Utilizing GIS Vulnerability Mapping to Allocate Resources for a Syringe Services and Drug User Health Program

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Rhode Island Facts

- Land Size: 37 x 47 Miles
- Population Size: 1.05 Million
  - #43 Nationally
  - 2nd most densely populated U.S. state
- Race/Ethnicity
  - 6% Black/African American
  - 12% Hispanic
  - 81% White
- 10th in US for Overdose Death Rate
- One Health Department
- Geographic Distribution
  - 5 counties → 64% of population lives in Providence County
CDC in 2016: 220 Counties “at risk” for outbreaks

Where Disease Eruption Is a Threat
A CDC report identified 220 counties where factors such as unemployment rates, overdose deaths and sales of prescription painkillers contribute to a high vulnerability for outbreaks of HIV and hepatitis C among injection drug users.

Counties vulnerable to outbreaks of HIV and hepatitis C

Source: Centers for Disease Control and Prevention
THE WALL STREET JOURNAL.
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Vulnerability Assessment

• CDC funded 41 health departments to conduct the following activities:
  o Develop Jurisdiction-level vulnerability assessments that identify sub-regional areas at high-risk for:
    o Opioid overdoses
    o Bloodborne infections (HIV, HCV, HBV) associated with unsterile injection drug use
  o Disseminate vulnerability assessment findings
  o Develop a plan to address prevention and intervention gaps in vulnerable areas
  o Initiate implementation of the plan
The VILLAGE Project

**Vulnerability Investigation of underlying Local risk and Geographic Events**

We used multiple datasets to identify both towns and neighborhoods in Rhode Island that may be at risk for a future outbreak of HIV infection or other drug-related harms. Using Rhode Island’s own detailed geographic data, we were able to answer **our big question:**

**What areas in Rhode Island are at greatest risk for future overdoses and other drug-related harms?**
VILLAGE Project Timeline

July 2018
- Funding opportunity was announced

September 2018
- Contracted with Brown University
- Advanced mathematical modeling to rank all census tracts

February 2019
- First draft was completed
- Results were displayed on a user-friendly map

March 2019
- RIDOH released RFP for SSP utilizing the VILLAGE Project Map

November 2019
- Brown University released the final version of “The VILLAGE Prevention Plan” – Find in your app!
The right level of detail....

- **County**
  - Counties in RI: 5
  - Examples: Original CDC assessment, crime data, some statewide reports

- **City**
  - Cities in RI: 39
  - Examples: 48 Hour Reporting data, Naloxone distribution data, PDMP data

- **Zip Code**
  - Zip Codes in RI: 77
  - Examples: Treatment admissions data

- **Census Tract**
  - Census tracts in RI: 240
  - Examples: Overdose death location, census tract data (housing, demographics, income)
Many data sets were combined, including census and surveillance data.

The data was analyzed by the Brown team of epidemiologists using computers.

The results were refined and then put on a map that would be understandable.

We presented our map and the results to stakeholders and diverse audiences.

There were many questions and ideas from experts and community members.

This feedback led to improvements to the model, the maps, and our findings.

An overview of our VILLAGE model:
Red areas – those of high risk – indicate areas that share characteristics with neighborhoods that have seen high levels of overdose.

The risk level does not necessarily mean that these communities have seen or will see high levels of overdose, but this map can be used to help deploy resources appropriately to prevent harms in communities that may face the biggest risk.
• RIDOH is required to support a Needle Exchange program per the State General Laws

• Requirements for RFP included
  • Capacity to provide
    • Syringes
    • HIV/HCV rapid testing
    • Harm reduction materials including safe injection and safe sex kits
    • Educational materials
    • Naloxone Distribution

  • **Focusing outreach on specific areas of geographic need or areas of high prevalence**

• Establish at least three (3) needle exchange locations/sites focusing on areas of geographic need or areas of high prevalence per the *Community at Risk for Overdose and Other Drug-Related Harms*
Community Level Risks for Future Drug-Related HIV Infections and Overdose

We developed a map to illustrate the estimated risk for future drug overdose and HIV outbreaks in Rhode Island. Using the Centers for Disease Control and Prevention (CDC) methodology, we used different data sources to identify communities at highest risk. The risk level does not necessarily mean that these communities have seen or will see high levels of overdoses or HIV infections. However, these communities share characteristics with places that have experienced addiction and drug overdose in recent years.

While the overdose and addiction crisis impacts the entire state, this map highlights those communities that would be considered by the CDC most “vulnerable” to future drug-related HIV infections and overdose.

A more detailed analytic map is available for download.
Selected Agency: ACOS

Approach:

• 2 fixed locations in a high-risk neighborhood in Providence

• Street outreach to high risk neighborhoods

• Mobile sites and street outreach in 5 additional cities

• Home delivery service provides services to the whole state
Home Delivered Services

- ACOS will bring all services to an individual’s house, or other location
- Delivered same day or next day
- Good opportunity for rural communities

Services include:
- HIV/HCV rapid testing
- Harm reduction education and materials
  - Syringes, safe injection kits, fentanyl test strips, naloxone distribution
- Safe sex materials, condom distribution
- Referrals to substance use treatment services
3-month evaluation (Jul-Sept 2019)

• 96 naloxone kits distributed in 3 months
  • 25 were used to reverse an overdose and the patient improved

• 20,000 needles distributed

• 433 client encounters

• 237 unique clients received services

• ENCORE continues to provide services to highest-risk individuals
Program Implications

• Allocation of resources at the local level
• Breaking assumptions – risks were identified in rural and urban communities
• Resource for gaining interest of local officials
• Applications for future funding
  • Successfully applying for additional funding
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