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Abstract Book

7th International Viral Hepatitis Elimination Meeting

IVHEM - 2020

4 - 5 December 2020, virtual meeting

7th International Viral Hepatitis Elimination Meeting
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Abstracts
Oral Presentations

1

Toward Hepatitis B and hepatitis D elimination in Cuba

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Viral hepatitis is an international public health challenge. The WHO has launched a strategy with the goal of eliminating viral hepatitis as a major public health threat by 2030. In 1992, Cuba added the locally produced recombinant hepatitis B vaccine Heberbiovac-HB to the National Immunization Program with high vaccination coverage.
A vaccination strategy was designed and included: vaccination of all newborn children, applying the first dose in maternity hospitals, the vaccination of previously identified risk groups, emphasizing prevention before exposure and the complete immunization of the population under twenty years of age in 2000. All babies born to HBsAg positive mothers receive the vaccine at birth and 1, 2 and 12 months later and since 2008 these children also receive hepatitis B hyperimmunoglobulin at birth. After 27 years of nationwide vaccination, the rate of new infections has been reduced to currently 0.5/100.000 population. In 3266 babies born to HBsAg positive mothers a 3.3% of HBsAg positivity was observed. Seroprotection in this group was 89%, and the 64.6% of them have anti-HBs titers ≥ 100 IU/L.

Molecular analysis of the HBV S gene from 12 children with HBV infection showed no mutation associated with vaccine-escape. Five hundred and two serum samples from individuals confirmed to be HBsAg carriers and collected in the period 2006 - 2019 from all the country were tested for anti-HDV total antibodies. Two samples were anti-HDV positive (2/502, 0.39%). In conclusion, a general trend toward a reduction of viral hepatitis B and D is observed in the Cuban population. In high risk children the mother-to-infant HBV transmission by infant HBV passive and active vaccination continues to decrease. HDV elimination seems feasible if the success in HBV control is maintained.

All these results will aid in the accomplishment of the goal of elimination of HBV and HDV globally.

2

Healthcare consumption in addicted versus non-addicted hepatitis B and C patients in the Netherlands

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Background: Patients with a chronic hepatitis B virus (HBV) and/or hepatitis C virus (HCV) infection are at risk of developing liver cirrhosis and carcinoma. As a result of the blood-borne nature of these viruses, HBV/HCV is prevalent among people who inject(ed) drugs. We hypothesized that HBV/HCV healthcare utilization in patients with a history of addiction is lower and queried the Dutch national database of healthcare claims.

Material &Methods: A search through the nationwide administrative database of healthcare claims was used to identify all new HBV and HCV infected patients in the Netherlands between 2013 and 2017. Addiction history was obtained from mental healthcare claims data. Medication use and health care activities in each patients' first year of HBV or HCV diagnosis were collected and then grouped according to care type (i.e. lab, radiology). We categorized all patients according to healthcare consumption: low: loss to follow up, patients with a maximum of two outpatient visits and two lab tests; medium: patients with either more than 2 visits or lab tests or at least one abdominal radiological imaging or biopsy; high: patients treated with HBV or HCV medication. Chi-squared test was used to compare groups.

Results: We identified 15.017 patients with an HBV/HCV diagnosis between 2013 and 2017, of which 6.680 patients with a new diagnosis. Of included patients, 59,7% (n=3987) was male, mean age at diagnosis was 48 years (SD 13) and addiction history was present in 13,5% (n=904). Surprisingly, patients with an addiction history were less frequently lost to follow-up compared to the non-addicted population 10,8% (n=98) versus 13,4% (n=775) (p=0,033). Fewer patients with an addiction had medium healthcare consumption than without 37,4% (n=338) versus 41,3% (n=2388) respectively (p=0,024). Treatment was more frequently initiated in patients with a history of addiction 51,8% (n=468) versus 45,2% (n=2618) (p=0,001).

Conclusions: Our results show that HBV and HCV healthcare utilization among patients with an addiction history is better compared to non-addicted patients. This could be explained by the well-organized Dutch addiction care infrastructure. Regardless, overall loss to follow up is high and treatment initiation low. Based on these findings, we recommend physicians to explore ways to prevent loss to follow up in HCV and HBV positive patients and to initiate treatment when indicated.

3

Occult Hepatitis B Virus Infection among HIV negative and positive isolated anti-HBc individuals in Eastern Ethiopia

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Background: The absence of hepatitis B surface antigen (HBsAg) and the presence of antibody to hepatitis B core antigen (anti-HBc) in the blood of apparently healthy individuals may not indicate the absence of circulating hepatitis B virus (HBV) and might be infectious. Despite the risk of HBV transmission, there has been no report from Ethiopia examining this issue; therefore, we determined occult blood infection (OBI) among isolated anti-HBc (IAHBc) HIV negative and positive individuals on ART in Eastern Ethiopia.

Methods: A total of 306 HIV positive and negative individuals positive for HBcAb and negative for both HBsAg and anti-HBs (IAHBc) were included in this study. DNA was extracted, amplified and detected from plasma using a commercially available RealTime PCR platform following the manufacturer's instructions. Data were and entered to EPI Data version 3.1, cleaned and analyzed using Stata version 13. Descriptive analysis was used to calculate prevalence, summarize sociodemographic data and other factors.

Results: From the 306 IAHBc individuals (184 HIV positive and 122 negative) included in the study, 183 (59.8%) were females of which 142 (77.6%) were within the reproductive age group. The overall occult hepatitis B infection prevalence was 5.8% (5.6% in HIV negative and 6% in HIV positive) among the isolated anti-HBc individuals. HBV DNA concentration among the occult hepatitis B individuals was <200IU/ml, indicating a true occult.

Conclusions: The findings show occult hepatitis B to be a significant public health problem due to the substantial risk of HBV transmission through blood and organ donations as such services are solely dependent on HBsAg testing, and vertical transmission due to low ANC coverage.

4

Seroprevalence and associated risk factors for Hepatitis B virus infection among barbers and their clients in two cities of Cameroon

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Background: Hepatitis B virus infection is a serious public health problem in Africa and worldwide. Barbers are regularly in contact with the blood fluid of their clients who have skin cuts and abrasions during shaving practices. In Cameroon, many researches have determined the seroprevalence of HBV in different study groups, but very limited data is available on the prevalence of HBV among barbers and their clients. The objective of our study was to determine the seroprevalence and knowledge about HBsAg among barbers and their clients.

Methods: This was a cross-sectional prospective study carried-out from March to July 2017 in 2 cities of Cameroon. Information on barbers and clients were collected in the saloon using structured questionnaire containing sociodemographic characteristics, knowledge about HBV infection, observed shaving practices, characteristic of barbing saloons and potential risk factors of HBV infection. 3ml of venous blood was collected from 262 participants into 5ml EDTA tubes. The collected samples were then placed into a test tube rack and stored in a coolant containing icepacks and then transported to the laboratory for analysis. The prevalence of Hepatitis B surface antigen (HBsAg) was determined by a rapid diagnostic test (Diaspot HBsAg One Step Hepatitis B Surface Antigen Test Strip Package Insert) and confirmed with ELISA sandwich test. Data were analyzed using Statistical Package for Social Sciences, version 21. Demographic and other characteristics were compared using Pearson Chi-Square tests.

Results: Of the 262 participants, 33 tested positive, giving an overall prevalence of 12.6%. 15.0% (18/120) barbers and 10.6% (15/142) of clients tested positive for HBsAg. Three participants were foreigners amongst whom one was positive (33.3%). In Yaounde, the frequency of HBsAg among barbers and their clients was 14.9% (14/94) and 10.4% (11/106), respectively; while in Douala it was 15.4% (4/26) and 11.1% (4/36), respectively. However, no statistically significant difference was observed in these groups. Among barbers and clients combined, 17% had not heard about HBV. 36.3% of them had more than one source of information about HBV.

Conclusions: The seroprevalence of HBV infection is quite high in Yaounde and Douala. The seroprevalence of HBV among barbers is higher than among clients; hence barbers may be at higher risk to this blood burden as compared to their clients. Proper sterilization of shaving instruments, save sex practices, immunization and education of the general population should constitute an important package of a prevention program. There was no association between the modes of transmissions of HBV and the HBV status, hence HBV status might be independent of the knowledge about modes of HBV transmissions and highly dependent on the level of exposure to the infection. Most people are still not properly sensitized on prevention measures. Main focus should be on launching health education programs, behavior changes and communication campaigns for the barbers, clients and the general population in order to spread awareness.

5

Challenge and Opportunity for HCV Elimination among Young PWID in New York City: Relatively Low RNA seroconversion and genetically linked HCV infections

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Background: A new generation of young people who inject drugs (YPWID) face persistent viral threats such as hepatitis C infection. YPWID have the highest incidence of HCV. Beyond HCV antibody prevalence, we need to know acute infection rates and understand HCV transmission links.

Methods: As part of Staying Safe (Ssafe), an ongoing study to prevent HCV among YPWID, we screened 387 young opioid users (ages 18-29) in NYC, most of whom were referred by peers. Screening procedures included HCV antibody testing and Dried Blood Sample (DBS) collection. DBS were sent to laboratory for RNA testing and GHOST (Global Hepatitis Outbreak and Surveillance Technology) phylogenetic analysis. Screened individuals who met Ssafe's additional eligibility criteria (current opioid use, verified by urine drug screening; injecting at least once in the past 6 months per self-report; and HCV and HIV antibody negative via on-site testing) were enrolled in Ssafe. Participants who tested antibody positive (Ab+) at 6- and 12-month follow-ups had a second DBS collected to confirm seroconversion.

Results: We screened and collected DBS from 387 participants; 154 were enrolled in Ssafe. Analysis of DBS collected at screening indicated that 26% (101/387) were HCV Ab+, of which, 52% tested RNA+. Among the 154 Ssafe participants, 12 (8%) seroconverted to HCV Ab+ status, 5 of which tested RNA+. Fifty-two RNA+ samples were deemed viable for GHOST phylogenetic analysis at the CDC. 27% were genetically linked: 4 separate transmission links connected 4 pairs with a 5th transmission link connecting 3; and 3 additional DBS were identified as "genetically close".

Conclusions: In a community sample of RNA+ YPWID, a quarter of HCV infections were genetically linked. Phylogenetic testing could provide critical understanding of linked HCV infections and identify "hotspot" networks. Expanding RNA testing and treating those with acute infection could drastically reduce HCV incidence and transmission.

6

Cost Effectiveness of expanding treatment with Direct Acting Antiviral treatment to reduce Hepatitis C incidence among HIV infected MSM in Thailand

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Background: Thailand experiences an expanding Hepatitis C virus (HCV) epidemic among HIV-infected men-who-have-sex-with-men (MSM) that went from no new HCV infections before 2014 to an incidence of 45/1000 person-years in 2018. Direct acting antivirals (DAAs) could reduce the epidemic as DAAs cure almost all HCV infections, thereby preventing continued transmission of HCV to others. In Thailand, expanding expensive DAA treatment costs can be a burden on the government budget. The aim of this study was to determine the costs and epidemiological impact of expanding DAA treatment on the HCV epidemic among HIV infected MSM in Thailand.

Methods: We calibrated a transmission model to the Thai HCV epidemic including the Thai HIV infected MSM population, HCV prevalence and HCV incidence rates. We explored the short-term epidemiological impact over 10 years through 2030 and the long-term cumulative economic impact over 40 years, from a provider's perspective, using a 3% annual discounting rate. The base case scenario was taken as the current treatment practise where patients wait for at least six months post diagnosis of HCV, and progress to METAVIR F2 stage of liver fibrosis before DAA are indicated. Stage F2 was compared with expanding the treatment to early stage F0 and a second scenario of expansion to chronic stage F1. Sofosbuvir /Ledipasvir were the DAA drugs used for this study. One-way sensitivity analysis was conducted by varying the price of drugs and diagnostic tests on the cost-effectiveness at different stages of disease progression. The currency conversion rate was taken as 1 Thai Baht = 0.032 USD.

Results: Our model predicted that continuing the DAA treatment at stage F2 would increase incidence by 41% (45/1000 PY 2018 to 63/1000 PY 2030), whereas incidence increases by 24% when treatment is expanded to stage F1 over F2 (56/1000 PY 2030). Covering a wider population with treatment at the time of diagnosis of HCV can reduce incidence rates by 42% for stage F0 over F2 (26/1000 PY 2030). Prevalence is reduced from 8.7% in 2018 to 1.5% in 2030, or 8.4% in 2030, if DAAs are started in stage F0 or F1, respectively. DAA treatment at F0 could avert 5938 new infections, whereas starting DAAs at F1 could only avert 474 new infections by 2030. Earlier initiation of DAA will in the first six years be more expensive compared to the current practice of postponing treatment to stage F2. After six years, earlier treatment is cost-saving resulting in a cumulative discounted cost-saving of $5 million (F1), or $17 million (F0) as compared to the cumulative costs of $46 million for the base scenario. One-way sensitivity analysis showed that DAA price, fibrosis scan and ultrasound costs were most sensitive to change in cost-effectiveness, while HCV genotype costs had no impact on it.

Conclusion: DAA treatment strategy immediately after diagnosis saves costs in the future with substantial health benefits. These findings inform the Thai government on making necessary investments of expanding coverage by initiating treatment during early stage of infection to prevent HCV transmission, thereby contributing towards eliminating the epidemic by 2030.

7

Missed Opportunities for HCV Elimination in Provincial Correctional Institutions in Ontario, Canada

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Background: HCV is more common among persons who have a history of incarceration. The contributors to the increased burden are complex and incompletely understood. In Canada, the corrections system is divided into two branches: federal and provincial/territorial. Federal institutions house individuals sentenced to two years or more while provincial institutions are for shorter terms. There are differences between the two systems with respect to Public Health programming. The aim of this study was to evaluate the HCV screening program in the two environments using administrative data.

Methods: A retrospective observational population-based study was performed using HCV testing data from Public Health Ontario Laboratory (PHOL), where all HCV RNA and the majority of HCV antibody testing is performed in Ontario. All antibody and RNA results reported from 1999-2014 inclusive were analyzed. Two cohorts were constructed -- ever-incarcerated or other. Those who were classified as ever-incarcerated had at least one test sent from a correctional facility. Groups were compared for differences including proportions of antibody positivity, testing completion (RNA test available in presence of positive antibody), and type of correctional facility.

Results: The dataset contained 1,729,869 HCV test results from 1,055,073 unique individuals. Overall, 44,355 total tests originated from a correctional facility based on submitter for 25,502 unique individuals. Amongst these 17,345 (68%) were in federal facilities and 8,157 (32%) were provincial. Analysis showed a significantly higher HCV positivity rate in the ever-incarcerated group (30.0% vs. 8.9%, $p<0.0001$). Females were more likely to be positive than males in correctional settings (45.4% vs. 28.4%, $p<0.0001$), contrasting to community results (6.5% female vs. 11.6% male). Only 75% of antibody-positive persons in the ever-incarcerated group had follow-up HCV RNA testing compared to 90.4% of those with no incarceration history ($p<0.0001$). 61% of individuals who tested positive in the provincial setting received a follow-up RNA test compared to 85% in the federal setting. There was an overall higher amount of absolute testing completed in the federal than in the provincial system (17,345 vs. 8,157).

Conclusion: There appears to be a very low proportion of persons in provincial custody receiving an HCV test through the public health care system. There was a significantly lower rate of follow-up HCV RNA testing amongst those who had been incarcerated, suggesting an additional important gap in care for this high-risk group. Differences in HCV positivity rates between federal and provincial correctional facilities may reflect differences in testing practices and background risk of the populations screened. These results suggest that individuals in provincial custody are difficult to capture in the analysis of cascade of care. Efforts to capture this vulnerable population should be increased to align with WHO's goals for elimination of HCV as a public health threat by 2030.

8

Reduction of hepatitis c burden in Islamabad, Pakistan slums through CHW screen and treat programs

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Background: Hepatitis C virus (HCV) burden is high in Pakistan, with limited access to care and treatment. In 2019, a pilot study was launched in marginalized communities (i.e slums) in Islamabad to understand effectiveness of same-day testing and treatment programs.

Methods: The Ministry of National Health Services selected 17 Islamabad slums for free hepatitis C testing and treatment. Trained community health workers (CHWs) visit every household to offer rapid hepatitis C antibody (anti-HCV) screening to individuals ≥18 years. Positive cases are referred for diagnostic results through (RNA) GeneXpert testing. Confirmation takes <2 hours. At the initial visit, if positive, the AST to Platelet Ratio Index (APRI) is calculated to decide duration of treatment. Non-cirrhotic (APRI<1.5) patients receive a 12-week treatment regimen of sofosbuvir plus daclatasvir and patients with an APRI ≥1.5 are treated by a staff hepatologist. All are given the hepatitis B vaccine and seen every 4 weeks for medication refills and counseling. Following completion, cure is determined through RNA testing. CHWs ensure referral and follow-up of HCV infected persons.

Results: As of August 2020, 9944 participants were screened in 12 slums. 336 (3.4 %) tested positive for anti-HCV and were referred for RNA testing. 294 (87.5 %) were tested for RNA and 221 (75.17 %) had active HCV infection. 215 individuals (97.3 %) initiated treatment and 176 (81.9 %) completed treatment. To date, 143 of 152 eligible persons were assessed for and achieved SVR. All treated individuals were being screening and treated for the first time.

Conclusion: Through CHWs, same day hepatitis C testing and treatment initiation effectively reaches underserved communities in urban slums in Pakistan and reduces HCV burden.

Main Messages: *HCV testing and treatment can be effectively administered through a same-day, one-step approach employed through CHWs. Burden of HCV in Islamabad slums can be reduced through screen and treat models.*

30

A Model for Collaborative Care to Increase Testing and Treatment of HCV in a Shelter Population During COVID-19

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Infection with Hepatitis C Virus (HCV) unfortunately continues to disproportionately affect specific vulnerable groups in Canada, including people who inject drugs and/or are experiencing poverty, homelessness, and mental health concerns. Providing effective HCV care for these priority groups, particularly during the COVID-19 pandemic, has highlighted the importance of understanding of these intersecting factors and the social determinants of health that both increase this population's vulnerability to HCV and reduce their access to healthcare services.

In the Blueprint to Inform Hepatitis C Elimination Efforts in Canada, the Canadian Network on Hepatitis C recommends a number of strategies to simplify treatment pathways and expedite linkage to care for HCV treatment, including moving treatment pathways from specialty centres to places where people who inject drugs are already accessing care. Drawing upon these recommended strategies, we have developed a unique model for HCV micro-elimination in a shelter environment through a collaborative partnership between the inner-city CUPS Liver Health clinic and clinical pharmacists working in an outreach capacity with shelter health services staff at the Calgary Drop In Centre, one of North America's largest shelters.

Our model involves integration of the HCV cascade of care within shelter health support systems to meet clients living with homelessness where they are at and where other health services are currently already provided, including addiction care with opioid agonist therapy (OAT), harm reduction services, and accessible nursing care. Intended to be community-based, this treatment pathway provides HCV care alongside other shelter health services where people who inject drugs are already accessing care during COVID-19. Collaboration between specialists with the CUPS Liver Clinic, shelter health services, and outreach staff allows for supportive case management and connection to specialist advice as needed, while utilizing the clinical skills of health services staff providing care within the shelter environment. This decentralized approach intends to improve the reach and accessibility of HCV care pathways. Pharmacist clinical skills are also utilized for HCV assessment, prescribing, counselling and medication case management. Within this environment, pharmacist involvement also allows for supportive medication administration systems tailored to clients living in a shelter environment and to meet client needs such as pairing HCV treatment with OAT and/or Directly Observed Therapy.

Key activities to support this model include training and capacity building with shelter health services staff to improve education about HCV and screening with Point of Care Tests, creation of a cascade of care to offer low-barrier services, and easy connection to confirmatory testing and treatment for clients identified as HCV antibody positive while living in shelter. Shelter health services staff skills are utilized to maximize screening and testing, post-test counselling, supportive monitoring, and connection to the pathway to start treatment.

With the primary goal of improving access to HCV testing and treatment for priority populations in Calgary we hope that this model will contribute to Canada's achievement of the WHO 2030 targets for Hepatitis C Virus elimination and can be replicated in other shelter environments that can benefit from low-barrier and accessible access to HCV care.

36

The Effect of COVID-19 on the Hepatitis C Screening in Georgia

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Background: Georgia, a country with the population of 3.7 million, has an estimated 150,000 adults living with chronic hepatitis C (HCV) infection. In April 2015, the country initiated the world's first National Hepatitis C Elimination Program. Within the state elimination program, all HCV-related services, including screening, are covered by the Georgian government and are available to all citizens free of charge. To achieve the 2020 target of diagnosing 90% of HCV-infected persons, the government of Georgia has prioritized resources to increase uptake of screening and diagnosis. The first COVID-19 case was registered on the 26th of February 2020. A number of non-pharmaceutical interventions, including full lockdown throughout the country, were implemented through May 2020. The aim of this analysis is to describe the impact of COVID-19 on the uptake of HCV screening as part of the Georgian Hepatitis C Elimination Program.

Material & Methods: This descriptive analysis utilizes data from the national screening registry and treatment databases linked by a unique 11-digit national ID, and the 2020 general population census.

Results: As of July 31, 2020, 1,884,141 adults have been tested for hepatitis C (66.5% of the adult population), of whom 135,206 (7.2%) were anti-HCV positive. Overall, 108,813 individuals received viremia testing, of whom 88,475 (81.3%) were found to have chronic HCV.
Screening rates are similar for men and women (65.1% vs. 67.6%, respectively) and are highest among those aged ≥60, 78.6% and 60.7% for men and women, accordingly. This may be explained with the high proportion of hospitalized patients, who are screened for hepatitis C on admission (29.1% of total screenings). Screening rates are lowest among those aged 18-29 (56.1% and 63.1% for men and women, respectively).
The overall positivity rate for adult males is 11.5%. The highest positivity rate is seen in men aged 30-59 (16.9%). Among women, the overall positivity rate for adult females is 3.5%. The highest positivity rate is observed in women aged ≥60 (5.1%).
In 2019, 38,030-64,613 (mean 49,219) newly screened individuals were registered per month. Monthly rates of newly screened individuals decreased to 12,304-34,647 (mean 26,606) in March – July 2020.

Conclusions: The overall anti-HCV prevalence was highest in males and among those aged 30-59 years. Monthly rates of HCV-screened individuals dropped significantly in 2020 compared to 2019. Observed COVID-19 related reduction in HCV screening uptake will delay progress towards delivery of the Georgian program elimination goals.

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Virtual event

Abstracts
Poster Presentations

9

HCV elimination in France. The countdown has started

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Introduction: In France, HCV elimination is included in a "priority prevention" plan announced by the French Prime Minister in May 2018. The objective is to reach HCV elimination by 2025. However, no specific registry is available to evaluate the number of infected patients. The aim of this study was to provide a barometer to follow, month after month, the evolution of HCV infection in France.

Patients and Methods: Different data were needed to build the model which estimates the number of HCV cured patients: number of vials delivered (including all the combination therapies), treatment duration and SVR rate. To consider treatment duration, an estimation was made to split the number of vials delivered at month M, and to attribute those delivered for treatment initiations, and those for patients who were continuing treatment begun at month M-1, M-2 or M-3. From different real-world data available in France, the mean SVR rate was identified: 91% in 2014, 95% in 2015, 97% from 2016 to 2017, and 99% since 2018 as second line therapies following first line treatment failure have been available in France. According to some publications reported in France, new contaminations have been estimated at 1750/year and they were added in the model.

Results: The barometer started in January 2014. At that time, the number of HCV infected patients was estimated at 170,000. In January 2020, this number was around 92,000. Unfortunately, with COVID-19 pandemic, less patients received treatment in 2020 and, in August 2020, the number of infected patients was estimated at 88,353. The numbers provided by the model were compared with official numbers regularly provided by Health authorities, with a strong correlation.

Conclusion: The number of HCV infected patients in France is around 90,000 in 2020, with a majority of undiagnosed/out of care patients. Screening remains a key point in HCV elimination in France and repeated initiatives should be coordinated to reach HCV elimination by 2025.

10

Models of Care: Strategies towards Elimination of Hepatitis C in Iceland

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Background: The Treatment as Prevention for Hepatitis C (TraPHepC) program in Iceland was launched in January 2016, offering treatment with DAA´s to all infected individuals with an active treatment phase spanning three years, set to end in January 2019. People who inject drugs (PWID) account for close to 90% of HCV PCR positive individuals in Iceland and almost 100% of new infections; they have traditionally had high drop-out rates from treatment and thus need to be the focus of our elimination efforts.

Methods: Nurses have played a central role in the elimination efforts facilitating case finding, engagement in care, adherence support and re-infection prevention. For the case finding, coordinated databases have been used to recall patients for confirmatory testing. Awareness campaigns have been conducted in the media and financial incentives have been used in select cases. Care of the patient is conducted in a multidisciplinary manner, with nurses and doctors from three specialties and participation within the penitentiary and social welfare system. Patients are allowed to move freely between sites and specialties. Nurses provide counseling and improve adherence by providing advice, pill boxes and phone messages. Patients who drop out or become re-infected following cure are encouraged to initiate retreatment. Harm reduction has been scaled up.

Results: At 36 months 716 patients were scheduled to complete treatment and follow-up, mean age 42 years, 67% males and 33% females. Recently injecting (<6months) accounted for 34% of those receiving treatment; in Iceland stimulants are the drug of choice in 85% of PWID and thus only 10% were receiving opiate substitution treatment. Of those who initiated on treatment 90% completed “per protocol”, with a SVR12 rate of 95%. Patients who discontinued nevertheless reached SVR12 in 42% of cases and retreatment was already initiated in 86% of the remaining PCR positive individuals. During the first three years of the program there were 44/716 confirmed re-infections (6%), of which 95% have started re-treatment.

Conclusions: In contrast to earlier care models the flexible multidisciplinary approach used in TraPHepC, with adherence support, rescreening following cure, low threshold to treatment and prompt treatment of reinfections has resulted in high success rates in PWID

11

The TREAT-B score predicts disease progression in Ethiopian patients with chronic hepatitis B

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Background: Little is known about determinants of disease progression among Africans with chronic hepatitis B (CHB). The aim of this study was to identify factors associated with disease progression in untreated Ethiopians with CHB, and to explore the simple TREAT-B score for the first time in a prospective cohort.

Material and methods: In a well-characterized CHB cohort in Addis Ababa, 737 patients without significant fibrosis at baseline were included in this analysis. TREAT-B score was obtained by adding HBeAg status (negative 0p, positive 1p) and ALT result (<20 U/L: 0p, 20-39 U/L: 1p, 40-79 U/L: 2p, ≥80 U/L: 3p). Disease progression was defined as one of the following events occurring after at least 12 months of follow-up: i) liver-related death, ii) increase in liver stiffness to >7.9 kPa, or iii) start of antiviral treatment. Cox proportional hazards models were used to identify predictors of disease progression.

Results: During a median follow-up time of 48 months (range 12-58), 45 patients (6.1%) met the definition of disease progression. The cumulative incidence of disease progression was 4.6, 5.6 and 7.2% after 24, 36 and 48 months, respectively. Independent predictors of progression were HBeAg positivity (adjusted hazard ratio [AHR] 2.59; 95% confidence interval [CI] 1.15-5.86), viral load ≥20,000 IU/mL (AHR 2.76; 95% CI 1.35-5.67), and ALT ≥40 U/L (AHR 3.71; 95% CI 1.38-9.99). The risk of disease progression after 48 months was 3.3, 6.1 and 22.9% in patients with a TREAT-B score of 0, 1 and ≥2, respectively (p<0.001).

Conclusions: Baseline HBeAg, viral load and ALT predicted disease progression in Ethiopian CHB patients. A TREAT-B score of 2 and above identified patients at high risk in this setting. These findings have implications for hepatitis B treatment guidelines on the African continent.

12

Expression of HBV-infection markers in placenta of women with chronic hepatitis B

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Background: One of the main transmission ways of the viral hepatitis B (HBV) infection, especially in endemic regions, is the vertical transmission. For this reason, elimination of viral hepatitis B is not possible without prevention of mother-to-child transmission. It is known that the clinical course of HBV infection influences the state of the placenta. In particular, inflammatory changes in placenta are more frequently observed in women with active HBV replication. It has also been shown that morphological changes in placenta may increase the HBV vertical transmission risk.
Antiviral therapy in pregnant women with a high viral load significantly reduces the risk of a HBV vertical transmission. However, there is practically no data on the effect of antiviral therapy on the state of the placenta and the expression of markers of HBV infection in placenta. The aim of this work was to investigate the relationship between mothers and newborns status and the expression of such markers of the HBV infection as HBsAg and HBcorAg in placenta.

Material and Methods: In total, 19 women with chronic hepatitis B (CHB) who gave birth at the Botkins infectious disease hospital (St.-Petersburg, Russia) in 2019 were included in the study, subdivided in two groups. The first group consisted of patients for which an immunohistochemical examination demonstrated the presence of HBV infection markers (HBsAg and / or HBcorAg) in at least one of the layers of placenta. The second group included patients without detectable markers of HBV infection in any layer of placenta. The groups were comparable with respect to all main clinical parameters. All newborns have received the specific immunoprophylaxis.

Results: Expression of hepatitis B virus antigens has been detected in placentas of five patients. HBsAg was detected more frequently than HBcorAg. In three patients, the only detected marker of HBV infection was HBsAg expressed by cells in the chorionic villi.
All women from the first group and in 9 (64%) women from the second group exhibited inflammatory changes in placenta. This confirms that the prevalence of inflammatory changes in placenta in HBV infected women is much higher than in general population. HBsAg in umbilical cord blood was detected in 3 (15.79%) newborns (one from the first group and two from the second group). Mothers of two of these newborns exhibited no markers of HBV infection in placenta. Markers of HBV infection in placenta were detected both in women with undetectable viral load as well as in all (two) patients who received antiviral therapy during pregnancy. There were no significant differences in the main clinical characteristics of newborns from the investigated groups.

Conclusions:
1. Markers of HBV infection in placenta can be found in women with a low viral load.
2. Detection of HBsAg in umbilical cord blood does not always correlate with detection of markers of HBV infection in placenta.
3. An antiviral treatment during pregnancy does not necessarily prevent infection of various layers of placenta.

13

Eliminating hepatitis B virus infection in west African migrants living in Barcelona: a community-based testing and vaccination model of care to link patients to liver specialists

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Background: Infection with hepatitis B virus (HBV) affects an estimated 250 million people worldwide, affecting the sub-Saharan Africa (SSA) and South-East Asia regions disproportionately. Migrants from high-endemic countries often have a documented under-utilization of the host country's health services and may be unknowingly living with the virus, given a lack of reliable testing in their home countries. In a survey of 210 Ghanaian migrants living in Barcelona, Spain, the majority of respondents (75%) had heard of HBV before, yet 57% of the total had never been tested. We developed a model of care to test and vaccinate this population in community-based settings and link positive cases to specialist care within the public health system.

Material & Methods: After being approached by community leaders expressing concern regarding HBV in their community, a community-based intervention was developed to increase HBV testing, vaccination and linkage to care. The project team will travel more than 40 times to 11 community centers (churches, mosques, or community events) on a designated date and time to offer an HBV awareness workshop using the multilingual, co-created HeparJoc (1) tool during a 12-month period. Immediately after the workshop, participants will be offered an HBsAg (DETERMINETM HBsAg 2, Abbott Inc.,) rapid detection test followed by a finger-stick blood sample collection utilizing the dried-blood spot (DBS) method to test for HBV-DNA, HDV-RNA, and anti-HBs, to check for past exposure. The results of the DBS will be delivered in person two weeks later. Negative cases will be offered the first of the 3-dose HBV vaccine in situ and then referred to complete the vaccination regimen at their designated primary care centre. Positive cases will be referred to specialist care with the support of a community peer navigator. During the testing day, persons who are not in possession of a public health card will be given one through a fast-track process in collaboration with the Catalan Health Department.

Results: As of September 2020, the project is in the preparation stage with an expected intervention start date in late October 2020. Preliminary results are expected to be available in early 2021.

Conclusions: This community-based action has the potential to eliminate HBV in a population with an estimated high prevalence by linking positive cases to specialist care and protecting those who have not been exposed and are unprotected against possible future infection through vaccination. Testing initiatives should be culturally sensitive and developed in collaboration with the affected community.

Funding: *This project has received a competitively-funded unrestricted grant from Gilead Sciences through the HBV-CARE program.*

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14

Enabling HCV scale up through the introduction of a simplified testing approach in Delhi: The HEAD-Start project

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Introduction: India has a significant burden of hepatitis C infection, with an estimated 5.2 to 13 million anti-HCV positive persons, and has committed to achieving national elimination by 2030. To achieve elimination targets, there is a need for a substantial scale-up in access to testing and treatment, and simplification of the care pathway through decentralisation of testing and treatment to primary care and task-shifting to non-specialists. The objective of this study in Delhi, India was to evaluate and compare the feasibility and effectiveness of three different approaches to decentralised HCV testing – at district hospitals outpatient clinics, primary health care clinics (polyclinics), and screening camps among the general population.

Methods: Enrollment of participants in a prospective observational study was conducted between January and September 2019. HCV rapid diagnostic tests (RDTs) were used to screen the general population at 5 district hospitals (Arm 1: All HCV care at one site), 15 polyclinics (Arm 2: referral to linked hospitals for HCV RNA testing (VL) and treatment) and 62 screening camps (Arm 3: venous blood collected on site, referral to hospitals for treatment). Seropositive patients were referred to one of the 5 hospitals for confirmatory testing and treatment. HCV prevalence, retention in the HCV care cascade and turn-around time were measured.

Results: Overall 39, 490 patients were screened for HCV. Of those, 23,032 (58.3%) were screened at hospitals (Arm 1), 10,498 (26.6%) at polyclinics (Arm 2), and 5960 (15.1%) at screening camps (Arm 3). Participant mean (SD) age was 38.3 (14.6) years, and similar proportions of male 19, 861 (50.3%) and female 19,607 (49.7%). The overall HCV prevalence was 2.0% (788) in Arm 1: 683 (3.0%), Arm 2: 41 (0.4%) and Arm 3: 64 (1.1%), p< 0.001. Arm 1 showed consistently higher levels of retention across the cascade of care with high positivity rates (683 (3%), VL uptake (637 (98.3%), treatment uptake (466 (85.4%), treatment completion (420 (90.1%), uptake of testing for sustained virological response at week 12 (SVR12) (311 (74.1%). Retention in the cascade for Arms 2 and 3 was variable and lower compared to Arm 1. There was a much lower uptake of VL testing in Arm 2 , 21 (51.2%) compared to either Arm 1 (635 (93.3%)) or Arm 3, 58 (90.6%) (p< 0.001). In Arm 3, there were much lower rates of treatment uptake (20 (38.5%) compared to both Arm 1 (466 (85.4%), p< 0.001) and Arm 2 (14 (73.7%), p<0.001).

Conclusion: Introduction of a simplified testing algorithm resulted in a higher yield and better retention at district hospitals compared to polyclinics and screening camps. Lessons for implementation and scale-up include improved case finding targeting high risk populations and delivering all HCV services at one location.

15

Changes in hepatic fibrosis stages after achieving SVR following direct acting antiviral treatment in children with chronic hepatitis C

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Introduction: Recently, the use of both Sofosbuvir (SOF) 400 mg and fixed dose combination of Ledipasvir (LDV) 90 mg/ sofosbuvir 400 mg has been approved by The U.S. Food and Drug Administration (FDA) and The European Medicines Agency (EMA) for the treatment of chronic hepatitis C virus infection in adolescents, 12 years of age and older, weighing at least 35 kilograms without cirrhosis or with compensated cirrhosis, in the same doses and durations used in adult. The impact of viral clearance following DAAs treatment on fibrosis changes in CHC children is uncertain or not clearly evident in the literature, so our aim was to evaluate the changes in hepatic fibrosis after achieving sustained virological response (SVR) in Children.

Patients and methods: The study has been conducted in Egyptian Liver Research Institute and Hospital (ELRIAH). We screened 122 children aged between 12 and 17 years old who had chronic hepatitis C genotype 4 infection. In addition to 50 CHC patients with Thalassemia referred from Pediatric department, Tanta University for fibrosis evaluation before start of treatment. Eligibility criteria were patients with body weight ≥ 35 kg and had chronic HCV infection. Both treatment naïve and experienced patients were included. All patients received treatment in the form of LDV 90 mg / SOF 400 mg for 8 weeks. Patients were followed up six -months for at least one year from end of treatment. Staging of liver fibrosis was done using transient elastography by small probe and non-invasive scores (FIB-4, APRI).

Results: 150 CHC patients (86 with F0-1, 45 with F2, 12 with F3 and 7 with F4) who achieved SVR were included. In the cirrhotic patient (F4 before treatment) fibrosis reversal occurred in one patient (14.3%), fibrosis regression occurred in 4 patients (57.1%) and fibrosis was stationary at F4 in 2 patients (28.6%). For the patient with advanced fibrosis (F3) before treatment, fibrosis reversal occurred in one patient (8.3%) and fibrosis regression occurred in 11 patients (91.7%), For F2 patients before treatment (45 patients), 34 (75.6%) showed regression of fibrosis to F0 or F1, 10 patients (22.2%) remained stationary at F2 while 1 patient (2.2%) progressed. For the 86 patients with F0-1 patients, 76 (88.4%) remained stationary while 10 (11.6%) showed progression.

Conclusion: Viral clearance following DAAs treatment in children with HCV infection CHC was associated with significant decrease in LSM by FibroScan.

16

External validation of GES score to predict HCC risk in patients with HCV associated significant hepatic fibrosis following DAAs in genotype 1 and 2 in Japan.

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Introduction: Shiha et al developed GES score; a simple score to predict risk of HCC in patients with HCV-GT4 associated advanced liver fibrosis after oral antivirals. The authors concluded that GES, could identify 3 patient categories (Low, intermediate and high risk groups) with a differing risk of HCC during follow-up, utilizing simple and readily available predictors and thus can be easily assessed in clinical practice, namely, older age, male gender, low albumin, high AFP levels and presence of cirrhosis at baseline.

Aim: To validate GES score in HCV GT1 and GT2 patients with significant hepatic fibrosis who achieved SVR following DAAs.

Methods: CHC Patients who achieved SVR following DAAs therapy between 2013 and 2017 and continued receiving surveillance at Gastroenterology Dept, Ogaki Municipal Hospital were included in the study. We validated GES score using 5 parameters namely older age, male gender, low albumin <3.4 gm/dl, high AFP levels>20 ng/ml and presence of cirrhosis at baseline in our cohort. Cumulative Hazard (%) of HCC was shown by Kaplan-Meier curves comparing different pre-treatment risk groups. The performance of the GES score was evaluated using Harrell's c statistic.

Results: The study included 684 chronic HCV patients.The observation period was 32.09 ± 14.04 (range 0-76) months after EOT. Of the patients; 547 (81.0%), 67 (9.9%) and 61 (9.0%) had low, intermediate and high risk score respectively. HCC developed in 20 cases during the study period. 12 case of HCC developed in the low risk group (12/547, 2.19%), 3 in the intermediate (3/67, 4.48%) and 5 in the high risk group (5/61,8.20%).Analysis of the cumulative incidence of HCC showed significant difference between the three risk groups (p=0.022,). The Harrell's c statistic for this external validation group was 0.614.

Conclusion: GES score can accurately stratify HCV patients with Genotype 1 and 2 according to HCC risk. HCC surveillance based on a patient's risk may enable a personalized surveillance strategy targeting those who are at high HCC risk.

17

CO-LOCATED TREATMENT VERUS CO-LOCATED CARE COORDINATION TO ENGAGE PEOPLE WHO INJECT DRUGS IN HCV CARE AT A SYRINGE SERVICE PROGRAM: PRELIMINARY RESULTS FROM THE ACCESSIBLE CARE RANDOMIZED CLINICAL TRIAL

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Background: To achieve hepatitis C elimination, treatment programs need to be developed to engage, treat, and cure people who are actively injecting drugs.

Methods: We present preliminary data from the first 145 participants in the Accessible Care intervention for engaging people who inject illicit drugs (PWID) in hepatitis C (HCV) care. The randomized clinical trial compares the effectiveness of co-located treatment (low-threshold care) with co-located care coordination (with referral to community-based HCV providers) in facilitating linkage, engagement, and retention in HCV care. Eligible participants were HCV RNA positive and had injected drugs in the past 90 days. We compared the percentage of participants in each arm linked to HCV care (seen by HCV provider), and initiated direct acting antiviral (DAA) treatment within 6 months of enrollment.

Results: Among the 145 participants, mean age is 42.1 years; 23% are females; 51% homeless; 6% black, 58% Latina/o and 31% white. 85% of participants had injected drugs in the last 30 days, with an average of 15.4 injections/month (median 14). Nearly all participants had health insurance, 94% public insurance, 3% uninsured. Within 6 month of enrollment 80% of the Accessible Care arm and 32% of the Usual Care arm had linked to HCV care, and 70% and 13% had been started on DAA therapy, respectively. Of the 52 participants in the Accessible Care arm started on DAA therapy, the median time from enrollment to treatment initiation was 87.5 days [range 22-180].

Conclusion: Among HCV-infected PWID enrolled at a syringe service program, higher rates of linkage to care and treatment initiation were seen in the co-located treatment where treatment was accessible within a stigma- and shame-free environment.

18

ACHIEVING SUSTAINED VIRAL RESPONSE (SVR) – IS IT A MOTIVATOR FOR LONGTERM POSITIVE LIFESTYLE CHANGES AMONG PEOPLE AFFECTED BY VHC?

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Background: Lifestyle changes are associated with decreased healthcare costs and increased quality of life (QoL). There are concerns that after being cured, patients with VHC might consider themselves out of danger and put themselves at new risks or to lifestyles that could affect their liver health long-term. We wanted to evaluate if, after achieving SVR, patients can improve and maintain healthier lifestyles or put themselves at risk.

Methods: One program developed by the Baylor Black Sea Foundation provides long-term psychosocial support to people living with chronic hepatitis C, even after successful treatment. Among the objectives, we aim to identify and influence lifestyle domains that are susceptible to influence the QoL of patients.
Our team developed a 34 item questionnaire, measuring 11 potential lifestyle factors susceptible to affect health outcomes of patients affected by hepatitis C. All patients receive individualized feedback, as a standard intervention, based on their answers. As part of usual care, all patients attending BBSF services are evaluated regularly, every 12 to 18 months.
We analyzed retrospectively the changes in the following lifestyle domains: nutrition, management of side effects, partner testing, diagnosis disclosure, social support, sleep and physical activities, recreational substances, healthcare system navigation, self-medication, usage of alternative medicine, treatment adherence. We compared two groups of patients: those treated with DAAs who achieved SVR 3 months post-treatment and those waiting for treatment or were currently under treatment (SVR not yet achieved nor measured). Data was analyzed using SPSS v25.

Results: Eighty-seven patients were enrolled, mean age 57 y (mode 62), 68% females, 54% from urban settings. There were sixty-four participants in the group of patients successfully treated, and 23 were not yet treated or undergoing treatment. The first evaluation unfolded in an average three weeks since enrollment for our psychosocial support program, and the second approximately at week 106 (2.2 years) for all participants. Since enrollment until SVR measurement, the mean number of weeks was 39 (9.5 months).
Paired sample statistics showed a significant improvement on most scales for the patients in the SVR group (9 out of 11 scales) compared with those in the non-yet cured group (3 out of 11). No other differences associated with demographics were identified.

Conclusions: Cured patients were evaluated the second time 70 weeks after their SVR, and they were reporting significant improvement regarding nutrition, management of side effects, partner testing, diagnosis disclosure, social support, sleep and physical activities, healthcare system navigation, self-medication, usage of alternative medicine. Patients in the other group only report improved nutrition management outcomes, partner testing, and general acceptance of treatment.
We consider that our data suggest that patients who achieve SVR and have “defeated the disease” are more motivated and empowered to implement long term life changes. Their positive changes might also be interpreted through the lens of age characteristics in our group. Offering long term medical and psychosocial monitoring to patients, even after achieving SVR, can be an excellent strategy to sustain positive changes and individualize support.

19

Decentralized testing and treatment of hepatitis C in people who inject drugs– the Shared Addiction Care Copenhagen (SACC) project

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Background: People who inject drugs (PWID) account for around 60-85% of all Hepatitis C Virus (HCV) infections in Denmark and previous data has shown that multidisciplinary interventions are needed to increase the number of PWID who are screened, diagnosed and treated for HCV. To improve HCV testing and linkage to care for PWID, the Shared Addiction Copenhagen (SACC) project developed a new model for decentralized testing, evaluation and treatment of hepatitis C for PWID at addiction treatment centres (ADCs) in Copenhagen, Denmark.

Method: The SACC project was a three-year project between June 2014 and June 2017, performed as a collaboration between the Social Services Administration in Copenhagen, the Department of Infectious Diseases at Copenhagen University Hospitals, Rigshospitalet and Hvidovre, and Centre of Excellence for Health, Immunity and Infections. Ten ADCs divided into three standard opioid substitution therapy (OST) clinics, three specialized OST clinics (including one for supervised heroin injection) and four centres for PWIDs with illicit drug use other than heroin, were included. Approximately 2,000 individuals were enrolled for drug treatment at any given time. After completion of the project period, the SACC model for HCV care has been offered as routine care for PWIDs at ADCs in Copenhagen and three additional ADCs have been included.

Results: In SACC, all patient contact regarding HCV infection, from testing to treatment and follow-up, takes place at the ADCs. All clients newly enrolled in drug treatment are offered screening for viral hepatitis and HIV. Whereas clients prior to SACC were referred to a laboratory for blood testing, all blood testing is now performed on-site by trained staff, and physicians at the ADCs inform the clients about the screening results. HCV treatment is initiated according to national treatment guidelines in collaboration with the Infectious Disease Departments and direct-acting antivirals are dispensed at the ADC. Counselling about HCV treatment and potential side effects is performed by physicians at the ADCs. To equip the staff at the ADCs to these tasks, they receive training in hepatitis C care and treatment.

The SACC database serves as the patient chart and a tool for communication between the hospital and the ADCs. The database contains laboratory data, contact information and date of enrolment at the ADC, which are pulled from relevant databases. Other relevant data collected prior to, during and after HCV treatment (e.g. Transient Elastography (TE) results, adherence evaluation, drug-regimen and comorbidities) are keyed by staff at the ADCs. Yearly HCV screening results are interpreted in the database and a pdf file with results, conclusions and plan for further follow up is generated for each client and send to the ADCs. The database creates an overview of the hepatitis C status of both the individual and the entire population at the ADC, that was not available prior to the project start. Before the SACC project was initiated had 44% (818/1859) of the clients been tested for HCV which increased to 71% (1373/1944) at the end of the project period. After implementation of the model as routine care has the number of HCV tested clients further increased to 78% (1458/1871) in 2020.

Conclusion: The SACC model for decentralized HCV testing and care of PWID in ADCs in Copenhagen, has successfully transitioned from project into routine care with increased and sustained high HCV testing rates in a vulnerable patient group.

20

A novel hepatitis C intervention in Denmark to test and treat people who inject drugs

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Background: Providing testing and treatment for hepatitis C (HCV) for people who inject drugs (PWID) is critical in eliminating HCV, but reaching this population with traditional healthcare services can be challenging. Combining point-of-care (PoC) testing with peer support and counselling is a model of care that can be effective for PWID. This study aims to investigate if a mobile van equipped with rapid PoC tests for HCV antibodies and RNA could simplify testing and link PWID to care and treatment.

Materials & Methods: In Copenhagen, Denmark, a peer-led mobile service providing counselling, Ab testing (In-Tech™), and linkage to standard of care was equipped with a PoC HCV-RNA finger-prick test (Xpert HCV Viral Load Finger-Stick Point-of-Care Assay, Cepheid). Eligible HCV-RNA+ individuals were offered assisted referral to a fast-track hospital clinic for treatment, with peer support as needed.

Results: From 1 May 2019 to 10 March 2020, 580 people were tested and 52 individuals were HCV-RNA+. Six additional individuals with HCV infection contacted the service to be linked to care. Of the 52 individuals with chronic HCV infection, 44 were evaluated at the hospital clinic and, 39 had initiated direct-acting antiviral therapy. The main reasons for not being evaluated for treatment were being undocumented (n= 10) and being lost to follow-up (n= 8). Among those initiating treatment, 14 were connected to drug treatment services. The peer-led service assisted all treated with communication with the hospital nurse, collecting medicine, and accompaniment to follow-up visits.

Conclusions: We found that a peer-led mobile PoC service is a model of care that can engage PWID in HCV testing and link them to treatment. We identified being an undocumented migrant as a major cause for not accessing care. This poses a challenge for HCV elimination in Denmark due to the risk of onward transmission.

21

Collocating Hepatitis C Care at Syringe Exchange Programs: Hepatitis C treatment with Less Stigma.

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Background: People who inject drugs (PWID) face stigma associated with their drug use in medical settings. Such stigma may pose barriers to hepatitis C (HCV) treatment. This analysis examines stigma experiences before and after engagement in HCV care at a Syringe Exchange Program (SEP) in New York City.

Methods: Data are from an on-going randomized clinical trial (Accessible Care) which assesses the effectiveness of providing HCV treatment collocated at a syringe exchange program. Eligibility criteria includes positive HCV RNA testing, injection drug use in the past 3 months, and no recent engagement in HCV care. Here we analyze data from the 48 participants who were randomized to receive co-located treatment and initiated HCV care. Structured interviews were used to assess stigma experiences at study entry and after HCV treatment. The stigma experiences included 9 items reflecting perceptions of medical providers 'attitudes/behaviors and participants' internalized stigma. Stigma was numerically scored from 1 (least stigma) to 5 (most stigma). We compare stigma scores at baseline and post HCV treatment using Paired-t-test.

Results: Among the 48 participants, mean age was 43.5 (sd=10.98); 77% were males; 56% Hispanic; 23% Non-Hispanic White; 12% Non-Hispanic Black and 62% homeless. Stigma scores significantly decreased from study entry to post-HCV treatment: enacted-anticipated (2.96 vs 1.97, $p<0.001$, effect size=1.014) and internalized stigma (3.72 vs 2.99, $p=0.002$, effect size=0.584).

Conclusion: Collocated HCV care in a SEP facilitates HCV treatment and reduces the perceived stigma from medical providers. Destigmatizing the healthcare experience is critical to promote HCV elimination efforts, which require increased treatment uptake among highly stigmatized groups, such as PWID.

22

Re-linkage to care: a novel strategy to achieve hepatitis C elimination in a University Hospital

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Introduction: With the new direct-acting antivirals (DAAs), the World Health Organization proposed the ambitious goal of eliminating hepatitis C (HCV) by the year 2030. Therefore, we must implement innovative strategies to diagnose and treat more patients. Our study aims to develop and apply methods for identifying patients with chronic HCV infection across a large university hospital and offer them liver follow-up and eventually treatment with DAA.

Methods: We evaluated the electronic medical records (EMR) from the Austral University Hospital located in Buenos Aires during 2000-2018. Patients with HCV were identified by the international classification of diseases (ICD-9). We then reviewed all EMR with the ICD-9 codes for HCV and confirmed the diagnosis of chronic HCV, defined as anti-HCV + and detectable HCV PCR. Those patients identified with chronic HCV were contacted by telephone to offer them a medical reevaluation and eventually treatment with DAA.

Results: Of approximately 689,000 medical records, 954 (0.14%) patients had ICD-9 coding for HCV, of which 58 (6.1%) were wrongly coded and 64 (6.7%) had only anti-HCV+. Overall, 832 (87.2%) individuals were identified with chronic HCV, in which 431 (51.8%) were known to be alive: 304 (70.5%) patients were cured with interferon or DAA-based regimens, 110 (25.7%) died and 17 (3.9%) patients were not treated for different reasons. In the remaining group, 402 (48.2%) patients, their evolution was unknown. Thus far, we have attempted to contact 255/402 (63.4%) patients by phone, of which 165/255 (66.3%) could not be located after a first call. Of those contacted, 43 (16.7%) patients are interested in being treated with DAA, 31 (12.2%) have been treated in other institutions, 4 (1.5%) do not wish to be treated and 12 (4.7%) have died. In this hospital population, with a prevalence of HCV of 1.2 x 1000 patients, there would be 1 out of 4 patients with chronic HCV that could be potentially re-linked to care.

Conclusions: The results of our study showed that a significant number of patients with chronic HCV are not routinely monitored by a specialist. We must delve into local efforts to identify this population that might not know the current state of their disease and thus offer them treatment. Updated data will be presented at the meeting.

23

Recall of HCV patients lost to follow-up. ReLinK study in two expert centres in France

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Introduction: Priority prevention plan sets the objective of eliminating hepatitis C in France by 2025. To achieve this objective, three actions are needed: screening, treatment, and prevention. In the HCV cascade, many patients are screened but not treated. The aim of this study was to recall all HCV untreated patients in charge by the past in these two centres.

Patients and methods: In these two expert centres, databases of HCV patients were analyzed. Criteria for inclusion were as follows: patients seen at least once in consultation in the expert centre between 2003 and 2017, patients noted as "not cured" on December 31, 2018. Ways to contact patients were: mail or phone contact to the GP or to the patient, contact by e-mail, contact after research in several health files, etc. The main objective was the number of patients returned to consultation, treated with sustained virological response.

Results: This study required a full-time clinical research associate in each center for 6 months. A total of 1,152 patients (Toulouse 285, Bordeaux 867) were included: majority of men, median age 60 years, median liver stiffness <6.5 kPa.
Results are as follow (Bordeaux vs Toulouse):

Untreated HCV patients in database at inclusion:	867 vs 285
Died patients (%):	170 (19.6) vs 19 (6.7)
Lost to follow-up patients (%):	357 (41.2) vs 131 (46.0)
Contacted patients (%):	340 (39.2) vs 135 (47.4)
Patients with SVR when contacted (%):	189 (55.6)vs 57 (42.2)
Refusal of treatment (%):	14 (4.1) vs 26 (19.2)

Conclusion: In our study, 7 to 8% of HCV patients who had already attended an expert centre but had not yet been treated were able to be treated and cured of their HCV infection. This work shows that there are still patients who know they are HCV infected but have not yet been treated. The recall and treatment of these patients is a way to eliminate hepatitis C.

24

A successful hepatitis C outreach service in a medically supervised injecting room: increased uptake of screening and high rates of treatment initiation

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Background and Aim: Following the introduction of direct acting antiviral (DAA) therapy, the World Health Organization (WHO) has set the goal of eliminating hepatitis C as a public health threat by 2030. However, people who inject drugs (PWID) remain a difficult population to engage in health services. Therefore, efforts to reduce hepatitis C incidence and interrupt viral transmission must focus on developing models of care that provide treatment to this marginalised group. On 30 June 2018, a trial of Melbourne's first Medically Supervised Injecting Room (MSIR) commenced at North Richmond Community Health, as a safety-first medical approach focused on harm reduction. The MSIR has established an onsite program of hepatitis C screening and treatment. We aimed to evaluate the clinical outcomes of this program to date.

Methods: We conducted a retrospective audit of all clients visiting the MSIR who were screened and/or treated for hepatitis C over the initial two-year trial period, from 30 June 2018 to 30 June 2020. In this model of care, clients are opportunistically approached by an outreach clinical nurse consultant and offered blood borne viruses (BBV) screening in the aftercare or consulting areas (after they have completed their injecting activities). Liver elastography is also available on site. At a subsequent review, results are provided. Where hepatitis C is diagnosed, treatment is prescribed and provided to clients onsite, with specialist consultation where indicated. For this analysis, cases were identified from the MSIR blood borne virus database, SVHM hepatitis C database, SVHM pharmacy records and a search of pathology ordered by SVHM integrated hepatitis nurses. The two primary endpoints were the number of clients diagnosed with chronic hepatitis C and the number of direct acting antiviral (DAA) prescriptions written.

Results: Of 4,649 clients who visited the MSIR during the two year study period, 322 consented to screening for hepatitis C. The median age was 43 years (IQR, 36 – 50) and most were male (79%). 38% were homeless, 27% had no contact telephone number recorded, 60% had a forensic history and 18% also had a history of alcohol dependence. 250/292 (86%) clients with an available HCV antibody result were positive and 143/321 (45%) returned a positive HCV RNA result. Among those with a positive HCV Ab, only 63 (25%) had engaged in prior treatment. Few (5%) had known liver cirrhosis, and a further three cases were diagnosed onsite through treatment work up. 122/143 (85%) clients with detectable HCV RNA were prescribed DAA treatment. Of 34 clients with available SVR12 data following 1st treatment, 23 (68%) achieved cure. Of the 11 cases of treatment failure (HCV RNA detectable post treatment), 8 had confirmed or suspected treatment non-compliance, two were re-infection (defined by HCV genotype switch) and one was presumed relapse. Four patients were prescribed a second treatment course, of which two achieved SVR12. Overall, treatment was well tolerated.

Conclusion: The MSIR provides a unique opportunity to engage and treat a large number of marginalised people living with hepatitis C. The program to date has been very successful, with future work focused on developing new models of care to increase testing, treatment and follow up. The recent therapeutic goods administration approval of a point of care HCV RNA finger-prick test provides an opportunity to remove barriers to care and improve rates of engagement with hepatitis C care among PWID.

25

SIMPLIFIED HCV TREATMENT MODEL IN PRIMARY HEALTHCARE IN THE COUNTRY OF GEORGIA

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Background and Aims: In April 2015, Georgia in partnership with U.S CDC and Gilead Sciences launched the world's first hepatitis C elimination program. By June 2020, more than 70 thousand persons initiated treatment, achieving >98% cure rates. Patient enrollment in HCV treatment sharply increased in 2016, but since it has been slowing down due to deficiencies in HCV testing and linkage to care. To overcome existing challenges Georgia initiated service decentralization in 2018 by integrating HCV screening and treatment in primary healthcare centers (PHCs).

Methods: By June 30 2020, a total of 11 PHCs provided HCV care services throughout the country. The integrated model was based on "one stop shop" approach, by which patients received all HCV screening and care services in selected PHCs. Treatment naïve patients with no or mild fibrosis (FIB-4 score < 1.45) received care at PHCs and underwent examinations as per simplified diagnostic and treatment monitoring algorithm, while persons with FIB-4 score > 1.45 were referred to specialized clinics. Patients received Sofosbuvir/Ledipasvir or Sofosbuvir/Velpatasvir for 12 weeks. Sustained virological response (SVR) was defined as undetectable HCV RNA 12-24 weeks after end of therapy. The Extension for Community Healthcare Outcomes (ECHO) telemedicine model was utilized 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 active HCV infection, 1223 were evaluated for FIB-4 score. Of these, 819 (67%) had FIB-4 score < 1.45; of them 798 (97.4%) initiated treatment. A total of 674 patients completed treatment. Of 536 patients eligible for SVR testing, 438 had been tested at the time of analysis, and 430 achieved SVR (98.2% cure rate).

Conclusion: Our study reported that simplified HCV diagnostic and treatment model in PHCs significantly enhanced diagnosis and linkage to care for treatment services without compromising the quality. Countrywide expansion of this model will further improve treatment uptake ensuring high cure rates within the national hepatitis C elimination program.

26

Dual Sofosbuvir/Daclatasvir Therapy for Chronic Hepatitis C Infection: Lessons from Our Studies in Pediatric Age Groups

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Background: Dual sofosbuvir/daclatasvir (SOF/DCV) therapy was extensively used in our busy hepatology centers in Egypt though it has not been recommended for children in guidelines.
The availability of such low-cost generic products in Egypt which proved highly successful in the nation-wide mass-treatment campaign, urged our team to investigate their effects in certain adult and pediatric populations in a series of clinical studies.
We designed a series of clinical studies to answer 4 research questions: Is dual SOF/DCV therapy safe and effective in children as proved in adults? Can the treatment duration be shortened to 8 weeks based on an on-treatment early response qualifier? Does SOF/DCV treatment negatively affect growth in pediatric age as the case with Interferon-based therapy? Does SOF/DCV therapy affect complete remission in survivors of childhood malignancy?

Methods: Consecutive eligible patients presenting to our clinical centers from each target population were included in our clinical study program.
All included patients were treated with dual SOF/DCV therapy (generic products by Pharco, Egypt) but doses, durations and endpoints were adapted according to each studied age group, body weight and the research question.

Results and Conclusions: The efficacy results were the same in pediatric patients as previously proved in adults. All studies on adolescents or adults showed sustained virologic response at week 12 after end of treatment (SVR12) of more than 96% intent-to-treat population (ITT) and approaching 100% in per-protocol population. No observed serious adverse effects or negative impact on linear growth or weight. The shortened duration of therapy of 8 weeks proved non-inferior to the recommended 12 weeks duration. No reported relapse/recurrence for the HCV virus infection or the malignant disease in survivors of childhood hematologic malignancy.
These results can be regarded as a foundation to allow for the availability of more low-cost treatment options, that can cover all genotypes for paediatric age groups. That is in-order to assure the sustainability and effectiveness of the global elimination programs, if the world is committed to reach the goal of the WHO initiative to eliminate viral hepatitis by the year 2030.

27

Progress towards achieving hepatitis C elimination in the country of Georgia, April 2015 – June 2020

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Background and aims: In April 2015 with the technical assistance of U.S. CDC and commitment from Gilead Sciences to donate direct acting antivirals (DAAs), Georgia launched the world's first HCV elimination program. Key strategies include nationwide HCV screening, active case finding, linkage to care, decentralized care, provision of treatment for all HCV persons and effective prevention interventions. The elimination program aims at achieving 90-95-95 targets by 2020: a) diagnose 90% of HCV-infected persons, b) treat 95% of those diagnosed, and c) cure 95% of those treated. We report progress towards elimination targets 5 years into the elimination program.

Methods: The estimated number of persons living with HCV infection was based on 2015 population-based national sero-prevalence survey, which showed that 5.4% of adult general population has chronic HCV infection (approximately 150,000 persons). The program collects data on all persons registered with the treatment program. Treatment was provided with Sofosbuvir, Ledipasvir/Sofosbuvir or Velpatasvir/Sofosbuvir-based regimens. Data on persons tested for chronic HCV infection through sustained virologic response (SVR) were extracted as of June 2020. Advanced fibrosis was defined as F≥3 by METAVIR score based on elastography and/or FIB-4 score >3.25.

Results: As of June 30, 2020 a total of 87,626 persons were diagnosed with chronic active HCV infection, representing 58.4% of the estimated 150,000 adults living with HCV. A total of 70,032 (79, 9%) patients initiated treatment – 54.6% of the estimated target population to be treated (128,250). Of the 47,207 patients who were evaluated for SVR, 46,648 (98.8%) tested negative for HCV by PCR, representing 38.3% of the estimated target population to be cured (121,837). Very high cure rates were achieved for all HCV genotypes: 98.9% in genotype 1, 98.9% in genotype 2 and 98.3% in most challenging to treat genotype 3. Treatment effectiveness was comparable among persons with advanced fibrosis (F3 and F4) with 98.2% achieving SVR, and among patients with mild or no liver fibrosis (≤ F2), SVR= 99.1%.

Conclusions: Georgia has made substantial progress towards eliminating hepatitis C, with more than half of persons with HCV infection identified and registered for treatment. Very high cure rates have been achieved among those who received SVR testing. Challenges remain in identifying and especially linking to care persons living with HCV in Georgia. Nationwide integrated, decentralized model of HCV treatment, which is already implemented, will be critical to improve linkage to care and close the gaps in HCV cascade.

28

A Novel Approach Continuum from Identification to Elimination in HCV-Infected Individuals on Opioid Substitution Therapy and High-Risk Populations

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Background: In 2017, Pennsylvania was second only to Florida in newly confirmed chronic HCV (CDC, 2019). Pennsylvania is a mostly rural state with forty-eight counties of the sixty-seven counties being considered rural. Individuals born between 1945 and 1965 were initially targeted as the high-risk group for HCV. However, recently the highest risk group for HCV has shifted to younger adults between the ages of 20-39. The opioid epidemic being largely to blame for increased hepatitis C virus (HCV) rates. Some barriers to seeking treatment have been identified as, but not limited to: (1) asymptomatic disease; (2) prime reproduction years; (3) psychosocial; (4) political; and (5) socioeconomic. However, those who live in rural Pennsylvania have increased barriers such as transportation issues, poor access to healthcare, and increased poverty levels.

Methods: Primary data were collected by offering free HCV screenings in Medicated Assisted Treatment (MAT) facilities (n= 36) and non-MAT facilities (e.g. community events) (n= 23) with positive HCV screenings linked to care by providing blood work orders and list of HCV providers, and an appointment if they wanted it. There were (N=3,051) completed HCV screenings on (n=2,995) unique participants assessing positivity rates, treatment acceptance, and outcomes performed to assess compliance rates from identification to elimination in HCV-infected individuals. Integrating telehealth for appointments was created during the study period.

Results: Forty-three of the forty-eight rural counties in Pennsylvania are represented in this study. An overall HCV positive screen incidence rate of 24% of total screens was found (730/2995). The range of age with the highest positivity rates were between 25-34 years and 35-44 years. People in MAT facilities consisted of 90% of our positive screens (n=653) with an incidence of 41%. Yet, treatment and outcomes remained the same for MAT participants and non-MAT participants. Medication to treat HCV was ordered on 105 patients. Modified SVR was 69%. However, 32 were lost to follow up and less than 1 percent relapsed.

Conclusions: The World Health Organization (WHO) has set a goal of eradication of hepatitis by 2030. This research supports previous studies that indicated a higher HCV positivity rate of individuals with drug use. This study shows that treatment in rural Pennsylvania is difficult due to multiple barriers. There was loss of individuals from identification to elimination. Although the use of “TeleHep” (telemedicine) platform provided more success, there still seemed to be a lack of urgency and attrition in seeking HCV treatment after being screened or diagnosed as HCV positive. At each step in the treatment process, approximately 50% of participants were lost. If the number steps could be minimized, treatment will be easier for patients, and they will be more likely to finish it. Future studies should explore ways to minimize high attrition rates in HCV treatment by promoting mobile treatment units.

29

Risks factors associated with HIV and hepatitis C virus co-infection among people who inject drugs in Cambodia

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Background: Globally, research on the co-infection of the human immunodeficiency virus (HIV) and hepatitis C virus (HCV) among people who inject drugs is growing. However, studies in resource-poor countries remain limited. Therefore, we conducted this study to explore factors associated with HIV/HCV co-infection among people who inject drugs in Cambodia.

Methods: This national survey was conducted in 2017 in the capital city and 11 provinces. We used a 'peer-based social network recruitment' method to recruit 286 participants for face-to-face interviews and HIV and HCV testing. A modified Cox proportional hazard model was used to identify risk factors associated with HIV/HCV co-infection.

Results: The prevalence of HIV and HCV was 15.4% and 30.4%, respectively. Of the total, 9.4% of the participants were HIV/HCV co-infected, and 61.4% of the HIV-infected participants were co-infected with HCV. More than half (56.8%) of the participants tested HIV positive were aware of their HIV status, of whom, 83.3% were on antiretroviral therapy. Only 11.5% of the participants with HCV antibody positivity were aware of their HCV infection status; of whom, 50.0% were on HCV treatment. The adjusted prevalence ratio (APR) of HIV/HCV co-infection was significantly higher among women than among men and among participants who lived on the streets than among those living with their family or relatives. The APR of HIV/HCV co-infection was also significantly higher among participants who had received methadone maintenance therapy than those who had not received it.

Conclusions: The prevalence of HIV/HCV co-infection among people who inject drugs in Cambodia is considerably high. Intervention programs are required to increase access to harm-reduction interventions among most marginalized people who inject drugs to prevent HIV and HCV infection. HCV screening services should be expanded in this key population, given its small population size and the availability of directly-acting antiviral agents in the country.

Abstract 30 is listed in the Oral abstract (page 10)

31

Concordance between FibroScan® and Aspartate aminotransferase-to-Platelet Ratio Index (APRI) using different cut-off values in 301 Asian adults with chronic HCV with no or compensated cirrhosis in Thailand and Malaysia

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Background: Numerous non-invasive fibrosis tests based on blood indices (such as APRI) and imaging techniques (in particular, transient elastography by FibroScan®, Echosens) are now available and have replaced liver biopsy in the management of viral hepatitis. Nevertheless, the availability of FibroScan® is limited in resource-constrainted settings. The use of readily available blood results to calculate APRI and of a reliable cut-off value to diagnose cirrhosis is important for national programs looking for simplification of liver fibrosis assessment without the need for costly investment in equipment.

Material & Methods: To determine a reliable APRI cut-off value, we retrospectively analyzed the concordance between FibroScan® and APRI in prospectively collected baseline data in adults with chronic HCV with no or compensated cirrhosis enrolled in an open label phase II/III, multicenter trial to assess the efficacy, safety, tolerance, and pharmacokinetics of ravidasvir plus sofosbuvir. The presence of cirrhosis was determined either by a FibroScan® result >12.5 kPa (with M probe) or by an APRI >2 in the absence of a valid FibroScan® result. Non-cirrhotic and cirrhotic subjects were assigned to receive 12 and 24 weeks of treatment, respectively. FibroScan® and APRI results were considered concordant if the FibroScan® result was ≤12.5 kPa and the APRI was ≤2, or if the FibroScan® result was >12.5 kPa and the APRI was >2. Similar analyses were performed with APRI cut-off values of 1 and 1.5.

Results: Of the 301 subjects enrolled, 4 had invalid FibroScan® results. Of the remaining 297 subjects, 241 (81%) had concordant results and 56 (19%) had discordant results: 49 (16%) had FibroScan® >12.5 kPa but APRI ≤2, and 7 (2%) had FibroScan® ≤12.5 kPa but APRI >2. The sensitivity of APRI was 38%, the specificity was 97%, the positive predictive value (PPV) was 81%, and the negative predictive value (NPV) was 81%. Using a cut-off value of 1.5 for APRI, 243 (82%) had concordant results and 54 (18%) had discordant results: 39 (13%) had FibroScan® >12.5 kPa but APRI ≤1.5, and 15 (5%) had FibroScan® ≤12.5 kPa but APRI >1.5. The sensitivity of APRI was 51%, the specificity was 93%, the PPV was 73%, and the NPV was 84%. Using a cut-off value of 1 for APRI, 242 (81%) had concordant results and 55 (19%) had discordant results: 16 (5%) had FibroScan® >12.5 kPa but APRI ≤1, and 39 (13%) had FibroScan® ≤12.5 kPa but APRI >1. The sensitivity of APRI was 80%, the specificity was 82%, the PPV was 62%, and the NPV was 92%.

Conclusions: In this population of Asian adults with chronic HCV (HCV serology prevalence is 2.5% and 0.9% respectively in Malaysia and Thailand), using a cut-off value of 2 for APRI resulted in good specificity but poor sensitivity as compared to FibroScan®. Had FibroScan® not been available, 49 of 79 (62%) cirrhotic subjects would have been treated for a shorter period than required and thus been at risk of virologic failure. Decreasing the APRI cut-off value to 1 greatly improved sensitivity while maintaining adequate specificity, and therefore may be

a better option for countries looking for simplification of cirrhosis assessment and treatment duration assignment.

32

Strategies for population-based screening and treatment of hepatitis B in sub-Saharan Africa: a mathematical modelling study in The Gambia

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Background: In sub-Saharan Africa, scale-up of testing and treatment for chronic hepatitis B virus (HBV) infection is urgently needed to reduce mortality. However, this is hampered by a complex cascade of care, requiring large-scale screening to find asymptomatic HBV cases, identification of the small proportion of HBV-infected individuals that need immediate antiviral treatment, and regular monitoring for future disease progression and treatment eligibility among those with inactive hepatitis. We used mathematical modelling to investigate how population-based screening, treatment and monitoring can be organised to maximise clinical benefits whilst minimising the burden on patients and the health system in a sub-Saharan African setting.

Methods: A dynamic age- and sex-structured transmission model capturing the key disease stages was calibrated to all data on the natural history of chronic HBV infection in West Africa. We evaluated the hypothetical impact of immediate scale-up of alternative screening and treatment strategies, implemented in 2020, compared to the status quo scenario of infant vaccination alone in The Gambia. The modelled scenarios compared targeting of different age groups (15-65, 30-70, 15-45 or 45-70 years), different monitoring frequencies among HBV-infected adults not eligible for antiviral treatment at the initial assessment (no monitoring, every 5 years or yearly) and varying uptake of screening, clinical assessment for treatment eligibility and treatment (ambitious levels according to WHO targets or feasible levels based on implementation data). The primary outcomes were cumulative HBV-related deaths averted, life-years saved and resource utilisation over the period 2020-2100, presented as median and 95% uncertainty interval (UI).

Results: For a one-time population-based screening and treatment programme in 2020 with ambitious levels of uptake but no monitoring of those ineligible for treatment at the initial assessment, the health impact was lowest if targeting only 45-70 year olds, and highest for the 15-65 year age group. These strategies were estimated to avert 988 (95% UI 477-1,942) and 3,599 (95% UI 1,836-6,844) HBV-related deaths and to save 15,321 (95% UI 7,344-30,209) and 153,024 (95% UI 60,176-341,500) life-years, respectively, compared to no screening. Adding yearly monitoring to the programme in 15-65 year olds would avert an additional 50% (95% UI 23-72%) of HBV-related deaths in the diagnosed cohort, which equates to 19% (95% UI 8-28%) in the Gambian population overall; however, it would require 254 (95% UI 89-543) and 7 (95% UI 2-17) incremental clinical assessments per HBV-related death averted and per life-year saved, respectively. Conversely, achieving ambitious levels of uptake along the treatment cascade appeared to simultaneously maximise health gains and reduce the number of resources utilised per death averted and per life-year saved compared to more feasible levels.

Conclusions: A one-time screening and treatment programme in 15-65 year olds could lead to substantial long-term population health gains in a sub-Saharan African setting even if regular monitoring is not feasible. Although yearly monitoring, as recommended by international guidelines, appears beneficial particularly from an individual-level perspective, prioritising high uptake of initial screening and treatment would maximise the population-level impact of treatment while ensuring the most effective use of resources.

33

DEPIST'C PHARMA AN INNOVATIVE OUTREACH HCV SCREENING PROJECT IN PHARMACY FOR DRUGS USERS AND GENERAL POPULATION

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Introduction: Hepatitis C testing was still insufficient in France. Yet the eradication of hepatitis C is the priority 15 of the national health plan presented in 2018: intensify prevention and screening actions for the most vulnerable audiences to contribute to the elimination of hepatitis C virus by 2025. Beyond defined groups with at-risk behaviors like active or former drug users, hepatitis C testing should now be directed at the general population. Pharmaceutical clinics mesh effectively the territory and pharmacists are increasingly involved in public health actions (therapeutic education, vaccination against the flu).Article 51 of last French Public Health Act on Innovation enables public or private health care teams to propose experiments aimed at improving the diagnostic and/or therapeutic management of a disease and using funding methods or of organization unprecedented, but also with an objective of efficiency and better consideration of prevention and quality of care. Our goal was to screen for hepatitis C in the clinic by POCT performed by pharmacists.

Methodology: Recruitment on the basis of volunteering and prior POCT training of pharmacists from different exercise sites in a pool of 600,000 inhabitants. At the request of the health authorities, screening was only proposed in the presence of one or more risk factors (national health agency list). That was the reason we screened specially active or former drugs users. There were planned 10 tests per week per pharmacy over 12 months for a total of 5000 tests; the expected prevalence was 10%. Patients with positive POCT were tested for real-time HCV viral load and with FIBROSCAN for liver fibrosis assessment. They could be treated with HCV antiviral direct agents during 8 or 12 weeks.

Results: 37 pharmacists representing 25 pharmacies were trained to POCT use and announcement of results during 4 half days session; 9 pharmacies were located in agglomeration, including 5 in working-class areas, 7 in rural areas, 7 in seaside and 2 in mountain average. At 5 and a half months of the experiment (as of 16 March 2020 and beginning of COVID19 pandemic restrictions), 23 pharmacies had carried out at least one POCT; the number of POCT carried out decreased during the influenza vaccination period; 456 POCT had been carried out of which 25 were positive, a serological prevalence of 5.5%. Ten patients had a negative viral load with 1 or 2 risk factors and a Fibroscan mean value at 5 KPa (fibrosis level F1). Fifteen patients had positive HCV viral load (prevalence 3.3%) and 3 to 9 HCV risk factors, mean Fibroscan value at 8.5 KPa (fibrosis level F2). They all were effectively treated and cured by direct antiviral agents.

Conclusion: The feasibility of POCT screening by pharmacists was demonstrated regardless of geographic location. Targeting screening by risk factors does not identify all patients who do not know. Pharmacists represent local stakeholders who could invest in COVID19 screening by POCT. Final results will be available in December 2020.

34

Sustained reduction in prevalence of Hepatitis C viremina in the prison setting after 3rd year of TraPHepC (Treatment as prevention for hepatitis C) program in Iceland

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Background: Hepatitis C virus (HCV) infection is common among prisoners due to high rates of incarceration of people who inject drugs (PWID). In Iceland a nationwide treatment effort was launched in 01/2016 where all HCV patients are offered treatment, including an outreach nurse-led program within the penitentiary system. Previous analysis showed a reduction in HCV prevalence from 29% to 7% among prisoners during the first 19 months of TraPHepC.

Methods: Starting in 06/2016 nurses visited the two main prisons on a regular basis offering all inmates testing for hepatitis C and HIV. All infected inmates are offered treatment with direct acting antivirals (DAAs) while incarcerated and linked to care with the TraPHepC program outside the prison if released. Since the end of 2018, regular screening in prisons halted although sporadic treatment visits were performed for known PCR positive inmates. In early 2020, HCV testing was offered to all inmates at the two largest prison facilities to monitor changes in prevalence.

Results: A total of 64/127 inmates accepted testing of whom two tested HCV RNA positive, resulting in a prevalence of 3%, a drop of 57%. Both infections were acquired outside Iceland. Additionally 31 inmates had previous negative test, with no new risk behavior, bringing the total testing coverage to 95/127 (75%.) Of the patients accepting testing the majority had also been tested before but reported new risk behavior either inside or outside the prison.

Conclusion: Testing and treatment for HCV is well accepted and delivered safely and effectively in the prison setting. The significant reduction in prevalence of HCV viremia in this high-risk population has been sustained despite reduction in testing. Offering screening at the time of incarceration could be a better strategy in terms of higher participation than frequent re-testing of all inmates regardless of risk behavior.

35

SUSTAINABILITY OF IMMUNE RESPONSE TO HEPATITIS B VIRUS VACCINATION THREE YEARS AFTER VACCINATION AMONG HIV-1 INFECTED AND UNINFECTED ADULTS IN KENYA

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Background: Hepatitis B virus (HBV) infection, a leading cause of chronic hepatitis, liver cirrhosis, and hepatocellular carcinoma, worldwide is preventable by vaccination. Following completion of recommended vaccination series over 90% of adults will develop protective immune levels of anti-HBS antibodies. However, there is paucity of data on sustained protective immune levels of Anti-HBS antibodies, among HIV infected African adults. This study aimed at assessing if there is immune response sustained to hepatitis B virus vaccination three years after vaccination among HIV-1 infected and uninfected adults in Kenya. A retrospective study was carried out to analyse archived serum samples. The study was conducted at the Partners PrEP Study clinic in Thika which was among sites for a phase III, multisite, randomized, double blind, placebo controlled trial of daily oral tenofovir-based pre-exposure prophylaxis (PrEP) for prevention of HIV-1 acquisition.

Materials and methods: The samples were randomly selected and participant's demographic information was retrieved from case referral forms that were been filled every time participant's visited the clinic. A total of 336 serum samples retrieved were measured for Hepatitis B surface antibody (anti-HBs) titres using ELISA kit Murex DiaSorin LIAISON anti-HBs II assay (DiaSorin, Saluggia, Italy). Those serum samples that did not have protective anti-HBs titers were further tested for Hepatitis B surface antigen (HBsAg), a marker of infection with HBV DiaSorin Murex HBsAg version 3 assay kit (DiaSorin, S.p.A. UK). Univariate logistic regression to determine factors associated with non-response to HBV vaccination was used.

Results: Of the 336 participants serum samples tested, 176 (52.4%) were from HIV-1 infected individuals, of whom 40 (22.7%) were male.160 samples from HIV-1 uninfected individuals of whom 125 (78.1%) were male. The mean (standard deviation) age of the study population was 34.6 (8.5) years. Of the 62 (18%) individuals who did not have protective anti-HBs titers three years post vaccination, 50 (81%) were HIV-1 infected. HIV infected persons were more likely to have less protective anti-HBs titers ($p<0.001$) compared to HIV uninfected persons. In addition, compared to men, women were more likely not to have protective anti-HBs levels (11.5% vs. 25.1%, $p=0.002$). Seven (11.3%) of the 62 samples that did not have a positive antibody response for anti-HBs , also tested positive for HBV surface antigen (HBsAg), all of whom were HIV-1 positive individuals.

Conclusion: In conclusion, more than a quarter of HIV infected individuals vaccinated against HBV did not have protective anti-HBs titres three years post vaccination, some of whom acquired HBV infection. Regular testing for immune response to HBV vaccination among HIV infected persons should be considered. Additional research is needed to evaluate the impact of HBV booster doses in this population.

Abstract 36 is listed in the Oral abstract (page 11)

37

Reducing Read Time of Point of Care Test Preserves Detection of Hepatitis C Virus and Reduces Need for Reflex RNA

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Background and Aims: Global elimination of hepatitis C virus (HCV) will require scaling-up of diagnosis. Point-of-care (POC) antibody tests can be especially useful for mass testing and difficult-to-reach populations. The most accurate POC test available requires a 20-minute read-time to identify antibody positive subjects. We sought to determine whether viremic patients were all identifiable at an earlier read-time, increasing the efficiency of the test and reducing the need for reflex testing.

Methods: HCV viremic and non-viremic antibody-positive patients was tested with the OraQuick POC HCV antibody test. Results were recorded at 15 second intervals to determine time to positivity. Results were validated in an independent screening cohort of high-risk individuals.

Results: Blood from all viremic patients produced a positive result by 5 minutes. Median time to positivity for 171 viremic patients was 2.6 minutes (1.8-4.6), versus 4.1 minutes (2.3-14.4) for 108 patients with resolved infection ($p<0.001$). The 5-minute threshold was confirmed in 176 HCV-antibody-positive individuals in a real-world cohort. Overall, at 5 minutes the sensitivity for viremic patients was 100% (95% CI 98.4-100%); and the negative predictive value was 100% (95% CI 94.9-100%). The positive predictive value at 5 minutes was inadequate to avoid HCV RNA testing 62.0% (95% CI 56.7-67.0%) entirely. Time to positivity from oral swabs was not predictive of viremia.

Conclusions: A negative result on the OraQuick antibody test in blood at 5 minutes is adequate to exclude HCV viremia, enabling high throughput screening and reducing the need for reflex HCV RNA testing.

38

Frequency of Occult Hepatitis B Virus among blood Donors in Khartoum State, Sudan: a preliminary study.

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Background: Hepatitis B virus (HBV) remains a major public health issue worldwide. Despite the reduction in HBV transfusion- transmission since the introduction of hepatitis B surface antigen (HBsAg) in routine screening of blood donors, it was demonstrated that HBV transmission by blood components negative for HBsAg can still occur, and it remains the most frequent transfusion-transmitted viral infection. The term occult hepatitis B virus infection (OBI) was introduced; it is simply defined as serologically undetectable hepatitis B surface antigen (HBsAg-ve), despite the presence of circulating HBV DNA. Sudan lies in HBV mostly affected WHO African region, and due resources limitation blood donors screening depends only on HBsAg detection rather than nucleic acid test.

Aim: The aim of this study was to investigate the frequency of Occult HBV in blood donors attending different blood banks in Khartoum.

Materials and methods: This was descriptive cross sectional study, includes a number of 90 (HBsAg) negative, blood donors, during (October to December 2018). Occult HBV was investigated by examination of Hepatitis B core antibody (anti-HBc), and detection of HBV DNA by PCR. The statistical analysis was done using SPSS software program version 20 (SPSS Inc., Chicago, IL, USA); the Chi-square test was performed, and significance was set at $p < 0.05$.

Results: In this study, 90 blood donors were enrolled; all of them were negative for HBsAg by ELISA, all of the studied population was male, and their age was ranged between 18-43 years old. Anti-HBc Abs were detected in 26 (28.9%), out of them 10 (38.5%) were between 18-25 years old, 09 (34.6%) were between 26-35 years old and 07 (26.9%) were between 36-45 years old. HBV DNA was detected in 14 (15.6%) by conventional PCR. Occult HBV was detected in 14 (15.6%), their distribution among different age groups was as follows; 08 (57.1%) between 18-25 years old, and 06 (42.9%) between 26-35 years old.

Conclusion: The frequency of occult HBV among Sudanese blood donors was high, and the use of HBsAg alone for screening prospective donors will not eliminate the risk of HBV transmission in blood transfusion.

39

A novel point -of- care test (POC) for diagnosis of hepatitis Core antigen

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Introduction: The World Health Organization (WHO) defined goals towards the elimination of viral hepatitis as a public health threat, with a 90% reduction in new infections, and a 65% reduction in mortality by 2030 . The major clinical challenge remains to identify the undiagnosed patients worldwide, many of whom live in low-income and middle-income countries, where access to nucleic acid testing remains limited for many reasons including poor laboratory infrastructure, insufficient trained staff, expensive laboratory equipment and high cost reagents and maintenance. Point-of-care tests for hepatitis C (HCV) viraemia are needed to improve access to treatment in low- and middle-income countries

Aim: The aim of this study was to develop and validate a point of care (POC) assay for qualitative detection of HCV core antigen.

Method: We developed a point-of-care test for qualitative detection of HCV core antigen by characterization and modification of smart polymer materials to be specific for extraction and enrichment of HCV core antigen. This test detects HCV core antigen which is common for all HCV genotypes. The detection of HCV core antigen was done using colloidal nanogold particles.

Results: The results obtained with the novel Point-of-Care test for diagnosis of HCV core antigen using the smart polymer materials were comparable with those obtained with cobas ampliprep/Taqman assay (Roche, Germany).

So, we report a rapid, simple, portable and accurate POC test for HCV core antigen with sensitivity and specificity that fulfills the recent WHO target product profile for HCV decentralized testing in low-income and middle-income countries. This HCV assay may positively impact the continuum of HCV care from screening to cure by supporting real time treatment decision.

40

Validation of a novel point-of-care ALT test to determine treatment eligibility in hepatitis B patients: a pilot cohort study

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Background and Aims: Hepatitis B guidelines determine treatment eligibility by blood tests for inflammation (ALT), HBeAg and HBV viral load, however these tests are costly and difficult to access in low resource settings. The TREAT-B algorithm(1) was developed to determine treatment eligibility in low-resource settings using ALT and HBeAg only and is validated against EASL criteria. Our aim was to validate a novel point of care (POC) ALT test and commercial POC HBeAg test against standard laboratory assays for determining hepatitis B treatment eligibility by 1. EASL 2017 guidelines and 2. the TREAT B algorithm.

Method: The BioPoint® POC ALT1 test is an antigen immunoassay-based lateral flow test, which uses 40µL whole blood or 15µL plasma to provide ALT measurement within 20 minutes. Stored plasma samples from hepatitis B patients were added to POC test cartridges (BioPoint® ALT1 test and Alere® HBeAg test). Clinical data was recorded concurrently with sample collection. TREAT-B criteria for nucleos(t)ide analogue treatment are 1. HBeAg +ve and ALT >=20IU/L, or 2. HBeAg -ve and ALT>=40IU/L. EASL 2017 treatment criteria are 1. Cirrhosis and detectable HBV DNA; 2. ALT >80IU/L and HBV DNA > 20,000IU/mL; 3. HBV DNA > 2000IU/mL, ALT > 40IU/L and/ or > F2 stage fibrosis; and 4. HBeAg +ve, HBV DNA > 2000IU/mL and Age > 30 years. We determined the sensitivity, specificity, PPV and NPV of the POC ALT and POC HBeAg tests compared to standard laboratory ALT and HBeAg assays for determining treatment eligibility per EASL 2017 guidelines (combined with HBV DNA level and Fibroscan) and per the TREAT B algorithm (based on ALT and HBeAg only).

Results: 77 hepatitis B patients were recruited. 68% were Asian, 61% were male and the median age was 47 +/- 15 years. 23% were HBeAg positive, median ALT level was 32IU/mL (IQR 21-48IU/mL) and median viral load was low (531 IU/mL, IQR 24-57,400IU/mL). Median Fibroscan® result was 5.7kPa (IQR 4.5-6.3); 15% had cirrhosis. The POC ALT1 test had excellent accuracy for ALT > 40IU/mL (AUROC 0.92 95% CI 0.84-0.99, sensitivity 75%, specificity 97%, PPV 95%, NPV 84%). The POC HBeAg test had poor sensitivity (55%) and high specificity (100%) for HBeAg detection (PPV 100%, NPV 89%). A subset of 59 treatment-naïve hepatitis B patients were used to determine accuracy of treatment eligibility using POC ALT1 and POC HBeAg tests. The TREAT-B algorithm had 77% sensitivity and 64% specificity for EASL 2017 treatment criteria. POC ALT1 and POC HBeAg tests combined with HBV DNA levels and Fibroscan had 100% sensitivity, 78% specificity and 100% NPV for EASL 2017 treatment criteria compared to standard assays. POC ALT1 and POC HBeAg tests had 81% sensitivity, 84% specifity, PPV 81% and NPV 84% compared with laboratory assays for treatment eligibility by the TREAT-B algorithm based on ALT and HBeAg alone.

Conclusion: Compared with standard laboratory assay, the POC ALT1 test had excellent accuracy for laboratory ALT. Accuracy of the POC ALT and POC HBeAg tests combined for determining treatment eligibility by EASL guidelines and TREAT-B algorithm was good, but limited by accuracy of the POC HBeAg test. Further prospective trials are needed to validate use and cost-effectiveness of the POC ALT1 test to manage hepatitis B.

1. Shimakawa Y, Njie R, Ndow G, et al. J Hepatol 2018; 69(4): 776-84.

41

Hepatitis C Epidemic and Barriers to Testing among MSM with High Risk Behaviors in China: A GSN-delivered Cross-sectional Study

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Background: MSM are a high-risk population for the acquisition of HCV across the world. The prevalence of HCV in Chinese MSM varies, ranging from 0.6% to 4.8%. This population prevalence mostly relies on passive, hospital-based reporting systems which is widely perceived that there is underreporting of HCV epidemic. This study aims to investigate HCV prevalence and testing uptake among MSM with high risk behaviors through Blued, a geosocial networking application (GSN) with more than 20 million MSM users in China.

Methods: An online cross-sectional survey was delivered through Blued in Beijing and Chengdu from Dec. 20, 2019 to Jan. 15, 2020. Information of demographics, sexual behaviors, substance use, HCV knowledge, testing history and willingness were collected. Participants who meet either one of the following criteria were identified as " high-risk" which were in recent 6 months: 1) had unprotected anal sex, 2) had sex with HIV+ partner(s), 3) had multiple sex partners or engaged in group sex, 4) diagnosed with STI or with STI symptoms, 5) engaged in commercial sex, or 6) substance abuse. Chi-square analysis and multivariate logistic regression were used for comparison or to interpret the association of interest.

Results: A total of 1203 eligible for this survey were included in data analysis. The average age was 31.4±8.8 years old. Only 22.3% (268/1203) had ever tested HCV. Among them, 7.1% (19/268) were ever diagnosed HCV infection, including 9 cases with HIV/HCV co-infection. Primary reasons for not having HCV testing were self-perceived as "no risk" (45.2%) and "don't know where to test" (20.2%). Factors associated with HCV testing were higher awareness (ORadjusted:3.61, CI:2.55~5.09) and ever having invasive examination (ORadjusted:1.41 , CI:1.02~1.95). No association was found with high risk behaviors such as unprotected anal intercourse, group sex, commercial sex and substance abuse.

Conclusions: HCV prevalence among MSM with high-risk behaviors in China is high and has long been underestimated due to some barriers for them to get services, in particular lack of HCV awareness and HCV testing. Systematic and tailored interventions are desperately needed to prevent HCV transmission among MSM in China.

42

Drug resistance of hepatitis C virus to NS5A protein inhibitors in Belarus

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Introduction: The use of direct-acting antiviral drugs (DAAs), that block specific proteins and enzymes of the virus, became a breakthrough in the treatment of HCV infection. At the same time during the process of virus replication nucleotide substitutions accumulate affecting both treatment outcomes and disease progress. The decrease in drug sensitivity is mainly associated with the occurrence of mutations in the region of the HCV genome encoding the NS5A RAS protein (resistance-associated substitutions), which differ in different genetic variants of HCV. In order to select effective treatment regimens, it is necessary to conduct a test to identify RAS (resistance-associated substitutions).

Materials and methods: The study included 64 blood plasma samples obtained from patients infected with 3a and 1b HCV subgenotypes. Amplification of the NS5A region of the genome was performed by “nesting” in house PCR. Fragment sequencing was carried out on an automated genetic analyzer ABI PRISM 3100-AVANT (Applied Biosystems, USA). Bioinformational sequence analysis was performed using the programs "SeqScape® Software v.3.0", "BioEdit v.7.2.5", "SeqA6". Clustal W program was used to align genetic sequences. Resistance mutations were analyzed using the on-line program https://hcv.geno2pheno.org/.

Results: Among 34 patients (50.0%) infected with HCV 3a subtype, RAS NS5A were found in 19 (55.9%): Y93H (41.2%), A/E62S/L/T/+ Y93H (44, 1%) and A30K (11.8%). In single cases, amino acid substitutions such as A30K/S/Q +A62L/W, A30K+A62S+Y93H and A30K +A60S were detected. Among 34 patients infected with HCV 1b subgenotype RAS NS5a were found in 27 (79.4%): Y93H +L31M/I (26.5%), Y93H (20.6%), L31M/V (17.6%). The least significant amino acid substitutions were found in isolated cases: A92T, P58A+L31M, Y93H+P58S, Y93H+L31M+R30Q, Y93H+L31M+P58A, Y93H+P32A+P58S.

Conclusion: We have developed a method for detecting RAS NS5A and the results of this study demonstrated a high frequency of occurrence of such mutations among HCV-infected patients receiving treatment with direct antiviral drugs. If such mutations are widely detected among “naive” patients and among patients who have not achieved a successful virological response, it will be necessary to screen all patients for RAS NS5A before treatment.

43

Seroprevalence of Hepatitis B and C Among HIV-infected Children and Adolescents Receiving Antiretroviral Therapy in Anambra State, Nigeria

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Background: We evaluated the frequency of hepatitis B and C dual infections among children and adolescents receiving ART in six HIV program centers in Anambra State, Nigeria.

Method: A multi-facility cross-sectional study was conducted among HIV-infected children and adolescents currently receiving antiretroviral Treatment (ART) in six selected healthcare facilities of Anambra state between March 2008 and February 2020. The HIV viral load of the patients was determined according to the national HIV program algorithm using the Roche COBAS AmpliPrep COBAS TaqMan (CAP/CTM) HIV-1 test, version 2.0. Individuals with viral load<1000 cp/ml were classified as suppressed while > 1000cp/ml were classified as unsuppressed. The HBsAg and HCV antibody screening was done using LabACON (Hangzhou Biotest Biotech C0, China). Data were analyzed using SPSS version 23.

Results: Of the 308 children and adolescent HIV positive cohorts tested for hepatitis B and C, 156/308 (50.6%) were males while 152/308 (49.4%) were females. Fourteen of the 308 (4.5%) tested positive for HBV while 34/308 (11.0%) tested positive for HCV. The male participants were frequently infected with HBV 10/156 (6.4) than their female counterparts 4/152(2. 6%). Seventeen out of 156 (10.9%) among the male participants tested positive to HCV antibody while 17/152 (11.2%) of the females tested positive to the HCV antibody (p = .0.11 and p = 0.94) respectively. About 4/116 (3.4%) and 10/192 (5.2%) were positive for HBV among the children and adolescents respectively while 11/116 (9.9%) and 23/192 (11.9%) among children and adolescents tested positive to the HCV antibody respectively (p = 0.24 and p = 0.72). Among HIV/HBV dual infected children and adolescents with suppressed viral load, 5/223 (2.2%) were infected with HBV infection compared to 8/85 (9.4%) with unsuppressed viral load (p = 0.01), whereas, HIV infected individuals with suppressed viral load were more frequently infected with HCV infection i.e. 26/223 (11.7%) than those with unsuppressed HIV viral load i.e. 8/85(9.4%), (p = 0.60). The prevalence of triplex infection was 0% among our study participants.

Conclusions: The estimated prevalence of HIV/HBV and HIV/HCV dual infections in this cohort of Anambrarian HIV-infected children and adolescents on ART was 15.6% %. The majority of the participants were not aware of their HBV and HCV status. The finding of the study supports increase awareness of HBV and HCV screening among HIV-infected children and adolescents in Nigeria to guide the use of ART future monitoring.

44

Detection of Viral Hepatitis and Linking to the Health Care of Trans People - InCide Project Contributions

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Background: In Portugal, the Trans population is multicultural, legally unprotected and in healthcare it is often segregated, discriminated against and (self) marginalized and difficult to access. In parallel to the sociological emptiness that characterizes it, the scarcity of clinical and immunological information also exists in the sphere of ignorance. The unavailability of access to health care, often fostered by the fear of leaving the country, aggravates the scourge in relation to their living conditions. It is important to characterize it and to know, through diagnosis, its serological state for sexually transmitted infections and to facilitate the connection/retention to health care.

Strategy: The InCide project - Diagnosis and linkage/retention to the health care of Trans people, was designed to be implemented in the city of Oporto and surrounding regions in articulation with the Oporto Hospital Centre, the Faculty of Medicine of the University of Oporto and the Portuguese Foundation "The Community Against AIDS" and aims to focus on and Transsexual population (N>200). Objective: i) Diagnose and ii) Facilitate linkage/retention to health care; iii) Reduce rates of new HCV, HBV and HIV infections; iv)Promote and monitor adherence to treatment(s); v) Understand the prevalence of HIV, HBV and HCV and vi) Promote health literacy. After several outreach approaches, approximately 30 people have been involved who have already undergone rapid testing for HIV, HCV, HBV and syphilis.

Results: The tests started in January 2020 and covered 30 people (due to the OVID-19 pandemic, and for safety and health reasons, no tests were carried out between March and May as planned). Of the people diagnosed 20% (N=6) had reactive tests for HIV, 3% (N=1) for HBV and 3% (N=1) for Syphilis. All were referred for a first consultation and started to be accompanied by our NGO namely in therapeutic adherence and psychological support. 17% were referred for PreP consultation. In the counseling we were able to perceive that from their experiences and life trajectories, many are (or were) intravenous drug users (N=18), most survive at the expense of sex work (N=26), most of the time maintaining unprotected sexual relations and with numerous partners, whose demands correspond to high risk practices to contract several STIs (N=6) and many resort to cosmetic/plastic surgery in places outside accredited health entities (N=11). Such practices have put at risk their health condition and that of their clients. All were provided pre- and post-test counseling for the various Sexually Transmitted Infections and there were information and awareness sessions with a view to contributing to the participants' health literacy, 37% of the participants are in psychosocial follow-up.

Conclusion: We are still short of the N>200 purpose mainly because this is a population of difficult access, where the relations of trust and proximity are fundamental for the adhesion to the project. The world situation experienced at the time of COVID-19 was unfavorable to carry out the diagnoses, but it has contributed to approach strategies that have already allowed us to schedule screenings from June 2020. After the diagnosis we will be able to eliminate some barriers of access to treatment and connection to health care, this because the treatment is assured by the health system in Portugal and the adherence will be guaranteed by the monitoring that we carry out with these people.

45

HIGH SEROPREVALENCE OF VIRAL HEPATITIS AMONG ANIMAL HANDLERS IN ABEOKUTA, NIGERIA

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Viral hepatitis is a deadly disease which can manifest as acute, chronic, hepatocarcinoma and liver failure. Information about hepatitis is scarce among animal handlers. Due to Federal Government of Nigeria diversification programmes, many people are now involved in animal farming which can make them susceptible to viral hepatitis.

This study aimed at determining the prevalence of Hepatitis B, C and E viruses among animal handlers in Abeokuta, south western Nigerian.

A total of 156 subjects were recruited for the study. Information was fetched from subjects using interviewer-administered questionnaire. Blood samples were collected via venepuncture and tested for HCV, HBV and HEV using ELISA technique. Results were analysed using SPSS software version 21.0 and p-value ≤ 0.05 was considered significant.

The prevalence of HCV, HBV and HEV were 46 (29.5 %), 20 (12.8 %) and 4 (2.6 %) respectively while 6 (3.8%), 1 (0.6%) and 1 (0.6%) had co-infection of HBV-HCV, HBV-HEV and HCV- HEV respectively.

This study concludes that there is high prevalence of hepatitis C and B viruses among animal handlers in Abeokuta, Ogun state which is of significant public health problem, warranting further attention and research.

46

SEROPREVALENCE OF HEPATITIS B SURFACE ANTIGEN (HBsAg) and HEPATITIS C ANTIBODIES (HCVAb) AMONG HEMODIALYSIS PATIENTS AT THE YAOUNDE GENERAL HOSPITAL, CAMEROON.

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Background: Hemodialysis patients still remain a population at high risk of viral infections such as HIV, HBV, HCV due to frequent blood transfusion. In Cameroon, epidemiological data on the coinfection HBV/HCV among hemodialysis patients are rares. This study was to determine the seroprevalence of hepatitis B surface antigen (HBsAg) and the carriage rate of hepatitis C core antibodies (HCVAb) among hemodialysis patients at the Yaounde General Hospital (YGH).

Methodology: We carried out a prospective and cross sectional study at the YGH from january to March, 2020. The detection of HBsAg and HCVAb was performed by ELISA to each participant according to manufacturer. For $p<0.05$, the difference was statistically significant.

Results: Out of 90 hemodialysis patients enrolled, mean age 46.5±5.7 years[min : 18, max : 70 years], a male predominance was noted (76%). The positivity rate of HBsAg was 6.7% with female more likely to be affected (9.1%vs. 5.9% masculine, p=0.746). Unlike HBV, the carriage rate of HCVAb was higher (22.2%) with a male predominance (29.4%). Young subjects ([18-31[) seemed to be more affected by hepatitis B (18.2%) whereas the carriage rate of HCVAb seemed higher (37,1%) in old subjects (>45 years). No specific associated factors has been identified in this study. However, Married participants, non-vaccinated subjects against hepatitis B and those with a blood transfusion history were more likely to be positive either for HBsAg or HCVAb.

Conclusions: This study revealed a high prevalence of HBsAg and HCVAb among dialysis patients. An early diagnosis of Hepatitis B and C as well as a counselling should be systematically done to each old and new hemodialysis patient in Cameroon.

47

Expression of HBeAg, HBsAg, anti- HBe and anti-HCV in individuals with elevated IL-10

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Study Background: Infections of Hepatitis B and C Virus can trigger anti-inflammatory process manifested through the expression of immune response products in the serum.

Aim and Objective: This work was design to investigate the expression of HBeAg, HBsAg, anti- HBe and anti-HCV in individuals with elevated IL-10 to provide useful guide for the investigation of viral hepatitis for infection, prevention and control.

Materials and Methods: Forty nine volunteers (23 – 63 years; ;n= 49 ; Female-23; Male - 26) with elevated plasma IL-10 were recruited for this study test subjects while fifty age matched apparently healthy volunteers (23 – 63 years; ;n= 50 ; Female-25; Male - 25) with normal plasma IL-10 were recruited as control subjects. HBeAg, HBsAg, anti- HBe, anti-HCV, IL-10, HIVP24Ag-Ab were determined by ELISA, Acid Fast Bacilli(AFB) by Ziehl Neelsen staining and Plasmodium identification by thick blood film Geimsha staining.

Results: The frequency of HBeAg, HBsAg, anti- HBe and anti-HCV obtained in the volunteers with elevated IL-10 was 26.5%(13) HBeAg, 18.4%(9) HBsAg, 8.2%(4) Anti-HBe, 10%(5) anti-HCV, 16.5%(8) HBeAg + Anti-HBe , 12.2%(6) HBsAg + Anti-HBe while 6%(3) HBeAg, 8%(4) HBsAg, 16%(8) Anti-HBe, 6%(3) anti-HCV, 0% HBeAg + Anti-HBe , 14%(7) HBsAg + Anti-HBe was obtained in the control volunteers. Serum HBeAg, HBsAg, anti-HCV and HBeAg + anti-HBe were more frequent in volunteers with elevated IL-10 than the control subjects with normal IL-10 while serum anti-HBe and HBsAg + anti-HBe were more frequent in the control subjects compared with the results obtained from volunteers with elevated IL-10.

Conclusion: Serum HBeAg, HBsAg, anti-HCV and HBeAg + anti-HBe in individuals with elevated IL-10 predict active and acute infection, poor prognosis, infection severity and infectiousness consequently require intervention for appropriate infection prevention and control.

48

Prevalence of Hepatitis B among Prisoners at Winneba Male and Nsawam Female Prison in Ghana

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Introduction: Viral Hepatitis is considered as a major cause of burden of disease in the world, and is the most common cause of cirrhosis and liver cancer. Prisoners are one of the groups most at risk for Hepatitis.
One of the groups that is at highest risk for hepatitis are prisoners. Studies have reported that the prevalence of hepatitis in prisoners is higher than that of the general population; it is also worth mentioning that the risk of individuals with hepatitis being imprisoned is 9 times higher than that of the general population.
Ghana belongs to the areas where the prevalence of chronic HBV infection is high (≥8%) and that of hepatitis C virus is also high (5-10%). There is thus a high burden of infection with resulting high prevalence of chronic liver disease and liver cancer (hepatocellular carcinoma). In Ghana, HBV is considered to be of significant public health importance and a disease that requires greater attention.

Objectives: The aim of this study was to obtain an estimate of the prevalence of viral hepatitis among prisoners at Winneba Male Prison and Nsawam Female Prison in Ghana. To raise awareness about Hepatitis B in Ghana Prisons.

Methods: Blood samples were collected from two hundred and seventy-three (273) inmates which One hundred and seventy five (175) were males and ninety-eight (98) were females in the study and using Advance Rapid test kits to determine prevalence of hepatitis B surface antigen after informed consent and education. The inmates were well educated and oriented on the need to ensure personal hygiene and how to prevent Hepatitis B. Added to this was blood sugar test for inmates aged fifty years or above and blood pressure tests for all. Prison officers and inmates were given the platform to ask questions which were answered by our team.

Results: A total of 273 inmates were screened for hepatitis B. 98 were females and 175 were males. 36 inmates tested positive for Hepatitis B, representing 13.2%. Out of which 3 were females and 33 males.

Conclusion: The prevalence of HBsAg was very high among male inmates at Winneba Prison, while knowledge of Hepatitis B and C was poor. Efforts to eliminate HBV in the Prisons need to focus on increasing awareness, screening, offering universal screening and vaccination across the Prisons in Ghana. There is should be an urgent need to reduce the prevalence of pre and post transfusion hepatitis routine screening for HBV and HCV should be performed using more sensitive methods.

Abstract 49 was withdrawn.

50

SEROPREVALENCE OF VIRAL HEPATITIS AMONG HEALTH CARE WORKERS (HCWs) IN TARABA STATE, NIGERIA

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Introduction: The World Health Organization (WHO) defined Hepatitis as the inflammation of the liver. The condition can be self-limiting or can progress to fibrosis (scarring), cirrhosis or liver cancer. There exist viral and non viral hepatitis of which viral Hepatitis (cause by viruses) are the most common cause of hepatitis in the world. Five types of hepatitis Viruses (A,B,C,D and E) exist but hepatitis B and C lead to chronic disease in hundreds of millions of people across the globe including Africa and Nigeria in particular (Taraba State).
Health care workers are termed as one of the populations that are vulnerable to viral hepatitis infection due to their constant exposure to the source of infectious agent. To bridge the gap stated above, this study aimed to determine the statuses of hepatitis B and C viral infections as both single and/or co-infection among such vulnerable populations (HCWs) in Federal Medical Center, Jalingo, been the only federal government health institution in the State headquarters so as to determine the level of endemicity of the viral infection.

Methods: The population of the study included HCWs at Federal Medical Center, Jalingo. The sample size was calculated using Cohcran's formula for determining sample size. Ethical clearance was obtained from the hospital management. Demographic data as well as blood samples were collected between December 2018- May 2019 from patients who met the inclusion criteria and willingly agreed to participate. Viral hepatitis tests were carried out using rapid diagnostic kits as described by the manufacture. Data collected were entered into Microsoft Excel 2016 and moved to statistical package for social science (SPSS) version 25 and R for analysis.

Result: One hundred and sixty (160) participants were enlisted out of which 5.60% and 10.60% were positive for HBV and HCV respectively. Only 1(0.6%) of the entire population were found to be co-infected with both HBV and HCV. Participants within the age bracket of 18-34 were found to have the highest prevalence of both the viruses compared to other groups. Male participants had the highest prevalence for HCV as the female had the highest for HBV but in terms of Co-infection, the one case was observed among the female HCWs.

Conclusion: The findings of this study confirms that HCWs are vulnerable population to viral hepatitis infection with intermediate and high prevalence being reported for HBV and HCV positivity respectively, though several other factors including vaccination, knowledge, attitude and practices towards the viral infection by the participants might have played pivotal role in the endemicity. This study clearly suggests an urgent need to check for sero-prevalence of the viruses most especially in endemic regions so as to help educate and let people become more aware about the viruses.

51

Results from two phase-3 double-blind, randomized, controlled trials, PROTECT and CONSTANT, evaluating immunogenicity and safety of the 3-antigen hepatitis B vaccine, Sci-B-Vac®, compared to the single-antigen vaccine, Engerix ® in adults

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Background: Public health initiatives support immunization as the most effective strategy for HBV prevention. However, there is a need for improved prophylactic Hepatitis B vaccination for adults. Success of current HepB vaccination strategies is limited due to vaccination failure of more than 20% in older adults and individuals with comorbidities, such as diabetes, obesity and other conditions impacting immune response to vaccination. Further, vaccine-induced seroprotection is dependent on the completion of a 3-dose schedule. Sci-B-Vac® is a recombinant HBsAg vaccine produced in mammalian cells expressing all three HBV envelope proteins — pre-S1 (large), pre-S2 (medium) and S (small). This 3-antigen vaccine (3AV) is designed to elicit enhanced immunogenicity in all adults.

Methods: Two pivotal phase 3 double-blind randomized controlled trials were conducted to compare the immunogenicity and safety of a 3-dose regimen of 3AV (Sci-B-Vac®) and 1AV (Engerix-B®). Adults ≥ 18 years (PROTECT) and 18 – 45 years (CONSTANT) old were enrolled, receiving vaccinations at days 1, 28 and 168. In PROTECT, 8% of participants were well-controlled diabetics and 37% were obese (BMI >30 kg/m2). Immunogenicity was determined by the seroprotection rate (SPR, defined as the percentage of participants with anti-HBs ≥10 mIU/mL) and GMC (geometric mean concentration) of anti-HBs titers. Participants were followed for a total of 336 days after the first vaccination.

Results: In PROTECT, SPR in adults aged 18 – 90 years of age at Day 168 (before 3rd dose) and Day 196 (4 weeks after the 3rd dose) were: 66.0% and 91.4% for 3AV and 27.4% and 76.5% 1AV, respectively. The SPR in participants 18 – 44 years old, at the same timepoints were: 87.2% and 99.2% for 3AV and 39.0% and 91.1% for 1AV. The SPR at Day 196 for diabetics was 83.3% for 3AV and 58.3% for 1AV. The SPR at Day 196 for obese participants was 89.2% for 3AV and 68.1% for 1AV. In CONSTANT the SPRs for participants 18 – 45 years old, at Day 168 (at 3rd dose) and Day 196 (4 weeks after the 3rd dose) were: 90.4% and 99.3% for 3AV and 51.6% and 94.8% for 1AV. In both studies, anti-HBs titers (GMC) were higher for 3AV compared to 1AV at all timepoints, overall and in key comorbidity subgroups. Consistent with previous studies, safety profiles of 3AV and 1AV were generally similar, except for higher rates of mild or moderate injection site pain and myalgia for 3AV, which generally resolved within 1 – 2 days. There was no increase in reactogenicity with administration of subsequent doses.

Conclusion: In the two pivotal phase 3 studies, 3AV achieved earlier onset and higher rates of seroprotection as well as higher anti-HBs titres compared to 1AV in adults of all ages including individuals with diabetes and obesity. Safety profile of 3AV was similar to 1AV except for higher reactogenicity.

52

Immune Response to Hepatitis B Vaccine Following Complete Immunization of Children Attending Two Regional Hospitals in the Southwest Region of Cameroon: A Cross Sectional Study

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Background: Hepatitis B virus (HBV) infection despite being a vaccine-preventable disease remains a global public health problem. In Cameroon, the HBV vaccine was introduced in the expanded program on immunisation in 2005, but there has been limited evaluation of the HBV surface antibody response post-vaccination.
OBJECTIVE: We investigated the immune response of infants to HBV vaccine among children who received the DPT-Hep B-Hib vaccine and HBsAg carriage in non-responders. We also investigated factors associated with non-response or poor response.

Methods: Using a hospital-based cross-sectional design and a structured questionnaire over a four-month period (January to April 2019). We collected data to determine factors associated with hepatitis B surface antibody (anti-HBs) response from infants aged 6 to 9 months attending infant welfare clinics (IWC) at the Buea and Limbe regional hospitals. We collected venous blood and measured anti-HBs titres using a quantitative Foresight® ELISA. We entered and analysed data using the EpiData version 3.1 and SPSS version 25 respectively.

Results: Of the 161 infants enrolled, 159 (98.8%) developed anti-HBs. Of those who developed anti-HBs, 157 (97.5%) and 117 (72.7%) developed ≥10 mIU/ml (seroprotection) and ≥100 mIU/ml anti-HBs titres respectively. Being younger (6 months old) was associated with seroprotection (p=0.001). Spearman rho's relational analysis showed that immunity against HBV reduced as the duration since the last dose increased (R= -0.172; P=0.029). All 12 (7.5%) infants exposed to HBV at birth, received the HBV vaccine at birth and were all protected following a complete vaccination. Four infants (2.5%) had anti-HBs titres <10mIU/mL (non-responders), but had no peculiarity.

Conclusion: The seroprotective rate following HBV vaccination of infants is high even in exposed infants. Our study suggests that Cameroon's HBV vaccine in the Expanded Program on Immunisation (EPI) is effective against HBV, although we could not account for the 2.5% non-response rate. Large scale studies are needed to further explore non-response to the vaccine.

53

Evaluation of hepatitis B vaccine efficacy among healthcare worker at Laquintinie Hospital, Douala, Cameroon.

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Background: Healthcare workers are at high risk of acquiring hepatitis B infection through occupational exposure which is preventable by hepatitis B vaccine. In Cameroon, the epidemiological data on anti HBV vaccine efficacy among healthcare workers are scarce and health personnel don't often complete their HBV vaccination schedule. This study was to evaluate the immune response of anti HBV vaccine by testing for antibodies against hepatitis B surface antigen (HBsAb).

Methods: A cross-sectional study was undertaken from January to August, 2019, on healthcare workers with more than 2 years experience. Blood samples were collected on each subjects who have received 1, 2, or 3 shots of Hepatitis B vaccine anti HBs levels were assessed quantitatively in sera using ELISA.

Results: Out of 90 participants HBsAg negative (male 53%), the mean age was 33.5±1.9 [24; 54] years. Concerning vaccination, 20% (n=18), 21.1% (n=19) and 58.9% (n=53), declared have received 1, 2 and 3 shots respectively but the majority 84.4% (n=76) have never checked their anti-HBs levels before. The anti HBV vaccination immunity (Anti-HBs>10) was 30% (27/90) with 30.95% women vs. 29.17% men, p=0.85. As expected, Anti-HBs antibodies seemed decreasing with age (p=0.99) and good anti-HBV response was observed among subjects with completed doses [43.4%(23/53) completed vs. 10.8%(4/37) incompleted, p=0.02]. Healthcare workers tested one year after their 3rd shot presented the best rate of HBsAb (p=0.003). Furthermore, Lab technician and nurses seemed presenting the lowest anti HBV response (25% and 26.47%, p=0.62) and the most experienced healthcare workers with completed doses (10years and above) were more likely to be protected 36.36% (4/11).

Conclusion: This study highlighted a poor anti-HBV vaccine efficacy among healthcare workers in Laquintinie hospital in Douala, Cameroon. Healthcare workers should urgently complete their vaccine schedule and systematically test for their anti-HBV immunity (anti HBsAb) at last one year after the last shot.

54

Results of A Hepatitis C (HCV) Re-Engagement Strategy For Vulnerable Populations

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Many marginalized people were historically not treated for HCV, either because of side-effects of interferon-based treatments or fibrosis restrictions for direct-acting antiviral (DAA) therapy reimbursement eligibility. As these are no longer concerns in Canada, we sought to re-engage people who had connected to HCV care with us in the past but did not complete the cascade of care.

Description of Intervention: CUPS is an inner-city clinic which helps people facing poverty to build resilient lives by providing medical care and multi-faceted help with social determinants of health. The Liver Clinic provides on-site consultations and support. 420 clients were lost from the cascade of care between 2007–2018. Gilead Sciences funded a summer student who started to engage these people via telephone calls, electronic medical record searches, and calls to other providers. A registered nurse (RN) completed the project.

Effectiveness: Contact attempts were made for 420 patients, but 151 (36%) remained lost to follow-up. A sizeable portion of those whom we could not locate had been on opiate agonist therapy (OAT) at some point according to provincial medical records, but the opportunity for linkage to HCV care through that OAT provider had been missed.
142 (34 % of the entire cohort and 53 % of those contacted) had already been treated for HCV. The 65 individuals (15%) who were reached but not yet treated often stated that they were unaware of DAA treatment and were grateful to be contacted. Although 22 (8%) were interested in re-engagement with the clinic, only 3 (1%) followed through within the next six months.
Sadly, 62 (15%) were known to be deceased. The cause of death was not easily ascertained from medical records, but when known, drug overdose was frequent. The average age at death was 49.4 years (range 27-68, median 51.5 years).

Conclusions & Next Steps: Actively searching for and contacting marginalized patients who had disengaged from the cascade of care in the past showed at least 34 % of the cohort had already accessed HCV treatment in the interim. Many missed linkage to care opportunities through OAT were identified. While the 15 % who could be reached and were still untreated were generally grateful to have been contacted, their subsequent follow-through was low. Thus, this strategy, though informative, was not efficient in our context. We will instead focus our efforts on working with inner-city primary care providers, OAT clinics, and pharmacists to link those currently involved with them to HCV care in a timely manner.
The rate of death in this cohort far exceeds the expected rate in the general population. This underscores the vital importance of addressing other aspects of health, rather than merely HCV, in marginalized populations.

Abstract 55 was withdrawn.

56

Hep Free 2030: Planning for Hepatitis Elimination in Hawai`i as Nimble, Collaborative Practice

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Background: On World Hepatitis Day 2019, the Hep Free Hawaii coalition partnered with the Hawaii Department of Health and the Hawaii Health and Harm Reduction Center to host the inaugural meeting to develop Hawaii's Hepatitis Elimination Plan. This plan was intended to not only provide guidance for program implementation but also leverage partnerships to enhance the network of stakeholder engagement. Hawaii's Hepatitis Elimination planning process was grounded in the unique multicultural context of Hawaii and its people, and it is one of the first in the U.S. to strive to eliminate hepatitis A, B and C. This abstract will discuss the planning process (community-driven and value-based) and share highlights of the Hepatitis Elimination strategy for Hawaii.

Materials and Methods: This abstract is a case study in coalition-based and community-driven hepatitis elimination planning, initially modeled after other United State jurisdictional efforts centered on governmental leadership. Through active, long-term stakeholder engagement over a 12 month period, the process came to prioritize a values-based approach that centered community input and enhanced partner (inclusive of but not limited to governmental) buy-in.

Results: From July 28 2019 to July 28 2020, Hep Free Hawai`i engaged over 160 individual stakeholders in more than 20 formal and informal conversations to clarify the structure of this plan, establish its scope (viral hepatitis A, B, and C), and identify elimination priorities, strategic directions, and examples of micro-elimination opportunities. In addition to vision and mission statements related to hepatitis elimination, all planning activities were informed by coalition values (Harm Reduction, Intersectionality, Social Justice, and Aloha), which were continually reiterated to establish common philosophical framework.

The resulting strategy, "Hep Free 2030" (https://www.hepfreehawaii.org/hep-free-2030), focuses on 5 simple and clear Elimination Priorities: Awareness & Education, Access to Services, Advocacy at All Levels, Equity in Everything, and Data-Driven Decision-Making. Within each of these Priorities are Strategic Directions (rather than "Goals"), which allow for more nimble and responsive Micro-Elimination projects. The concept of micro-elimination is especially important, as it promotes community or regional interventions that can "fail fast" or be scaled up quickly.

This strategy will not only guide governmental and community agencies in Hawaii over the next ten years, but also provide enough flexibility to adapt to changing resources and challenges (e.g., COVID-19 pandemic).

Conclusion: The successful launch of Hep Free 2030 and ongoing engagement among partners speaks to the importance of nimble, partnership-focused, and values-based planning and implementation as cornerstones for Hepatitis Elimination in diverse communities such as Hawai`i, amidst ever-changing healthcare landscapes.

57

Ledipasvir 90 mg/ Sofosbuvir 400 mg for treatment of Chronic Hepatitis C genotype 4 adolescents: Towards elimination of hepatitis in children

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Introduction: A considerable number of children have chronic HCV infection and are at risk for complications. Globally, there are estimated to be 6.6 million HCV RNA-positive individuals 15 years of age or younger. Prevalence of pediatric infection varies from 0.05%-0.36% in the United States and Europe; up to 1.8%-5.8% in some developing countries. To achieve the World Health Organization (WHO) goals towards the elimination of viral hepatitis as a public health threat, with a 90% reduction in new infections, and a 65% reduction in mortality by 2030, children should be treated.

Aim: To evaluate the efficacy and safety of LDV /SOF fixed dose combination for 8 weeks in CHC genotype 4 children.

Patients and methods: The study has been conducted in Egyptian Liver Research Institute and Hospital (ELRIAH). We enrolled 112 children aged 12 - 17 years old who tested positive for HCV antibody. Eligibility criteria were patients with body weight ≥ 35 kg and had positive serum HCV RNA. Laboratory tests including HCV RNA PCR, complete liver functions, abdominal ultrasound and FibroScan using small sized probe were done at baseline. Both treatment naïve and experienced patients were included. All enrolled patients had no evidence of cirrhosis except one.

Results: One hundred and four patients fulfilled inclusion and exclusion criteria with median age of 14.25±1.66, 57 (82.6%) were males, and 14 (20.3%) were treatment experienced to Peg interferon therapy. Twenty patients had history of blood diseases: acute lymphocytic leukemia (n=5), non-Hodgkin lymphoma (n=5), Hodgkin lymphoma (n=1) B thalassemia (n=4), hemophilia A (n=3) and G6PD (n=2). 8 patients were found HCV PCR negative, received no treatment and excluded from analysis. 104 patients received treatment in the form of LDV 90 mg / SOF 400 mg for 8 weeks free of charge. All except three patients completed treatment for 8 weeks. All patients (101) had sustained virologic response at 12 weeks after the end of treatment

Conclusion: LDV/SOF for 8 weeks is safe and effective therapy for treatment of CHC genotype 4 adolescents. Treatment of children may positively impact the continuum of HCV care and achieve the WHO requirements towards the elimination of viral hepatitis as a public health threat.

58

VIRAL HEPATITIS B AND C SEROPREVALENCE AMONG AT RISK POPULATION IN TARABA STATE: A SEROPREVALENCE STUDY

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Background: Viral hepatitis is the inflammation of the liver caused by some heap-trophic viruses that indiscriminately infect all populations with certain sub-populations being at more risk/vulnerable to the infection. The highest burden of the infection is seen in sub-Saharan Africa with Nigeria belonging to the highly endemic countries and Taraba state having the highest burden in the country. Awareness regarding viral hepatitis, knowledge of hepatitis status and vaccination are critical component of hepatitis elimination strategies adopted by authorities and health care managements globally. However, in developing countries Nigeria inclusive, implementation of this policies remains to be done. Also, paucity of data regarding viral hepatitis most especially among at risk population continues to prevail. It is against this background that this study targeted some at risk populations to determine their viral hepatitis statuses and it's prevalence in Jalingo Taraba state of Nigeria. The outcome of this study can serve as a guide, attract attention of authorities or serve as base line for authorities and health management in the application of viral hepatitis preventive and managerial instruments as well as elimination policies in the region.

Method: A total of 397 individuals comprising of 160 health care workers and 237 people living with HIV met the inclusion criteria and were considered for the study. The total male participants were 138 and 259 females within age range of 8-80 years. Demographic variables were collected via oral interview. Blood samples were collected by qualified center for initiative and development technicians in line with global practices and analyzed using rapid diagnostic kits according to the manufactures guidelines.

Result: Out of the total participants, 46/397(11.6%) were reported to be positive for HBV out of which 9(2.27%) were HCW and 37(9.32%) were PLHIV. However, no statistically significant association between at-risk-population and HBV was observed. A total of 54/397(13.6%) were positive to HCV out of which 17(4.28%) were HCW and 37(9.32%) were PLHIV but no significant association between at-risk population and HCV was observed. Infection by the viruses were observed in all the age groups of the population. A total of 5/397 participants (1.26%) were coinfected with viral hepatitis B and C out of which (0(0%), 1(0.25%)) were Males and females HCWs respectively while (0(0%), 4(1.01%)) were males and females PLHIV respectively. The age group between 22-33 and 34-45 recorded 20(5%) each for HBV while the age group of 70+ recorded 0(0%) prevalence for HBV. The age group of 34-45 recoded the highest prevalence of 23(5.8%) for HCV infection while the age group of 58-69 recorded 0(0%) followed by 70+ who recorded 2(0.5%).

Conclusion: The findings of this study reported a high prevalence of viral hepatitis infection amongst the at risk population which is in concordance with the national prevalence. This suggests that the ailment is posing a serious threat to the health care system and the region at large. This calls for the employment of aggressive preventive and elimination measures so as to succeed in achieving the hepatitis free World.

59

CONTACT TRACING TO ENGAGE HARD TO REACH INJECTION NETWORKS AND ACHIEVE MICRO-ELIMINATION: DESCRIPTION OF THE 'SOURCE PATIENT INDENTIFICATION AND GROUP OVERLAP TREATMENT' (SPIGOT) PILOT PROGRAM

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Background: Contact tracing has been a key element of the public health response to various infectious diseases, yet has rarely been instituted in HCV because of difficulty identifying transmission events. With expanded screening programs to identify de novo HCV infection and HCV re-infection early, harnessing contact tracing processes may aid in identifying ongoing transmission clusters while also providing an opportunity to engage hard-to-reach individuals in HCV care to achieve network level micro-elimination.

Methods: Our ongoing pilot program consists of early recognition of HCV infection (either first infection or re-infection) from a cohort of high-risk people who inject drugs. After diagnosing an early HCV infection, these 'incident infections' are asked, and incentivized, to have their contacts or 'proximal partners' (injection and sexual) screened for hepatitis C. All HCV infected members of the network are subsequently encouraged to receive DAA therapy and behavioral prevention concurrently with the goal of treating the transmitting partner at the same time as the newly infected participant to avoid the potential for cyclical transmission.

Results: The primary endpoint of this pilot program is to determine the percentage of new infections whose source of transmission (identified by next-generation sequencing) can be engaged in screening through incentivized contact tracing. Secondary outcomes will examine the rates of 'incident infection' and 'proximal partner' engagement across the HCV care cascade.

Conclusion: Contact tracing programs for HCV could augment existing screening strategies to provide curative treatment for patients and their partners, prevent reciprocal transmission of HCV between risk partners and within networks, and potentially reach individuals who are not yet engaged in healthcare and harm reduction.

60

Gilead Sciences' Commitment to Global Elimination of Hepatitis C Virus

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Background: With an estimated 71 million people living with hepatitis C virus (HCV) infection globally, the World Health Organization (WHO) set a target to eliminate viral hepatitis by 2030. In the past 7 years, Gilead Sciences helped transform the HCV landscape through innovative medicines, partnerships, and access programs.

Methods: Through multiple departments, Gilead supports the efforts of governments and partners with professional and community-based organizations, healthcare providers (HCPs), and payers to accelerate progress toward the WHO's goal. This abstract provides a comprehensive review of the collaborative educational programs, call for action research programs, and community screening and linkage to care (SLTC) programs with special emphasis on vulnerable populations with unmet needs.

Results: Gilead supports >100 global HCV elimination projects through the LEGA-C investigator-sponsored research program (Local Elimination Programs Leading to Global Action in HCV), in high-risk populations and endemic geographies. Gilead also supports projects with the aim of expanding care for populations with significant unmet needs including pregnant women, women of child-bearing potential, children, migrants, PWIDs, incarcerated patients, and underserved ethnic minorities.

COMMIT is a community grant program within LEGA-C which was launched in April 2019 to support the efforts of eligible community organizations to deliver projects aimed at the elimination of HCV focused on micro-elimination goals. Through 19 grants, Gilead supports micro-elimination goals for vulnerable populations in Europe, the Middle East and Australia including prisoners, LGBTQ, PWID, people co-infected with HIV, and homeless persons. Launched in 2010, Gilead's FOCUS program was created to develop and share best practices in routine blood-borne virus screening and linkage to care in accordance with CDC, USPSTF, and state and local screening recommendations. FOCUS responds to unmet needs in geographic areas disproportionately affected by HCV. In Kentucky, where acute HCV rates are among the highest in the country, FOCUS programs have routinized HCV testing in prenatal screening, labor and delivery, and in emergency departments.

HepConnect is a five-year initiative launched to help address the increase in HCV infections and support community partnerships in greater Appalachia, where HCV infections are rising at an alarming rate due to the HCV and opioid syndemics. The initiative aims to scale HCV screening and linkage to care, strengthen healthcare infrastructure and support harm reduction and community education. HepConnect reaches patients who are most in need by delivering services at community encampments, developing harm reduction guides for persons with learning disabilities, and providing a platform for grassroots and Black Indigenous People of Color (BIPOC)-led social organizations to strive for greater health equality.

In 2019, Asegua, an affiliate of Gilead, and the Louisiana Department of Health (LA DoH) announced a groundbreaking partnership to significantly increase access to curative therapy for Medicaid and Corrections populations and advance the state's Hepatitis C elimination efforts. Asegua and LA DoH worked together to develop an innovative payment model that could meet the specific needs of patients in Louisiana, while working within the state's financial constraints.

Conclusions: Gilead, and its affiliate Asegua, have established a global leadership strategy toward HCV elimination through partnerships and ongoing commitments to educational programs, ISRs, program grants, and patient advocacy.

61

Global elimination of hepatitis C: meeting the World Health Organization's 2030 goal

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Background: The World Health Organization's (WHO) 2030 hepatitis C virus (HCV) elimination goal is only 10 years away. While effective treatment is available, HCV infection rates remain high. Therefore, achieving this goal requires tailored micro-elimination projects focused on distinct epidemiologic trends and gaps in the HCV care cascade, particularly in historically underserved populations, including people who use drugs (PWUD), prisoners, and men who have sex with men (MSM). AbbVie has committed to partner with external stakeholders to support such projects.

Methods: A selection of ongoing micro-elimination proposals supported by an internal AbbVie committee are presented. Criteria for selection were based on unmet needs, scientific merit, stakeholder expertise, sustainability, and reproducibility.

Results: Approximately 300 HCV micro-elimination projects are supported across Asia, Australia, North America, and Europe. A study in Israel developed a screening algorithm to identify hidden HCV infection using alanine aminotransferase (ALT) elevation as a marker. In Australia, the impact of primary vs tertiary care on treatment initiation and sustained virologic response at post-treatment Week 12 (SVR12) in PWUDs was studied. In North America, an online database, MappingHepC.com, was created in the United States to increase epidemiology awareness to foster HCV elimination initiatives. Several projects engaging different populations are ongoing in Europe, including a study in Austria that studied the use of free-of-cost HCV screening in well-defined MSM population in order to improve early HCV detection and cure rates (SVR12). In Germany, the low treatment initiation rates in the general population were investigated, and a project in Portugal aimed to increase treatment for prisoners through education. In Spain, a study implemented FibroScan® in harm reduction centers to enhance fibrosis assessment. In the Netherlands, regional retrieval of previously diagnosed patients identified HCV patients previously lost to follow-up, 59% of whom have since scheduled or initiated treatment.

Conclusions: A wide array of targeted micro-elimination projects are ongoing in many countries with heterogeneous challenges with no "one size fits all" approach. AbbVie is committed to fostering multistakeholder partnerships and sharing best practices that work towards achieving the WHO 2030 elimination goal.

62

COMPARATIVE ANALYSIS OF HEPATITIS B VIRUS SEROLOGIC PROFILES AND BIOCHEMICAL MARKERS WITH VIRAL LOADS IN ONDO, NIGERIA.

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Background: Conventional treatment criteria for hepatitis B Virus (HBV) are based on Levels of viral replication, degree of host response and extent of liver damage. Levels of viral replication has been determined using viral load, hepatitis B surface antigen (HBsAg) quantification, Hepatitis B e antigen (HBeAg) serum status; degree of host responses can be determined using liver biopsy and serum alanine aminotransferase (ALT); and extent of liver damage have been based on fibrosis staging by histopathology or liver stiffness measurement or serum bilirubin levels. Our aim is to determine HBV treatment penetration and levels of correlation of serological, biochemical and molecular parameters among HBsAg positive patients in order to evaluate individual relevance of these tests to disease management in an endemic population.

Material and Methods: In this retrospective study, data of patients with hepB infection from 2014 to 2019 were extracted from the database of laboratory and viral hepatitis clinics of University of Medical Sciences Teaching Hospital Complex, Ondo, Nigeria. Three series of HBV tests namely serological profiles (HBsAg, HBsAb, HBeAg, hepatitis B core antibody; HBcAb), antibody against HBeAg (HBeAb); biochemical markers (alanine transaminase; ALT); and HBV viral DNA loads were correlated. Data generated were analyzed using the SPSS software version 23.0

Results: Among a total of 630 patients that were HBsAg sero-positive 48 completed the three series of tests in order to commence treatment; giving a treatment penetration rate of 7.6%. Among these, 28 were males and 30 were females (1:1) with mean age of 34years. All had detectable viral load above 20 iu/mL. HBcAb was detected in 48 (100%). Among these, 26 (54.2%) had viral load below 2,000 while 45.8% had viral load exceeding 2,000 iu/mL. Among the 46 patients in which HBeAg was negative 56.5% (26/46) had viral load less than 2,000 iu/mL while 43.5% had viral load above 2,000 iu/mL. HBeAg was detected only in 2 (4.2%) of the subjects and the two were the only ones with HB viral load above 20,000 iu/mL. We found 38 patients (including those with HBeAg), positive for HBeAb; showing that HBeAb does not protect against aggressive viral replication. Among the 19 (39.6%) which had ALT values greater than 20iu/L, nine (47.4%) had viral load above 2,000 iu/mL, while among 29 (60.4%) with ALT below 20 iu/L, 13 (44.8%) had viral load greater than 2,000iu/L. The above showed no strong correlation between ALT, HBeAg and viral load among patients in the study population.

Conclusion: Wide gaps exist between HBsAg sero-positivity and capability for treatment penetration in our environment. Neither serology, ALT nor viral loads can single handedly predict needs for patients' treatment. The presence of HBeAb was not protective against HBeAg. The need for special national hepatitis programs for adequate provision of treatment and follow-up services cannot be overemphasized.

63

Short Chain Fatty Acids Delay the Pathogenesis of Hepatitis B Virus-Associated Hepatocellular Carcinoma in an HBx transgenic mouse model

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Chronic infection with hepatitis B virus (HBV) is a major risk factor for the development of hepatocellular carcinoma (HCC). The HBV encoded oncoprotein, HBx, alters the expression of host genes and the activity of multiple signal transduction pathways. Short chain fatty acids (SCFAs) have strong anti-inflammatory and anti-neoplastic properties, suggesting that they may block the progression of chronic liver disease (CLD) to HCC.

This hypothesis was evaluated in HBx transgenic (HBxTg) mice fed SCFAs. Groups of HBxTg mice were fed with SCFAs or vehicle from 6-9 months of age and then assessed for dysplasia, and from 9-12 months of age and then assessed for HCC. Livers from 12 mo. old mice were then analyzed for changes in gene expression by mass spectrometry-based proteomics.

SCFA-fed mice had fewer dysplastic ($P < 0.01$) and HCC nodules ($P < 0.05$) compared to PBS fed controls at 9 and 12 months, respectively. Pathway analysis of SCFA-fed mice showed down-regulation of several signaling pathways altered by HBx in human CLD and HCC, including those involved in inflammation, PI3K, EGF, and Ras. SCFA treatment decreased activity of the Ras pathway, which is constitutively activated by HBx. Validation of selected proteins detected by proteomics was performed in all samples. In vitro work showed that SCFAs reduced cell viability in HBx-transfected cell lines in a dose-dependent manner while the viability of primary human hepatocytes was unaffected.

These results show for the first time that SCFAs may oppose some of the carcinogenic alterations mediated by HBx, thus indicating that SCFAs may delay the pathogenesis of HBV-associated HCC.

Author	Paper Title	Abst#	Page #
Abernathy, E.	Global elimination of hepatitis C: meeting the World Health Organization's 2030 goal	61	62
Ahmed, N.	Reduction of hepatitis c burden in Islamabad, Pakistan slums through CHW screen and treat programs	8	9
Antony, J.	Results from two phase-3 double-blind, randomized, controlled trials, PROTECT and CONSTANT, evaluating immunogenicity and safety of the 3-antigen hepatitis B vaccine, Sci-B-Vac®, compared to the single-antigen vaccine, Engerix ® in adults	51	53
Anutebeh, E.	Immune Response to Hepatitis B Vaccine Following Complete Immunization of Children Attending Two Regional Hospitals in the Southwest Region of Cameroon: A Cross Sectional Study	52	54
Aponte-Melendez, Y.	Collocating Hepatitis C Care at Syringe Exchange Programs: Hepatitis C treatment with Less Stigma.	21	25
Aslanikashvili, A.	The Effect of COVID-19 on the Hepatitis C Screening in Georgia	36	11
Ayana, D.	Occult Hepatitis B Virus Infection among HIV negative and positive isolated anti-HBc individuals in Eastern Ethiopia	3	4
Belopolskaia, M.	Expression of HBV-infection markers in placenta of women with chronic hepatitis B	12	16
Brachet, L.	Concordance between FibroScan® and Aspartate aminotransferase-to-Platelet Ratio Index (APRI) using different cut-off values in 301 Asian adults with chronic HCV with no or compensated cirrhosis in Thailand and Malaysia	31	34
de Ledinghen, V.	HCV elimination in France. The countdown has started	9	13
de Ledinghen, V.	Recall of HCV patients lost to follow-up. ReLinK study in two expert centres in France	23	27
Dolmazashvili, E.	SIMPLIFIED HCV TREATMENT MODEL IN PRIMARY HEALTHCARE IN THE COUNTRY OF GEORGIA	25	29
Eckhardt, B.	CO-LOCATED TREATMENT VERUS CO-LOCATED CARE COORDINATION TO ENGAGE PEOPLE WHO INJECT DRUGS IN HCV CARE AT A SYRINGE SERVICE PROGRAM: PRELIMINARY RESULTS FROM THE ACCESSIBLE CARE RANDOMIZED CLINICAL TRIAL	17	21
Eckhardt, B.	CONTACT TRACING TO ENGAGE HARD TO REACH INJECTION NETWORKS AND ACHIEVE MICRO-ELIMINATION: DESCRIPTION OF THE 'SOURCE PATIENT INDENTIFICATION AND GROUP OVERLAP TREATMENT' (SPIGOT) PILOT PROGRAM	59	60
Feitelson, M.	Short Chain Fatty Acids Delay the Pathogenesis of Hepatitis B Virus-Associated Hepatocellular Carcinoma in an HBx transgenic mouse model	63	64
Frazão de Aguiar, F.	Detection of Viral Hepatitis and Linking to the Health Care of Trans People - InCide Project Contributions	44	47
Fridriksdottir, R.	Models of Care: Strategies towards Elimination of Hepatitis C in Iceland	10	14
Fridriksdottir, R.	Sustained reduction in prevalence of Hepatitis C viremina in the prison setting after 3rd year of TraPHepC (Treatment as prevention for hepatitis C) program in Iceland	34	38
Gale, N.	A Model for Collaborative Care to Increase Testing and Treatment of HCV in a Shelter Population During COVID-19	30	10
Gasich, E.	Drug resistance of hepatitis C virus to NS5A protein inhibitors in Belarus	42	45
Howell, J.	Validation of a novel point-of-care ALT test to determine treatment eligibility in hepatitis B patients: a pilot cohort study	40	43
Ioudovski, P.	Missed Opportunities for HCV Elimination in Provincial Correctional Institutions in Ontario, Canada	7	8
Joël Brice, N.	Seroprevalence and associated risk factors for Hepatitis B virus infection among barbers and their clients in two cities of Cameroon	4	5
Johannessen, A.	The TREAT-B score predicts disease progression in Ethiopian patients with chronic hepatitis B	11	15
Kalu, S.	Seroprevalence of Hepatitis B and C Among HIV-infected Children and Adolescents Receiving Antiretroviral Therapy in Anambra State, Nigeria	43	46
Kamoni, R.	SUSTAINABILITY OF IMMUNE RESPONSE TO HEPATITIS B VIRUS VACCINATION THREE YEARS AFTER VACCINATION AMONG HIV-1 INFECTED AND UNINFECTED ADULTS IN KENYA	35	39
Lamiya, A.	VIRAL HEPATITIS B AND C SEROPREVALENCE AMONG AT RISK POPULATION IN TARABA STATE: A SEROPREVALENCE STUDY	58	59
Lazarus, J.	A novel hepatitis C intervention in Denmark to test and treat people who inject drugs	20	24
Macisaac, M.	A successful hepatitis C outreach service in a medically supervised injecting room: increased uptake of screening and high rates of treatment initiation	24	28
Macphail, G.	Results of A Hepatitis C (HCV) Re-Engagement Strategy For Vulnerable Populations	54	56
Markby, J.	Enabling HCV scale up through the introduction of a simplified testing approach in Delhi: The HEAD-Start project	14	18
Mateu-Gelabert, P.	Challenge and Opportunity for HCV Elimination among Young PWID in New York City: Relatively Low RNA seroconversion and genetically linked HCV infections	5	6
Mendizabal, M.	Re-linkage to care: a novel strategy to achieve hepatitis C elimination in a University Hospital	22	26
Mukherjee, S.	Cost Effectiveness of expanding treatment with Direct Acting Antiviral treatment to reduce Hepatitis C incidence among HIV infected MSM in Thailand	6	7
Odimayo, M.	COMPARATIVE ANALYSIS OF HEPATITIS B VIRUS SEROLOGIC PROFILES AND BIOCHEMICAL MARKERS WITH VIRAL LOADS IN ONDO, NIGERIA.	62	63
Olaniyan, M.	Expression of HBeAg, HBsAg, anti- HBe and anti-HCV in individuals with elevated IL-10	47	50
Oluremi, A.	HIGH SEROPREVALENCE OF VIRAL HEPATITIS AMONG ANIMAL HANDLERS IN ABEOKUTA, NIGERIA	45	48

Author	Paper Title	Abst#	Page #
Owusu-Ansah, T.	Prevalence of Hepatitis B among Prisoners at Winneba Male and Nsawam Female Prison in Ghana	48	51
Pham, T.	Hep Free 2030: Planning for Hepatitis Elimination in Hawai`i as Nimble, Collaborative Practice	56	57
Picchio, C.	Eliminating hepatitis B virus infection in west African migrants living in Barcelona: a community-based testing and vaccination model of care to link patients to liver specialists	13	17
Remy, A.	DEPIST'C PHARMA AN INNOVATIVE OUTREACH HCV SCREENING PROJECT IN PHARMACY FOR DRUGS USERS AND GENERAL POPULATION	33	37
Rodrigue, K.	SEROPREVALENCE OF HEPATITIS B SURFACE ANTIGEN (HBsAg) and HEPATITIS C ANTIBODIES (HCVAb) AMONG HEMODIALYSIS PATIENTS AT THE YAOUNDE GENERAL HOSPITAL, CAMEROON.	46	49
Rodrigue, K.	Evaluation of hepatitis B vaccine efficacy among healthcare worker at Laquintinie Hospital, Douala, Cameroon.	53	55
Rodriguez Lay, L.	Toward Hepatitis B and hepatitis D elimination in Cuba	1	2
Saing, C.	Risks factors associated with HIV and hepatitis C virus co-infection among people who inject drugs in Cambodia	29	33
Schmit, N.	Strategies for population-based screening and treatment of hepatitis B in sub-Saharan Africa: a mathematical modelling study in The Gambia	32	36
Schweitzer, A.	ACHIEVING SUSTAINED VIRAL RESPONSE (SVR) – IS IT A MOTIVATOR FOR LONGTERM POSITIVE LIFESTYLE CHANGES AMONG PEOPLE AFFECTED BY VHC?	18	22
Shiha, G.	A novel point -of- care test (POC) for diagnosis of hepatitis Core antigen	39	42
Smookler, D.	Reducing Read Time of Point of Care Test Preserves Detection of Hepatitis C Virus and Reduces Need for Reflex RNA	37	40
Soliman, R.	Changes in hepatic fibrosis stages after achieving SVR following direct acting antiviral treatment in children with chronic hepatitis C	15	19
Soliman, R.	External validation of GES score to predict HCC risk in patients with HCV associated significant hepatic fibrosis following DAAs in genotype 1 and 2 in Japan.	16	20
Soliman, R.	Ledipasvir 90 mg/ Sofosbuvir 400 mg for treatment of Chronic Hepatitis C genotype 4 adolescents: Towards elimination of hepatitis in children	57	58
Sølund, C.	Decentralized testing and treatment of hepatitis C in people who inject drugs– the Shared Addiction Care Copenhagen (SACC) project	19	23
Son, A.	Gilead Sciences' Commitment to Global Elimination of Hepatitis C Virus	60	61
Stainbrook, T.	A Novel Approach Continuum from Identification to Elimination in HCV-Infected Individuals on Opioid Substitution Therapy and High-Risk Populations	28	32
Tang, Y.	Hepatitis C Epidemic and Barriers to Testing among MSM with High Risk Behaviors in China: A GSN-delivered Cross-sectional Study	41	44
Tiwah John, O.	SEROPREVALENCE OF VIRAL HEPATITIS AMONG HEALTH CARE WORKERS (HCWs) IN TARABA STATE, NIGERIA	50	52
Tsertsvadze, T.	Progress towards achieving hepatitis C elimination in the country of Georgia, April 2015 – June 2020	27	31
Von Den Hoff, D.	Healthcare consumption in addicted versus non-addicted hepatitis B and C patients in the Netherlands	2	3
Yakoot, M.	Dual Sofosbuvir/Daclatasvir Therapy for Chronic Hepatitis C Infection: Lessons from Our Studies in Pediatric Age Groups	26	30
Yassin, M.	Frequency of Occult Hepatitis B Virus among blood Donors in Khartoum State, Sudan: a preliminary study.	38	41