Using Surveillance Data for Linkage to Care in Baltimore City, Maryland

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MISSION

- The mission of the Prevention and Health Promotion Administration is to protect, promote and improve the health and well-being of all Marylanders and their families through provision of public health leadership and through community-based public health efforts in partnership with local health departments, providers, community based organizations, and public and private sector agencies, giving special attention to at-risk and vulnerable populations.

VISION

- The Prevention and Health Promotion Administration envisions a future in which all Marylanders and their families enjoy optimal health and well-being.
Hepatitis C in Maryland

- In 2016, 8,004 cases of past/present HCV* reported.
  - Of these, 2,214 cases were reported in Baltimore City.
- Recent estimate of anti-HCV antibody prevalence: 82,000

Source: Maryland's NEDSS. Cases of Selected Notifiable Conditions Reported in Maryland in 2016. HepVu (www.hepvu.org). Emory University, Rollins School of Public Health, in partnership with Gilead Sciences, Inc.

* 2012 Hepatitis C, Chronic Case Definition, CSTE.
Program Approach

Surveillance Data

- Viral Hepatitis reportable in Maryland (COMAR 10.06.01.03)
- NEDSS HCV cases pulled from 7/1/12-11/30/15
  - Positive lab results
  - Patient and ordering provider contact information

Outreach and Field Follow-up

- Outreach to providers
- Requests for assistance from providers
- Outreach to “out-of-care” patients
  - Record searches, phone calls, field visits, transportation assistance
- Linkage-to-care process/outcomes documented in PRISM
Work with NEDSS Data

- Targeted effort to update NEDSS reports
  - Input backlogged paper reports
  - Updated process to attach paper reported labs in the same format as ELR
- Initial focus on positive HCV RNA reports (7/1/2014-11/30/2015)
- Updated NEDSS export back to 7/1/2012 and included positive Ab results with no indication of RNA test performed
  - Negative RNA or no RNA test performed?
- Combined investigation and lab report data for most recent provider contact information
Dataset Creation Steps

• Export data from NEDSS
  • Templates for investigations and for lab results

• Investigations
  • Query based on positive RNA or antibody results

• Lab results (paper and electronic)
  • Query based on whether an antibody or RNA test was ordered
  • Use LOINC codes
Dataset Creation Steps

• Identify positive tests
  • Text result coded as positive
  • Any numeric values

• Create dataset of individuals with positive RNA test or positive antibody test and no RNA test
  • De-duplicate
  • Exclude individuals with ≥3 negative RNA tests after one positive test
    • Potentially cured
### Preliminary Demographics from NEDSS data 7/1/12-6/30/14

#### Baltimore City Data

<table>
<thead>
<tr>
<th>Age Group</th>
<th>HCV RNA+ (4,275)</th>
<th>HCV Ab+ (2,398)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N (%)</td>
<td>N (%)</td>
</tr>
<tr>
<td>Male</td>
<td>2,322 (54.3)</td>
<td>841 (35.1)</td>
</tr>
<tr>
<td>Female</td>
<td>1,273 (29.8)</td>
<td>622 (25.9)</td>
</tr>
<tr>
<td>Unknown/Missing</td>
<td>680 (15.9)</td>
<td>935 (39.0)</td>
</tr>
<tr>
<td>Age Group*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0-14</td>
<td>8 (0.2)</td>
<td>7 (0.3)</td>
</tr>
<tr>
<td>15-20</td>
<td>5 (0.1)</td>
<td>5 (0.2)</td>
</tr>
<tr>
<td>21-30</td>
<td>77 (1.8)</td>
<td>87 (3.6)</td>
</tr>
<tr>
<td>31-40</td>
<td>193 (4.5)</td>
<td>243 (10.1)</td>
</tr>
<tr>
<td>41-50</td>
<td>583 (13.6)</td>
<td>421 (17.6)</td>
</tr>
<tr>
<td>51-60</td>
<td>1,935 (45.3)</td>
<td>994 (41.5)</td>
</tr>
<tr>
<td>61-70</td>
<td>1,260 (29.5)</td>
<td>539 (22.5)</td>
</tr>
<tr>
<td>71+</td>
<td>214 (5.0)</td>
<td>102 (4.3)</td>
</tr>
<tr>
<td>Baby Boomers**</td>
<td>2,916 (68.2)</td>
<td>1,357 (56.6)</td>
</tr>
</tbody>
</table>

*Age as of 8/8/2017
**Born between July 1, 1946 and June 30, 1964
Outreach to Providers

- Identified providers/health care agencies with high-volume HCV reporting
  - Reached out to develop relationships and identify best contacts

- Providers of individuals with a positive RNA test contacted if no evidence of care in the past 6 months
  - Work done by HCV Public Health Representative, Acute Communicable Diseases

- Based on response from providers, individuals categorized as:
  - Cured
  - In care
  - Out of care
  - Deceased
Cases Sent for Linkage-to-Care

• Those with positive antibody test and no indication of having received an RNA test are automatically sent to the linkage to care team

• Prioritize linkage to care list based on:
  • Age
    • Baby boomers and those ≤ 35 years of age prioritized
  • Lab report from substance abuse treatment center
Linkage-to-Care Field Work

- Program developed February 2016
  - Modeled from the existing HIV care linkage program
- 10 professionally trained Care Linkage Investigators
- “Disease Intervention Specialist” model
  - Record searches
  - Field visits
- Active Linkage
  - Transport to 2 appointments
  - Incentives for attending
Program Outcomes

Linkage to care outcomes of closed cases as of 11/15/2017

*3 individuals were encountered during outreach and requested a referral to HCV care. 2 partners of the original client requested linkage to HCV testing. Both tested positive for active HCV infection and were linked to care.
## Outcomes by Initiation Type

<table>
<thead>
<tr>
<th>Initiation Type</th>
<th>Ab+ needing RNA confirmation (N=180)</th>
<th>RNA+ thought to be out of care (N=614)</th>
<th>Referred by external partners (N=218)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N (%)</td>
<td>N (%)</td>
<td>N (%)</td>
</tr>
<tr>
<td>Linked to care</td>
<td>54 (30.0)</td>
<td>237 (38.6)</td>
<td>92 (42.2)</td>
</tr>
<tr>
<td>Already in care</td>
<td>21 (11.7)</td>
<td>126 (20.5)</td>
<td>30 (13.8)</td>
</tr>
<tr>
<td>Refused care</td>
<td>20 (11.1)</td>
<td>61 (9.9)</td>
<td>20 (9.2)</td>
</tr>
<tr>
<td>Outside Baltimore City</td>
<td>6 (3.3)</td>
<td>10 (1.6)</td>
<td>6 (2.8)</td>
</tr>
<tr>
<td>Deceased</td>
<td>16 (8.9)</td>
<td>29 (4.7)</td>
<td>0 (0.0)</td>
</tr>
<tr>
<td>Cannot locate</td>
<td>63 (35.0)</td>
<td>151 (24.6)</td>
<td>70 (32.1)</td>
</tr>
</tbody>
</table>
### Outcomes by Age Group*

<table>
<thead>
<tr>
<th></th>
<th>0-25 (N=10)</th>
<th>26-40 (N=96)</th>
<th>41-55 (N=438)</th>
<th>56-70 (N=388)</th>
<th>71+ (N=21)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Linked to care</strong></td>
<td>1 (10.0)</td>
<td>28 (29.2)</td>
<td>171 (39.0)</td>
<td>155 (39.9)</td>
<td>11 (52.4)</td>
</tr>
<tr>
<td><strong>Already in care</strong></td>
<td>2 (20.0)</td>
<td>7 (7.3)</td>
<td>64 (14.6)</td>
<td>88 (22.7)</td>
<td>3 (14.3)</td>
</tr>
<tr>
<td><strong>Refused care</strong></td>
<td>2 (20.0)</td>
<td>10 (10.4)</td>
<td>48 (11.0)</td>
<td>37 (9.5)</td>
<td>0 (0.0)</td>
</tr>
<tr>
<td><strong>Outside Baltimore City</strong></td>
<td>0 (0.0)</td>
<td>6 (6.3)</td>
<td>10 (2.3)</td>
<td>5 (1.3)</td>
<td>0 (0.0)</td>
</tr>
<tr>
<td><strong>Deceased</strong></td>
<td>1 (10.0)</td>
<td>1 (1.0)</td>
<td>14 (3.2)</td>
<td>24 (6.2)</td>
<td>3 (14.3)</td>
</tr>
<tr>
<td><strong>Cannot locate</strong></td>
<td>4 (40.0)</td>
<td>44 (45.8)</td>
<td>131 (29.9)</td>
<td>79 (20.4)</td>
<td>4 (19.0)</td>
</tr>
</tbody>
</table>

*Age at date of field record initiated in PRISM
Moving Forward

• Follow up with individuals who were unable to locate or refused care

• Expand the program to other jurisdictions

• Discuss the feasibility of negative HCV RNA lab reporting and antibody to RNA reflex testing

• Use linkage-to-care outcomes data to update NEDSS
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Questions?