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INTERNATIONAL VIRAL HEPATITIS ELIMINATION MEETING

ABSTRACT BOOK

International Viral Hepatitis Elimination Meeting
Amsterdam, Netherlands | 1 - 2 December 2023

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Oral Presentations

International Viral Hepatitis Elimination Meeting
IVHEM 2023

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Amsterdam, the Netherlands

1

Impact of S Gene and Prec/C Mutations on Outcome of HBV Infection

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Background: Studying mutations in the HBV genome is crucial for understanding varied outcomes in terms of chronic or occult hepatitis B infection especially in a household setting. Analyzing virus evolution, mutations alongside immune response offers critical insights into the host pathogen interaction. Aim: Our study examined HBV in household contacts, aiming to uncover transmission patterns, phylogenetic relationships, and surface/core gene mutations linked to OBI.

Materials and Methods: HBV DNA presence was examined in 22 HBsAg-positive and 90 HBcAb-positive close contacts of 62 HBsAg-positive cases through nested PCR. Sequencing was performed using the BigDye Terminator Kit followed by post processing using Chromas and BioEdit software to generate low quality trimmed consensus sequences. The online Geno2Pheno tool was used for genotyping and mutation analysis. Serotyping was performed using algorithm described by Purdy et al.

Results: Detectable HBV DNA was found among 44 (70.96%) index cases and 29 (25.89%) family members who tested positive for HBsAg and/or anti-HBc . Among the 44 index cases, 39 were positive for both the S and preC/C regions, while 5 cases positive solely for the S gene. The median viral load of HBV DNA among index cases was 3.57 log10 IU/mL and 4.10 log10 IU/mL among HBsAg positive family members, while OBI members had a median load of 2.55 log10 IU/mL. ayw3(6/13) was the primary serotype among chronic family members, followed by adw2 (4/25) and ayw2 (3/25). Whereas, adw2 (10/12) was the main serotype among occult HBV members.
Comparing S gene mutations in OBI cases and chronic cases revealed that R122K, F161Y, T127P, S143T, G159A, V194A, T131N, and Y134F significantly higher among OBI cases ($p<0.05$). Most of them are escape mutations affecting diagnosis, immune recognition, and vaccine response. Common core gene mutations in overt HBV cases included N74V, N87S, and I97F.
Among 90 suspected OBI members, 18 were HBV DNA-positive through RT-PCR or nested PCR. Of these, approximately 61% (11/18) had positive anti-HBs titre(>10mU/ml), while around 39% (7/18) did not. Among 72 members negative for viral markers, about 68% (49/72) had positive anti-HBs titers while 23/72 were negative. Out of 30 members without positive anti-HBs titres, only one had vaccination history against HBV.

Comparing mutations in OBI cases with or without positive anti-HBs titers revealed 10 common sites, 8 of which were in the MHR region. The MHR region had the most frequent mutations in both groups. A few mutations in the overlapping RT domain were also shared, though unique mutations were infrequent in either group. Interestingly more precore/core mutations were observed in OBI patients without anti-HBs titre.

Conclusions: Majority of statistically significant mutations were observed in the S gene, especially the major hydrophilic region. Since these mutations are often associated with immune recognition, diagnostic epitopes and vaccine response, mutations in this region could justify the non-detection of OBI by standard HBsAg kits. This emphasizes the need to revise the detection strategies especially for individuals at high risk of HBV exposure.

2

Evaluation of a Commercial Real-Time Assay in Dried Blood Spot Samples for Monitoring Hepatitis C Treatment Outcome in People Who Inject Drugs in the Real World

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Background: Assessing cure and reinfection after treatment is key to achieve hepatitis C virus (HCV) elimination by 2030, especially in people who inject drugs (PWID). Previously, we have demonstrated that dried blood spot (DBS) samples are a reliable tool to assess cure and reinfection after on-site treatment at a harm reduction center (HRC) by using an in-house HCV-RNA assay. Here, we aimed to evaluate the performance of the Abbott RealTime HCV Viral Load assay (CE-IVD marked for its use in DBS) for the assessment of sustained virological response (SVR) and reinfection 12 weeks after treatment.

Methods: This evaluation was performed within the context of an ongoing micro-elimination study in PWID accessing the largest HRC in Barcelona. At the time of SVR assessment (FU12), DBS were collected, shipped to the laboratory at room temperature, and tested for HCV-RNA with the Abbott RealTime HCV Viral Load assay (lower limit of sensitivity −LLoD− in DBS, 462 IU/mL). DBS results were compared with molecular point of care (PoC) testing (HCV viral load in fingerstick capillary blood by GeneXpert, Cepheid; LLoD, 40 IU/mL), which was performed at the HRC. Reinfection and treatment failure were assessed by HCV genotyping by NS5B sequencing and phylogenetic analysis in pre- and post-treatment DBS samples.

Results: Among treated patients, 47 DBS samples corresponding to FU12 were tested, and 24 were positive by the POC test. The DBS-based HCV-RNA assay showed 91.7% sensitivity (22/24; 95% IC: 74.2-97.7%), 100% specificity (23/23; 95% IC: 83.9-100%) and 95.7% diagnostic accuracy (45/47; 95% IC: 85.8-98.8%) for HCV-RNA detection and quantification (except for one case, <462 IU/mL) ; two cases were not detected in DBS (viral loads by GeneXpert were 442 and 472 IU/mL). Sensitivity was 100% (95% CI, 81.6-100%) for cases with viral loads >1000 IU/mL. The most frequent cause of recurrent viremia was reinfection (14/24, 58.3%), treatment failure was identified in three cases (12.5%), and the rest of cases could not be classified.

Conclusion: Preliminary evidence shows the usefulness of DBS samples for assessing cure after HCV antiviral treatment in the real world, facilitating treatment decentralization in PWID attending HRC. These results are in line with our previous study, with the added value of using a CE-IVD marked commercial assay. Still, few patients presented with low viral loads at FU12 and HCV-RNA was not detected in DBS, possibly reflecting acute infections that may be spontaneously cleared. Repeat testing over time is recommended to identify all viremic cases.

3

Free Hepatitis C Testing using Plasma Separation Card and Linkage to HCV care in Pakistan

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Objective: To compare the ease of extraction and results HCVRNA using Plasma Separation Card with Gold standard venous blood collected in a gel tube.

Background: Drawing a venous sample for HCVRNA testing requires an expert. The transportation of this sample and its storage also requires special care and refrigeration especially in the low middle income countries. The plasma separation card is a solution for all these issues where whole blood collected from a finger stick is placed onto the card and is transported without separating or refrigerating it. HCV RNA is extracted from it at the laboratory.

Methods: A total of 350 anti HCV reactive persons underwent reflex blood collection for HCVRNA. From each individual 5ml of venous blood was collected in a gel tube and stored for HCVRNA testing. From the other hand, using a finger stick, 140 microliters of whole blood were collected in the capillary tube and poured over the marked point of the plasma separation card (PSC). The gel tube and the PSC were transported to the main laboratory for RT PCR, where plasma was separated from the gel tubes and was run for HCVRNA testing (both qualitative and quantitative assays). From the plasma separation card, one punch of spot was removed and placed in the virus extracting solution and tested for HCVRNA using standard steps (both qualitative and quantitative assays). The two tests were run simultaneously for comparison. A correlation factor of 50 was applied to the PSC viral quantification and then compared with the quantitative HCVRNA levels obtained from the venous samples.

Results: A total of 350 anti HCV reactive cases underwent venous blood sampling and the finger stick blood collection on PSC. Both samples were run for HCVRNA at the laboratory. There were 54% males and majority were anti HCV reactive between 21-50 years. HCVRNA testing was done in 84% cases before starting the treatment while in others it was done after completion of the treatment. Preference for finger stick blood collection was seen in patients and technicians. Time taken in venous collection was much less than that in the finger stick. Gold standard venous sample collected in gel tube detected virus in 144 samples while finger stick blood collected on PSC detected HCVRNA in 153 cases. The sensitivity of the PSC was 93.8% with 91.3% specificity. The positive predictive value was 88.2% and negative predictive value was 95.5%. Overall, a good correlation of r = 0.63 was seen between HCVRNA extracted from venous sample vs PSC.

Conclusions: Plasma separation card for blood collection, transportation, storage and extraction of HCVRNA was found to be user friendly when compared with the venous blood collection. The HCVRNA extracted from the PSC correlated well with the venous sample suggesting its wider use especially in difficult to reach populations and areas.

4

Integration of Hepatitis B Screening and Management in Antenatal Services: A Comprehensive Approach to Prevent Mother-to-Child Transmission

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Background: WHO estimates that in 2015, 257 million people were living with chronic HBV infection worldwide, and that 900 000 had died from HBV infection, mostly as a result of cirrhosis or hepatocellular carcinoma. Most HBV-associated deaths among adults are secondary to infections acquired at birth or in the first five years of life.
To reduce the incidence of chronic HBV infection, WHO has recommended universal immunization of infants, with three or four doses of hepatitis B vaccine, and the first dose of hepatitis B vaccine given as soon as possible after birth (within 24 hours) and other interventions targeted at the pregnant mother to reduce the risk of mother-to-child transmission of HBV.
To contribute to the EMTCT of HBV in Nigeria, we carried out an interventional study targeted at screening pregnant women attending ANC for HBsAg and Anti-HCV, training healthcare providers (HCPs) on provision of quality HBV PMTCT, and increasing awareness among Traditional Birth Attendants and community volunteers with the goal of reaching pregnant women in the communities not attending antenatal

Materials and methods: This interventional study was conducted in randomly selected secondary facility and some primary healthcare centers providing antenatal services in underserved and hard to reach communities in sardauna (Mambila plateau) in Taraba state, from April2022 to October2022. The study included as primary target all pregnant women attending antenatal in the selected facilities and pregnant women in the community previously not attending antenatal and other women of child bearing age(WCBA). Male partners of pregnant women who were reactive to HBsAg as secondary target
The study integrated Free HBsAg and Anti-HCV screening into existing free HIV screening offered to Pregnant Women presenting at ANC and at the TBAs, WCBA and other pregnant women not attending ANC in community settings using WHO PQ rapid diagnostic tests kits. Women reactive for HBsAg were further screened for HBeAg rapid testing based on WHO guidelines

Trained HCP initiated tenofovir 300mg prophylaxis per day for Pregnant women reactive to HBeAg from 28 weeks of gestation for up to 4 weeks postpartum, in accordance with the WHO's recommendations that "in settings in which antenatal HBV DNA testing is not available, HBeAg testing can be used as an alternative to HBV DNA testing to determine eligibility for tenofovir prophylaxis to prevent mother-to-child transmission of HBV".

Result: Of the 1675pregnant women, 386WCBA and 192partners screened for HBsAg, 105(6.7%) pregnant women, 7(1.8%) WCBA and 23(11.9%)partners were reactive to HBsAg;
Further screening showed 49 pregnant women reactive to HBeAg, 41 exposed liveborn babies received birth-dose HBV vaccine, 24 hours after birth the remaining 8 babies were within 72 hours of birth. 47 babies received the complete follow up doses of HBV pentavalent vaccine.

Conclusion: Our intervention highlights the feasibility of integrating HBV EMTCT into existing ANC in PHCs. Timely Universal birth-dose vaccination and the introduction of tenofovir at 28 weeks of pregnancy is key to achieving HBV elimination.
Scaling up these interventions to other communities in Taraba state and Nigeria will help advance elimination of MTCT of HBV.

5

Characterizing Individuals Who Remain to Be Screened for Hepatitis C and Those Lost to Follow-up from Georgia's Hepatitis C Elimination Program

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Background/Aims: In April 2015 Georgia initiated a National Hepatitis C Virus (HCV) Elimination program, aiming to diagnose 90% of those infected with HCV and treat 95% of those diagnosed. Individuals are tested for HCV antibodies (anti-HCV) and those reactive are tested for viremia to determine treatment eligibility. By July 31st, 2023, 77.1% of adults were screened, 87.2% of those anti-HCV reactive were tested for viremia, and 85.3% of those with current infection initiated treatment. This study aims to characterize those left to screen, anti-HCV-reactive individuals with no viremia testing, and persons with chronic HCV infection who have not initiated treatment.

Methods: This study used data from April 28th, 2015 up to July 31st, 2023 from the nationwide HCV screening and treatment databases where each patient is identified by a unique national Identification number (ID). We estimated the number of adults who have not been screened for anti-HCV by comparing the number of screened individuals up to July 31st, 2023 with the 2022 population data from the Georgian National Statistics Office. We also identified adults who did not undergo viremia testing and did not initiate treatment by linking screening and treatment databases using the national ID. Persons with documented death dates in vital statistics (n=221,107) and entries made anonymously at harm reduction sites (n=158,329) were excluded.

Results: As of July 31st, 2023, an estimated 650,700 adults (around 23% of the total adult population) remain to be screened for anti-HCV, 19,680 anti-HCV reactive persons remain to be tested for viremia, and 14,361 persons with diagnosed chronic HCV infection remain to be treated.

Of the 650,700 persons who have not been screened for anti-HCV, 51.3% were male. Among 333,500 unscreened males, the highest percentage (27.2%) were aged 18-29 and the lowest were aged ≥80 (1.6%). Among 317,200 unscreened females, most were aged 18-29 years (20.7%) and the lowest percentage were aged ≥80 (5.7%).

Of the 19,680 anti-HCV-reactive persons without viremia testing, 66.9% were male. Among males without viremia testing (13,175) most were aged 40-49 (31.3%); for females without viremia testing (6,505), most were aged 60-69 (17.4%). Of those screened in prisons, 30.1% did not attend viremia testing.

Among 14,361 eligible adults who have not initiated HCV treatment, 74.0% were male. Among 10,622 untreated males, most were aged 40-49 years (30.1%) and the least were aged 18-29 (2.6%); among 3,739 untreated females most were aged ≥80 years (23.94%), and the least were aged 18-29 (2.3%). Adults screened in hospital inpatient settings had the highest proportion of adults with chronic HCV infection who had not initiated treatment (31.3%).

Conclusion: While Georgia has made substantial progress toward HCV elimination, challenges remain. Screening rates were lowest among younger adults and viremia testing was lowest in males aged 40-49 years. Furthermore, linkage to treatment was suboptimal among those screened in inpatient settings and in women aged ≥80. Innovative approaches are needed to screen the younger population, ensure men, especially those in prisons, are tested for viremia immediately, and initiate timely treatment, especially among persons diagnosed in inpatient settings.

6

Hepatitis B Virus Prevalence and Implications for Mother-To-Child Transmission among Pregnant Women in Rural Communities of Taraba State – Nigeria

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Background: Globally, most of the burden of chronic hepatitis B infection is attributed to Mother to child transmission of HBV at, or shortly after, birth or in early childhood and such perinatal and early-childhood infections lead to high rate of chronicity and mortality. Nigeria is regarded as one of the countries that is highly endemic for viral hepatitis B infection and MTCT is recognized as one of the major transmission routes. There are scanty studies regarding transmission dynamics of viral hepatitis B among pregnant women in Nigeria.

Objectives: To determine the prevalence of viral hepatitis among pregnant women in Taraba State
To determine barriers associated with MTCT among pregnant women.
Methods
This was an interventional study that was carried out between Jan- December 2022 in four rural hospitals of Taraba State. A well-structured questionnaire and patients register were used for data collection. All Pregnant women that consented to partake in the study and who are attending Antenatal across the four rural hospitals were enrolled for the study. Data collected were scripted into ODK and analyse using SPSS version 24. Simple percentage and binary logistic regression analysis were used.

Results: A total 2375 pregnant women were enrolled for the study out of which 1,675 pregnant women met inclusion criteria. Results from the findings shows that 105/1675 (6.3%) pregnant women were reactive to Hepatitis B. Before commencement of treatment with tenofovir prophylaxis as recommended by WHO, all the 105 pregnant women tested positive to HBsAg were subjected to HBeAg screening out of which 49/105 (2.9%) were HBeAg positive. Result from Binary logistic regression identified factors like; permission/approval of husbands/caregivers prior to HBsAg screening, religious/traditional beliefs and distance to facilities as key factors to ANC services in the study locations.

Conclusion: This study identified high prevalence of viral hepatitis B among pregnant, barriers such as distance to Health care facilities, religious/cultural beliefs and Husbands/caregivers approval prior to screening their wives were identified as some of the key factors. There is an urgent need to address the underlying issues identified in these studies so as to improve access to HBV PMTCT services before 2030.

7

Assessing the Cost-Effectiveness of a Treat-All Policy Change for Hepatitis B in Six WHO Regions

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Background: In 2022, only about 8% of people living with chronic hepatitis B (CHB) eligible for treatment received life-saving antivirals. Guideline complexity and cost of diagnostic tests are major barriers to timely initiation of CHB treatment. Adoption of a "treat-all" approach, where treatment is initiated following CHB diagnosis, could remove these barriers. Potential public health advantages of a treat-all policy are: 1) reducing barriers to treatment, crucial in resource-limited settings where eligibility assessment is costly or unavailable; 2) curbing transmission by treating individuals who are potentially infectious; 3) reducing lost to follow up while awaiting treatment eligibility. This study evaluated the cost-effectiveness of a treat-all approach for six WHO regions, adopting a conservative assumption of no clinical benefits for individuals not meeting current treatment eligibility, to focus on the public health benefits.

Material & Methods: Hepatitis B epidemic models projected health and economic outcomes in each region for a baseline/status-quo and three scenarios: (1) treatment coverage among those currently ineligible (as per WHO 2015 guidelines) increased to levels among those currently eligible ["policy change"], (2) WHO elimination targets met by 2030 (90% diagnosis coverage and 80% treatment coverage among those eligible) ["elimination"], and (3) Elimination targets met plus expanding treatment to 80% of individuals diagnosed with CHB ["elimination + policy change"]. Incremental cost-effectiveness ratios (ICERs) were estimated for the policy change versus baseline scenarios, and the elimination + policy change versus elimination scenarios. Sensitivity analyses were conducted for treatment effectiveness, impact of treat-all policy change on diagnosis and/or treatment coverage.

Results: Over 2023-2050, the baseline scenario had 44.4 (42.0- 49.2) million new hepatitis B virus (HBV) infections, 6.5 (6.4-6.6) million hepatocellular carcinoma (HCC) incident cases, 17.8 (16.8-18.3) million HBV attributable deaths and 314 (304-320) million HBV-related disability-adjusted life years (DALYs) globally. Compared with the baseline, scenarios 1, 2 and 3 had a 0.8%, 12.9%, and 42.8% reduction in new infections, a 0.6%, 23.5%, and 30.1% reduction in HCC incident cases, and a 0.3%, 38.0% and 39.5% reduction in HBV-attributable deaths, respectively. Scenario 1's total impact was limited by low diagnosis coverage, with greater impact possible if a treat-all policy change led to both increased diagnosis and treatment coverage. The ICER of the policy change versus baseline scenarios ranged from US$650 per DALY averted in the WHO South-East Asia Region (SEAR) to US$4129 per DALY averted in the WHO European Region (EUR). The ICER for elimination + policy change versus elimination was higher than for policy change versus baseline, suggesting that for settings where elimination care cascade targets are already achieved, the clinical benefits for people currently ineligible will be an important consideration for cost-effectiveness.

Conclusions: The public health benefits of a treat-all policy could lead to important reductions in infections, HCC cases and deaths, but potential impact is limited by current low levels of diagnosis. Where existing diagnosis/treatment targets are not being met, adopting a treat-all policy is increasingly cost-effective the more the policy change improves care cascade outcomes.

8

An Operational Research Roadmap to Simplify Delivery of Hepatitis B Services in Low- and Middle Income Countries (LMICs)

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Background: Of 296 million people living with chronic HBV infection worldwide, there is a disproportionate burden in LMICs with 87% living in the WHO African, South-East Asian, and the Western Pacific Regions. Efforts are underway to simplify and expand treatment criteria; however, even under current guidelines, less than 2% of persons receive treatment globally. To increase access to HBV services under current and future guidelines, there is a need for evidence-based models of decentralized services that are feasible and appropriate in LMICs. The Coalition for Global Hepatitis Elimination (CGHE) developed an Operational Research Roadmap ("Roadmap") to identify priority research areas, define actions to stimulate HBV operational research in LMICs, and align investigators and funding partners for a coordinated approach.

Methods: From January-April 2023, CGHE conducted semi-structured interviews and focus groups with 36 experts from a diverse set of LMICs to identify evidence gaps for HBV service delivery. In May 2023, an in-person workshop (Decatur, USA) was convened for these experts to discuss and propose operational research studies needed to overcome the identified evidence. Expert opinions and recommendations wereconsolidated to formulate a Roadmap to guide actions needed to design, coordinate, and support operational research in each of four priority areas.

Results: The priority research areas identified by research experts aim to 1) decentralize models of HBV care and treatment, 2) improve models of care for elimination of mother-to-child transmission to also protect the health of the mother and families, 3) detect persons at highest risk for fibrosis and HCC, and 4) develop and operationalize new technologies. Depending on the particular evidence gaps identified, research study designs proposed were patient and provider surveys, observational cohort studies, and step-wedged randomized control studies (detailed list at www.globalhep.org). The Roadmap describes key actions to establish a coordination center, develop detailed requests for proposals, and monitor the implementation of coordinated studies. The Roadmap adopts a "learning-by-doing" approach by recommending activities to identify promising models of care and provide implementation research support to national programs for real-time evaluation and learning. The Roadmap calls for collaborations with health economists to assess the most cost-effectiveness of promising interventions along the HBV care cascade. Recognizing that operational research for HBV in LMICs will require long-term sustainability, the Roadmap lists key activities to develop and strengthen research centers and regional networks in LMICs. Finally, the Roadmap details activities needed to appropriately translate and disseminate research findings for sustainable policy and program change.

Conclusion: Operational research is urgently needed to inform optimal program design and scale-up of HBV services in LMICs as programs seek to expand access to HBV prevention, testing, and treatment. The Roadmap provides activities to develop and execute operational research, measure existing innovative approaches, strengthen existing LMIC research centers and networks, disseminate learning in real-time, and build political commitment for HBV care and treatment. The Roadmap will be used to enhance awareness and advocacy with potential funders, align interest of diverse stakeholders, and catalyze the resources needed to ensure that LMICs are not left behind in achieving HBV elimination.

9

Towards HCV Elimination by the End of the Decade – Optimized Approaches for Vulnerable, Inner-City Populations

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Background: Numerous strategies have been suggested to identify HCV-infected individuals within inner-city communities, based on initial engagement in care, timely delivery of antiviral therapy, while establishing conditions to maximize adherence and successful treatment outcomes. Despite extensive efforts to treat HCV infection among residents of Vancouver's Downtown East Side (population of 16,000) over the last 10 years, data suggests that over 1,200 viremic individuals remain untreated in this neighborhood. There is an urgent need to develop, implement an evaluate novel structures within the health care system to achieve HCV elimination in this key population by 2030.

Methods: We have evaluated a novel approach of the Community Pop-Up Clinic (CPC) to assess its effectiveness in promoting access to multidisciplinary care and uptake of HCV therapy. Viremic HCV-infected individuals are identified through dedicated testing events conducted at their place of residence in the inner city. All viremic individuals are offered HCV treatment within the context of a multidisciplinary program to meet their medical, social, psychologic and addiction-related needs, with antiviral therapy delivered daily or weekly, as most appropriate. The outcome of this analysis was the efficiency of the CPC program in identifying viremic individuals and engaging them in care, as well as the outcome of therapy once initiated.

Results: From 1/22-08/23, we conducted 112 CPCs (3-4/month) and evaluated 1968 individuals. Of these, 620 (31.5%) individuals were found to carry HCV antibodies, of whom 474 (76.5%) were found to be viremic. Engagement in care has been secured in 387 (81.6%) cases). To date, 326 (84.2%) individuals have started treatment (about one per hour of programmatic activity), with 60 in the pre-treatment phase, one overdose death in the pre-treatment phase and none lost to follow up. To date, 18 remain on treatment, while 304/308 others completed it (3 discontinued in the first week, one overdose death). SVR-4 and/or 12 has been achieved in 286/288 (99.3%) cases, with 2 virologic relapses and 16 awaiting confirmation of treatment outcome, none lost to follow up.

Conclusions: We demonstrate the efficiency of a dedicated, community-based program at identifying HCV-infected patients in a high-prevalence inner-city setting, engaging and maintaining them in care, minimizing loss to follow up and achieving maximal benefit of HCV therapy. As there is evidence of over 1,000 HCV-infected individuals still requiring treatment within this community, plans are underway to expand the CPC program and its reach to work towards elimination of HCV infection in Vancouver's inner city over the next 3 years.

Poster Presentations

International Viral Hepatitis Elimination Meeting
IVHEM 2023

1 – 2 December 2023
Amsterdam, the Netherlands

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Progress Towards Achieving Hepatitis C Elimination in the Country of Georgia, April 2015 – July 2023

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Background and Aims: The country of Georgia launched the world's first national hepatitis C elimination program in April 2015. Key strategies include nationwide screening, active case finding, linkage to care, decentralized care, and provision of treatment for all persons with hepatitis C virus (HCV) infection, along with effective prevention interventions. The elimination program aims to achieve the following targets: a) diagnose 90% of HCV-infected persons, b) treat 95% of those diagnosed, and c) cure 95% of those treated. We report progress toward elimination targets of the elimination program.

Method: The estimated number of persons with HCV infection was based on a 2015 population-based national seroprevalence survey, which showed that 5.4% of the general adult population had current HCV infection (approximately 150,000 persons). We analyzed data in the national HCV screening and treatment databases during April 2015–July 2023.
Results: As of July 31, 2023, 152,967 adults screened positive for HCV antibodies. Of those, 133,358 (87.2%) received HCV RNA or core antigen testing, of whom 103,828 (77,9%) tested had current HCV infection, and 83,564 (80.5%) of them initiated treatment. Of 58,764 persons who were evaluated for sustained virologic response (SVR), 58,166 (99.0%) had no detectable HCV RNA. Based on the 90-95-95 program goals, Georgia has diagnosed 69.2% of the estimated 150,000 adults with current HCV infection, treated 65.2% of the target 128,250 (95% of 150,000), and cured 47.7% of the target 121,837 (95% of 128,250). Treatment effectiveness was comparable among persons with advanced fibrosis (FIB-4 score F3 or F4) with 98.4% achieving SVR, and among patients with mild or no liver fibrosis (FIB-4 score≤ F2), SVR= 99.3%, p<.0001.

Conclusion: Georgia has made substantial progress towards eliminating hepatitis C. Up to 70% of persons with current HCV infection have been diagnosed, and most have initiated treatment and experienced high cure rates regardless of fibrosis status. Challenges remain in identifying and linking to care persons with current HCV infection in Georgia. The Nationwide integrated, decentralized model of HCV treatment, which is already implemented in many locations, will be critical to improve linkage to care and close gaps in the HCV cascade of care.

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A Simplified Pathway from Diagnosis to Treatment for Chronic Hepatitis C in a High-Prevalence Urban Informal Settlement, Karachi, Pakistan

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Introduction: Despite the widespread availability of direct-acting antivirals (DAAs), many of those diagnosed with Chronic hepatitis C (CHC) have not received treatment. The current pathway of hepatitis C virus (HCV) diagnosis and treatment in Pakistan's National Health Service system has numerous steps, including the execution of tests for the aspartate aminotransferase to platelet ratio index (APRI) score. International guidelines recommend the initiation of a pan-genotypic DAA regimen after a simple diagnostic process. The present study estimated the efficiency gains resulting from simplified pathways from diagnosis to treatment of chronic hepatitis C patients in a high-prevalence context (Machar Colony, Karachi, Pakistan).

Methods: CHC patients for whom the infection was diagnosed in the Médecins Sans Frontières clinic in Machar Colony between June 2018 and April 2023 were the individuals selected for this study. This was a retrospective cohort study comparing the percentage of patients with CHC started on treatment, the days from diagnosis to treatment start and the failure rate of two periods: from June 2018 to February 2022 in which the APRI score determined the length of treatment for either 12 or 24 weeks, and from March 2022 to April 2023 in which all patients received treatment for 12 weeks. The significance of the difference in outcomes in the two periods was assessed with the t-test for continuous variables and Pearson's Chi2 test for categorical variables.

Results: 5,820 CHC patients were enrolled in the study, and 4,737 were evaluated for treatment. Of the 3,728 patients diagnosed when the APRI score determined the length of treatment, 907 (24%) were lost to follow-up (LTFU), while of the 2,082 diagnosed when APRI score was not a requirement for deciding the length of treatment, 186 (8.9%) were LTFU (p-value<0.001). During the 1st period, 35% of those treated received treatment within one week from diagnosis, while it was 77% during the 2nd period. The mean time from diagnosis to treatment was reduced from 46 (SD:111) in the 1st period to 16 (SD:49) days in the 2nd (p-value<0.001). Of the 4,482 (3,034 1st period; 1,450 2nd period) patients who were diagnosed before January 2023, 2,469 had SVR12 with 299 failures. The percentage of treatment failure was 7% in the 1st period and 9% in the 2nd period; the difference is not statistically significant (p-value: 0.099).

Discussion: These data show that a simplified pathway for the initiation of HCV treatment was associated with significantly lower LTFU and time to initiation of treatment without evidence for an impact on treatment success proportions. These results support and provide added evidence for the simplification of HCV diagnosis requirements that would allow Pakistan to move closer to hepatitis c elimination targets.

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Prevalence of Human Immuno-Deficiency Virus (HIV), Hepatitis C Virus (HCV), Hepatitis B Virus (HBV), and Syphilis Infection among Egyptian Drug Users: Findings from an Integrated Screening Initiative

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Background and Aims: Egypt is experiencing a growing HIV epidemic among key populations, beside high rates of Hepatitis C Virus (HCV). An integrated screening program and fast-track access to care for HIV, HBV, HCV, and Syphilis was implemented in substance use treatment clinic at Cairo University hospitals, Egypt. This study aimed to assess seroprevalence rates of HIV, HBV, HCV, and Syphilis among drug users and evaluate their awareness and uptake of prevention and testing services.

Method: Demographic data, risk factors, and knowledge related to testing and prevention service were collected from 1066 drug user attending the substance use treatment clinic at Cairo university hospitals, Egypt between September 2022 and March 2023. All participants were screened for HIV, HCV, Treponema pallidum (TP) antibodies, and surface antigen of HBV (HBsAg) using point-of-care Artron Detect 3 HIV/HCV/HBV Combo and TP-Antibody tests. Positive cases were referred to a colocated team for confirmatory testing, counseling, and evaluation for treatment initiation. Descriptive statistics and logistic regression were performed.

Results: Overall, 88.5% of study participants were heroin users, 7.6% were cannabis users, 1.8% were

opioid users, and 2.2% were poly-drug users, with a mean age of 32.8 years and 96% being male. Seroprevalence rates of HIV, HCV, HBsAg, and Syphilis were 3.8 %, 6.3%, 0.3% and 0.1%, respectively. Only 10 (0.9%) participants were tested for HCV during the previous nationwide screening campaign; three of them tested positive and received treatment. Five (0.5%) participants were previously tested for HIV and were negative. Only 3 (0.3%) participants had heard of Pre-exposure prophylaxis (PrEP), while 5 (0.5%) received an HBV vaccination. No participants have ever received free condoms, clean needles or methadone maintenance therapy.

Conclusion: Our findings indicate the need for improved testing, treatment, and prevention services directed to drug users, coupled with focused awareness efforts to increase access to these services.

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Role of Combined HBsAg, anti-HBc and anti-HBs Screening Model in Reducing Transmission of Occult Hepatitis B Infection

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Background: HBsAg screening is currently done in India for ruling out hepatitis B infection among donor samples. However, given the high prevalence of HBV infection in the country, the potential risk of transmission from Occult Hepatitis B is a major concern in the transfusion scenario. This study attempted to estimate the prevalence of occult Hepatitis B infection (OBI) among voluntary blood donors and tested combined HBsAg, anti-HBc and anti-HBs screening for minimizing the potential risks of OBI transmission through donated blood.

Methods: Two thousand three hundred and ninety eight donor samples from blood banks from various districts of Maharashtra were collected. These samples were screened for ELISA of HBsAg, anti-HBc (total and IgM), anti-HBs titres and real-time quantitative PCR for HBV DNA were performed. Taking presence of HBV DNA as gold standard, we tested the model of combined screening using a receiver operating characteristic curve to find out the best model to minimize transmission of potential OBI in donor samples.

Results: The prevalence of HBsAg was 0.83% in our study samples while the prevalence of anti-HBc presence was found to be 22.8%. Out of 547 anti-HBc positive samples, 16 had detectable HBV DNA (IQR: 126.05-666.67 IU/mL) and 196 (35.8%) were positive for anti-HBs (>10mIU.ml). Out of 196 donors, only 117 (59.69%) had titers above 50mIU/ml and 89 (45.4%) had titers above 100 mIU/ml which is considered effective against transmission of HBV. We compared the sensitivity and specificity of four models of HBsAg test and combined anti-HBc and different cutoff of anti-HBs levels which showed that, combined screening of HBsAg, anti-HBc and anti-HBs titres >50 mIU/mL provided a higher sensitivity as compared to HBsAg alone with negative predictive value (NPV) of 99.15%.

Conclusions: Our results indicate a high rate of exposure to HBV infection (by anti-HBc positivity) among blood donors which indicates the need of detecting potential OBI donors to minimize the risk of transmission. ID-NAT, though a better option, is expensive for routine screening and can still miss some low viremic OBI cases as reported by recent studies. Thus, combining simple and feasible ELISA techniques estimating anti-HBc and anti-HBs in addition to HBsAg could be suggested as an affordable and much more sensitive method of ruling out HBV transmission and improving blood safety practices in the country. A combined HBsAg, anti-HBc and anti-HBs screening for donor samples could be an alternative achievable in resource limited setup, minimizing the risk of OBI transmission.

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Proving the Benefits of HCV Cure: Reduced Incidence of Hepatitis C related HCC

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Introduction: Direct acting antivirals (DAAs) for chronic hepatitis C (HCV) were made widely available in Australia in 2016 through government supported medication subsidy programs. With the HOMER-2 cohort, we aimed to describe changes in incidence and epidemiologic profile of HCC over time in the post-DAA era.

Methods: HOMER-2 is a prospective, multi-site cohort study of all incident adult HCC cases from Greater Melbourne identified radiologically or histopathologically through HCC multidisciplinary team meetings (MDM) at the eight public Melbourne services with HCC specialist units between 18 Oct 2021 and 17 Oct 2022. Clinical data were obtained from electronic medical records. Comparisons of variables in the HOMER-2 cohort were compared to the similar, historical prospective HOMER cohort of HCC cases identified between 1 July 2012 and 30 June 2013 using Chi square or Wilcoxon rank-sum test as appropriate for univariate analyses.

Results: There were 203 incident HCC cases identified, with a male predominance (78%, n=159), median age of 68 years (IQR 60-74 years) and 61% born overseas (n=116). Established cirrhosis was known in 47% (n=96), with 33% (n=66) newly diagnosed with cirrhosis at time of HCC diagnosis; and 20% (n=41) were non-cirrhotic.

Compared to the original HOMER cohort (2012-13) of 272 individuals, there has been an overall decreased of 2.22/100 000 person years (95% CI -3.15 to -1.29/100 000 p<0.0001) in crude HCC incidence estimates from 6.25/100 000 (95% CI 5.53-7.04) to 4.03 (95% CI 3.5-4.63), and incidence rate ratio of 0.65 (95% CI 0.54-0.46). There was a significant increase in the proportion of cases with underlying MAFLD from 14% (n=39) to 37%, making it the most common risk factor (p<0.0001). There was a significant decrease in HCV related HCC from 41% (n=112) to 29% (n=58) (p=0.005) and occurred in older individuals in 2021-22 compared to 2012-13 (median age 65 years IQR 60-69 vs 58 years IQR 54-67). At the time of HCC diagnosis 70% (n=40) with HCV in 2021-22 had SVR, 42% (n=24) were undergoing HCC surveillance, however 31% (n=18) had their first diagnosis of cirrhosis concurrently made. The median time to diagnosis from HCV SVR was 4 years (IQR 3.1-5.9 years). There was no significant difference in the proportion of individuals with chronic hepatitis B (24% n=48 vs 22% n=60, p=0.683) and alcohol related liver disease (31% n=63 vs 39% n=107, p=0.062).

There were more cases in 2021-22 diagnosed at early-stage BCLC 0-A HCC compared to 2012-13 (47% n=95 vs 26% n=70, p<0.0001), however no change in surveillance uptake over time (39% vs 40% p=0.77).

Conclusion: The incidence of HCC in Melbourne Victoria has reduced between 2012-13 and 2021-22, temporally associated with the introduction of DAAs for HCV in 2016 leading to reduced HCV related HCC. There has, however, been a concurrent increase in MAFLD-HCC reflecting the obesity epidemic. Early-stage HCC at diagnosis was more common in 2021-22, but rates of diagnosis in surveillance remained suboptimal, highlighting the need for education programs to promote community diagnosis of liver disease and enrolment in HCC surveillance programs.

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Efficacy and Safety of Grazoprevir and Elbasvir in the Treatment of Patients with Hepatitis C Virus Genotype 1 Infection and Stage 4–5 Chronic Kidney Disease

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Background: Chronic hepatitis C virus (HCV) infection in patients with chronic kidney disease accelerates the decline of kidney and hepatic function, impairs quality of life, and increases the risk of death, yet few therapeutic options are available to treat them.

Aims: The objective of this study is to evaluate the efficacy and safety of grazoprevire and elbasvir-based antiviral therapy in patients with HCV genotype 1 infection and chronic kidney disease (stages 4–5 with or without hemodialysate dependence).

Methods: This is a prospective and interventional study of patients in the Fez-Meknes region over a period of January 2021 to December 2022. Patients

with HCV genotype 1 or 4 infection and stage 4 or 5 chronic kidney disease (with or without haemodialysis dependence), who were either new to interferon or had previously received an interferon regimen and had a detectable HCV viral load (quantitative), were either not cirrhotic or had compensated cirrhosis. Eligible patients were assigned to receive grazoprevir (100 mg, an NS3/4A protease inhibitor) and elbasvir (50 mg, an NS5A inhibitor) once daily for 12 weeks. Therapeutic adherence was monitored daily via teleconsultation, the clinical and biological tolerance was monitored monthly until 24 weeks after treatment completion.

Findings: Out of a total of 100 cases of recruited hepatitis C, thirty-four patients eligible for treatment inclusion criteria were included. Overall, 31 patients (92%) required hemodialysis, and 29% were cirrhotic at the compensated stage. The pre-therapeutic viral load was < 800,000 IU/mL in all our patients, with an average of 277,755 IU/mL. All patients had genotype 1 HCV (31 cases had genotype 1b, and 3 had genotype 1a). Patients received antiviral treatment with grazoprevir and elbasvir for 12 weeks. All patients achieved a 100% sustained viral response (SVR) after 12 weeks of treatment. The most common adverse events were asthenia, headaches, and sleep disturbances.

Interpretation: In patients with HCV infection and stage 4 or 5 chronic renal failure, the combination of grazoprevir-elbasvir provides an outstanding effectiveness profile with good safety and tolerability.

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Strengthening Hepatitis Prevention Strategies in Key Populations: Understanding Viral Hepatitis Knowledge and Hepatitis Vaccination Awareness among Men who have Sex with Men (MSM) in Europe. Results from the European MSM Internet Survey (EMIS-2017)

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Background: Men who have sex with men (MSM) are disproportionally affected by hepatitis A virus (HAV) and hepatitis B virus (HBV) infections and are considered a key population for viral hepatitis elimination. Higher knowledge levels about viral hepatitis have been associated with increased uptake of HAV/HBV vaccination. However, little is known about the knowledge of MSM in Europe regarding viral hepatitis or hepatitis vaccination. Our aim was to assess viral hepatitis knowledge among MSM in Europe and identify factors associated with a higher knowledge in order to inform targeted prevention efforts.

Methods: We used data from the European MSM internet survey (EMIS-2017). Participants indicated their knowledge about five true statements related to viral hepatitis and HAV/HBV vaccination. We defined a basic viral hepatitis knowledge as knowing at least 4 out of 5 statements. Those with uncertain

vaccination, incomplete, or no vaccination and uncertainty about immunity were considered vulnerable to HAV/HBV infection, otherwise they were considered as protected. We calculated frequency measures and using multilevel multivariable logistic regression modelling, we estimated adjusted odds ratios (aOR) with 95% confidence intervals (95%CI) for having a basic knowledge and its association with socio-demographics, a history of diagnosed HIV/hepatitis C (as a marker for frequent contact with the health system) and sexual orientation disclosure at last sexually transmitted infection (STI) test. Variables included in the model were selected based on being statistically significant ($p < 0.05$) in univariable multilevel logistic regression models.

Results: We analysed data from 113,884 participants across 43 countries of the WHO European Region. Overall, 68% of participants had basic viral hepatitis knowledge, ranging from 50% in Israel to 80% in the Netherlands. The proportion of MSM with basic knowledge was higher in protected MSM (HAV: 82%, HBV: 83%) than in vulnerable respondents (HAV: 55%, HBV: 52%). Overall, 83% knew that vaccines exist for both HAV and HBV and 59% knew doctors recommend MSM should be vaccinated against HAV and HBV. Altogether, 58% of MSM vulnerable to HAV and 62% of MSM vulnerable to HBV have never been offered any hepatitis vaccination. The odds for basic viral hepatitis knowledge increased with age (40+ years: aOR=2.9, 95%CI=2.7–3.0, vs.<25 years), history of hepatitis C and/or HIV diagnosis (aOR=1.8, 95%CI=1.7–1.9), high educational level (aOR=1.7, 95%CI=1.6–1.8), being comfortable with present income (aOR=1.4, 95%CI=1.3–1.4), sexual orientation disclosure at last STI test (aOR=1.3, 95%CI=1.3–1.4) and living in large cities (aOR=1.1, 95%CI=1.1–1.1).

Conclusions: Our findings highlight a knowledge disparity regarding viral hepatitis and hepatitis vaccination among MSM across Europe. A large proportion of vulnerable MSM reported they had never been offered hepatitis vaccination. Interventions should target knowledge gaps, particularly among younger, less educated, financially struggling MSM living in smaller settlements. Offering HAV and HBV vaccination to all MSM entering healthcare, latest when they ask for an HIV test, is an easy to accomplish yet much needed public health effort across Europe. A non-judgemental, open climate allowing persons attending medical services to disclose their sexual orientation is key to enable healthcare professionals to more effectively target information and preventative measures.

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Abstract 17 was withdrawn.

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Progress in Hepatitis C Screening as Part of the Hepatitis C Elimination Program in Georgia

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Introduction: The country of Georgia, with a population of 2.8 million adults of which 150,000 were estimated to have chronic hepatitis C virus (HCV) infection in 2015, initiated a national hepatitis C elimination program in April of the same year. The program aims to reduce the prevalence of chronic HCV infection among adults by 90% by providing free-of-charge hepatitis C testing and treatment to all citizens. The aim of this analysis is to describe coverage in hepatitis C testing by age and sex as part of the HCV elimination program.

Material and Methods: This analysis utilized Georgia's national screening registry data from April 28, 2015, to August 31, 2023. This information system collects data from the hepatitis C elimination program utilizing patients' national Identification number (ID) to monitor and evaluate program performance. We calculated the number of unique persons screened by using the national ID. The 2023 adult population data from the Georgian National Statistics Office were used to calculate screening coverage at the population level. This analysis excluded those screened anonymously at harm reduction sites; screened individuals who died between April 28 2015 to August 31 2023 were included.

Results: As of August 31, 2023, 2,425,405 Georgian adults have been screened for hepatitis C, corresponding to 85.5% of the adult population. Screening coverage was similar for men and women at 85% and 86%, respectively. Among men, screening rates were above 60% in all age groups, the highest of

which was among those aged 40-49 years at 82%. The lowest screening coverage in males was among those aged 18-29 years at 71%. In the adult female population, screening coverage was above 70% in all age groups; it was highest among those aged ≥60 years at 98% and lowest among those aged 18-29 years at 72%.

Conclusions: Over 85% of the adult population in Georgia has been screened for hepatitis C, however, the remaining infected population still has to be identified. Innovative approaches to encourage screening in the general population, especially younger age groups, such as conducting screening at universities and primary healthcare centers, are needed to reach elimination goals.

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Hepatitis Elimination Plans and Policies in Four Areas of the WHO Southeast Asia Region

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Background and Aims: CGHE developed National Hepatitis Elimination Profiles (N-HEPs) to assess gaps and opportunities for hepatitis B (HBV) and C (HCV) programs and track progress toward elimination goals. Four N-HEPs from the Southeast Asian region, including Myanmar (MR), Bangladesh (BD), Indonesia (IN), and Thailand (TH), were developed to describe the region's HBV and HCV policy trends.

Methods: A review of country-specific data was extracted from government reports, WHO/UNICEF databases, and peer-reviewed publications, including systematic reviews and modeling studies. Officials from the Ministry of Health, clinical experts, and civil society representatives reviewed and contributed data. This data focused on evidence-based strategies and interventions for prevention, diagnosis, and management; policies for harm reduction; policies and service delivery coverage for national planning; strategic information systems; prevention of mother-to-child transmission (PMTCT); testing; treatment for harm reduction; and federal budgeting.

Results: Strategic Planning: All countries have action plans (BD action plans are under development) and elimination goals for HBV and HCV.

PMTCT: All countries have HBV mother-to-child transmission elimination goals and universal Hepatitis B birth dose (HepB-BD) vaccination policies. In 2022, IN, MR, and TH had universal HepB-BD) coverage of 98%, 86%, 71%, and 97%, respectively. IN, MR, and TH have adopted HBV testing recommendations for pregnant women. Antenatal testing is partially adopted in BD, as implementation varies nationwide. Only MR has HCV testing recommendations for pregnant women. Both MR and IN allow midwives to administer vaccines to newborns.

Screening: No country has fully adopted universal HBV and HCV screening. IN and TH have partially adopted HBV and HCV universal testing, while BD and MR have fully implemented HBV and HCV risk-based screening policies.
Treatment: IN, MR, and TH have national treatment guidelines for HBV and HCV. BD is currently developing treatment guidelines. TH has no HCV fibrosis restrictions. IN and TH, and have no sobriety or genotyping restrictions. MR allows non-specialists to prescribe treatment

Harm reduction: IN and MR have adopted a national policy for harm reduction for persons who inject drugs (PWID). MR has national anti-discrimination laws protecting people living with HCV, while IN has partially adopted laws. No country has adopted national policies for syringe exchange in federal prisons or decriminalizing drug use.

National Budget: MR has established a national HBV and HCV testing and treatment budget. IN and TH have partial adoptions as the government does not fully cover the costs. BD has no federal funding.

Conclusion: The N-HEPs are a tool to analyze trends toward hepatitis elimination in Southeast Asian countries. Critical policy needs in the region include expanded screening policies, harm reduction, and reduction of costs for testing and treatment. These countries have considered the following steps to achieve elimination goals: strengthening systematic and targeted surveillance for HBV and HCV to demonstrate progress toward elimination, expanding the public budget for hepatitis elimination efforts

through Universal Health Coverage, emphasizing the removal of co-pays for HBV and HCV testing and treatment, particularly for vulnerable populations, as well as vaccination of healthcare workers against HBV.

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Feasibility Study of Self-Testing for HCV in a High-Prevalence Urban Informal Settlement in Karachi, Pakistan

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Introduction: Despite recent advances in highly effective hepatitis C virus (HCV) treatment, most people with HCV do not know their status. While screening can be performed using simple and affordable rapid diagnostic tests, limited access and low uptake of HCV testing services remain major barriers to the elimination of this disease. Self-testing for hepatitis C virus antibodies (HCVST) may be an additional strategy to expand access to HCV testing and support HCV elimination efforts. This study aimed to evaluate the feasibility of HCVST within a supervised environment in an urban informal settlement (Machar Colony, Karachi, Pakistan) in which micro-elimination activities are carried out.

Methods: Randomly selected individuals attending a Doctor without Borders clinic in Machar Colony from April to June 2023 were invited to perform a saliva-based HCVST (OraSure Technologies, Bethlehem, PA, USA). Participants were shown pictorial instruction; provided with a short verbal description of the HCVST procedure and invited to perform the test in front of a laboratory technician who observed and evaluated test performance using a standardised checklist. While waiting for their test results, participants were asked about the usability of HCVST, their confidence in performing it, and some basic demographic data.
The HCVST was considered successful when: 1. The test was valid; 2. Participant correctly read the test result; and 3. Participant was able to complete all steps without direct assistance (excluding verbal assistance).

Results: The study included 223 participants (F 35%; M 65%) mean age 34 (±12 SD). 62 were not able to read the national language; 43 were able to read, but with errors; and 118 were able to read. 205 HCVST were considered successful, 11 HCVST were not valid, and 7 participants did not correctly interpret the result. Of the 205 valid HCVST, 21 did not receive verbal help in any of the test phases, while the remaining needed verbal help in one or more phases.
The opening of the buffer was the phase most often reported as difficult (29/223). Overall, only four participants defined the test difficult to perform, while the rest define it easy or very easy. All participants would reuse the HCVST in the future and would recommend it to friends and family.

Discussion: This study demonstrated that the oral-based HCVST assessed was easy-to-use in the hands of non-expert users, with a success rate of 93%. Given HCVST's high usability and potential to reduce barriers to traditional HCV testing, these results are useful to inform future HCVST use in screening strategies.

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Pushing Back the Fear: An Innovative Mobile Community Based Approach to a Statewide HCV Elimination Initiative in Vulnerable Populations in New Jersey

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Introduction: North Jersey Community Research Initiative (NJCRI) was interested in studying the widespread substance use and hepatitis C infections in New Jersey, which affects the state's HCV elimination efforts. By utilizing NJCRI's Mobile Hepatitis C Elimination Clinic, we travel to a variety of substance use disorder treatment facilities to bring the services

to the patients. We study, screen, and treat those that have new infection, reinfections and those that never finished their treatments in both urban and rural settings. This decentralized model of care reduces treatment barriers throughout New Jersey.

Methods: The Mobile Hepatitis C Elimination Clinic unit travels to individual substance use disorder treatment facilities on a monthly schedule and provides services in a designated area and facility. Clients are tested, if positive blood is drawn on site, a week later they were invited to a telehealth visit with the healthcare provider who made assessment for therapy and sent their prescription to a specialty pharmacy, who in turn reached out to the clients and delivered their medications usually within one week of the telehealth visit. Disease surveillance nurses and insurance specialists follow the patients through the treatment and search for those that become lost to follow up. The Mobile van goes to the same sites through follow up and treatment completion for the patients and follow up labs are drawn to document SVR.

Results: An observational study of hepatitis C care and treatment across the treatment facilities and growth of the facilities participating with NJCRI across the state of New Jersey. We looked at specific outcomes related to testing, treatment completion and lost to follow up rates and documented SVR during the time period 9/30/2020-7/25/2023. In 9/30/2020, we had 4 community partners for this initiative and the partners came to NJCRI prior to the COVID-19 lockdowns. This posed barriers to care for many patients, including poor adherence to the appointments, lack of transport, excessive and/or missing paperwork and absence of lab work at appointment time with the provider. Excellent pilot outcomes led us to expand services by our mobile unit from the original 4 partner sites to 12 sites in 3/2022 to 49 presently. After full implementation of our mobile program, from 9/30/2020-7/25/2023, we outreached and tested to 3000 people and treated a total of 1,162 patients. Of these 61 patients did not receive Hepatitis C treatment: issues range from needing preauthorization's for treatment or insurance issues (n=34), 12 patient's required procedures first before they can start Hepatitis C treatment and an additional 8 patients needed more lab work before they start treatment. Our disease surveillance nurse joined the team in October 2022 to help track the patients and follow up with post treatment SVR, since then we have achieved SVR in 712 patients 62%.

Conclusion: Novel community engagement and clinical practices successfully delivered high quality of care. Our findings support the use of a decentralized mobile unit to facilitate HCV treatment in vulnerable populations. Delivering services in a trusted community-based setting improved delivery of care and treatment completion.

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Innovative Patient Navigation Model to Reach and Link Individuals Lost to Follow-up Back in Care in the National Hepatitis C Elimination Program in Georgia

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Background and Aims: The National Hepatitis C Elimination Program has made notable progress in Georgia. However, Covid-19-related restrictions led to a decrease in the number of individuals completing viremia testing and receiving treatment. As of September 2023, 85.5% of the adult population of Georgia had been screened for hepatitis C virus (HCV) antibodies (anti-HCV), but among 160,083 antibody-reactive adults, 24,206 had not presented for viremia testing. During 2019, the National Center for Disease Control and Public Health of Georgia implemented a successful pilot project to link to care individuals who screened reactive for anti-HCV but had not completed a viremia test. In 2023, the project was scaled up across Georgia.

Methods: From January 1, 2022, to August 31, 2023, all anti-HCV reactive adults (aged ≥18 years) who did not have a record of viremia testing in the national HCV electronic database 3 months from the date of an anti-HCV reactive result, and who were not registered in the HIV/AIDS treatment program or with a correctional facility, were eligible for follow-up; those who had a documented death date in the vital statistics database were excluded. Using the phone numbers listed in the database, individuals were contacted by phone or home visit by patient naviga-

tors (trained epidemiologists and primary health care physicians) and referred to HCV care and treatment. If the first attempt was unsuccessful, one repeated attempt was made to contact the individual. Financial incentives were provided to navigators for each patient who was successfully linked to care, defined as presenting for viremia testing.

Results: As of August 31, 2023, 21,376 (88%) phone numbers were identified for 24,206 anti-HCV reactive persons who did not complete a viremia test; of the 21,376 patients with phone numbers, patient navigators were able to reach 15,724 (73.6%). Of the remaining 5,652 who could not be reached, some did not answer, had an incorrect phone number, or immigrated. Of those contacted, 4,314 (27.4%) presented for viremia testing, and of those, 2,116 (49.0%) had HCV RNA or HCV core antigen detected; and 1254/2116 (59.3%) initiated hepatitis C treatment.

Conclusion: While the nationwide implementation of the patient navigator project was successful in linking persons to treatment, certain challenges, such as linking anti-HCV-positive individuals to viremia testing. To meet hepatitis C elimination goals, Georgia needs to identify and implement innovative strategies to reach and link patients to viremia testing.

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Pilot Project to Introduce Hepatitis B Birth Dose vaccine in Delivery Units of Two Public Sector Hospitals in Islamabad-Federal Capital of Pakistan

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Objective: Pilot a model for introduction of HepB-BD vaccine administered within 24 hours of delivery through the existing staff and setup of the delivery units.

Background: In Pakistan, about 5 million individuals (2.5% prevalence) are infected with Hepatitis B. Infection is mostly acquired at birth (95%) and in some cases during first 5 years of life. Once infected, the virus remains in the body of the child and continues to progress to chronic liver disease in adults. Delta virus (HDV) also affects individuals who have chronic hepatitis B and the two viruses together have more damaging effect on the liver leading to cirrhosis, liver cancer and death. The Hep B vaccine was introduced in Pakistan's Federal Directorate of Immunization (FDI) [previously known as Expanded Program on Immunization (EPI)] in 2002 as a pentavalent vaccine which is given at 6 weeks, 10 weeks, and 14 weeks of age but there is no nationwide implementation of HepB-BD.

Methods: This pilot project was undertaken at two tertiary care public sector birthing units of Islamabad. Each hospital was given the target of vaccinating all consecutive deliveries daily 24/7 till they reached a figure of 1000. The delivery staff was trained to fill the vaccination card and give the vaccine. The data about mother's demography was retrieved from the delivery register along with the time and date of delivery and administration of hepatitis B vaccine. The field supervisor collected the records and entered it in the electronic data file which was shared with the project director and any gaps found were addressed on daily basis.

Results: A total of 2008 deliveries were captured in 03 months in 2 major tertiary care hospitals of Islamabad. Out of 2008 deliveries, 2000 newborn babies were given 0.5 ml of HepB-BD in the delivery unit by the delivery nurse before the baby was handed over to the parents and only 08 children were missed the vaccine due to misconception of the health staff in the initial days of the project but this was rectified on the further improvement of the knowledge of the nurses. All babies received vaccine within an hour of delivery and no side effects were reported. There were no extra expenditures incurred for the vaccination of the newborn.

Conclusions: The hepatitis B birth dose can be easily implemented throughout the country with little additional funding for its procurement and transportation while negligible funding is required for its implementation. Central procurement by the FDI is the best way to procure a cheap and effective vaccine and improve not only the vaccination coverage but also prevent a large quantum of chronic hepatitis B and D and hepatocellular carcinoma and their associated high morbidity and mortality.

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High Prevalence of HIV/HBV Co-Infection Among Key Populations in the South-South Region of Nigeria: Urgent Need for Integrated Prevention and Treatment Interventions

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Background: Co-infection with the human immunodeficiency virus (HIV) and the hepatitis B virus (HBV) is a serious problem for global public health, especially in certain key populations (KP). These are the two most common infectious diseases in South-South Nigeria. HIV is an immune-system-attacking virus that can cause AIDS, whereas HBV is a viral liver disease that can cause acute or chronic infection. A dangerous condition that raises the risk of liver damage, AIDS, and mortality is co-infection with HBV and HIV.1.2.3

Objective/Methodology: A retrospective descriptive cross-sectional study was conducted to assess data from HIV treatment centers in the South-South region of Nigeria, covering nine one-stop shops from January 2018 to December 2022. A total of 1,500 HIV-positive KP individuals were included in the study. Demographic and clinical data, including HIV and HBV status, were extracted from patient records.

Results: The prevalence of HIV/HBV co-infection among HIV-positive key populations in the South-South region of Nigeria was found to be 28.5%. Among the KP, men who have sex with men (MSM) had the highest co-infection rate (37.2%), followed by people who inject drugs (PWID, 31.5%), and female sex workers (FSW, 23.8%). Factors significantly associated with HIV/HBV co-infection included older age (≥30 years), lower education level, history of multiple sexual partners, history of injecting drug use, and lack of access to prevention services.

Conclusion/Lessons learned: The high prevalence of HIV/HBV co-infection among kPs in the South-South region of Nigeria highlights the urgent need for integrated prevention and treatment interventions. Efforts should be made to enhance access to comprehensive healthcare services. Moreover, awareness campaigns on the importance of HBV testing should be intensified to reduce the burden of co-infection. In conclusion, this study emphasizes the importance of addressing the unique healthcare needs of HIV-positive key populations in Nigeria, particularly regarding HIV/HBV co-infection. Implementing comprehensive strategies that combine prevention, testing, and treatment services is crucial for improving the overall health outcomes of these vulnerable populations.

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Evaluations to Amplify HCV Testing and Treatment: Is it Possible to Eliminate HCV in Uruguay by 2030 and How Much Does It Cost?

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Background: Chronic HCV infection is a major public health threat. WHO has set goals for elimination of HCV by 2030: 90% reduction in incidence and 65% in liver-related mortality, with program targets of 90% of HCV-infected people diagnosed and 80% of eligible people treated, compared to 2015.

Uruguay has a population of 3.482.196, a low HCV prevalence and limited barriers to treatment access. However, the number of people tested and treated by year is low, and the feasibility of elimination is unknown. We aim to assess the feasibility and costs of HCV elimination.

Materials and Methods: The Hep C Elimination Tool, developed by Massachusetts General Hospital with

support from the Coalition For Global Hepatitis Elimination of The Task Force for Global Health, calibrated with Uruguay parameters, was used to estimate the HCV testing volume and treatments needed to achieve WHO's 2030 goals and the associated cost.

The screening policy set to be universal and the testing algorithm was selected to be laboratory-antibody test for screening and nucleic acid test for confirmation and assessment of treatment response. Two testing strategies were simulated varying the follow-up and linkage to care rates: (Strategy 1) Current rates of follow-up (from a positive anti-HCV test to a virologic confirmation by PCR 85% and from PCR positive to treatment initiation 64%) and (Strategy 2) Maximization of follow-up rates (100% for both confirmatory testing and treatment initiation).

Results: Under Strategy 1, an annual screening rate of 30% and annual treatment rate of 80%, would require a cumulative of 3.240.000 people screened and 19.000 people treated between 2023-2030. Testing would peak at 800.000 annual between 2024-2026 and treatment would reach a maximum of 5.000 annual in 2026. By 2030, this approach will result in a diagnosis coverage of 87% and treatment of 86%, a decrease in incidence by 83%, prevalence by 85%, cases of decompensated cirrhosis by 69%, cases of HCC by 41% and mortality by 42%.
The total expected cost of this elimination program from 2023 to 2050 would be US$132.700.000 (16% corresponds to programmatic expenses and 84% to disease management). The annual cost by 2030 would be reduced by 35% compared to 2022.

Under strategy 2, with the same screening and treatment rates, 20.000 people would need to be treated between 2023-2030 (reaching a maximum of 5.000 annual between 2024-2026). In 2030 diagnosis coverage would be of 91% and treatment of 91%. This will result in a decrease in incidence by 88%, prevalence by 91%, decompensated cirrhosis by 74%, HCC by 46% and mortality by 57%. The total expected cost from 2023 to 2050 is US$121.600.000 (17% programmatic expenses/83% disease management). The annual cost by 2030 will be 43% reducted compared to 2022.
Estimates were sensitive to the costs of commodities for testing and treatment which can decrease with negotiations over pricing.

Conclusion: Uruguay can achieve the WHO HCV elimination incidence goal and diagnosis and treatment targets by 2030. HCV elimination is feasible and Uruguay should develop a national program to ensure these benefits are realized.

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Evaluation of Acute Hepatitis B Surveillance System in the Country of Georgia, 2015-2020

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Background: Acute hepatitis B surveillance was established in Georgia in 2005 by law. Surveillance is passive, requiring medical facilities to report suspected cases to the local public health centres. Surveillance of acute hepatitis B has not been evaluated. The aim of this project was to describe the acute viral hepatitis B surveillance in Georgia and to evaluate its usefulness in achieving its overarching goals. To address the above overarching aim, we evaluated the following attributes: Data completeness, Positive predictive value, Acceptability.

Methods: We assessed Georgia's acute HBV surveillance system from 2015 to 2020 using the Centres for Disease Control and Prevention (CDC) updated guidelines. This evaluation involved retrospective reviews of surveillance data, medical records, and interviews with Public Health Centres (PHCs) throughout the region. The CDC guideline indicators were used to evaluate and monitor the quality of the acute HBV surveillance system, including assessing data completeness by calculating the percentage of missing values for selected key variables, the positive predictive value (PPV) as the proportion of cases notified during 2018-2020 meeting the confirmed case definition for acute HBV infection. Surveying PHC epidemiologists on their experience with reporting to assess acceptability.

Results: Between 2015 and 2020, a total of 270 HBsAg-positive cases were recorded in EIDSS nationwide. All cases included mandatory demographic information with 100% completeness. However, variables related to risk factors for acute HBV infection, confirmatory testing (IgM anti-HBc), and hospitalizations were completed 47%, 0%, and 86%, respectively. During interviews with 104 PHC specialists, 31% mentioned difficulty in completing the HBV questionnaire within EIDSS, and 20% mentioned incom-

plete information received from clinics. A medical history review of a subsample of 106 acute HBV cases in EIDSS revealed that 63% (67/106) were true positives as detected by the surveillance system (PPV) for the years 2018 to 2020.

Conclusions: Our findings demonstrate strengths and weaknesses in Georgia's acute HBV surveillance system. Demographic data were consistently well-documented, while variables related to risk factors for acute HBV infection, confirmatory testing (IgM anti-HBc) and hospitalization showed significant data gaps. PHC specialists faced challenges completing the HBV questionnaire in the EIDSS, suggesting usability and communication issues. The PPV of EIDSS reports showed a concerning lack of adequate information in a significant portion of cases, leading to misclassification of a substantial proportion of notified cases, not possible to address using the national database (EIDSS).

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Study of the Content of the HBV DNA in Liver Biopsy in Uzbek Patients Superinfected with Chronic Hepatitis Delta

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Background and Aims: The role of HDV in suppressing HBV replication in the liver cell has yet to be fully understood. The observation that HDV can suppress HBV under conditions of coinfection or superinfection has been made in several retrospective studies. EASL guidelines state that using nucleoside analogs (ANs) does not affect HDV replication. AN therapy is recommended in patients with HBV DNA levels above 2000 IU/mL and patients with decompensated liver cirrhosis with detectable HBV DNA levels in HDV infection. The aims are to determine the presence of HBV DNA in liver biopsy specimens in patients with HDV infection with a negative PCR for HBV DNA in blood plasma and evaluate the feasibility of antiviral AN therapy in this category of patients.

Method: The study was carried out on 32 patients who applied for hospitalization tertiary infectious diseases hospital in Tashkent, Uzbekistan with a diagnosis of Chronic viral hepatitis B with Delta agent. The criterion for selecting patients with HDV infection was the absence of HBV DNA in the blood plasma. All patients underwent a liver biopsy to determine the presence and amount of HBV DNA in liver biopsies. The amount of HBV DNA in the biopsy was determined by PCR. Out of 32 examined patients, 18 (56.2%) took AN-therapy - tenofovir disoproxil fumarate 300 mg/day, 14 (43.8%) patients did not take any antiviral drugs.

Results: The study of liver biopsy for the presence of HBV DNA showed that, in the liver biopsy, HBV DNA was determined at a fairly high level, where the average level was 61464 copies/ml. which indicates intensive replication of HBV DNA in hepatocytes in the absence of HBV DNA in blood plasma in these patients. It was also found that in 18 patients who took tenofovir disoproxil fumarate 300 mg/day, the average level of HBV DNA was 10895 copies/ml. In patients who did not take any antiviral drugs, the amount of HBV DNA in the liver biopsy fluctuated between grades 104 and 105, and the average HBV DNA was 126501 copies/ml

Conclusion: 1. In patients with HBV and HDV superinfection, high HBV DNA content is found in liver biopsy specimens. In HBV and HDV superinfection, the absence of HBV DNA in the blood does not indicate the absence of HBV DNA replication in hepatocytes.
2. In patients co-infected with HBV and HDV, if there is an amount of HBV DNA in the biopsy specimen, it will be reasonable to prescribe antiviral drugs (AN) to suppress HBV DNA replication.

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HCV and HBV Prevalence and Associated Risk Factors Among People Who Inject Drugs in Kenya

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Background: Injection drug use is an important risk factor for viral hepatitis in sub-Saharan Africa, but factors associated with seropositivity are poorly understood. Understanding the prevalence and transmission risk factors is critical to reducing prevalence and incidence among people who inject drugs (PWID).

Objective: To assess factors associated with hepatitis C antibody (anti-HCV) and hepatitis B (HBV) positivity among PWID in Kenya.

Methods: We are recruiting 3,500 PWID from needle and syringe programs sites in Kenya. Recruited using respondent driven sampling, participants complete biobehavioral surveys and receive HCV, HBV, and HIV testing. We conducted this analysis using chi-square tests for categorical values and t-tests for continuous variables.

Results/Outcomes: Among the 2135 participants enrolled, participants are mainly male (89.8%) and 34.6 years old (SD=±8.7) on average. Roughly one-fifth, 425 (19.9%) are anti-HCV positive; regional prevalence is highest in the Coast (237/879, 27%), followed by Nairobi (186/864, 21.5%), and Western Region (2/392, 0.5%). Overall HBV surface antigen (HBsAg) prevalence is 1.3%; 18/879 (2.1%) in Coast, 5/864 (0.6%) in Nairobi, and 4/392 (1.0%) in Western Region. Female participants were significantly more likely to be HCV-positive compared to their male counterparts (25.2% vs 19.3%, p=0.038), which was not significant for HBV (1.8% vs 1.2%, p=0.427). HCV-positive PWID were more likely to have used supplies previously used by others at their last injection; needle (15.5% vs 6.2%, p<0.001) and cookers (18.8% vs 6.6%, p<0.001) when compared to their HCV-negative counterparts. Similar supply sharing patterns were identified for HBV status, HBV-positive PWID were more likely to share needles (14.8% vs 4.8%, p=0.018) and cookers (22.2% vs 8.7%, 0.014). HCV-positivity was also associated with a history of incarceration (52.9% vs 46%, p=0.01), more years injecting (9.4 vs 5.8, p<0.001), and exchanging sex to be injected in the last 30 days (1.42% vs. 0.53%, p=0.049).

Conclusion/Lessons Learnt: While preliminary, we anticipate these data will inform policy makers and programs on identifying viral hepatitis elimination and prevention strategies among PWID. Viral hepatitis prevalence and risk factor such as shared injection equipment suggest a need to expand harm reduction interventions. Due to differing risk factors for HCV and HBV, once size fits all intervention may not be optimal and targeted approaches among female and justice-involved PWID may be needed. Next steps include performing next generation HCV sequencing and phylogenetic analysis to characterize transmission networks and determine factors associated with transmission and cluster membership. We anticipate the latter will be leveraged for targeted elimination strategies to reduce viral hepatitis among PWID with potential for generalizability to other resource limited settings.

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Clinic-Based HCV Viral Load Testing Halves the Time to Diagnosis Confirmation but Does Not Change the Linkage to Care Rates at Baylor Black Sea Foundation (BBSF) in Constanta, Romania

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Background: Since 2010, BBSF has provided free HIV and hepatitis rapid testing screening to the general public as part of a philanthropic community health initiative. The clinic and community testing encounters use the rapid HCV Ab test, and VL HCV confirmation is also performed as part of the test-link-refer strategy. Compared with the public system, where

the diagnosis is confirmed in a minimum of 3 weeks, at our clinic, patients were diagnosed in less than a week. However, the VL HCV confirmation was done separately in a later encounter. We wanted to evaluate the impact of introducing VL reflex testing by collecting during the same meeting the second blood specimen if the HCV Ab test was positive.

Material and Methods: Starting with January 2023, the BBSF clinic introduced a new work protocol that established that the determinations for a definitive diagnosis of hepatitis C are to be collected in a single encounter. We collected data for the first semester of 2023 and compared several indicators with the ones collected during the first semester of 2022 to identify if this change improved program outcomes.

Results: Our comparisons indicated that the average time from the Ab test to RNA VL testing changed from 4.08 days in 2022 to 2.69 in 2023; the average time from RNA sample collection to VL testing changed from 2.28 days in 2022 to 3.24 days in 2023 since the laboratory performed VL only after Elisa positive result. In 2022 BBSF tested 2938 unduplicated persons, with 42 reactive cases and 23 HCV Elisa positives, and 68.56% (16) were positive. 87.5% (14) of those HCV RNA-positive patients were linked to care in the public system.
During the implementation of the new protocol, BBSF tested 2042 unduplicated persons, with 37 reactive cases and 16 HCV Elisa positives. Our clinic-based reflex testing project allowed 100% of those HCV antibody-positive to have reflex VL testing, and 62.5% (16) were positive. 75% (12) of those HCV RNA-positive patients were linked to care in the public system, and 67% (8) have already been initiated on DAA, while the rest are about to be initiated.

Conclusion: While introducing the reflex testing did not significantly influence the linkage to care, it did allow for halving the time to VL confirmation. Overall, the new protocol implies less patient burden regarding the number of clinic visits, the number of blood samples collected, and a more streamlined and efficient diagnosis process. Overall, the results are encouraging regarding keeping the new protocol in place.

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KNOWLEDGE, ATTITUDE AND PRACTICE TOWARDS HEPATITIS B INFECTION PREVENTION AMONG HEALTH CARE PRACTITIONERS AT KITWE TEACHING HOSPITAL, KITWE ZAMBIA.

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Introduction: Hepatitis B virus (HBV) infection is a major public health issue globally, causing significant liver diseases and mortality. Healthcare workers (HCWs) are at an increased risk of acquiring HBV infection due to their frequent exposure to blood and bodily fluids. Although some studies about knowledge, attitudes and practice towards HBV prevention have been done, there is still paucity of information regarding levels of knowledge, attitudes, and practices of HBV infection prevention among HCWs at KTH. To inform scale-up in awareness and prevention strategies, we assessed HCWs' levels of knowledge, attitude, and practice towards HBV infection prevention at Kitwe Teaching Hospital (KTH). The Objectives of the study included assessing levels of knowledge, attitude, and practice towards Hepatitis B Infection prevention and to determine factors that influence the level of practice towards Hepatitis B viral infection prevention among Health care workers at KTH.

Methodology: A Cross-sectional descriptive study design was used. About 340 HCWs from various departments at KTH were enrolled in the study. A semi-structured questionnaire with three sections: knowledge, Attitude, and Practice assessment was used to collect data from HCWs. The Collected data was analysed using descriptive statistics, and logistic regression.

Results: From the total of 340 HCWs, about 187 (55%) of the participants were females. Majority of the participants had overall good knowledge (94.7%,), favourable attitude (76.5%) but poor practice (50.6%), towards HBV infection prevention. A significant proportion of health care workers 267(78.5%) were not vaccinated against hepatitis B

virus. Furthermore, the study revealed that the age of a health practitioner and level of education were significant predictors of practice levels among Health care workers with statistically significant p-Values of 0.037 and 0.001 respectively.

Discussion: Majority of HCWs at KTH displayed good knowledge, Favourable attitudes but poor practice towards HBV infection, thus there is need for tailored education to promote better Practices. Additionally, low Hepatitis B vaccination rates among HCWs calls for urgent intervention to improve the vaccination status. The study identified age and education level as factors influencing practicing levels. Thus, there is need for targeted interventions.

Conclusion: There is need for continuous health education and awareness campaigns about HBV infection prevention, regardless of healthcare workers' education level or age.

Keywords: Hepatitis B infection prevention, Knowledge, attitude, and practice.

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Hepatitis Elimination Plans and Policies in Four Areas of the WHO Western Pacific Region

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Background/aims: Hepatitis B virus (HBV) and hepatitis C virus (HCV) are global health threats. Of 354 million (M) persons with current HBV or HCV infection, 126 M (36%) reside in WHO Western Pacific Region (WPR) countries. To monitor progress toward hepatitis elimination, the CGHE brought together local partners to reveal the status of plans, policies, strategic information, and prevention services. In WPR, profiles have been developed for Japan (JP), the Philippines (PH), Chinese Taipei (CT), and South Korea (ROK).

Methods: Data were extracted from government reports, WHO/UNICEF databases, and peer-reviewed publications. Health officials, expert clinicians, and civil society representatives reviewed extracted data and provided data from other sources. This data analysis focused on the availability of strategic information and the plans and policies for delivering HBV and HCV prevention, screening, and treatment services, including prevention of HBV mother-to-child transmission (PMTCT) and prevention services for persons who inject drugs (PWID).

Results: Strategic information: JP, ROK, and CT monitor the number of persons diagnosed and treated for HBV and HCV. JP, ROK, and CT routinely report incidence, prevalence (ROK), and mortality (JP) to monitor progress toward goals. HBV mortality rates per 100,000 are highest for CT (5,186), PH (6,057), and ROK (11,589).

Planning: JP, ROK, and CT have set HBV and HCV elimination goals. They all have established action plans for HCV, while only JP and CT have HBV action plans. JP, ROK, and CT have set national budgets for HBV and HCV testing and treatment.

PMTCT: All five areas have met the interim WHO goal of < 1% HBsAg prevalence among persons < 5 years old. HepB birth dose coverage is >90% in ROK and CT and 39% in PH; JP does not mandate vaccination.

Screening: All four areas have policies for screening subpopulations at increased risk. JP and CT have adopted universal HBV and HCV screening for adults.

Treatment: All four areas have HBV and HCV treatment guidelines. JP, ROK, and CT have no HCV fibrosis restrictions. All recommend non-specialists prescribe medications. Patients in CT are not required to pay for HCV treatment.

Prevention services (PWID): CT has met interim targets for syringe service programs (SSP) (> 200 syringe exchanges/PWID/yr). JP and ROK have no prevention policies or govt—support for SSP.

Equity: JP and CT have national anti-discrimination laws for people living with HBV and HCV. PH adopted this law for HBV. ROK and CT have no criminal penalties for possession of syringes & other drug paraphernalia.

Conclusion: Countries in the WPR have established HBV and HCV elimination goals by adopting policies and strategic information to deliver hepatitis services. The profiles reveal data and policy development gaps to expand equitable access to prevention care and treatment. The next steps from the profiles are to develop budget-based plans and revise policies and programs to scale up service delivery to achieve HBV and HCV elimination goals.

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Serological Prevalence of HCV Among General Population in Semi-urban Area of District Rawalpindi – Pakistan

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Background: Pakistan has the world's largest population of people living with Hepatitis C Infections with 3 people dying of Hepatitis C related cause every hour.
Local Hepatitis Elimination & Prevention (LHEAP) project was launched in June 2023 with the aim of micro-elimination of Hepatitis from the community of 100,000 individuals living in the semi-urban area of district Rawalpindi.

Aim: The first step in phase-1 of the project was to determine the prevalence of HCV in the study population.

Method: It was a cross-sectional, population-based serosurvey using cluster sampling design.
To screen the study population, the frontline workers visited every household and tested all members of the family, regardless of age or high-risk behavior (universal screening). Fingerstick sampling technique was used to do rapid screening test for Anti-HCV Antibody on Abbott Bioline RDT.

Results: A total of 20323 persons were screened for Anti-HCV antibody. It was found that 374 (1.84%) of the total population tested was positive. Of the positive cases, 178 (47.6%) females and 196 (52.4%) males possessed antibodies in their blood against HCV.
Among the different age groups, the highest prevalence of HCV antibodies were found in 51 – 60 year age group (5.9%).
Higher percentage of HCV prevalence was detected in females than males in the age group 11- 15, 31 – 40 and 61 – 100.

Conclusion: This study is the largest household-based survey of HCV prevalence in Pakistan to date. The strength of this study includes the unbiased universal sampling i.e., inclusion of all age groups and no priority assigned to high-risk behaviors. We found in our sample, the total prevalence to be less than what was expected as compared to previous published studies and modeling data.
Infection is more proliferated between the adult group either males or females. However, in some age groups, the prevalence in females were found to be higher than males.

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Evaluation of Hepatitis C Treatment and Care Model in Primary Healthcare Centers in the Country of Georgia

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Background and Aims: In April 2015, with a partnership with Gilead Sciences and technical assistance from U.S. CDC, Georgia launched the world's first hepatitis C elimination program. By the end of April 2023, more than 82,000 patients with current hepatitis C virus (HCV) infection initiated treatment, achieving >98% cure rates. Broad access to direct acting antivirals (DAAs) resulted in rapid increase in treatment uptake in 2016, which has since declined due to barriers in diagnosis and linkage to care. To address this issue Georgia initiated service decen-

tralization in 2018 by integrating HCV screening and treatment in primary healthcare centers (PHCs). We report preliminary results of an integrated model of HCV care in PHCs.

Method: By July 31, 2023, a total of 10 PHCs were providing HCV care services throughout the country. The integrated model was based on "one stop shop" approach, where patients receive all HCV screening, treatment and care services in selected PHCs. PHCs provided care to HCV treatment-naïve patients with no or mild fibrosis (FIB-4 score<1.45) using simplified diagnostics and a treatment monitoring approach, while persons with advanced liver fibrosis/cirrhosis were referred to specialized clinics. Patients received Sofosbuvir/Ledipasvir and/or Sofosbuvir/Velpatasvir for 12 weeks. Sustained virologic response (SVR) was defined as undetectable HCV RNA at 12-24 weeks after end of therapy. The Extension for Community Healthcare Outcomes (ECHO) telemedicine model was used to train and support primary healthcare providers. Regular teleECHO videoconferencing was conducted to provide primary care providers with advice and clinical mentoring.

Results: Among persons diagnosed with current HCV infection, 1,816 were evaluated for FIB-4 score. A total of 1,195 patients initiated treatment, and of them 1,115 (93.3%) completed treatment. Of 1,079 patients eligible for SVR testing, 853 (79.0%) had been tested at the time of analysis, and 838 (98.2%) achieved SVR.

Conclusion: Our study shows the feasibility and effectiveness of integrating a simplified HCV diagnostic and treatment model in PHCs. Countrywide expansion of this model is warranted to bridge the gaps in the HCV care continuum and ensure high rates of treatment uptake towards achieving elimination targets.

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Performance of Dried Blood Spot Samples at HBV-DNA Detection with a Commercial Assay, Both in the Laboratory and in the Field for the Community Screening of Migrants

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Background: In order to achieve viral hepatitis elimination in vulnerable populations, decentralized testing is often required, especially in those with poor access to the healthcare system. Hepatitis B virus (HBV) DNA testing is necessary to confirm diagnosis and guide treatment decisions. Dried blood spot (DBS) samples are widely used for decentralized hepatitis C virus testing in vulnerable populations, but less evidence is available for HBV. We aimed to evaluate the performance of DBS samples for the detection of HBV-DNA with a commercial assay in the laboratory and in the field when screening migrants approached in the community.

Methods: In order to determine the lower limit of detection (LLoD), serial dilutions of an HBV standard were prepared in negative blood (viral loads com-

prised between 31 and 20,000 IU/mL). Mock DBS were prepared with 50 µl of blood per spot and 10 replicates per dilution, and let dry. Blood was eluted from DBS with lysis buffer and processed in the Abbott Alinity m HBV assay. Results were interpreted qualitatively (positive or negative) and the LLoD was determined by Probit regression analysis.
The detection of HBV-DNA in real fingerstick DBS samples was performed in participants of the HepBClink project, based on a community action screening migrants living in Barcelona. DBS were collected for those participants testing HBsAg positive by a rapid diagnostic test. Simplified access to care was provided through an international health unit (IHU), where participants received HBV serological and viral load testing through venipuncture.

Results: The LLoD of the Alinity m HBV assay in DBS was 1115 IU/mL of blood (95% CI, 876-1773 IU/mL). A total of 768 migrants were screened and 30 (3.9%) were HBsAg positive (25 from Senegal, 3 from Pakistan and 2 from Romania); 20/30 (66.6%) new diagnoses. Of the total, 10/30 (33.3%) were already diagnosed and linked to care. Among new diagnoses, 14/20 (70%) attended the visit at the IHU (linked to care), and all tested DNA-HBV positive through routine testing. Subsequently, 10/14 (71.4%) attended a visit with the hepatologist at the hospital, and none met antiviral criteria.
DBS were obtained in 25 cases (83.3%) but, due to loss to follow up, routine HBV viral load testing was only possible in 16 cases for results comparison HBV-DNA was detected in 8/16 (50%) DBS samples; those participants had viral loads in plasma between 331 and 14,454 IU/mL. No amplification was detected in the rest of the DBS samples, corresponding to participants with viral loads in plasma between 33 and 2089 IU/mL. None of those 16 cases fulfilled current antiviral treatment criteria.

Conclusion: Given the LLoD of this assay in DBS, most cases fulfilling antiviral treatment criteria (viral load >2000 IU/mL of plasma among other parameters) would be identified. However, in this group of migrants, viral loads below this threshold were common (62.5%) and would not be detected by DBS testing. Therefore, DBS testing could complement rapid HBsAg testing for HBV screening in these migrant populations, but viral load testing through venipuncture is recommended upon linkage to care.

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HCV Micro-Elimination Strategy Development in a Challenging Environment: The Case of Ukraine

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Background: In 2019, Ukraine adopted an HIV, tuberculosis and viral hepatitis integrated strategy to reach country goals by 2030. Policy documents have no special strategies towards HCV elimination among key- and vulnerable populations (KPs), despite KPs carrying a high disease burden. Therefore, a specific HCV elimination strategy among KPs is needed to contribute to overall HCV elimination in Ukraine. The Alliance for Public Health in Ukraine is a non-governmental organisation with significant experience in the response to HCV among KPs in Ukraine, especially among people who inject drugs (PWID), people living with HIV (PLWH) and people in prisons. Since 2015, the Alliance has implemented an HCV treatment program, providing access to the HCV treatment cascade to 12,700 people (92% PLWH and 99% PWID) from KPs, out of which 3,400 during war time. Treatment success reaches 98%, and retention is 99%. These results show that it is feasible to address HCV in these populations to achieve national viral hepatitis elimination targets. This abstract shows the opportunities and challenges in developing an HCV micro-elimination strategy during dramatic changes in country context.

Materials and methods: In early 2021, a team of national and international experts reviewed available national evidence on HCV epidemiology in KPs, developed a normative framework based on WHO guidance and the integrated strategy, to establish goals and objectives of a micro-elimination strategy among KPs in Ukraine. Already developed at the University of Bristol, a country-specific HCV model was used to cost micro-elimination among PWID. Stakeholders were invited to give feedback on two occasions.

Results: The strategy outlines the population groups at increased risk for HCV. These groups include PWID, PLWH, people in prison, PLWH, sex workers, MSM, transgender populations, TB patients, people on haemodialysis and with haemophilia. The draft micro-elimination strategy includes considerations on access to tailored services for KPs. Since Ukraine has a substantial HIV epidemic, and KPs for HIV and HCV overlap in most groups, many services needed for HCV micro-elimination can be integrated into existing HIV services. The draft also includes sections on stigma, legislation/regulation to be adjusted, and a monitoring framework with indicators and milestones. The process of strategy development was suspended in February 2022 and reinstated late that year.

The war context requires adjustments, for instance on the place of the military in the micro-elimination strategy. Costing the micro-elimination strategy appeared more important than before the war, as changed country needs require sharp priorities. Modelling estimated that micro-elimination in this group from 2022-2030 would require USD 128 million (including testing, drugs, and staff- and infrastructure costs), with high initial investments but far lower expenses as time progresses.

Conclusion: It is possible to address HCV micro-elimination and develop a micro-elimination strategy even in challenging contexts of war. There are clear opportunities, such as integration into existing services. The inclusion of interventions for which evidence is not so strong (e.g. social support for those with adherence problems) may hamper adoption by the government of HCV micro-elimination in the current challenging context of Ukraine.

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"GOOD TO SEE IT OUT IN THE OPEN, NOT HIDDEN" - FINDINGS FROM THE EVALUATION OF A PEER LED NATIONAL HEPATITIS C HEALTH PROMOTION CAMPAIGN

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Background: Tailored messaging about curative hepatitis C treatments and reducing barriers to care for key populations are both crucial to achieving hepatitis C elimination. It's Your Right was the first Australia-wide hepatitis C campaign co-designed and delivered by peer workers with living and lived experience of injecting drug use. It's Your Right linked people who inject drugs with peer workers and trusted services and engaged them in hepatitis C testing and treatment by combining colorful, rights-based messaging in street advertising, with peer-led engagement strategies adapted to local community needs. Engagement strategies included tailored messages for Aboriginal and Torres Strait Islander people, client outreach, cash incentives, point-of-care testing, and events. The campaign was implemented between April and December 2022 by EC Australia and eight peer led services across Australia.

Methods: A mixed methods evaluation collected process and outcomes data from each state/territory. This included analysing organisational service delivery data, street advertising reach data, surveys of people who inject drugs (n=165), and interviews (n=18) and focus groups (n=23) with campaign designers and implementers.

Results: During the campaign, the implementing services recorded 2,595 hepatitis C conversations

with clients, 1,343 people were tested, including 194 Aboriginal people, and 151 people were referred for treatment, including 16 Aboriginal people. 1,254 financial incentives were provided to clients engaging in testing and/or treatment. Reach data shows that over 8.9 million people across Australia were estimated to have seen at least one It's Your Right campaign asset. Survey demographics indicate that the campaign reached people who inject drugs, including Aboriginal people (34% survey respondents), people who have unstable housing (26%), and people who had never attended the implementing service before (23%). Two- thirds of survey respondents were able to spontaneously recall the campaign. 39.8% of survey respondents spoke to a peer worker, 32.7% got tested after seeing the campaign, and 17% reported 'other' actions including speaking to staff at a community health centre or Needle and Syringe Program and telling a friend about the campaign.

Conclusion: It's Your Right provided opportunities for community services with peer-led programs to engage key populations within an empowering health promotion framework. Evaluation findings indicate the campaign succeeded in linking people who inject drugs, including Aboriginal and Torres Strait Islander people, to peer workers and engaging them in testing. Visibility of It's Your Right enabled peers to start conversations, and financial incentives paired with making testing accessible through trusted peer-led services, facilitated testing uptake and referral to treatment among people who inject drugs. Peer workers were critical to the campaign success, as their skills, knowledge and personal experiences helped to breakdown service barriers. Using the It's Your Right framework, further funding will be sought to sustain future rounds of the campaign and investment in peer led models that can contribute to the elimination of hepatitis C.

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Raising Awareness and Reducing Viral Hepatitis B Among Prison Inmates in Zambia

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Background: Hepatitis B (HBV) and hepatitis C viruses (HCV) are disproportionately prevalent among the 23,062 people incarcerated in Zambian prisons and jails, being two to seven times higher than in the general population. Viral hepatitis is a major cause of morbidity and mortality in Zambia's prison population. Although transmission of these infections has been documented within prisons and jails, most infections result from sexual and drug-taking risk behavior occurring in community settings, prior to incarceration. In response, the non-profit HEP Initiative Zambia was established in 2019 to raise awareness and increase access to HBV and HCV testing and linkage to care.

Description of model of care/intervention:
The HEP Initiative disseminates information to people who inject drugs and people with a history of incarceration through weekly seminars, workshops and dramatical presentations. Using public media, we reach a wider audience through guest appearances on television shows. National advocacy for HBV and HCV awareness-raising includes the development and dissemination of policy briefs to government, and collaboration with the World Hepatitis Alliance, the Hepatitis B Foundation under the Coalition against Hepatitis for People of African Origin (CHIPO), and the International Alliance for Patients Organization (IAPO) at global level.

Effectiveness: Through weekly media engagements with four programs we have reached over 2 million people. We have supplied 1000 HCV testing kits to the Ministry of Health. HEP Initiative have tested 1800 people at risk of HCV of whom 75 tested positive and were linked to care for assessment and treatment.

Conclusion and next steps:
HEP Initiative Zambia will continue to tackle HBV and HCV through the provision of adequate resources and infrastructure, bridging coordination between stakeholders in policy development, translation, service delivery and affected communities. We will work with Zambia Correctional Services to raise awareness of the constitutional right to health for people imprisoned.

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Analytical Validation of Thermo-Sensitive Smart Polymer Test for HCV Viremia before Its Use as a Point of Care Test

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Background and aim: We previously developed a novel technology for extraction and enrichment of HCV antigen using a thermo-sensitive smart polymer (NIPAAm-co-HIPAAm-co-SAKIPAAm. Initial findings demonstrated same diagnostic accuracy as the gold-standard PCR (1), along with an exceptionally low limit of detection (2). Nonetheless, these early results were drawn from a limited sample size. The present study aims to expand upon this proof of concept by thoroughly assessing the technology's performance.

Method: We conducted an extensive analytical validation, encompassing specificity testing and cross-reactivity assessments with various viral strains and interfering substances. We also evaluated within-run and inter-assay between-run precision, alongside determining the sensitivity, specificity, and accuracy of the prepared HCV antigen in comparison to a commercially available RT-qPCR kit

Results: Our results unequivocally demonstrate the absence of cross-reactivity with other viral entities, including HBsAg, HBsAb, Hepatitis B e antigen (HBeAg), HBeAb, HBcAb, HIV, H. pylori, Mononucleosis, CMV, Rubella, and Toxoplasma-positive specimens. Furthermore, the developed HCV antigen test exhibited resistance to interfering substances such as albumin, bilirubin, and tested bacterial strains, yielding consistently negative results. Within-run and between-run precision analyses consistently achieved 100% accuracy. Most notably, our technology exhibited a remarkably low limit of detection, with a value of <10 IU/ml.

Conclusion: Our analytical validation reinforces the potential of our thermo-sensitive polymer-based HCV antigen extraction technology as a one-step, point-of-care HCV test. The absence of interference from tested substances and bacterial strains, coupled with its exceptional sensitivity, sets the stage for comprehensive multi-center validation studies, underlining its promise as a highly accurate diagnostic tool.

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Barriers to Successful Linkage of HBV and HCV Positive Clients

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Background: Southern Nevada Health District Sexual Health Clinic (SHC) and Sexual Health Outreach and Prevention Program (SHOPP) have expanded STI testing to include HBV and HCV testing per CDC guidelines. Between 2016-2020, Clark County experienced Hepatitis C prevalence rates of 0.6% and Hepatitis B Acute rates of 0.08% and Hepatitis B Chronic rates of 1.35%.

Material and Methods: Linkage to first provider appointment after identification of positive Hepatitis lab has been tracked for the last 9 months. Successful linkage to first provider visits for clients with positive HCV and HBV has been a challenge. Increased identification of HBV and HCV infections without improvement in linkage to care will limit the overall goals of decreasing morbidity and mortality. Data was collected from SHC and SHOPP clients from November 2022 through July 2023

Results: During this time, 2,436 HCV Ab tests were completed and identified 36 HCV Ab positive clients. Of those 36 clients, 18 had a positive HCV RNA test. Seven clients were newly identified as HCV RNA positive and 3 of the 7 attended the first provider HCV visit. Twelve patients total were linked to their first HCV provider visit. For the same data collection period, 2,458 HBsAg tests were completed. Eleven clients had positive HBsAg results, with 5 out of 11

being newly identified HBV. Two out of the five (40%) newly identified HBsAg positive clients attended their first HBV provider visit. 6 out of the 11 (55%) HBsAg positive clients were linked to the first provider visit.

By the end of this training the participants will have knowledge of:

1. Linkage barriers identified for clients living with HCV and HBV who did not attend or delayed the first provider visit after positive test results.
a. Barriers identified include lack of insurance or underinsured, high cost of labs required for evaluation of HCV, lack of transportation, unstable housing, substance use, depression, and previous known HCV without treatment.
2. Communication Deficits
a. Telephone calls were the main source of communication by linkage staff. There was a high rate of unanswered phone calls with voicemails left and no messages of return calls. If a client did call back, documentation rarely noted ongoing barriers and confirmation of best time/way to communicate with client.

Conclusions: Knowledge of barriers will assist the linkage team, including Community Health Workers, in developing a plan to work closely with clients identified to have HCV or HCB positive infections. Future considerations will include using standard assessment of Social Determinants of Health to assist in identifying barriers. Assessing and confirming best communication practices for clients will help overall in successful linkage to first provider appointments. The best practice will be to have face to-face introduction to linkage staff while client is at a visit. This will foster a trusting relationship.

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The First National Burden Assessment of Hepatitis C Infection in Uruguay: Findings from the Hepatitis Evaluations to Amplify Testing and Treatment (HEAT) Project

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Background: Chronic hepatitis C virus (HCV) infection is a public health threat, with a substantial morbidity and mortality burden resulting from cirrhosis and hepatocellular carcinoma. The World Health Organization set goals for elimination of HCV by 2030.

In Uruguay, there is limited and fragmented data available on the burden of HCV infection. We aimed to conduct a baseline epidemiological study to inform national HCV elimination planning.

Material and Methods: The hepatitis burden, from 2015 to 2021, was assessed retrospectively by surveying of keys focal points in the: 1) Ministry of Health 2, 2) public and private health hospital and private clinical laboratories across the country, 3) National Resources Fund, 4) National Dialysis Registry, 5) National Institute for Donation and Transplantation of Cells, Tissues and Organs, 6) National Blood Bank, 5) National Liver Transplant Program 6) National Drug Board 7) Ministry of security 8) Social Security Bank; and searching the available published literature.
Prevalence, incidence, sex and age distribution, fibrosis stage and mortality were retrospectively estimated. Current rates of testing and treatment were estimated and the cascade of care was constructed.

Results: Between 2015-2021, 321.521 people were tested fot anti-HCV and 2.849 tested positive, obtaining a seroprevalence of 0.9%, and a current rate

of testing of 1.3% of the population per year. Seroprevalence was higher in men (1%) than in women(0.7%). Regarding the age-based proportion of anti-HCV positivity, 0.1% were between 0-14 years, 88.7 % between 14-65, and 11.2 % over 65 years old. An 85% performed a confirmatory test and 65% was viremic, therefore the36revalentce of HCV viraemia was 0.6%. Based on this data, it is estimated that in 2021 there were 20.370 people with chronic HCV infection. Of these population, 1.852 had being diagnosed (9%), 719 had received treatment (3.5%) and 644 had being cured (3.2%).

In terms of key populations, seroprevalence in blood donors was estimated at 0.2% (305 positives of 135.467 tested), in Cells, Tissues and Organs donors 0.1% (1 of 767) and among persons on dialysis 3.3% (234 of 7000). Reported seroprevalence among persons living with HIV was 6.2% and among persons who use drugs: injected 21.5% , no injectable cocaine 10.1% and cocaine base paste 1.3%. No data was found in sex workers and persons who are incarcerated.

New anti-HCV cases reported were 8.3 cases per 100,000 inhabitants per year.
The most frequently genotypes reported were 1 (60%) and 3 (23%). Advanced fibrosis was present in 33% of people with chronic HCV infection.

23 people infected with HCV died from cirrhosis and 19 from and liver cancer in the whole period, with a rate of 0.2 deaths per 100.000 inhabitants per year. 13% of liver transplant evaluations and 10% of liver transplants were attributable to HCV. 250 hospital discharges and 2233 days of hospitalization linked to HCV were reported.

Conclusions: This type of baseline epidemiological analysis that synthesizes existing data sources can inform national HCV elimination policy development, including as an input into modeling and strategic planning.

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Direct Acting Antiviral Treatment for Chronic Hepatitis C are Successful in Egyptian Patients with Chronic Hepatitis C Virus Infection after a Geographically Focused, Community-Based HCV Screening

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Background and Aims: Chronic hepatitis C virus (HCV) infection increases the risk for hepatic fibrosis, cirrhosis and hepatocellular carcinoma (HCC). This is the leading cause of liver transplantation in Egypt. The effect of interferon-free direct-acting antiviral(s) (DAAs) in the treatment of HCV is very high. We evaluated the outcome of screening and treatment with interferon-free DAAs that are required to control HCV incidence and complications.

Method: The prevalence of anti-HCV was determined on a mobile medical unit on 8 sessions in a cross-sectional survey in Kafr Ramaah village at Menoufia governorate. Three thousand participants were recruited for testing through door-to-door and street outreach and at community events and were educated about HCV prevention. Both HCV antibodies and hepatitis B virus surface antigen were measured using a commercially available third-generation quantitative enzyme-linked immunosorbent assay (ELISA) methods. Among patients with reactive tests, chronic infection was confirmed by quantitative HCV RNA real-time polymerase chain reaction (PCR). They underwent history taking, thorough clinical examination, abdominal ultrasonography, and liver stiffness measurement (LSM) by fibroscan. Laboratory investigations were done. Patients were assigned treatment with oral DAAs, as defined by the European association study of the liver (EASL) clinical guidelines.

Results: Prevalence of chronic HCV patients was 11.1 % in totally screened 3000 persons in the village (N = 333) with mean age 47.02 ± 13.26 years old. Among them, 99 patients showed spontaneous clearance at baseline while 234 patients who were confirmed by positive PCR received a once-daily oral combination of daclatasvir (DCV) and sofosbuvir (SOF) with or without ribavirin (RBV) (DCV + SOF ± RBV). Sustained virological response (SVR) was 99.1 %.
Conclusion: Patients who were treated with interferon-free DAAs achieved marked reduction in HCV-associated morbidity and mortality. Aggressive expansion in HCV screening and treatment, particularly among rural areas was the cornerstone in the policy to eliminate HCV in Egypt.

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Cost of Hepatitis C Virus Self-Testing in Malaysia: A Micro-Costing Study

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Background: The seroprevalence of Hepatitis C virus (HCV) is 0.3% to 2.5% in Malaysia's general population, with 4.6% prevalence in men who have sex with men (MSM), and 74.0% among people who inject drugs (PWID) on methadone maintenance treatment. A cohort study led by FIND, Malaysian AIDS Council and Ministry of Health of Malaysia in 2021-2022 provided HCV self-tests (HCVST) through an existing online platform (Jom-Test) first established for HIV self-testing. We calculated the economic cost of HCVST in this study.

Methods: Participants were randomized to the intervention (249 in the oral-fluid HCVST group, 250 in the blood HCVST group, both of which received HCVST kits and instructions for use delivered by mail) and control groups (250, who received information about routine facility-based HCV testing). Costs were gathered from program expenditure records in local currency units converted to US Dollars using the average 2021 exchange rate. Research-specific costs were excluded.

Results: Most participants (92%) identified as MSM and 1% as PWID. There was 98% uptake of HCV testing in the HCVST arms compared to 51% in the control group. Total fixed costs were $113,463, with $4,125 total variable costs. Fixed costs consisted of 63.4% staff, 1.9% equipment, 19.3% start up, 11.0% recurrent, 1.3% overheads. Variable costs consisted of test kit and delivery cost. Mean self-testing costs per patient were $165 (oral-fluid; including $151 fixed cost and $14 variable cost) and $154 (blood; including $151 fixed cost and $3 variable cost).

Conclusion: This micro costing research offers important data for of the cost of self-testing for HCV from the provider perspective in Malaysia. Cost-effectiveness of HCVST will depend on screening yield (prevalence), and numbers reached for testing as variable costs made up only 3.5% of total HCVST cost. Few PWID participated, indicating that reaching this population may require different targeted approaches.

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Impact of Clinical Process Automation on the Volume of Hepatitis B and C Screenings in a Major Urban Emergency Department in Barcelona, Spain

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Objective: Emergency departments (ED) often serve as the sole interface with healthcare services for vulnerable populations, who may exhibit a higher prevalence of hepatitis B and C virus (HBV, HCV) infections. The objective of this study was to assess the efficacy of automating clinical workflows in increasing the volume of HBV and HCV screenings in the ED of a large urban hospital in Barcelona.

Methods: We conducted opportunistic HBV and HCV screening for adults 18 and older requiring blood tests at our ED from February 2020 onward. Electronic health record system (EHR) and laboratory workflow modifications were implemented in May 2023 to automate laboratory request orders; informed consent was waived upon approval from our ethics committee. Samples were tested for HCV antibody (HCV Ab) with subsequent RNA confirmation, and for HBV surface antigen (HBsAg) with subsequent hepatitis D virus (HDV) testing. All positive cases were assessed and linked to care if appropriate.

Results: Out of 25,279 individuals screened, 159 (0.63%) tested positive for HBsAg, 177 (0.7%) for HCV-RNA, and 6 (0.02%) for anti-HDV. Test positivity rates remained stable over the observation period. Among those eligible for referral, 73% of HBV and 65% of HCV-RNA positive patients were successfully linked to care.

The quarterly moving averages of screening test volumes indicated two discernible downturns in serology requests from ED physicians, which were attributable to waning motivation. These declines were counterbalanced by subsequent surges — from 239 monthly average tests in Q4 2020 to 851 (+256%) in Q2 2021 following staff retraining, and from 179 in Q1 2023 to 1350 (+654%) in Q3 2023 after test request automation.

Conclusion: In our intervention, the automation of test requests proved more effective in increasing and sustaining screening test volumes compared to staff training alone. Stable test positivity rates underscore the imperative for sustained screening to achieve the WHO's goals of reducing liver-related mortality due to viral hepatitis by 2030.

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Baseline Assessment Among Healthcare Workers and Pregnant Women on Prevention of Mother-to-Child Transmission of Hepatitis B Virus in Sardauna LGA of Taraba State, Nigeria

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Background: Viral Hepatitis B is a global public health concern that affects approximately 296 million people and contributes to an estimated 820,000 deaths every year. Nigeria has a prevalence of 8.1% for viral hepatitis B among adult (15-64 years). Mother-to-child transmission (MTCT) of hepatitis B virus (HBV) is a major source of new infections, results to chronic HBV infection, and leading cause of cirrhosis and liver cancer. If not vaccinated, nine in 10 children infected at birth will become chronically infected. Furthermore, the morbidity and mortality rates remain high because of lack of awareness, unavailability of HBV birth dose vaccines/adherence to WHO guidelines, effective drug therapy, out-of-pocket cost to access quality healthcare, and poor health system capacity, including low capacity of healthcare workers (HCWs) on hepatitis treatment and management. Understanding the knowledge, attitude and practice of healthcare workers and pregnant women attending ante-natal care is paramount for the elimination of viral hepatitis in Nigeria.

Objective: To assess the knowledge, attitude, and practice (KAP) of health workers and pregnant women on PMTCT HBV in Gembu and Nguroje communities of Sardauna LGA of Taraba state, Nigeria.

Methods: A cross-sectional study was conducted using structured questionnaires to collect data from 176 healthcare workers and 191 pregnant women attending ante-natal care in two healthcare facilities of Gembu and Nguroje communities. The data were analyzed using statistical tools.

Results: The study revealed low levels of KAP on PMTCT HBV among both health workers and preg-

nant women. Only 61% of health workers and 45% of pregnant women had adequate knowledge on PMTCT HBV. The attitude towards PMTCT HBV was generally positive, but there were misconceptions and stigma associated with HBV infection, especially among pregnant women and women of childbearing age. The practice of PMTCT HBV records 12% and 23% of healthcare workers and pregnant women respectively, with low coverage of birth dose vaccination, screening, and treatment.

Conclusion: There is an urgent need to improve the capacity of healthcare providers and increase awareness and behavioral change of pregnant women on PMTCT HBV in Taraba state. The assessment provides information to enhance prevention of mother-to-child transmission of HBV (PMTCT HBV) services, especially in hard-to-reach communities in Nigeria and crucial for achieving the global goal of elimination of HBV by 2030.

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Management of CHB Patients Outside the Guidelines: Insights from Real World Data in Egypt

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Background and aim: Current antiviral therapies play a crucial role in achieving long-term suppression of HBV replication, which not only prevents disease progression but also reduces the occurrence of HCC and mortality [3,4]. Despite these remarkable benefits, a mere 2.2% (6.6 million) of chronic hepatitis B (CHB) patients globally received treatment in 2019 [1]. This alarming treatment gap can be attributed, in part, to the complexity and restrictive nature of clinical practice guidelines, which often necessitate liver biopsies or persistent elevations in ALT levels and HBV DNA > 2000 IU/mL for treatment initiation [3,4,6]. Since 1998, we have adopted a "treat-all" approach, aiming to provide compelling evidence supporting the advantages of early treatment for CHB patients.

Methods: We conducted a retrospective analysis of data from 1226 CHB patients managed between January 1998 and December 2020 at two distinguished sites: the Egyptian Liver Research Institute and Hospital (ELRIAH) and the Association of Liver Patients Care (ALPC) in Mansoura, Egypt. Comprehensive clinical and laboratory parameters were collected before initiating antiviral treatment and subsequently at 6-month intervals, following a standardized protocol. Patients were categorized into two groups: group A, comprising those with initial HBV DNA levels below 2000 IU/mL, and group B, consisting of patients with initial HBV DNA viremia exceeding 2000 IU/mL

Results: Our findings demonstrate that 28.3% patients with an initial HBV DNA level below 2000 IU/ml (group A) had significant liver fibrosis (F3,F4) compared to 18.4 % among patients with higher initial HBV DNA viremia (group B). We also reported , the incidence of HBsAg loss was significantly higher in group A (4.2%) compared to group B (1.3%). (P<0.002).

Conclusion: We advocate for a shift towards a more inclusive and proactive approach in managing CHB patients, with a focus on early treatment initiation to prevent disease progression, reduce the occurrence of cirrhosis, and potentially achieve functional cures. This approach has the potential to improve the overall care and outcomes of CHB patients worldwide, addressing the alarming treatment gap observed in current global statistics.

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Very Low Detection Limit for a Novel Point of Care Test of HCV Viremia Using Temperature-Sensitive Smart Polymer Technology

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Background and aim: We previously developed a novel technology for extraction and enrichment of HCV antigen using a thermo-sensitive smart polymer (NIPAAm-co-HIPAAm-co-SAKIPAAm as a point of care testing which has the same diagnostic accuracy as the gold standard PCR (1). The laboratory-based Roche COBAS®TaqMan® HCV test is able to detect and measure HCV RNA down to 15 international units per milliliter (IU/ml) with >99% sensitivity. Our aim is to determine the target limit of detection (LOD) of this technology.

Method: We predefined 60 serum samples subdivided to three groups according to HCV viral load distribution in log 10 IU/ml by (Cobas amplipre/TaqMan®, Roche); 20 samples with viral load from 500 up to 1000 IU/ml., 20 samples with viral load from 100 up to 500 IU/ml., 20 samples with viral load from < 100 IU/ml.
Results:
Given that the lowest available stored blood sample with a viral load of 36 IU/ml, the novel thermosensitive smart polymer technology can extract and enrich HCV antigens in these samples.
Conclusion:
The novel thermosensitive smart polymer technology with an LOD of 36 Iu/ml could facilitate development of an affordable POC test

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Impact of Fibroscan® Results on Management of Chronic Hepatitis B in Clinical Practice, a Libyan Experience

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Background and aim: Until few years back liver biopsy was the gall standard in the decision of treatment of chronic hepatitis B, later non-invasive methods for evaluation of liver fibrosis have emerged including Fibroscan®. In Libya Fibrotest/actitest, and other simple scores have replaced liver biopsy in evaluating liver fibrosis. Recently Fibroscan® become available, we aimed to evaluate its results in the guidance for treatment decision of chronic hepatitis B.

Methods: We included subsequent hepatitis B patients who were evaluated with Fibroscan® compact 530 for degree of fibrosis and steatosis at Attasami private clinic, from January 2021 to March 2022

Results: A total of 119 patients were transferred from different clinics for evaluation of fibrosis for the decision of starting treatment, mean age was 45 years, 84(70.5%) were males. Fibrosis stage F0-F1 was found in 71patients (60%), of these patients, duration of hepatitis B was not known in 25(35%), 22(31%) were newly diagnosed, 7(9%) were less than 10 years of disease duration, and 17(24%) were diagnosed more than 10 years, fibrosis stage of F1-F2 was found in 11 patients (9%), fibrosis stage F2-F3 in 15 patients (13%), ≥ F3 in 22 patients (18%). Steatosis was absent in 69(58%) patients, and 50(42%) patients have steatosis at different stages; stage 1 in 13(26%), stage 2 in 16(32%), stage 3 in 21(42%). Steatosis was associated with fibrosis score of F0-F1 in 27/50 patients (54%). Alanine transferase (ALT) was elevated in 12 patients (10%), 5 were started treatment of hepatitis B, 1 diagnosed as acute hepatitis B, 3 steatohepatitis, 2 autoimmune liver diseases, and 1 diagnosed as hepatocellular carcinoma.

Conclusion: The quantification of liver fibrosis is a key factor for hepatitis B treatment decision, Fibroscan® appears to be a valuable non-invasive tool to manage patients with chronic hepatitis B in clini-

cal practice. the presence of high liver function with absence of fibrosis may indicate steatohepatitis or other liver diseases.

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Association of IL-10 Gene Promoter Region Polymorphism with Spontaneous Clearance of HCV Infection

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Introduction: Accurate etiologies of spontaneous clearance of HCV infection are hard to be clarified, however it is proposed that genetically determined interleukin-10 changes play an important function in HCV elimination (1).
Persons who are homozygous for IL-10 AA have significantly lower levels of plasma IL-10 levels with better capability of spontaneous viral clearance (SVC) ,while persons with IL-10 (−1082) GG genotype have two fold greater level of IL-10 than GA or AA persons, leading to diminished capability of SVC& development of chronic infection (2) .
Aims of the work: to study the association of IL-10 gene promoter region polymorphism with spontaneous clearance of HCV infection.

Method: The study was conducted on two groups: Group (1) included 50 cases of spontaneous viral clearance (SVC) defined as detectable anti-HCV antibodies for ≥ 6 months, and undetectable HCV RNA in two consecutive tests, 3months apart. Group (2) included 100 cases of chronic hepatitis C infection (CHC) defined as detectable anti-HCV antibodies and detectable serum HCV RNA for ≥ 6 months. Anti HCV antibodies testing was done using 4th generation ELISA technique. HCV-RNA quantification was done using polymerase chain reaction (PCR) technique. Detection of IL10 1082 (G/A; rs1800896) polymorphism was done by PCR restriction fragment length polymorphism (RFLP) technique. Complete blood count, serum albumin, serum bilirubin, ALT, AST, INR, serum creatinine and HBsAg, were done for all participants. Child-Pugh (CP) class & FIB4 were calculated. Abdominal ultrasonography and contrast enhanced computed tomography of the abdomen were done for all participants.

Results: In group1, the age was 52.8±8.6 years old, males represented 48% and females represented 52%. In group2, the age was 53.6±11.2 years old, males represented 51% and females represented 49%. No significant differences were found regarding age and gender (p=0.658, 0.729 respectively). Group1 showed significantly lower frequency of Liver cirrhosis, hepatomegaly& splenomegaly (p < 0.001). Group1 showed significantly higher platelet count (220.3±67.2 ×10 /L versus 183.5±61.1, p=0.006). Group1showed significantly lower AST, ALT& FIB4 (p <0.001, 0.002 & <0.001 respectively).Group2 had median viral load of 555640 IU/m. In group1, genotype AA represented 62%, AG represented 34% & GG represented 4%, while in group2 genotype AA represented 72%, AG represented 26% & GG represented 2%, without significant difference between both groups (p=0.272, 0.415& 0.216 respectively). Dominant model (AG+GG) showed frequency of 38% in group1 and 28% in group 2. The major allele (A) showed frequency of 79% in group1 and 85% in group 2 while minor allele (G) showed frequency of 21% in group1 and 15% in group 2. No significant differences were found in demographic, anthropometric, clinical, radiologic and laboratory data between IL10 (-1082 A/G) genotypes and alleles in both groups. Univariate analysis showed that lower ALT, AST and FIB4 were associated with SVC. However, multivariate analysis revealed that lower FIB4 was independant predictor of SVC.

Conclusion: Single nucleotide polymorphism in the promoter region of the IL-10 gene, 1082 (G/A; rs1800896) did not show significant association with the spontaneous clearance of hepatitis C virus infection.

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CORRELATION OF PRECORE/CORE GENE MUTATIONS WITH SEROLOGICAL PROFILES OF PATIENTS CO-INFECTED WITH HUMAN IMMUNODEFICIENCY VIRUS-1 IN KWAZULU-NATAL, SOUTH AFRICA

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Hepatitis B virus (HBV) remains a significant global public health challenge despite the inclusion of the HBV vaccine in the Expanded Programme on Immunisation (EPI) and the availability of effective treatments. South Africa, in particular, bears a substantial burden with over 1.9 million individuals suffering from chronic HBV infection. This study aims to delve into the molecular intricacies of HBV infection by investigating the mutational changes within the Precore/Core region of HBV and their impact on the serological profiles of HBV/HIV co-infected patients in the province of KwaZulu-Natal, South Africa. Conducted as a cross-sectional analysis of prospectively collected data in a tertiary/quaternary hospital in KwaZulu-Natal, South Africa, this study enrolled 150 South African participants. Plasma samples were collected for both serological and molecular testing. Next Generation Sequencing was utilised to sequence PreCore/Core gene PCR products. The serological analysis of patients revealed a compelling correlation between the observed mutations in the PreCore/Core region and their serological profiles. Interpretation of these serological markers uncovered a spectrum of clinical presentations, with some patients exhibiting a typical clinical picture of HBV infection while others demonstrated deviations from the conventional HBV infection clinical presentation. This research advances our understanding of HBV infection dynamics among HBV/HIV co-infected patients in South Africa and underscores the importance of molecular investigation in guiding therapeutic interventions and public health strategies.

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Prevalence of AgHbs of Hepatitis B Virus in HIV-Infected Children in Bamako, Mali

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Despite an effective vaccine, approximately 5-10% of HIV-infected adults worldwide suffer from chronic HBV infection. Both HBV and HIV can be transmitted perinatally and infants exposed to HBV are more likely to develop chronic HBV infection, HBV infection in HIV-infected infants could be also expected. Significant regional variations were observed in hepatitis B vaccination coverage. However the prevalence of chronic viral hepatitis in HIV-infected children is not well characterized.

We conducted a cross-sectional study of the prevalence of serological markers of HBV in HIV-infected children by enzyme-linked immunosorbent assay (ELISA) method.

A total of 189 people aged 2 to 17 participated in the study. The majority of children were male (52.3%, 99/189), with a median age of 11 years (IQR 8-14.5). The median CD4 count was 754 cells/mm3 (IQR 435−1200). Abacavir/Lamividune/Dolutegravir regimens were the most widely used ART.
The seroprevalence of markers of infection were as follows: HBsAg (4.7%, 9/189), status with active infection HBsAg+anti-HBc (4.7%, 9/189), isolated anti-HBc (2% , 4/189) and only 7.9% (15/189) had a protective anti-HBs level (>10UI/L).

Our results show a moderate level of HBsAg, the importance of knowing the HBV status in all infected children. In addition, we observed a low level of vaccine response. There is an urgent need to implement strategies to improve HBV vaccination in this population.

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Overcoming Barriers to Care Delivery for Viral Hepatitis: Insights from a Decade of Civil Society Experience

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Background: Viral hepatitis is a significant public health concern in Nigeria, associated with high morbidity and mortality rates. Despite available prevention and treatment strategies, many Nigerians face barriers to accessing timely and appropriate care for viral hepatitis. Civil society organizations play a crucial role in addressing these gaps and challenges in healthcare delivery.

Objectives:
1. This abstract sought to explore the experiences of the Center for Initiative and Development (CFID) /Chagro Care Trust (CCT), a patient-driven charity organization, in achieving the GHSS 2030 goal of viral hepatitis elimination through community-based awareness creation, FREE HBsAg and Rapid Anti HCV testing, and linkage to care.
2. To assess the roles of CSOs and patient groups in improving access to hepatitis care, using CFID/CCT as a case study, and provide recommendations to strengthen their impact.

Methods: We conducted a retrospective analysis of Free HBsAg testing data over a 10-year period. The study included walk-in clients accessing free HBsAg testing in CFID/CCT. The analysis excluded data from other project activities and community outreaches. Additionally, we surveyed patient folders at specialist hospital and FMC Jalingo to evaluate the treatment status of referred individuals.

Results:
HBsAg testing:
• A total of 19,136 individuals were tested.
• 2,487 individuals tested positive and linked to care.
• 215 individuals were initiated on treatment based on WHO 2015 guidelines
• 76 are currently receiving treatment
• 139 are lost to follow up
• 258 people returned to care (23 started HBV treatment) through peer contact and follow-up by CFID
Hepatitis B vaccination:
• 16,649 individuals referred for hepatitis B vaccination.
• 15,800 started the first dose, 8,750 received the second dose
• 4,875 completed the three-dose regimen.

Conclusion: These findings highlight the significant impact of CFID/CCT in providing hepatitis B Cascade of care over the past decade, mitigating out of pocket expenses through provision of free screening. However, challenges persist in achieving treatment retention and completing the vaccination regimen. Factors contributing to these challenges include; distance to hospitals and out of pocket expenses, Inadequate knowledge on Hepatitis management by Healthcare workers, adherence issues, weak healthcare system and financial limitations. Addressing these challenges requires increased advocacy, government investment in healthcare, and continued support for CSOs to combat viral hepatitis and enhance access to care.

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Community-Based Interventions to Improve Hepatitis Testing in Africa: Ghana's Experience

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Background: Ghana has a high prevalence of chronic viral hepatitis. We are engaged in community intervention programs to improve hepatitis B (HBV) and hepatitis C (HCV) awareness and testing, including in Tarkwa, a mining center in the Western Region of Ghana. Tarkana has large scale industrial mining, and a large population engaged in galamsey (illegal small scale unregulated gold mining). As seen in other mining areas of Africa, Tarkwa has a high concentration of migrant workers, sex workers, unstable and crowded housing, increasing drug injection and appears to have high and increasing rates of HBV and HCV.

Description of model of care/intervention:

Hepatitis testing was performed by trained staff from the Hepatitis Foundation of Ghana. Those screened positive were counselled and linked to local government health centers for confirmatory testing and management. In conjunction with government agencies, we initiated a media campaign (on local radio and TV stations) and also used drama, music and dance to raise awareness of HBV and HCV and prevention and management approaches and to engage people in free HBV and HCV testing.

Effectiveness: The awareness and educational activities successfully reached many community members not previously aware of HBV and HCV risks. We successfully reached engaged over 800 people in viral hepatitis testing. Different people from different backgrounds and culture benefited from the event.

Conclusion and next steps: Areas of legal mining and galamsey may be hot spots for both drug injection and viral hepatitis and are important sites for expanded HBV and HCV education, testing and linkage to care. Programs that are community-based and which engage a wide range of community members in culturally appropriate ways, and are collaboratively supported and implemented by government and non-governmental organizations, and which can also engage industry partners, hold promise and should be more widely implement to improve HBV and HCV control and the health of Africans.

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Anti-Hepatitis C Antibody Carriage and Risk of Liver Impairment in Rural-Cameroon: Adapting the Control of Hepatocellular Carcinoma for Resource-Limited Settings

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Background: The global viral hepatitis elimination by 2030 is uncertain in resource-limited settings (RLS), due to high burdens and poor diagnostic coverage. This is more challenging for hepatitis C virus (HCV) because antibody (HCVAb) sero-positivity lacks access to viral RNA confirmatory test. This warrants context-specific strategies for appropriate management of liver impairment in RLS. We herein determine the association between anti-HCV positivity and liver impairment in an African RLS.

Methods: A facility-based observational study was conducted from July-August 2021 among individuals attending the "St Monique" health center at Ottou, a rural community of Yaounde,Cameroon. Following a consecutive sampling, consenting individuals were tested for anti-HCV antibodies, hepatitis B surface antigen (HBsAg) and HIV antibodies (HIVAb) as per the national guidelines. After excluding those positive for HBsAg and/or HIVAb, liver function tests (ALT/AST) were performed on eligible participants (HBsAg and HIVAb negative) and outcomes were compared according to HCVAb status; with $p<0.05$ considered statistically significant.

Results: A total of 306 eligible participants (negative HBsAg and HIVAb) were enrolled; mean age was 34.35±3.67 years, 252(82.35%) were female and 129 (42.17%) were single. The overall sero-positivity to

HCVAb was 15.68%(48/306), with 17.86% (45/252) among women vs. 5.55%(3/54) among men [OR (95%CI)=3.69(2.11-9.29),p=0.04]. Sero-positivity to HCVAb was higher among participants aged>50 years compared to younger ones [38.46%(15/39) versus 12.36% (33/267) respectively, OR(95%CI)=4.43(2.11-9.29), p<0.000] and multi-partnership [26.67%(12/45)vs.13.79%(36/261) monopartnership, OR (95%CI)= 2.27(1.07-4.80),p=0.03]. The overall rate of liver impairment (abnormal ALT+AST levels) was 30.39%(93/306), with 40.19%(123/306) of abnormal ALT alone. Moreover, the burden of Liver impairment was significantly with aged>50 versus younger ones [69.23% (27/39) versus 24.72%(66/267) respectively, p<0.000). Interestingly, the burden of liver impairment (abnormal AST+ALAT) was significantly higher in HCVAb positive (62.5%, 30/48) versus HCVAb negative (24.42%, 63/258) participants, OR: 3.90 [1.96; 7.79], p=0.0001.

Conclusions: In this rural health facility, HCVAb is highly endemic and the burden of liver impairment is concerning. Interestingly, HCVAb carriage is associated with abnormal liver levels of enzyme (ALT/AST), especially among the elderly populations. Hence, in the absence of nuclei acid testing, ALT/AST are relevant sentinel markers to screen HCVAb carriers who require monitoring/care for HCV-associated hepatocellular carcinoma in RLS.

Keywords: Hepatitis C Virus antibodies (HCVAb), ASAT/ALAT, liver impariment, hepatocellular carcinoma, Cameroon.

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Capacity Building of Health Care Providers; A Key Driver for Achieving Viral Hepatitis Integration with HIV/AIDS Prevention, Diagnosis and Treatment

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Introduction: Nigeria has a prevalence rate of 8.1% for Hepatitis B (HBV) and 1.1 % for Hepatitis C (HCV), with estimated 20 million people living with chronic hepatitis B and C. Also, awareness and knowledge of the disease among health workers is relatively low. Despite these challenges, treatment for Viral Hepatitis (VH) is still being managed largely by Specialists in public and private tertiary health facilities. In a bid to simplify management of HBV and HCV in line with integration goals, the national control programme commenced training of non-specialist health workers at primary level of care and community The main objective of this training was to use capacity building as a major driver for accomplishing integration of VH services with the existing HIV control programme.

Methodology: The VH and HIV integration approach started with the conduct of advocacy meeting with relevant stakeholders. This was followed by the recruitment of a consultant who developed draft integrated VH and HIV training manual. The draft manual which was reviewed and validated by stakeholders was used to train service providers working in custodial centres, One-Stop-Shops (OSSs) and community. The method of training was a combination of didactic presentations and group, interactive discussions. A questionnaire based on the training manual was administered before (pre-test) and after (post-test) the training.

Results: There were 13 participants (9 Males, 4 females) from custodial centres for the training. Out of these 13 participants, 38.5% and 23.1% were Nurses and Public Health Officers respectively with mean scores for pre- and post-test of 39.5% and 66.5% respectively. Among participants from the community, 33.3% were Programme Assistants, with mean scores for pre- and post-test of 43.8% and 73.1% respectively. Also, out of 60 participants from OSSs working on key population, 23.3% were Laboratory Scientists and 18.3% each were Medical Doctors, Nurses, and Pharmacists respectively, with mean scores for pre- and post-test of 30.9% and 55.5% respectively. The average gain in knowledge among participants was 26.15% (Cl, 17.44-34.86) for custodial centres, CBOs, 31.8% (CI, 23.55-39.99) and OSSs, 23.8% (Cl, 17.90-29.70), respectively.

Conclusion: The overall gain in knowledge among service providers working at primary level of care and community following training with the HIV/Viral Hepatitis integrated manual revealed that simplify testing and stepping down of treatment of viral hepatitis is practicable and achievable with continuous specialists' mentoring and, provision of basic infrastructure and commodities. Furthermore, this model could potentially be scale up nationally or interna-

tionally, with implications for policy changes that could further facilitate treatment for both VH and HIV as we strengthen efforts towards elimination goal by the year 2030.

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Patient and Clinician Views on the Acceptability and Feasibility of Telehealth Service Use for Hepatitis B Care

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Background: Telehealth services allow healthcare to be delivered without the need for in-person attendance by using information technology. While telehealth has been in use for delivering care in many settings, including for hepatitis B care, the COVID-19 pandemic has resulted in a wider application. Hepatitis B affects people from culturally and linguistically diverse backgrounds in Australia and there currently exist gaps in the cascade of hepatitis B care. Access to care and engagement in care need to be improved for elimination targets to be met. Telephone and video consults can help improve clinic attendance rates and increase engagement in care, however this is at the loss of direct patient and healthcare worker contact. This qualitative study explored patient and healthcare worker views on the acceptability, perceived challenges, and benefits of telehealth technologies for the care and treatment of hepatitis B.

Materials and Methods: Semi-structured interviews were conducted with patients (n=20) receiving hepatitis B care from a metropolitan gastroenterology clinic in Melbourne, Australia. Data was triangulated with semi-structured interviews (n=11) and group interviews with clinicians (n=11). Out of the twenty interviewed patients, eleven were male and nine female. Fifteen of the interviewed patients were born overseas and five born in Australia, with ages ranging from 32 to 66 years (mean age 51 years).

Results: Four themes were identified from patient interviews: 1) continuity of clinical care, 2) changing communication styles, 3) convenience of telehealth, and 4) barriers to telehealth use. Four themes were identified from individual clinician interviews and the group interview: 1) telehealth impacting communication, 2) telehealth changing caring relationships, 3) patient convenience, 4) operational and system related factors. Both clinicians and patients reported in-person consultations had the benefit of non-verbal communication, with video preferred over telephone consultations by patients. While patients reported little to no changes to relationships with their doctors, clinicians noted changes in the formality and tone of telehealth consultations. Factors contributing to the convenience of telehealth services for patients included the removal of the need for travel, taking leave from work, arranging care for other family members, and avoiding clinic waiting rooms. Barriers identified by patients to telehealth included difficulty understanding clinicians either due to language barriers or technical issues, with technical issues identified as a barrier for both clinicians and patients.

Conclusions: Both clinicians and patients saw merit in the continued use of the telehealth model for hepatitis B care. Most patients reported positive experiences with telehealth consultations, with convenience of telehealth regarded as its greatest advantage. Areas for improvement include overcoming barriers to patient understanding and minimising the impact of technological issues on communication. These findings suggest telehealth is an acceptable tool to improve access to and retention in hepatitis B care.