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Hepatitis C in New Mexico among Persons less than 30 Years of Age, 2014-2016

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Hepatitis C virus (HCV) is the most common blood borne pathogen in the United States.[1] According to the Centers for Disease Control and Prevention (CDC), there are an estimated 2.7-3.9 million people with chronic HCV in the United States.[2] HCV is transmitted when blood from an infected person enters the body of someone who is not infected. Injection drug use is the most common method of transmission, but it can also be spread through sexual contact, in needlestick injuries and perinatally. Following an acute infection, 70-85% of all infected people progress to a lifelong chronic infection. Fortunately, there are medications that can cure HCV infection in ≥ 90% of patients who complete the appropriate course of treatment.[3]

This report reviews HCV surveillance findings for people under 30 years of age to document the burden of HCV infection in young New Mexicans and help link these patients to care and prevent the long-term effects of untreated HCV infection.

Methods

HCV is a notifiable disease in New Mexico, requiring healthcare providers and laboratories caring for New Mexico residents to notify the NMDOH about patients with a positive laboratory test result. HCV lab test inclusion criteria include a positive test for antibodies to HCV (anti-HCV), a nucleic acid test (NAT) positive for HCV RNA, or HCV genotype testing collected between January 1, 2014 and December 31, 2016.

Data for persons under age 30 who were diagnosed and first reported during 2014 to 2016 are included in this analysis. Investigation and laboratory data were analyzed using SAS 9.4 statistical software and figures were created using R Studio. Key variables include age at first report, county of residence at first report, year of first reported positive HCV test, race/ethnicity and risk factors for infection. Race and ethnicity were grouped into five categories following the NMDOH standard for presentation of health data by race and ethnicity.[4] The categories include American Indian and Alaska Native, Asian or Pacific Islander, Black or African American, Hispanic, and White. County of residence was determined by patient county at first HCV reported result if it was available, patient county at a subsequent reported result, ordering provider county at first result or county determined during investigation. Incarceration status was determined using patient's reported address. Incarcerated individuals were not interviewed and were excluded from county level and metropolitan vs rural rates to eliminate bias due to prison location.

Annual population estimate denominators of people under 30 years of age from the University of New Mexico Geospatial and Population Studies Program (UNMGPSP) were used to calculate rates.[5] County designations of Metropolitan, Small Metro, Mixed Metro Rural and Rural were used to categorize counties into population density categories.

Results

Between 2014 and 2016 there were 4,281 newly reported HCV patients in New Mexico's under 30 population with an average annual rate of 170 cases per 100,000 population. Infections occurred primarily in males (66%) and over 90% of newly reported infections occurred in people between the ages of 20 and 29 years, while 2% occurred among children less than one year of age (Table). While race/ethnicity information is not available for all individuals, those infected were predominantly Hispanic (63%) followed by White

(26%). Also of all new cases, 35% occurred among people who were incarcerated.

After excluding persons reported from prison facilities, Rio Arriba County had the highest average annual rate of newly reported HCV cases in this age group in New Mexico between 2014 and 2016 with an average annual rate of 410 HCV cases per 100,000 population. Socorro County had the second highest average annual rate. Harding County was the only county in the state without a reported HCV case between 2014 and 2016.

Rural areas had the highest average annual rate of HCV in New Mexico at 172 HCV infections per 100,000 population. Metropolitan counties had an average rate of 121 HCV infections per 100,000 population (Figure). Small metro counties had an average rate of 95 HCV infections per 100,000 population, and mixed urban rural counties had an average rate of 77 HCV infections per 100,000 population.

Of the 4,281 newly reported HCV infections, 4,187 cases were chronic HCV cases, and 94 were acute HCV infections. Interviews were conducted for 2,322 people (56%). Use of injection drugs was the most common risk factor with 55.9% of interviewed patients with chronic HCV cases reporting use. About one fifth (19.4%) reported ever being incarcerated. More chronic HCV cases reported having 2-10 lifetime sexual partners (14.4%) as opposed to more than 10 lifetime sexual partners (9.0%). Only 2.2% of chronic HCV cases reported either receiving a blood transfusion before 1992 or were on long-term hemodialysis. No cases reported receiving clotting factors before 1992 or receiving an organ transplant before 1987.

Between 2014 and 2016 there were 94 acute HCV cases identified in persons under age 30 in New Mexico. Interviews were conducted for all but one acute case and 96% of respondents reported at least one risk factor. Drug use was the most common risk factor for acute HCV with 89% of cases using injection drugs. Another related common risk factor was exposure to blood via needle sharing (70%).

The data collected for this report relies on passive laboratory reporting. HCV infections were identified when laboratories reported results to the NMDOH and not when people contracted the disease. Many people may have contracted HCV in previous years and only recently had laboratory testing. Laboratory reports are commonly missing race/ethnicity information.

Acute infections are difficult to detect and likely are underreported because many infections are initially asymptomatic, and infections are often identified first

Table. Demographic characteristics among under age 30, New Mexico, 2014-2016

Characteristic	Count	Percent (%)
Gender		
Male	2820	66%
Female	1453	34%
Race/Ethnicity (missing 2412; 56%)		
American Indian and Alaskan Native	153	8%
Asian or Asian Pacific Islander	7	0.4%
Hispanic	1179	63%
Black	42	2%
White	488	26%
Age at First Report		
<1 Year	73	2%
1-10 Years	30	1%
11-19 Years	244	6%
20-29 Years	3934	92%
Incarcerated at First Report		
Not Incarcerated	2785	65%
Incarcerated	1496	35%

through routine screening tests. Laboratory data reported to NMDOH do not contain all data needed to differentiate chronic and acute disease.

Persons who were incarcerated at first diagnosis are not interviewed, so information for these individuals may be missing. It is not known if they are different from the individuals who were diagnosed outside the prison system.

Discussion

HCV is the most common reportable infectious disease in New Mexico. Although surveillance systems vary by state, New Mexico appears to have high rates of HCV infection relative to the national rate. Seven state health departments that were funded to conduct enhanced viral hepatitis surveillance reported an average annual rate of 96.9 HCV cases per 100,000 population in 2015.[6] In New Mexico, the average annual rate between 2014 and 2016 was 170 HCV cases per 100,000 population under the age of 30. In addition to having a high rate of reported chronic HCV infections, New Mexico also has a high rate of acute HCV cases. In 2015 the national acute HCV rate for people 20-29 years old was 2.3 cases per 100,000 population[6], compared to 9.7 cases per 100,000 in New Mexico.

The gender distribution of HCV cases in New Mexico is similar to that of the U.S. with the majority of cases occurring among men. The racial/ethnic distribution of cases in New Mexico, however, differs from that of the U.S. In 2015, the enhanced viral hepatitis surveillance sites around the country reported the majority of infections occurring among Non-Hispanic Whites. In New Mexico between 2014 and 2016, 63% of cases were among Hispanics and 26% of cases were among Whites. This difference in racial/ethnic HCV profiles is likely due to different demographic compositions in NM and the U.S.

Rural counties in New Mexico had the highest rate of HCV infection. This is not unique to New Mexico, with recent reports of high rural HCV infection rates coming from Appalachia and other parts of the country.[7,8] The risk factor data presented in this report also mirrors the current body of literature regarding HCV transmission throughout the United States. Use of injection drugs remains the primary risk factor associated with HCV transmission throughout the nation and was the highest reported risk factor among both acute and chronic HCV cases in New Mexico.

Given the illegality of drugs that are commonly injected, such as heroin and methamphetamine, many injection drug users are incarcerated throughout their lifetimes. The New Mexico Corrections Department tests all incarcerated people for HCV upon admittance. A large portion of HCV cases in this report (35%) were reported from correctional facilities. This finding is consistent with current literature showing high prevalence of HCV within incarcerated populations.[9]

The burden of HCV infections in New Mexico is high compared to the rest of the nation especially in rural areas and disproportionally affects Hispanics and incarcerated persons. Prevention and treatment resources should be directed toward the Hispanic population, the rural population and those who are incarcerated.

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Figure. Average Annual Rate of HCV and Corresponding Map by Metro/Rural Classification, New Mexico, 2014-2016