CDC PUBLIC HEALTH GRAND ROUNDS

Working Together to Eliminate the Threat of Hepatitis B and C

Accessible version: https://www.youtube.com/watch?v=wQfjsUKYLh0
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Working Together to Eliminate Hepatitis B and C

John W. Ward, MD

Program Director, Viral Hepatitis Elimination, Task Force for Global Health
Senior Scientist, National Center for HIV/AIDS, Viral Hepatitis, STD and TB Prevention
Hepatitis B and Hepatitis C Viruses Are Blood Borne Infections

Transmission
- Exposures to contaminated blood (health care, substance abuse, perinatal)
- Sexual (greatest risk for HBV)

Chronic infection causes most morbidity and mortality
- 20%–25% lifetime risk of premature death from liver cirrhosis and cancer or extrahepatic disease
- HCV increases other disease risks (e.g., type 2 diabetes, non-Hodgkin’s lymphoma)

Prevention
- Hepatitis B vaccination
- Reduce viral exposures—universal precautions, safe injection, safer sex
- HBV and HCV testing, care and treatment; curative for HCV
HBV and HCV Are Major Global Health Threats

- **In 2000, 1.28 million deaths per year**
  - HBV: 884,000, HCV: 420,000
  - HBV and HCV cause 50% of all primary liver cancer deaths globally

- **Globally, 328 million people infected**
  - HBV: 257 million
    - 2/3 living in Western Pacific or Africa
    - Major risk: perinatal or horizontal contact among young children
  - HCV: 71 million
    - 2/3 living in Europe, south Asia, north Africa
    - Major risk: healthcare-associated transmission
    - Highest prevalence: People who inject drugs (50%)

While Other Diseases Are Declining, HBV and HCV Continue As Global Threat

HBV and HCV cause 96% of mortality from all forms of viral hepatitis

www.who.int/hepatitis/strategy2016-2021/ghss-hep/en
Global and U.S. Goals for Elimination of HBV and HCV as Public Health Threats by 2030

- UN SDG called on global community to “combat hepatitis”

- In 2016, World Health Assembly endorsed WHO global elimination goals for HBV and HCV
  - By 2030, 90% reduction in new infections and 65% reduction in deaths
  - WHO encourages development of national goals

- In 2017, U.S. IOM (NAS) developed U.S. elimination goals and recommended actions by 2030
  - Hepatitis B: 100% reduction in new cases in children age under 5 years
    50% reduction in deaths
  - Hepatitis C: 90% reduction in new cases
    65% reduction in deaths

SDG: Sustainable development goals
NAS: National Academy of Sciences
www.who.int/hepatitis/strategy2016-2021/ghss-hep/en
Hepatitis B Vaccine is the Cornerstone for HBV Elimination

Western Pacific Region achieved goal of <1% of children with HBV by 2017

Hepatitis B Vaccine Coverage and Number of Lifetime Chronic Infections by Year of Birth, Western Pacific Region, 1990–2014

- Verified (19)
- Programme improvements required (6)
- Serosurvey with <1% but not submitted (3)
- Serosurvey planned (6)
- Awaiting results of serosurvey (1)
- Under review for verification (1)
- Data not available (1)
Vaccine-based Strategies to Eliminate HBV Transmission in the United States

- **Prevent mother-to-child transmission**
  - Increase HepB birth-dose coverage from 72% to 90% or higher
  - Case management to assure HBV exposed newborns receive vaccine/HBIG at birth and follow-up

- **Test HBsAg+ mothers for HBV DNA viral load to guide maternal antiviral therapy**

- **Maintain childhood and adolescent HepB vaccine coverage >90%**

- **Improve vaccination of at-risk adults**

HBIG: Hepatitis B immunoglobulin


Reducing HBV Deaths by 50% in the United States by 2030

- **850,000–2.2 million people with chronic HBV**
  - 50% are Asian/Pacific Islanders (API); sixfold mortality risk for API
  - HBV testing recommended for persons from countries with >2% prevalence (i.e., Asia, Africa)

- **Long term therapy decreases mortality by 50-60%**

- **60% aware of their infection, and only ~15% recommended for treatment receive it**
  - Using culturally appropriate outreach, community coalitions can increase testing and linkage to treatments

HCV Can Be Cured

- 3.5 million people with HCV in U.S.
  - 81% born 1945–1965 and 70% have moderate-severe liver disease
  - Birth year cohort testing recommended by CDC and USPDTF

- HCV treatment - oral meds for 8–12 weeks
- Over 95% treated are cured
- HCV cure reduces liver related mortality by 93%

By 2030, Reduce HCV Deaths by 65% in the United States

- While 60% of persons aware of HCV diagnosis, only 22% treated
- In 2016, HCV mortality declined 7%
- Certain interventions increase testing and linkage to care and treatment
- Drug costs have declined and are cost-saving
  - Many payers continue to restrict access
  - In 2017, HCV prescriptions fell 26% for Medicaid and 40% for private payers

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“As Native People and as Cherokee Nation Citizens, We Must Keep Striving to Eliminate Hepatitis C.”

- American Indians have highest HCV incidence and mortality
- Cherokee Nation launched elimination program in 2015
  - Universal HCV testing for patients 20–69 yrs.
  - Training and electronic tools to prompt testing
  - Care managed by mid-level providers (e.g., pharmacists)
  - Health system strategies to pay for testing and treatment
  - Contact tracing to identify new HCV infections
  - Partnerships with CDC, state and local health, NGOs

Mera J, personal communication
Native People and Cherokee Nation Citizens Have Made Substantial Progress to Eliminate Hepatitis C

Mera J, personal communication
New Concern:
Rising HCV Incidence Related to the Opioid Epidemic

- In 2016, 41,200 new HCV infections in U.S.
- 80% related injection drug use
- Threefold increase since 2010
  - Adults less than 40 yrs. old, white, suburban and rural – esp. Appalachian, Midwestern, New England states
- Parallel increases in injection of prescription opioids and heroin


Reported cases/100,000 population

Elimination of HCV Transmission Requires Greater Access to Prevention Services

- Access to safe injection equipment and treatment for drug addiction can lower transmission risks by over 70%
- Add HCV therapy, cure as prevention, can reduce infection and transmission by 90%
- Areas with high HCV incidence have low SSP coverage
  - Only three states have laws supporting access to safe injections
  - 24 state Medicaid programs deny HCV treatment for recent or current PWID


- Only 20% of people 15–29 years old with HCV, live within 10 miles of one of 270 syringe service programs

New Concerns: HCV Infected Mothers and Newborns

- Increased HCV among pregnant women
- In 2014, 1 of 308 U.S. births were to HCV-infected mothers
  - 1 of 63 in Kentucky (high incidence state)
- 6–12% transmission risk for infants
- In 2018, perinatal HCV surveillance started
- Consider policies for routine HCV testing of young persons and pregnant women

Multiple prison systems
High HCV prevalence
Testing and treatment are effective prevention
- Reduces deaths and prevents new infections in the community upon release
- $20–29K per QALY
Lawsuits in 10 states for HCV treatment access

QALY: Quality-adjusted life year
Research and Evaluation Can Improve HBV and HCV Elimination Strategies

**Technical**
- HCV vaccine can reduce high HCV incidence among new injectors
- Point-of-care tests can simplify testing for current and recurrent HCV
- Next generation HBV therapies can improve treatment outcomes

**Operational**
- Simplified care models can expand access in resource-constrained settings
- Field trials of *HCV Cure as Prevention* strategies for people who inject drugs

**Evaluation and data**
- Systems to provide data to evaluate quality and monitor progress toward elimination

Making Hepatitis B History

Learn More

www.hepb.org

IT TOOK US 25 YEARS TO BRING HIM TO HIS KNEES... NOW LET'S FINISH HIM OFF...
Collaborations and Strategies to Eliminate Hepatitis B and C in San Francisco

Katie Burk, MPH
Viral Hepatitis Coordinator
San Francisco Department of Public Health
In 2016, there were 819 (95.6/100,000) newly confirmed cases of chronic hepatitis B (CHB)

About 88% of cases of CHB are among Asian/Pacific Islanders (A/PI)

- Many people of A/PI ancestry are foreign born, particularly in China
- Death rates from CHB are highest for A/PI

Multiple barriers (e.g., social or cultural, educational, language) hinder access to recommended prevention interventions
The Perinatal HBV vaccination program in San Francisco identifies and tracks pregnant, HBV+ women and ensure their infants are given the birth dose vaccine upon birth.

Since 2011, no new perinatal HBV infections

- Each year, 140–180 infants born to HBV+ women
Hep B Free Bay Area

- Mission: To turn San Francisco into the first HBV-free city in the nation
  - Founded in 2007 as a public–private partnership
  - Launched media campaign to raise awareness in 2010
Hep B Free Bay Area Efforts Led to Increased HBV Testing, Reports

- Between 2012–2014, 10,000 HBV tests performed in community settings
  - Supported by CDC grant
- In 2015, business initiative launched, creating Business Honor Roll
- In 2016, HBV linkage to care phone line launched, in multiple languages
- 2017 San Mateo County expansion
  - Y1 San Mateo County expansion targets 250 community screenings

Annual Number of HBV Reports to SFDPH

Launch of Hep B Free

Hepatitis C in San Francisco

- In 2016, there were 1,008 (117.6/100,000) newly confirmed cases of hepatitis C
  - 30% African American

- About 2.5% of the population (or 22,000 residents) have been infected with HCV

- An estimated 12,000 people currently infected with HCV

Some groups of people bear a disproportionate burden of HCV in San Francisco

A Nishimura, personal communication, Feb 2018

Facente SN, Grebe E, Burk K, et. al. PLOS ONE 13(4): e0195575
HCV Prevention and Testing Infrastructure in SF

- **Syringe exchange**
  - 7 days/week availability
  - Secondary exchange network
- **Naloxone Access**
- **HIV and HCV Testing**
- **Low-threshold methadone and buprenorphine**
- **Referrals to drug treatment**

Map of San Francisco Syringe Access and Disposal Locations

★ = syringe access and disposal sites
Representation of Impacted Communities:
End Hep C SF Coordinating Committee

Katie Burk, MPH  
SFDPH

Kelly Eagen, MD  
Tom Waddell  
Urban Health

Perry Rhodes III  
Alliance Health Project

Pauli Gray  
SFAF

Andrew Reynolds  
Project Inform

Isaac Jackson, PhD  
Urban Survivors Union

Joanne Kay  
End Hep C SF

Annie Luetkemeyer, MD  
UCSF

Meghan Morris, PhD  
UCSF

Alfredta Nesbitt  
Bayview Hunters  
Point Foundation

Melissa Sanchez, PhD  
SFDPH

Robin Roth  
SF Hep C Task Force
End Hep C SF Community Engagement Strategies

- “New Treatments Have Changed the Game” Campaign 2015
  - Video installment, 2018
- “Tales from the Cured” community meeting, August 3, 2017
- “Get Cured, Stay Cured” community meeting, March 8, 2018
- Peer-based HCV linkage program, 2018
End Hep C SF
Community-based Testing Strategies

- **HIV/HCV rapid testing sites**
  - Syringe exchange programs
  - Shelters
  - Single-room occupancy hotels
  - Residential drug treatment intake
  - Transgender wellness group

- **Lab-based testing**
  - Methadone programs
  - Jails
Increased Community-based Screening

Rapid Antibody HCV Testing, 1/1/15–12/31/17,
San Francisco Department of Public Health

Launch of End Hep C SF

Overall 2017 Antibody Reactivity Rate 18.4%

Raganold, E. SFDPH unpublished data, 2018
### Community-based HCV Rapid Tests
January 1–December 31, 2017
Reactive Tests (N=519)

<table>
<thead>
<tr>
<th>Risk Group</th>
<th>Percent of Reactives</th>
<th>Total Ab+ (N=519)</th>
</tr>
</thead>
<tbody>
<tr>
<td>IDU ever</td>
<td>92%</td>
<td>478</td>
</tr>
<tr>
<td>Ever stimulant smoking</td>
<td>84%</td>
<td>436</td>
</tr>
<tr>
<td>Homeless (in past 12 months)</td>
<td>72%</td>
<td>374</td>
</tr>
<tr>
<td>Baby Boomer</td>
<td>43%</td>
<td>225</td>
</tr>
<tr>
<td>Ever incarcerated</td>
<td>24%</td>
<td>125</td>
</tr>
</tbody>
</table>

In 2017, total number of HCV rapid tests: 2,858

IDU: Injection drug use
Raganold, E. SFDPH unpublished data, 2018
As of February 2016, 3 components of the capacity-building HCV treatment initiative for primary care physicians in the San Francisco Health Network

1. In-person training
2. eReferral consultation services
3. Individualized clinic technical assistance

<table>
<thead>
<tr>
<th>Pre- and Post-Intervention Analysis</th>
<th>Pre-intervention (16 months)</th>
<th>Post-intervention (23 months)</th>
<th>Percent Increase</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total Number</td>
<td>Number per month</td>
<td>Total Number</td>
</tr>
<tr>
<td>Total Patients Treated*</td>
<td>143</td>
<td>8.9</td>
<td>435</td>
</tr>
<tr>
<td>Total Clinics Represented among Treated</td>
<td>5</td>
<td>n/a</td>
<td>12</td>
</tr>
</tbody>
</table>

*Five treated cases had no listed PCP
HCV Treatment Access Beyond Traditional Clinic Settings: Strategy for Impact

- Discussions underway to start treatment in inpatient settings, and to restart treatment at the shelter and jail

<table>
<thead>
<tr>
<th>Clinic</th>
<th>Number of Treatment Starts</th>
<th>Treatment Completion</th>
<th>Date Treatment Program Initiated</th>
</tr>
</thead>
<tbody>
<tr>
<td>Opiate Treatment Outpatient Program (UCSF)</td>
<td>136</td>
<td>120</td>
<td>August 2016</td>
</tr>
<tr>
<td>San Francisco County Jail</td>
<td>100</td>
<td>77</td>
<td>March 2017</td>
</tr>
<tr>
<td>Residential Drug Treatment (HealthRIGHT 360)</td>
<td>69</td>
<td>67</td>
<td>January 2016</td>
</tr>
<tr>
<td>Syringe Exchange (San Francisco AIDS Foundation)</td>
<td>19</td>
<td>10</td>
<td>August 2017</td>
</tr>
<tr>
<td>Street Medicine</td>
<td>12</td>
<td>7</td>
<td>May 2016</td>
</tr>
<tr>
<td>Shelter</td>
<td>10</td>
<td>10</td>
<td>Dec 2016</td>
</tr>
<tr>
<td>Magnet (Gay Men’s Sexual Health Clinic, SFAF)</td>
<td>4</td>
<td>1</td>
<td>June 2017</td>
</tr>
<tr>
<td>Total</td>
<td>350</td>
<td>292</td>
<td></td>
</tr>
</tbody>
</table>
HCV Resources Needed

- Resources for surveillance to track negative test results, HCV cures
- Additional funding for HCV testing and linkage services for vulnerable populations
- HCV-specific nursing in high-prevalence clinics
- HCV treatment access for jail-based and privately funded populations
- Sustainable funding to support the End Hep C SF initiative
Placing New Mexico on The Path to HCV Elimination

Kimberly Page, PhD, MPH
Professor and Division Chief
Epidemiology, Biostatistics and Preventive Medicine
University of New Mexico Health Sciences Center
High Hepatitis C Virus (HCV) Burden in NM

- **High prevalence and incidence of HCV**
  - 2016 NMDOH*: 53,286 unique individuals with a positive test for HCV in 2016
  - 280.7/100,000 (vs. US 52.3/100,000)**

- **Modeling by using multiple population size sources:**#
  - 53,107 people with HCV infection

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NMDOH: New Mexico Department of Health  
*Confirmed and probable past or present HCV cases  
**CDC Enhanced surveillance sites, US 2015  
### Disproportionate Rates of Liver Disease Morbidity And Mortality in New Mexico

<table>
<thead>
<tr>
<th>Condition (year)</th>
<th>New Mexico</th>
<th>U.S.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age-adjusted/100,000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Liver disease mortality (2015)</td>
<td>25.0</td>
<td>12.5</td>
</tr>
<tr>
<td>HCC incidence or mortality (2012)</td>
<td>8.6</td>
<td>6.2</td>
</tr>
<tr>
<td>HCV-related mortality (2104)</td>
<td>10.0</td>
<td>6.0</td>
</tr>
</tbody>
</table>

**HCC**: Hepatocellular carcinoma
Following national trends, HCV is increasing among young adults
• Significant opioid use in NM

Acute HCV cases detected has increased by 40% since 2010
• Majority report injection drug use exposure as likely transmission route
• VÁLE Study of young PWID:
  • 65% have been exposed (anti-HCV positive)
  • 45% are actively infected (HCV RNA-positive)
Setting HCV Elimination Goals in NM: NM-HEP

- **HCV Elimination Collaborative**, initiated in 2016. Stakeholders include:
  - NM Department of Health
  - University of New Mexico Health Sciences Center, including Project ECHO, and Division of Epidemiology, Biostatistics, and Preventive Medicine
  - NM Department of Corrections
  - Indian Health Service
  - Tri-Core Laboratories

- Agreed to adopt an “incremental approach” with a targeted population: Medicaid population was prioritized
  - Other groups identified to focus on: the baby-boomer cohort, children, PWID, American Indians, homeless, and incarcerated populations to inform the “whole”

PWID: People who inject drugs
Program Development, Structure and Workgroups of HCV Elimination Collaborative

Steering Committee

Research and Strategic Information  HCV Prevention  HCV Testing and Linkage to Care

HCV Care and Treatment  Public Awareness and Communications

Advocacy, Policy, and Practice

Strategic Planning
Factors that Contribute to Feasibility of HCV Elimination in NM

1. Data: Informed by surveillance and research
2. HCV treatment access: Equitable policies to facilitate treatment
3. Disseminated care model to reach rural areas of NM: Project ECHO
4. Extensive prevention and treatment for PWID: Evidence-based approaches that reduce incidence
5. Department of Corrections: Programs in place
1. Data, Research, and Strategic Information

- **Surveillance**
  - NMDOH HCV reporting and surveillance of under 30-year-olds
  - Harm reduction program supported by the NMDOH

- **Research**
  - The VÁLE! Study (1U18PS004568; PI K. Page): Assesses HCV epidemiology and access to prevention and care in young adult (<30 yrs) PWID in two counties
  - HERO study: HCV treatment uptake in PWID in two clinics at UNM

- **Registry**
  - Precedent: Cancer Registry, UNM is custodian for NMDOH
  - Data exists so we are assessing feasibility
2. HCV Treatment Is Highly Accessible in NM

- NM gets an “A” *
- 47% of NM population covered by Medicaid
  - Medicaid treatment guidelines as of 2017: no restrictions by disease stage, provider type, or abstinence
- HCV treatment has increased 8-fold during 2014–2017 and is expected to continue

*Harvard Center for Health Law and Policy Innovation
No. of NM Medicaid members treated and percent approval of authorizations at year end for 2014 through 2017
F1-F4: Metavir fibrosis stages 1-4. DC: Decompensated cirrhosis. HCC: Hepatocellular carcinoma
3. Project ECHO: Building Capacity To Disseminate HCV Health Care and Reduce Health Disparities

- **41 sites in HCV teleECHO clinics**
  - ECHO has enabled widespread ramp up of DAA treatment, provider knowledge and experience for working with patients in rural areas.

- **Other teleECHO capacity**
  - Integrated Addiction and Psychiatry program: 99 providers at 41 sites
  - UNM Opioid ECHO: 69 providers at 46 sites
  - Indian Health Service: 37 clinics at 9 IHS/Tribal sites
  - Community health worker: 64 providers at 43 sites

DAA: Direct-acting antivirals
4. HCV Prevention and Treatment: Reduce and Prevent HCV In High Risk Groups

- Large population of people at risk of HCV due to injection drug use
  - Using SSP program data and capture-recapture methods, we estimate 20,150 active PWID in New Mexico in 2016
  - At least 60% have HCV, or a minimum of 12,090 persons

- Programs, policies and research supported and implemented by public health, academic and community partners
  - NM Department of Health
  - UNM Health Sciences Center: Epi-Biostat-PM, Truman Health Services, Addictions and Substance Abuse Program, Project ECHO
  - Mountain Center, El Centro, Healthcare for the Homeless, Southwest Care

SSP: Syringe services program
PWID: People who inject drugs
Extensive Support and Breadth of Prevention Services

- Extensive harm reduction services including: Syringe Services Program (SSP), education, health referrals, and naloxone distribution
  - Yearly distribution of ~6 million syringes through 2017, including rural areas
  - With new polices passed in 2017, over 9 million syringes will be distributed in 2018

- Medically Assisted Treatment (MAT) programs
  - Public and private services
  - Project ECHO Integrated Addictions and Psychiatry Program has expanded training for certified buprenorphine providers in underserved areas

- But –
  - Wait lists for MAT
  - Other drug use, including methamphetamine, is prevalent
SSP Service Points in New Mexico

SSP: Syringe services program
HCV Treatment for PWID

- For people who inject drugs (PWID), HCV treatment can break the cycle of transmission
  - Estimated 20,150 active PWID in NM in 2016
  - At least 60% have HCV, over 12,000 people
- 90% of young adult PWID report having medical insurance, making HCV treatment accessible in this high risk group
  - However, compared to older PWID, they are not accessing treatment
- New methods needed to educate and deliver treatment to this group
HCV Treatment for PWID... and more research needed

- **Ongoing treatment research – HERO Study**
  - HCV treatment in active PWID at community and MAT sites, randomized to mDOT or Patient Navigation

- **HCV vaccine research – VIP Study – results in Nov. 2018**

HERO is funded by Patient-Centered Outcomes Research Institute (PCORI) Award HPC-1503-28122 with additional support by Gilead Sciences, Quest Diagnostics, Monogram Biosciences, and OraSure Technologies.

VIP is funded by NIAID/DMID HHSN2662040074C, Clinicaltrial.gov ID: NCT01436357
5. New Mexico Corrections Department

- Currently 7,327 people incarcerated in NM (February 2018)
  - 6,524 men; 803 women
- Universal screening for HCV at entry 2009–2017
  - 27,994 unique individuals were screened for anti-HCV
  - 11,514 anti-HCV positive: 41.13%
  - 1,540 found to be anti-HCV positive while incarcerated
- HCV treatment: 106 patients (August 1, 2015 to December 30, 2017)
- Prevention: New Mexico Peer Education Project
Strategic Planning for HCV Elimination

- Strategic Planning Committee representing academia, public health department, and community, drafting strategic plan, including
  - Defined measures, strategies, and indicators of success
  - Metrics for each workgroup

- New Mexico HCV elimination website in development

- Financing: This remains a large gap and challenge for our overall effort
Goal Setting Is In Progress ...

By 2030, We Aim To:

- **PREVENT 90%** of new infections
- **IDENTIFY 80%** of those currently infected
- **LINK 90%** of those infected to treatment
- **TREAT 95%** of those infected with HCV
- **CURE 95%** of those treated
National Progress toward Hepatitis B and Hepatitis C Elimination in Australia

Benjamin C. Cowie MBBS, PhD, FRACP

Director, WHO Collaborating Centre for Viral Hepatitis, Doherty Institute,
Physician, Royal Melbourne Hospital and University of Melbourne
In 2016, estimated 2% of Australians living with chronic viral hepatitis

- GBD 2016 mortality estimates for Australia
  - Chronic hepatitis B – 900 deaths
  - Chronic hepatitis C – 1,100 deaths
  - HIV/AIDS – 74 deaths

- Liver cancer is now the 6th most common cause of cancer deaths of Australians
- Low 5-year survival – 16%, compared with 67% for all cancers
How Can We Increase Access to Treatment And Care for Chronic Viral Hepatitis to Reverse The Increasing Mortality Burden?

Example: Innovative financing solutions for HCV DAAs

• After repeated rejections and intense negotiations between pharmaceutical companies and the Australian Government, the first DAA regimens were listed on national pharmaceutical benefits scheme (PBS)
• For treatments listed on the PBS, for each month of treatment, the total co-payment by the patient is USD $30; for concessional patients, it is $5
• Competitive pricing agreed with pharmaceutical companies; innovative risk-share ‘cap’ arrangement
  - Cost to the PBS is USD $6,000–$7,500 per course
  - Lowest price-per-cure in the OECD – e.g., some European national health insurance programs paid more than 10 times as much per cure as Australia

DAA: Direct-acting antivirals
OECD: Organisation for Economic Co-operation and Development
Dore GJ. & Grebely, J. J Hepatol. 2017 Aug;67(2):419-420
Comparative Prices of Sofosbuvir and Daclatasvir Per 12-week Course

Andrew Hill at World Hepatitis Summit, 2017:

Huge variation in list prices –
- <$ 100 in India and Egypt
- $ 6,000 in Australia
- $50,000 in France
- $77,000 in the UK
- $96,000 in the USA
How Has This Financing Arrangement Influenced Models of Care?

- **Strong financial incentive for Government to liberalise access to CHC care**
  - Any doctor can prescribe—not restricted to specialists
    - Most scripts now written by nonspecialists
  - Any stage of liver disease
  - Treatment in prisons, treatment of active injectors, re-treatment all funded
  - Funding for workforce training, community groups, surveillance and monitoring
  - Still some gaps—regional areas, Indigenous Australians

- **How does this compare with CHB?**
  - Treatment on PBS, monitoring (with some restrictions) also fully reimbursed
  - Specialist model—training and certifications for General Practitioners
  - Limited community awareness and engagement
Need to Ensure Continued Focus on Prevention
Keep Downward Pressure on Incidence While Reducing Prevalence

- Harm reduction relatively strong in Australia
  - Funded needle and syringe programs, opiate replacement therapy
  - Medically supervised and safe injecting rooms in Sydney and soon in Melbourne
  - Funded peer-support organizations for people who inject drugs
  - No NSPs in prisons
  - Need to ensure continued focus on ‘turning off the tap’

- Free hepatitis B vaccination in addition to infant program
  - Broad range of funded indications on a jurisdictional basis
  - Supported by subsidized or free primary care via national insurance

NSP: Needle syringe programs
Immunization levels are approaching the 95% goal. However, for people living with CHB, over 80% are not in care and little to no improvement since 2014.
Before DAAs became available on the PBS (1st March 2016)

- Relatively high proportion diagnosed, ~ 75%
- <60% of those diagnosed had HCV RNA testing
- 1–2% of people living with hepatitis C treated per annum—significantly lower than estimated number of new infections each year

DAA: Direct-acting antivirals
PBS: Pharmaceutical benefits scheme
Australian Cascade of Care for Chronic Hepatitis C


Slide credit: Dore, G. Kirby Institute, UNSW
Australian Cascade of Care for Chronic Hepatitis C


Slide credit: Dore, G. Kirby Institute, UNSW
Australian Cascade of Care for Chronic Hepatitis C

32,550 treated, 
~14% of all Australians living with chronic hepatitis C, in 1st ten months of program

Slide credit: Dore, G. Kirby Institute, UNSW
National Viral Hepatitis Mapping Project

Hepatitis B Mapping Project: 4th National Report, 2018

Hepatitis C Mapping Project: 1st National Report, 2018
Mapping Chronic Hepatitis C in Australia

Figure 4: CHC treatment uptake by PHN, Mar 2016–Feb 2017

Figure 1: Heat map of CHC prevalence, diagnosis and treatment uptake by Primary Health Network, 2016 (green = lowest; red = highest)

Primary Health Network | Prevalence | Diagnosis | Treatment
--- | --- | --- | ---
Northern Territory | 1.0% | 43.3 | 9.4%
Western NSW | 1.0% | 71.1 | 12.6%
North Coast (NSW) | 1.5% | 50.4 | 25.9%
Northern Queensland | 1.3% | 56.0 | 14.1%
Brisbane South | 1.2% | 55.1 | 10.7%
Murrumbidgee | 1.2% | 74.5 | 10.8%
Western Queensland | 1.2% | 45.6 | 6.9%
Darling Downs and West Moreton | 1.1% | 46.8 | 13.5%
Central Queensland, Wide Bay, Sunshine Coast | 1.0% | 52.6 | 16.6%
South Eastern NSW | 1.0% | 55.6 | 19.9%
Country WA | 1.0% | 53.0 | 12.9%
Hunter New England and Central Coast | 1.0% | 60.9 | 19.3%
Tasmania | 1.0% | 45.2 | 17.0%
Central and Eastern Sydney | 1.0% | 44.5 | 20.1%
Gippsland | 1.0% | 51.7 | 21.9%
South Western Sydney | 0.9% | 46.9 | 16.7%
Murray (VIC) | 0.9% | 54.9 | 18.1%
Perth South | 0.9% | 45.0 | 11.2%
Gold Coast | 0.9% | 46.2 | 20.7%
Nepean Blue Mountains | 0.9% | 41.6 | 14.4%
North Western Melbourne | 0.9% | 45.4 | 15.0%
NATIONAL AVERAGE | 0.94% | 53.9 | 18.8%

Treatment Towards Elimination in Priority Populations

**PWID attending NSPs**
- Treatment uptake in 1st 6 months higher among PWID (20%) than in general population living with HCV (14%)
- Viraemic prevalence fell from 45% to 32%, 2015-2016

**Prison-based treatment**
- HCV virtually eliminated in 3 prisons in North Queensland by 2018
- 98% of prisoners in main prison in Canberra initiated treatment since April 2016
Is Australia on Track to Achieve The WHO 2030 Viral Hepatitis Elimination Targets?

- Modeling by the Kirby Institute suggests YES for hepatitis C
- For hepatitis B, NO
  - Substantial scale-up in diagnosis, care, treatment will be required
  - Beyond 2030, impact of overseas infant vaccination programs will be significant
- What can these two trajectories tell us about steps needed for achieving elimination goals?

- Table: Estimated year Australia Meets Each World Health Organization Target Compared to 2015 estimates

<table>
<thead>
<tr>
<th>WHO Target</th>
<th>Treatment Scenario</th>
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<tbody>
<tr>
<td>80% reduction in new chronic infections</td>
<td>Pessimistic</td>
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<tr>
<td></td>
<td>Intermediate</td>
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<tr>
<td></td>
<td>Optimistic</td>
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<tr>
<td>80% of people living with chronic HCV treated</td>
<td>2028</td>
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<td>2026</td>
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<td></td>
<td>2023</td>
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<tr>
<td>65% reduction in HCV-related deaths</td>
<td>2029</td>
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<td>2024</td>
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<td>2021</td>
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Adapted from Kwon A, Dore G, & Grebely J. Presented at AVHEC 10/08/2017
An Australian Perspective on How to Achieve Elimination

- Continued focus on prevention including harm reduction needed
- Reduce costs of care – consultations, diagnostics, treatment
  - Universal health coverage
- Community-based, primary care focus of treatment essential
- Engagement with those most affected is crucial
- Innovative methods to assess coverage, areas where response is lagging, and implement widely that which is working
- Global solutions essential—no country will eliminate in isolation
Forging Global Partnerships to Eliminate Viral Hepatitis

World Hepatitis Report 2017, World Health Organization
www.who.int/hepatitis
Working Together to Eliminate the Threat of Hepatitis B and C