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ARKANSAS ALL-PAYER CLAIMS DATABASE ANALYSIS OF HEPATITIS C

Arkansas Center for Health Improvement
May 2025

Introduction

The purpose of this report is to enhance current hepatitis C surveillance data. Case reporting to the Arkansas Department of Health (ADH) does not capture all cases, nor does it capture data related to healthcare utilization and expenditures. The Arkansas Center for Health Improvement (ACHI) was asked to use the data assets under the Healthcare Transparency Initiative (HTI) and our unique data source linkage approaches and analytic methodologies to get a broader understanding of the state of hepatitis C infections here in Arkansas. To accomplish this, we looked at nine different outcomes of interest for hepatitis C, involving diagnoses (both acute and chronic); treatment rates and expenditures; and screening rates for individuals 18 and older, individuals with HIV, and pregnant individuals. While our report is primarily based on individuals with member records and claims captured in the Arkansas All-Payer Claims Database (APCD), we believe that our results of this analysis could help guide ADH in future planning of hepatitis prevention and treatment initiatives.

Data Sources and Methodologies

The following data sources were used to complete this assessment:

- Arkansas All-Payer Claims Database (APCD)
    - Member table
    - Medical claims
    - Pharmacy claims
- Arkansas Department of Health
    - Birth records

INCLUSION AND EXCLUSION CRITERIA

The initial study population was created for each calendar year from 2016 to 2021 and consisted of any member in the APCD member table with evidence of at least one day of medical coverage in that year. This includes individuals covered by Medicaid, Medicaid Qualified Health Plans, PASSEs, Medicare Fee-for-Service, Medicare Advantage, public self-funded plans, and commercial plans. Table 1 compares the demographic profiles of the state and our initial study population in 2021.

Table 1. Demographic profiles for Arkansas and individuals with healthcare coverage in 2021

	Arkansas		Individuals with Healthcare Coverage	
Demographic	**Number of individuals**	**Percentage of Demographic Category**	**Number of individuals**	**Percentage of Demographic Category**
Age Category				
0-19	787,006	26.2%	656,877	28.5%
20-29	395,081	13.1%	259,799	11.3%
30-39	384,775	12.8%	244,888	10.6%
40-49	365,190	12.1%	222,264	9.7%
50-59	379,154	12.6%	239,205	10.4%
60+	695,103	23.1%	659,300	28.6%
Payer Type				
Commercial			745,116	32.4%
Medicaid			931,805	40.5%
Medicaid Qualified Health Plans			314,416	13.7%
Medicare			668,967	29.0%
Race or Ethnicity				
Asian	45,575	1.5%	22,880	1.0%
Black	455,748	15.2%	318,247	13.8%
Hispanic	236,001	7.9%	80,067	3.5%
Native American	13,665	0.5%	14,571	0.6%
Pacific Islander	10,408	0.3%	7,471	0.3%
White	2,123,715	70.6%	1,134,185	49.2%
Other	121,197	4.0%	41,110	1.8%
Unknown	--	--	663,802	28.8%
Rurality				
Urban	1,807,807	60.1%	1,321,858	57.4%
Large Rural	295,234	9.8%	220,142	9.6%
Small Rural	585,729	19.5%	461,750	20.0%
Isolated	317,539	10.6%	256,054	11.1%
Unknown	--	--	22,529	1.0%
Sex				
Female	1,522,789	50.7%	1,209,252	52.5%
Male	1,483,520	49.3%	1,073,081	46.6%
TOTALS	**3,006,309**		**2,282,333**	

Note: The state profile for 2021 was extracted from the "American Community Survey 5-Year Estimates" at data.census.gov.

Results

NUMBER OF INDIVIDUALS WITH EVIDENCE OF HEPATITIS C PER YEAR

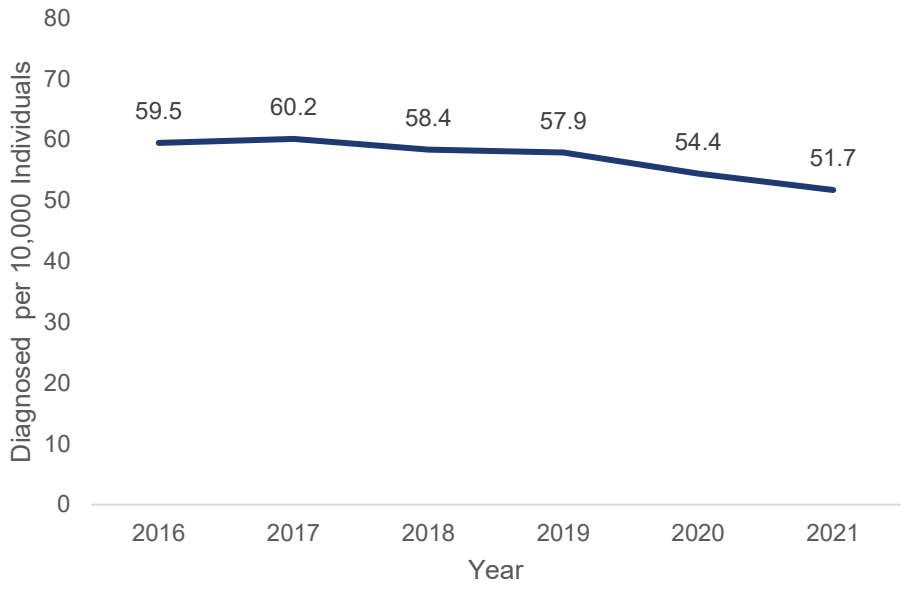
Denominator: Individuals with at least one day of medical coverage per year.

Numerator: Individuals with a diagnosis of hepatitis C.

Figure 1 shows the number of individuals who received a diagnosis of hepatitis C per 10,000 individuals for each year from 2016 through 2021. This was done by identifying medical claims with a hepatitis C diagnosis for the initial study population. Diagnosis codes are listed in Appendix A.

The number of individuals with evidence of hepatitis C has been trending down from 2017 to 2021. These trends align with what the Centers for Disease Control and Prevention (CDC) reported in their 2022 Viral Hepatitis Surveillance Report.[1] Appendix B displays the demographic profiles for individuals with hepatitis C compared to the demographic profile of the state and the denominator.

Figure 1. Hepatitis C diagnosis rate for individuals with healthcare coverage



NUMBER OF INDIVIDUALS WITH FIRST KNOWN EVIDENCE OF HEPATITIS C PER YEAR

Denominator: Individuals with at least one day of medical coverage in the year.

Numerator: Individuals with a hepatitis C diagnosis, but without such a diagnosis in any of the preceding years available (2016-2020).

Table 3 displays the number of individuals with a first known diagnosis of hepatitis C per 10,000 individuals covered for each year between 2017 and 2021. This was done by identifying the first year a hepatitis C diagnosis was present for an individual in their medical claims between 2016 and 2021. The diagnosis codes used to identify individuals with hepatitis C are listed in Appendix A.

Because each year displayed below has a different number of years preceding that year in the study, each year represents a different number of years' worth of lookback time. For example, 2020 has four prior years of diagnoses available for exclusion of those who were identified as having hepatitis C diagnosis already. After those exclusions, 15.2 individuals were identified as having their first diagnosis of hepatitis C in 2020 per 10,000 individuals with coverage in that year. For this reason, the rates should not be compared across years, but should only be used as a standalone measure for each year.

Table 2. Rate of first known occurrence of viral hepatitis C for individuals with healthcare coverage

Year	Prior study years available for exclusion	Hepatitis C first known diagnosis per 10,000 individuals
2017	2	27.6
2018	3	20.7
2019	4	18.4
2020	5	15.2
2021	6	13.5

PERCENTAGE OF INDIVIDUALS 18 OR OLDER WITH EVIDENCE OF HEPATITIS C SCREENING

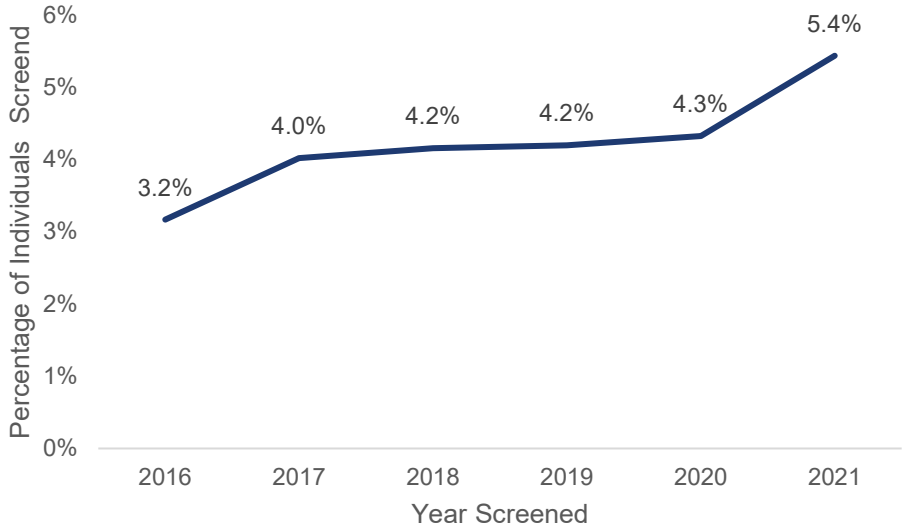
Denominator: Individuals aged 18 years or older as of January 1 of that year with at least one day of medical coverage in the year.

Numerator: Individuals with a hepatitis C screening procedure code on a medical claim.

Figure 2 shows the percentage of individuals 18 years of age or older who had a claim with a procedure code indicating screening for hepatitis C for each year between 2016 and 2021. The codes used to identify these screenings are listed in Appendix C.

The CDC recommends universal screenings for hepatitis C for adults aged 18 or older at least once in their lifetime and for all pregnant women during each pregnancy; the CDC recommends one-time screening for individuals with risk of exposure and routine periodic testing for individuals with ongoing risk factors.[2]

Figure 2. Percentage of individuals 18 or older screened for hepatitis C in each year



PERCENTAGE OF INDIVIDUALS WITH EVIDENCE OF CHRONIC HEPATITIS C WHO RECEIVED MEDICATION-BASED TREATMENT WITHIN A GIVEN PERIOD

Denominator: Individuals first diagnosed with chronic hepatitis C in each year who had at least one day of medical coverage during that year.

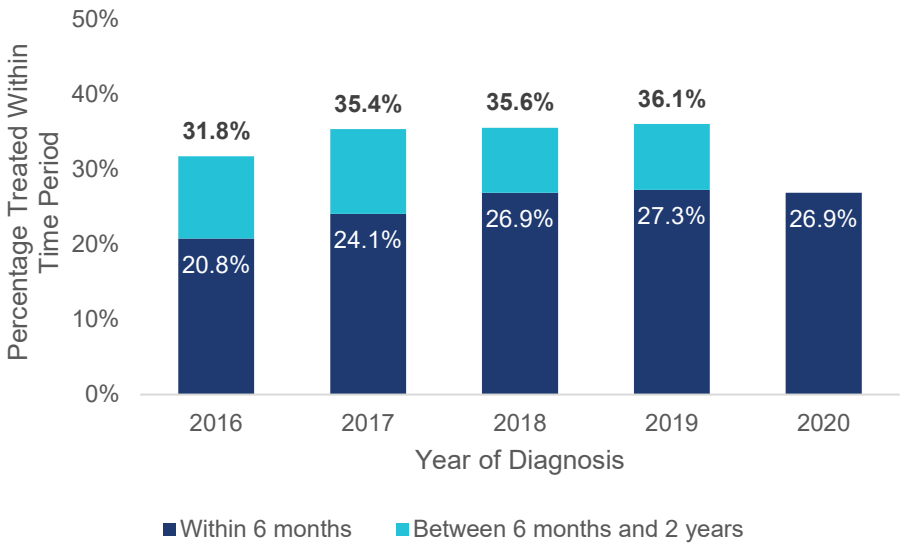
Numerators: Individuals receiving medication-based treatment for chronic hepatitis C within six months of their first diagnosis and individuals receiving medication-based treatment for chronic hepatitis C between six months and two years from their initial diagnosis.

For this measure, individuals needed to qualify as having chronic hepatitis C to be included. To identify individuals with chronic hepatitis C, they needed to have either three or more chronic hepatitis C diagnoses (ICD-10-CM B18.2) on different service dates within a calendar year, or two or more chronic hepatitis C diagnoses separated by more than 60 days in a given calendar year.[3] Each period of interest was based on the first known chronic diagnosis in that year.

Figure 3 displays the percentages of individuals identified as having chronic hepatitis C who received prescriptions for any medication included in the National Drug Code (NDC) directory (see Appendix E), as evidenced by a pharmacy claim within six months or between six months and two years of the date of service on the medical claim with the first diagnosis.

In November 2023, Medicaid changed its policy from withholding treatment for hepatitis C until a patient develops cirrhosis to providing treatment immediately.[4] As of March 2024, they also no longer require six months of sobriety as a condition for receiving treatment.[5]

Figure 3. Percentage of individuals diagnosed with chronic hepatitis C with evidence of medication-assisted treatment within a given time period after first diagnosis



Note: Percentages at top of bars indicate the total percentages of individuals receiving medication-assisted treatment within two years of first chronic hepatitis C diagnosis.

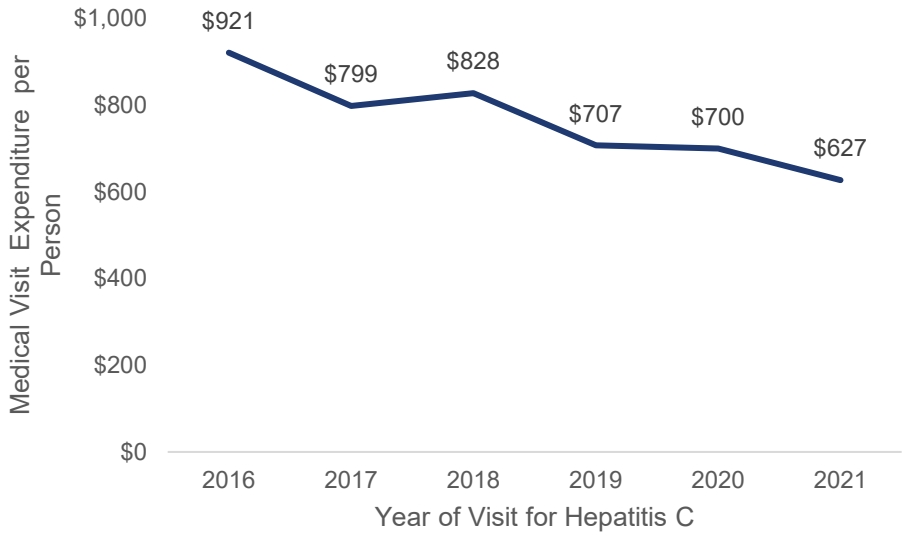
AVERAGE EXPENDITURES PER PERSON FOR MEDICAL CARE FOR HEPATITIS C

Denominator: Individuals with at least one day of medical coverage during the year who have been diagnosed with hepatitis C.

Numerator: Expenditures on medical claims with a primary diagnosis of hepatitis C during the year of care.

Figure 4 displays the average expenditures per person for individuals who received medical care specifically for hepatitis C, by year. To determine if a visit was specifically related to hepatitis C, the primary diagnosis on the claim was a diagnosis code from Appendix A. The total amount paid was calculated for that claim, including payer paid, out-of-pocket, co-insurance, and any deductible paid. All claims meeting these criteria were aggregated to the person level for each year and divided by the number of individuals seeking medical care for hepatitis C in that year.

Figure 4. Medical care average expenditures per person for visits where hepatitis C was the primary diagnosis for the visit



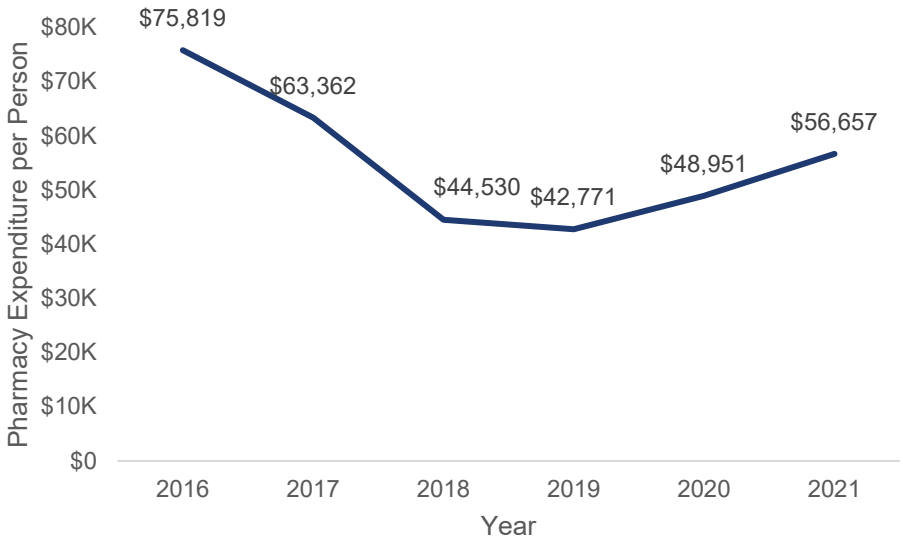
AVERAGE EXPENDITURES PER PERSON FOR MEDICATION-BASED TREATMENT FOR INDIVIDUALS DIAGNOSED WITH HEPATITIS C

Denominator: Individuals who had at least one claim for a filled prescription for a hepatitis C related drug, and who also had at least one medical claim with a hepatitis C diagnosis in the same year.

Numerator: Expenditures on pharmacy claims in which a medication was used to treat hepatitis C during the year.

Figure 5 displays the average expenditures per person of medication-based treatments for individuals with hepatitis C, by year. For any year a person received a relevant diagnosis, pharmacy claims were identified using the NDCs listed in Appendix E. The total amount paid was calculated for that claim line, including payer paid, out-of-pocket, co-insurance, and any deductible paid, and was attributed to the patient. All pharmacy claims meeting these criteria were aggregated to the person level for each year and divided by the number of individuals who received one of these drugs for hepatitis C in the year.

Figure 5. Average expenditures per patient for medication-based treatment of hepatitis C



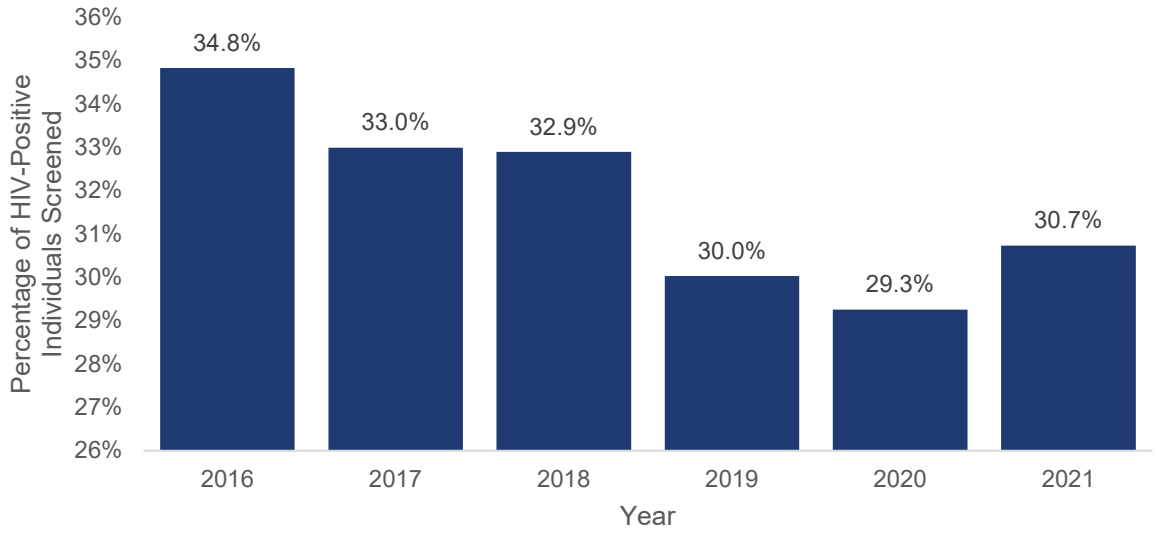
PERCENTAGE OF HIV-POSITIVE INDIVIDUALS WITH EVIDENCE OF A HEPATITIS C SCREENING

Denominator: Individuals with at least one day of medical coverage during the year and a diagnosis of HIV in the same year or any previous year included in the study.

Numerator: Individuals with a diagnosis of HIV who have been screened for hepatitis C.

Figure 6 shows the percentages of individuals with a diagnosis of HIV who have also received a screening for hepatitis C, by year. Individuals with an HIV diagnosis were found in the study population by identifying medical claims with a primary diagnosis code as listed in Appendix D. Current recommendations for screening individuals with HIV is that they be tested periodically, regardless of age, for hepatitis C.[Error! Bookmark not defined.] The codes used to identify these screenings are listed in Appendix C.

Figure 6. Percentage of HIV-positive individuals who were screened for hepatitis C per year



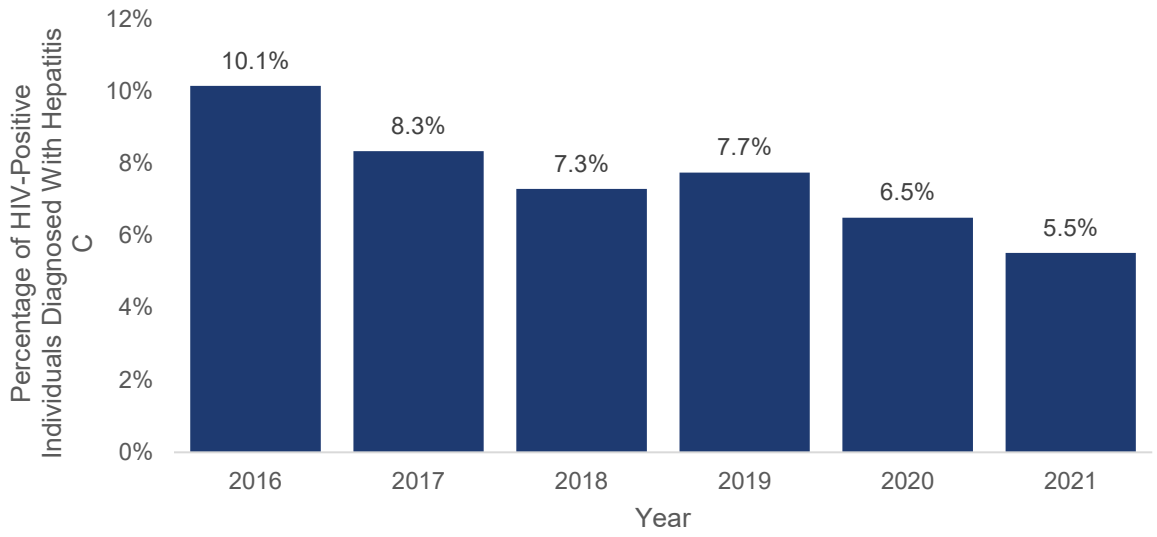
PERCENTAGE OF HIV-POSITIVE INDIVIDUALS WITH EVIDENCE OF A HEPATITIS C INFECTION

Denominator: Individuals with at least one day of medical coverage during the year and who had a diagnosis of HIV in that year or any previous year included in the study.

Numerator: Individuals with a diagnosis of HIV who also have a diagnosis of hepatitis C during that year.

Figure 7 shows the percentages of individuals with a diagnosis of HIV who have also received a diagnosis for hepatitis C, by year. Individuals with an HIV diagnosis are the same population described in the previous measure related to screening these individuals for hepatitis.

Figure 7. Percentage of HIV-positive individuals who were diagnosed with hepatitis C per year



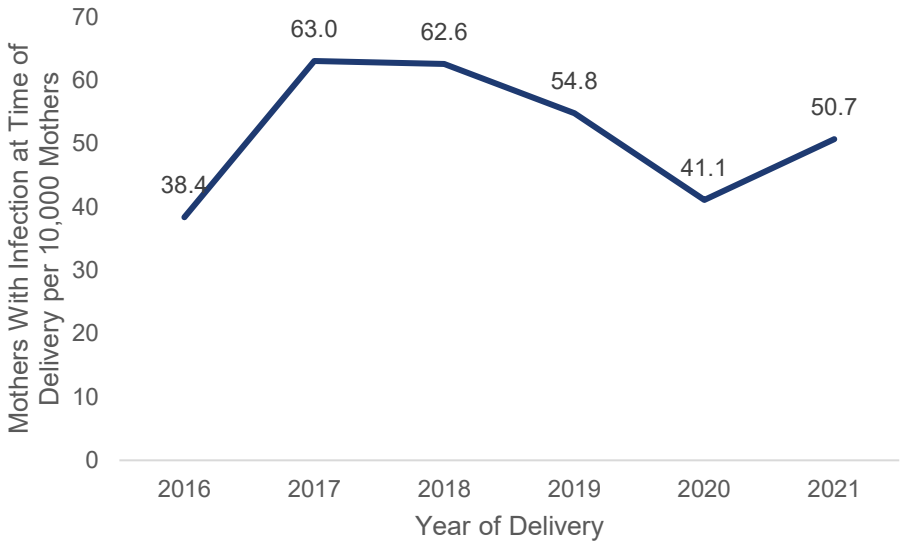
MOTHERS WITH A HEPATITIS C INFECTION AT THE TIME OF DELIVERY

Denominator: Mothers identified from birth records in a given calendar year.

Numerator: Mothers with birth records that indicated hepatitis C was present at the time of delivery.

Figure 8 shows the number of mothers who gave birth in 2016 through 2021 in Arkansas and had a known hepatitis C infection. Because this measure was obtained directly from birth certificate records, no medical coverage requirement was necessary.

Figure 8. Rate of mothers per 10,000 who had a hepatitis C infection at the time of delivery based on the birth record



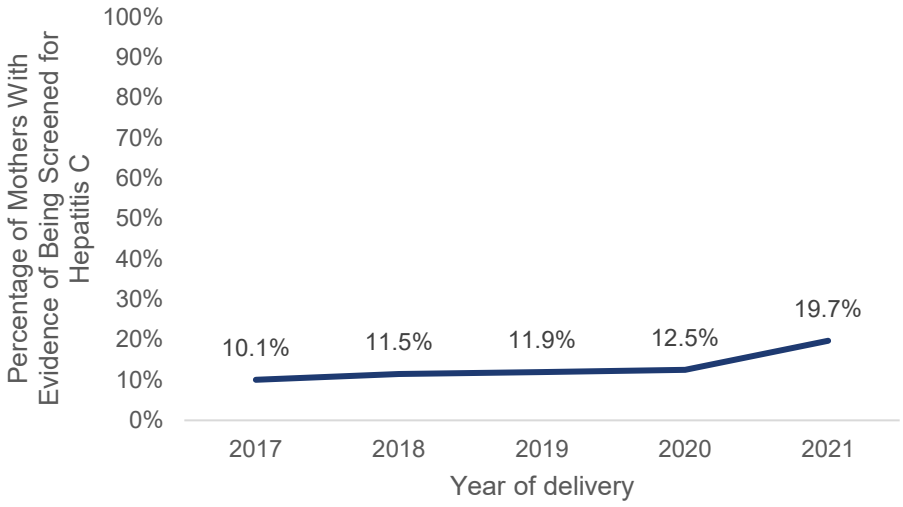
MOTHERS WITH A HEPATITIS C SCREENING DURING PREGNANCY

Denominator: Individuals with at least one day of medical coverage who were linkable to a birth certificate during the same year.

Numerator: Birthing mothers who had a hepatitis C screening from nine months prior to the date of their delivery through the day of their delivery.

Figure 9 shows the percentages of mothers who gave birth in a given year who had a screening for hepatitis C during the assumed time of their pregnancy. The CDC currently recommends that all pregnant women be screened for hepatitis C during each pregnancy. This recommendation was updated to its current status in April 2020.[6]

Figure 9. Percentage of mothers who had a screening for hepatitis C at any time during the nine months leading up to their delivery



Summary

The data presented here utilize the Arkansas All-Payer Claims Database (APCD), which is part of the Healthcare Transparency Initiative. This report is designed to provide information to the Arkansas Department of Health (ADH) to supplement their current surveillance efforts regarding Hepatitis C. In collaboration with ADH, we developed indicators to support this effort. The indicators used all available claims data from 2016 through 2021. Because of data limitations the indicators here are not intended to represent incidence or prevalence, but are reflective of paid services related to hepatitis C.

Based on our analyses, we have observed the following related to hepatitis C:

- The number of individuals with evidence of hepatitis C per year based on having a diagnosis on a medical claim in that year.
- The number of individuals receiving their first known diagnosis in that time period, per year.
- The percentage of individuals aged 18 or older who have a medical claim indicating a screening for hepatitis C, per year.
- The percentage of individuals with evidence of chronic hepatitis C in a given year who received medication-based treatment within six months of their first chronic diagnosis and between six months and two years of their first chronic diagnosis.
- Per person per year expenditures for medical visits for care received for hepatitis C, based on primary diagnosis.
- Per person per year expenditures for pharmaceutical fillings for medications related to the treatment of hepatitis C in diagnosed individuals.
- The percentage of known HIV-positive individuals who had a medical claim indicating a screening for hepatitis C per year.
- The percentage of known HIV-positive individuals who had evidence in medical claims of receiving a diagnosis of hepatitis C per year.
- The rate of mothers infected with hepatitis C at the time of delivery.
- The percentage of mothers who had a medical claim indicating a screening for hepatitis C during the nine months leading up to their delivery.

LIMITATIONS

This report summarizes findings for individuals with an enrollment record in the APCD. While the information in the APCD can add depth to current surveillance data, there are some limitations. In order to determine if these individuals met the criteria to be included in an indicator, a claim related to the indicator measure had to include payment.

For the time-period presented here, the APCD includes about 80% of the Arkansas population. In part, this is because approximately 9-10% of the state's population was uninsured during the study period and because private self-insured plans are not required to submit to the APCD. These plans include people working at Walmart or Tyson, for example. Plans with fewer than 2,000 members are not required to submit to the APCD. The APCD also does not include records from Veterans Health Administration or TRICARE.

Another limitation occurs when linking birth certificate records to member records. When linking across different data sources, a percentage of the population of interest cannot be reconciled and linked. Depending on the length of time (one month versus multiple years), the population of interest (e.g., women have higher rates of name changes), and quality of data sources to be linked, a study can lose 10-20% of the actual population represented in the data simply by resolving identifiers. There are records for individuals like this in each source table included in a study, and when you link across data sources your final study population shrinks further — because not everyone is in every data source or the individual could not be resolved in one table or the other.

Appendix A. Hepatitis C Diagnosis Codes

ICD10 CODE	DESCRIPTION
B171	Acute hepatitis C
B1710	Acute hepatitis C without hepatic coma
B1711	Acute hepatitis C with hepatic coma
B182	Chronic viral hepatitis C
B192	Unspecified viral hepatitis C
B1920	Unspecified viral hepatitis C without hepatic coma
B1921	Unspecified viral hepatitis C with hepatic coma
Z2252	Replaced 20161001 Carrier of viral hepatitis C

Appendix B. Demographic Profile for the State, Individuals With Healthcare Coverage, and Individuals Infected With Hepatitis C in 2021

	Arkansas		Individuals with Healthcare Coverage Diagnosed With Hepatitis C		Individuals With Healthcare Coverage	
Demographic	**Number of Individuals**	**Percentage of Category**	**Individuals Diagnosed**	**Percentage of Category**	**Number of Individuals**	**Percentage of Category**
Age Category						
0-19	787,006	26.2%	83	0.7%	656,877	28.5%
20-29	395,081	13.1%	622	5.3%	259,799	11.3%
30-39	384,775	12.8%	1,878	15.9%	244,888	10.6%
40-49	365,190	12.1%	2,001	16.9%	222,264	9.7%
50-59	379,154	12.6%	2,968	25.1%	239,205	10.4%
60+	695,103	23.1%	4,258	36.0%	659,300	28.6%
Payer Type						
Commercial			1,222	10.3%	745,116	32.4%
Medicaid			6,590	55.7%	931,805	40.5%
Medicaid Qualified Health Plans			3,821	32.3%	314,416	13.7%
Medicare			5,073	42.9%	668,967	29.0%
Race or Ethnicity						
Asian	45,575	1.5%	67	0.6%	22,880	1.0%
Black	455,748	15.2%	1,371	11.6%	318,247	13.8%
Hispanic	236,001	7.9%	120	1.0%	80,067	3.5%
Native American	13,665	0.5%	154	1.3%	14,571	0.6%
Pacific Islander	10,408	0.3%	15	0.1%	7,471	0.3%
White	2,123,715	70.6%	9,014	76.2%	1,134,185	49.2%

	Arkansas		Individuals with Healthcare Coverage Diagnosed With Hepatitis C		Individuals With Healthcare Coverage	
Demographic	**Number of Individuals**	**Percentage of Category**	**Individuals Diagnosed**	**Percentage of Category**	**Number of Individuals**	**Percentage of Category**
Other	121,197	4.0%	226	1.9%	41,110	1.8%
Unknown	--	--	843	7.1%	663,802	28.8%
Rurality						
Urban	1,807,807	60.1%	6,751	57.1%	1,321,858	57.4%
Large Rural	295,234	9.8%	1,211	10.2%	220,142	9.6%
Small Rural	585,729	19.5%	2,385	20.2%	461,750	20.0%
Isolated	317,539	10.6%	1,412	11.9%	256,054	11.1%
Unknown	--	--	51	0.4%	22,529	1.0%
Sex						
Female	1,522,789	50.7%	5,362	45.4%	1,209,252	52.5%
Male	1,483,520	49.3%	6,448	54.5%	1,073,081	46.6%
Note: The state profile for 2021 was extracted from the "American Community Survey 5-Year Estimates" at data.census.gov.						

Appendix C. Hepatitis C Screening Test Codes[7-9]

CPT/HCPC	Description (Based on AAPC)
80074	Acute Hepatitis Panel - A, B and C
86803	Immunoassay to evaluate serum for antibodies to Hepatitis C
86804	Blood test to confirm the presence of antibodies in blood to Hepatitis C
87520	Hepatitis C test using a direct nucleic acid probe technique
87521	Hepatitis C test using an amplified probe technique
87522	Measure of the amount of hepatitis C virus present - viral load test
87902	Technical lab test to analyze specific genotype by nucleic acid of a specimen containing Hepatitis C virus
G0472	Hepatitis C antibody screening, for individual at high risk and other covered indication(s)

Appendix D. HIV Diagnosis Code

ICD 10 CODE	DESCRIPTION
B20	Human immunodeficiency virus (HIV) disease
O987	Human immunodeficiency virus (HIV) disease complicating pregnancy, childbirth and the puerperium
O9871	Human immunodeficiency virus (HIV) disease complicating pregnancy
O98711	Human immunodeficiency virus (HIV) disease complicating pregnancy, first trimester
O98712	Human immunodeficiency virus (HIV) disease complicating pregnancy, second trimester
O98713	Human immunodeficiency virus (HIV) disease complicating pregnancy, third trimester
O98719	Human immunodeficiency virus (HIV) disease complicating pregnancy, unspecified trimester
O9872	Human immunodeficiency virus (HIV) disease complicating childbirth
O9873	Human immunodeficiency virus (HIV) disease complicating the puerperium
Z21	Asymptomatic human immunodeficiency virus (HIV) infection status

Appendix E. Hepatitis C-Related Drugs NDCs[10,11]

NDC	Brand	Generic
00006307401	Zepatier	elbasvir/grazoprevir
00006307402	Zepatier	elbasvir/grazoprevir
00074006301	Viekira XR	dasabuvir/ombitasvir/paritaprevir/ritonavir
00074006328	Viekira XR	dasabuvir/ombitasvir/paritaprevir/ritonavir
00074260028	Mavyret	glecaprevir/pibrentasvir
00074262501	Mavyret	glecaprevir/pibrentasvir
00074262528	Mavyret	glecaprevir/pibrentasvir
00074262556	Mavyret	glecaprevir/pibrentasvir
00074262580	Mavyret	glecaprevir/pibrentasvir
00074262584	Mavyret	glecaprevir/pibrentasvir
00074308228	Technivie	ombitasvir/paritaprevir/ritonavir
00074309301	Viekira Pak	ombitasvir/paritaprevir/ritonavir/dasabuvir
00074309328	Viekira Pak	ombitasvir/paritaprevir/ritonavir/dasabuvir
61958150101	Sovaldi	sofosbuvir
61958150201	Sovaldi	sofosbuvir
61958150202	Sovaldi	sofosbuvir
61958150301	Sovaldi	sofosbuvir
61958150401	Sovaldi	sofosbuvir
61958150501	Sovaldi	sofosbuvir
61958180101	Harvoni	ledipasvir/sofosbuvir
61958180202	Harvoni	ledipasvir/sofosbuvir

NDC	Brand	Generic
61958180301	Harvoni	ledipasvir/sofosbuvir
61958180401	Harvoni	ledipasvir/sofosbuvir
61958180501	Harvoni	ledipasvir/sofosbuvir
61958220101	Epclusa	sofosbuvir/velpatasvir
61958220201	Epclusa	sofosbuvir/velpatasvir
61958220202	Epclusa	sofosbuvir/velpatasvir
61958220203	Epclusa	sofosbuvir/velpatasvir
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72626260101	ledipasvir/sofosbuvir	ledipasvir/sofosbuvir
72626270101	sofosbuvir/velpatasvir	sofosbuvir/velpatasvir
00006307402	Zepatier	

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