Thank you for joining us for the 2017 International Conference on Viral Hepatitis (ICVH 2017).

We welcome you to a state-of-the-science forum at which we will examine sound and practical strategies to understand and enhance the clinical management of hepatitis B virus (HBV) and hepatitis C virus (HCV) infections.

There is clearly a need for this conference. We base this assertion on the rapid changes that are occurring in the science of viral hepatitis, and the multifaceted clinical and behavioral issues that hepatologists, gastroenterologists, and HIV-treating clinicians must understand in order to deliver quality HBV and HCV treatment.

This conference is an important forum to present the best evidence on HBV and HCV treatment, but the primary reason we come together is to rapidly translate these scientific advances into approaches that can make a difference in real-world settings, improving dramatically the quality of life of many persons.

We extend our gratitude to the conference’s Planning Committee, the International Association of Providers of AIDS Care (IAPAC), the Alliance to Eliminate HIV/HCV Coinfection (AEH2C), and Rush University Medical Center. We also express our appreciation to our commercial supporters for their financial contributions.

Finally, a special thank you to our distinguished faculty for what we are sure to be cutting-edge presentations to help advance our learning objectives.

Nancy Reau, MD
Co-Chair

Vicente Soriano, MD, PhD
Co-Chair

1. Associate Director of Solid Organ Transplantation, Rush University Medical Center, Chicago, IL, USA
2. Infectious Diseases Physician, Hospital Carlos III, Madrid, Spain
ACCREDITATION INFORMATION

The 2017 International Conference on Viral Hepatitis (ICVH 2017) is sponsored by the International Association of Providers of AIDS Care (IAPAC), in partnership with the Alliance to Eliminate HIV/HCV Coinfection (AEH2C) and Rush University Medical Center.

LEARNING OBJECTIVES
After completing this activity, participants will be able to:

• Describe strategies for viral hepatitis diagnosis and linkages to evidence-based care and treatment
• Define the characteristics and recommended use of approved agents for the management of viral hepatitis
• Identify treatment options for patients who present with viral hepatitis, including interventions to promote treatment success
• Discuss the management of complications due to viral hepatitis, its treatment, and/or comorbidities.

TARGET AUDIENCE
The target audience for ICVH 2017 includes liver specialists (gastroenterologists & hepatologists), non-liver specialists (ID-specialized & HIV physicians), nurses, and pharmacists.

ACCREDITATION STATEMENT
This activity is being presented without bias and with commercial support.

Rush University Medical Center is accredited by the American Nurses Credentialing Center (ANCC), the Accreditation Council for Pharmacy Education (ACPE), and the Accreditation Council for Continuing Medical Education (ACCME) to provide continuing education for the healthcare team.

CREDIT DESIGNATION STATEMENT
Rush University Medical Center designates this live activity for a maximum of 11.50 AMA PRA Category 1 Credit(s)™. Physicians should claim only credit commensurate with the extent of their participation in the activity.

ANCC Credit Designation – Nurses
The maximum number of hours awarded for this CE activity is 11.50 contact hours.

ACPE Credit Designation – Pharmacists
Rush University Medical Center designates this knowledge based CPE activity (0622-0000-17-003-L01-P) for 11.50 contact hours for pharmacists.

VERIFICATION OF ATTENDANCE
Please remember to sign-in on the sign-in sheet when you check in at the Registration Desk on the first day of the conference. You only need to sign-in once for the course, when you first check in.

CONTINUING EDUCATION CONTACT INFORMATION
For continuing education credit questions, please contact Jennifer Comerford at the Rush University Continuing Education Office at Jennifer_Comerford@rush.edu.
CO-CHAIR
Nancy Reau, MD
Rush University Medical Center
Chicago, IL, USA

CO-CHAIR
Vicente Soriano, MD, PhD
Hospital Carlos III
Madrid, Spain

Kosh Agarwal, MD
Kings College Hospital
London, England

Natasha Martin, DPhil
University of California
San Diego, CA, USA

Stacey Trooskin, MD
Philadelphia FIGHT
Health Centers
Philadelphia, PA, USA

Andrew Aronsohn, MD
University of Chicago
Chicago, IL, USA

Mark Nelson, MD
Chelsea & Westminster Hospital
London, England

John Ward, MD
Centers for Disease Control and Prevention
Atlanta, GA, USA

Sanjeev Arora, MD
University of New Mexico
Albuquerque, NM, USA

Robert Perrillo, MD
Baylor University Medical Center
Dallas, TX, USA

David Wyles, MD
University of California
San Diego, CA, USA

Edward Cachay, MD
University of California
San Diego, CA, USA

Fred Poordad, MD
University of Texas
San Antonio, TX, USA

Benjamin Young, MD, PhD
International Association of Providers of AIDS Care
Denver, CO, USA

Michael Charlton, MBBS
University of Chicago
Chicago, IL, USA

Massimo Puoti, MD
Neguarda Hospital
Milan, Italy

Philippe Easterbrook, MD, MPH
World Health Organization
Geneva, Switzerland

Kenneth Sherman, MD, PhD
University of Cincinnati
Cincinnati, OH, USA

Daniel S. Fierer, MD
Icahn School of Medicine at Mount Sinai
New York
Mount Sinai, NY, USA

Wendy Spearman, MBChB, MMEd, PhD
University of Cape Town
Cape Town, South Africa

Donald M. Jensen, MD
Rush University Medical Center
Chicago, IL, USA

Helen S. Te, MD
University of Chicago
Chicago, IL, USA
GENERAL INFORMATION

VENUE
The ICVH 2017 venue is Loyola University. On Monday, plenary sessions and panel discussions will take place in Kasbeer Hall on the 15th floor of the Corby Law Center at 25 East Pearson Street. On Tuesday, plenary sessions and panel discussions will take place in Regents Hall on the 16th floor of Lewis Towers at 111 East Pearson Street.

INTERNET ACCESS
Wireless Internet access is complimentary at Loyola University Chicago by selecting the following network: Loyola Guest.

SOCIAL MEDIA
Join the conference’s Twitter conversation: #ICVH2017. A live webcast of sessions in Kasbeer Hall and Regents Hall will stream on the International Association of Provider’s of AIDS Care Facebook page on Monday and Tuesday.

SLIDE PRESENTATIONS/ABSTRACTS
Slide presentations will be available at www.iapac.org post-conference. The Program and Abstracts book distributed at registration will also be available in electronic format post-conference at www.iapac.org.

ARCHIVED WEBCAST SESSIONS
Archived webcasts of sessions in Kasbeer Hall and Regents Hall will be available on the International Association of Providers of AIDS Care’s Facebook page immediately after the live conference.

QUESTIONS
If you have any questions during the conference, please locate an IAPAC staff member at the Registration Desk. If you have any questions post-conference, please contact Jonathon Hess, IAPAC’s Associate Director of Education, at jhess@iapac.org.

LOYOLA UNIVERSITY

A. Kasbeer Hall
Corby Law Center, 15th Floor
25 E. Pearson Street
(Monday’s Sessions)

B. Regents Hall
Lewis Towers, 16th Floor
111 E. Pearson Street
(Tuesday’s Sessions)

2 blocks to Warwick Hotel
701 N. Michigan Avenue
MONDAY, OCTOBER 9, 2017

OPENING REMARKS
9:00am-9:30am
Nancy Reau, MD
Rush University Medical Center
Chicago, IL, USA

Vicente Soriano, MD, PhD
Hospital Carlos III
Madrid, Spain

HBV AND HCV ELIMINATION

KEYNOTE ADDRESS: Actioning Sustainable Development Goal 3.3 - Thinking Globally, Acting Locally
9:30am-10:00am
Philippa Easterbrook, MD, MPH
World Health Organization
Geneva, Switzerland

PLENARY ADDRESS: HBV and HCV Elimination - The Importance of Modeling
10:00am-10:30am
Natasha Martin, DPhil
University of California
San Diego, CA, USA

HDV AND HEV CLINICAL MANAGEMENT

PLENARY ADDRESS: HDV and HIV Infection - Catalyzing Research around a “Neglected Disease”
10:30am-11:00am
Vicente Soriano, MD, PhD
Hospital Carlos III
Madrid, Spain

PLENARY ADDRESS: HEV Infection - What Is It? How Do You Find It? Is It Harmful?
11:00am-11:30am
Kenneth Sherman, MD, PhD
University of Cincinnati
Cincinnati, OH, USA

ORAL ABSTRACT SESSIONS
11:30am-12:30pm
LUNCH
12:30pm-1:30pm

HCV CLINICAL MANAGEMENT

PLENARY ADDRESS: Changes in HCV Screening to Identify People Missed by Birth Cohort
1:30pm-2:00pm
John Ward, MD
Centers for Disease Control and Prevention
Atlanta, GA, USA
MONDAY, OCTOBER 9, 2017 (Continued)

PLENARY ADDRESS: HCV Mechanisms of Sexual Transmission - What Do We Know?
2:00pm-2:30pm
Daniel S. Fierer, MD
Icahn School of Medicine at Mount Sinai
New York, NY, USA

CASE STUDIES: Acute HCV Treatment - Improving Symptoms, Preventing Transmission
2:30pm-3:00pm
Moderator
Mark Nelson, MD
Chelsea & Westminster Hospital
London, England

Panelists
Donald M. Jensen, MD
Rush University Medical Center
Chicago, IL, USA

Kenneth Sherman, MD, PhD
University of Cincinnati
Cincinnati, OH, USA

PLENARY ADDRESS: New HBV Therapeutic Perspectives and Options
3:00pm-3:30pm
Robert Perrillo, MD
Baylor University Medical Center
Dallas, TX, USA

PLENARY ADDRESS: HBV Reactivation - Who, When, and How?
3:30pm-4:00pm
Fred Poordad, MD
University of Texas
San Antonio, TX, USA

POSTER SESSION
4:00pm-5:00pm

ADJOURN
5:00pm
TUESDAY, OCTOBER 10, 2017

CONTROVERSIES IN THE DAA ERA

PANEL DISCUSSION: Beyond a Focus on Cure - Dissecting the Current HCV Standard of Care
9:00am-10:00am

Moderator
Nancy Reau, MD
Rush University Medical Center
Chicago, IL, USA

Panelists
Wendy Spearman, MBChB, MMEd, PhD
University of Cape Town
Cape Town, South Africa

Mark Nelson, MD
Chelsea & Westminster Hospital
London, England

PANEL DISCUSSION: Resistance to DAAs - Do We Need More HCV Treatment Options and/or Resistance Testing?
10:00am-11:00am

Moderator
David Wyles, MD
University of Colorado
Denver, CO, USA

Panelists
Andrew Aronsohn, MD
University of Chicago
Chicago, IL, USA

Massimo Puoti, MD
Neguarda Hospital
Milan, Italy

PLENARY ADDRESS: Myth Busters - Do DAAs Cause HCC? Reactivate HBV?
11:00am-11:30am

Massimo Puoti, MD
Neguarda Hospital
Milan, Italy

DEBATE SESSION: Does HCV Therapy with DAAs Prevent or Simply Delay Liver Transplants?
11:30am-Noon

Moderator
Vicente Soriano, MD, PhD
Hospital Carlos III
Madrid, Spain

Debaters
Michael Charlton, MBBS
University of Chicago
Chicago, IL, USA

Helen S. Te, MD
University of Chicago
Chicago, IL, USA

LUNCH
Noon-1:00pm

2017 International Conference on Viral Hepatitis
TUESDAY, OCTOBER 10, 2017 (Continued)

TREATING HCV OUTSIDE TRADITIONAL MODELS OF CARE

PLENARY ADDRESS: Project ECHO - Lessons Learned, Opportunities Seized, Challenges Overcome
1:00pm-1:30pm
Sanjeev Arora, MD
University of New Mexico
Albuquerque, NM, USA

PANEL DISCUSSION: Leaving No One Behind - Casting a Wider Net to Integrate HCV Care into Primary Care
1:30pm-2:30pm
Moderator
Wendy Spearman, MBChB, MMEd, PhD
University of Cape Town
South Africa

Panelists
Philippa Easterbrook, MD, MPH
World Health Organization
Geneva, Switzerland

Stacy Trooskin, MD
Philadelphia FIGHT Health Centers
Philadelphia, PA, USA

HIV/HBV AND HIV/HCV COINFECTION

PLENARY ADDRESS: NASH - The New Epidemic in HIV-Coinfected Patients?
2:30pm-3:00pm
Edward Cachay, MD
University of California
San Diego, CA, USA

PLENARY ADDRESS: TAF and HBV/HIV Coinfection - Who, When, and How?
3:00pm-3:30PM
Kosh Agarwal, MD
King’s College Hospital
London, England

PANEL DISCUSSION: HCV Coinfection in HIV-Positive MSM - Can We Eliminate HCV without a Focus on this Key Population?
3:30pm-4:30pm
Moderator
David Wyles, MD
University of Colorado
Denver, CO, USA

Panelists
Daniel S. Fierer, MD
Icahn School of Medicine at Mount Sinai
New York, NY, USA

Vicente Soriano, MD, PhD
Hospital Carlos III
Madrid, Spain

ADJOURN
4:30pm
<table>
<thead>
<tr>
<th>Oral Abstract Session 1</th>
<th>Oral Abstract Session 2</th>
<th>Oral Abstract Session 3</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>HCV/HIV Co-infection</strong></td>
<td><strong>HCV Screening/Testing</strong></td>
<td><strong>Multi-Thematic</strong></td>
</tr>
<tr>
<td>Kasbeer Hall</td>
<td>Corboy Law Center 207</td>
<td>Corboy Law Center 209</td>
</tr>
<tr>
<td>Moderator: Vicente Soriano, MD, PhD</td>
<td>Moderator: Nancy Reau, MD</td>
<td>Moderator: Benjamin Young, MD, PhD</td>
</tr>
<tr>
<td>6 Integrating HCV Screening into Community-Based HIV Prevention Programs</td>
<td>17 Maximizing Service Delivery in Public Health: Integration of Hepatitis C Testing and Linkage to Care for At-Risk Populations</td>
<td>10 Evaluation of Sustained Virologic Response Rates after Hepatitis C Virus Treatment in Patients with a History of Hepatocellular Carcinoma</td>
</tr>
<tr>
<td>Joseph Olsen presenting</td>
<td>Arlene C. Sena presenting</td>
<td>Michelle Martin presenting</td>
</tr>
<tr>
<td>18 High Cure Rates and Stable Renal Function during Directly Acting Antiviral Therapy in a Complex HIV/HCV Co-Infected Population.</td>
<td>23 Impact of an Electronic Medical Record (EMR) Prompt to Increase HCV Screening within a Large Urban Health System</td>
<td>14 Effectiveness of Direct-Acting Antivirals in Liver Transplant Recipients with Hepatitis C Virus at an Academic Medical Center: A Single-Center Retrospective Review</td>
</tr>
<tr>
<td>Kathryn Childs presenting</td>
<td>Hilary Armstrong presenting</td>
<td>Michelle Martin presenting</td>
</tr>
<tr>
<td>19 Factors Associated with Mortality Risk among HCV/HIV Co-Infected Individuals in Chicago, 2015</td>
<td>30 Exploring Barriers to HCV Treatment Initiation at an Urban Academic Hospital</td>
<td>20 Estimated Hepatitis C Prevalence and Key Population Sizes in San Francisco: A Foundation for Elimination</td>
</tr>
<tr>
<td>Alexandra Gagner presenting</td>
<td>Anjana Maheswaran presenting</td>
<td>Shelley Facente presenting</td>
</tr>
<tr>
<td>21 Continua of Care for Individuals Co-Infected with HIV-Hepatitis C, New York City, 2015</td>
<td>32 Killing Two Birds with One Stone: Using the Electronic Medical Record to Scale-Up Testing for HIV and Hepatitis C Virus in an Appalachian Setting</td>
<td>29 Modeling the Hepatitis C Care Continuum at a Large Urban Health System</td>
</tr>
<tr>
<td>Miranda Moore presenting</td>
<td>Melinda Sharon presenting</td>
<td>Hilary Armstrong presenting</td>
</tr>
<tr>
<td>22 Toward Hepatitis C Elimination in an HIV-Positive Cohort: Data from the HIV Atlanta VA Cohort Study</td>
<td>35 Hepatitis C Point-of-Care Testing in a Broad Community-Based Program in Alabama</td>
<td>31 Preliminary Results for Comprehensive, Team-Based Case Management Model for HCV Linkage-to-Care</td>
</tr>
<tr>
<td>Emily Cartwright presenting</td>
<td>Ricardo Franco presenting</td>
<td>Jessica Schmitt presenting</td>
</tr>
</tbody>
</table>
Integrating HCV Screening into Community-Based HIV Prevention Programs

Nicole Hubschman, Morgan Culver, Joseph Olsen (presenting)
NO/AIDS Task Force d.b.a. CrescentCare, New Orleans, LA, USA

Background: Each year over 19,000 Americans die from HCV, more than all other notifiable infectious diseases combined. Up to half of people infected with HCV do not know their status. Of those who have been diagnosed with chronic HCV infection, only 32-38% have been linked to care. Project IMPACT, a community-based HIV and HCV screening program, serves to raise awareness of HCV in high-risk communities, provide HCV screening to at-risk individuals, and connect HCV Ab+ clients to RNA confirmatory testing and care.

Methodology: Project IMPACT offers rapid HCV Ab screening and counseling at sites including a municipal courthouse, syringe access program, methadone clinic, and several pharmacies. Those who test reactive are referred to a navigation specialist who connects them to RNA testing and appointments.

Results: Project IMPACT performed 514 HCV tests in 2016, 151 (29%) of which were Ab+. The Ab+ rates ranged from 20% at sites testing the general population to 61% at sites tailored to reach PWID. Of the 58 Ab+ clients receiving RNA tests, 40 (68%) were positive. Of those 40, 28 (70%) were linked to care. Bringing HCV screening to at-risk populations identifies cases among people who do not access preventive screenings in clinical settings. Linkage to care has proven to be immensely challenging: the same barriers that result in these clients not accessing clinic-based screening obstruct access to clinical care.

Conclusion: HCV screening can be viably integrated with existing HIV testing programs, but requires a separate, appropriate care continuum for patient navigation. Linking people with HCV to care may be most successful when focused on improving access to social programs that accommodate barriers specific to high-risk communities. With access to services including transportation and housing, HCV patients have better opportunities to access care. Access to patient assistance programs and insurance assistance are crucial to addressing medication and care costs.

Evaluation of Sustained Virologic Response Rates after Hepatitis C Virus Treatment in Patients with a History of Hepatocellular Carcinoma

Michelle Martin (presenting), Taylor McDonald, Krystian Wojdyla, Todd Lee, Sean Koppe
1. University of Illinois Hospital and Health Sciences System, Chicago, IL, USA
2. University of Illinois at Chicago College of Pharmacy, Chicago, IL, USA

Background: Patients with a history of hepatocellular carcinoma (HCC) often are cirrhotic or post-liver transplantation. These patients can have lower sustained virologic response (SVR) rates compared to other populations after hepatitis C virus (HCV) treatment with direct-acting antivirals.

Methods: A retrospective study was conducted on HCC patients who had SVR data available after starting HCV treatment at an urban academic medical center 1/1/2014-12/1/2016. Data extracted from medical records included demographics, comorbidities, treatment, and labs. The SVR rates were compared across groups using chi-square or Fisher’s exact test.

Results: Of the 47 patients with HCC, SVR data were available for 44. They were 75% male, 45% black, had a mean age of 63 (±8.4) years, and BMI of 28.4 kg/m²; 91% had genotype 1, 82% were cirrhotic, 59% treatment-naive, 27% post-transplant, 45% had diabetes, and 23% had psychiatric illness. Seventy-six percent (13/17) of patients who received ribavirin experienced anemia; management included a ribavirin dose interruption, epoetin administration, blood transfusion, and ribavirin dose reduction; 6% (1/17) for each method. The overall SVR rate was 75% (33/44) for all regimens; 71% (5/7) for sofosbuvir+ribavirin, 100% (1/1) for pegylated interferon+sofosbuvir+ribavirin, 50% (6/12) for simeprevir+sofosbuvir+ribavirin, and 87.5% (21/24) for regimens approved after 2013: 91% (20/22) for ledipasvir/sofosbuvir+ribavirin, and 100% (1/1) for elbasvir/graoprevir. SVR rates did not differ by gender, age, ethnicity, BMI, genotype, treatment history, transplant cirrhosis, diabetes, psychiatric history (p>0.05). SVR rates differed by adherence (p=0.039); 1 patient missed 1-4 doses, 1 missed 5-9, 1 missed 10-14, and 2 missed 20+ doses of HCV medication.

Conclusions: HCC patients had a lower overall SVR rate than current treatment standards, similar to other recent reports; however, SVR rates in HCC patients were higher with use of regimens approved after 2013. These results support earlier treatment to improve SVR and prevent disease progression and HCC development.
14 Effectiveness of Direct-Acting Antivirals in Liver Transplant Recipients with Hepatitis C Virus at an Academic Medical Center: A Single-Center Retrospective Review

Wadih Chara1, Darby Rosenfeld2, Yu-Han Chen1, Todd Lee1, Michelle Martin (presenting)1

1. University of Illinois Hospital and Health Sciences System, Chicago, IL, USA
2. University of Illinois at Chicago College of Pharmacy, Chicago, IL, USA

Background: Sustained virologic response (SVR) rates in liver transplant recipients (LTRs) have been assessed with limited hepatitis C virus (HCV) treatment regimens in clinical trials. Real-world data provides information on the effectiveness of other regimens in LTRs.

Methods: Authors performed a retrospective review of the electronic medical records of LTRs who had SVR data available after starting HCV treatment at an academic medical center from 1/1/2014-12/1/2016. Data collection included demographics, comorbidities, treatment, and labs. The SVR rates were compared across groups using chi-square or Fisher’s exact test.

Results: Of the 73 LTRs treated for HCV, 65 had SVR data available. Patients had a mean age of 60.2 (±6.8) years and BMI of 28.1 (±5.8) kg/m²; 75% were male, 34% black, 45% had diabetes, 17% hepatocellular carcinoma (HCC), 11% were on dialysis, 89% had genotype (GT) 1, 43% were cirrhotic, and 52% treatment-naïve. Eleven percent had received a liver+kidney transplant, 89% only liver; 20% were treated < 1 year after transplant, 29% were treated 10+ years later; 80% of patients were taking tacrolimus, and 35% required dose changes in immunosuppression levels. The overall SVR rate was 88%. Among GT1 patients, SVR rates were 73% (8/11) for sofosbuvir+ribavirin, 94% (16/17) for simeprevir+sofosbuvir, 92% (22/24) for ledipasvir/sofosbuvir+ribavirin, and 100% (6/6) for elbasvir/grazoprevir+ribavirin. The SVR rate was 92% (49/53) in the 82% of patients who reported full adherence; others had lower SVR rates (p=0.02). SVR rates did not differ by GT, regimen, treatment history, cirrhosis, ethnicity, gender, BMI, age, HCC, or diabetes (p>0.05).

Conclusion: Dual direct-acting regimens were highly effective in treating HCV in LTRs. Elbasvir/grazoprevir is not recommended for LTRs in current HCV guidance, yet all patients treated with this regimen achieved SVR. Comparison across groups was limited by small numbers, but SVR did not differ by treatment or demographics; only adherence impacted SVR. Immunosuppression levels should be monitored closely with HCV treatment.

17 Maximizing Service Delivery in Public Health: Integration of Hepatitis C Testing and Linkage to Care for At-Risk Populations

Arlene C. Sena (presenting), Candice Givens, Gwen McKnight, Joseph Thayer, Alison Hilton

University of North Carolina at Chapel Hill, NC, USA

Background: Persons seeking services through publicly funded programs may be at-risk for hepatitis C virus (HCV) infections, and could benefit from HCV screening and linkage to care assistance. We developed an HCV screening program at a public health facility, and assessed the proportion identified with chronic HCV infection and linked to care through an HCV “bridge counselor.”

Methods: A hepatitis C screening program was implemented at a public health facility located at Durham, North Carolina. Targeted screening for HCV by birth cohort and risk factors was offered in clinical areas, the detention center, community outreach locations, and the social services lobby. HCV antibody (Ab) and reflex RNA testing was conducted for Ab+ results. A bridge counselor initiated contact with HCV-infected persons, and assisted with transportation, health insurance and appointments with healthcare providers.

Results: From March 2016 to April 2017 (12 months), there were 4,558 persons screened for HCV, of which 228 (5.0%) were HCV Ab+ and RNA+. The highest prevalence of chronic HCV infection was identified in the county detention population (96/1246; 7.7%), and the lowest from the maternal health clinic population (2/493; 0.4%). Of all persons identified with chronic HCV infection, 130/228 (57%) were linked to HCV services, of which 35% were linked to a specialist, 28% to primary care, and 16% to a specialist at the state prison (for inmates transferred from the detention center). The detention center population had the highest proportion of persons identified with HCV who were lost-to-follow-up after release.

Conclusions: HCV testing can be integrated with publicly funded programs including social services to reach at-risk individuals, and identified a 5% prevalence of chronic HCV infection. HCV bridge counseling services facilitated linkage of over half of persons identified with chronic HCV infection, but additional strategies are needed to improve services for incarcerated persons upon release.
High Cure Rates and Stable Renal Function during Directly Acting Antiviral Therapy in a Complex HIV/HCV-Coinfected Population

Kathryn Childs (presenting), Ivana Carey, Sara Sawieres, Mary Cannon, Sarah Montague, Kosh Agarwal, Chris Taylor

Institute of Liver Studies, Kings College Hospital, London, England

Background: Trials of DAAs in HIV/HCV coinfection show high SVR rates. We evaluated real life outcomes in a complex cohort. EASL guidelines advise caution when using tenofovir/boosted protease inhibitor (PI) in ART. We investigated renal function before, during and after treatment with DAAs.

Methods: Demographic and lab data were gathered on patients with HIV/HCV undergoing treatment at a single London centre from August 2015-May 2017. A subset had cystatin C, a glomerular filtration marker, measured by ELISA at baseline, treatment week 4 (TW4), end of treatment (EOT) and SVR 12. Non-parametric variables are expressed as median (IQR), parametric are expressed as mean (sd).

Results: 78 patients commenced treatment. 31 were cirrhotic, 47 non-cirrhotic. 6 were post liver-transplant. Demographics and regimens are shown in table. 62 patients have reached the SVR 12 timepoint, 59/62 (95%) achieved SVR 12. One patient relapsed between SVR 12 and SVR 24. ART regimes were: 23 no TDF, 41 patients on TDF, 14 TDF/boosted PI of whom 10/14 received SOF/LDP. Mean pre-treatment creatinine was 87.5umol/L (31), creatinine at SVR 12 was 85umol/L (30). Pre-treatment eGFR was 78 (15)ml/min, at SVR 12 was 80 (14)ml/min (p=0.07) There was no significant change in eGFR at treatment week 4 or 12 and no change in cystatin C from baseline; 2031 (562)IU to SVR12; 1982 (545) IU or at any point on treatment. This remained true when analysis was restricted to those on TDF based ART only. The 4 treatment failures were not cirrhotic and attributed to poor adherence in 2 cases, unusual genotype 1 subtype in 1 case and mixed genotype infection in 1 case.

Conclusion: In this complex group with well optimised HIV/HCV coinfection, including cirrhotic and post-transplant, SVR rates were high. There was no evidence of renal impairment during treatment with DAAs, including those taking TDF/boosted PI.
Factors Associated with Mortality Risk among HCV/HIV Coinfected Individuals in Chicago, 2015

Alexandra Gagner (presenting), Sarah Kemble, Stephanie Black, Peter Ruestow
Chicago Department of Public Health, Chicago, IL, USA

Background: Hepatitis C Virus (HCV) and Human Immunodeficiency Virus (HIV) coinfection is associated with higher morbidity and mortality than either infection alone. In this analysis, we identify and describe risk factors for mortality among the coinfected.

Methods: Chicago HCV cases reported in the Illinois National Electronic Disease Surveillance System (i-NEDSS) since 2007 and HIV cases reported in the Enhanced HIV/AIDS reporting system (eHARS) since 1983 were included in the analysis. To identify coinfected individuals, HCV and HIV cases were matched using composite keys based on name and date of birth. Data were then limited to matched records with diagnoses made prior to 2016. Odds ratios (OR) and 95% confidence intervals (CI) were calculated to assess the independent associations between vital status and potential risk factors collected in eHARS (race/ethnicity, sex and transmission risk), adjusted for age, using multivariable logistic regression analysis.

Results: Through the match, 2,513 individuals were identified as having both an HCV and HIV diagnosis prior to 2016, representing 9% of all of those diagnosed with HCV. Thirty-two percent of the coinfected were known to be deceased. Mortality was positively associated with NH Black race (OR: 1.66, CI: 1.24-2.14) and IDU (OR: 2.14, CI: 1.48-3.08) and negatively associated with self-identification as men who have sex with men (MSM) (OR: 0.63, CI: 0.40-0.98) after adjustment for all other factors.

Conclusions: Additional work is needed to address HCV/HIV mortality disparities among NH Black and IDU populations in Chicago. By identifying coinfected individuals at greater risk for mortality, efforts can focus on linkage to care and disease management. Additionally, identifying reasons for lower mortality among MSM may guide the development of interventions for other at-risk groups.

Estimated Hepatitis C Prevalence and Key Population Sizes in San Francisco: A Foundation for Elimination

Shelley Facente (presenting)1, Eduard Grebe2, Katie Burk3, Meghan Morris4, Edward Murphy5, Ali Mirzazadeh4, Aaron Smith1, Melissa Sanchez1, Jennifer Evans4, Amy Nishimura3, Henry Fisher Raymond1
1. Facente Consulting, San Francisco, CA, USA
2. South African Centre for Epidemiological Modelling and Analysis, Stellenbosch, South Africa
3. San Francisco Department of Public Health, San Francisco, CA, USA
4. University of California, San Francisco, CA, USA
5. Blood Systems Research Institute, San Francisco, CA, USA

Background: Initiated in 2016, End Hep C SF is a comprehensive initiative to eliminate hepatitis C (HCV) infection in San Francisco. The introduction of direct-acting antivirals to treat and cure HCV provides an opportunity for elimination, when treatment is available in coordination with other prevention and screening interventions. To properly measure progress toward elimination, an estimate of baseline HCV prevalence, and of the number of people in various subpopulations with active HCV infection, is required.

Methods: Our analysis was designed to triangulate multiple relevant data sources, including surveillance case registries, medical records, observational studies, and published literature from 2010 through 2017. Data were used to estimate population size and HCV prevalence (proportion seropositive and with viremic HCV infections) for the San Francisco population as a whole, as well as subpopulations based on sex, age and/or HCV risk group. When multiple sources of data were available for subpopulation estimates, we calculated a weighted average using inverse variance weighting. Credible ranges (CRs) were derived from 95% confidence intervals of population size and prevalence estimates.

Results: We estimate that 21,758 residents of San Francisco are HCV seropositive (CR: 10,274 – 42,067), representing an overall seroprevalence of 2.5% (CR: 1.2% - 4.9%). Of these, 16,408 are estimated to be viremic (CR: 6,505 – 20,046), though this estimate includes treated cases; up to 11,778 of these (CR: 1,006 - 35,496) are people who are untreated and infectious. People who inject drugs represent 67.9% of viremic HCV infections.

Conclusions: We estimated approximately 7,400 (51%) more HCV seropositive cases than are included in San Francisco’s HCV surveillance case registry. Our estimate provides a useful baseline against which End Hep C SF’s progress toward HCV elimination can be measured.
Continua of Care for Individuals Coinfected with HIV-Hepatitis C, New York City, 2015

Miranda Moore (presenting), Angelica Bocour, Katherine Penrose, Sarah Braunstein, Nirah Johnson, Amber Casey, Ann Winters

NYC Department of Health and Mental Hygiene, New York, NY, USA

Background: Hepatitis C (HCV)-HIV coinfection is a substantial public health problem, as HIV infection increases the speed of HCV disease progression and the risk of liver-related complications. However, coinfected individuals can be successfully treated for HCV, and few insurance-related HCV treatment restrictions now exist in New York State for those with HIV. We assessed recent evidence of medical engagement and treatment for HCV and HIV among coinfected individuals reported to the New York City Department of Health and Mental Hygiene (DOHMH).

Methods: Individuals ever diagnosed with HIV-HCV coinfection as of December 31, 2015 were identified through matching of the DOHMH HIV and HCV surveillance databases. To restrict to patients still residing in NYC, only patients with an HIV or HCV test during 2014–2015 were included in analysis. Laboratory test data reported to DOHMH were used to create HIV and HCV care continua.

Results: Of 150,759 HCV cases (antibody and/or RNA positive) and 121,531 HIV cases, 11,461 were coinfected and had an HIV or HCV test reported during 2014–2015. Of these, 81% ever had a positive HCV RNA result, 59% ever had an HCV genotype test, and 28% initiated treatment for HCV and 14% were cured (based on DOHMH surveillance algorithm estimates) by the end of 2015. In comparison, 92% were in HIV-related care (≥1 CD4 or viral load test), 87% were on treatment for HIV (based on Medical Monitoring Project estimates), and 75% were virally suppressed (viral load ≤200 copies/mL) in 2015.

Conclusions: There are large disparities in measures of care for HCV and HIV among coinfected individuals in NYC. As the majority of coinfected individuals are engaged in HIV-related care, it is crucial to work within these existing care networks to increase the capacity of healthcare providers to provide HCV care and treatment for HIV-positive patients.

Toward Hepatitis C Elimination in an HIV Positive Cohort: Data from the HIV Atlanta VA Cohort Study

Emily Cartwright (presenting), Kathryn DeSilva, Jodie L. Guest

1. Emory University School of Medicine, Atlanta, GA, USA
2. Atlanta VA Medical Center, Atlanta, GA, USA
3. Rollins School of Public Health, Emory University, Atlanta, GA, USA

Background: Safe and effective direct-acting antivirals (DAA) for the treatment of chronic hepatitis C virus (HCV) infection are now widely available in the VA healthcare system. Using a systematic effort, we attempted to identify, evaluate, and treat all HIV/HCV-coinfected persons in care at the Atlanta VA.

Methods: HIV/HCV-coinfected persons were identified using the HIV and HCV VA Clinical Case Registries. Each electronic medical record was reviewed by an infectious disease-trained clinical pharmacist for validation. HIV clinic providers alerted a designated HCV Infectious Disease physician to an HIV/HCV co-infected person. Additionally, the HCV clinical team educated HIV clinic staff and provided direct patient outreach. Data were updated on 17 May 2017 and descriptive statistics were employed.

Results: After validation, 149 HIV positive persons with active HCV viremia were identified; 11 died during the study period. Of the remaining 138 HIV/HCV persons, 108 (78%) have been evaluated for HCV infection. After evaluation, most (n=91) initiated HCV treatment. Of the 87 persons treated at the Atlanta VA, 17 are currently on treatment, 9 have completed treatment and await post-treatment laboratory testing, 2 had an adverse drug effect and discontinued therapy, 2 were non-adherent and did not follow up during treatment, and 5 had virologic relapse. Fifty-two persons have achieved a sustained virologic response (SVR) at least 12 weeks post-treatment (SVR 12: 91%, per-protocol). Of the 31 persons not yet engaged in HCV care, 16 have well-controlled HIV.

Conclusion: With safe, effective, and widely available HCV DAA therapy in the VA healthcare system, HCV elimination is attainable among HIV/HCV-coinfected persons. A concerted, systematic effort from the HCV clinical team will be needed to engage and cure the remaining HCV-infected HIV-positive persons.
23 Impact of an Electronic Medical Record (EMR) Prompt to Increase HCV Screening within a Large Urban Health System

Oluwatoyin (Toyin) Adeyemi, Hilary Armstrong (presenting), Marisol Gonzalez-Drigo, Daniel Taussig, Gregory Norels
Ruth M. Rothstein CORE Center, Chicago, IL, USA

Background: An estimated 3-4 million Americans are living with HCV infection and more than half of these individuals are unaware of their HCV status. To increase awareness of HCV infection, the CDC and USPSTF recommend one-time screening for HCV infection to adults born between 1945 and 1965 (Baby Boomers). Cook County Health & Hospital System (CCHHS) provides primary medical care at 13 Ambulatory Community Health Network (ACHN) sites located across Cook County. These ACHN sites serve more than 200,000 patients annually, 45% of whom are Baby Boomer patients.

Methods: In September 2016, CCHHS ACHN sites implemented an automated electronic medical record (EMR) pop up reminder for patients (1) born between 1945 and 1965, (2) receiving blood labs, with (3) no documented HCV status. After implementation, CORE staff conducted system-wide provider trainings to increase awareness of HCV screening and linkage to care among providers and support staff and distributed educational materials for patients eligible for HCV screening. Training efforts included posting signage about screening algorithms and linkage to care procedures.

Results: Baseline data from January 2016 through August 2016 indicated that only 3.49% of Baby Boomer patients completed HCV antibody screening, yielding 181 HCV antibody reactive test results (8.21% reactivity). Post-implementation data from October 2016 through May 2017 indicated that 24.87% of Baby Boomer patients completed HCV antibody screening, yielding 454 HCV antibody reactive tests (4.37% reactivity). Comprehensive trainings with providers and staff and signage detailing follow up procedures facilitated timely linkage to additional testing, liver staging, and treatment assessment.

Conclusions: Automated HCV EMR pop ups effectively increase HCV screening among Baby Boomer patients. This EMR prompt can lead to early diagnosis and treatment of HCV with improved health outcomes for patients. Ongoing provider trainings, quality improvement activities and data feedback cycles are needed to ensure continued adherence to screening guidelines.

29 Modeling the Hepatitis C Care Continuum at a Large Urban Health System

Oluwatoyin Adeyemi, Hilary Armstrong (presenting), Marisol Gonzalez-Drigo, Daniel Taussig, Gregory Norels
Ruth M. Rothstein CORE Center, Chicago, IL, USA

Background: The HIV care continuum is a useful framework for modeling various stages of disease identification, assessment and treatment. This framework can also be applied to patients navigating HCV diagnosis, staging, and treatment and can inform interventions to improve HCV care outcomes. Cook County Health & Hospital System (CCHHS) provides comprehensive HIV/HCV care for patients at each stage of the care continuum from diagnosis to cure.

Methods: The HCV Care Continuum consists of seven stages: (1) HCV antibody screening, (2) RNA confirmatory testing, (3) HCV RNA detectable result, (4) liver staging, (5) linkage to medical provider, (6) treatment completion, and (7) sustained virological response (SVR). Similar to the HIV care continuum, the proportion of HCV patients decreases at each successive step of the cascade. These successive decreases can be attributed to policy, institutional, provider, and patient-level barriers. The following data illustrates patient outcomes from the 8-month period directly following implementation of a system-wide HCV EMR pop up for Baby Boomer patients.

Results: From November 1, 2016 through June 31, 2017, 188 of 3,382 (6%) of HCV antibody tests were reactive. Of these 188 patients, 134 (71%) patients completed RNA confirmatory testing, of which 78 (58%) had detectable HCV RNA. Of 78 patients with detectable HCV RNA, 40 (51%) completed a Fibroscan assessment. Of 40 patients who completed Fibroscans, 36 (90%) attended a medical appointment for treatment assessment. Of these 40 patients, 9 (23%) patients initiated treatment and 4 (44%) have completed treatment.

Conclusions: The HCV Care Continuum effectively illustrates the various stages at which patients experience barriers to accessing HCV medical care. Efforts to improve outcomes across the care continuum must be multi-faceted and address policy barriers (i.e., insurance coverage), institutional barriers (i.e., HCV RNA reflex testing), provider barriers (i.e., EMR prompts) and patient-level barriers (i.e., referrals for support services).
**30 Exploring Barriers to HCV Treatment Initiation at an Urban Academic Hospital**

Anjana Maheswaran (*presenting*), Neharika Akkoor, Cammeo Mauntel-Medici, Sara Baghikar, Michelle Martin, Janet Lin
University of Illinois at Chicago, IL, USA

**Background:** About 3.5 million Americans have hepatitis C virus (HCV). Disease progression can cause cirrhosis, hepato-cellular carcinoma, and necessitate liver transplantation. Oral direct-acting antivirals offer high cure rates and decrease morbidity and mortality. However, gaps exist in the HCV care continuum. Few patients diagnosed with HCV initiate treatment. The objective of this study is to investigate factors that impact treatment initiation among HCV infected patients.

**Methods:** This retrospective study includes patients >18 years who tested positive for HCV RNA between 08/01/2015-10/24/2016 in an urban, academic hospital. Outcome data on treatment initiation was collected until 04/24/2017. Data was extracted from electronic medical records. Multivariable logistic regression was performed to explore the association between age, race, sex, insurance, history of mental illness (including psychoses, bipolar disorder, depression, anxiety disorders, and trauma-related disorders), drug dependency and treatment initiation.

**Results:** A total of 701 HCV infected patients were analyzed. Mean age was 59 years (±9 yrs) and 65% were male. 422 (60%) were African-Americans, 111 (16%) Caucasians, 82 (12%) Hispanics, 14 (2%) other, and 72 (10%) had missing data for race/ethnicity. Of 701 patients, 459 (65%) completed fibrosis staging and 294 (42%) initiated treatment. Patients with Medicaid were 59% less likely (p-value < 0.0001) and privately insured patients were 40% less likely (p-value=0.04) to initiate treatment compared to those with Medicare. Patients with drug dependency were 53% less likely (p-value < 0.0001) and patients with mental illness were 23% less likely (p-value=0.2) to initiate treatment compared to patients without these conditions.

**Conclusion:** Results demonstrate disparities in accessing HCV treatment which may be influenced by insurance status, mental health illness and drug use. Assessment of barriers to HCV treatment initiation can help health systems take targeted action to reduce disparities in HCV care.

**31 Preliminary Results for Comprehensive, Team-Based Case Management Model for HCV Linkage to Care**

Ellen Almirol¹, Madison Stamos¹, Lindsey Wesley-Madgett¹, Jasmine Smith², Maggie Kaufmann², David Pitrak¹, Mai Pho¹, Jessica Schmitt (*presenting*)¹
1. University of Chicago, IL, USA
2. University of Illinois at Chicago, IL, USA

**Background:** Despite increasing HCV diagnoses through an expanded screening program, gaps in linkage to care (LTC) and treatment have remained challenging at a large academic medical hospital.

**Methods:** We developed a comprehensive, team-based case management model (CMM) that provided near real-time intensive LTC for HCV since January 2017. CMM activities included weekly chart reviews of HCV Ab patients, follow-up confirmatory testing, scheduling for staging, and referral and linkage to HCV providers for both in- and out-of-network patients. Linkage was defined as attendance to an outpatient visit, with a provider who can treat HCV. Screening and linkage rates were summarized over time. Chi-square and t-tests were used to compare LTC outcomes by pre-CMM and CMM, in-network and out-of-network, groups.

**Results:** From 2014 to July 2017, 24,187 HCV tests were performed, 1,089 were HCV Ab positive (4.5%). HCV RNA testing was conducted on 88.7% Ab positive patients and 64.2% (n=620) were confirmed chronic HCV infection. Of those HCV confirmed, 40.2% were ineligible for LTC (death/terminally ill, moved or already in care). Of the remaining eligible cases, 211/371 (56.9%) were linked to care (mean days 104.9 ± 147.6). Though linkage pre-CMM was 174/194 (89.6%) compared to CMM at 37/177 (20.9%) (p < 0.001), the average number of days from testing to LTC was significantly reduced in CMM both in-network (mean days 55.4 ± 49.9) and out-of-network patients (mean days 53.3 ± 27.9) compared to pre-CMM (mean days 115.5 ± 159.1) (p < 0.001).

**Conclusion:** Data demonstrate challenges with retroactive LTC for patients compared to more real-time linkage efforts. Though overall linkage rates were low among those in post-CMM compared to pre-CMM, implementation of an intensive linkage coordination reduced time from screening to linkage. Further evaluation of the impact of HCV care continuum is ongoing to observe accurately the efficacy of an active CMM on HCV linkage.
**Killing Two Birds with One Stone: Using the Electronic Medical Record to Scale-Up Testing for HIV and Hepatitis C Virus in an Appalachian Setting**

Carmen Burrell, Judith Feinberg, Julia Nist, Melinda Sharon (presenting), Owen Lander, Valerie Boley, Stephen Davis, Justin Burns, Ian Martin

West Virginia University, Department of Emergency Medicine, Morgantown, WV, USA

**Introduction:** The recent opioid epidemic in the rural Appalachian region of the United States has led to a surge in incident cases of hepatitis C virus (HCV) infection, increasing concern for a potential human immunodeficiency virus (HIV) epidemic.

**Description:** Currently, HIV and HCV testing in an Emergency Department (ED) setting is largely driven by individual clinician judgement, likely contributing to many missed and undiagnosed cases. The primary objective of this study was to test the ability of the electronic medical record (EMR) to identify patients where HIV and HCV testing is indicated in an ED and two urgent care centers located in Appalachia. A secondary objective was to increase the overall number of tests ordered. A “Best Practice Alert” (BPA) was developed based on current CDC testing recommendations, giving providers a one-click option to order combined HIV/HCV testing or only one test. Placards were created and placed in all patient care areas, prompting patients to “opt-out” should they not desire testing.

**Lessons Learned:** Based on the current EMR logics, the BPA fired on approximately 170 patients per day in the ED and urgent care settings. In the first two months of implementation, 1574 HIV and 820 HCV tests were performed, representing a 200% increase in overall testing compared to prior years. As a result of screening efforts, 59 HCV-positive and 3 HIV-positive patients have been identified, and are currently being linked to care.

**Recommendations:** An EMR can effectively prompt providers to order HIV and/or HCV tests on patients at-risk based on CDC guidelines in emergency care settings in Appalachia. Increased identification of positive cases from scaled-up testing using the EMR may help mitigate the ongoing HCV epidemic in the region and prevent a subsequently parallel HIV epidemic, and therefore should be further evaluated in future studies.

---

**Hepatitis C Point-of-Care Testing in a Broad Community-Based Program in Alabama**

Anthony Lee, Sandra Kurumberia, Ashley Gilmore, Ricardo Franco (presenting)

University of Alabama at Birmingham Medical Center, Birmingham, AL, USA

**Introduction:** Point-of-care (POC) testing for hepatitis C virus (HCV) provides same-visit results, facilitating disease detection and linkage to care at the clinic level. We assessed POC testing yield and linkage to care (LTC) rates of a broad community-based program in Alabama.

**Description:** The community program was a collaboration between FOCUS (Frontiers of Communities in the United States), Orasure Technologies, the University of Alabama at Birmingham, and 17 testing sites (shelters, fellowship houses, substance use treatment centers, AIDS advocacy organizations, Ryan-White clinics and Federally Qualified Health Centers) across Alabama (Birmingham, Mobile, Huntsville, Montgomery). Community stakeholders performed testing. A centralized coordinator reported positive cases to FOCUS and contacted subjects for LTC to partnering community health centers [Alabama Coalition for Testing, Interventions and Engagement in Hepatitis C Care (ACTIVE-C)].

**Lessons Learned:** By means of targeted screening of baby boomers and at risk populations, the community sites tested 3070 unique individuals from November 2016 to July 2017. Among screened subjects, 320 or 10.4% were positive for HCV-antibody. Of these 151 or 47% had a confirmatory RNA test performed and 116 or 77% were HCV viremic. Among HCV viremic individuals, greater than 90% successfully attended an appointment with an HCV treatment provider. Testing in opioid dependence treatment centers yielded 199 positives or a 16.6% antibody positivity rate. POC rapid testing for HCV detection had expeditious scale up among partners. Although partnering community health centers allowed for efficient LTC to HCV treatment providers, transportation barriers and cost were major barriers to HCV RNA confirmation.

**Recommendations:** POC testing for HCV in high yield community settings addresses unmet needs of disease detection in Alabama. Patients benefit from same visit testing results, and optimal RNA confirmation should rely on resourceful case management and clinics able to treat HCV in primary or specialty care.
3 Assessment of Liver Fibrosis in Hepatitis C (HCV)-Infected Kidney Transplant Candidates

Usman Barlass (presenting), Justin Mitchell, Nikunj Shah, Costica Aloman, Sheila Eswaran, Nancy Reau

Rush University Medical Center, Chicago, IL, USA

**Background:** Prevalence of hepatitis C (HCV) infection in kidney transplant recipients has been reported as high as 8%. Pre-transplant liver fibrosis is a key factor determining the management and prognosis in this patient population.

**Aim:** The aim of this study was to assess the ability of a widely validated noninvasive scoring system, Fib-4 index to predict the degree of pre-transplant fibrosis using liver biopsy as the gold standard in HCV infected kidney transplant recipients.

**Methods:** We conducted a retrospective chart review of kidney transplant recipients transplanted between 1999 and 2016 at our academic center. 39 HCV positive patients were identified. Pre-transplant Fib 4 was calculated using lab results closest to the liver biopsy. Fib-4 scores were stratified into low (<1.45), moderate (1.45-3.25) and high (>3.25) ranks. Fibrosis stages (Metavir) per pathology were categorized as low (0-1), moderate (2) and high (3-4). Next, we conducted both non-parametric spearman correlation (r) and linear regression analyses and a p value <0.05 was considered significant.

**Results:** Linear regression analysis confirmed that the tests were correlated; Fib 4 ranked and pathology ranked (p=0.0144, r=0.3888) as well as pathology stage and Fib 4 scores (p=0.0066, r=0.4275). Subgroup analysis however revealed that only 33%, 45% and 46% of the patients with low, moderate and high fibrosis staging on pathology correlated with their respective stratified Fib-4 scores.

**Conclusions:** Fib-4 scoring is a convenient non-invasive method of assessing fibrosis. However, in our patient population despite being statistically correlated with biopsy staging, <50% correlated with their expected pathology subgroup. In HCV-infected transplant candidates, fibrosis assessment needs to be accurate as it guides further management decisions such as combined versus single organ transplant. Fib-4 cannot be used as a surrogate to liver biopsy in this population.

5 Comparison of Sustained Virologic Response Rates after Hepatitis C Virus Treatment with Different Regimens among Genotype 3 Patients at an Urban Academic Medical Center

Michelle Martin (presenting), Sajeel Latif, Grace Go, Todd Lee, Ammara Naveed

1. University of Illinois Hospital and Health Sciences System, Chicago, IL, USA
2. University of Illinois at Chicago College of Pharmacy, Chicago, IL, USA

**Background:** Genotype (GT) 3 has emerged as the difficult-to-cure hepatitis C virus (HCV) GT in the era of direct-acting antiviral (DAA) agents. High sustained virologic response (SVR) rates for GT3 treatment have been achieved with the use of dual DAA therapy; however, treatment of cirrhotic patients remains challenging. The objective of this study was to describe SVR rates among GT3 patients treated with different HCV regimens at an urban academic medical center.

**Methods:** A retrospective cohort study was conducted on GT3 patients who started HCV treatment 1/1/2014-12/1/2016 and had SVR data available. Data extracted from medical records included demographics, comorbidities, treatment, and labs. The SVR rates were compared using chi-square or Fisher’s exact tests.

**Results:** A total of 33 patients started treatment; SVR data was unavailable for 9. The remaining 24 patients were 88% male, 50% white, with a mean age of 52.6 (±8.3) years, and BMI of 29.4 (±6.2) kg/m^2_; 42% were cirrhotic, 75% treatment-naive, 13% post-transplant, 4% had hepatocellular carcinoma (HCC), 21% diabetes, and 38% psychiatric illness. The overall SVR rate was 79% (19/24) for all regimens: 69% (9/13) for sofosbuvir+ribavirin, 80% (4/5) for daclatasvir+sofosbuvir±ribavirin, and 100% (6/6) for sofosbuvir+velpatasvir+ribavirin. Cirrhotic patients had a lower SVR rate than non-cirrhotics (50% (5/10) versus 100% (14/14), p=0.006), and the SVR rate was 58% (7/12) in white patients versus 100% (6/6) in Hispanic and other ethnic groups (6/6) (p=0.046). SVR rates did not differ by gender, age, BMI, regimen, treatment history, transplant, HCC, diabetes, psychiatric history (p>0.05).

**Conclusion:** Dual DAA treatment resulted in higher SVR rates than earlier regimens. The assessment of impact of ethnicity on SVR is limited due to small numbers. Cirrhotic GT3 patients had significantly lower SVR rates than non-cirrhotic patients, consistent with published literature. These results support earlier HCV treatment for GT3 patients to improve SVR rates and prevent disease progression.
Outcomes of HCV/HIV Coinfection and HCV Monoinfection Treatment with Direct-Acting Antivirals (DAAs) in an Underserved and Diverse Community at SUNY Downstate STAR Health Center (SUNY-STAR)

Daniel Burack (presenting)¹, Andrew H. Talal², Elliot DeHaan³

1. SUNY Downstate Medical Center, Brooklyn, NY, USA
2. SUNY Buffalo Department of Gastroenterology, Buffalo, NY, USA
3. SUNY Downstate Department of Infectious Disease, Brooklyn, NY, USA

Background: Approximately 2.7-3.9 million people in the United States are infected with chronic HCV. The incidence of acute HCV has risen in recent years in underserved communities, and minorities are less likely to receive essential care. We report an effort at SUNY-STAR to treat underserved HCV patients, especially those coinfected with HIV.

Methods: This is a retrospective review of HCV patients enrolled from 4/1/2015 through 3/31/2017 at SUNY-STAR. Cirrhosis was defined as a METAVIR score ≥ F3 as calculated by Fibrotest/Fibroscan® or equivalent (APRI >2, FIB-4 >3.25) at time of treatment. The primary endpoint was a sustained virologic response (SVR) defined as an undetectable viral load at 12 weeks following treatment completion. A hepatologist was consulted monthly via video conferencing to optimize outcomes of treatment. Specifically, Fibrotest/Fibroscan® results and HCV resistance testing were reviewed.

Results: Of 131 HCV-positive patients enrolled, 81 (61.8%) were treated. Of these 81, 46 (56.8%) were male, the average age was 56 (IQR 52-63), 60 (74.1%) identified as African-American, 13 (16.0%) as Hispanic, and 8 (9.9%) as Caucasian. Seventy-four (91.4%) patients were coinfected with HIV, 53 (65.4%) were genotype 1a, and 62 (76.5%) were treated with ledipasvir/sofosbuvir. Twenty-one (25.9%) patients were deemed cirrhotic and 60 (74.1%) patients were non-cirrhotic. Sixty-eight (84.0%) patients achieved SVR, 7 (8.6%) patients have an SVR pending, and 6 (7.4%) patients were nonresponders. Of these 6, 3 patients had NS5A resistance, 1 patient died before SVR assessment (secondary to acute cholecystitis), 1 patient had concomitant AIDS (CD4 < 50) and ESRD, and 1 patient was non-adherent.

Conclusions: The results of this study demonstrate that the SUNY-STAR model is an effective method of treating HCV in underserved communities, especially in those co-infected with HIV. This model should be expanded to other underserved and diverse communities to enhance outcomes in patients with HCV.

Adolescent IDUs and HCV Coinfection in Manipur

Kingson Shimray (presenting)
United Nations Development Programme, Amsterdam, Netherlands

Introduction: Manipur is one of the six high HIV prevalence states in India. It has a concentrated epidemic, and the main route of HIV transmission is through injecting drugs. HIV prevalence among the injecting drug users (IDUs) is 12.89% in 2011 and almost 98% coinfection with HCV.

Description: Master thesis and 9 years of working experiences implementing HR along with literature review using the modified conceptual framework adapted from Andersen and Newman to interrogate the literature and to organise my findings.

Lessons Learned: The age of initiation of injecting drug use is decreasing in Manipur. Adolescent IDUs are more vulnerable than adult IDUs, as consequences of legal obligation and non-availability of Harm reduction (HR) services. It increases in sharing of needle and syringes, paraphernalia and unsafe sex which increase in HIV, HCV, STIs, overdoses, abscess and premature mortality. A study among 191 adolescents IDUs showed that 93% reported shared injecting equipment, 74.7% are infected with HIV and almost all 98% are living with HCV.

Recommendations: The international, national and state government should urgently revise and update the current harm reduction policies to allow the inclusion of adolescents as beneficiaries, also provision of free HCV/HBV treatment and strengthened referral and linkages with other programs.
11 The Effect of Hepatitis C Coinfection on Survival Rates among People Living with HIV in the Post-HAART Era – District of Columbia

Sophie Merchant (presenting), Kerri Dorsey, Rupali Doshi

The George Washington University, Washington, DC, USA

Background: Approximately one quarter of people living with HIV in the United States are coinfected with Hepatitis C (HCV). Since the advent of highly active antiretroviral therapy (HAART) in 1996, liver disease has become the leading cause of death in these patients. The objectives of this study were to determine the association of HCV coinfection in people diagnosed with HIV on survival and development of stage 3 HIV infection and determine prevalence rates of co-infections by census tract.

Methods: We performed a retrospective cohort study using surveillance data from the enhanced HIV/AIDS Reporting System (eHARS) and the District of Columbia Hepatitis Registry, including anyone with documented HIV infection in the District of Columbia from 1996 through 2015. Coinfections were determined by matching HCV cases to HIV cases based on first and last name and date of birth. Prevalence data on coinfections were mapped onto a census tract map and survival analyses were performed using Cox regression, controlling for gender, race/ethnicity, risk factor/mode of transmission, age at diagnosis, HIV stage at diagnosis, and most recent HIV stage.

Results: HCV coinfection was associated with lower survival (aHR 1.3, [1.178, 1.484]) compared to monoinfection, but not associated with developing Stage 3 infection (aHR 1.05, [0.979, 1.114]). Among coinfected persons, initial HCV infection was associated with lower survival (aHR 3.7, [2.696, 5.046]) and decreased development of stage 3 infection (aHR .72, [0.606, 0.858]) compared to initial HIV infection. Concurrent infection was also associated with lower survival (aHR 1.9, [1.4, 2.646]) compared to initial HIV infection, but not associated with developing Stage 3 infection (aHR .98, [0.837, 1.14]).

Conclusion: Coinfected individuals experienced more deaths that monoinfected individuals, emphasizing the need to control both HCV and HIV viral loads. Additionally, we identified regions where coinfections are more prevalent, allowing for more targeted prevention and treatment services.

12 Comparison of Sensitivity and Specificity of Rapid Anti-HCV Multi Sure Kit with Gold Standard Anti-HCV Using ELISA

Rabia Irshad (presenting)

Pakistan Health Research Council at Jinnah Postgraduate Medical Centre, Karachi, Pakistan

Aim: HCV poses a major public health problem throughout the world. WHO estimates that at least 170 million people are infected with Hepatitis C worldwide, with most of these concentrated in developing countries. Pakistan has an intermediate prevalence of 4.9% which is quite alarming. Being a silent killer with no apparent signs and symptoms for years, there is a need that all persons with high exposure should be screened for the disease and treated if required.

Different methods are used for the diagnosis of anti-HCV which include rapid ICT, ELISA, PCR and Chemiluminiscence method. Rapid tests not only give results in few minutes but are also cheap and do not require expertise and labs, while other methods are expensive and needed expertise, time and well equipped labs, therefore they are confined to major tertiary care hospitals. Rapid diagnostic ICT kits are a good choice screening in the community but they are less sensitive. Within the rapid tests, the sensitivity varies. Some rapid tests are comparable to ELISA while others are not. This study compared rapid anti-HCV kit with ELISA as per its sensitivity and specificity.

Objectives: To compare the diagnostic yield of Multi sure rapid HCV kit with ELISA.

Method: In this study a modified rapid kit of Anti-HCV was compared with ELISA. This rapid kit is multi-parameter qualitative immune chromatographic kit for the in vitro detection of antibodies to HCV in human blood. Patients who came to PHRC for Anti-HCV ELISA, their test was run simultaneously on Rapid HCV kit with ELISA.

Results: Total 420 samples were collected. Among them 255 (61%) were from male and 165 (39%) were from female patients. Mean age was 35 years. All the samples were run on Multi sure rapid kit as well as ELISA. Results show that 23.6% and 22.4% were reactive on rapid kit and ELISA respectively (p-value=0.681). While 68.1% and 75.5% were non-reactive on Rapid and ELISA respectively (p-value=0.017), and 5.0% and 2.1% samples showed borderline positive results on Rapid as well as ELISA respectively (p-value=0.025). Rapid kits produce 87.2% sensitivity and 89.3% specificity with 82.8% positive predictive value and 98.9% negative predictive value. A few percent of samples showed invalid results on rapid kits which is n=14 (3.3%), and there is no invalid result on ELISA.

Conclusion: The study results showed that Multi sure rapid kit is comparable with gold standard ELISA and has good sensitivity. Hence, we suggest the use of this rapid kit particularly in small labs where facilities are less useful for surveys or in community settings.
Los Angeles Christian Health Centers Hepatitis C Linkage to Care and Innovative Treatment Model

Shannon Fernando (presenting)
Los Angeles Christian Health Centers, Los Angeles, CA, USA

Introduction: Los Angeles Christian Health Centers’ (LACHC) mission is to show God’s love by providing quality, comprehensive healthcare services to the homeless and underserved. As a non-profit Federally Qualified Health Center, LACHC provides critically needed health care services. The majority of our patients are either homeless or residing in public housing projects, and a staggering 91% are below 100% of the Federal Poverty Level. The largest concentration of the county’s homeless, 15,393 are located in the Metro area where our flagship facility and several of our other satellite sites are located.

Description: In October 2016, LACHC launched a Hepatitis C (HCV) testing, diagnosis and linkage to care program for two purposes: increase HCV screening amongst high risk populations and appropriate birth cohort per CDC guidelines and increase linkage to care for patients with HCV. HCV linkage to care rates increased from 60% to 72% in eight months. In addition, LACHC also began piloting the treatment of HCV at the primary care level amongst high risk, difficult to treat populations, recently featured on National Public Radio (NPR) for our innovative co-located model of treatment.

Lessons Learned: Three main interventions conducted to achieve purposes outlined above, include: modification of electronic medical record (EMR) to identify patients eligible for HCV screening, the utilization of a HCV care coordinator to provide linkage to care services and develop a HCV registry for patient follow up and monitoring, and provider participation in Project ECHO to develop HCV treatment capacity at the primary care level, enabling the provision of HCV treatment within homeless shelters.

Recommendations: LACHC seeks to expand our HCV treatment model to include treatment at the primary care level within needle exchange programs in Los Angeles County, to pilot HCV treatment amongst active intravenous drug users, given our clinic-wide HCV RNA positivity rate of 56%.

An HCV Screening Program at the Cuyahoga County Jail

Steven Lewis (presenting), Melissa Osborn, Michael Gierlach, Jeff Ross, Jim Alsop, Ann Avery
MetroHealth Medical Center, Case Western Reserve University, Cleveland, OH, USA

Introduction: It is estimated that 1/3 of all hepatitis C (HCV) cases are among individuals who have passed through the U.S. correctional system. This may be due to higher rates of injection drug use (IDU), piercings and tattoos through unsanitary practices, or unsafe sexual practices while incarcerated. Other correlates of HCV-infection, overrepresented among this subpopulation, include HIV-infection, poverty, and underutilization of routine healthcare. Consequently, jail settings can serve as opportunities for HCV screening and linkage-to-care (LTC) programs for this high-risk, medically underserved population.

Description: In 2017, MetroHealth Medical Center (MHMC), the largest safety net hospital in Cleveland Ohio, expanded HCV screening program to include the Cuyahoga County jail (CCC). Within the expanded program, inmates are screened for HCV-related risk factors during the jail intake process based on information contained in their electronic health record (EHR) such as member of the 1945-1965 birth cohort, HIV+ status, and/or self-reported recent IDU. Inmates who are assessed as being high risk are offered an HCV test while incarcerated. All tested inmates receive education about HCV, and inmates who are newly diagnosed with chronic HCV are counseled and offered LTC services upon their release from CCC.

Lessons Learned: Uptake of the clinical decision support (CDS) within the EHR is key to ensuring that testing is performed efficiently at the jail (i.e., Inmates with the identified risk factors are offered an HCV test, and individuals recently tested or previously diagnosed with HCV are not offered a test). Close tracking of release dates is also crucial to ensure that communication of test results, counseling and arrangements for LTC services occurs before an inmate is released from jail.

Recommendations: Adherence to CDS should be monitored to ensure that inmates are being identified based on HCV-related risk factors in lieu of universal HCV testing.
A Prospective Cross-Sectional Community Based Study on the Prevalence of Hepatitis B Infection and Associated Factors in Jimma Town, Oromia Region, Ethiopia, 2016

Daniel Azmeraw Workluel (presenting)
ALERT Center, Addis Ababa, Ethiopia

Background: Viral hepatitis is a major public health problem throughout the world affecting several hundreds of millions of people. It is estimated that about 2 billion people are infected with hepatitis B virus (HBV) worldwide; of which more than 350 million have chronic HBV, and 1.2 million die from chronic hepatitis, cirrhosis and hepatocellular carcinoma.

Objective: To determine prevalence and risk factors of hepatitis B virus infection among adults living in Jimma town.

Method: A cross-sectional study was conducted from October 2015 to October 2016, in a total of 95 adults aged 15-45 years, in Jimma town. Whole blood was collected with heparinized tube and rapid test was done for hepatitis B virus surface antigen (HBsAg) and human immunodeficiency virus (HIV) 1 & 2. A pre-structured questionnaire was used to collect socio-demographic data and to find out possible risk factors.

Results and Discussion: The overall prevalence of HBsAg was 4.2 and HIV 3.2%. The vaccination coverage for HBV was very poor with only one individual vaccinated fully. The study showed that high proportion of HBsAg positivity was among men with four times higher than female (p value- 0.039) and having family history of liver disease showing higher chance of HBsAg positivity by seven folds (p-0.029).

Conclusion and Recommendation: The prevalence of HBV and HIV was high and there was poor vaccination coverage for HBV. Creating a channel of communication to increase awareness on HBV and provision of care and treatment as well increasing the vaccination coverage should be given emphasis.

Reactivation of Hepatitis Delta (HDV) following Directly Acting Antiviral (DAA) Therapy for Hepatitis C (HCV) in a man with Quadruple Infection (HBV/HCV/HDV/HIV)

Kathryn Childs (presenting), Mary Cannon, Ruth Byrne, Matthew Bruce, Chris Taylor, Ivana Carey, Kosh Agarwal
Institute of Liver Studies, Kings College Hospital, London, England

Introduction: Hepatitis B (HBV) reactivation following therapy for Hepatitis C (HCV) has been reported. To date there are no reports of reactivation of hepatitis delta virus (HDV).

Description: A 61yr man with HIV/HCV/HBV and HDV (quadruple infection) was referred for HCV treatment. He was diagnosed after presenting with nephrotic syndrome, secondary to membranous glomerulonephritis. Hepatitis C, B and delta and HIV infection were tested, all were positive. His CD4 count was 150 cells/ml and abacavir, lamivudine and dolutegravir were initiated. He received anticoagulation and was cirrhotic with portal hypertension. At presentation to us serology was: HBV: SAg +, eAg -, quantitative SAg (qHBV SAg) 0.3 IU/ml. HDV: IgG +, IgM -. He had genotype 3 HCV with an HCV RNA of 1.1 E7 IU/ml. Prior to DAAs, HBV DNA was undetectable and HDV was detectable on 1 occasion at 6700 copies/ml. He was treated for HCV with sofosbuvir/daclatasvir/ribavirin for 12 weeks and achieved an SVR. Following the cure of HCV, nephrotic syndrome resolved. HBV DNA and HDV RNA were negative throughout HCV treatment up until the SVR 24 timepoint when HDV RNA rebounded to 16900 copies/ml and has remained detectable. qHBV SAg, although remaining low, steadily increased following DAAs. He remains on HBV therapy and is taking tenofovir alafenamide/emtricitabine/cobicistatin/elvitegravir.

Lessons Learned: We report possible HDV reactivation after DAA treatment. Often in quadruple infection, HDV is detectable and suppresses HCV which in turn dominates HBV. Here, however, HCV was detectable and HDV was negative. Once HCV was eradicated an increase in HDV RNA was seen, which coincided with a 10-fold increase in HBV SAg.

Recommendations: As HDV replication is HBV SAg dependent, patients with HDV taking HBV nucleotide therapy are not protected against HDV reactivation. Patients with HDV should be monitored for evidence of HDV reactivation after DAA therapy for HCV.
25 A Case Study of Fixed-Dose Combination of Sofosbuvir/ Velpatasvir in a Patient with Chronic Hepatitis C with Compensated Cirrhosis and HIV Co-Infected on Multiple Class of Antiretroviral Regimen

Tabassum Yasmin (presenting), Hamid Reza Pahlevan Sabbagh
Nassau University Medical Center, East Meadow, NY, USA

Introduction: Hepatitis C therapy has undergone revolutionary changes with various new drugs for all genotypes. We describe a case of HIV/HCV-coinfected patient that was on multiple class of antiretroviral regimen with compensated cirrhosis.

Description: 65-year-old African American male was referred to the clinic for Hepatitis therapy. The patient had AIDS with a CD4 count of 159 and on Darunavir/ritonavir, Etravirine, and Dolutegravir. He had a history of multiple heterosexual partners and use of marijuana and currently smokes cigarettes and marijuana. His last HIV RNA was undetectable. His hepatitis C genotype was 2a/2c with HCV RNA 6.07 IU/ml. Fibrosure testing had fibrosis stage F4 suggesting severe fibrosis and liver enzyme of ALT 121 U/L, AST 107 U/L. Baseline Hepatitis C resistance assay did not show resistant strains. MRI liver showed early cirrhosis and no evidence of cancer. The patient was asymptomatic and had baseline creatine of 1.8, APRI index of 4.42 and platelet count of 65,000. The patient was started on Sofosbuvir/Velpatasvir one tablet daily. He tolerated medicine and HCV RNA was undetectable within 2 weeks and through 10 weeks of therapy remains undetectable. Also, his serum creatine improved to 1.5 with normalization of liver enzymes and improvement in CD4 counts to 184 in one month of therapy. Currently, patient is due to complete 12 weeks of therapy.

Lessons Learned: Use of Sofosbuvir/Velpatasvir in HIV/HCV coinfection Genotype 2a/2c with comorbidities was effective in getting rapid SVR with improvement in laboratory parameters.

Recommendations: The case study with HCV/HIV-1 coinfection was based on clinical trial ASTRAL-5. This clinical trial showed that the result of Sofosbuvir/Velpatasvir treatment for HCV/HIV-coinfected patient and monoinfected HCV patients are similar. Study patient had Protease inhibitor, Non-Nucleoside Reverse Transcriptase Inhibitor, and Integrase Inhibitor for HIV treatment and responded well to Sofosbuvir/Velpatasvir.

26 Gilead Sciences’ Support of Global Efforts toward Elimination of Hepatitis C Virus

Nika Sajed (presenting), Kacy Hutchison, Lorenzo Rossaro, Diana Brainard, Patrick McGovern, Daniel O’Farrell, Korab Zuka, Mark Snyder, Betty Chiang, Nelson Cheinquer, Bruce Kreter
Gilead Sciences, Inc., Foster City, CA, USA

Introduction: Gilead Sciences, Inc. supports the efforts of government agencies, professional and community-based organizations, payors, and healthcare providers (HCPs) who have declared their intention and commitment to work toward the elimination of hepatitis C virus (HCV) around the world.

Description: The FOCUS program partners with health systems, governments, and harm reduction organizations to build scalable and sustainable HCV screening models and innovative linkage to care (LTC) paradigms. Multiple Gilead departments support programs related to HCV screening, access, and LTC. Through investigator-sponsored research and external collaborations, the company supports global HCV elimination projects in high-risk populations and geographies. Gilead is supporting several pilot nationwide elimination programs, including in Iceland, where Gilead is providing treatment for all HCV patients according to Icelandic guidelines over the next 3 years and in Georgia, where Gilead has provided treatment for over 40,000 HCV patients. Gilead is also supporting several key initiatives in Australia related to its nationwide elimination program. Corporate Grants supports the efforts of community-based organizations and public health entities to educate their constituents about HCV and addresses barriers to care. Gilead’s Access team collaborates with regional partners to introduce high-quality, branded HCV drug in low- and middle-income countries, and generic drug manufacturers to produce high-quality, low-cost generic versions of HCV medicines for developing countries. The Independent Medical Education Department supports medical education programs that expand the knowledge and skills of HCPs to manage HCV.

Lessons Learned: In 2016, the HCV ISR program approved 10 screening and LTC studies, 120 FOCUS partners supported HCV antibody screening tests in 65 cities/counties, and IMED reached over 28,000 HCPs in HCV elimination-related programs.

Recommendations: Gilead is committed to supporting strategies toward HCV elimination through partnerships with governments, professional societies, community-based organizations, and HCPs.
27 Seroepidemiology Study of Hepatitis B Virus Infection in Nepal

Smita Shrestha (presenting), Sudhamshu KC, Balram Gautam, Sher Bahadur Pun, Sila Mahatara, Krishna Das Manandhar

1. Central Department of Biotechnology, Tribhuvan University, Kirtipur, Nepal
2. Hepatology Division, Bir Hospital, Kathmandu, Nepal
3. Shukraraaj Tropical and Infectious Disease Hospital, Kathmandu, Nepal

Background: Nepal has an urban population which covers around 17% of the total population of the country. However, the working age population is found to be between 15 to 59 years. In our study an attempt was made for the seroepidemiology survey regarding the prevalence of hepatitis B virus infection in Nepal.

Method: In the study, 150 serum samples were collected. Out of 150 suspected cases, the mean age of subjects with hepatitis B infection is 28 with a maximum of 67 and a minimum of 13 at a standard deviation of 10. Furthermore, it is also evident that the age group of 21-30 have the highest infection of 59% followed by age group of 10-20 by 20%. This group also showed thrombocytopenia by 59.2%. However, a strong correlation was observed between age and Aspartate aminotransferase (AST) (Correlation coefficient: 0.266, p value: 0.010). The seroepidemiology study also reveals that 80% of males as compared to 20% of females are effected.

Results: Out of 150 suspected cases, 60 subjects showed positive for HBsAg and 12 showed HBeAg Positive. DNA extraction showed positive for the 48 samples. Amongst them, 40 samples showed a high viral load of above 10,000 copies/ml. Besides this, 48 samples showed positive for the genotyping of the virus. In this, 5 samples showed positive for genotypeB, 7 for genotypeC, and 35 was found to be positive for genotypeD. However, 1 sample is also reported to be C/D recombinant.

Conclusion: Such information on the serology and genotype can be used as an indicator for more effective treatment of hepatitis and prevent its further development into liver cirrhosis.

28 Hepatitis C Infection among Asian American Immigrants: Ethnicity and Immigrant Status as Risk Factors for Hepatitis C Infection

Lorreanne Manalo (presenting), Praphapone Osti, John Hoh
Asian Pacific Health Care Venture, Los Angeles, CA, USA

Background: Approximately 170 million people are chronically infected with the hepatitis C virus (HCV) worldwide, and more than half are from Asia and Western Pacific regions. Given the high endemic rate of HCV infection in the regions, it follows that immigrants from those countries would also have high prevalence rates. Asian Americans are among the fastest growing population in the United States, however, the CDC does not currently recommend routine screening among Asian immigrants. In addition, many Asian Americans do not have easily identifiable risk factors and maybe underdiagnosed.

Methods: Analysis of hepatitis C screening data at Asian Pacific Health Care Venture, a community health center in Los Angeles, was done to assess prevalence and incidence of HCV among the patients. Additionally, chart review of 150 HCV-infected patients of Asian ethnicity were done to assess for risk factors for infection.

Results: 1736 patients were screened for HCV in a 12-month screening program, of which 48 were positive for infection. However, the positive rate was a lot higher among Asian ethnic patients, particularly among Cambodian, Vietnamese and Thai patients. Of the 150 HCV positive patient charts reviewed, only about a third had history of engaging in unprotected sex but others had no discernible risk factors.

Conclusion: Rates of HCV infection among Asian immigrants in community screening are high. Given the high HCV endemicity in Asia and lack of identifiable risk factors, we advocate the screening for HCV infection of all Asians who come from areas where HCV prevalence is ≥ 2%.
33 Treatment Barriers in American Indian/Alaskan Native/Native Hawaiian Communities

Patrick Roberts (presenting)
National Native American AIDS Prevention Center, Denver, CO, USA

Introduction: NNAAPC will engage members of the International Conference on Viral Hepatitis and examine the diversity of American Indian/Alaskan Native/Native Hawaiian (AI/AN/NH) tribes related to treatment access and factors that lead to high rates of health care disparities.

Description: AI/AN/NH communities are disproportionately affected by hepatitis C (HCV). 2015 CDC data show that AI/AN/NH have the highest rate of acute hepatitis C as well as HCV-related deaths. This case study will examine barriers that AI/AN/NH experience, related to stigma, treatment access through Medicaid and the Indian Health Service, as well as outline the current institutional policy on a regional and state level. NNAAPC will examine how the introduction of newly indicated treatment interventions (FDA approved medication) and the current opioid addiction rates have affected policy for treatment access.

Lessons Learned: When Tribes and Native populations have the resources needed to conduct quality surveillance, such as the Cherokee Nation hepatitis C elimination program, then treatment programs can be accurately costed out to end the epidemic. Dr. Jorge Mera, Director of Infectious Disease with the Cherokee Nation developed a hepatitis C elimination program in 2014 which underlined the need for accurate data collection highlighting the actual rate of HCV infection within the Cherokee Nation of 5.8% vs. CDC’s estimated 2.8% within the first 60 days of the project implementation.

Recommendations: CMS, Tribal Healthcare Agencies, and the IHS should convene a meeting with Tribal leaders to address the elimination of hepatitis C by (1) addressing the lack of data collection of AI/AN/NH’s in all tribal, state, and national data sets for accurate surveillance, and (2) purchasing a direct-acting antiviral, as suggested by, “A National Strategy for the Elimination of Hepatitis B and C”, published by the National Academies of Sciences, Engineering, and Medicine.

34 The Community-Based Advocates’ Role in Creating Lasting Health System Change – A Case Study

Jill Wolf (presenting)
Caring Ambassadors Program, Inc., Oregon City, OR, USA

Introduction: This case study explores the process of one community hospital’s approach to integrating HCV screening, testing, and linkage to care within their existing medical infrastructure. This process includes: garnering system buy-in; cultivating internal champions; leveraging existing community resources; information dissemination to partners; adaptation of system changes and barriers; and striking a balance between a healthcare system doing what is right, and a healthcare system doing what is feasible.

Description: Over the past three years, a national organization with HCV expertise consulted with a regional community hospital to integrate HCV awareness and education services into existing infrastructures.Originating as model where an in-kind employee was provided to the hospital to integrate HCV awareness and education system-wide, it has evolved into the hospital’s adoption of a full-time, HCV-dedicated employee. The relationships built, the tools developed, the opportunities discovered, and the identified community public health needs have shed useful light on messaging opportunities and synergistic inter-departmental programming.

Lessons Learned: Many internal and covert resources exist within each system with dynamic partnership opportunities to leverage resources to create system-wide change and positively influence population health. Further, while initial buy-in from key executive decision-makers may be useful in initiating program startup, buy-in does not carry enough weight to sustain programming, as executives are typically not the ‘worker bees’ doing the work.

Recommendations: To fully realize the 2030 HCV elimination goal, we must diagnose 110,000 cases a year until 2020, dropping to almost 89,000 from 2020 to 2024 and nearly 72,000 from 2025 to 2030 and programming must start now. Simultaneous incremental changes should begin immediately, and with another two years of our project, we anticipate the system to be independently sustainable.
Neutrophil Gelatinase Associated Lipocalin (NGAL) is Correlated with Renal Dysfunction in Patients with Chronic Hepatitis B/HIV Co-Infection Receiving TDF Based Antiviral Therapy

Ruth Byrne (presenting), Matthew Bruce, Sarah Montague, Ivana Carey, Kosh Agarwal

Institute of Liver Studies, Kings College Hospital, London, England

Background: Tenofovir disoproxil fumarate (TDF) based antiretroviral therapy (ART) remains the mainstay of treatment for patients with chronic hepatitis B (HBV) and HIV co-infection. Lifelong therapy is needed to suppress viral replication to prevent progressive immunosuppression and development of liver disease. However, TDF has been associated with renal tubular injury. Tenofovir alafenamide (TAF), a new prodrug of tenofovir is associated with less renal toxicity but its use is currently restricted in the co-infected population. New biomarkers of renal dysfunction are needed to identify those patients most benefit from TAF. NGAL is one of the most promising biomarkers of chronic kidney disease (CKD) and has shown predictive value in other clinical settings. In this study, we investigate its predictive value in patients with chronic HBV/HIV coinfection.

Method: A retrospective analysis was performed on serial blood samples taken from 20 patients between the ages of 18 and 70 years old, receiving TDF based ART for compensated chronic HBV/HIV coinfection under the viral hepatitis service at King’s College Hospital, London. NGAL measurements and renal function (eGFR) in addition to clinical parameters were recorded at initiation of TDF and at 12 months.

Results: A change in NGAL over 12 months following commencement of TDF therapy was inversely correlated with eGFR at 12 months indicating the development of renal dysfunction although this did not reach statistical significance due to the small sample size.

Conclusion: Serial NGAL measurements in patients receiving TDF therapy for chronic hepatitis B/HIV shows promise as a potential biomarker of predicting renal dysfunction and may help to guide antiviral treatment decisions in this patient cohort. A study utilising a larger patient population is required to confirm its predictive value.
37 Relapse after Sustained Viral Response: Are We Declaring Cure Prematurely?

Sara Levy¹, Shelly-Ann Fluker¹, Kristi Quairoli², Lesley Miller (presenting)¹, Anjana Pillai³

1. Emory University, Atlanta, GA, USA
2. Grady Memorial Hospital, Atlanta, GA, USA
3. The University of Chicago Medical Center, Chicago, IL, USA

**Background:** Direct-acting antivirals (DAAs) have transformed management of hepatitis C (HCV). Before DAAs were introduced, HCV cure was defined by sustained viral response with maintenance of an undetectable viral load for 24 weeks after treatment completion (SVR24). SVR12 has been accepted as the new primary end point for designation of cure. We describe three cases of patients with chronic HCV infection treated with DAAs who were subsequently found to have relapsed after achieving SVR12.

**Methods:** At an academic tertiary care center and a public safety-net institution, three patients who completed DAA-containing regimens were found to have relapsed after achieving SVR12. Their treatment courses were reviewed retrospectively.

**Results:** We describe three cases of patients with chronic HCV infection treated with various combinations of DAAs including sofosbuvir, simeprevir, and ledipasvir with documented SVR12 who were subsequently found to have relapsed. Patient characteristics, SVR12 and SVR24 outcomes are summarized in the Table.

**Table:** Characteristics of patients who relapsed after achieving SVR12

<table>
<thead>
<tr>
<th>Case</th>
<th>Age at Treatment Initiation (years)</th>
<th>Sex</th>
<th>Race</th>
<th>Genotype</th>
<th>Histologic Stage</th>
<th>HCV VL at Treatment Initiation (IU/mL)</th>
<th>HCV VL at SVR12 (IU/mL)</th>
<th>HCV VL at SVR 24 (IU/mL)</th>
<th>Prior Treatment</th>
<th>Treatment Regimen</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>47</td>
<td>M</td>
<td>African</td>
<td>1a</td>
<td>N/A</td>
<td>6,890,000</td>
<td>Undetectable</td>
<td>63</td>
<td>No</td>
<td>LDV / SOF x 12 weeks</td>
</tr>
<tr>
<td>2</td>
<td>64</td>
<td>F</td>
<td>Caucasian</td>
<td>1b</td>
<td>1</td>
<td>3,270,000</td>
<td>Undetectable</td>
<td>1,520,000</td>
<td>Yes</td>
<td>SMV + SOF x 12 weeks</td>
</tr>
<tr>
<td>3</td>
<td>63</td>
<td>M</td>
<td>Hispanic</td>
<td>1</td>
<td>4</td>
<td>5,858,700</td>
<td>Undetectable</td>
<td>5,580,000</td>
<td>Yes</td>
<td>SOF x 12 weeks, pegIFN + RBV x 24 weeks</td>
</tr>
</tbody>
</table>

**Conclusions:** SVR decreases all cause mortality as well as liver-related mortality. As recurrence after achieving SVR12 does occur, further consideration should be given to either routinely checking for SVR24 in those who achieve SVR12, or identifying patients at high risk for relapse in whom extended surveillance may be of higher yield.
**38** A Customizable Calculator Tool to Engage US Health Systems in Hepatitis C Elimination

Lesley Miller (presenting)¹, Shana Topp¹, Brandon Walker², Richard Hutchinson¹

1. Emory University, Atlanta, GA, USA
2. Boston Consulting Group, Atlanta, GA, USA

**Introduction:** Hepatitis C virus infection (HCV) elimination is now a realistic goal. However, many systems and economic barriers to elimination remain. We developed a collaboration between a management consulting firm and a safety net health system to address HCV elimination using a combined business and medical lens. We determined that new tools are needed to support health care providers in HCV elimination. We developed a calculator tool to enable providers and health systems to predict the economic and public health opportunity associated with eliminating HCV in their populations.

**Description:** We consulted HCV experts, investigated existing models and identified barriers to elimination, and framed these using a five-step patient cascade: Awareness, Screening, Linkage to Care, Access to a Physician, and Access to Medication. We then developed an excel-based calculator (hep-Calculator) with capability to 1) size the economic and personnel resources required at each cascade step and 2) project an annual cure rate needed to eliminate HCV over a given timeline. Providers and health systems feed data into hep-Calculator including population size, screening capability, and payer economics. Hep-Calculator models the economic and public health impact of implementing an HCV elimination program. Elimination scenarios can be customized, with variable outputs depending on, for example, percentage of patients in high-risk groups or the hourly wage for patient navigators.

**Lessons Learned:** Hep-Calculator, a novel modeling tool, provides a view of the total opportunity size for successfully eliminating HCV in a defined population. Data from the calculator can be used to help inform whether a deeper opportunity analysis is warranted.

**Recommendations:** Next steps include disseminating this free tool to a variety of public health and clinical sites to test its application in various settings. Analysis of outcomes from and satisfaction with hep-Calculator use in real world settings will be analyzed and inform modifications to the tool.

---

**39 Understanding Stigma: How Implementing a Broader HCV Screening Protocol, Regardless of Risk Factors, Helps to Facilitate Diagnosis and Linkage to Care in an FQHC Setting**

Rachelle Bogue (presenting), Anitha Mullangi
Tiburcio Vasquez Health Center, Hayward, CA, USA

**Introduction:** The most commonly agreed upon risk factor for HCV positivity is past or current drug use. Due to this stigma and lack of education amongst general patient population regarding HCV transmission modalities, effectively screening patients for risk factors can prove challenging for providers. By broadening HCV testing guidelines, we can eliminate the stigma associated with HCV and injection drug use and reduce the number of undiagnosed patients in our communities.

**Description:** Tiburcio Vasquez Health Center (TVHC)—an FQHC located in the Eastern San Francisco Bay Area serving approximately 25,000 patients annually—implemented routine HCV testing for all patients 13+ as part of standard of care due to our predominately low-income, uninsured, and Hispanic patient population. 98.6% of TVHC patients are at or below 100% of the poverty line while 68.1% are at or below 200% of poverty line and 72.3% identify as “Hispanic.”

**Lessons Learned:** Between 01/01/2016—06/30/2016, TVHC completed 7,765 HCV tests and identified 231 HCV antibody positive patients. 96 (42%) were born outside the 1945-1965 birth cohort and 68 (71%) had no reported IDU anywhere in their medical history, indicating without the expanded HCV testing protocol, they would have gone unidentified. We have discovered not all patients feel comfortable disclosing their true risk factors or medical history, meaning screening based on patient reported information can prove inaccurate. Additionally, Hispanics and low-income patients are unlikely to visit a medical professional until they have symptoms of a serious illness, resulting in missed opportunities to test, diagnose, and treat new HCV infections.

**Recommendations:** By removing comprehensive risk assessment as a barrier to screening, and therefore the stigma associated therein, TVHC has made HCV testing part of our standard care for all patients 13 and older. We have identified a substantial number HCV positive patients who would have otherwise never been identified and educated on the risks associated with HCV to prevent further infections.
JOINT SPONSORS
International Association of Providers of AIDS Care
Rush University Medical Center
Alliance to Eliminate HIV/HCV Coinfection

ACCREDITED PROVIDER
Rush University Medical Center

INSTITUTIONAL SUPPORTERS
International Association of Providers of AIDS Care
Alliance to Eliminate HIV/HCV Coinfection

COMMERCIAL SUPPORTERS
AbbVie
Gilead Sciences
Merck & Co.

PLANNING COMMITTEE
Kosh Agarwal, MD
Kings College Hospital
London, England

Shelley Carroll, MSN
Chicago, IL, USA

Daniel S. Fierer, MD
Icahn School of Medicine at Mount Sinai
New York, NY, USA

Mark Nelson, MD
Chelsea and Westminster Hospital
London, England

Nancy Reau, MD
Rush University Medical Center
Chicago, IL, USA

Jürgen Rockstroh, MD
University of Bonn
Bonn, Germany

Vicente Soriano, MD, PhD
Hospital Carlos III
Madrid, Spain

Wendy Spearman, MBChB, MMEd, PhD
University of Cape Town
Cape Town, South Africa

José M. Zuniga, PhD, MPH
International Association of Providers of AIDS Care
Washington, DC, USA
October 9-10, 2017

Letter of Attendance

To Whom It May Concern:

This letter is a confirmation that ____________________________ attended the 2017 International Conference on Viral Hepatitis, held October 9-10, 2017, at Loyola University Chicago. This two-day conference was sponsored by the International Association of Providers of AIDS Care (IAPAC), in partnership with the Alliance to Eliminate HIV/HCV Coinfection (AEH2C) and Rush University Medical Center.

Sincerely,

José M. Zuniga, PhD, MPH
President/CEO, IAPAC
Proud partners in delivering clinician education about and expanding access to viral hepatitis treatment.
The 2017 International Conference on Viral Hepatitis is sponsored by the International Association of Providers of AIDS Care (IAPAC), in partnership with the Alliance to Eliminate HIV/HCV Coinfection (AEH2C) and Rush University Medical Center. We wish to express our gratitude to the institutional and commercial supporters whose generosity has made this conference possible.

INSTITUTIONAL SUPPORTERS

IAPAC

AEH2C

Alliance to Eliminate HIV/HCV Coinfection

COMMERCIAL SUPPORTERS

This activity is funded in part by unrestricted educational grants from

AbbVie

Gilead Sciences

Merck & Co.