

IDENTIFYING, ENTERING, AND CHARACTERIZING HCV HOTSPOT CLUSTERS: A MIXED METHODS APPROACH

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Background:

More than 9,000 HCV cases have been reported per year in Massachusetts in recent years, and reported HCV cases increased by 137% from 2002-2013 among 15-29 year olds. A better understanding of the geographic distribution and characteristics of HCV clusters is needed to inform targeted responses to curb the HCV epidemic.

Methods:

Between 2014-2016, we used a four-step mixed methods approach to identify, enter, and characterize HCV hotspots in Massachusetts. Through these four steps, we: (1) Conducted GIS and spatial cluster analysis of HCV surveillance data (n=99,780) to identify HCV hotspots; (2) developed statistical models to determine the community-level factors associated with HCV clusters at the census tract level (n=1,464); (3) entered HCV hotspots to conduct semi-structured qualitative interviews with public health officials, HCV service providers, and harm reduction experts (n=13); and, (4) conducted ACASI surveys with people living with and at risk of contracting HCV (n=262). We analyzed spatial, qualitative, and quantitative data using a GIS (ArcGIS 10.2.2), thematic analysis (NVivo 10), and statistical analysis software (SAS 9.4), respectively.

Results:

We identified nine HCV hotspot clusters based on HCV case counts and rates per 100,000 ($p < 0.05$). Race/ethnicity, poverty, and education were associated with HCV clusters ($p < 0.05$). Through in-depth interviews in HCV hotspots, we identified unique social barriers to care, HCV treatment awareness/readiness perspectives, and individual, community, and geographical influences on HCV transmission. Survey results revealed differences in access to healthcare ($p < 0.001$), health insurance ($p < 0.01$), HCV testing ($p < 0.01$), and understanding of HCV treatment ($p < 0.01$) across hotspots.

Conclusions:

Our mixed methods approach facilitated identification and characterization of HCV hotspot clusters across Massachusetts, with notable differences across hotspots. Our approach could be replicated in other locations in the U.S. and globally to identify local communities in which targeted, comprehensive HCV interventions could be prioritized.

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