Outbreaks of Acute Hepatitis C in the U.S: A Brief Overview

A brief overview of outbreaks of acute hepatitis C in the U.S. in rural an urban areas. This article originally appeared in the HCV Advocate

September 14, 2015 By Alan Franciscus

In this review, I will discuss the outbreaks of acute infections of hepatitis C across the United States in urban and rural centers.

Before I start discussing this very important issue, I would like to set the stage by going over the case definition of hepatitis C (HCV) acute infection as defined by the Centers for Disease Control and Prevention (CDC):

"Laboratory-confirmed infection with infection with acute illness of discreet onsite. An acute illness is considered as the presence of any sign or symptom of acute viral hepatitis plus either jaundice or elevated alanine aminotransferase >400 IU/L. In 2012, the surveillance case definition was expanded to include cases with negative HCV antibody followed by positive antibody within six months."

To me there are problems with the CDC case definition. Regarding the first part of the definition—an estimated two-thirds of people acutely infected have few or no symptoms. This means that they are missing the majority of people who are acutely infected with HCV. The new case definition regarding prior antibody testing is better, but it does not accurately capture people who are new to injecting drugs or people who have never been tested for hepatitis C. However, it is understandable how difficult it is to

set the criteria to define an acute infection.

In the July 2015 *HCV Advocate Mid-Monthly Edition*, I wrote about an article published in the Annals of Internal Medicine titled "Underascertainment of Acute Hepatitis C Virus Infections in the U.S. Surveillance System: A Case Series and Chart Review," by S Onofrey, MPH et. al. The authors concluded that only 1% of acute infections has been reported to the CDC based on their case definition. Keep the 1% in mind when reading the information below.

Massachusetts
In July 2011 I wrote about the Massachusetts outbreak of acute HCV among young people who inject drugs. In the CDC report Massachusetts initiated a comprehensive surveillance system and identified 1,925 new cases of HCV infections among people aged 15-24 years during 2007 to 2009. Of these cases, 1026 were confirmed new hepatitis C infections and the remaining cases were classified as probable. It was also interesting that the new hepatitis C infections were not just confined to the major metropolitan and suburban areas of Boston, but high rates were also found in smaller cities and rural areas. It was also reported that the incidence of new HCV infections were similar in women and men and were seen mostly among non-Hispanic whites. In the analysis, 72% of the people reported current or past injection drug use. Among the people who self-disclosed that they injected drugs—85% used heroin, 29% cocaine, 1% methamphetamine and 4% had used other drugs. Some of the characteristics seen in the Massachusetts outbreaks—rural, young, mostly White using heroin—were the beginning of a trend seen throughout the country.

Massachusetts has an extensive network of needle exchanges. One can only imagine what the number of acute infections would be without a needle exchange network.

Wisconsin
In "Notes from the Field: Hepatitis C Virus Infections Among Young Adults—Rural Wisconsin, 2010," a report from the CDC issued on May 18, 2012 /61(19);358-358 a number of outbreaks in rural counties of Wisconsin were discussed. It was reported that in 6 contiguous rural counties of Wisconsin that in persons under 30 yo that the number of HCV infections had increased from an average of 8 cases per year during 2004 – 2008 to an average of 24 cases per year during 2009 – 2010.

The CDC investigated 25 cases during 2010 of the adults under 30 years old who resided in the 6 counties. Of these patients 7 had jaundice (a rare symptom of acute HCV). All 21 had positive antibody tests. Twenty-one had positive EIA with signal-to-cutoff ratio or had a test to confirm the presence of HCV RNA (viral load test). Additionally, seventeen patients were interviewed. Of the patients who were interviewed (17 pts) 94% had either injected drugs, snorted drugs or both.

The age group that had the highest prevalence was those 20-29 yo, which is a national trend of people who inject drugs in rural areas. No information about the sex of the patients was given in the report.

Ohio
In Ohio, the number of confirmed cases of acute cases HCV was 112 in 2013 and 105 in 2014. The demographics are similar to the demographics in other outbreaks across the U.S. —mostly white, equally divided among gender and many of the acute cases occurred in rural settings.

Indiana
The May 1st issue of the Morbidity and Mortality Weekly Report (MMWR), contained "Community

Outbreak of HIV Infection Linked to Injection Drug Use of Oxymorphone—Indiana, 2015, by C Conrad," which describes a recent outbreak of HIV and HCV in a rural community of Indiana. On January 23, 2015 the Indiana State Department of Health began an investigation on an outbreak of HIV after 11 cases were reported and confirmed. Although little attention was given to HCV there was a confirmed HIV/HCV coinfection rate of 84.4%! All of the people who injected drugs reported crushing, dissolving and injecting oxymorphone tablets as well using other drugs including methamphetamine and heroin. The total number of people who tested positive for HIV was 135. The community in rural southeastern Indiana had a population of 4,200. The age range was 18 to 57 yo (median 35 yo), 54.8% were male.

The response to the outbreak is best summed up by a statement in the MMWR: "A public health emergency was declared on March 26 by executive order. The response has included a public education campaign, establishment of an incident command center and a community outreach center, short-term authorization of syringe exchange, and support of comprehensive medical care including HIV and hepatitis C virus care and treatment as well as substance abuse counseling and treatment." Hopefully, the 'short-term' will be changed to 'permanent.'

Maine

On July 6, 2015 the Portland Press Herald reported on a surge of hepatitis C cases: during 2013 to 2014 the incidence of acute HCV increased from 9 to 31 cases and there were 14 cases in the first 6 months of 2015. The users who were interviewed stated that they had started with opiates like Oxycontin and switched to heroin. This is a recurring theme. Maine has 5 needle exchange programs.

Kentucky, Tennessee, Virginia and West Virginia (2006-2012)

The CDC released an MMWR report on May 8, 2015 titled "Increases in Hepatitis C Virus Infection Related to Injection Drug Use Among Persons Aged ≤ 30 Years –Kentucky, Tennessee, Virginia, and West Virginia, 2006—2012," by J E Zibbell and Colleagues detailing the outbreaks in the Appalachia region of the U.S.

A total of 1,377 cases of acute HCV were reported to the CDC during the period 2006-2012 from Kentucky, Tennessee, Virginia and West Virginia. There were 1,374 cases reported where the age was available—616 (44.8%) were ≤ 30 yo (median age 25 yo—range in urban and non-urban 6-30 yo).

The number of persons who were non-Hispanic whites in non urban settings was 247 (78.4%); males, 156 (49.5%); in urban counties, 249 (82.7%) cases were non-Hispanic whites, and 155 (51.5%) were males. See Figure 1 below.

Comments: The trend of acute HCV outbreaks that started in Massachusetts is continuing across the United States. This includes more adolescents and young adults injecting, infecting as many women as men and in rural more than urban settings. What is even more disturbing is the reaction of the local and state governments—needle exchange being started post-outbreak rather than establishing needle exchange as prevention. Almost every outbreak has resulted in the establishment of a needle exchange program after an outbreak. If needle exchange programs had been in place before an outbreak many of the HIV and HCV infections could have been prevented.

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