What is the Prevalence of Hepatitis C in Louisiana?

Short answer: 1.6 to 1.8%

Contents

1-Prevalence

Prevalence is the number of persons living with an infection (or disease or any condition) at a given time. Several types of prevalence may be considered: prevalence of persons infected with the HCV virus, prevalence of persons infected with HCV virus presenting no overt sign of illness (asymptomatic persons), prevalence of HCV illness (symptomatic cases), and prevalence of chronic illness (such as liver cirrhosis).

Evaluating the prevalence of HCV infections using reportable disease surveillance systems results in underreporting of the prevalence in the population because of the large number of cases that have not been diagnosed. Prevalence of infection can best be evaluated using a survey of a population group but this method is expensive and seldom used except for the national surveys conducted by CDC using laboratory testing results.

2-Estimate based on the 2015 Louisiana Hepatitis C Epidemiologic Profile?

Estimating the prevalence may be done using the data presented in the 2015 Louisiana Hepatitis C Profile. However this estimate does have some limitations that are discussed below.

2.1-What is the 2015 Louisiana Hepatitis C Epidemiologic Profile?

This epidemiologic profile provides information about the trends and distribution of hepatitis C (HCV) infection in Louisiana (LA). This information is used by the LA Department of Health, community health stakeholders, local jurisdictions and others to plan and implement a comprehensive HCV prevention and control programs. Surveillance data for HCV has been systematically collected since 1990. The LA Viral Hepatitis Prevention Program was initiated 2001 by the LA Office of Public Health, Infectious Disease Epidemiology Section (IDEpi). The VHP program receives HCV case reports from various sources and maintains the LA Hepatitis Registry. As of December 2014 the LA Hepatitis Registry had 79,000 records.

2.2-LA IDEpi Hepatitis Registry

Since 1990, IDEpi has continuously maintained a state-level HCV Registry. The registry currently includes 89,000 cases, registryed since 1990. The registry uses the following data sources to identify cases:

2.2.1-Infectious Disease Reporting Information System (IDRIS):

IDRIS receives reportable disease surveillance data manually entered by health care providers remotely through web-based system.

The IDEpi Section has a robust infectious disease surveillance data collection system that has evolved from an EpiInfo ® system, to an Access® program to a proprietary web based system and finally to the IDRIS2, an adaptation of CDC's NBS system which was customized to meet the IDEpi section's surveillance needs. Throughout the years legacy data were added into an Access ® database.

2.2.2-Electronic laboratory reports (ELR)

IDEpi also receives HCV laboratory reports from laboratory facilities throughout the state. This was reported by fax previously and electronically recently. Even at the time of fax reporting reports were systematically entered.

2.3.3-LA Hospital Inpatient Discharge Database (LaHIDD):

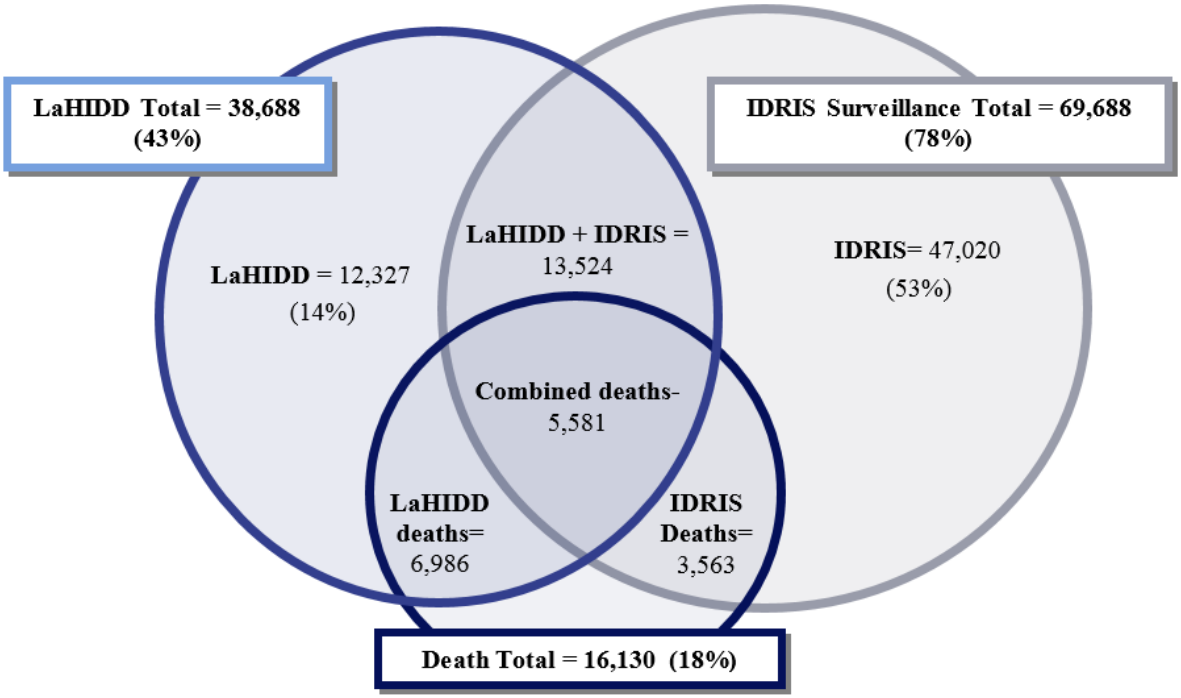
LAHIDD receives hospital discharge data submitted by facilities throughout the state. The total number of hospitalizations from 1999 to 2014 ranged from 467,000 to 608,000 (mean of 543,000). The numbers are increasing by 2,400 each year. The number of hospitalization reported in LaHIDD is consistent with estimates derived from the National Center for Health Statistics (NCHS Report #5, 7/30/2008, 2006 National Hospital Discharge Survey). In this report the rate of hospitalizations for the Southern USA is 1,212 hospitalizations /10,000 population per year. This would amount to 545,400 hospitalizations in LA, which is a close approximation to the number reported in the 2006 LaHIDD data.

2.3.4-State Center for Health Statistics (SCHS):

This center provides mortality data from death certificates with HCV mentioned as a primary cause of death or a contributing factor.

2.4-Estimating prevalence in 2014 from the registry data

There are currently a total of 89,001 cases recorded in the HCV registry. The majority of records were entered through the IDRIS (78.3%), while LAHIDD produced only 43.2%, and death certificate records accounted for the remaining 18.1%. There were overlap between the sources.



The figure above and the following table show the number of cases by sources and how they overlap. Numbers have been rounded in the table.

	Source	Number	Still alive
1	IDRIS only	47,000	47,000
2	IDRIS and LAHIDD	13,500	13,500
3	IDRIS & Death	3,500	0
4	IDRIS & LAHIDD & DEATH	5,500	0
5	LAHIDD only	12,500	12,500
6	LAHIDD & Death	7,000	0
7	Death only	0	0
T	Total	89,000	73,000

Using this table it appears that in 2014 there were 73,000 persons with hepatitis C still alive for a population of 4,650,000. Thus

the estimated prevalence is 1.6% of the total population.

2.5-Limitations

Using this method has some limitations:

- Many hepatitis C infected persons may not have been reported yet, thus the real number of those that existed in 2014 is higher than 47,000. Estimating that 12% of the population does not have medical insurance (about 560,000 persons) and using the 1.6% proportion for hepatitis C infection estimated above, we would have an additional 9,000 hepatitis C infections, a total of 82,000 infections

(73,000+9,000). Using 82,000 as a corrected number of hepatitis C infection. This would bring the estimate to 1.8%.

- Some of cases may have died but their hepatitis C status may not have been noted in the death certificate. A match between hepatitis registry and death certificate was done but no match is perfect. So some hepatitis C cases would be erroneously considered as still alive.

3-Comparison with other estimates

3.1- National Health and Nutrition Examination Survey

The National Health and Nutrition Examination Survey (NHANES) is a nationally representative household survey carried out at regular intervals. It includes interviews to ascertain demographic characteristics and possible risks and exposures for HCV infection. Serum samples from participants aged 6 years or older are tested for antibody to HCV; if results were positive or indeterminate, the samples are tested for HCV RNA, which indicates current chronic infection (Denniston 2014).

Tests for antibody to HCV (anti-HCV) on serum samples from 21,241 persons 6 years old or older who participated in the third NHANES, conducted during 1988 through 1994 (Alter 1999). We determined the prevalence of HCV RNA by means of nucleic acid amplification and the genotype by means of sequencing. The overall prevalence of anti-HCV was 1.8 percent, corresponding to an estimated 3.9 million persons nationwide (95 percent confidence interval, 3.1 million to 4.8 million) with HCV infection. Sixty-five percent of the persons with HCV infection were 30 to 49 years old.

Between 1999 and 2002 there were 15,079 participants (Armstrong 2006). They provided medical histories, and those who were 20 to 59 years of age provided histories of drug use and sexual practices. Participants were tested for antibodies to HCV (anti-HCV) and HCV RNA, and their serum alanine aminotransferase (ALT) levels were measured. The prevalence of anti-HCV in the United States was ***1.6%*** *(95% CI, 1.3% to 1.9%), equating to an estimated 4.1 million (CI, 3.4 million to 4.9 million) anti-HCV-positive persons nationwide; 1.3% or 3.2 million (CI, 2.7 million to 3.9 million) persons had chronic HCV infection.*

There were 30,074 participants between 2003 and 2010. Based on 273 participants who tested positive for HCV RNA, the estimated prevalence of HCV infection was ***1.0%*** *(95% CI, 0.8% to 1.2%), corresponding to 2.7 million chronically infected persons (CI, 2.2 to 3.2 million persons) in the U.S. noninstitutionalized civilian population. The most important limitation was that incarcerated and homeless persons were not surveyed. HCV infection were about 500,000 fewer than estimated in a similar analysis between 1999 and 2002.*

3.2- HCV Expanded Prevalence Estimate:

Other investigators have estimated a higher HCV (Hepatitis C Online 2015) prevalence in the United States, based on the knowledge that the NHANES surveys did not include certain populations in the survey, including incarcerated, homeless, nursing home residents, hospitalized individuals, and persons on active military duty. Thus, an expanded prevalence study estimated that in the United States approximately 5.2 million persons are anti-HCV positive, which corresponds with a population prevalence of 2.0%. These expanded prevalence estimates are significantly higher than the NHANES estimates of 4.1 million and 1.6% population prevalence.

Of which 85% will develop chronic hepatitis and 17% will progress to cirrhosis, a disease which has a 25% fatality rate. Annually, 150 LA residents are expected to die from HCV related causes.

Approximately 3,000 (5%) of infected persons are candidates for a liver transplant, which costs at least $300,000 for a non-eventful, uncomplicated procedure.

4-References

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