The Road to Hepatitis Elimination
National Hepatitis Technical Assistance Meeting

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Conflicts of Interest

- Nothing to Disclose
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NASEM Hepatitis C elimination targets

• A 90 percent reduction in incidence of hepatitis C by 2030 (relative to 2015)
  • 35,000 cases/yr to 2,730 cases/yr

• What is needed to achieve this?
  • Aggressive treatment
    • Treat everyone regardless of disease stage
  • Aggressive case-finding / diagnosis
    • 110,000 cases/yr through 2020
    • 89,000 cases/yr 2020-2024
    • 70,000 cases/yr 2025-2030

• The same levels of diagnosis and treatment would reduce mortality from hepatitis C in 2030 by 65 percent relative to 2015, and avert 28,800 deaths by 2030.
Achieving these targets will require intervention across the entire **HCV care continuum & coordination**

- **Prevent infection**
- **Identify infected persons**
- **Link to care**
- **Cure**
- **Prevent adverse outcomes / Reinfection**

Identifying, engaging, and curing persons who are already infected with chronic HCV to prevent adverse outcomes and onward transmission.
A Brief Summary of the Recommendations

1. Strengthen systems to improve monitoring of disease burden, new infections, treatment uptake

- Prevent infection
- Identify infected persons
- Link to care
- Cure
- Prevent adverse outcomes / Reinfection
A Brief Summary of the Recommendations

1. Strengthen systems to improve monitoring of disease burden, new infections, treatment uptake

2. Support prevention, early diagnosis and treatment by expanding harm reduction, identifying settings for enhanced testing and removing treatment restrictions
A Brief Summary of the Recommendations

3. Build comprehensive, robust systems that can engage and support even the most medically complex and disenfranchised patients

1. Strengthen systems to improve monitoring of disease burden, new infections, treatment uptake

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**Summary of Recommendations**

- **Prevent infection**
- **Identify infected persons**
- **Link to care**
- **Cure**
- **Prevent adverse outcomes / Reinfection**
A Brief Summary of the Recommendations

1. Strengthen systems to improve monitoring of disease burden, new infections, and treatment uptake.

2. Support prevention, early diagnosis and treatment by expanding harm reduction, identifying settings for enhanced testing and removing treatment restrictions.

3. Build comprehensive, robust systems that can engage and support even the most medically complex and disenfranchised patients.

4. Find creative ways to finance treatments costs.

Summary of Recommendations

- Monitoring
- Key Interventions
- Service Delivery
A Brief Summary of the Recommendations

1. Strengthen systems to improve monitoring of disease burden, new infections, treatment uptake

2. Support prevention, early diagnosis and treatment by expanding harm reduction, identifying settings for enhanced testing and removing treatment restrictions

3. Build comprehensive, robust systems that can engage and support even the most medically complex and disenfranchised patients

4. Find creative ways to finance treatments costs

5. Support high priority mechanistic and implementation research
A Brief Summary of the Recommendations

1. Strengthen systems to improve monitoring of disease burden, new infections, treatment uptake.

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What is the role of health departments in achieving these recommendations?
1. Strengthen systems to improve monitoring of disease burden, new infections, treatment uptake

The CDC, in partnership with state and local health departments, should support standard hepatitis case finding measures, and the follow-up, monitoring, and linkage to care of all viral hepatitis cases reported through public health surveillance. CDC should work with the National Cancer Institute to attach viral etiology to reports of liver cancer in its periodic national reports on cancer

[Recommendation 3-1]

The CDC should support cross-sectional and cohort studies to measure HBV and HCV infection incidence and prevalence in high-risk populations

[Recommendation 3-2]
Accurate data is fundamental to an effective response

- Targets are measured with respect to current values (2015)
- If we do not have accurate baseline levels, cannot measure impact of strategies
- Current strategies underestimate prevalence, incidence and mortality
  - NHANES may underestimate chronic infections by 0.8 million (3.5 vs. 2.7 million)
  - Number of acute infections may be underestimated by 80%
  - HCV-associated liver deaths may be underestimated by 50%

Critical information / indicators

• **Surveillance / Case reporting**
  - HCV prevalence
  - Number of new diagnoses (incidence vs. new diagnoses)
  - Number/proportion linked to care
  - Number/proportion initiated treatment
  - Number/proportion cured
  - Number/proportion of liver cancer cases
  - Number/proportion of deaths

• **Epidemiologic studies**
  - HCV prevalence (among key populations such as PWID)
  - HCV incidence
  - Number reininfected / reinfection rates

• **Need granular, local data**
  - By age, sex, race, risk group and geography
Local data informs local responses

Data Sources / critical needs

• Leverage electronic health/laboratory records
  • Autoprocessing to reduce human capital needs
Leveraging electronic health records for surveillance

- Partnership between Harvard Center for Excellence in Public Health and Massachusetts Dept of Health
- Automatic disease detection and reporting system that draws on electronic patient records
  - Extracts data from patient health records and applies case detection algorithms
  - Electronically sends data to health departments for further investigation
- Improves speed and accuracy
- Needs to be supplemented with routine case-finding
- Codes publicly available and compatible with different electronic medical packages

Allen-Dicker and Klompas, 2012; Birkhead et al., 2015; Klompas, 2016; Klompas et al., 2008; Klompas et al., 2012; Lazarus et al., 2009
Data Sources / critical needs

• Leverage electronic health/laboratory records
  • Autoprocessing to reduce human capital needs

• Linkages across states / registries (e.g., death)

• Reporting of negative results as important as positive (e.g., incidence, cure)

• Integrate HCV antibody and HCV RNA testing into ongoing surveys that target high risk groups
  • NHBS for HIV among MSM, PWID, high risk heterosexual
  • Surveys of federal, state and local correctional facilities
Surveillance and epidemiologic data provide complementary information.

Office of Viral Hepatitis Prevention, Chronic Hepatitis C Infections in California, June 2017; Morris MD et al Clin Infect Dis 2017
Leveraging cohort data to monitor incidence, prevalence, HCV care engagement

Among 269 HCV antibody positive PWID recruited from 2016-2017

Mehta SH et al J Infect Dis 2011
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- Novel ways to measure impact?
  - Estimate incidence from cross-sectional surveys?
  - Community viremia?
How to achieve with limited resources?

- Learn from successful efforts
- Leverage HIV resources where possible
- Partnerships (e.g., academia)
  - Focus on Big Data
  - Students to help mine / analyze data?
2. Support prevention, early diagnosis and treatment by expanding harm reduction, identifying settings for enhanced testing and removing treatment restrictions

States and federal agencies should expand access to syringe exchange and opioid agonist therapy in accessible venues
[Recommendation 4-2]

Public and private health plans should remove restrictions that are not medically indicated and offer direct-acting antivirals to all chronic hepatitis C patients.
[Recommendation 4-5]

The Centers for Disease Control and Prevention should work with states to identify settings appropriate for enhanced viral hepatitis testing based on expected prevalence
[Recommendation 4-4]

Summary of Recommendations  Monitoring  Key Interventions  Service Delivery
Expanding **harm reduction** based on surveillance data

- Coverage of NSPs and OAT is insufficient particularly given changing opioid epidemic
- Identifying locations where new cases occur / service needs unmet will help to target

Allen ST et al *J Urb Health* 2016
Identifying settings with high prevalence to implement opt-out testing

- Evidence base insufficient to recommend universal testing
- Surveillance data can help to identify settings that need universal testing (NSP, OAT programs, Emergency department, Prisons)
3. Build comprehensive, robust systems that can engage and support even the most medically complex and disenfranchised patients

The Department of Health and Human Services should work with states to build a comprehensive system of care and support for special populations with hepatitis B and C on the scale of the Ryan White system. [Recommendation 5-3]

AASLD and IDSA should partner with primary care providers and their professional organizations to build capacity to treat hepatitis B and C in primary care. The program should set up referral systems for medically complex patients [Recommendation 5-2]

The criminal justice system should screen, vaccinate, and treat hepatitis B and C in correctional facilities according to national clinical practice guidelines. [Recommendation 5-4]
Integrating HCV testing & treatment services

• While HCV testing is increasingly being conducted in NSPs, referral services are more sparse
  • **TESTING:** 78% urban, 79% suburban, 67% rural
  • **REFERRAL:** 44% urban, 43% suburban, 33% rural

• Numerous studies have demonstrated the benefit of integrating HCV treatment with OAT

• ECHO-like programs for primary care integration

Des Jarlais DC et al MMWR 2015; Kresina TF et al 2008; Litwin et al 2005
Maryland Community-Based Program to Test and Cure Hepatitis

- Partnership between public health, academic medical center and clinical partners
  - Maryland Dept of Health, Baltimore City Dept of Health, Baltimore County Dept. of Health
  - Johns Hopkins Viral Hepatitis Center
  - Baltimore City STD clinic, Chase Brexton Health Services, Health Care for the Homeless, Jai Medical Center, Total Health Care

- Primary care providers complete:
  - One-day full conference on hep C specialty care
  - Mini-clinical preceptorship
  - Weekly lectures and case discussion (6 mos)
  - Rigorous exam

- As of late 2016, 31 clinicians trained (6 enrolled in cohort 3)
Achieving these ambitious recommendations will require partnerships and innovation...

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