Hepatitis C Virus Surveillance
Examples from Wisconsin

Lauren Stockman, MPH
Hepatitis C Epidemiologist
NASTAD Hepatitis Technical Assistance Meeting
Washington, DC
October 20, 2015
Public Health Surveillance

“Public health surveillance is the systematic, ongoing collection, management, analysis, and interpretation of data followed by the dissemination of these data to public health programs to stimulate public health action.”

*CDC’s Vision for Public Health Surveillance in the 21st Century, MMWR, 2012*
Hepatitis C Surveillance Data

Specimens

Healthcare Provider

Laboratory

Specimens

Public Health Testing Site

Results to providers

Laboratory reporting of positive results

Results to providers

Case Reports

Wisconsin Electronic Disease Surveillance System

- Secure, web-based
- Receive case report forms
- Receive laboratory data
- Accessed by Viral Hepatitis Prevention Coordinator and health department staff

Weekly transmission of acute hepatitis C virus (HCV)

Issues sent back to state for resolution

Data Collection - Analysis - Health Action
Prevalence Estimate:

- People living with hepatitis C virus (HCV), reported infections: 36,000
- Estimated HCV infections: 74,000
- People with HCV in the southeastern region: 52%
Analysis

Incidence Estimate:

- Past or Present reported in 2014: 3,168 (rate: 55 per 100,000)
- Acute reported in 2014: 49 (rate: 0.7 per 100,000)
Incidence Estimate:

- Reports from people age 15–29 in 2014: **895**
- Rate in this age group: **78 per 100,000**
- Increase in number of reports compared to 2007: **Five times**
Analysis

Annual Case Count

Annual Population-based Rate

Number of Cases

- 1 - 16
- 17 - 44
- 45 - 100
- 101 - 250
- 797

Rate per 100,000 Population

- 10 - 17
- 18 - 36
- 37 - 56
- 57 - 93
- 94 - 227
Analysis

Annual Population-based Rate

Rate per 100,000 Population
- 10 - 17
- 18 - 36
- 37 - 56
- 57 - 93
- 94 - 227

Data Collection → Analysis → Health Action
Analysis: Trends

Trends in Sex:

- HCV is more common among males:
  - 61% of reports in 2014 were from men.
  - 65% of known living with HCV are men.
- New reports in females have increased since 2003.

Percentage of HCV Infections, by Sex, Wisconsin, 2003-2014

Data Collection Analysis Health Action
Young people under age 30:

- Reports increased five-fold.
- Most are White, non-urban.
- Attributed to recent injection drug use.
- Rates similar in male and female.
Wisconsin Department of Health Services

Analysis

**Baby boomers** born 1945-1965:

- Make up two thirds of all HCV cases reported in Wisconsin.
- Have a higher rate of HCV hospitalizations.
- Have a higher rate of liver transplants.
- More often male than female.

Photo source, CDC: [http://www.cdc.gov/knowmorehepatitis/Media/PDFs/FactSheet-Boomers.pdf](http://www.cdc.gov/knowmorehepatitis/Media/PDFs/FactSheet-Boomers.pdf)
Racial disparities:

- HCV disproportionately impacts minorities.
- Rate of new HCV reports in Blacks is \textit{twice} that of Whites.
- Rate of new HCV reports in American Indians is almost \textit{three times} that of Whites.
Analysis:
Context and Comparisons

Reports of Selected Diseases, Wisconsin, 2012

Number of Cases

<table>
<thead>
<tr>
<th>Disease</th>
<th>Cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hepatitis A</td>
<td>21</td>
</tr>
<tr>
<td>TB</td>
<td>71</td>
</tr>
<tr>
<td>Syphilis</td>
<td>266</td>
</tr>
<tr>
<td>HIV</td>
<td>241</td>
</tr>
<tr>
<td>Hepatitis B</td>
<td>393</td>
</tr>
<tr>
<td>Hepatitis C</td>
<td>2,608</td>
</tr>
</tbody>
</table>

Data Collection → Analysis → Health Action
Analysis: Summary

If HCV surveillance data is available, VHPC, epidemiologist, data analyst, student might:

• Count number confirmed and probable reported
• Use age 15–29 as proxy for recent transmission
• Look at a 5-year trend
• Find percent of reports by sex and age group
• Use county or zipcode to look within key geographic areas
More Data Options

If HCV surveillance data is not available or to supplement surveillance data, use:

• Hospitalizations, emergency department visits
• Medicaid claims
• Mortality data
• State or private laboratory data
• Opioid or heroin treatment admission data
• Research by academic partners
Hospitalization Data

Hospitalizations for HCV or HIV, Wisconsin, 2010-2012

- **Hepatitis C**
  - 2010: 3,891
  - 2011: 3,966
  - 2012: 3,865

- **HIV**
  - 2010: 1,223
  - 2011: 1,213
  - 2012: 1,249

Age-adjusted Rate of HCV Hospitalization, Wisconsin, 2003-2012

- 2003: 50 per 100,000
- 2006: 71 per 100,000
- 2012: 58 per 100,000
Vital Records Data


Data Collection
Analysis
Health Action
Vital Records Data

- 80 percent of HCV deaths occurred in persons aged 45-64 years.
- The median age of death related to HCV was 57 years.
- On average, those who had a death related to HCV died 22 years younger than those who died of other causes.
Injection Drug Use Data

Rates of Heroin Overdoses and Deaths, Wisconsin, 2008-2012

Data Collection  Analysis  Health Action

Source: Journal Sentinel July 7, 2015
Heroin Deaths

Heroin-related deaths

- 0
- 1 - 5
- 6 - 10
- 11 - 20
- 21 - 48

2008 (n=67)

2012 (n=187)

Data Collection → Analysis → Health Action
Hepatitis C in Young People

HCV infections age 15 - 29 years

- 0 - 4
- 5 - 22
- 23 - 45
- 46 - 145

2008 (n=210)

2014 (n=721)

Data Collection
Analysis
Health Action
Syndromic Surveillance

**BioSense** Platform

- Supported by CDC to enhance national health surveillance
- Used by state and local health departments
- Contains emergency department, hospitalization and ambulatory visits
- Includes free-text of chief complaint and triage notes
- Allows users to find increases in injection drug use within the state
Syndromic Surveillance

Example results

- Emergency department visits with a chief complaint of:
  - injection drug use
  - heroin
- Real time, up-to-date
- Mapped by facility or patient residence
Concurrent HIV/HCV Surveillance

- Hepatitis C Program collaborates with HIV Surveillance Team
- Look for recent HCV infection among people living with HIV
- Match individuals across surveillance systems
- Rapidly link to care, treatment and prevention services
Concurrent HIV/HCV Surveillance

Example: Report monitoring recent HIV/HCV coinfections
Disseminate and Use Data

• Create annual reports
• Integrate within state HIV programs and publications
• Create fact sheets and infographics
Disseminate and Use Data

- Monitor counties at risk for HCV transmission
- Help prioritize resources and HCV tests
- Help focus education and training
- Conduct individual case investigation and guide follow-up
Thank You!

Contact for Questions:

Lauren Stockman, MPH
Hepatitis C Epidemiologist
Lauren.stockman@wi.gov

Sheila Guilfoyle
Viral Hepatitis Prevention Coordinator
Sheila.guilfoyle@wi.gov