Using NYC Hepatitis C Surveillance Data to Increase Testing and Linkage to Care

Fabienne Laraque, MD, MPH
Medical Director
Viral Hepatitis Program
Bureau of Communicable Disease
Division of Disease Control
NYC DOHMH

Viral Hepatitis Coordinators Meeting October 2015
Using NYC Hepatitis C Surveillance Data

- Components of surveillance data:
  - Patient name, sex and date of birth, address
  - Testing provider/facility
  - Positive HCV antibody tests
  - Positive HCV RNA tests
  - As of mid-2014: *negative* HCV RNA tests
  - Genotype tests

- Support the design of interventions that address gaps in the HCV care cascade

- Using surveillance data, we can:
  - Help identify where the gaps are
  - Determine who is infected and who needs the interventions
  - Evaluate the effect of interventions
Treatment and Cure Algorithms

- Use patterns of positive and negative RNA test results to predict whether an individual in the surveillance database has been treated and cured
- Develop algorithms for linkage, treatment and cure
- Validate algorithms with databases of individuals known to be treated and/or cured
- Example treatment algorithm:
  Most recent RNA test reported in 2014 is negative; AND patient has any prior positive RNA reported

<table>
<thead>
<tr>
<th>Check Hep C</th>
<th>Treated</th>
<th>Not Treated</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Treated</td>
<td>172</td>
<td>80</td>
<td>252</td>
</tr>
<tr>
<td>Not Treated</td>
<td>10</td>
<td>315</td>
<td>325</td>
</tr>
<tr>
<td>Total</td>
<td>182</td>
<td>395</td>
<td>577</td>
</tr>
</tbody>
</table>

Sensitivity: 94.5%
Specificity: 79.8%
Positive Predictive Value: 68.3%
Negative Predictive Value: 96.9%
Developing Definitions for Use with Surveillance Data

- Linkage to care
  - AB+ and 1-2 subsequent RNA
  - Genotype
- Treatment
  - 1+ negative RNA after positive RNA
- SVR
  - 3+ negative RNA after positive RNA
NYC HCV Estimated Treatment Cascade

*Prevalence estimates among persons ≥ 20 years: Balter et al, Epidemiol Info 2013
Check Hep C Care Cascade, NYC, 2013

<table>
<thead>
<tr>
<th>Stage</th>
<th>No. Participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enrolled</td>
<td>388</td>
</tr>
<tr>
<td>Assessment</td>
<td>371</td>
</tr>
<tr>
<td>Medical Evaluation</td>
<td>299</td>
</tr>
<tr>
<td>Eligible Treatment Candidate</td>
<td>219</td>
</tr>
<tr>
<td>Initiated Treatment*</td>
<td>129</td>
</tr>
<tr>
<td>Completed Treatment*</td>
<td>107</td>
</tr>
<tr>
<td>SVR*</td>
<td>99</td>
</tr>
</tbody>
</table>

Project completed, one year duration

26%
Creating an Epidemiologic Profile for Hepatitis C in NYC

- Annual Surveillance Report
- Describe chronic hepatitis C infection by sex, age, borough, and zip code

Hepatitis B and C Surveillance Report

New York City, 2013
(Published February 2015)

People Newly Reported with Chronic Hepatitis C in NYC by Zip Code, 2012-13
Making Hepatitis C Surveillance Data Available in NYC

- EpiQuery
  - Makes surveillance data publicly available
  - Website that allows individuals to query the surveillance data, to look at hepatitis C rates in different subgroups, over time, and by neighborhood
    - Summarized in tables and maps
Outreach to Hospitals: Testing Feedback and Line Lists

- Provide hospitals with feedback on their HCV testing practices
- Provide tools and resources to improve linkage to care among their own patients
  - Identified hospitals/large medical centers with:
    - high volume of HCV patients
    - low proportion of RNA confirmatory testing for antibody-positive patients
- Sent letters to CEOs, CMOs, lab directors, heads of GI, ID, and internal medicine, offering:
  - Technical assistance
  - Guidance/educational materials for providers
  - Line lists of patients in need of RNA and/or genotype testing
RNA Testing for HCV Clinical Exchange Network Hospitals

- Goals of Network: increase screening and RNA confirmatory testing at 34 NYC acute care hospitals and increase treatment capacity
  - Started in September 2015
  - Calculate how many individuals tested at each hospital have an RNA test reported within 3 months of a positive antibody test and follow over time
  - Inform hospitals of these testing rates
  - Work with ‘Hepatitis C Champions’ at each hospital to improve outcomes (screening, RNA testing, linkage to care, and treatment)
Outreach to Patients: Texting to Increase Linkage to Care

- Use proactive text messaging to encourage newly diagnosed individuals to seek care and receive RNA confirmatory testing
  - Since 2004, quarterly mailings are sent to all newly reported individuals in the surveillance system with positive antibody or positive RNA test
    - Inform them of their positive test
    - Provide educational materials and a list of providers where they can receive care
  - Little/unknown impact, large amount of time and effort
- Using more modern technology, evaluating effectiveness of outreach with proactive text messaging
  - Targeting younger individuals?
    - 47% of 18-50 year olds have a cell phone listed in the surveillance database compared to 32% of those 50 or older
Texting to Increase Linkage to Care

- Compare impact of texting vs. routine mailing on RNA confirmatory testing
  - Identify newly reported individuals with no RNA testing who have a cell phone number in the surveillance database
  - Randomize individuals to receive text message or letter
  - Calculate response to text and subsequent RNA testing rates in both groups 3 months and 6 months later
- Pilot in July 2015, to test 3 texting languages
- Full implementation began September 2015
  - 88 texted, 90 sent letter
  - Next wave scheduled for early November 2015
- Overall 23% consented to further texts
- 12% had a subsequent RNA test within 3 months on receiving the text
Matching Hepatitis C to Other Datasets

• New York City Death Registry
  • Part of a larger, multi-Bureau effort to link disease surveillance data to NYC mortality data
  • Calculate mortality statistics for those with hepatitis C infection

• New York State Cancer Registry
  • Matched hepatitis B and C surveillance data to all cases of hepatocellular carcinoma diagnosed in NYS from 2001-2012
  • Examine the relationship and timing between liver cancer, hepatitis B and C infection, and death
    • Results indicate the need for increased and earlier screening for both viral hepatitis and liver cancer
Conclusions

- Surveillance data are invaluable in describing gaps in HCV care and treatment
- Surveillance data can be used in multiple, innovative ways to target both patients and providers
- Multipronged approaches are necessary to address issues such as RNA confirmatory testing and linkage to care
Questions?

- flaraque@health.nyc.gov