double 61%, triple 21%), with greater combination burden in TE+CC; Y93H was more common in TE than TN (90% vs 61%). Any RAS persisted at 24 months in 78% of TE+CC versus 40% of TN+no CC. In-silico analyses suggested comparatively stable binding for velpatasvir and ledipasvir across prevalent GT3 mutants.

Conclusion: In real-world GT3 infection, prior DAA exposure and cirrhosis drive treatment failure via persistent NS5A RASs, especially Y93H. Different patterns of NS5A RAS persistence across clinical subgroups could have implications for retreatment with first-generation DAAs and for global HCV elimination goals.



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Trends and Regional Characteristics of Acute Hepatitis B in Japan: Insights from a Nationwide Multicenter Questionnaire Survey and National Surveillance Data

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Background: Although universal hepatitis B (HB) vaccination has markedly reduced new HBV infections during infancy in Japan, horizontal transmission among adolescents and adults remains an important public health issue. Accurate epidemiological assessment is essential for establishing effective preventive strategies. We aimed to identify high-risk populations for acute hepatitis B in Japan using a nationwide multicenter questionnaire survey and publicly available national surveillance data.

Materials and Methods: A nationwide, multicenter, retrospective questionnaire-based survey was conducted. Participating hospitals received questionnaires through nationwide geographically distributed regional core centers certified as specialists in hepatitis treatment. The questionnaire included items regarding hospital size and the number of patients diagnosed with acute hepatitis B from fiscal years 2015 to 2022. Comparisons were performed between the pre-COVID-19 pandemic period (2015–2019) and the COVID-19 pandemic period (2020–2022), as well as between populous prefectures (Tokyo, Osaka, Aichi, Fukuoka, and Kanagawa) and other regions. Similar analyses were conducted using publicly available data from the National Epidemiological Surveillance of Infectious Disease.

Results: Responses to the questionnaires were obtained from 127 institutions in 29 prefectures covering eight regions in Japan. A median of 127.0 patients with acute hepatitis B (interquartile range [IQR], 106.5–131.8 patients) were reported during each fiscal year, and the incidence significantly decreased during the fiscal years 2020–2022 compared with the fiscal years 2015–2020 (median [IQR] = 96.0 [91.0–103.0] patients vs. 131.0 [128.0–134.0] patients; $p = 0.03$). The proportions of males in acute hepatitis B and C were significantly higher in populous prefectures. National surveillance data demonstrated similar temporal trends, with a median of 210.0 reported cases annually. Populous prefectures had significantly higher incidence in males compared with non-populous prefectures (3.55 [3.26–4.07] vs. 2.30 [1.78–2.64] cases per 1,000,000 people per year; $p = 0.004$), whereas those of females did not. Regarding patient age, the proportions of patients aged in their 20s, especially females, were higher in populous prefectures.

Conclusions: The nationwide questionnaire survey and national surveillance data demonstrated similar epidemiological trends in acute hepatitis B in Japan, suggesting high reporting compliance among large hospitals. Higher incidence rates among men and clustering in young women in populous prefectures were notable findings. Preventive strategies targeting these high-risk populations in each area are warranted.



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HBV and HDV Detection Patterns in Heterogeneous Populations: Findings from a Large-Scale Screening and Linkage to Care Programme

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Background: Progress toward eliminating hepatitis B (HBV) and hepatitis D (HDV) depends on the health system's ability to identify undiagnosed infections, particularly in settings where populations with heterogeneous prevalence profiles converge.

In these settings, systematic screening is essential to interpret epidemiological diversity and detect otherwise unrecognised infections. HBsAg is the entry marker for chronic HBV infection, while HBeAg provides insight into viral replication and transmission potential. Routine HDV testing refines this assessment by identifying cases requiring specialised management. Understanding variation in diagnoses by geographic origin and healthcare setting is key to evaluate the reach of screening strategies and optimising case-finding pathways within elimination programmes.

Materials and Methods: Between May 2024 and May 2025, the FOCUS screening and linkage-to-care public health programme implemented systematic HBV and HDV testing in 42,774 individuals attending general healthcare services, Addictive Behaviours Units (UCA), and a penitentiary facility. Demographic data and basic serological markers were collected and analysed descriptively, stratified by geographic origin and care setting.

HBV testing was performed using the Alinity i[®] system (Abbott). Anti-HDV screening and HDV RNA quantification were conducted with the LIAISON[®] XL MUREX Anti-HDV assay (DiaSorin) and the RealStar[®] HDV RT-PCR Kit (Altona Diagnostics), respectively.

Results: The screened cohort was highly diverse: Western Europe accounted for 76% of participants (74% Spanish), followed by Latin America (12.53%), Africa (2.88%), Eastern Europe (3%), Asia (1.64%), North America (0.1%), and Oceania (0.01%). Age and sex distributions were balanced. HBV infection was identified in 2% of individuals screened, with 13% representing new diagnoses. Among these, 5.94% were co-infected with HDV and 1.98% with hepatitis C virus (HCV). Recent diagnoses predominantly involved men (approximately 70–80%), except in Asia, where gender distribution was more balanced. Among new diagnoses, age distribution was 34.65% aged 21–40 years, 39.60% aged 41–60, 23.76% aged 61–80, and only 1% was under 20 or over 81. Only 2.50% of HBV-positive Spanish individuals were under 40 years of age, compared with 70–80% among those from Latin America, Africa, and Asia.

Case detection varied across care settings. At UCA, all diagnoses involved individuals from Eastern Europe, although these represented only 6.7% of cases within this origin group. In the penitentiary setting, Eastern European individuals accounted for 57.14% of new diagnoses. Among individuals of African origin, 71% were diagnosed in primary care. In Latin American and Asian groups, diagnoses were distributed across primary care, outpatient, and emergency department settings. Regarding virological profiling, 4.95% of new diagnoses were HBeAg positive, with a median HBV DNA level of 767,000,000 IU/mL compared with 294 IU/mL among HBeAg-negative individuals. None of the HBeAg-positive individuals were of Spanish origin.

Conclusions: Multicentre screening identified previously unrecognised infections and revealed differences by geographic origin, age, sex and healthcare entry point. These findings support the need to adapt screening strategies to population diversity, incorporating systematic HDV testing and early virological stratification. Approaches tailored to healthcare settings and to the vulnerability and access patterns of different population groups may strengthen progress toward HBV and HDV elimination.



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Identifying Knowledge Gaps and Structural Barriers to Medical–Dental Coordination in Viral Hepatitis: A Comprehensive Survey-Based Evaluation of a Tailored E-Learning Program for Dental Professionals

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Background: Dental professionals are crucial stakeholders in the global strategy to eliminate viral hepatitis by 2030, given their frequent contact with blood-borne pathogens. Despite the availability of effective treatments and vaccines, knowledge gaps and inconsistent adherence to standard precautions remain significant challenges in dental settings. This study aimed to identify actionable knowledge deficits and systemic barriers to medical–dental coordination through a targeted e-learning intervention, providing a data-driven foundation for strengthening the dental sector's role in hepatitis elimination.

Methods: We developed a structured, 20-minute narrated educational video covering viral pathology, current antiviral therapies, and practical infection control protocols. The program was disseminated online, and data were collected via a questionnaire from 343 consenting dentists in Japan between June 2023 and March 2024. Statistical analyses focused on identifying generational differences in knowledge and disinfection practices through age-group cross-tabulations.

Results: The program was highly accepted, with 79.9% rating it as "very helpful" and 81.6% finding the video viewing time appropriate. However, pre-viewing assessments revealed critical knowledge gaps: less than half were aware of routine infant

HBV vaccination (44.0%), HBV environmental survival (40.8%), or subsidized testing programs (38.2%). While 77.0% acknowledged that HCV is now curable, a generational gap emerged, with lack of this awareness being most prevalent in dentists in their 20s (57.1%) and 30s (37.0%). Regarding infection control, 61.2% of dentists correctly selected sodium hypochlorite for blood-contaminated surfaces, while 33.5% prioritized alcohol—a misconception particularly common among younger practitioners. Post-video intervention, 88.9% felt increased reassurance in treating hepatitis patients. Crucially, the survey identified a major structural barrier: 26.8% of dentists reported no established protocol for physician coordination. Among these, the primary reasons were not knowing how to initiate coordination (80.4%) and the lack of a nearby specialist (17.4%). This suggests that the barrier to effective management is not a lack of willingness, but a lack of practically established local pathways.

Conclusions: Our findings demonstrate that while e-learning is a highly acceptable tool for professional development, it must address specific, age-associated knowledge deficiencies. The identified errors in disinfection protocols and the lack of HCV awareness among younger dentists underscore the need for modernized repeatable education. Furthermore, the significant gap in medical–dental coordination highlights an urgent need to establish clear, localized referral pathways. We are currently conducting a nationwide large-scale study to implement these coordination models into routine dental practice, ensuring the dental sector is fully integrated into the 2030 hepatitis elimination efforts.



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Risk and Prognosis of Acute HBV Infection among MSM in the PrEP Era in Tokyo

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Background: Hepatitis B virus (HBV) infection is prevalent among men who have sex with men (MSM) in Japan. Although universal HBV vaccination was introduced in 2016, most adult MSM in Japan are still vulnerable to HBV infection. Furthermore, because HBV vaccination is not officially supported for adults, vaccination coverage remains insufficient even among MSM. In contrast, combination prevention strategies for HIV have achieved significant success in global HIV prevention efforts. Combination HIV prevention includes early diagnosis and treatment of infected individuals and prevention strategies, especially pre-exposure prophylaxis (PrEP) among uninfected individuals. In a previous study, we reported that tenofovir-based PrEP prevents not only HIV but also HBV infection. However, poor adherence remains a major challenge, raising concerns regarding the real-world effectiveness of HBV prevention. In particular, lower adherence has been reported with on-demand PrEP. Furthermore, individuals may be less likely to take on-demand PrEP when engaging in oral sex, which carries minimal HIV transmission risk but may still pose a risk for HBV transmission. This study evaluates the prognosis and risk of acute HBV infection among MSM during the PrEP era in an MSM cohort in Tokyo.

Materials and Methods: Sexual Health Clinic (SHC) is an MSM cohort established at Japan Institute for Health Security. The SHC provided HBV testing including HBsAg/HBsAb/HBcAb every three months for MSM aged 16 years and older during a five-year period from 2018 to 2022. In addition, the same HBV testing was conducted cross-sectionally during a three-month period starting in September 2025. This study evaluated the prognosis of HBV infection and PrEP use among participants who tested negative for HBsAg, HBsAb, and HBcAb at their initial screening. HBV

infection was defined as seroconversion to HBsAg or HBcAb.

Results: Of the 1,199 participants who were HBsAg/HBsAb/HBcAb negative at baseline, 57 developed HBV infection during the observation period. The median age of participants who developed HBV infection was 27 years, compared with 32 years among the 1142 participants who did not develop HBV infection. Of the 57 participants, 2 (3.5%) progressed to chronic HBV infection. One of these participants was receiving a TNF- α inhibitor for a comorbid condition. Among the 57 participants who developed HBV infection, 10 (17.5%) were using PrEP, whereas 557 (48.8%) of the 1,142 participants without HBV infection were PrEP users ($P < 0.001$). Among the 10 participants with HBV infection who were using PrEP, 3 were using daily PrEP and 7 were using on-demand PrEP. Of the 3 participants using daily PrEP, 2 experienced periods of PrEP discontinuation, while 1 had good adherence but was concurrently receiving a TNF- α inhibitor.

Conclusions: While PrEP is highly effective in preventing HBV infection in the Tokyo metropolitan area, where the number of PrEP users has been increasing, a higher rate of infection was observed among on-demand PrEP users compared with daily PrEP users, even among those with good adherence. Widespread HBV vaccination is therefore an urgent priority, and HBV vaccination should be recommended not only for non-PrEP users but also for on-demand PrEP users.



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Securing the Cure Across the Carceral Continuum: A Pilot Study of the HepLink Digital Platform for Hepatitis C Micro-Elimination in Nigerian Prisons

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Background: Prisons act as epidemiological pumps for Hepatitis C (HCV), harboring significantly higher prevalence rates than the general population. While the controlled carceral environment is ideal for targeted micro-elimination using 8-to-12-week Direct-Acting Antivirals (DAAs), efforts are consistently derailed by systemic logistical barriers. Fragmented medical records, the use of aliases, abrupt inter-facility transfers, and the critical "release drop-off"—where inmates released mid-treatment fail to access care on the outside—frequently result in aborted treatments and drug resistance.

Objectives: To evaluate the clinical outcomes and operational feasibility of HepLink, a biometric-secured, offline-first digital platform designed to ensure uninterrupted HCV screening, DAA treatment adherence, and post-release linkage to care within the Nigerian Correctional Service (NCoS).

Methods: A 12-month pilot study (January 2025–January 2026) was conducted across three major Nigerian prisons. The HepLink intervention utilized four core components:

1. Anonymous digital kiosks allowing inmates to discreetly request HCV screening without alerting guards, bypassing stigma.
2. Offline-first local mesh networks enabling digital medical tracking without requiring internet access.
3. Biometric micro-EHRs (thumbprint tokens) to permanently link medical records to the individual rather than an alias or facility ID.
4. A "Cell-to-Community" (C2C) automated protocol that, upon an inmate's release, generated a digital e-voucher and referral to a community

pharmacy so the patient could access the remainder of their medication for free.

Results: The digital kiosks engaged 8,450 inmates, with 72.4% (n=6,120) anonymously requesting screening. Testing identified 581 active HCV infections (9.4% prevalence), and 560 inmates initiated DAA treatment. During the protocol, 142 treated inmates were transferred between prisons; HepLink's biometric tokens successfully tracked them, achieving 100% treatment continuity with an average missed-dose time of under 24 hours. Furthermore, 115 inmates were released back into the community mid-treatment. The C2C e-voucher system successfully linked 81.7% (n=94) of these highly vulnerable individuals to community clinics. The overall intention-to-treat SVR12 (cure) rate was 91.2% (n=511).

Conclusion / Next Steps: HepLink demonstrates that the primary barriers to carceral HCV micro-elimination are logistical, not clinical. By replacing paper charts with biometric tracking, functioning offline, and pre-funding post-release care via e-vouchers, the platform successfully secures the care cascade across the entire carceral continuum. Next steps involve scaling the platform to national correctional facilities while establishing robust, independent data-governance frameworks. This includes strictly firewalling biometric health tokens from criminal justice databases to comply with data protection regulations and maintain long-term trust with inmate advocacy groups.



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From Months to Days: How Community Leadership Transformed Hepatitis C Care for PWIDs

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Background: Despite India's commitment to hepatitis elimination, People Who Inject Drugs (PWID) continue to face significant barriers across the hepatitis C care cascade. In Meghalaya, delayed viral load (VL) testing, costly baseline investigations, fragmented referral pathways and weak follow-up systems often extended treatment initiation by months leading to substantial loss to follow-up. HEP-CARE (Community Action for Rapid Elimination of Hepatitis) project was launched in partnership with Meghalaya AIDS Control Society (MACS), State Viral Hepatitis Control Programme, with a community-centred approach to redesign the care pathway placing communities and peer navigators at the centre of service delivery.

Methodology: When HEP-CARE was initiated in Meghalaya, the hepatitis C care cascade for PWIDs was characterized by multiple operational barriers that contributed to prolonged delays between screening and treatment initiation. Screening relied largely on facility-based services, requiring multiple visits and resulting in substantial attrition. Confirmatory testing was dependent on serum/plasma-based VL testing conducted at centralized facilities with limited processing capacity. VL testing was performed only once weekly, laboratory workloads were high, and result turnaround times were often prolonged. In addition, baseline investigations required under national treatment guidelines were largely paid out-of-pocket, creating a significant financial barrier to treatment initiation. Under HEP CARE project, peer navigators with lived experience were engaged to map barriers, mobilize PWID networks, support follow-up, and advocate for service improvements. Community-based screening was expanded through the introduction of rapid diagnostic tests (RDTs) using whole-blood finger-prick samples, enabling testing

closer to where PWIDs live and access harm-reduction services. Simultaneously, community representatives actively engaged with programme stakeholders to improve linkage mechanisms, strengthen follow-up systems, address delays in confirmatory testing, and advocate for financial protection for baseline investigations.

Results: During the project period 1,507 of 1,972 registered PWIDs (76%) were screened for hepatitis C through community-led outreach, compared to a baseline coverage of 10–15%. Of those screened, 1,132 tested anti-HCV positive. Due to centralized once-weekly VL testing, laboratory workload, and limited access to baseline investigations, only 583 underwent VL testing, of whom 373 were HCV RNA positive and 244 (65%) initiated treatment; 134 completed treatment during the project period. Community advocacy expanded access to baseline investigations through MHIS and district-led financing mechanisms, while peer-led navigation, active follow-up, and strengthened programme coordination reduced loss to follow-up and streamlined care pathways. Treatment initiation among eligible PWIDs increased from 10% to 65%. Most notably, a pathway that previously required 45–60 days from screening to treatment initiation was compressed to just 12–15 days through community-led advocacy, peer navigation, improved access to baseline investigations, and strengthened programme coordination, despite unchanged once-weekly VL testing capacity.

Conclusion: The HEP-CARE experience demonstrates that communities are not merely beneficiaries of hepatitis programmes but powerful drivers of system change. By embedding lived experience into programme design and empowering communities as equal partners, operational bottlenecks can be reduced, access barriers addressed, and care pathways transformed. A four-fold reduction in time to treatment initiation through community led interventions demonstrates this model's potential for replication and scaling up in other high burden PWID communities.



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Acute HCV Infection as a Window into Transmission Networks: A Cost-Effective Sequencing Approach

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Background: Elimination targets of hepatitis C virus (HCV) as a public health threat by 2030, with 90% reduction of new infections, have been established by the World Health Organization (WHO). Viral sequencing has effectively identified ongoing HCV transmission networks, particularly in acute infections that may accelerate the HCV epidemic. Sequencing can be an expensive approach to support screening services, and costs are dependent on the method and target size of interest. Establishing a cost-effective sequencing programme to support the identification of transmission networks would help guide effective public health action.

To address this, transmission patterns within two populations were investigated using next generation sequencing (NGS), where the dataset was assessed through three workflows; Whole genome sequence (WGS) analysis, Single gene target analysis (NS5B), and the analysis of a combination of 3 gene targets (NS3, NS5A, and NS5B). The two sequence datasets were from 1) an NIHR funded study investigating acute HCV infection (UK Cohort for Acute Hepatitis C (UKACH) study), 2) routine HCV drug resistance testing in UK clinics.

We aimed to evaluate a cost-effective sequencing tool to introduce into routine diagnostics identifying HCV transmission networks, providing key insights to public health control and elimination of HCV.

Materials and Methods: Dataset 1. Samples for HCV drug resistance testing were received by the Molecular Diagnostic Unit (MDU), between 2017 and 2025, for patients across the U.K. Sequencing of NS3, NS5A and NS5B genes was performed using pre-amplification PCR NGS techniques. WGS techniques were applied to a subset of the routine diagnostic samples in addition to those received through the UKACH study. Dataset 2. Samples

from 33 patients recruited for the UKACH study were received from 11 clinics across the U.K. between 2020 and 2024. Of the 33, WGS was successfully for 17 samples.

Maximum likelihood trees inferred in RAxML were used to calculate pairwise patristic distances.

Molecular transmission networks were constructed by Cytoscape 13.3.10.

Results: Using WGS molecular network analyses of 78 samples (17 UKACH and 61 routine) clustering between samples with acute infection was revealed, indicating the contribution of acute infection in potential transmission clusters. Similar cluster patterns were identified using a combined network analysis of sequences cropped to include NS3, NS5A and NS5B genes (17 UKACH and 136 routine). Analysis of an increased dataset (17 UKACH and 871 routine), restricted to a single gene (NS5B 1Kb) also demonstrated the prevalence of acute samples in the same network clusters, also suggesting occurrence in short transmission chains. All three workflows tested yielded consistent results, with WGS incurred the highest cost.

Conclusions: A cost-effective, sequence-based surveillance of HCV cases, is required to identify active transmission networks, allowing for targeted public health interventions at the source. Network analyses in this study demonstrate strong concordance across the three workflows tested, although associated costs for each varied. While costly WGS methods may not be feasible for large scale screening, in comparison, targeted sequencing of the NS5B gene provides a more cost-effective approach at one-third of the price. Improving affordability of screening supports HCV elimination goals.



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Efficacy and Safety of Glecaprevir/Pibrentasvir in Acute HCV Participants with a History of Prior Infection(s)

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Background: Reinfection is a major obstacle to hepatitis C virus (HCV) elimination, occurring mostly in people who inject drugs (PWIDs) and men who have sex with men (MSM), with reinfection rates of 4-30/100 person years and 7.3-15.2/100 person years (y), respectively. Oral, direct-acting antivirals (DAAs) such as the 8-week regimen of glecaprevir/pibrentasvir (G/P) are highly effective in curing acute or recently acquired and chronic HCV infection. Previously, high efficacy, safety and tolerability was confirmed in n=286 acute HCV participants (AASLD 2024 abstract #5031). This analysis aims to confirm the efficacy and safety of G/P in persons with acute infection (AHC) with a history of prior HCV infection.

Materials and Methods: A post hoc analysis of safety, tolerability and efficacy of G/P was carried out in a subset of participants from a single-arm, prospective phase 3 study (NCT04903626) of adults with AHC and a history of prior HCV infection categorized by the number of prior HCV infections.

Results: Among 286 participants with AHC, 52 (18.2%) had ≥1 prior HCV infection: 32 had 1, 10 had 2, 6 had 3, 2 had 4, and 2 had 6 prior infections. A majority of the participants with prior infections had HCV/HIV-1 co-infection (92.3%), were MSMs (78.8%) or PWUDs (on-going or

history of illicit drug use, 69.2%) with a median age of 48.0 y (range 31-69). Risk behaviors for current AHC included unprotected sexual activity with multiple partners (59.6%), shared drug-injection equipment (28.8%), shared non-injection drug use equipment (19.2%). Treatment for prior HCV infections included IFN/PEG-IFN/RBV, G/P SOF/VEL or SOF-based regimens or other DAA-based regimens. Sustained virologic response at 12-weeks post-treatment (SVR12) rates in participants with one or more prior infections were 98.1% (ITT) and 100% (mITT: excludes participants who failed to achieve SVR12 due to reasons other than virologic failure). Safety demonstrated by treatment related (TR) adverse events (AEs) or serious AEs (SAEs) was similar between participants with ≥1 and no prior infections. In participants who had prior infections, TR-AEs were reported in 9 participants (17.3%), with no TR-SAEs, no TR-AEs leading to G/P discontinuation, no deaths and only 1 AE-related treatment interruption. During treatment, none of the participants in the prior infection group experienced an elevation in alanine aminotransferase (ALT) ≥ Grade 2 or in total bilirubin ≥ Grade 3 that had worsened from their baseline grade, and none experienced ALT >3× upper limit of normal (ULN) with total bilirubin >2× ULN.

Conclusion: G/P is highly effective, safe, and tolerable when used for treating acute or recently acquired HCV regardless of a history of prior HCV infections. These data provide insight into the role of prior infections in the management of acute infections in populations critical for HCV elimination.



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Clinical, Biochemical and Fibrosis Profiles of HCV Infections Detected through Opportunistic Screening in an Emergency Department

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Background: Early detection of hepatitis C virus (HCV) infection remains challenging, particularly among patients without identifiable risk factors. Emergency Departments (EDs) represent a strategic setting for opportunistic screening. This study analysed differences in hepatic biomarkers and fibrosis indices between people with HCV RNA-positive infection and RNA-negative individuals identified through ED-based screening.

Materials and Methods: A retrospective observational study was conducted in the ED of Torrecedenas University Hospital (Almería, Spain) from August 2021 to October 2024. Residual serum samples from routine blood tests were used to perform anti-HCV testing, followed by HCV RNA confirmation for seropositive cases. Demographic, clinical, and laboratory data were collected. Hepatic biomarkers (aspartate aminotransferase [AST], alanine aminotransferase [ALT], bilirubin, alkaline phosphatase [ALP]) and non-invasive fibrosis indices (AST to Platelet Ratio Index [APRI], Fibrosis-4 Index [FIB-4]) were compared between people with HCV RNA-positive infection and RNA-negative individuals using Student's t-test or Mann-Whitney U for continuous variables and Chi-square or Fisher's exact test for categorical variables, with significance at $p < 0.05$. In a subgroup with transient elastography ($n=28$), liver stiffness and clinical staging were assessed.

Results: Among 22,562 screened patients, 364 (1.61%) were anti-HCV positive, of whom 83 (0.37%) had active infection. People with HCV RNA-positive infection were predominantly male (81.9%), middle-aged adults (mean 56.1 ± 7.2

years), and showed significantly higher AST (85.4 ± 139.4 U/L vs. 38.8 ± 47.9 ; $p < 0.0001$), ALT (61.6 ± 53.8 U/L vs. 31.9 ± 34.7 ; $p < 0.0001$) and total bilirubin (1.36 ± 2.54 mg/dL vs. 0.87 ± 0.98 ; $p = 0.0084$) levels. Fibrosis indices were also significantly elevated (APRI 1.29 ± 2.25 vs. 0.59 ± 1.12 ; FIB-4 5.44 ± 14.83 vs. 2.52 ± 3.94 ; both $p < 0.0001$). Elastography revealed that 32.1% of patients had advanced fibrosis or cirrhosis (F3-F4). No significant differences were observed in direct bilirubin, ALP, INR, creatinine, or platelet count.

Conclusions: People with active HCV infection detected through ED screening exhibited elevated hepatic biomarkers and fibrosis indices, reflecting a high risk of advanced liver disease. Many had comorbidities and prior healthcare interactions, suggesting missed opportunities for earlier diagnosis and/or treatment. These findings highlight the emergency department as a crucial setting for early detection of HCV, which would prevent progression to advanced stages of the disease. Implementing opportunistic screening in EDs is essential to enhance early diagnosis, facilitate linkage to care, and reduce the risk of severe HCV-related complications.



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Accelerating Hepatitis Elimination through Community-Led Micro-Elimination Models

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Background: Hepatitis B and C elimination remains slow in low-resource settings due to overreliance on facility-based, individual-centered testing that fails to disrupt social transmission networks. Conventional approaches, including index testing, identify cases but rarely achieve true elimination within defined communities. In Kisii County, I conceptualized a Community Covenant–Based Hepatitis Micro-Elimination (CC-HME) model, a novel, non-digital approach that targets social practice groups, such as traditional circumcision cohorts, informal caregiving networks, and barbershop communities as units of elimination. By leveraging collective commitment and local leadership, this model reframes hepatitis elimination as a community-driven, time-bound social achievement.

Methods: CC-HME mobilized defined practice groups to voluntarily enter a time-bound elimination covenant facilitated by respected community, cultural, and faith leaders. Mobile health teams delivered a comprehensive package to each group, including on-site hepatitis B and C screening, hepatitis B vaccination for eligible members, confirmatory testing, and treatment linkage through nearby health facilities. Unlike conventional strategies, progress was tracked at the group level rather than individual follow-up, with milestones for full network clearance. Program indicators included coverage, secondary infection detection, vaccination uptake, treatment initiation, treatment completion, and overall network clearance.

Findings: The covenant-based approach achieved high participation, with strong adherence to screening, vaccination, and treatment protocols across all groups. Collective accountability significantly minimized refusal rates and improved follow-through from diagnosis to treatment completion. Vaccination coverage among

susceptible members exceeded expected benchmarks, reducing future transmission risk. The approach identified infections that routine facility-based services would likely have missed. By leveraging social cohesion, the model reduced the need for repeated outreach and minimized operational costs while achieving measurable elimination outcomes within clearly defined networks.

Discussion: CC-HME disrupts conventional elimination logic by targeting social ecosystems rather than individual patients, compressing the elimination timeline, and maximizing efficiency in low-resource settings. The program strengthens community ownership, reduces stigma, and is resilient in contexts lacking digital infrastructure. Its replicable design allows rapid scaling across similar counties or countries. From a funder perspective, the model delivers clear, verifiable, and time-bound impact, aligning with priorities for scalable, community-centered, and cost-effective global health innovations.

Conclusion: Community Covenant–Based Hepatitis Micro-Elimination offers a transformative, non-digital pathway to accelerate hepatitis elimination. By harnessing social practices and community authority, this model achieves rapid, equitable, and sustainable elimination gains. CC-HME provides a globally replicable blueprint for low-resource settings and a compelling investment for funders seeking measurable public health impact within defined timelines.



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Avoiding the Impact of Inaction: How to Maximize Progress to HCV Elimination in the United States

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Background: Only twelve countries — ten of them high-income — are on track toward the World Health Organization (WHO) global targets for eliminating hepatitis C virus (HCV). With the current diagnosis and treatment levels, the U.S. is not expected to achieve elimination targets before 2050. We explore clinical, economic, and societal benefits associated with alternative strategies for HCV elimination in the U.S. using a model populated with real-life data.

Materials and Methods: A previously published disease burden and economic impact model was populated with data from published literature. Clinical outcomes included end-stage liver disease (ESLD) and deaths; economic outcomes included healthcare costs from HCV screening, treatment, and liver-related and extrahepatic complications; societal outcomes included new infections, net present value (value of quality-adjusted life-years gained net of screening and treatment costs), and return on investment (ROI, incremental medical savings over screening and treatment costs). Three scenarios were projected over 2025-2034: (1) Base Case following the status quo of current treatment and diagnosis levels in the U.S., (2) Elimination scenario defined by the minimum level of annually diagnosed and treated chronic viremic cases needed to reach the WHO's 2030 elimination goals (starting in 2026), and (3) Optimized Elimination scenario augmenting the latter Elimination scenario by diagnosing 90% of incident acute cases of HCV and treating 80% of those diagnosed.

Results: The Base Case scenario would incur \$160.6 billion in total costs and lead to 1.2 million new infections and 9,735 deaths over 2025–2034. The Elimination scenario would require annually diagnosing 557,000 and treating 593,000 chronic

cases starting in 2026 to save \$41.3 billion in total costs compared to the Base Case. This would avoid 668,000 new infections and 6,924 deaths for a net present value of \$27 billion. The Optimized Elimination scenario would achieve the highest total cost savings of \$46 billion and lead to the greatest reduction in new infections (704,000) and deaths (6,991) for a net present value of \$29.5 billion.

Conclusion: An optimized HCV elimination strategy requiring treatment at first diagnosis regardless of HCV chronicity can maximize clinical, economic, and societal benefits. The implementation of test-and-treat models of care is needed to achieve these required levels of diagnosis and treatment and meet 2030 elimination goals.



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Real-World Twelve-Month Virologic Outcomes and Predictors in Tenofovir-Treated Chronic Hepatitis B Patients in Ethiopia

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Background: Chronic hepatitis B virus (HBV) infection remains a major public health burden in sub-Saharan Africa, including Ethiopia. Potent nucleos(t)ide analogues such as Tenofovir disoproxil fumarate achieve high rates of viral suppression; however, suboptimal virologic response persists in real-world settings. Evidence on treatment outcomes and their determinants in resource-limited contexts remains limited. This study assessed twelve-month virologic response and its predictors among patients with chronic HBV infection receiving antiviral therapy.

Methods: A facility-based retrospective cross-sectional study was conducted among adults with chronic HBV infection who had completed at least 12 months of tenofovir therapy at the Gastrointestinal follow-up clinic of Adera Medical and Surgical Center, Addis Ababa, Ethiopia, between 2023 and 2025. Data on sociodemographic, clinical, and behavioral characteristics were extracted from medical records. The primary outcome was complete virologic response (HBV DNA <20 IU/mL) at 12 months. Data were analyzed using SPSS version 26. Multivariable logistic regression was performed to identify independent predictors of incomplete virologic response. Adjusted odds ratios (AOR) with 95% confidence intervals (CI) were reported, and statistical significance was set at $p < 0.05$.

Results: A total of 278 patients were included, of whom 72.3% were male, and 63% were aged 18–39 years. The overall twelve-month complete virologic response rate was 72.5% (95% CI: 65.4%–78.9%). Among HBeAg-positive patients, the response rate was 69.6%. In multivariable analysis, high baseline viral load ($>20,000$ IU/mL) (AOR = 5.3; 95% CI: 1.13–18.13; $p = 0.001$), alcohol use (AOR = 4.73; 95% CI: 1.46–13.46; $p = 0.01$), use of

herbal medications (AOR = 5.49; 95% CI: 1.51–19.99; $p = 0.01$), and poor adherence to therapy (AOR = 16.9; 95% CI: 10.55–122.16; $p = 0.001$) were independently associated with incomplete virologic response.

Conclusion: Approximately three-quarters of patients achieved virologic suppression at 12 months, which is suboptimal compared to clinical trial settings. High baseline viremia, behavioral factors, and poor adherence significantly reduced the likelihood of treatment success. Strengthening adherence support, early treatment initiation, and integration of culturally appropriate interventions addressing alcohol and traditional medicine use are essential to improve outcomes and advance toward HBV elimination targets.



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Impact of Metabolic Dysfunction-Associated Steatotic Liver Disease on Hepatocellular Carcinoma Development after Sustained Virologic Response in Chronic Hepatitis C Patients

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Background: Although direct-acting antivirals (DAAs) achieve sustained virologic response (SVR) in most patients with chronic hepatitis C virus (HCV) infection, the risk of hepatocellular carcinoma (HCC) persists. Metabolic dysfunction-associated steatotic liver disease (MASLD) has been proposed as a potential risk factor; however, its impact after SVR, particularly in Japanese patients, remains unclear. This study aimed to evaluate the association between MASLD and HCC development after SVR.

Materials and Methods: We retrospectively analyzed 512 patients with chronic HCV infection who achieved SVR following DAA therapy at a single center. MASLD was defined based on imaging-confirmed steatosis and the presence of cardiometabolic risk factors at 24 weeks after treatment (SVR24). Patients were followed for HCC development. Risk factors were evaluated using the Fine-Gray subdistribution hazard model to account for competing risks.

Results: During a median follow-up of 56 months, HCC developed in 33 patients (6.4%), with cumulative incidences of 1%, 4%, 6%, and 10% at 1, 3, 5, and 7 years, respectively. MASLD was present in 46% of patients and was associated with a significantly higher cumulative incidence of HCC compared with non-MASLD patients (10% vs 4% at 5 years; subdistribution hazard ratio [SHR] 5.045,

95% CI 2.200–11.57, $P < 0.01$). In multivariable analysis, MASLD remained an independent risk factor (SHR 4.921, 95% CI 1.899–12.75, $P = 0.001$), along with the aMAP score (SHR 1.106, 95% CI 1.045–1.170, $P < 0.001$) and FAST score (SHR 60.66, 95% CI 8.676–424.1, $P < 0.001$). Risk stratification using these three factors demonstrated a marked increase in HCC incidence: patients with all three risk factors showed a cumulative incidence of 46% at 7 years, compared with 11% in those with one or two factors ($P < 0.001$).

Conclusions: MASLD is an independent and clinically significant risk factor for HCC development after SVR in patients with chronic HCV infection. Risk stratification incorporating MASLD together with aMAP and FAST scores enables identification of high-risk patients and may support optimized, patient-tailored HCC surveillance strategies.



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Sub Prefectural Heterogeneity and Real-World Patient Profiles in the Pursuit of HCV Micro Elimination in a Non-Metropolitan Region of Japan

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Background: Japan is making progress toward the WHO 2030 hepatitis C virus (HCV) elimination goals, but recent modeling indicates it is still “not on track,” highlighting the need for intensified, locally adapted strategies. Ibaraki Prefecture, a non-metropolitan region lacking a large community of men who have sex with men (MSM), offers a setting where transmission patterns and optimal elimination approaches may differ from major urban centers. Our goal was to quantify variation at the subprefectural level in progress toward HCV microelimination and to describe, in real-world practice, the clinical and epidemiological profiles of patients still receiving direct-acting antiviral (DAA) therapy in high-burden municipalities.

Methods: We analyzed Ibaraki’s HCV treatment subsidy applications and hepatitis health promotion data (2008–2022) to estimate the number of infected individuals and DAA-treated patients. Municipalities were categorized by the proportion of estimated HCV cases treated, allowing visualization of progress gradients in microelimination. For patient profiles, we focused on municipalities with higher numbers of DAA-treated patients and extracted demographic, clinical, and presumed infection route data. We compared age, liver disease severity, and risk behaviors across categories.

Results: At the prefectural level, DAA uptake increased sharply after 2014 and, under current trends, is projected by logistic modeling to approach the elimination goal by 2030. However, subprefectural analysis showed significant heterogeneity: some municipalities have already treated a large proportion of their estimated HCV

population and are nearing microelimination, while others lag despite similar demographics. High-treatment municipalities often host core liver centers or designated hepatitis hub hospitals, indicating that service concentration and referral networks play key roles in local progress. In high-burden areas, real-world DAA recipients comprised two overlapping groups. Older patients (≥60 years) frequently reported historical exposures such as blood transfusions, and some disclosed past injection stimulant use that had never resulted in medical contact, indicating limited knowledge and healthcare engagement. Meanwhile, a growing proportion of younger patients (<60 years) reported histories consistent with high-risk behavior, including injection drug use (PWID) as probable infection routes. Although illicit drug use remains relatively low in Japan, the subgroup of people who use drugs (PWUD), especially PWID, remains a high-risk, under-engaged population for HCV. Local surveys of hepatologists highlight that these patients are often under-tested and undertreated, due to fragmentation between hepatology, psychiatry, and addiction services.

Conclusion: In this non-metropolitan Japanese prefecture, progress toward HCV elimination varies greatly across municipalities, with clear gradients in microelimination despite overall high DAA uptake. The patient profile is shifting from mainly older individuals infected via medical procedures to a mixed population including older adults with previously unrecognized injection drug use and younger PWUD, including PWID, in a setting with limited MSM networks. As national elimination nears, targeted microelimination strategies must focus on PWUD and marginalized groups, while continuing to identify undiagnosed older patients with iatrogenic and drug-related risks. Strengthening municipal surveillance, integrating hepatitis testing into hospital systems, and improving collaboration with addiction and mental health services are essential to close gaps and achieve HCV elimination in non-urban areas.



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Potential Role of Serum HBV RNA in On-Treatment Monitoring during Entecavir Therapy for Chronic Hepatitis B

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Background: Nucleos(t)ide analogues (NAs) effectively suppress hepatitis B virus (HBV) replication by inhibiting reverse transcription of pregenomic RNA, resulting in marked reduction of serum HBV DNA. However, NAs do not directly suppress transcription from covalently closed circular DNA (cccDNA), and viral transcriptional activity may persist despite virologic suppression. Serum HBV RNA has therefore attracted attention as a potential biomarker reflecting cccDNA transcriptional activity, but its clinical significance during long-term entecavir (ETV) therapy has not been fully established.

Aim: To evaluate the clinical utility of serum HBV RNA for on-treatment monitoring during ETV therapy in patients with chronic hepatitis B, with particular focus on HBeAg seroconversion and HBsAg decline.

Materials and Methods: We analyzed 87 patients with chronic hepatitis B who newly started ETV therapy at our institution and had pretreatment HBV DNA levels of at least 5 log IU/mL. Serum HBV RNA was measured using the cobas HBV RNA assay. HBV RNA kinetics during treatment were evaluated together with HBV DNA kinetics. Associations between serum HBV RNA levels and HBeAg seroconversion, HBsAg decline, and other virologic markers were assessed.

Results: The median observation period was 8.3 years. Among the 87 patients, 48 were HBeAg-positive and 39 were HBeAg-negative. At baseline, HBeAg-positive patients were significantly younger and had significantly higher HBsAg, HBV DNA, HBcrAg, and HBV RNA levels than HBeAg-negative

patients. Serum HBV RNA levels were significantly correlated with HBsAg, HBV DNA, and HBcrAg. During ETV therapy, both HBV DNA and HBV RNA declined significantly; however, HBV RNA decreased more gradually than HBV DNA and remained detectable in some patients even after HBV DNA became undetectable. Lower HBV RNA levels were associated with subsequent HBeAg seroconversion, and low HBV RNA at week 48 was identified as an independent factor associated with HBeAg seroconversion. HBsAg levels decreased significantly over time in HBeAg-positive patients, whereas the decline was slower in HBeAg-negative patients. Among HBeAg-positive patients, greater HBsAg decline during treatment was observed in those with higher baseline HBV RNA levels, suggesting that HBV RNA may reflect treatment-responsive viral activity in this subgroup. In contrast, the association between HBV RNA and HBsAg decline was limited in HBeAg-negative patients.

Conclusions: Serum HBV RNA may provide clinically useful information beyond conventional HBV DNA measurement during ETV therapy. It may help assess on-treatment response, including HBeAg seroconversion and HBsAg decline, especially in HBeAg-positive patients. Incorporating serum HBV RNA into monitoring strategies may support more individualized management of chronic hepatitis B.



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Nationwide Integration of Hepatitis B into Antenatal Care for Triple Elimination of HIV, Syphilis, and Hepatitis B in the Gambia: Early Lessons from Global Fund-Supported Scale-Up

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Background: WHO aims to reduce hepatitis B surface antigen (HBsAg) prevalence among children under five years to below 0.1% by 2030 through prevention of mother-to-child transmission (PMTCT). These efforts are increasingly embedded within “triple elimination” strategies integrating HBV PMTCT into existing antenatal HIV and syphilis platforms. The Gambia remains highly endemic for HBV, with HBsAg prevalence estimated at 8.8% among adults and 4.6% among pregnant women. Since 2024, HBV PMTCT services, including HBsAg screening, antiviral prophylaxis eligibility assessment, and tenofovir disoproxil fumarate (TDF) prophylaxis, have been integrated into antenatal HIV and syphilis services with Global Fund support. We assessed the feasibility of nationwide HBV PMTCT integration through evaluation of service

availability, readiness, population-level access, and HBV-specific PMTCT care cascades.

Materials and Methods: We conducted a nationwide assessment across PMTCT facilities spanning the seven health regions of The Gambia between November 2025 and February 2026. We assessed HIV, syphilis, and HBV PMTCT services across three domains: (1) facility-level service availability and readiness; (2) population-level access; and (3) HBV-specific PMTCT care cascades. Facility assessment used an adapted WHO Service Availability and Readiness Assessment (SARA) tool and disease-specific composite indicators. Facility-level indicators were summarized at national and health-region levels. Population-level coverage estimates were generated by weighting facility-level indicators by site-specific antenatal care (ANC) attendance. For HBV PMTCT care cascades, we estimated HBsAg screening coverage and TDF initiation under universal and selective prophylaxis strategies using Ministry of Health facility registers covering April–September 2025.

Results: Of 81 PMTCT facilities listed in the national master file, 75 were included. On the day of site visit, valid HBsAg rapid diagnostic tests (RDTs) were available in 77.3% (58/75) of facilities, compared with 94.7% (71/75) for HIV/syphilis duo RDTs. GeneXpert machines were available in only 18.7% (14/75) of facilities and were generally limited to hospitals. TDF was available in 85.3% (64/75) of facilities.

From April–September 2025, 43,218 pregnant women attended PMTCT services, of whom 39,398 (92.4%) underwent HBsAg screening; 1,008 (2.5%) tested HBsAg-positive and 428 initiated TDF prophylaxis.

Overall, 44 (58.7%) facilities adopted a universal prophylaxis strategy, whereas 22 (29.3%) used a viral load–based selective strategy. TDF initiation among HBsAg-positive women was 53.0% (339/640) under universal prophylaxis and 26.2% (89/340) under selective prophylaxis.

Conclusions: Nationwide integration of HBV PMTCT into existing HIV and syphilis platforms in The Gambia achieved high HBsAg screening coverage and broad service availability. However, important implementation gaps remain. Under universal prophylaxis, only 53.0% of HBsAg-positive women initiated TDF, far below the WHO target of 90% prophylaxis coverage among eligible pregnant women. In selective-strategy facilities, lower initiation may reflect reduced overtreatment, as only a minority of HBsAg-positive pregnant women (5–30%) are expected to



require prophylaxis based on viral load testing; however, interpretation was limited by incomplete documentation of viral load results, particularly where testing was performed off site. Successful HBV PMTCT integration will require care cascades aligned with local service capacity, strengthened documentation of eligibility and treatment initiation, and targeted training and operational support.



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Serological and Viremic HDV Prevalence among Patients with Chronic Hepatitis B, Cirrhosis, and Hepatocellular Carcinoma in Ghana

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Background: Hepatitis B infection is a major cause of chronic liver diseases and hepatocellular carcinomas (HCC) in Ghana. Co-infection with Hepatitis D virus (HDV) can accelerate disease progression and worsen clinical outcomes. There is limited evidence on serological and viremic HDV prevalence among patients with chronic hepatitis B and advanced liver disease including cirrhosis and HCC in Africa.

Method and Material: This retrospective cross-sectional study included 442 patients diagnosed with chronic hepatitis B. Of these 79 patients were diagnosed with HBV-related HCC, 29 with HBV-related cirrhosis and 334 were HBV patients with no evidence of cirrhosis nor HCC. Serum samples were tested for anti-HDV antibody using a lateral flow assay (LFA) kit. Plasma samples from anti-HDV antibody positive patients were tested for HDV RNA with the Rotor Gene Q HRM 5plex qPCR platform. HDV antibody and viremic prevalence were determined among patients with and without advanced liver disease. HBV and HDV viral loads were summarized using the median and interquartile range (IQR). Univariable logistic regression was used to evaluate the association between disease groups and HDV seropositivity and reported as odds ratios (ORs) with 95% confidence intervals (CIs). Data were analyzed using Python 3.13.9.

Results: HDV antibody prevalence was 13.9% (11/79) in HCC, 17.2% (5/29) in cirrhosis, and 2.1% (7/334) in HBV participants. Compared with the

HBV only group, the odds of HDV seropositivity was significantly higher among the HCC group (OR = 7.56, 95% CI: 2.83–20.19, $p < 0.001$) and the cirrhosis group (OR = 9.73, 95% CI: 2.87–32.97, $p = 0.001$). No significant difference was observed between the HCC and cirrhosis groups (OR = 0.78, 95% CI: 0.24–2.46, $p = 0.761$). The prevalence of HDV viremia was 7.6% (6/79) in HCC, 0% (0/29) in cirrhosis, and 0.90% (3/334) in the HBV only group. The median HBV DNA was 97,350 IU/mL (6,390–1,512,000) in HCC, 26,700 IU/mL (416.25–366,750) in cirrhosis, and 1,920 IU/mL (486–9,480) in HBV participants. The median HDV load was 61.0 (19.25–925.5) in HCC and 26.7 (15.15–96.6) in the HBV only HDV group.

Conclusion: HBV-HDV co-infection is associated with advanced liver disease and active viral replication in Ghana. There is a need for reflex HDV screening with confirmatory HDV RNA testing to improve risk stratification for advanced liver disease and to reduce morbidity and mortality in Africa.



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Balancing Trust Cost Savings and Patient Burden in Specialist Hepatitis B Prescribing: A Rural NHS Quality Improvement Study

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Background: Hospital-based dispensing of hepatitis B antivirals may generate substantial NHS trust savings compared with community FP10 prescribing, but may increase travel and financial burden for patients in rural populations.

Methods: A retrospective quality improvement audit was conducted of 95 patients receiving entecavir or tenofovir between 2020–2024 at a rural UK district general hospital. Prescribing route and patient travel distance were analysed. Trust medication costs were calculated using local pharmacy procurement prices and FP10 tariffs. Patient burden was modelled using travel (£0.374/mile), parking (£2.50/hour; assumed 2.5 hours per visit), and time costs (£15.50/hour). Environmental impact was estimated using UK greenhouse gas conversion factors.

Results: If all prescriptions were supplied through hospital pharmacy, projected trust savings were £49,583.82 annually. However, hospital-dispensed patients incurred an estimated £118.74 per patient per year in travel, parking, and time costs. A targeted optimisation strategy identified 24 patients living within 15 miles currently receiving FP10 prescriptions; switching these patients to hospital supply could generate £10,700 annual savings while minimising additional patient burden.

Conclusion: Centralised hospital prescribing can deliver substantial trust-level savings but may shift financial and logistical burden to patients. A targeted prescribing approach may balance cost efficiency with equitable access. Further work will evaluate centralised pharmacy home delivery to reduce patient and environmental burden.



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Timing is Everything: Economic Implications of Immediate versus Delayed Hepatitis C Care

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Background: Immediate care for hepatitis C virus (HCV) infection by treating at time of diagnosis could reduce the risk of disease progression and onward viral transmission. A recent study demonstrated the efficacy of 8-week glecaprevir/pibrentasvir (G/P) therapy in acute HCV. We evaluated the cost-effectiveness of treating newly diagnosed HCV patients with G/P vs waiting to determine chronicity to treat with sofosbuvir/velpatasvir (SOF/VEL).

Materials and Methods: A health state transition model of HCV natural history and disease progression was developed from the healthcare system perspective over a lifetime horizon. In the strategy to treat at time of diagnosis, all patients were treated with 8-week G/P regardless of chronicity. In the strategy to wait for chronicity, only those who remained viremic after 6 months were treated with 12-week SOF/VEL and assumed to infect an average of 0.4 persons while untreated. Costs included were related to treatment, direct hepatic medical costs, and extra-hepatic manifestations. Re-infection and re-treatment were not considered. Efficacy of G/P was obtained from NCT04903626 and efficacy of SOF/VEL was sourced from its US product insert. Other parameters including drug acquisition costs were derived from published literature. All costs were inflated to 2025 Q1 US dollars. Key outcomes were total healthcare costs, total quality-adjusted life-years (QALYs), and net monetary benefit (NMB) calculated using a willingness-to-pay threshold of \$100,000/QALY. To assess the impact of uncertainty in model parameters and structural assumptions, sensitivity analyses were performed.

Results: In the base case analysis, treatment at time of first diagnosis with G/P regardless of chronicity was a dominant strategy compared to waiting for chronicity to treat with SOF/VEL, providing greater incremental QALYs (difference: 3.456), lower costs (difference: \$32,121), and a NMB of \$377,699. In the probabilistic sensitivity analyses, immediate treatment with G/P was a dominant strategy in 99.22% of the 10,000 simulations and cost-effective in 99.96% of the simulations.

Conclusion: Treating HCV at first diagnosis with 8-week G/P therapy regardless of chronicity is projected to be a QALY- and cost-saving strategy compared to delaying treatment SOF/VEL until confirmed HCV chronicity. This highlights the importance of therapies effective in treating HCV at the time of diagnosis, as it enables a more efficient use of finite healthcare resources, and lowers the transmission risk and time to cure.



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Assessing HCV Re-infection Rates and Linkage to Care among Transgenders and MSM in Pakistan: A Follow-up Study

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Background: Pakistan faces a significant hepatitis C epidemic, with limited data on prevalence among key populations like transgenders (TGs) and men who have sex with men (MSM). This study aimed to reassess HCV re-infection rates among these populations and provide linkage to care, building on a previous study conducted in 2022.

Objectives: 1. To estimate the re-infection rates of HCV in TGs and MSM in Pakistan
2. To provide linkage to care to the reinfected cases
3. To capture the data on World Health Organizations prescribed cascade of care

Methods: A total of 123 TGs and MSM from the 2022 study were re-recruited in 2024. They were tested for anti-HCV, and positive cases underwent further testing. A One-Stop Shop model was established, providing screening, testing, and treatment services under one roof. Community-Based Organizations (CBOs) played a crucial role in recruiting participants and delivering services.

Results/Outcomes: Out of 123 participants, 17 (13.8%) tested anti-HCV positive, and all were HCV RNA positive. Among these, 3 (17.6%) were previously not cured in the 2022 study, while 14 (82.4%) were newly detected. All 17 individuals initiated treatment, and 100% completed it. The One-Stop Shop model facilitated same-day testing, treatment initiation, and linkage to care.

Conclusion/Lessons Learnt:

This study demonstrates the feasibility and effectiveness of outreach programs for marginalized populations in Pakistan. Partnering with CBOs was instrumental in accessing vulnerable communities and achieving high rates of linkage to care and treatment adherence. The One-Stop Shop model shows promise for scaling

up HCV care and treatment services for key populations in Pakistan.

Community-based approaches, same-day testing, and treatment initiation can improve HCV care outcomes among marginalized populations. CBOs play a vital role in reaching and engaging these communities, highlighting the importance of collaborative efforts in public health initiatives.



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Elimination of Mother-To-Child-Transmission of Hepatitis B to Prevent Liver Cancer: A Quality Improvement Project in the Cape Coast Teaching Hospital, Ghana

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Background and Rationale: Hepatitis B virus (HBV) remains a major public health burden in Ghana, with an estimated national prevalence of 9.1%. In high-endemic settings, transmission commonly occurs from mother to child during childbirth or through early childhood exposure. Without timely intervention, up to 90% of infants infected perinatally may develop chronic HBV infection, increasing lifelong risk of liver cirrhosis and liver cancer. Although HBV screening is routinely performed at Cape Coast Teaching Hospital (CCTH), implementation of additional elimination of mother-to-child transmission (EMTCT) interventions, including follow-up care for pregnant women and HBV birth-dose vaccination for newborns remains inconsistent and poorly reported.

Aim: To strengthen implementation of HBV EMTCT interventions at CCTH to improve maternal and newborn HBV prevention and care and reduce long-term liver cancer risk.

Methods: This 12-month hospital-based quality improvement project targeting healthcare workers (HCWs) and pregnant women used a Plan–Do–Study–Act framework. First, stakeholder engagement involving maternal and newborn care unit leads was conducted to evaluate existing EMTCT services and identify gaps in services. A consensus-based scorecard assessing governance, screening, referral systems, vaccination, and monitoring practices related to HBV EMTCT at CCTH was implemented. Targeted interventions including HCW training, patient-centred education, and iterative PDSA-guided adaptations were

implemented. Follow-up monitoring and evaluation activities were conducted weekly and are ongoing.

Results: Sixteen unit leads from antenatal and postnatal care, labour ward, and public health participated in the baseline scorecard assessment. Key implementation gaps identified included limited tracking of HBV-positive mothers, lack of routine universal HBV birth-dose vaccination, and inconsistent tracking of birth-dose vaccination. Subsequently, targeted interventions were developed, including a hepatitis B EMTCT workshop for HCWs and an educational booklet for pregnant women.

In total, 136 HCWs were trained on interventions including follow-up testing for HBV-positive mothers and universal HBV birth-dose vaccination. Additionally, 251 pregnant women received HBV education in pregnancy using the educational booklet.

Of the 251 pregnant women who received education, 18 (7.2%) were HBsAg positive, with 66.7% (12/18) completing follow-up HBeAg testing. Baseline HBV birth-dose coverage one week before implementation of targeted interventions was 12.9% (8/62). This rose to 90.2% (156/173) over the three-week post-intervention period, representing a significant improvement in uptake ($\chi^2 = 125.6$, $p < 0.001$). Vaccine cost influenced uptake, with 98.3% (113/115) uptake when birth-dose vaccine was offered for free compared with 74.1% (43/58) when mothers paid out-of-pocket due to a temporary stockout of free vaccines ($\chi^2 = 22.7$, $p < 0.001$).

Conclusions and Next Steps: This quality improvement initiative demonstrated substantial early improvements in hepatitis B birth-dose uptake and strengthened HBV EMTCT implementation at CCTH. The findings highlight the importance of HCW training, structured monitoring systems, patient education, and reducing financial barriers to improve maternal and newborn HBV prevention services. Strengthening early-life HBV prevention may reduce chronic HBV infection and the future burden of liver cirrhosis and liver cancer in Ghana. Ongoing activities include continued EMTCT scorecard monitoring, strengthening linkage to care for HBV-positive mothers, and evaluation of sustainability and scalability in other healthcare facilities in Ghana.



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Impact of Adult Population Screening for Liver Cirrhosis Using Routine Blood Tests on Transient Elastography Referrals in Primary Care: A Prospective Intervention Study

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Background and Aims: Cirrhosis is often diagnosed late due to a lack of population screening programs. This study evaluated the effect of reflex reporting of Aspartate to Platelet Index (APRI) for routine blood test events on referral rate for vibration controlled transient elastography (VCTE).

Methods: This prospective intervention study was conducted between 19 May 2024 to 18 May 2025 at a single tertiary hospital and statewide pathology service. Reflex calculation and reporting of APRI on routine blood test events in adults > 18 years who had elevated ALT (laboratory upper limit 30IU/mL females, 35IU/mL males) commenced on November 19, 2024. Reports included recommendation that VCTE be ordered for APRI > 1.0 with link to VCTE referral. Pathology, demographic, appointment and VCTE data were collected from pathology service and hospital records. Monthly rate of VCTE referrals and proportion from primary care in the 6 months post intervention were compared to 6 months pre-intervention via regression modelling and Chi square test respectively.

Results: 23,764 blood test events in 12,031 individuals with elevated ALT had APRI reported. Of these, 8,339 were individuals with blood tests ordered in the community. 686 (8%) had APRI>1 and 175 (2%) had APRI>2. Median age of those with APRI>1 was 58 years (IQR 43, 71 years) and most were male (62% vs 38%, p<0.001). Mean rate of individuals with APRI>1 who would require VCTE referral was 114 per month. There were 1,192 VCTE referrals during the study period, of which 73 (6.1%) were from non-

hepatology specialists including general practitioners (GPs). Mean weekly number of VCTE referrals increased from 0.09 per week pre-intervention to 0.53 per week post-intervention (post-estimation linear trend p=0.014). The proportion of referrals from non-hepatology specialists and GPs increased from 3.0% (20/ 664) pre-intervention to 10.0% (53/ 528) post intervention (p<0.001); referrals from GPs increased from 2.1% (14/664) pre-intervention to 4.2% (22/ 528, p=0.04) post intervention. Post intervention, 17% (9/ 53) of people referred by non-hepatology specialists had F3 or 4 stage fibrosis on VCTE, compared to 5% (1/20) of those referred pre-intervention.

Conclusion: Reflex reporting of APRI on routine blood tests increased the proportion of VCTE referrals from non-liver specialists, without overwhelming VCTE service capacity. Reflex reporting of APRI by pathology services may be an effective, low-cost intervention to increase early diagnosis of cirrhosis.



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Triple Elimination in Focus: Disparities and Missed Opportunities in HIV, Syphilis, and Hepatitis B Testing among Lactating Mothers in Eswatini

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Background: Elimination of mother-to-child transmission (EMTCT) of HIV, syphilis, and hepatitis B virus (HBV) is a global health priority. Despite progress in HIV prevention, sub-Saharan Africa remains disproportionately affected by HBV and congenital syphilis, with HBV alone causing an estimated 900,000 deaths annually, including about 90,000 in sub-Saharan Africa. In Eswatini, these infections constantly contribute to stillbirths, neonatal deaths and long term morbidity. Young Heroes organisation supports the government of Eswatini through community based sensitization and mobilization for EMTCT services amongst pregnant and lactating women.

Aim: To assess uptake of HIV, syphilis, and hepatitis B testing among lactating mothers in Eswatini.

Methods: We conducted a cross-sectional study among 3,370 lactating mothers from December 2025 to March 2026. Community Health workers called Expert Mothers reviewed their antenatal care (ANC) cards to extract documented evidence of HIV, syphilis, and HBV testing. Descriptive statistics and chi-square tests were used to compare testing coverage. Proportions were reported with 95% confidence intervals (CI).

Results: HIV testing coverage was 86.3% (2,909/3,370; 95% CI: 85.2–87.4), which was higher than syphilis testing at 16.0% (540/3,370; 95% CI: 14.8–17.2) and hepatitis B testing at 12.1% (409/3,370; 95% CI: 11.0–13.2). There was a statistically significant difference in testing uptake across the three conditions ($\chi^2 = 3,088.6$, $df = 2$, $p < 0.001$). Pairwise comparison showed a large absolute difference between HIV and syphilis testing (70.3 percentage points) and between HIV and HBV testing (74.2 percentage points). Monthly

trends in 2026 showed inconsistent uptake for syphilis and HBV, peaking in February before declining in March.

Conclusion: There is a statistically significant disparity in EMTCT testing coverage, with HIV testing far exceeding syphilis and HBV screening. The low uptake of syphilis and HBV testing represents a major missed opportunity in integrated maternal care. Strengthening routine triple testing during ANC and postpartum services is essential to achieving EMTCT targets in Eswatini.



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Cost-Effectiveness of the Hepatitis B Birth Dose Vaccine in South Africa: A Mathematical Modelling Analysis

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Background: As of 2023, it was estimated South Africa had a hepatitis B prevalence between 4.7-6.0%. National hepatitis B elimination policy in the same year was changed to include a targeted (selective) hepatitis B birth dose (HepB-BD) vaccine to newborns of hepatitis B surface antigen (HBsAg) positive mothers. In addition, all HBsAg positive mothers were indicated to receive prophylactic tenofovir disoproxil (PAP) from the second or third trimester.

This differs from World Health Organization (WHO) recommendations for HepB-BD, whereby vaccination should be provided to all newborns (universal HepB-BD), in addition to PAP for HBsAg positive mothers. However, the costs and benefits of alternative policies in South Africa remain unclear.

Methods: We used a validated model of hepatitis B transmission, disease progression, and mortality to project the South African epidemic. The model was calibrated to fit national age-specific estimates of HBsAg prevalence, hepatitis B envelope antigen (HBeAg) prevalence, and hepatitis B attributable liver cancer (HCC) incidence.

Within the model, we compared cost and health outcomes between 2025-2100 across four scenarios: (1) No HepB-BD (counterfactual

baseline), (2) PAP + selective HepB-BD (current policy), (3) universal HepB-BD only, and (4) PAP + universal HepB-BD (WHO recommendation). Within all intervention scenarios, coverage was scaled to reach 80% by 2030 and sustained henceforth. Coverage of routine childhood vaccination (HepB3), and hepatitis B care cascade (diagnosis and treatment within the general population), was held constant at last observed values.

Cost-effectiveness of comparator approaches was made using an incremental cost-effectiveness approach, measured as cost (South African Rand; ZAR) per disability adjusted life years (DALY) averted. Costs were based in 2024 and discounted at a rate of 3% per annum.

Uncertainty bounds around central estimates were a 95% Uncertainty Interval (2.5th%ile, 97.5th%ile) of 200 model simulations, using Monte Carlo methods to sample across parameter bounds.

Results: Modelled HepB-BD scenarios in South Africa averted up to 242,184 (95%UI: 77,815, 500,349) chronic hepatitis B infections, 36,214 (95%UI: 11,172, 76,380) liver cancers, and 34,491 (95%UI: 10,753, 68,944) deaths between 2025 and 2100. Current South African HepB-BD policy (PAP + selective HepB-BD) required the fewest vaccinations per outcome averted; with 5 (95%UI: 3, 15), 35 (95%UI: 20, 85), and 37 (95%UI: 21, 92) doses respectively needed to avert one chronic infection, liver cancer, or hepatitis B death.

PAP + universal HepB-BD was the most cost-effective policy scenario in South Africa at an estimated national willingness-to-pay threshold of ZAR 57,731. Under an assumption vaccines were not provided in the case of a negative HBsAg test, this scenario was dominant (lowest cost, highest burden averted). Under an assumption HepB-BD vaccination was still provided in knowledge of negative HBsAg maternal status, incremental cost-effectiveness was ZAR 23,792 per DALY averted against current South African policy.

Conclusion: Our findings offer economic evidence which supports the implementation of a universal HepB-BD policy in South Africa.



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Cross-Sectional Testing for Diagnosing Asymptomatic BBV (Blood Borne Virus: HIV, HBV, HCV) Infection; HBV infection Is Being Eliminated in Japan

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Backgrounds and Aims: To eliminate BBV (Blood Borne Virus: HIV, HBV and HCV) infection as a public health threat, it is important to diagnose asymptomatic BBV infection. To diagnose BBV infections often overlooked in routine clinical practice, we conducted cross-sectional BBV screening at HIV and STI (Sexually Transmitted Infection) clinics.

Methods: We evaluated the number of BBV diagnoses made during routine care over a 3-month period at each medical institution attended by three high-risk groups for STIs in Japan (HIV-positive individuals, HIV-negative men who have sex with men: MSM, and HIV-negative women visiting STI clinics). Over the subsequent 2-month period, we tested individuals who provided consent for HBs antigen (HBs-Ag), HBs antibody (HBs-Ab), HBc antibody, HCV antibody and HIV antigen/antibody. Medical records were retrospectively reviewed to compare the HBs antigen positivity rate at the initial visit by calendar year.

Results: During the routine care period, 662 HIV-positive MSM, 783 HIV-negative MSM, and 762 HIV-negative women visited each clinic, and 1 new HCV infection was diagnosed among HIV-positive MSM. During the cross-sectional testing period, 370 HIV-positive individuals (HIV group), 693 HIV-negative MSM (MSM group), and 150 women (women group) participated in the study. Among them, 3 new HCV infections were diagnosed in the HIV group, one new HBV infections and one new HIV infection were diagnosed in the MSM group, and no BBV were diagnosed in the women group.

Among the HIV and MSM groups, 188 cases (50.8%) and 355 cases (51.2%) were HBs-Ab negative, and of these, 183 and 186 cases were taking regimens containing nucleoside analogues for HIV antiviral therapy (ART) or prophylaxis (PrEP: pre-exposure prophylaxis) respectively. Patients not taking nucleoside analogs and considered high-risk for HBV infection accounted for 5 (1.4%) in the HIV-infected group and 169 (24.4%) in the MSM group. The HBs-Ag positivity rate at initial visit in the HIV group showed a decreasing trend at 11.0%, 8.4%, 8.0%, 6.8%, 5.3% and 5.3% in 1997-2001, 2002-2006, 2007-2011, 2012-2016, 2017-2021 and 2022-2025, respectively.

Conclusion: The prevalence of BBV infection was low among high-risk groups for STIs in Japan, but cross-sectional testing identified several new BBV cases. In Japan, HBV infection among HIV-infected individuals has been decreasing over time over the past 30 years. The use of nucleoside analogues for ART in HIV patients and for PrEP in HIV-risk populations is expected to further reduce HBV infection.



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Declining Viral Hepatitis-Related Cirrhosis amid Rising Metabolic Liver Disease Burden: A Statewide VCTE Cohort Study from Victoria, Australia

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Background and Aims: Non-invasive liver stiffness measurement (LSM) by Vibration Controlled Transient Elastography (VCTE, Fibroscan®) can be used to assess trends in cirrhosis epidemiology. We described trends in VCTE testing, epidemiology and proportion with cirrhosis among individuals undergoing VCTE across Victoria, Australia.

Method: Retrospective statewide cohort study of all VCTEs performed across eight Victorian health networks between January 2010 to December 2022. Cirrhosis was defined using validated disease-specific LSM thresholds. Time trends were analysed using Poisson regression.

Results: 71,426 valid VCTEs were performed in 59,929 individuals. Median age was 53 years (IQR 42-62) and 52 % were male (26,843/50,755). Among index scans, HCV was male-predominant (62.6% male) as was ALD (73.4%), while MASLD had equal sex distribution. The number of VCTEs ordered per year increased three-fold from 2010 to 2019 (Rate Ratio [RR] 1.12, 95% Confidence Interval [95% CI] 1.08- 1.16, p < 0.001), before markedly declining from 2020 due to COVID-19.

The main indications for VCTE were hepatitis B (HBV, 28%), hepatitis C (HCV, 27%), metabolic-dysfunction associated steatotic liver disease

(MASLD; 27%) and alcohol-associated liver disease (ALD, 9%). VCTEs for HCV declined significantly over time (RR 0.85, 95% CI 0.82–0.89, p<0.001), while MASLD (RR 1.14 per year, 95% CI 1.12–1.17, p<0.001) and ALD (RR 1.03, 95% CI 1.01–1.05, p=0.003) increased.

Cirrhosis-range LSM was detected in 9.6% of scans (6837/71,426) in 13.2% of individuals (6,258/59,487). The proportion of scans demonstrating cirrhosis-range LSM declined annually (RR 0.95, 95% CI 0.94-0.96, p<0.001), driven by reductions in HCV (RR 0.89, 95% CI 0.86-0.91, p<0.001) and HBV (RR 0.96, 95% CI 0.94-0.98, p<0.001), however MASLD (RR 1.14 per year, 95% CI 1.10-1.18, p<0.001) and ALD (RR 1.04, 95% CI 1.02-1.07, p<0.001) related cirrhosis increased. 10.7% of scans demonstrated LSM ≥15 kPa and 4.9% LSM > 25 kPa.

Among individuals without cirrhosis at baseline with at least one follow-up scan during the study period (n=6,843), HBV demonstrated the lowest progression rate to cirrhosis (3.5%, 74/2,112), compared with HCV (5.8%, 85/1,473), while ALD had the highest progression rate (9.9%, 35/352).

Conclusion: Cirrhosis-range LSM was present in 1 in 10 individuals undergoing VCTE. HCV and HBV-related cirrhosis has declined significantly in Victoria, Australia. However, the overall burden of cirrhosis has not fallen due to rising MASLD and ALD-related cirrhosis. These data reflect effective public health interventions for viral hepatitis in Australia that should be expanded to include MASLD and ALD.



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HBV Epidemiology among MSM in the HIV PrEP Era in Japan

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Background: Despite comprehensive hepatitis control measures in Japan, men who have sex with men (MSM) remain disproportionately affected by hepatitis B virus (HBV) infection, posing ongoing challenges to HBV elimination efforts. MSM are also at increased risk for HIV infection, and the use of HIV pre-exposure prophylaxis (PrEP) has expanded substantially in recent years. Tenofovir-based PrEP may provide dual benefits through both HIV prevention and protection against HBV infection or suppression of HBV replication; however, real-world HBV epidemiology in the PrEP era remains insufficiently characterized in Japan. We aimed to describe longitudinal HBV epidemiology and patterns of HIV PrEP use among MSM attending a sexual health clinic cohort (SHC) in Tokyo.

Materials and Methods: The SHC cohort is an ongoing prospective sexual health clinic cohort established in Tokyo in 2017 to monitor HIV and STI epidemiology and PrEP uptake among MSM. Eligible participants were MSM aged ≥16 years and HIV-seronegative at enrollment. Participants received free HIV and STI testing approximately every three months. HBV serologic testing (HBsAg, HBsAb, and HBcAb) was also conducted alongside routine visits during 2017–2022 and additionally during a three-month cross-sectional screening period in 2025. We analyzed longitudinal data collected between 2017 and 2026. HBV prevalence was calculated among participants with at least one HBV assessment. HBV infection was defined as HBsAg positivity or HBcAb seroconversion. Incidence analyses were restricted to participants susceptible to HBV infection at baseline (HBsAg-negative/HBsAb-negative/HBcAb-negative) who underwent at least two HBV serologic tests. Yearly HBV incidence rates were estimated, and incidence rate ratios (IRRs) over time were calculated. PrEP use, HBV vaccination status, and

follow-up HBV serologic outcomes were evaluated among these participants.

Results: Among 2,386 participants in the prevalence analysis dataset, the median age was 32.5 years and 546 (22.9%) had HBV infection. Among 1,946 participants in the incidence analysis dataset, 30 (1.5%) were HBsAg-positive at baseline; 16 remained persistently HBsAg-positive. Of these, 12 (75%) were linked to HBV-related care, including 4 receiving tenofovir-based HBV therapy, 2 using HIV PrEP, and 3 receiving ART for concurrent HIV infection, while 4 (25%) were not receiving treatment-related care, including 2 under routine monitoring and 2 lost to follow-up. Among the incidence analysis dataset, 1,199 (61.6%) were susceptible to HBV infection at baseline. Among these susceptible participants, 57 (4.7%) developed HBV infection, 426 (35.5%) received HBV vaccination, and 716 (59.6%) remained susceptible. Among participants who remained susceptible, 268 (22.4%) initiated HIV PrEP. The overall HBV incidence rate was 1.6 per 100 person-years (95% CI 1.2–2.0) and declined significantly over calendar time (IRR 0.86, 95% CI 0.75–0.99; $p=0.031$), paralleling declining HIV incidence trends.

Conclusions: Although HBV vaccination uptake was substantial and most participants with chronic HBV infection were linked to care, many participants remained susceptible. Because tenofovir-based HIV PrEP may provide dual protection against both HIV and HBV infection, integrated HBV vaccination and HIV PrEP strategies may support HBV elimination efforts and expand opportunities for HBV screening and prevention among MSM.



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Causes of Liver Cancer-Related Deaths: A Global Update from the Institute for Health Metrics and Evaluation's (IHME) 2023 Global Burden of Disease (GBD) Study

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Background and Aims: Globally, liver cancer is the seventh leading cause of cancer deaths. In 2015, the World Health Organization (WHO) set targets for a 65% reduction in HBV and HCV mortality to reach goals for hepatitis elimination by 2030. In October 2025, IHME released new estimates from the GBD study of the relative burden of hepatitis-associated and other causes of liver cancer deaths.

Methods: Country-specific estimates of liver cancer-related deaths, both all-cause and due to specific attributable factors, were extracted from IHME's GBD dataset for 204 countries and territories for the year 2023. Attributable fractions (AF) of total liver cancer-related deaths (LCD) were calculated for each country to quantify the relative burden of each cause of total LCD.

Results: In 2023, an estimated 507,853 LCD occurred globally. Hepatitis B (37% of LCD globally) was the leading attributable cause of LCD in 90 countries/territories, followed by HCV (31%, 64 countries/territories), alcohol use (18%, 50 countries/territories), and MASH (9%, 0 countries/territories). Of the 90 countries where HBV was the largest AF of LCD, 39 (43%) were in WHO's African region, 23 (26%) in the Western Pacific, 12 (13%) in the Eastern Mediterranean, and 7 (8%) in South-East Asia. For HCV, the 64 countries were largely concentrated in Europe (23 countries, 36%), the Americas (15 countries, 23%), and the Eastern Mediterranean (10 countries, 16%). Alcohol use was the largest AF of LCD across much of Europe (28 countries, 56%) and the Americas (17 countries, 34%).

Conclusion: The continued impact of hepatitis-attributable LCD highlights the need for increased support for prevention, testing, and treatment strategies globally, including HepB vaccination, improved access to hepatitis B and C testing and treatment, and early diagnosis of liver cancer. Efforts to improve screening and treatment for alcohol-related liver disease and MASH should also be scaled globally. Interventions should be prioritized for countries to reduce the greatest attributable fraction of LCDs. Liver cancer and LCD are largely preventable. The high LCD death rate worldwide demands global action for collaborative approaches needed to eliminate viral hepatitis and other causes of LCD.



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Bridging the Knowledge Gap: Postpartum Mothers' Awareness and Attitudes toward Hepatitis Vaccination in Children

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Background: Viral hepatitis continues to be a major global public health concern, with HBV and HAV contributing significantly to childhood morbidity. Vaccination remains the most effective preventive measure, yet gaps in maternal knowledge and awareness can affect timely immunization of newborns and children. Postpartum women represent an ideal target group for preventive education, as they are directly responsible for early childhood vaccination decisions.

Objective: To assess the knowledge, attitudes, and practices (KAP) of postpartum mothers regarding hepatitis vaccination in children and identify factors associated with improved awareness.

Methods: A cross-sectional, hospital-based study was conducted among 250 postpartum women admitted in the maternity wards of a tertiary-care teaching hospital. Data were collected using a structured, pre-validated KAP questionnaire covering awareness of hepatitis viruses, benefits of vaccination, HBV birth dose timing, routine immunization schedule, and perceived barriers. Descriptive and inferential statistics were used to analyze the findings.

Results: Among 250 participants, 68% had heard of hepatitis, but only 41% were aware that hepatitis can be prevented through vaccination. Knowledge regarding the HBV birth dose within 24 hours was low (28%). While 72% displayed a positive attitude toward child vaccination, only 54% demonstrated adequate practical understanding of the complete immunization schedule. Mothers with higher education levels and antenatal counseling showed significantly better KAP scores ($p < 0.05$). The most common barriers were lack of information, fear of side

effects, and dependence on family elders for decision-making.

Conclusion: The study highlights considerable gaps in knowledge and practices regarding hepatitis vaccination among postpartum mothers, despite generally positive attitudes. Strengthening antenatal and postnatal counseling, improving health worker communication, and integrating hepatitis education into maternity services could substantially enhance timely childhood vaccination and contribute to broader hepatitis prevention efforts.



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Evaluation of the Elecsys HCV Duo Assay for Screening and Testing of Hepatitis C Virus in Pakistan

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Background: Pakistan has a high hepatitis C prevalence, with around 10 million people living with the infection, many unaware of their disease. Key populations like people who inject drugs (62% HCV prevalence) and homosexual persons (28.4% HCV prevalence) are disproportionately affected. Current screening involves two-step testing including anti-HCV and HCV RNA, but WHO recommends reflex testing to reduce patient loss.

Objectives: To assess if Elecsys® HCV Duo Assay (having a anti HCV module and a HCV core antigen module-HCVcAg) is a good diagnostic solution for HCV screening and testing in general and key populations of Pakistan and is HCVcAg test equally sensitive to HCVRNA.

Methods: From December 2023-November 2024, venous blood samples were collected from a total of 3612 persons that included 1532 cases from key populations including Transgenders (TGIs), People who Inject Drugs (PWIDs) and Men who Have Sex with Men (MSM) and 2080 from the general population seeking testing and treatment of hepatitis C at gastroenterology clinic (750 cases) and Sindh hepatitis control program treatment site (1330 cases). Blood was collected in two plasma preparation tubes, one for Duo assay (anti HCV and HCVcAg) and other for HCVRNA. Both tests were run on Roche instruments and results were compared. HCVRNA results were taken as final. Rapid anti HCV test was available prior to the Duo testing in patients from GI clinic and the hepatitis program /community but were not available in the high-risk populations.

Results/Outcomes: Comparison of the known anti-HCV reactive rapid test results with the HCV Duo anti-HCV test results in 2080 patients showed 96% sensitivity. HCV Duo HCVcAg positivity compared with HCV RNA positivity revealed that HCVcAg was

detected in only about 50% of cases across all three groups. Alternatively, if HCVcAg is reactive, there is a high chance that the virus is present, but if it is negative and anti-HCV is positive, the person might still be viraemic. The sensitivity of HCVcAg was low (38.6%-50.6%), but its specificity was high (>90%) in all groups. When an HCVcAg COI value of 10 and above is used as a cutoff to determine positivity, it detects almost 99% of cases with confirmed HCV RNA.

Conclusion/Lessons Learnt: The Duo anti-HCV test showed a sensitivity of 96% compared to rapid anti-HCV testing. However, the HCV core antigen (HCVcAg) test had a lower sensitivity of 50% compared to HCV RNA testing across all groups. It's worth noting that false positives from the rapid diagnostic test (RDT) could also be a factor. The HCV Duo test provides a workflow that requires PCR confirmation for samples with discordant results (Ab+/Ag-), making it suitable for the intended use case.



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Creation of Implementation Strategies to Promote Uptake of Birth-Dose Hepatitis B Vaccine in Nigeria: Findings from a Crowdsourcing Pre-Designation

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Background: Hepatitis B is a significant global health issue, leading to considerable illness being the primary cause of hepatocellular carcinoma. The Hepatitis B birth-dose vaccine is part of Nigeria's immunization schedule, but its accessibility and uptake remain sub-optimal. Utilizing implementation strategies informed and driven by the community and aligned with the community's assets, needs, and preferences can potentially increase the adoption of the Hepatitis B birth-dose vaccine. Our study objective was to identify strategies for increasing the uptake of the Hepatitis B birth-dose vaccine among newborns in Nigeria using a crowdsourcing pre-Designation.

Methods: Between February 10th and March 17th, 2024, we invited the Nigerian public to submit innovative ideas in teams of 2 to 5 contestants for implementing strategies to improve hepatitis B birth dose vaccine uptake. Independent judges evaluated each submission based on novelty, relevance, feasibility, and promotion of equity, using a scoring system of 1 (low) and 3 (high) in each domain. We conducted a thematic analysis of the top 28 ideas, which scored 9 or higher (ranging from 4 to 12) using the expectations and relationships domains of the PEN-3 cultural framework.

Findings: A total of 396 entries were received in-person (11), WhatsApp (33), and Google forms (352). Four prominent themes were identified as

strategies to improve vaccine uptake: a) health education through culturally congruent training and workshops, b) awareness through sensitization and outreach, c) information using the media, mobile apps, visual aids, and cultural events, d) community engagement with religious and community leaders, community healthcare workers, and traditional birth attendants. The findings proposed multilevel strategies that utilized existing infrastructure and leveraged perceptions (beliefs, attitudes, perceived knowledge, awareness), enablers (health education, information, accessibility, healthcare infrastructure, and services), and nurtured relationships (family, peers, community members, healthcare workers).

Implications for Research: The crowdsourcing pre-Designation engaged community members to propose culturally appropriate approaches to implementing and sustaining the uptake of Hepatitis B birth dose vaccination among newborns in Nigeria.



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Safety and Efficacy of Glecaprevir/Pibrentasvir for 8 Weeks for People with Acute Hepatitis C Virus Infection Who Use Drugs: A Sub-Analysis of a Multicenter, Prospective Phase 3 Study

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Background: Most new cases of hepatitis C virus (HCV) infection occur among people who use drugs (PWUD) and in men who have sex with men. Identification of acute HCV infection presents an opportunity to offer early treatment, promote engagement in care, and reduce onward transmission. Identifying acute HCV infection and confirming efficacy of treatment among PWUD is an unmet need. Here, we report the efficacy and safety of glecaprevir/pibrentasvir (G/P) in PWUD with acute HCV infection, with and without HIV co-infection, from a phase 3 clinical trial.

Materials and Methods: An 8-week G/P regimen was evaluated in adults with acute HCV infection. Illicit drug use was self-reported. Efficacy (sustained virologic response at post-treatment Week 12 [SVR12]) in the intention-to-treat (ITT, participants who received ≥ 1 G/P dose) and modified ITT (mITT, excluding those who failed SVR12 for non-virologic reasons) sets and safety were assessed.

Results: Among 286 participants enrolled and treated, 137 (47.9%) reported current (n=49) or recent (n=88) illicit drug use.

For current/recent PWUD in the ITT set, the SVR12 rate was 93.4% (128/137; mITT: 100% [128/128]); SVR12 rates were 95.7% (67/70) and 87.8%

(36/41) in subgroups with HIV co-infection and current/recent injection drug use, respectively. For former/non-PWUD in the ITT set, the SVR12 rate was 98.7% (147/149; mITT: 100% [147/147]).

Serious adverse events occurred in 3.6% (5/137) of current/recent PWUD and 3.4% (5/149) of former/non-PWUD; none were deemed related to G/P and none led to treatment discontinuation. All participants with baseline grade ≥ 2 ALT improved by the final treatment visit.

Conclusion: G/P demonstrated high efficacy and was well-tolerated in PWUD with acute HCV infection. Systematic campaigns to identify those with acute HCV infection with an offer of immediate antiviral treatment should be undertaken, providing benefit to both the individual and to the PWUD population as a whole.



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Hepatocellular Carcinoma Incidence in People Who Inject Drugs with Hepatitis C and a History of Incarceration before and after Chinese Taipei's 2018 Elimination Program

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Background: People who inject drugs (PWID) are a key population with a high burden of hepatitis C virus (HCV) infection and an elevated risk of hepatocellular carcinoma (HCC). Chinese Taipei launched a nationwide HCV elimination program in 2018. However, the impact of this program on high-risk populations remains unclear. This study aimed to evaluate trends in HCC incidence among PWID with a history of incarceration and HCV before and after implementation of the elimination program.

Methods: We conducted a retrospective cohort study using Chinese Taipei's National Health Insurance database. PWID were defined as individuals with a history of injecting drug use, regardless of current use status. PWID with a history of incarceration and chronic HCV infection were identified and followed from 2008 to 2022. Chronic HCV infection was defined using a claims-based algorithm requiring either at least two HCV diagnoses separated by more than 30 days or one diagnosis with an HCV RNA testing record. HCC incidence rates were calculated in 5-year intervals (2008–2012, 2013–2017, and 2018–2022) and compared between pre-elimination (before 2018) and post-elimination periods. Percentage changes between consecutive intervals were also calculated.

Results: A total of 28,782 individuals were included, with 181,602.93 person-years of follow-up. The incidence of HCC increased from 1.28 per

1,000 person-years in 2008–2012 to 2.15 in 2013–2017, and further to 2.91 in 2018–2022. The increase in HCC incidence was 67.73% during the pre-elimination period and 35.32% during the post-elimination period in the PWID cohort. In contrast, the age-standardized incidence of liver cancer in general population increased by 3.88% from 2008 to 2012, followed by a slight decrease of 1.11% from 2012 to 2017, and a more substantial decline of 10.03% from 2017 to 2022, resulting in an overall reduction of 7.57% between 2008 and 2022.

Conclusions: HCC incidence among PWID with HCV continued to increase despite declining trends in the general population. The reduced rate of increase after 2018 suggests a potential early impact of the HCV elimination program. However, further efforts are needed to reduce HCC burden in this high-risk population.



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The Evaluation of Actual Activities Following the Organizational Restructuring of Hepatitis Medical Care Coordinators in Hiroshima Prefecture, Japan

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Background: The establishment of a system of hepatitis medical care coordinators (HMCs) in Japan was recommended in the 2009 Basic Act on Hepatitis Control and has been accelerated since 2017 by the Ministry of Health, Labour and Welfare. HMCs, including nurses, pharmacists, and public health nurses, function as between hospitals, government agencies, workplaces, and communities. Although Hiroshima Prefecture initiated HMC training earlier than other regions, over 80% of HMCs reported finding awareness activities unrewarding, largely due to a lack of leadership. Therefore, in 2018, we restructured the system into three tiers: general HMCs; specially appointed HMCs (SHMCs), who support general HMCs within secondary medical areas; and unification HMC, who oversee SHMC and coordinate with the government. This study evaluated the outcomes of this restructuring and explored models for promoting hepatitis control activities.

Methods: Administrative reports submitted to Hiroshima Prefecture (FY2018–2025) were reviewed to extract SHMC initiatives and HMC participation in continuing education. Free-text reports from 36 general HMCs participating in Liver Week 2025 were analyzed, focusing on activity content, audience and staff reactions, material feedback, and future participation intent. This study was approved by the institutional ethics committee (approval no. 2026001).

Results: In 2018, one unification HMC and 18 SHMCs were appointed; by 2020, the number of

SHMCs had increased to 29 across 14 facilities. Regular meetings strengthened networks, leading to hepatitis control teams in 10 facilities and enhanced patient education, HMC training, staff education, and information dissemination in 11 facilities.

Despite COVID-19 restrictions, SHMCs continued online meetings and developed educational materials, including quiz-based fans and mascot-themed folders. After 2021, SHMCs supported the expansion of activities within and beyond facilities. Consequently, awareness activities were sustained at over 90% of facilities by 2025, with an increase in supporting staff in 8 facilities and a five-fold rise in material distribution.

Unification HMC and SHMCs subsequently expanded collaboration to general HMCs, increasing participation from 28 (FY2023) to 50 (FY2025). Activities were conducted in hospitals/clinics, dental clinics, government offices, pharmacies, community events, and workplaces, mainly through face-to-face distribution in reception/waiting areas, group sessions, and workplace education. These activities increased participation in prefecture-sponsored HMC continuing education from 219 (FY2019) to 227 (FY2025). Participants reported improved awareness/knowledge, cooperative attitudes, and positive impressions. Among 36 responses, favorable evaluations of material design/practicality predominated, followed by increased awareness and interest. However, the present system of awareness activities was revealed some issues, such as the need for age-appropriate material design, especially for elderly populations, and translation of awareness activities into increased hepatitis screening uptake.

Conclusion: The three-tier system enabled SHMCs to establish action frameworks and sustain activities even during the COVID-19 pandemic. SHMC-led initiatives cascaded to general HMCs, promoting hepatitis testing, expanding awareness in non-specialist settings, and improving workplace knowledge, resulting in increased awareness for participating in continuing education. This structured model provides a replicable approach to revitalizing HMC activities and could serve as a reference for community-based coordinator systems contributing to the WHO 2030 hepatitis elimination targets.



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Anti-HBV Strategy Targeting NTCP-EGFR Interaction and Its Mediated Viral Entry Machinery

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Given the difficulty of HBs loss and covalently closed circular DNA (cccDNA) elimination by the current therapy, we are trying to discover drug seeds that target HBV entry into host cells, the precursor step toward cccDNA formation and HBs production. So far, we reported that the host receptor of HBV, sodium taurocholate co-transporting polypeptide (NTCP), does not function as an entry receptor by itself but forms receptor complex with its cofactors, including epidermal growth factor receptor (EGFR), to mediate viral internalization into the cells (Iwamoto et al., Proc Natl Acad Sci USA, 2019).

In this study, by employing the NTCP-EGFR interaction as a target, we aim to identify small molecules that inhibit the NTCP-EGFR interaction and analyze the anti-HBV activity as well as its mode of action, to clarify the potential of the viral receptor complex as a drug target. We established an in vitro Alphascreen assay to evaluate the NTCP-EGFR interaction, and identified an oxysterol-based compound, Oxy229, which inhibited the interaction. In a cell-based infection assay, Oxy229 inhibited HBV infection with 50% inhibitory concentration (IC₅₀) of 11.3 microM in primary human hepatocytes (PHH). Oxy229 did not affect HBV replication or cell surface HBV preS1 attachment, whereas it inhibited preS1 internalization into the cells. Upon Oxy229, internalization of preS1 and NTCP was attenuated without affecting EGFR endocytosis, suggesting the dissociation of the preS1/NTCP complex from the EGFR-driven endocytosis. As the effect on the physiological functions of NTCP and EGFR, Oxy229 did not affect sodium-dependent bile acid

transport mediated by NTCP, and downstream signaling activation by EGFR. These data suggest that Oxy229 selectively inhibits HBV entry without affecting the original function of NTCP and EGFR. In addition, Oxy229-derivative analysis identified Oxy283, having higher anti-HBV activity than Oxy229, with an IC₅₀ of 3.23 microM in PHH.

In this presentation, we will share our recent studies on NTCP-EGFR interaction and discuss the potential of viral receptor complex as a novel anti-HBV drug target.



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Barriers and Enablers to Hepatocellular Carcinoma Surveillance among People Who Inject Drugs in Australia: A Qualitative Study

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Background: Hepatocellular carcinoma (HCC) is a significant cause of cancer-related mortality in Australia, with approximately one third of cases linked to cirrhosis from prior hepatitis C infection. People who inject drugs are disproportionately affected by hepatitis C and some remain at risk of HCC after being cured. Six-monthly surveillance improves early detection and survival; however, access and sustained engagement in surveillance remains challenging.

Methods: Between October 2025 and April 2026, semi-structured interviews were conducted with people who inject drugs with self-reported history of hepatitis C and cirrhosis, and health workers from harm reduction organisations and tertiary hospitals. Client interviews explored personal, social and structural enablers influencing engagement in HCC surveillance, while health worker interviews explored perceived barriers, facilitators and potential system improvements. Interviews were analysed using reflexive thematic analysis.

Results: Fourteen participants with lived experience (10 males and four females, aged 39-72 years) and 17 health workers were interviewed. Participants with lived experience described liver health as a low priority compared to other health and social concerns, particularly given the asymptomatic nature of liver disease. Variable health literacy, fear of receiving “bad news”, fragmented health services and entrenched stigma further contribute to surveillance barriers. Health

workers acknowledged that while HCC surveillance for this cohort is clinically important, it is difficult to implement in practice. Both groups identified flexible, low-threshold, peer and nurse-led service models as key enablers. Peer-led case management, including appointment reminders, service navigation and transport support, within co-located, outreach services with embedded specialist shared care arrangements, improved accessibility. However, these models are constrained by funding and the siloed nature of the health system.

Conclusion: Overall, engagement in HCC surveillance was strongly shaped by trust, structural barriers and perceived safety within healthcare relationships. Low-threshold, peer-supported integrated models may help improve equitable access and sustained engagement in liver disease care for people who inject drugs.



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Development of a New System for Follow-up of Patients with Hepatitis B and C Virus Infection

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Chronic hepatitis B virus (HBV) and hepatitis C virus (HCV) infections are major public health problems worldwide. Regular follow-up is essential for patients with chronic HBV or HCV infection to prevent progression to liver cirrhosis and the development of hepatocellular carcinoma (HCC), even after viral elimination. However, because most patients with chronic HBV or HCV infection are asymptomatic, follow-up by hepatologists is often discontinued until liver disease progresses to an advanced stage.

Following the enactment of the Basic Act on Hepatitis Control in Japan in 2009, the Ministry of Health, Labour and Welfare has implemented several programs, including medical subsidies for antiviral therapy and support programs for the treatment of liver cancer and advanced cirrhosis, to ensure that all patients receive appropriate care. In addition, the Hiroshima Prefectural Government established a follow-up program for HBV and HCV carriers to prevent discontinuation of hospital visits.

Although the target populations of these programs are largely overlapping, their administrative processes have been fragmented. Staff in the Hiroshima Prefectural Government were required to manage three separate application systems: one for follow-up support for patients with chronic HBV or HCV infection, one for medical expense subsidies for patients with viral hepatitis and liver cirrhosis, and one for subsidies for patients with advanced liver cirrhosis or hepatocellular carcinoma. In addition, two independent databases were used: one for collecting screening results of HBV and HCV infection and another for managing subsidies for initial detailed

examinations and regular checkups for hepatitis virus-positive individuals. Furthermore, each system and database were managed separately by different staff members. As a result, each system could be operated by only one staff member at a time, and considerable time was required to verify duplicate registrations across systems.

Recently, Japan has transitioned from health insurance cards to My Number cards, a national social identification system used for accessing healthcare services. However, the existing systems were not compatible with My Number cards and could not be integrated with the Public Medical Hub (PMH). Therefore, the Hiroshima Prefectural Government developed a new system that integrates the three application systems and two databases into a single platform, which was successfully implemented in March 2026.

In this presentation, we describe the structure of the new system and demonstrate its operational performance. We estimate that this system reduces approximately 1,000 hours annually in administrative workload required for verifying duplicate registrations and tracking patient records. Furthermore, centralized patient information is expected to promote continued follow-up care.



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Addressing the Silent Epidemic: A Community-Based Approach to Hepatitis C Screening in Emergency Departments

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Background: Hepatitis C presents as a significant population health challenge that often goes undiagnosed or untreated. The Centers for Disease Control and Prevention (CDC) recommends that every adult 18 years and older have one Hepatitis C screening in their lifetime. About 40% of people with chronic Hepatitis C are unaware of their infection. (HHS, 2022). During quarter 4 of 2025 the CDC reported 367 chronic cases of Hep C, 2,132 year-to-date in Nevada. To address the barriers in screening, we have automated Hepatitis C to run in our three Dignity Health St. Rose emergency departments in Clark County. Emergency departments offer a vital opportunity for implementing community-based screening initiatives.

Methods: In March 2025 we implemented automated Hepatitis C screening that is triggered by bloodwork of individuals 18 years of age and older. The data provided is a descriptive analysis from March 2025 - August 2025. We serve a significant amount of the homeless and underserved populations through Nevada that often substitute primary care for emergency care. Individuals are tested once through our automated system unless they have additional risk factors that require more frequent screening.

Results: A total of 25,558 screenings were performed from March 2025 - August 2025, this resulted in 165 reactive cases. Of these cases, 100 were males and 65 were females. The demographic breakdown was 75% White, 13% Black, 11% Multi-racial, and 1% Asian. The range of ages of patients that had a reactive result were 19-95 years old. Of these documented cases, 86 (52%) individuals reported never having a screening done before, 60 (36%) individuals reported a prior

test (known history), and 19 (12%) individuals were unaware of any previous screenings done.

Conclusion: By implementing automated, community-based Hepatitis C screening in the Emergency Department we have been effective in reaching individuals of the community with undiagnosed cases of Hepatitis C. Our approach has successfully identified 52% of reactive cases that were previously unscreened, this significantly exceeds the national average of 40% of individuals with undiagnosed Hepatitis C cases. This underscores the importance of utilizing emergency departments to address this silent epidemic and provide unbiased screening to the community.



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Tracking of HCV Viremia Rates in Vancouver, Canada's Inner-City Community Reveals Consistent and Sustained Decreases from 2020-2025

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Background: Vancouver, Canada's downtown east side (DTES) neighbourhood is known for high rates of poverty, drug use, and Hepatitis C (HCV) infection, with up to 40% of individuals having HCV exposure. The Vancouver Infectious Diseases (VIDC) has been providing accessible point-of-care HCV testing and treatment (as allowed by treatment restrictions), to individuals living in this neighborhood for more than 10 years.

Methods: VIDC has provided and continues to provide regular point-of-care antibody testing, follow-up confirmation of viremia, and HCV treatment to individuals encountered at various inner-city locations including community centers, shelters, and single room occupancy buildings for more than 10 years. In addition, the physicians at the clinic receive a large number of referrals for providing HCV treatment to individuals who are part of Vancouver's inner-city population.

Results: The proportion of individuals tested who are positive for HCV antibodies each year from 2015 to 2025 revealed no clear differences or trends, with similar rates of antibody positivity across all 10 years.

In 2015, more than 70% of individuals we encountered at our community pop-up clinics were viremic for HCV. In 2020, the proportion of viremic individuals encountered was similar (~70%); however, in 2022 the proportion was reduced to around 50% and in 2025 the proportion was less than 20%.

From 2015 until 2018 (inclusive), VIDC treated an average of 20-40 individuals actively using drugs per year. From 2019 until 2024, this number

increased to around 100 individuals or more per year, and in 2025 was around 40 individuals.

Conclusion: Through universal access to highly effective curative DAA treatments and high rates of treatment, we are well on our way to achieving HCV elimination in Vancouver's DTES neighbourhood. Follow-up work will determine if the rates of antibody positivity and viremia continue to decrease in this population over time.



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Corporate Initiatives toward Hepatitis Virus Elimination

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Background and Aim: Our company, headquartered in Hiroshima Prefecture, is engaged in the manufacture and sale of passenger vehicles, with approximately 23,000 employees working at its major production site. Since the establishment of an in-house medical office in 1938, our corporate hospital has provided health checkup services for employees and has also served as a secondary medical institution for local residents. As part of our original occupational health program, hepatitis B virus (HBV) and hepatitis C virus (HCV) testing have been performed during pre-employment health checkups in addition to legally required health examination items. HBV testing was introduced in comprehensive health checkups in 1984 and in pre-employment health checkups in 1990, while HCV testing was introduced in 1995 and 1996, respectively. After the enforcement of the Act on the Protection of Personal Information in 2005, hepatitis virus testing has been continued only in pre-employment health checkups. We report our corporate initiative toward hepatitis virus elimination.

Methods: During pre-employment health checkups, examinees were informed through a questionnaire that the Basic Act on Hepatitis Measures recommends hepatitis B and C virus testing at least once in a lifetime and that workplace health examinations should provide opportunities for such testing. Consent was obtained using an opt-out approach. Test results were reported directly from the health checkup institution to each examinee in accordance with notifications from the Ministry of Health, Labor and Welfare.

Results: From 2024 to 2025, 1,563 individuals underwent pre-employment health checkups, and all received hepatitis virus testing. HBs antigen was positive in 6 individuals, with a positivity rate of 0.38%. HCV antibody was also positive in 6 individuals, with a positivity rate of 0.38%. By age

group, the HBs antigen/HCV antibody positivity rates were 0.34%/0.34% in teenagers, 0.23%/0.12% in those in their 20s, 0.89%/0.89% in those in their 30s, 0.83%/0.83% in those in their 40s, 0%/2.5% in those in their 50s, and 0% for those in their 60s. Positivity rates tended to be higher among individuals in their 30s and 40s. Among the 6 HBs antigen-positive individuals, 2 were already under medical follow-up, whereas 4 had not yet sought medical care. Among the 6 HCV antibody-positive individuals, 2 had been evaluated and confirmed to be HCV RNA-negative, whereas 4 had not yet undergone further evaluation.

Conclusion: This corporate hepatitis virus screening program may contribute to hepatitis virus elimination by identifying infected individuals among working-age populations. However, ensuring appropriate referral, follow-up, and support for balancing treatment with work remains an important challenge. Further efforts are also needed to improve employees' awareness of hepatitis virus testing and their own test results.



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The Effectiveness of Financial Incentives for Increasing Uptake of Hepatitis C Treatment in Primary Care: Results from the MOTIVATE C Trial

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Background: Uptake of direct-acting antiviral (DAA) therapy for hepatitis C remains low. Financial incentives may enable people to overcome patient-level barriers to accessing treatment. We evaluated the effectiveness of financial incentives for increasing DAA initiation via navigator-supported primary care.

Methods: MOTIVATE C was a pragmatic, sequential, dose-ranging trial using a response-adaptive design. Across Australia, Medicare-eligible adults who self-identified as having untreated infection registered their interest via an SMS-based system. Participants were randomly

assigned a financial incentive ranging from \$0 to \$1,000 AUD, payable to those enrolled in navigator-supported care upon initiation of DAA treatment. Navigators helped participants connect with either their nominated primary care clinician or with a project-affiliated prescriber; prescribers assessed their eligibility for treatment and prescribed DAA therapy as appropriate. The primary endpoint was DAA initiation within 12 weeks of initial registration. An EMAX dose-response model characterised the relationship between incentive values and DAA initiation. Posterior predictive probabilities for each incentive value were used to adapt the allocation ratios according to pre-specified rules over the course of the trial. An incentive value was defined a priori as 'effective' if it increased treatment initiation by at least 10 percentage points compared to no incentive, with $\geq 95\%$ probability.

Results: Between 15 May 2023 and 01 Oct 2025, 1,147 people registered. Of these, 675 (59%) enrolled in navigational support and 354 (31%) initiated DAA treatment within 12 weeks of registration. Among the 49 participants assigned no incentive, 5 (10%) initiated DAA treatment. The observed proportion initiating treated indicated a positive gradient with increasing incentive value - from 0% of 9 assigned \$50, to 44% of 48 assigned \$1000 AUD. All incentives from \$550 to \$1,000 AUD had $\geq 95\%$ probability of being effective.

Conclusion: Financial incentives of several hundred dollars were associated with higher probability of initiating hepatitis C treatment. This trial supports their use as an effective strategy to improve treatment uptake in the context of navigator-supported care.

Disclosure of Interest Statement
Funded by the Medical Research Future Fund, Australia.



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Screening Yield and Documented Linkage to Care of HCV Antibody-Positive Patients Identified in Ophthalmology over Five Years

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Background: Because ophthalmology has a high surgical volume and frequently performs preoperative HCV antibody testing, it may serve as a non-hepatology entry point for identifying HCV antibody-positive patients and linking them to specialist care. However, the actual number of HCV antibody-positive patients identified in ophthalmology practice and the proportion subsequently referred to hepatology specialists or internists have not been well characterized.

Aim: This study aimed to evaluate the yield of HCV antibody testing in an ophthalmology department and to assess subsequent referral to hepatology specialists or internists among HCV antibody-positive patients.

Methods: We retrospectively reviewed all patients who underwent HCV antibody testing in the ophthalmology department of our institution between 2019 and 2023. Annual testing volume and antibody positivity were assessed. For HCV antibody-positive patients, prior antiviral treatment history, sustained virologic response (SVR), referral to hepatology specialists or internists, direct-acting antiviral (DAA) therapy, spontaneous clearance, and follow-up status were evaluated based on information available in ophthalmology medical records.

Results: During the 5-year study period, 10,447 HCV antibody tests were performed in the ophthalmology department, and 241 patients were HCV antibody-positive, yielding an overall positivity rate of 2.31%. Annual positivity rates were 2.70% in 2019, 2.26% in 2020, 2.15% in 2021, 2.31% in 2022, and 2.14% in 2023. Among HCV antibody-positive patients, 116 had a prior antiviral treatment history based on patient report, and SVR was confirmed in 113. Excluding

patients with confirmed SVR, referral from ophthalmology to hepatology specialists or internists, or ongoing follow-up with such providers, was documented in 37 patients. In this group, DAA therapy was initiated in 10 patients, spontaneous clearance was confirmed on 13, and the post-referral course was unclear in the remaining 14 patients. Referral or consultation status remained unclear in 77 patients based on ophthalmology medical records.

Conclusion: Routine ophthalmology practice identified a meaningful number of HCV antibody-positive patients and may serve as an important entry point for HCV micro-elimination. Strengthening collaboration between ophthalmology, hepatology specialists, and healthcare professionals certified as hepatitis medical care coordinators may facilitate referral and continuity of care for HCV antibody-positive patients. In addition, educational efforts targeting non-hepatology physicians may further promote timely referral and appropriate hepatitis care.



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Use of Medical Information-Sharing Network to Promote Hepatitis Patients Care

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Purpose: We utilized a medical information-sharing network as a tool to improve hepatitis-patients care.

Methods: We used ID-Link, which is one of such network systems, in the following two ways: 1) To apply for the subsidy to undergo antiviral treatments, an application form must be filled out at the designated institutes. Suzu General Hospital (SGH) was not such a designated institute, thus, the hepatologist at the regional core institute, Kanazawa University Hospital (KUH), provided online medical care for hepatitis patients at SGH, then SGH was upgraded to a designated institute. 2) KUH has been confirming annual visit of hepatitis patients to specialized institutes using a survey form filled out by the hepatologists at specialized institutes. We confirmed visits of each patients browsing the medical information of the specialized institutes via ID-Link.

Results: 1) Seven hepatitis C patients of SGH were remotely cared by a hepatologist at KUH using ID-Link and Zoom, and an application form of the subsidy was prepared. The six patients among them were treated using the subsidy and achieved SVR. 2) Linkage using ID-Link between KUH and 19 specialized institutes was established for 307 patients by the end of March 2026. In FY2023, the visit rate to specialized institutes from the returned survey form was only 50%, but by combining the information from ID-Link, the actual rate of visits was 90%.

Conclusion: This study demonstrated usefulness of medical information-sharing network to improve hepatitis-patients cares in several fields.



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The ANRS 0562s HIPOCAMP Study: International Collaboration and Pilot Study Implementation in Vietnam

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Background: In high hepatitis B prevalence settings, mother-to-child transmission remains the dominant route of hepatitis B virus (HBV) infection. In decentralized areas with limited access to HBV DNA or hepatitis B e antigen (HBeAg) testing, providing perinatal antiviral prophylaxis (PAP) to all HBsAg-positive pregnant women is being considered as a pragmatic option, in line with the WHO's conditional recommendations issued in March 2024. The HIPOCAMP (HBV universal vs Point Of Care-based Antiviral treatment to Prevent Mother-to-Child Transmission) study is a multicountry, cluster-randomized controlled trial sponsored by INSERM–ANRS–MIE (France). It compares two PAP initiation strategies: a targeted approach using the ESPLINE HBeAg-hs point-of-care rapid diagnostic test (RDT) to identify women eligible for tenofovir disoproxil fumarate (TDF), and a universal “treat-all” strategy.

The HIPOCAMP study is being conducted in Cameroon, Côte d'Ivoire, Togo, and Vietnam. In Vietnam, it is implemented in collaboration with Hai Phong University of Medicine and Pharmacy (HPMU), the Japan Institute for Health Security (JIHS) and the HIV research unit of Geneva University Hospital. Site feasibility in Vietnam was completed with support from JIHS to assist HPMU in identifying potential sites for the HIPOCAMP study. This abstract describes the collaborative

efforts between JIHS and HPMU in implementing the HIPOCAMP pilot study in Vietnam.

Methods: The HIPOCAMP study is planned to recruit 20 clusters per country with 40 participants per cluster, for a total of 3,200 HBsAg-positive pregnant women. Selected sites will be randomized in a 1:1 ratio into two parallel arms. In Vietnam, site selection criteria were defined by the international team and adapted to align with local operational strategies. Joint site visits were conducted by the HPMU and JIHS teams to assess site readiness across several provinces. Factors that could influence study participation were also evaluated and discussed.

Results: Pilot activities included obtaining local regulatory approvals, developing bilingual (English and Vietnamese) site assessment checklist, and evaluating population size, infrastructure, laboratory capacity, drug management, and potential implementation barriers. Feasibility assessments were conducted across six provinces (Quang Ninh, Hai Phong, Hai Duong, Thai Binh, Thai Nguyen, Phu Tho). Criteria for site selection—such as site location, absence of involvement in other research, and personnel capacity—were defined by the international team. Based on these criteria, 20 of the 31 primary health centers assessed were selected as potential sites for inclusion in the HIPOCAMP study. In a resource-limited environment, trust and effective communication with local sites were also key factors in the selection process. General education on the management and treatment of HBV in pregnant women was also provided as the part of initial visit.

Conclusion: This study underscores the importance of international collaboration in advancing hepatitis B elimination efforts. The Vietnam pilot study demonstrates the feasibility of implementation in resource-limited settings and provides optimized recruitment and operational strategies. It also offers valuable insights into survey methodologies for conducting research outside Japan. Preparation for the main study is ongoing. JIHS will collaborate on the monitoring plan with HPMU and the international team.



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Protektem Pikini Blong YU: Adherence to Tenofovir Disoproxil Fumarate among Pregnant Women with Hepatitis B in Vanuatu

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Background: Vanuatu is a Pacific Island Country with a population of approximately 301,000 people living across 65 inhabited islands. It is estimated that 9% of the population are living with hepatitis B, with testing and treatment provided at tertiary hospitals. Mother-to-child transmission (MTCT) of hepatitis B virus is the most common route of transmission in highly endemic countries. Antiviral prophylaxis with tenofovir disoproxil fumarate (TDF) during pregnancy in addition to hepatitis B immune globulin (HBIG) and hepatitis B birth dose (Hep-BD) vaccination has been shown to have a protective effect to prevent MTCT.

In 2024, the World Health Organization (WHO) guidelines recommended TDF prophylaxis for all hepatitis B surface antigen (HBsAg) positive pregnant women, in settings where there is no access to hepatitis B DNA testing. Most Pacific Island Countries, including Vanuatu, meet eligibility criteria for universal prophylaxis with TDF for HBsAg positive pregnant women. The Protektem Pikini Blong Yu (PBBY) field trial aims to assess the effectiveness of providing all HBsAg pregnant women with antiviral prophylaxis to prevent MTCT of hepatitis B in Vanuatu. Understanding adherence to TDF among pregnant women is needed to evaluate the feasibility of treat-all approaches.

Material and Methods: This is a nested study within the clinical trial PBBY, a prospective, two-arm field trial, comparing an intervention group (treat-all arm) to a control group (high-DNA driven care arm). Eligible participants include pregnant women aged ≥ 18 years, less than 28 weeks gestation, who have a positive HBsAg test during routine antenatal care. Study sites include government, private and non-governmental organisation (NGO) antenatal care services. TDF adherence was measured via pill counting and phone calls with participants to collect self-reported adherence. Data was also collected using an abridged Medication Adherence Report Scale (MARS-5), administered to selected participants during pregnancy and at 14-weeks post-delivery. Adherence data was analysed using descriptive statistics and multivariate analysis was used to examine factors associated with TDF adherence.

Results: Data is available for 53 women who have been recruited to the intervention arm. To date, the mean adherence rate was 76.2% (+/- 20.9) among this group. Using an acceptable adherence rate of 80%, 50.9% (27/53) of participants had acceptable adherence to TDF. Mean adherence rates were higher in the prenatal period, 88.1% (+/- 13.9), compared to 69.4% (+/-28.9) following delivery.

Of the participants who responded to survey questions regarding antiviral prophylaxis with TDF in pregnancy, 100% (27/27) reported that it was important to take the medication in pregnancy, with 77.8% (21/27) mentioning protection of their baby. Most women (85.7%, 24/28) reported that the medication was easy to take.

Conclusions: Medication adherence in pregnancy is an important consideration when evaluating the feasibility and effectiveness of universal TDF prophylaxis to eliminate MTCT of hepatitis B. Initial



findings demonstrate suboptimal adherence rates among pregnant women in Vanuatu. Further studies using qualitative methods are needed to explore factors impacting adherence to antiviral prophylaxis in pregnancy.



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Preliminary Findings of a Mobile Street Medicine Clinic for Treating Hepatitis C among Unsheltered Homeless Individuals in Central Florida

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Background: Florida ranks third in the United States for prevalence of hepatitis C virus (HCV), HIV, and drug-related mortality. Additionally, Florida has the fourth-highest number of people experiencing homelessness (PEH) in the United States. Research shows that PEH have the lowest rates of HCV treatment initiation and cure of any population, making innovative and targeted interventions for PEH imperative. In response to these disparities, the University of Florida's (UF) Street Medicine team, a mobile primary care program serving individuals experiencing unsheltered homelessness, developed and piloted a fully field-based HCV screening and treatment initiative designed to improve access to care for this highly marginalized population. In fall of 2025, UF's Hepatology Department and Street Medicine team received grant funding to scale its HCV treatment model to cure 55-65 unsheltered homeless patients per year.

Methods: In early 2023, UF Street Medicine initiated phase 1 of its novel field-based HCV diagnosis and treatment program, which involved piloting the program with one unsheltered homeless patient. Phase 2 began in 2024 and consisted of expanding HCV treatment to two patients in 2024 and three patients in 2025. After receiving grant funding to substantially expand this program in fall 2025, UF Hepatology and UF Street Medicine initiated phase 3 which consisted of attempting to cure 55-65 unsheltered homeless patients per year. During all phases of this study, UF Street Medicine used plan-do-study-act (PDSA), an iterative four-stage problem-solving model, for identifying issues with its HCV treatment program and implementing improved processes.

Results: Of the six patients experiencing unsheltered homelessness who were treated for HCV during phases 1 and 2 (2023-2025), four achieved cure, one had a detectable viral load at three months post-treatment, and one has completed treatment but has not yet been tested for sustained virologic response (SVR). Among the 38 patients tested thus far during phase 4, 60% (n=23) were positive for HCV antibodies. Of those with positive antibodies, 87% (n=20) were positive for HCV RNA. To date, two patients have complete HCV treatment and 18 are still currently undergoing treatment. UF Street Medicine's iterative PDSA cycles identified several barriers to successful HCV treatment among people experiencing unsheltered homelessness, including challenges with maintaining follow-up, loss of medications due to theft or confiscation during encampment displacement by law enforcement, and delays in HCV RNA testing and treatment initiation because patients lacked phones or permanent contact information. In response, UF Street Medicine partnered closely with patients to implement several targeted interventions, including ultrasound-guided field-based blood draws, grant-funded harm reduction supplies (such as syringes), and directly observed therapy (DOT) to reduce medication loss and support treatment adherence.

Conclusions: Prevalence of HCV is high among unsheltered homeless individuals in Central Florida, even higher than HCV prevalence among sheltered homeless individuals. This suggests that targeted HCV interventions for PEH may need to be further modified depending on shelter status. Additionally, other teams attempting to target homeless individuals for HCV treatment should consider field-based lab draws, access to harm reduction supplies, and DOT as key components when designing treatment models.



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A Cost-Effective Analysis of Transportation of Blood for HCVRNA Using the Plasma Preparation Tube vs the Plasma Separation Card

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Background: Detection of viral RNA is crucial for hepatitis C diagnosis. Traditional plasma preparation tubes (PPT) require centrifugation and cold chain transportation, posing challenges in resource-limited settings. The Plasma Separation Card (PSC) offers a promising alternative, eliminating the need for centrifugation and cold chain.

Objectives: To compare the cost of preparation and transportation of PSC vs PPT for HCVRNA detection and to compare viral load in both methods

Methods: A study was conducted in Khairpur district, Sindh, Pakistan, involving 100 rapid diagnostic test-reactive anti-HCV individuals. Venous blood samples were collected in PPT and PSC, and costs were calculated for transportation and handling.

Results: The overall cost of PSC was approximately 50% lower than PPT, mainly due to reduced costs for centrifugation, refrigeration, and transportation. The viral detection rate was excellent in both PPT and PSC, with no significant difference in HCV viral load. Direct spotting of venous blood onto PSC showed good correlation with plasma results.

Conclusion: PSC is a cost-effective and efficient method for HCVRNA detection, particularly in resource-limited settings. The elimination of centrifugation and cold chain requirements makes it an attractive alternative to traditional PPT. The

study's findings suggest that PSC can be a valuable tool for scaling up HCV diagnosis and treatment programs, especially in low-middle-income countries like Pakistan.

This study highlights the potential of PSC to improve access to HCV diagnosis and treatment in resource-constrained settings, contributing to global efforts to eliminate hepatitis C.



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Natural Sero-clearance of HBsAg: A Retrospective Longitudinal Analysis of 22 Years Data, from a Tertiary Liver Clinic in Karachi, Pakistan

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Aim: To calculate and report the HBsAg seroconversion rate in Pakistani patients

Introduction: Hepatitis B natural sero-clearance is a unique milestone indicating clearance of hepatitis B virus from a chronic case without any treatment. Although an extremely rare event yet it is significant. The current study assessed the sero-clearance of HBV in a cohort of HBsAg reactive chronic cases followed longitudinally over 22 years at a private liver clinic in Karachi, Pakistan.

Methods: This was a retrospective cross-sectional longitudinal study over 22 years (1st January 2003 to 30th July 2025) done at a tertiary liver clinic in Karachi, Pakistan. All patients with at least two reactive HBsAg tests and normal liver function were included in the study and were followed. Most patients had a reactive HBsAg report but many also had serial quantitative HBsAg report. The quantitative reports were compiled to see the decreasing trend of the HBsAg. Patients who did not have at least two HBsAg reactive reports over 6 months and patients with acute and chronic viral hepatitis B were excluded. HBsAg sero-clearance was assessed by at least 2 undetectable HBsAg ≥ 6 months apart and/or coupled with anti-HBs appearance.

Results: A total of 11410 HBsAg reactive cases were seen over 22 years with 4280 (37.5%) having chronic liver disease and 308 (2.6%) acute hepatitis B and 6822 were inactive carriers. Data of inactive carriers was analysed to see the HBsAg loss or sero-clearance. HBsAg loss was seen in 29 patients over a median follow up was 8 years (range 2-22 years). The sero-clearance rate was 0.42%. There were 21 (72.4%) males and 8 (27.6%)

females with a mean age of 39.7 years. Most (16) cases were less than 40 years of age. Mean quantitative HBsAg was <100 IU/ml in 4 cases and ranged between 101-1000 IU/ml in 10 and >1000 IU/ml in 10 cases. Majority (16) cleared the virus within 10 years. Cases having qHBsAg of 3000 IU/ml or above had more likely hood of clearing the virus. The 5, 10, 15 and 20-year cumulative sero-clearance rates were 30%, 59%, 72% and 95% respectively. Eleven (37.9%) patients developed antibody to HBsAg (anti-HBs) following HBsAg clearance.

Conclusion: Over 22 years, 29 patients (0.4%) seroconverted from reactive HBsAg to non-reactive status. Most patients seroconverted over 10 years and this phenomenon was more often noted in males.



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Hepatitis B Viral Elimination Actions in Ondo State, Nigeria

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Background: Hepatitis B virus (HBV) is a major cause of liver-associated diseases worldwide, accounting for over 354 million cases with high morbidity and fatalities. About 90% of infected people are unaware of their status. About 10% of chronic carriers will develop complications such as chronic hepatitis, liver cirrhosis, and liver cancer. Globally, liver cancer is the second deadliest cancer. Among a cohort of those previously aware of their HBV positive status, only 7.6% could undertake follow up tests and treatments in Ondo State, Nigeria. The cost of treatment was found to negatively affect ability of HBV infected individuals to assess treatment. Efforts at significant reduction and elimination of viral hepatitis have come a long way; yet, more is needed to be done. The objective of the study was to find and treat missing HBV infections in Ondo State, as a way forward in HBV elimination.

Materials and Methods: This intervention study was conducted from May to December 2024 in Ondo State, Nigeria. We followed appropriate community entry procedures by carrying out courtesy visits on various community leaders in our mobilization efforts for community-based screening. Using a stratified random sampling technique, we recruited subjects across the 3 senatorial districts in Ondo State. Subjects ranging from 20 years and above were randomly selected, tested and re-screened for HBV surface antigen (HBsAg) using kits manufactured by PROMED and Exact rapid diagnostics respectively. Each positive sample and 1 in every 10 negative subjects were also tested using HBV ELISA antigen detection kit manufactured by 'Egene'. HBV Positive subjects were assessed by Clinical examination, HBsAg

quantification, serum bilirubin, liver enzymes and viral loads and those eligible for treatment were recruited into treatment of the 'Aiyedatiwa Free Treatment Program'.

Results: Among the 1979 subjects recruited at this first round, 139 were positive for HBV. All subjects who were positive by rapid diagnostic tests were also positive by ELISA. Subjects were 20-91 (48.46 ± 0.38) years old. The modal age group was 40-49 years with HBV sub-prevalence of 11.22%, followed by 50-59 years (9.46%) and 20-29 years (9.03%) [Table 1]. The HBV prevalence rate was 7.02%, with a male-to-female prevalence ratio of 2:1. Alignment with health education as personal prevention efforts significantly reduced HBV among the subjects. Inversely, lifestyles such as habitual alcohol intake and smoking were significant predictors of hepatitis B infection [Table 2]. A total of 72 of them were enrolled into treatment following assessment of viral loads and impacts of HBV on the liver and were started on free treatment. A compliance rate of 85% (61 subjects) to medication and follow up treatment was found at the 9th month of treatment.

Conclusion: This intervention study provides valuable insights into the epidemiology of HBV in Ondo State, Nigeria. There is a great improvement in compliance with follow up investigation and treatment when compared with our previous experience with HBV seropositive patients in Ondo State. We hope to scale up the project to further coordinate state HBV programs towards viral elimination.



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Closing the Gap: Significant Gains in HCV Screening and Treatment Linkage in a Colorado Multi-Hospital Initiative

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Background: Colorado leads the United States as the 2nd highest mortality rate as a result of Hepatitis C infection at 4.06 per 100,000. It's estimated that over 83,000 residents have been infected with HCV with many unaware of their status, and roughly 75% of infections becoming chronic.

As a result, increased screening has been identified as a primary method of intervention. A novel program in the Denver metropolitan area (largest population concentration in Colorado) was developed and launched in 2025 to increase screening of HCV in 3 urban hospitals. The goal of this program was to increase screening, identify HCV infections, and provide patient navigation services for successful linkage to treatment outcomes.

Methods: Utilizing SWOT analysis, GAP analysis, change management, process creation, continuous quality improvement (CQI), and workflow integration - HCV opt-out screening was implemented to increase early detection and treatment of HCV. Dedicated program staff including a program manager, patient navigator, and patient counselor, were brought on to ensure collaboration and support alongside clinical teams and hospital leadership (Doctors, Nurses, Technicians, Directors, C-Suite).

Results: Year 1 of the program (2025) resulted in a 1,322.81% increase in HCV screening (57 tests in 2024 vs. 811 in 2025). Further CQI initiatives in quarter 1 of 2026 (January - March) led to a 247.71% increase in testing (811 in 2026 vs. 705 in Q1 2026). Additionally there was a 25% increase in reactive test results and the program achieved a successful linkage to care rate of 76% compared to 2024 linkage to care rates of 38%.

Conclusions: The dramatic increase in screening rates, linkage to care rates, and quarterly increases show substantial evidence that the program was successful in; increasing HCV testing, improving linkage to care rates, and identifying unknown HCV infections. Therefore, the innovative and novel approaches to program creation, implementation, and the use of existing evidence based program management theories led to a scalable and effective HCV screening program. This program can serve as a blueprint for other Colorado healthcare systems interested in similar population health initiatives to improve HCV identification and treatment outcomes.



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Characteristics of Individuals with Hepatitis C Exposure: Insights from 10 Years of HCV Antibody Testing in Vancouver, Canada's Inner-city

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Background: Vancouver, Canada's inner-city, or downtown east side (DTES), is known for high rates of poverty, drug use, and Hepatitis C (HCV) infection, with up to 40% of individuals having HCV exposure. The Vancouver Infectious Diseases (VIDC) has been providing accessible point-of-care HCV testing and treatment to individuals living in this neighborhood for more than 10 years.

Methods: VIDC provides regular point-of-care antibody testing in various inner-city locations including community centers, shelters, and single room occupancy buildings. We collect data about HCV antibody and viremia status, as well as a range of other demographic and social variables. We used odds ratios to determine characteristics significantly associated with HCV exposure from 2015 until September of 2025.

Results: A range of characteristics were found to be significantly associated with HCV exposure (presence of HCV antibodies). The most strongly associated characteristic was having a history of injection drug use. Smoking, poorer health status, being unemployed, having no post-secondary education, and having HIV were also significantly associated with HCV exposure.

We did a separate analysis (students' t-test) to determine if the average age of individuals exposed to HCV was different from those not exposed to HCV in 2015, 2020, and 2025. We found no difference in 2015 or 2020, but saw that in 2025, individuals testing positive for HCV exposure were significantly older than individuals with no exposure (48.6 YO vs. 44.5 YO; $p = 3.16E-07$).

Conclusion: We identified many factors associated with HCV exposure, most of which are consistent with variables previously identified by other research groups. The observation that individuals without HCV exposure were significantly younger in 2025 may indicate that sustained treatment of HCV in this population is reducing the risk of HCV acquisition by individuals new to drug use. Follow-up analyses will further investigate this finding.



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Clinical Burden, Hospitalization, and Mortality in HCV RNA-Positive Patients Identified through Opportunistic Emergency Department Screening

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Background: Opportunistic screening in Emergency Departments (EDs) enables the identification of previously undiagnosed people with active hepatitis C virus (HCV) infection. Early detection in the ED may prevent progression to advanced disease stages. Many patients lack clear indications for HCV testing based on current clinical guidelines or risk factors, and frequently present with nonspecific or extrahepatic symptoms, complicating early diagnosis. This study aimed to describe reasons for consultation, hospitalization, linkage to care, treatment outcomes, and mortality among people with HCV RNA-positive infection detected through ED screening.

Materials and Methods: All people with HCV RNA-positive infection (n=83) identified during opportunistic screening in the ED of Torrecaardenas University Hospital (Almería, Spain) between August 2021 and October 2024 were included. Data were collected on reason for consultation, presenting symptoms, hospital admissions, referrals to specialized care, antiviral management, and causes of death. Descriptive analyses were performed.

Results: The most frequent reasons for ED consultation were nonspecific digestive complaints (32%), respiratory or infectious issues (20%), and trauma-related problems (15%). Approximately one-third presented with digestive or abdominal symptoms attributable to hepatic complications, such as abdominal pain, upper gastrointestinal bleeding, or early cirrhosis decompensation.

Hospitalization was required in 45.7% of patients, mainly in Internal Medicine and Gastroenterology wards. Linkage to specialized care was achieved in 78% of cases, with 59% linked to antiviral management; 94% of those achieved sustained virologic response (SVR). During follow-up, 19 patients (22.9%) died, with 57.9% due to extrahepatic causes, 21.1% hepatic, and 21.1% other/indeterminate. Many had prior healthcare encounters, highlighting missed opportunities for early diagnosis.

Conclusions: People with HCV RNA-positive infection identified in our screening had considerable clinical burden, frequent hospitalisations, and notable mortality. Many did not meet the classic criteria for HCV testing, and a significant proportion had early complications. Importantly, in pluripathological patients, delayed diagnosis or inadequate management of HCV infection may worsen the prognosis of coexisting comorbidities and contribute to poorer overall outcomes. Therefore, opportunistic screening in the emergency department is an essential tool for timely identification, which would allow early referral and prevention of progression to advanced liver disease, ultimately reducing HCV-related complications, healthcare burden, and improving outcomes.



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Eliminating Viral Hepatitis in Pakistan: A Comprehensive Strategic Framework

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Background: Pakistan is grappling with a significant public health challenge, bearing a high burden of viral hepatitis B and C. Approximately 3.8 million people are living with hepatitis B virus (HBV) and 9.8 million with hepatitis C virus (HCV). To address this pressing issue, the National Hepatitis Strategic Framework (NHSF) 2024-2030 has been developed, aligning with the World Health Organization's (WHO) Global Health Sector Strategy.

Objectives: The NHSF aims to eliminate viral hepatitis as a major public health threat by 2030. To achieve this goal, the framework outlines a comprehensive approach, focusing on:

1. Strengthening leadership and governance
2. Improving prevention through enhanced vaccination coverage and safe blood transfusions
3. Increasing access to testing and treatment services
4. Building laboratory capacity for diagnosis and surveillance
5. Enhancing surveillance and strategic information systems

Key strategies include scaling up harm reduction services for high-risk populations, integrating hepatitis testing and treatment with primary care services, and promoting community awareness and engagement

Methods: The NHSF was developed through a systematic and inclusive approach, involving assessment of the current hepatitis situation, stakeholder engagement (healthcare professionals, policymakers, community representatives, patient advocacy groups), analysis of global best practices and WHO guidelines, identification of gaps in hepatitis services, establishment of clear objectives and targets and development of a comprehensive framework with implementation plans and monitoring system

This approach ensured the NHSF is evidence-based, inclusive, and tailored to Pakistan's needs, providing a roadmap for eliminating viral hepatitis.

Results/Outcomes: The NHSF targeted tangible targets, including:

- Reducing new chronic HCV infections to ≤ 5 per 100,000
- Reducing chronic HBV prevalence among 1-5 year-olds to $\leq 0.1\%$
- Reducing HBV and HCV-related mortality to ≤ 6 per 100,000 by 2030

Conclusion/Lessons Learnt: Pakistan's NHSF provides a roadmap for eliminating viral hepatitis as a major public health threat by 2030. Effective implementation, monitoring, and partnerships will be crucial to achieving the targets and reducing the burden of viral hepatitis in Pakistan. By working together, Pakistan can make significant progress towards eliminating viral hepatitis and improving the health and well-being of its population. The NHSF serves as a guiding document for stakeholders, policymakers, and healthcare professionals to collaborate and strive towards a hepatitis-free Pakistan



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Hepatitis (B, C & D) and HIV Seroprevalence Survey in Sindh Province, Pakistan

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Background: Pakistan is facing with one of the highest hepatitis C disease burden globally, necessitating urgent public health action. The first national hepatitis survey was carried out in 2008 followed by a provincial (second) survey in Punjab in 2018. In 2019, the third survey was carried out by World Health Organization and Department of Health Sindh to assess the latest Hepatitis B, C, D and HIV seroprevalence in Sindh province.

Objectives: The survey aimed to find the latest prevalence of hepatitis B C D and HIV in Sindh province that should be statistically representative of the whole province.

Methods: A stratified two-stage sample design was used to collect blood samples from 6,672 individuals across all the 29 districts of Sindh Province. Samples were tested at the hepatitis control program laboratory, and data were analyzed using Epi Info and SPSS version 19.0.

Results/Outcomes: The study found a hepatitis prevalence of 1.0%, with 70 individuals (42 males, 28 females) testing positive. Prevalence increased with age, and significant risk factors included family history of chronic liver disease (OR=2.5) and shaving at barber shops (OR=2.2). HIV prevalence was 0.02%, with only two individuals (a husband and wife) testing positive.

Conclusion/Lessons Learnt: The survey findings highlighted the need for mass testing and treatment through a multisectoral, integrated approach to control hepatitis and HIV spread and prevent the disease progression. Recommendations include integration of healthcare services to save the resources, scaling up testing and treatment services, promoting awareness, and implementing targeted interventions. This survey provided valuable insights for policymakers and healthcare professionals working towards eliminating

hepatitis as a major public health threat in Pakistan.



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Barriers and Enablers to Sustained Engagement in Hepatocellular Carcinoma Surveillance: A Qualitative Study

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Background and Aims: Hepatocellular carcinoma (HCC) is a leading cause of cancer-related mortality globally, with chronic hepatitis B and hepatitis C as major risk factors. Regular six-monthly surveillance with liver ultrasound and blood tests improves early detection and survival. Despite guideline recommendations, uptake and sustained participation by patients with hepatitis B in HCC surveillance remain suboptimal. Investigating why and how patient engage with HCC surveillance is critical to improve continued engagement. This study used qualitative research methods to explore patient perspective on the barriers and enablers to HCC surveillance.

Methods: Semi-structured qualitative interviews were conducted with patients undergoing HCC surveillance at St Vincent's Hospital liver clinic in Melbourne, Australia. Interviews explored experiences of surveillance, understanding of surveillance, emotional responses and health system factors. Transcripts were analysed thematically using Braun and Clarke's approach.

Results: Fourteen patient interviews were analysed. The majority were of Asian ethnicity (N=6, 43%) and males (N=8, 57%). The cohort age range was between 54 – 71 years. Most patients (N=8, 57%) were undergoing HCC surveillance due to a history of hepatitis B. Two had alcohol related cirrhosis, 1 had hemochromatosis and hepatitis C, 1 had Metabolic Dysfunction-Associated Fatty Liver Disease cirrhosis, 1 had a history of Haemangiomas and 1 had previously cured HCC. Five dominant themes emerged: (1) initial emotional response, (2) trust in specialist care, (3) perceived burden and manageability of screening, (4) family awareness and disclosure and (5)

acceptance and adaptation over time. A cross-cutting theme of health literacy and understanding of surveillance purpose was identified. Initial fear or shock was common but typically transient, with most participants adapting to routine screening. Trust in specialist-led care strongly facilitated engagement, even when communication was perceived as limited. Screening was generally acceptable, with logistical and procedural factors representing the main burdens. However, some participants demonstrated active, informed engagement, while others exhibited passive engagement with limited understanding or persistent anxiety despite long-term participation. Notably, several participants were unaware that surveillance aimed to detect cancer.

Conclusion: HCC surveillance is acceptable when embedded within trusted specialist care, but engagement occurs through diverse pathways. High participation does not necessarily reflect adequate health literacy or emotional wellbeing. Interventions should prioritise patient education, clear communication of surveillance purpose and addressing needs to optimise long-term engagement.



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Bansal-Biology Algebraic-Geometric Framework for Viral Hepatitis Elimination and Liver Cancer Prevention: Disease as Directed Curvature Accumulation, Entropy Production and Interpretable Longitudinal Control

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Background: Viral hepatitis elimination requires more than viral suppression and stage labeling; it requires an interpretable model that connects persistent inflammation, tissue remodeling, fibrosis, cirrhosis, portal-flow distortion, therapy response and hepatocellular carcinoma risk into one continuous biological trajectory. The Bansal-Biology, or B-Bio, framework proposes that liver disease is not a sequence of disconnected clinical snapshots, but a path-dependent process of directed curvature accumulation, entropy production, altered transport and projected clinical observables.

Objectives: This work presents an eleven-pillar, nine-framework Bansal-led model for viral hepatitis, fibrosis and liver cancer prevention using the BVidAL Clinical Software Suite. The objective is to integrate hepatitis B, hepatitis C, metabolic co-injury, fibrosis progression, cirrhosis, HCC risk, treatment response and surveillance into one deterministic, non-black-box clinical state-space. It also aims to distinguish the hidden evolving liver state from its measurable projections, including ALT, AST, viral load, imaging, elastography, biomarkers, physiological signals and therapy-response patterns.

Methods: The model is grounded in the 11 pillars of Novel Bansal-Biology Theory: Algebra, Manifold, Projection, Trajectory, Curvature, Operators, Entropy, Holonomy, Fiber Bundle, Tensor and Connection/Transport. It is positioned within the nine Bansal frameworks: B-Phy, B-Chem, B-Core Biology, B-Disease, B-Pharma, B-PhytoPharma, B-

Bioinformatics, B-Artificial Intelligence and B-Prosthetics. Unlike a narrow pharmacology-only approach, this version places B-Phy first, using Bansal Unified Variational–Tensor Formulation as the physical-mathematical foundation. Finite element modeling is added as the computational bridge for liver tissue geometry, fibrosis distribution, stiffness, deformation, portal-flow distortion and localized high-risk regions. B-Disease handles hepatitis-to-HCC progression; B-Pharma models antiviral and therapeutic operators; B-Bioinformatics maps omics and molecular data; B-AI supports explainable hidden-state inference; and B-Core Biology supplies the central physiological projection logic.

Results: The framework reconstructs viral hepatitis and liver cancer as one evolving biological continuum. Early hepatitis is interpreted as inflammatory-metabolic perturbation with partly recoverable transport coherence. Fibrosis appears as distributed curvature accumulation within extracellular matrix and tissue architecture. Cirrhosis represents manifold instability, tensor coupling, portal-flow deformation, entropy rise and reduced reversibility. HCC emerges as localized high-curvature divergence with unstable boundaries, holonomy, path dependence and repair failure. Finite element modeling enables spatial interpretation of stress, stiffness and deformation, while the variational–tensor layer explains coupled biological forces, transport and remodeling. Therapeutic intervention is modeled as an operator that may redirect, stabilize or destabilize the disease trajectory.

Conclusion: This eleven-pillar, nine-framework Bansal-Biology submission presents a broad SaMD-based clinical modeling ecosystem rather than a single disease-stage model. By combining the 11 pillars of Novel Bansal-Biology Theory, Bansal Unified Variational–Tensor Formulation, finite element modeling, B-Phy, B-Disease, B-Pharma, B-PhytoPharma, B-Bioinformatics and B-Artificial Intelligence, the framework offers an interpretable approach for viral hepatitis elimination, fibrosis monitoring, therapy-response explanation, recurrence-versus-regeneration distinction and liver cancer prevention. The model links biomarkers, imaging, biosignals, drug response and tissue mechanics to one hidden evolving liver state, supporting non-black-box precision hepatology and future evaluation in global hepatitis elimination programs.



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Removing HIV Test Offer from Triage Module Reduced HIV Screening Rates in a Large Safety-Net Emergency Department in Atlanta, Georgia, United States

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Objective: To study the impact of removing an HIV test offer from triage on the number of HIV tests offered and ordered in an urban, safety-net Emergency Department (ED) serving a population with a high prevalence of HIV in the southern United States.

Methods: Data from the electronic medical records were extracted including one year before and one year after the removal of the HIV test offer from triage. Descriptive statistics were calculated and graphed. Simple and multivariate linear regression were conducted to assess the number of HIV tests offered and ordered before and after the removal of the HIV question.

Results: There were 200,630 visits to the ED during the study period. HIV tests offered dropped from 54% before the change to 7% after ($p < 0.0001$). Similarly, the percentage of people offered an HIV test who then had an HIV test ordered in the ED dropped from 9.9% to 7.9% ($p < 0.0001$).

Conclusion: Removal of the HIV question from ED triage resulted in a large reduction in HIV tests offered and a smaller reduction in HIV tests ordered in the ED. Even before removal of the HIV offer from triage, only half of ED patients were being offered an HIV test. Future work will assess the impact of re-instating the HIV question in triage and explore ways to increase offers and orders of HIV tests in triage.



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Hepatitis B and C Screening at CPACS Cosmo Health Center: A Multi-Year Analysis of a Federally Qualified Health Center Serving a Racially and Ethnically Diverse Underserved Population

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Background: Chronic hepatitis B virus (HBV) and hepatitis C virus (HCV) infections disproportionately affect racially and ethnically diverse and underserved populations, including Hispanic/Latino, Asian American, and Black/African American communities. Federally Qualified Health Centers (FQHCs) serve as critical access points for preventive care among individuals who may otherwise lack opportunities for viral hepatitis screening. Despite national elimination goals, screening and linkage-to-care gaps persist among key populations. This analysis describes the screening yield, demographic characteristics, and linkage-to-care outcomes of an integrated HBV, HCV, and HIV screening program implemented at CPACS Cosmo Health Center between 2022 and 2026.

Materials and Methods: A retrospective review of laboratory and clinical data was conducted for patients who received viral hepatitis screening at CPACS Cosmo Health Center across four screening periods from 2023 to 2025. Screening included hepatitis B surface antigen (HBsAg), HCV antibody (HCV Ab) with reflex to quantitative real-time PCR, and fourth-generation HIV screen. Patient-level data included race, ethnicity, and gender. Positivity rates for HBsAg and HCV Ab were calculated as proportions. Confirmed HCV viremia was defined by a detectable viral load on reflex PCR. Linkage to care was assessed for all patients with reactive results. Descriptive statistics were used to characterize the screened population and identify demographic patterns among those with positive results.

Results: A total of 381 individuals were screened across four time periods. The screened population

was racially and ethnically diverse, including patients identifying as Hispanic or Latino, Asian or Asian American, Black or African American, White, and other or declined-to-specify groups. HBsAg was reactive in 4 individuals (1.0%): 2 were Asian and 2 were Black or African American. HCV antibody was reactive in 2 individuals (0.5%); reflex quantitative PCR confirmed active HCV viremia in 1 person (viral load 339,000 IU/mL, log₁₀ = 5.53). Two individuals had a preliminary reactive fourth-generation HIV screen. The majority of people with reactive results were successfully linked to follow-up care; a small number were lost to follow-up despite outreach efforts. A substantial proportion of people screened had documented HBV non-immunity, representing additional opportunities for vaccination referral.

Conclusions: An integrated HBV, HCV, and HIV screening program at CPACS Cosmo Health Center successfully identified active infections and immunity gaps across a racially and ethnically diverse underserved population. An HBsAg positivity rate of 1.0% — notably higher than the general U.S. population estimate of approximately 0.3% — underscores the disproportionate burden of chronic HBV among Asian American and Black or African American patients. The successful linkage of most people with reactive results to follow-up care demonstrates the capacity of FQHCs to bridge screening with treatment. Persistent loss to follow-up among a subset of patients highlights the ongoing need for patient navigation and culturally responsive care coordination. FQHCs such as CPACS Cosmo Health Center represent high-yield settings for advancing viral hepatitis elimination among populations facing structural barriers to care.

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Latest Profile of qHBsAg in Patients Continuing NUC Treatment in Japan

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Backgrounds: There are already several new therapies for HBV that have advanced to phase 2-3 clinical trials, such as antisense oligonucleotides and siRNA. Quantitative HBsAg level (qHBsAg) is a predictor of treatment response for these new HBV therapies. Many these new HBV treatments are expected to be administered as add-on NUC. Clarifying the current status of qHBsAg in patients treated with long-term NUC is crucial for selecting candidates for future novel treatments. Therefore, in this study, we aimed to evaluate the current status of qHBsAg among patients treated with long-term NUC.

Patients and Methods: The study enrolled 1,526 patients who had received NUC treatment for at least one year and who had qHBsAg > 0.05 IU/mL at last visit. We assessed qHBsAg at the time of last visit from 2024 to Mar 2026. We evaluated the distribution of last qHBsAg using two cutoffs: 3,000 IU/mL and 1,000 IU/mL, according to HBeAg status and treatment duration.

Results: Median age of last visit was 59 years, and median treatment duration was 15.8 years. At last visit, 81.1% of patients had qHBsAg <3,000 IU/mL, and 61.9% had <1,000 IU/mL. There were 1,294 patients with HBeAg-negative (84.8%). According to HBeAg status, 84.5% of HBeAg-negative patients had qHBsAg <3,000 IU/mL, and 61.9% had <1,000 IU/mL. Among HBeAg-positive patients, 61.9% had qHBsAg <3,000 IU/mL and 31.6% had <1,000 IU/mL. Thus, the proportion of patients with low HBsAg levels was significantly lower in HBeAg-positive cases ($P < 0.001$). Furthermore, as the duration of NUC treatment increased, the proportion of patients with low HBsAg levels rose. Among patients with NUC treatment for 15 years or more, 89.1% had qHBsAg <3,000 IU/mL and 73.2% had <1,000 IU/mL.

Conclusions: About 60% of patients treated with NUC had qHBsAg < 1,000 IU/mL and 80% had

<3,000 IU/mL. The prevalence of qHBsAg <1,000 or <3,000 became higher when NUC treatment duration was longer.

