Hepatitis C (HCV) and HIV Co-infection in NYC: Findings from the PCSI Syndemic Project

Ann Drobnik, MPH
Division of Disease Control
Program Collaboration and Service Integration (PCSI) Initiative
Relationship between HIV and Hepatitis C

• Common transmission routes\(^1\)
  – Injection drug use
  – Sexual transmission (less clear)

• HIV accelerates the progression of liver disease among those with HCV\(^2\)

• Hepatitis C is a leading cause of death in people with HIV\(^3\)

**PCSI Syndemic Project**

*Syndemic*: infection with two or more diseases resulting in worse health outcomes than would be experienced with either disease alone

*PCSI Syndemic Project*: match of HIV, TB, STD, hepatitis B, hepatitis C surveillance data and vital statistics deaths to identify potential syndemics of infectious disease in NYC
Definition of Cases Included

• HIV and Hepatitis C
  – Existing cases alive as of January 1, 2000 & new cases reported between January 1, 2000 & December 31, 2010

• Deaths
  – NYC vital records deaths between 2000 and 2011
People in the HCV dataset matching with other diseases, NYC, 2000-2010

- HCV only – 80%
- HCV+HBV – 3%
- HCV+HBV+HIV – 1%
- HCV+HIV – 14%
- HCV+ other diseases – 2%
- HCV+ other diseases – 2%

Total with HCV = 157,750

Source: NYC DOHMH, Division of Disease Control, PCSI Syndemic Project, 2012
Death within 3 years of HCV report, by HIV status, NYC, 2000-2010

Source: NYC DOHMH, Division of Disease Control, PCSI Syndemic Project, 2012
Premature Mortality, NYC, 2000-2011

*Premature mortality is defined as death before age 65

Source: NYC DOHMH, Division of Disease Control, PCSI Syndemic Project, 2012
# Causes of Death, NYC, 2000-2011

<table>
<thead>
<tr>
<th>Causes of Death</th>
<th>No HCV or HIV</th>
<th>HCV mono-infection</th>
<th>HCV/HIV co-infection</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N=618,970</td>
<td>N=14,869</td>
<td>N=5,678</td>
</tr>
<tr>
<td>Cardiovascular</td>
<td>46.6%</td>
<td>25.9%</td>
<td>10.6%</td>
</tr>
<tr>
<td>Non-liver cancer</td>
<td>23.7%</td>
<td>15.9%</td>
<td>7.8%</td>
</tr>
<tr>
<td>Other</td>
<td>22.9%</td>
<td>20.3%</td>
<td>10.4%</td>
</tr>
<tr>
<td>Diabetes</td>
<td>3.4%</td>
<td>3.7%</td>
<td>1.2%</td>
</tr>
<tr>
<td>Drug related</td>
<td>1.3%</td>
<td>7.6%</td>
<td>9.3%</td>
</tr>
<tr>
<td>Liver cancer</td>
<td>0.8%</td>
<td>8.2%</td>
<td>2.5%</td>
</tr>
<tr>
<td>Cirrhosis</td>
<td>0.8%</td>
<td>4.7%</td>
<td>1.6%</td>
</tr>
<tr>
<td>Viral hepatitis</td>
<td>0.3%</td>
<td>11.9%</td>
<td>3.4%</td>
</tr>
<tr>
<td>HIV/AIDS</td>
<td>0.3%</td>
<td>2.0%</td>
<td>53.3%</td>
</tr>
</tbody>
</table>

Source: NYC DOHMH, Division of Disease Control, PCSI Syndemic Project, 2012
Causes of Premature Death among People with HCV by Age Group, NYC 2000-2011

Source: NYC DOHMH, Division of Disease Control, PCSI Syndemic Project, 2012
Conclusions

• Limitations
  – Deaths included only those that occurred in NY
  – Persons undiagnosed or unreported were classified as not having disease

• Strengths
  – First match of NYC HCV and HIV surveillance data
  – Large timeframe and vital records data allow for many questions to be answered
Conclusions

• Large proportion of deaths that are premature indicates a need to identify HCV-infected people earlier and link to care

• Most HCV deaths are not directly related to HCV
  – About ¼ of deaths are due to liver related causes

• Interventions like overdose prevention, harm reduction and drug treatment can prevent drug-related deaths
Matching New York City Viral Hepatitis, Tuberculosis, Sexually Transmitted Diseases and HIV Surveillance Data, 2000-2010

Viral hepatitis (hepatitis B and C), tuberculosis (TB), HIV and other sexually transmitted diseases (STDs), including chlamydia, gonorrhea and syphilis, often affect the same

Key Findings:
- The majority of people with both HIV and syphilis are men who have sex with men (MSM).
- The majority of HIV/hepatitis C co-infected cases are among people with a history of injection drug use (IDU).
- Rates of hepatitis B and hepatitis C among people with HIV are highest in neighborhoods where 30% or more of residents live below the federal poverty level

Acknowledgements

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