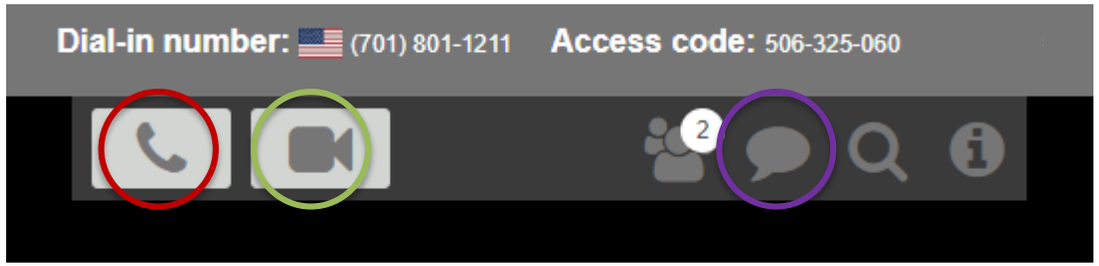
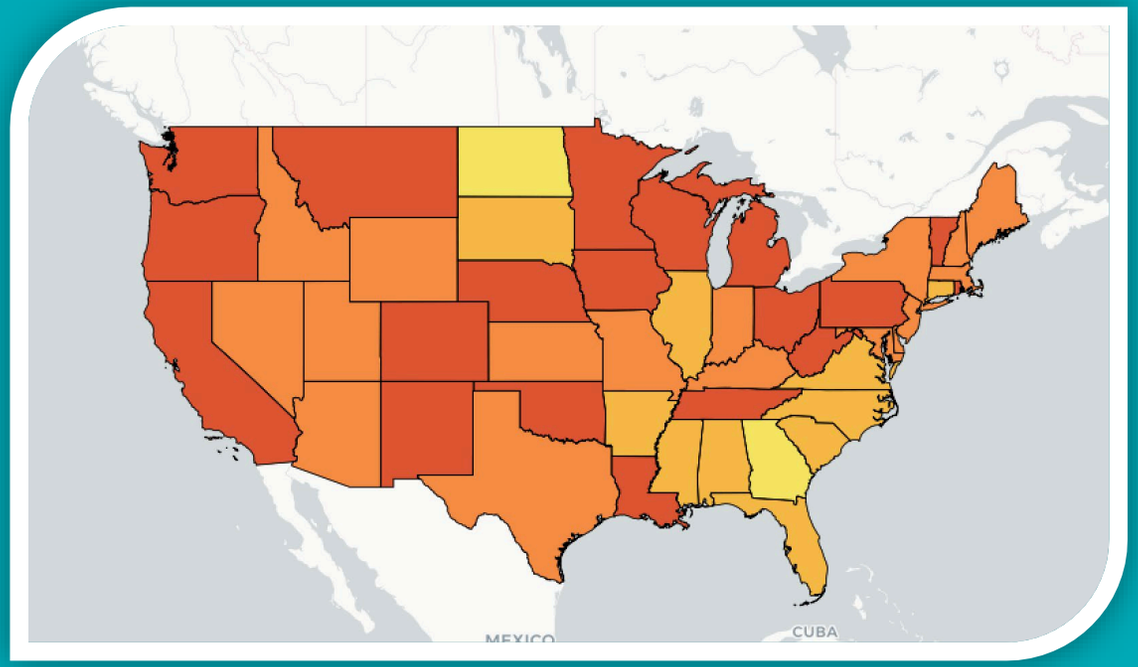
Thank you for joining our webinar on

HepVu's Stratified Data Launch

The webinar will begin at 2:00 PM EST / 11:00 AM PST



- *Join the call via phone or computer by clicking the phone button*
- *We will not be using webcams for this presentation, please turn off your webcam with the camera button*
- *To submit questions, click the chat icon and type your question before hitting the "enter" key*



HepVu Data Launch:

New Hepatitis C Prevalence Estimates Stratified by Age, Sex, and Race

Dr. Ronald Valdiserri and Dr. Heather Bradley

HepVu

Overview

I. Introduction: New Stratified Hepatitis C Prevalence Estimates
   Ronald Valdiserri, MD, MPH
   Professor, Department of Epidemiology, Rollins School of Public Health, Emory University, and HepVu Co-Chair

II. Stratified Hep C Prevalence Estimates: Data Methods
   Heather Bradley, PhD
   Assistant Professor of Epidemiology, Georgia State University, and HepVu Project Director

III. Key Findings and Implications
   Heather Bradley

Visit HepVu.org's News & Updates to download today's presentation

Introduction: New Stratified Hepatitis C Prevalence Estimates

Ronald Valdiserri, MD, MPH
Professor of Epidemiology, Rollins School of Public Health, Emory University
HepVu Co-Chair

HepVu Overview

- **HepVu.org is an online platform** that visualizes data and disseminates insights on the Hepatitis C epidemic across the United States

- Established in 2017 to **present the first standardized state-level estimates** of people living with Hepatitis C

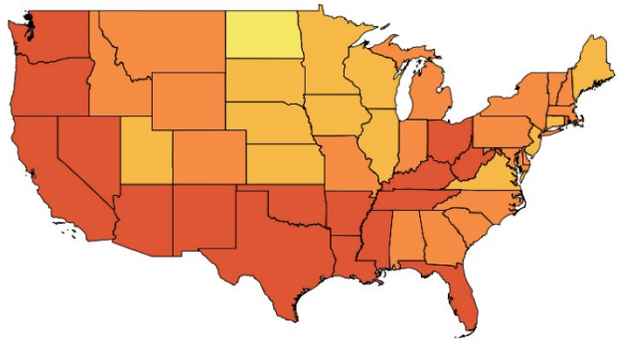
- **HepVu is presented by** Emory University's Rollins School of Public Health in partnership with Gilead Sciences, Inc.

Mission

Vu visualizes data, presents insights, and catalyzes research to drive public health action across the U.S.

Table 1. Estimated prevalence of hepatitis C by sex, U.S. states and District of Columbia, 2013–2016

	Male				Female	
State	Population	Prevalence (per 100)	Prevalence ratio (ref=female)	Prevalence ratio (ref=overall in strata)	Population	Prevalence (per 100)
ALABAMA	1,782,700	1.09	2.03	0.83	1,954,000	0.54
ALASKA	288,200	1.23	1.96	0.94	259,800	0.63
ARIZONA	2,500,000	1.78	2.45	1.36	2,590,600	0.73
ARKANSAS	1,094,100	1.36	2.29	1.04	1,164,600	0.59
CALIFORNIA	14,553,900	1.55	2.37	1.18	14,990,800	0.65
COLORADO	2,047,400	1.23	2.32	0.94	2,061,100	0.53
CONNECTICUT	1,352,800	0.95	2.82	0.73	1,460,000	0.34
DELAWARE	348,700	1.22	2.35	0.93	381,800	0.52
DISTRICT OF COLUMBIA	252,100	3.13	1.76	2.39	290,300	1.78
FLORIDA	7,657,300	1.36	2.40	1.04	8,202,900	0.57
GEORGIA	3,645,200	0.99	2.18	0.76	3,952,500	0.45
HAWAII	553,300	0.84	2.92	0.64	554,100	0.29
IDAHO	598,500	1.25	2.05	0.96	604,800	0.61
ILLINOIS	4,770,100	0.74	2.24	0.56	5,072,300	0.33
INDIANA	2,430,200	1.08	2.10	0.82	2,569,900	0.51
IOWA	1,169,700	0.71	2.41	0.55	1,209,600	0.30
KANSAS	1,069,900	0.89	2.23	0.68	1,103,700	0.40
KENTUCKY	1,647,200	1.75	2.03	1.34	1,743,400	0.86
LOUISIANA	1,689,800	2.10	2.24	1.60	1,828,700	0.94
MAINE	517,500	0.98	3.02	0.75	551,900	0.32
MARYLAND	2,193,100	1.25	2.31	0.95	2,409,800	0.54
MASSACHUSETTS	2,553,300	1.05	2.72	0.80	2,793,200	0.39
MICHIGAN	3,725,200	1.24	2.14	0.95	3,951,500	0.58
MINNESOTA	2,049,400	0.82	2.53	0.62	2,110,500	0.32
MISSISSIPPI	1,070,900	1.42	2.13	1.08	1,180,800	0.66
MISSOURI	2,255,800	1.20	2.28	0.92	2,405,100	0.53



HepVu Advisors

- **Co-Chair: Patrick Sullivan**, PhD, DVM, Professor, Department of Epidemiology, Emory University, Rollins School of Public Health, and Principal Scientist, AIDSVu and HepVu

- **Co-Chair: Ron Valdiserri**, MD, MPH, Professor, Department of Epidemiology, Rollins School of Public Health, Emory University, Former Deputy Assistant Secretary for Health, Infectious Diseases, U.S. Department of Health and Human Services

- **Project Director: Heather Bradley**, PhD, Assistant Professor of Epidemiology, Georgia State University

- **HepVu Working Group Advisors:**
  - amfAR
  - CDC
  - Hepatitis B Foundation
  - Howard University Hospital
  - Kaiser Family Foundation
  - Massachusetts Department of Health
  - MedStar Health Research Institute
  - NASTAD
  - National Viral Hepatitis Roundtable
  - NIDA
  - Philadelphia Health Department
  - UAB Emergency Medicine Department
  - UCSD

The Hepatitis C Epidemic

- **Hepatitis C is a leading cause of liver-related morbidity and mortality in America**
  - Hepatitis C-related deaths were greater than deaths from 60 other infectious diseases combined in 2013

- **An estimated 2.3 million people were living with Hepatitis C from 2013 to 2016**
  - Heaviest impact on males, Baby Boomers, Black Americans, and, increasingly, young persons in states highly affected by the opioid epidemic

- **Hepatitis C and other infectious diseases are often-overlooked consequences of America's opioid crisis**
  - Hepatitis C infections have nearly tripled in recent years, with the largest increases among persons under 40, largely due to injection drug use

Eliminating Hepatitis C

- It is important to have a **well-funded, robust public health surveillance system** for Hepatitis C in order to have the data needed to end Hepatitis C in the U.S.
- HepVu visualizes and contextualizes the most accurate and timely data available to **inform researchers and public health decision-makers' prevention and care efforts**

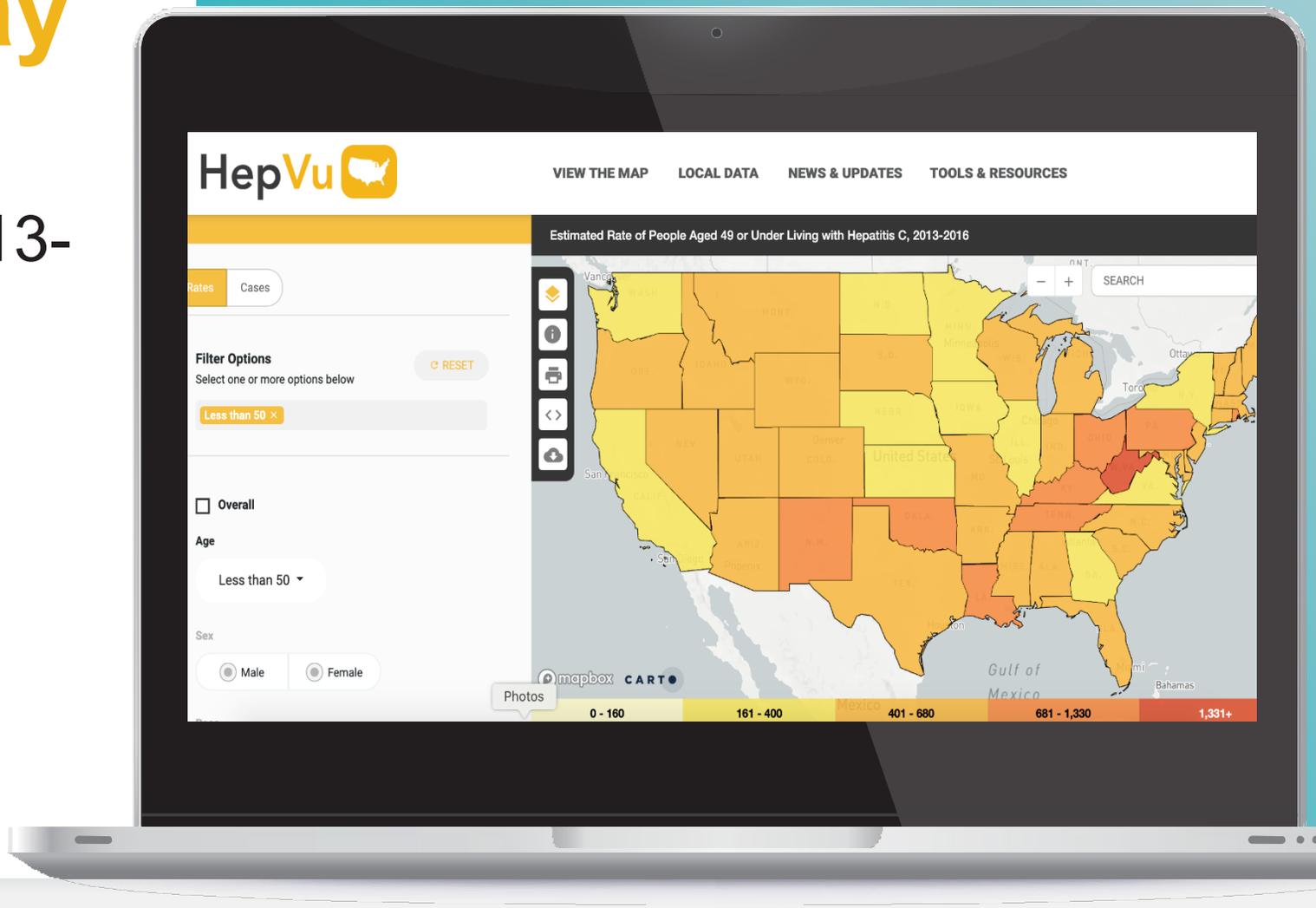
"**One of the most critical gaps is limited data to monitor viral hepatitis locally and nationally.** The public health surveillance system for viral hepatitis is not as robust or extensive as it is for some other infectious diseases."

— *National Viral Hepatitis Action Plan, 2017-2020*

New Data Launched Today

State-level Hepatitis C prevalence estimates (2013-2016) stratified by:

- **Sex**
- **Age**
- **Race**

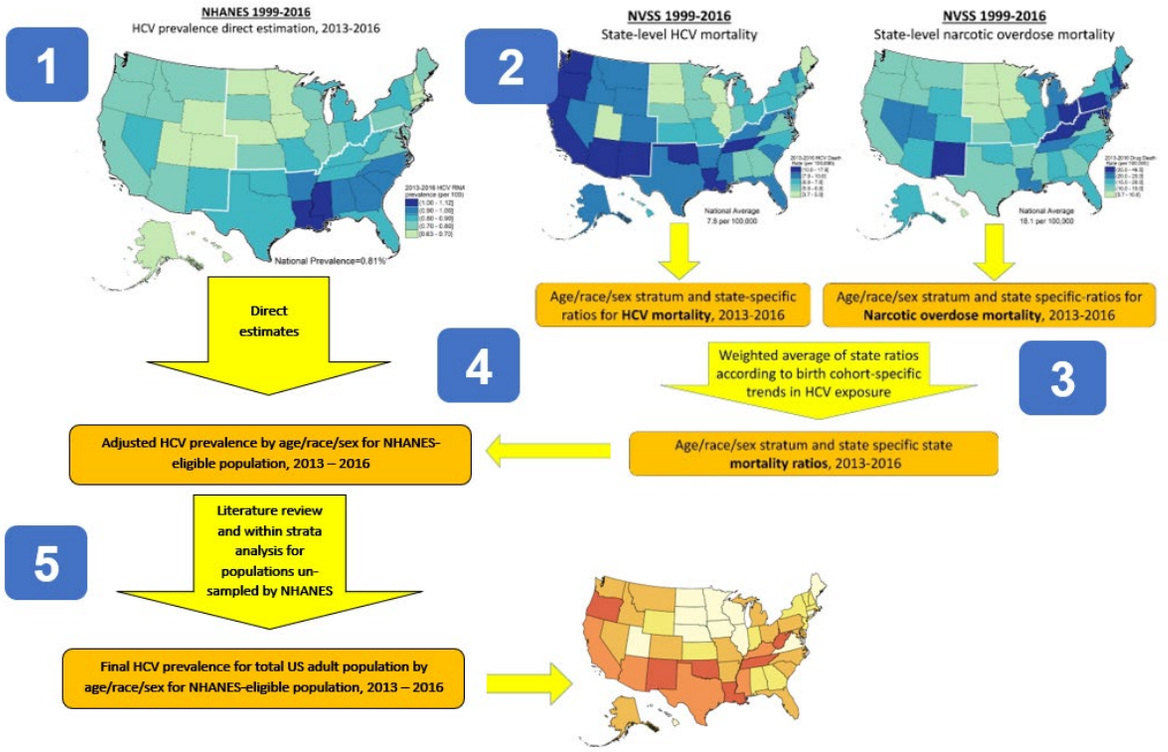


Stratified Hepatitis C Prevalence Estimation: Data Methods

Heather Bradley, PhD
Assistant Professor of Epidemiology, Georgia State University
HepVu Project Director

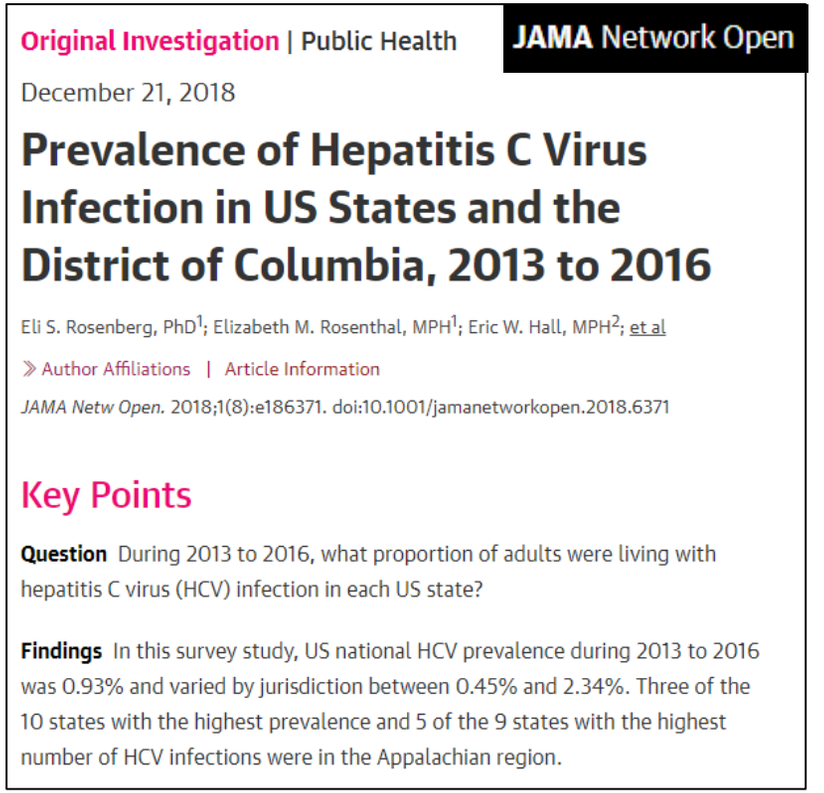
Data Methods: What We'll Cover

- Background on Hepatitis C stratified prevalence estimation
- Overview of methodology
- Results
- Limitations and strengths
- Conclusions



Background on Hepatitis C Prevalence Estimation

- State-level burden of Hepatitis C infection informs policies, resource allocation, advocacy, and elimination efforts
- Prevalence of current infection (RNA)
  - Measured in nationally representative residential survey:
    National Health and Nutrition Examination Survey (NHANES)
  - In most states, it is challenging to measure directly from diagnoses reported to surveillance
- Statistical models allow combining national NHANES Hepatitis C prevalence with local information to yield state-level results
  - National Vital Statistics System (NVSS) mortality
  - American Community Survey (ACS) population sizes



Original Investigation | Public Health

JAMA Network Open

December 21, 2018

Prevalence of Hepatitis C Virus Infection in US States and the District of Columbia, 2013 to 2016

Eli S. Rosenberg, PhD[1]; Elizabeth M. Rosenthal, MPH[1]; Eric W. Hall, MPH[2]; et al

» Author Affiliations | Article Information

JAMA Netw Open. 2018;1(8):e186371. doi:10.1001/jamanetworkopen.2018.6371

Key Points

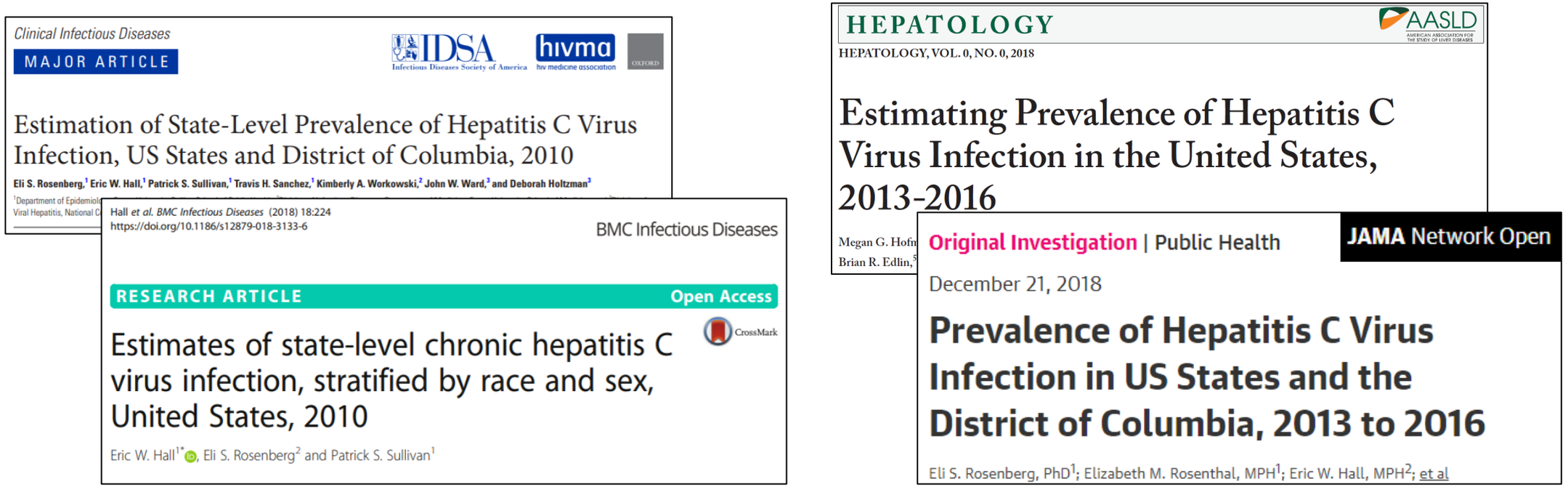
Question During 2013 to 2016, what proportion of adults were living with hepatitis C virus (HCV) infection in each US state?

Findings In this survey study, US national HCV prevalence during 2013 to 2016 was 0.93% and varied by jurisdiction between 0.45% and 2.34%. Three of the 10 states with the highest prevalence and 5 of the 9 states with the highest number of HCV infections were in the Appalachian region.

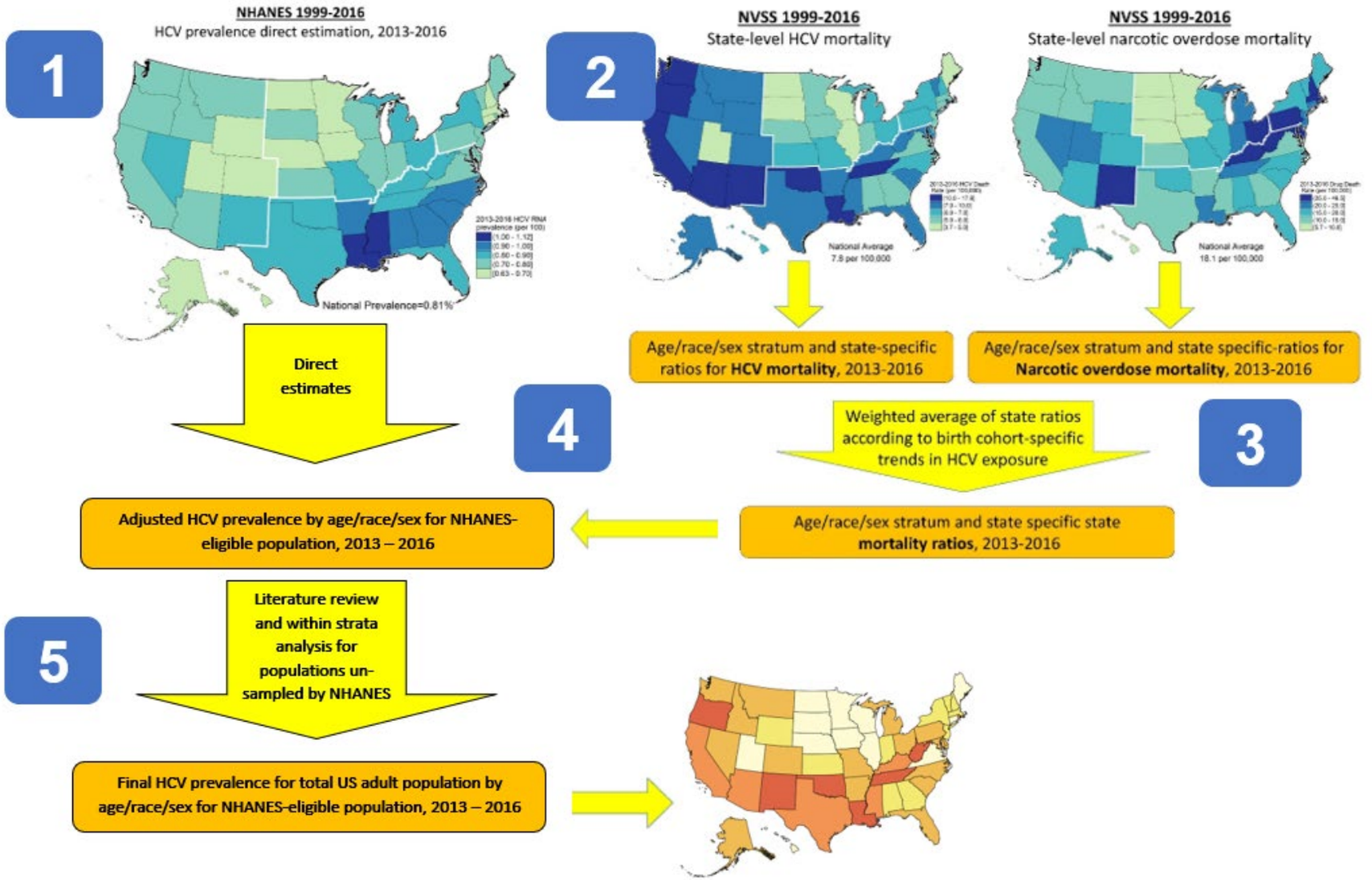
Hepatitis C prevalence estimates (2013-2016) published in JAMA Network Open, Dec. 2018

Overview of Methodology

Method builds on previous approaches for national and state estimates



Review of Analytic Approach



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Data Sources for Steps 1- 4

Data source	Years	Purpose	Number of individuals represented	Number of cases
National Health and Nutrition Examination Survey (NHANES)	1999-2016	National HCV RNA prevalence overall and by strata of sex, race/ethnicity, birth cohort, and poverty. Trends in anti-HCV inform analysis weights.	47,387 with non-missing HCV RNA test results 47,590 with non-missing anti-HCV test results	575 with positive HCV RNA test 874 with positive anti-HCV test
U.S. Census intercensal data	1999-2016	Population structure for modeling HCV- and overdose-related mortality rates.	4,109,869,228 person-years age 18 or above	n/a
U.S. Census American Community Survey (ACS)	2012-2016	Noninstitutionalized United States population structure for final estimates.	12,023,450 observations of noninstitutionalized persons aged 18 or above	n/a
National Vital Statistics System (NVSS)	1999-2016	Distribution of Hepatitis C-related mortality, signaling underlying HCV prevalence, to inform distribution of older HCV infections.	44,071,310 decedents age 18 or above who resided in the 50 states or Washington DC	261,858 with HCV as underlying or multiple cause of death
National Vital Statistics System (NVSS)	1999-2016	Distribution of narcotic overdose mortality, signaling underlying injection patterns, to inform distribution of newer HCV infections.	44,071,310 decedents age 18 or above who resided in the 50 states or Washington DC	541,130 with unintentional or undetermined cause narcotic or unknown drug as cause of death

Limitations and Strengths

- **Limitations to consider**
  - NHANES representation of Hepatitis C increases among PWID
  - Hepatitis C- and narcotic-related mortality are incomplete proxies for underlying Hepatitis C infection
  - Estimates represent average during 2013-2016
    - Period of rising incidence
    - Likely increasing >2016
  - Model unable to produce robust, separate estimates for Hispanic/Latinx population
- **Strengths of approach**
  - Synthesis of large national datasets, with local information
  - Few model assumptions
  - Allows apples-to-apples comparisons between states

Differences From Some Jurisdictions' Data

- Prevalence estimates may differ from some states' own internal estimates
  - Common approach: Make adjustments to go from diagnosed cases to prevalent infections
  - Different data sources
  - Different methods, models, and assumptions
  - Differences in time periods described

- Best estimates from national prevalence surveillance and vital statistics data
  - State-specific methodologies not replicable in most jurisdictions with different or no case surveillance. Different assumptions required per jurisdiction
  - Previous 2010 estimates closely mirrored local estimates in many states with available comparison

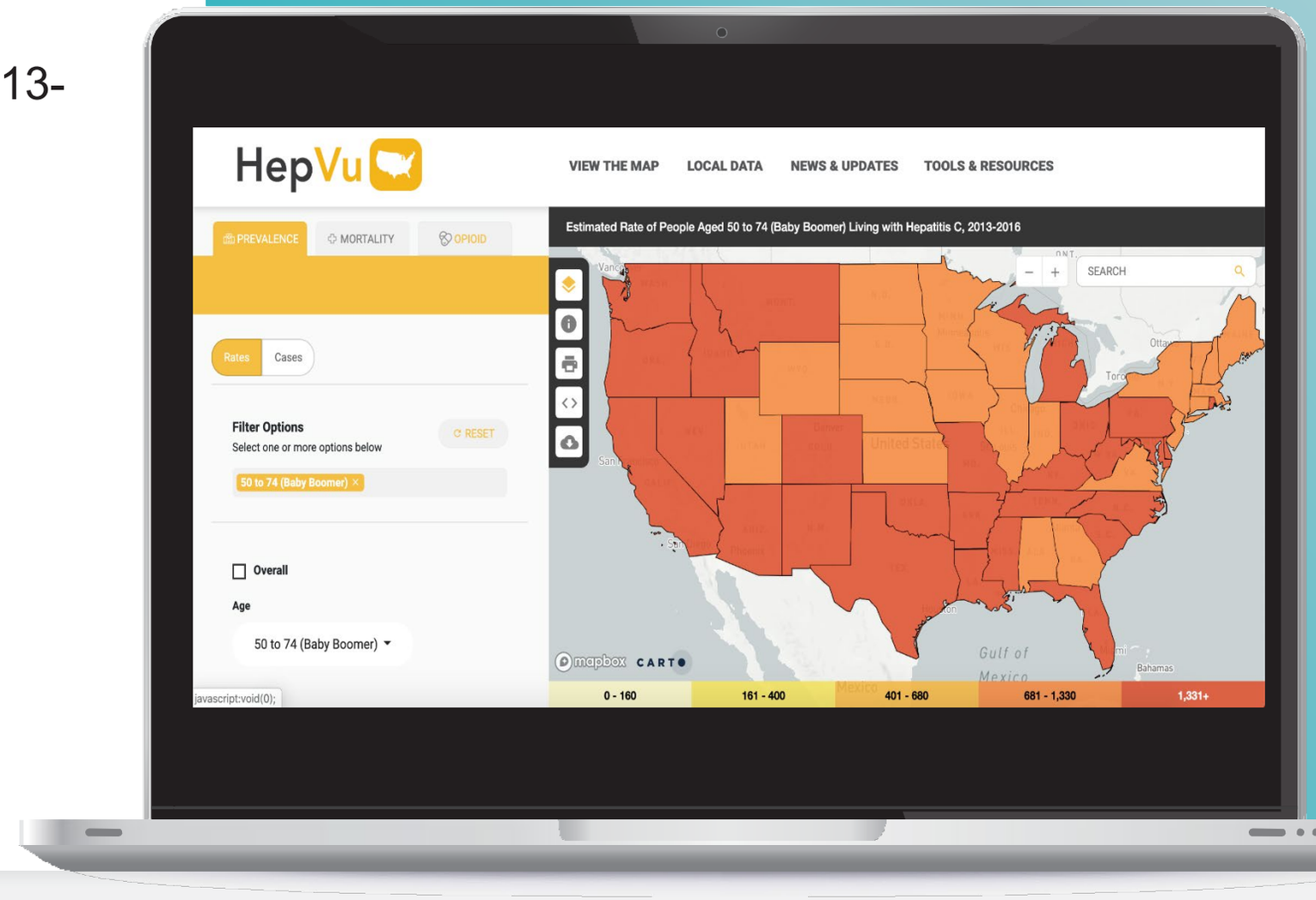
- **Primary objective:** Standardized approach to allow state-to-state comparisons
  - Some jurisdictions may have additional data to inform HCV epidemic estimates, which are valuable and should be taken into consideration for local decision-making

Key Findings and Implications

New Stratified Maps

Hepatitis C prevalence estimates (2013-2016) stratified by:

- **Sex**
  - Male
  - Female
- **Age**
  - Less than 50
  - 50 – 74 (Baby Boomer)
  - 75 and older
- **Race**
  - Black
  - Non-Black



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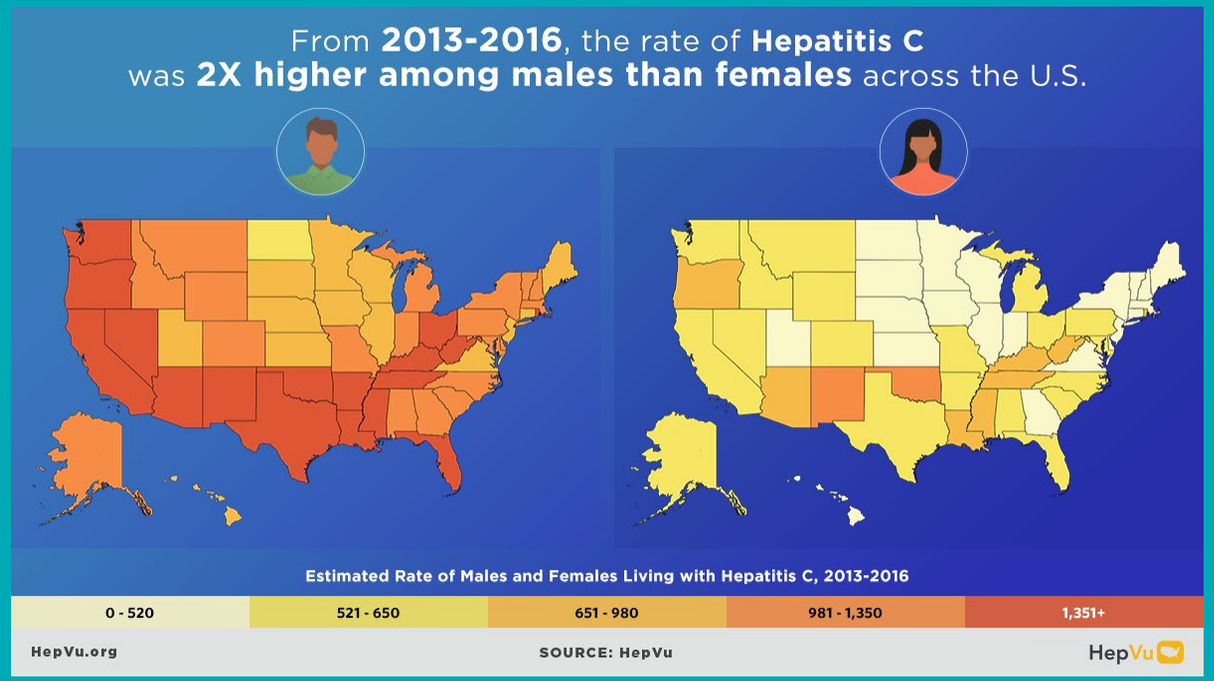
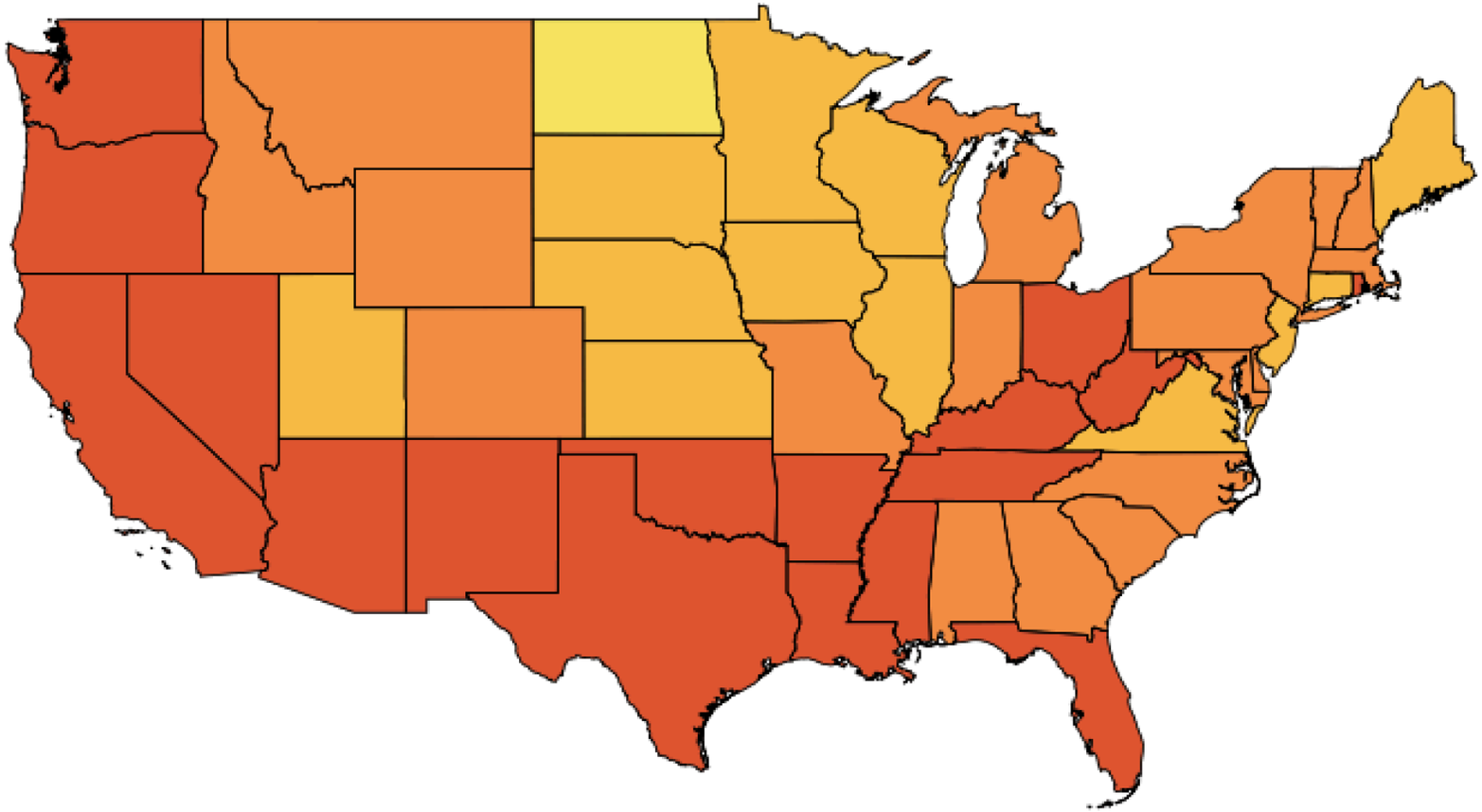
Hepatitis C by Sex

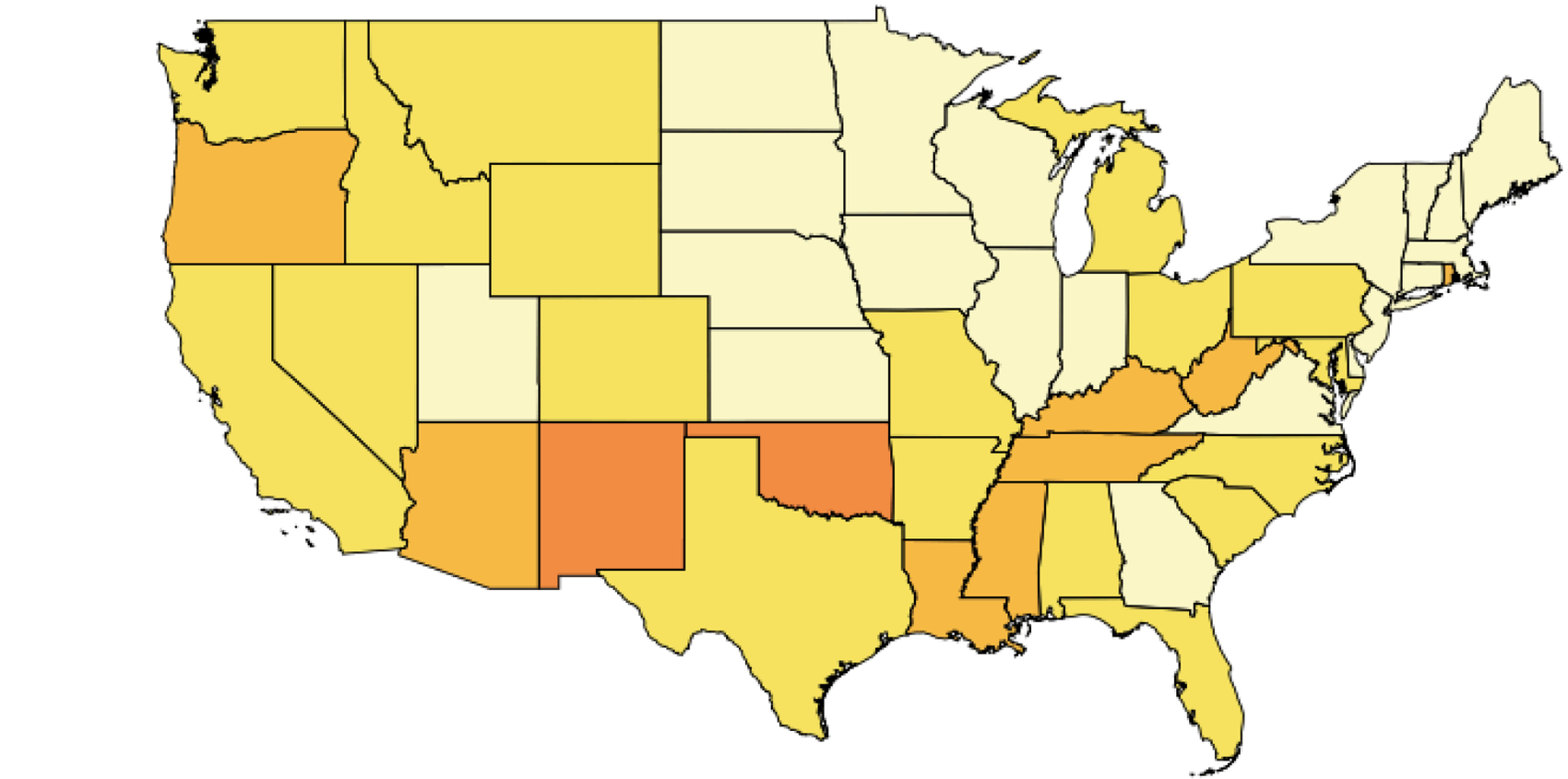


Estimated Rate of Males Living with Hepatitis C, 2013-2016



0 - 520	521 - 650	651 - 980	981 - 1,350	1,351+

Estimated Rate of Females Living with Hepatitis C, 2013-2016



0 - 520	521 - 650	651 - 980	981 - 1,350	1,351+

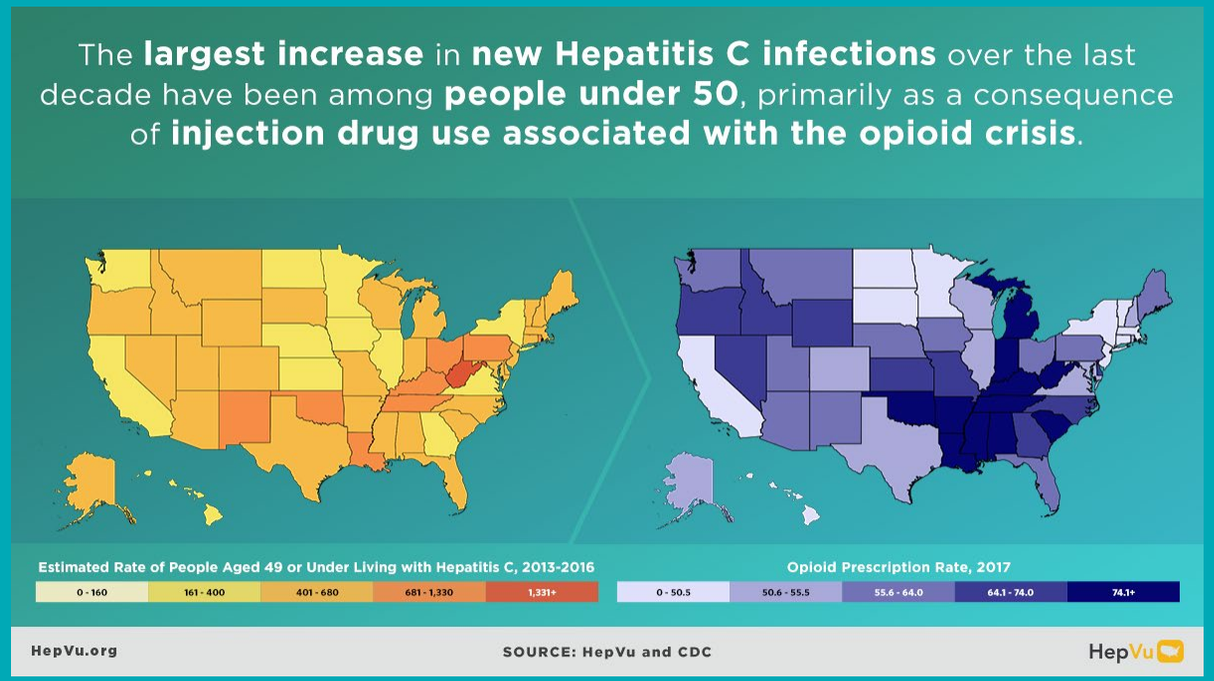
Key Findings

- **Men had double the Hepatitis C prevalence of women** – a ratio that was consistent in nearly every state

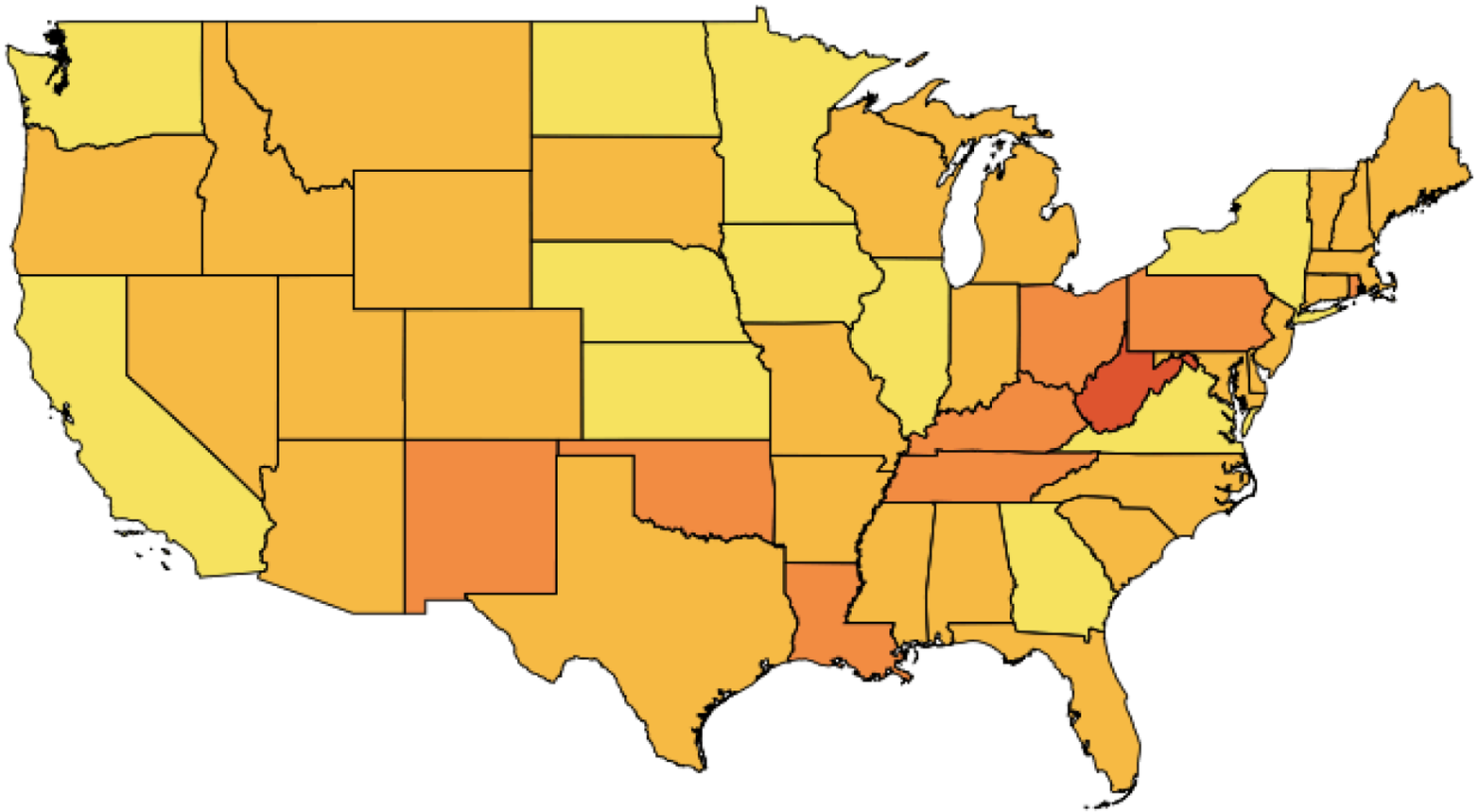
- Nationally, the rate of Hepatitis C prevalence was 1.3 percent for males and 0.6 percent for females

- This disparity is consistent with previously published estimates

Hepatitis C by Age

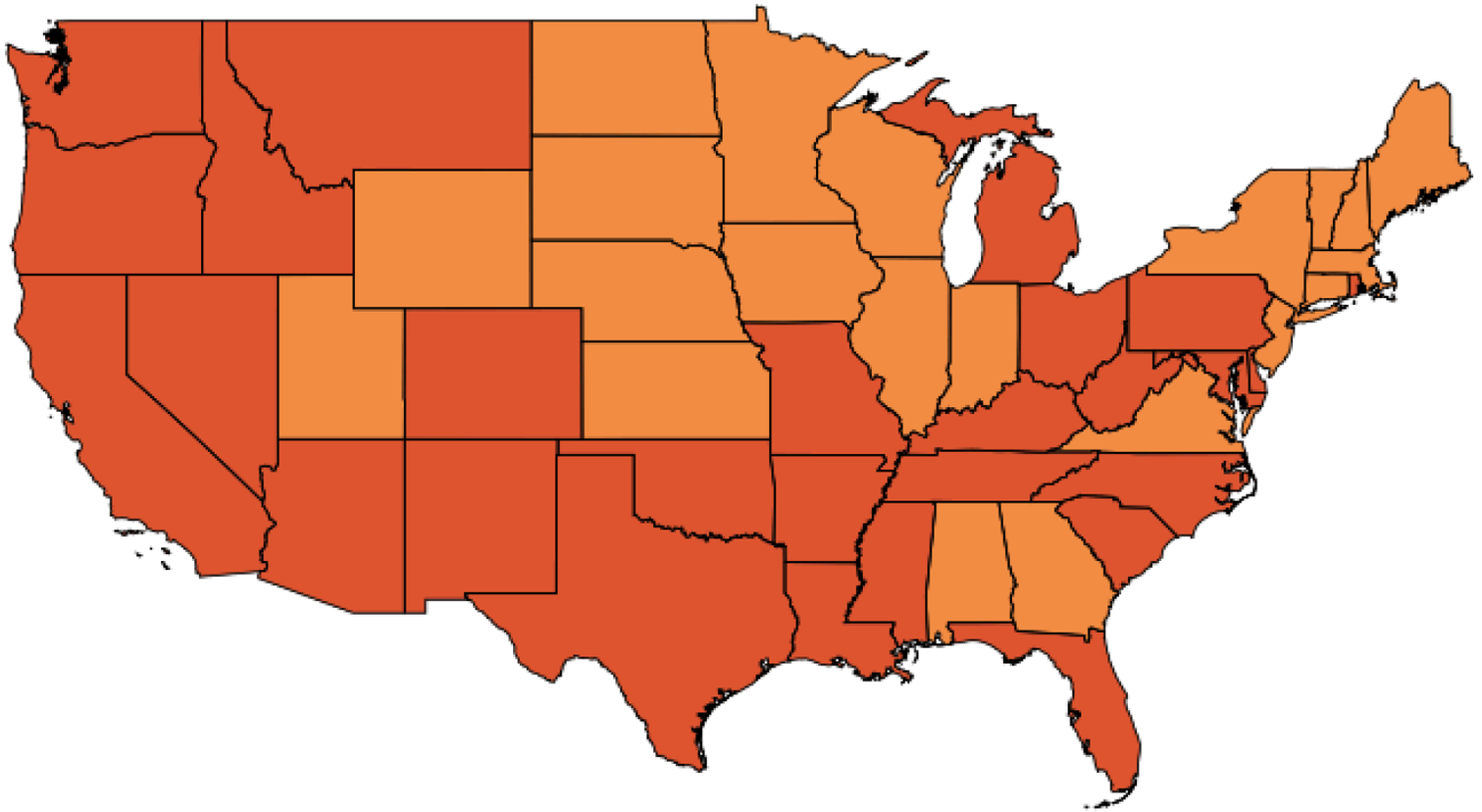


Estimated Rate of People Aged 49 or Under Living with Hepatitis C, 2013-2016



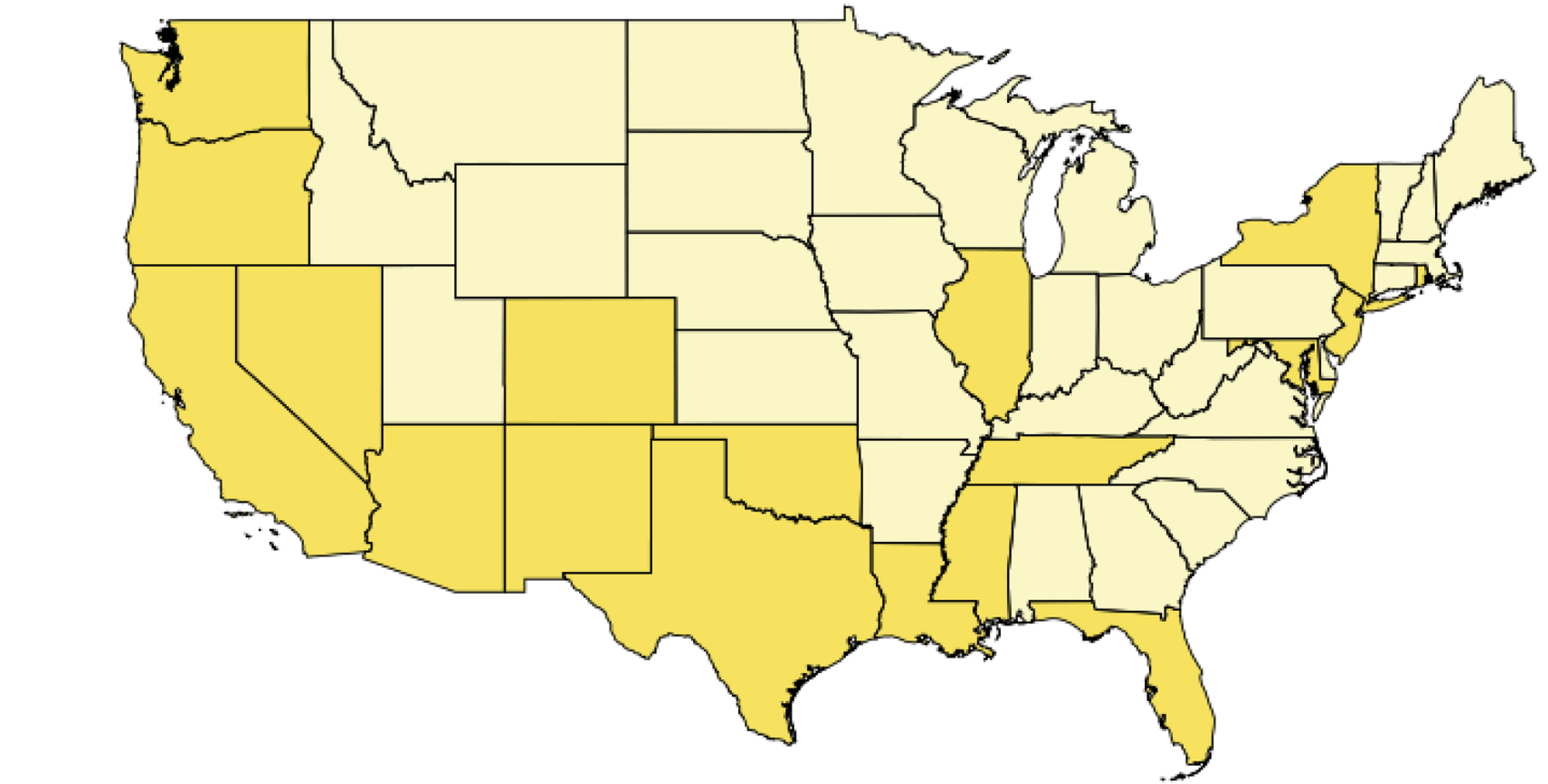
0 - 160	161 - 400	401 - 680	681 - 1,330	1,331+

Estimated Rate of People Aged 50 to 74 (Baby Boomer) Living with Hepatitis C, 2013-2016



0 - 160	161 - 400	401 - 680	681 - 1,330	1,331+

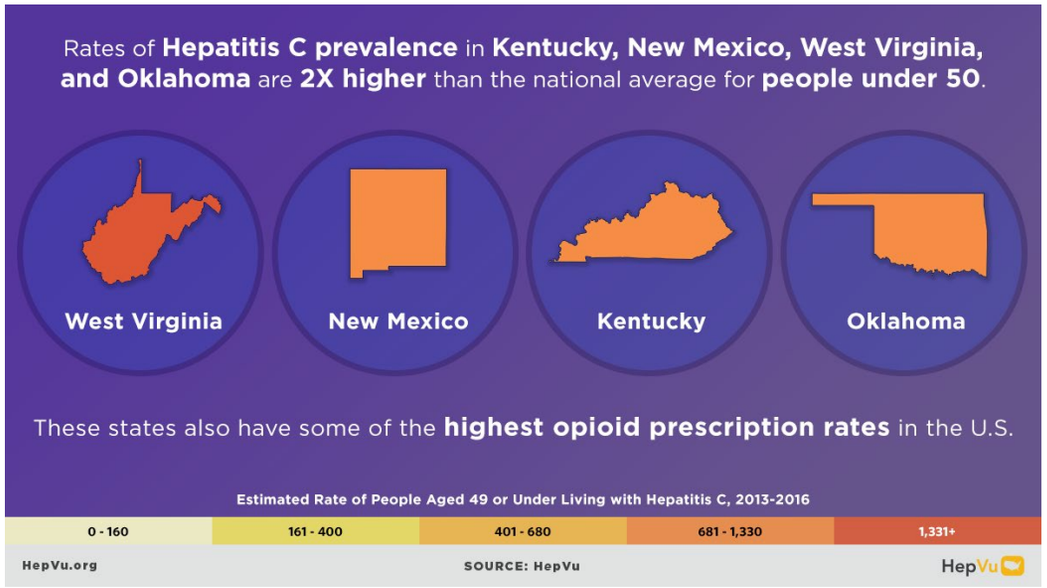
Estimated Rate of People Aged 75+ Living with Hepatitis C, 2013-2016



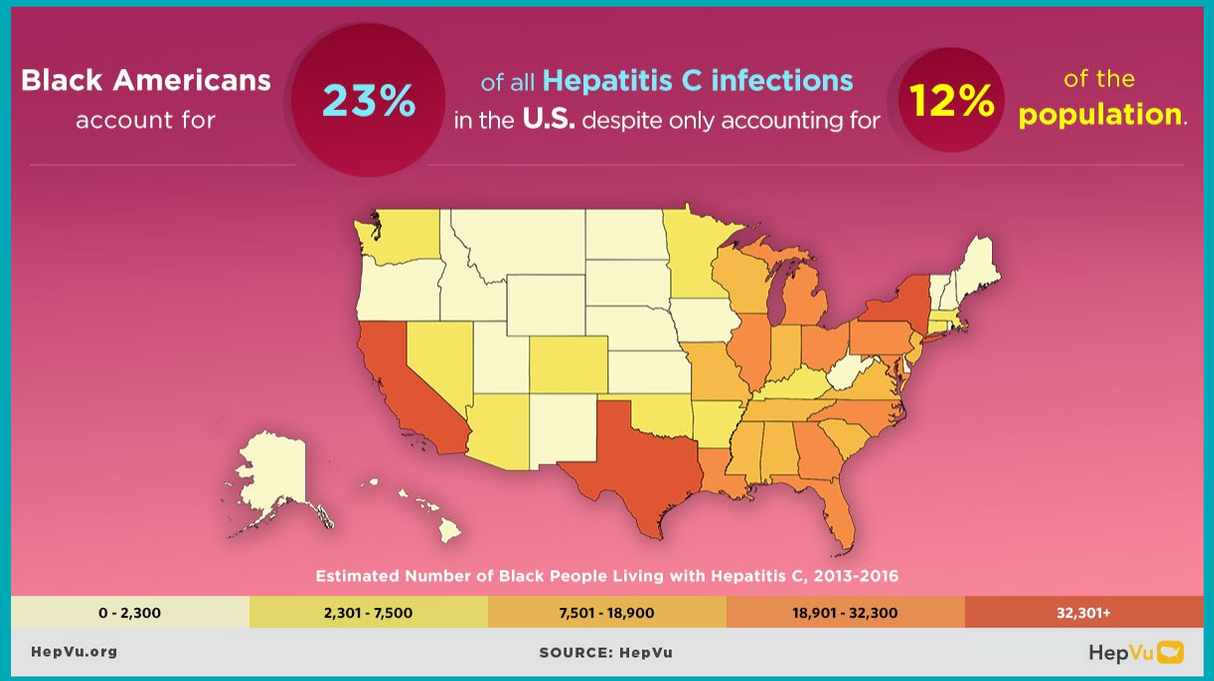
0 - 160	161 - 400	401 - 680	681 - 1,330	1,331+

Key Findings

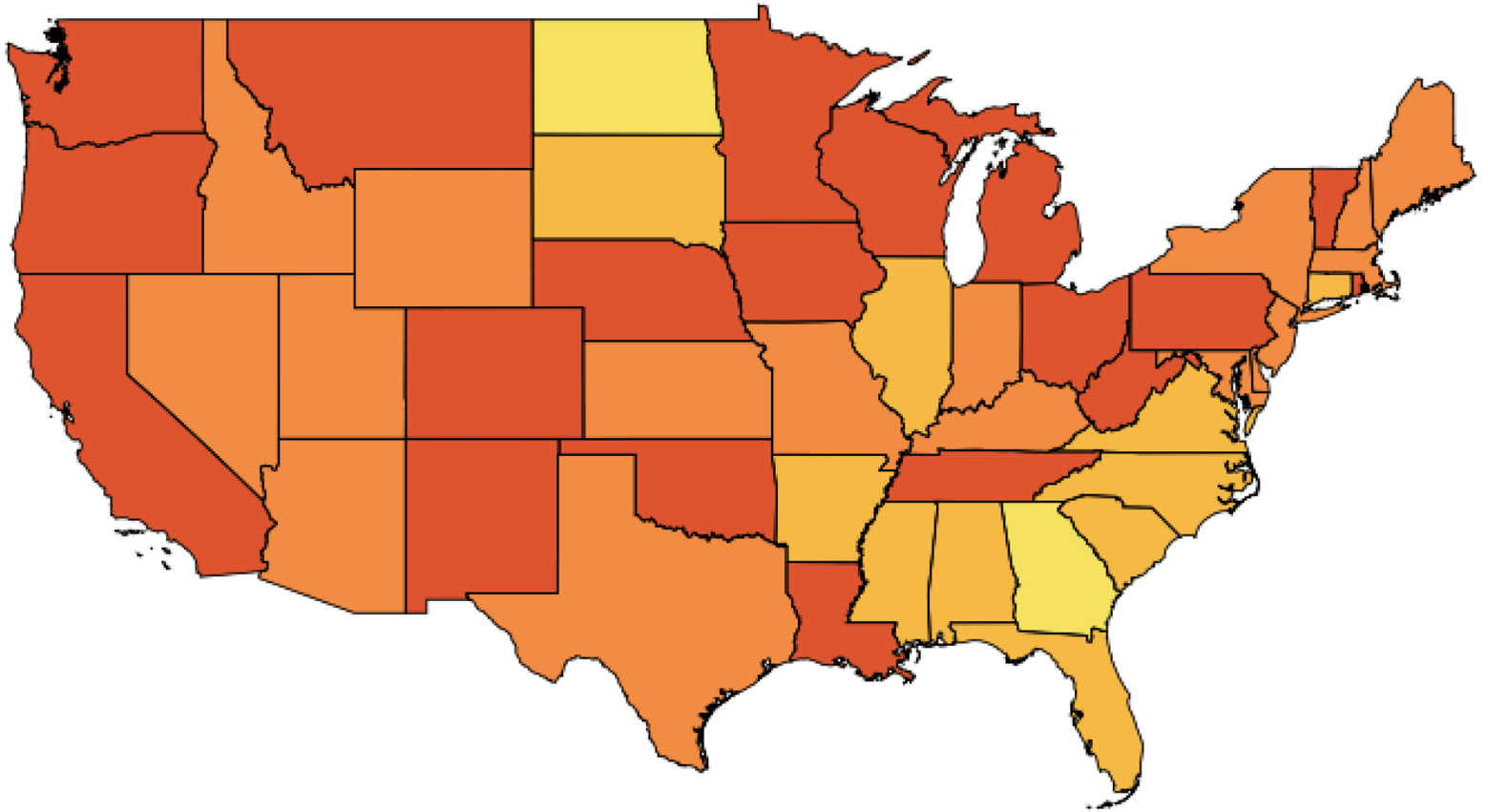
- Nationally, Hepatitis C prevalence among persons:
  - 50 – 74 years (Baby Boomers): **1.6%**
  - 49 years or younger: **0.5%**
  - 75 years or older: **0.2%**
- 71% of infections were among **Baby Boomers**, but…
- **…Younger Americans** represent larger proportions of Hepatitis C infections in states hardest hit by the opioid epidemic



Hepatitis C by Race

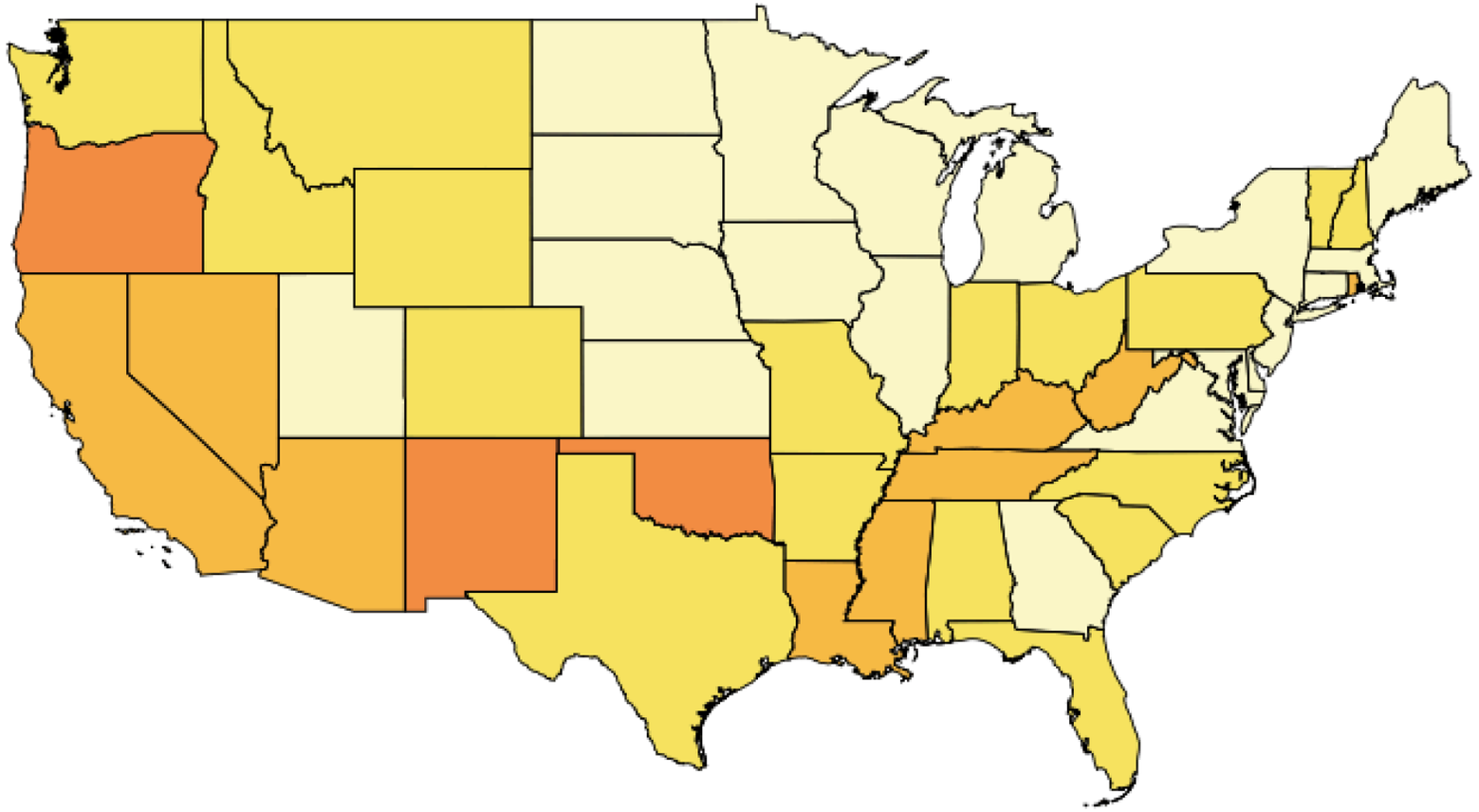


Estimated Rate of Black People Living with Hepatitis C, 2013-2016



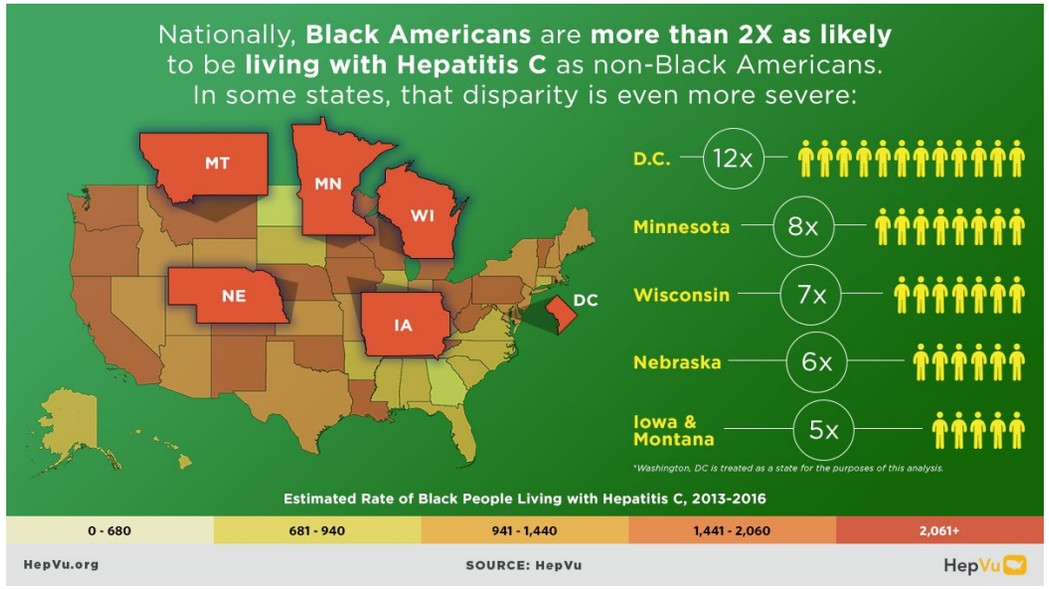
0 - 680	681 - 940	941 - 1,440	1,441 - 2,060	2,061+

Estimated Rate of Non-Black People Living with Hepatitis C, 2013-2016



0 - 680	681 - 940	941 - 1,440	1,441 - 2,060	2,061+

Key Findings



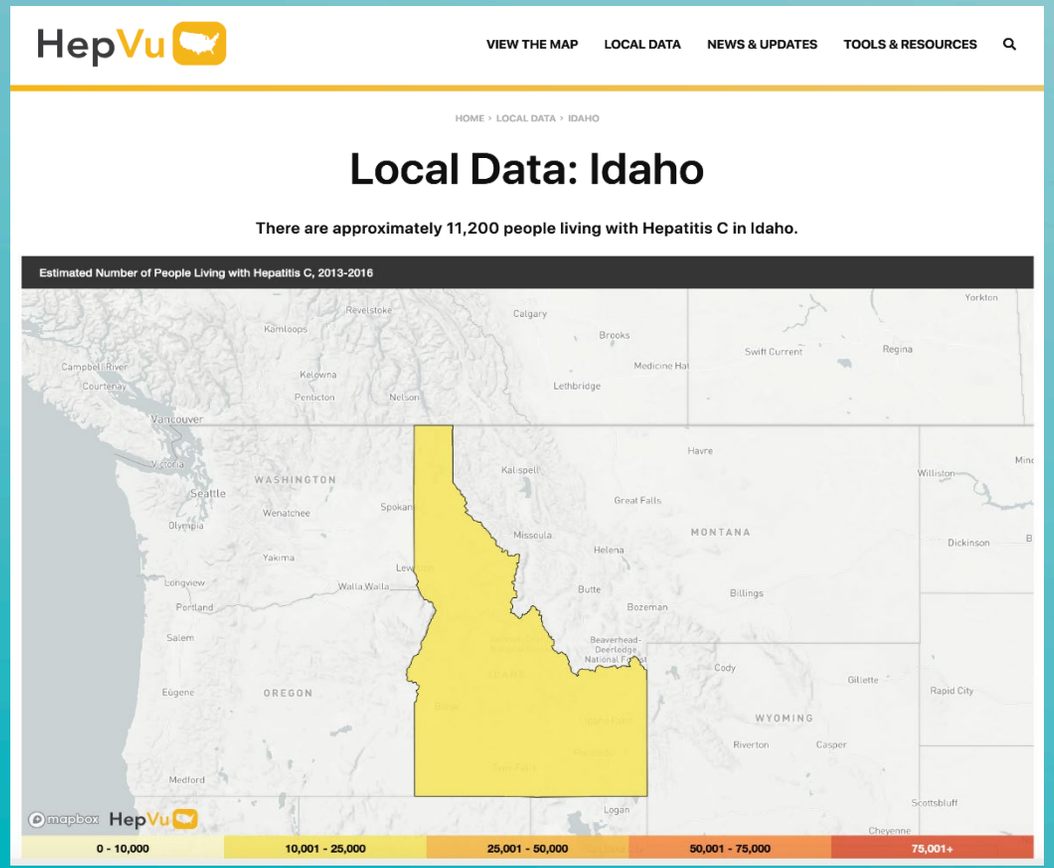
- **Hepatitis C prevalence was more than twice as high for Black Americans** than for non-Black Americans
- Black Americans account for **23% of Hepatitis C infections**, but only 12% of the U.S. population
- All but five jurisdictions had more than 1.0% prevalence among non-Hispanic Black persons

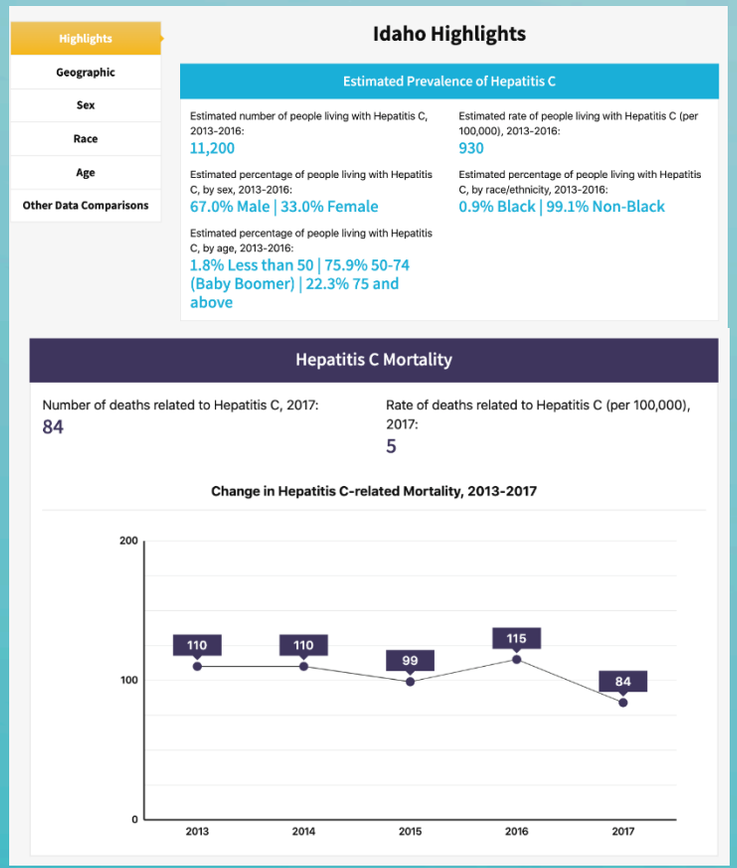
Conclusions

- National surveys, in conjunction with local mortality data that capture multiple aspects of Hepatitis C epidemics, enable systematic estimation of state-level Hepatitis C prevalence
- Hepatitis C continues to affect populations including:
  - Males
  - Baby Boomers
  - Black Americans
- Highest rates frequently in states:
  - With history of increased levels of injection drug use and chronic Hepatitis C infection
  - That are deeply affected by opioid crisis
- **Estimates can benchmark epidemic and guide prevention, diagnosis, and treatment efforts**

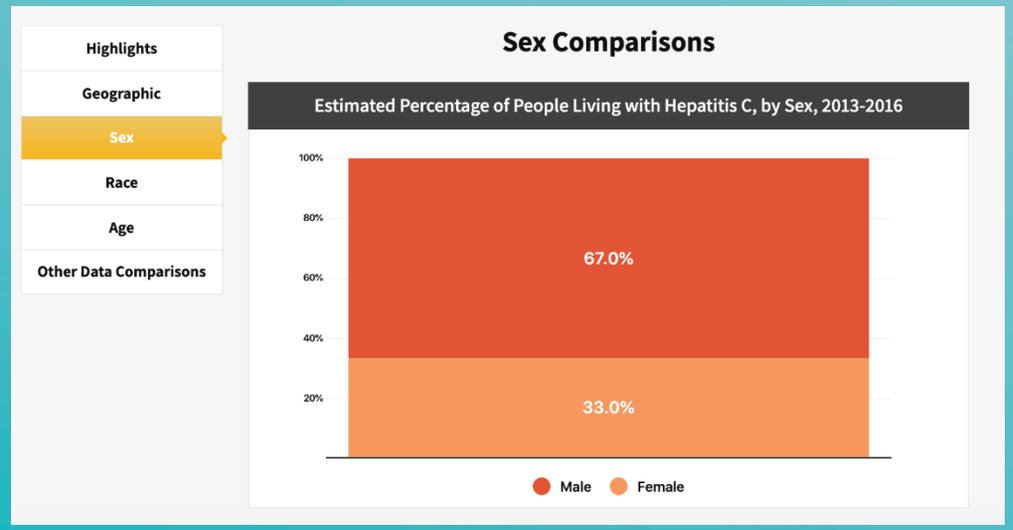
New HepVu Features & Resources

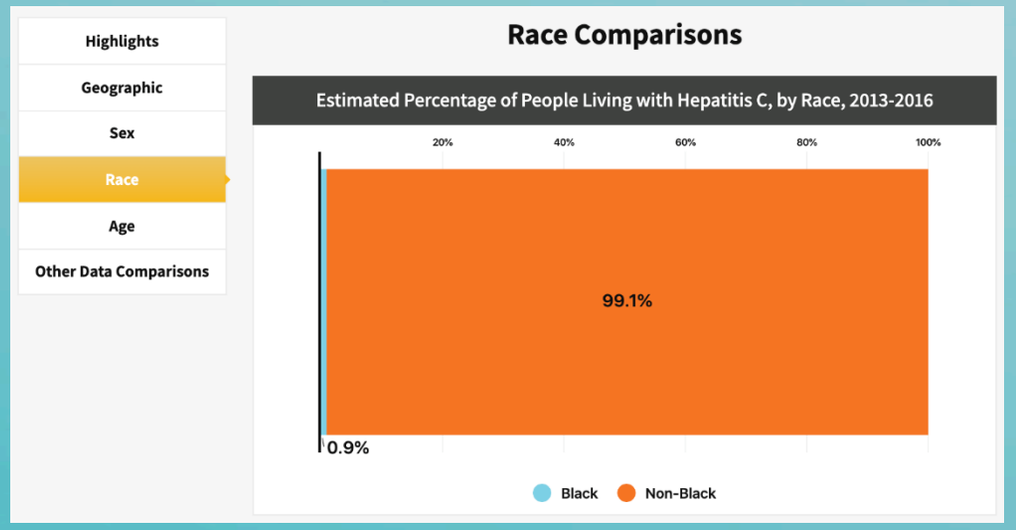
State Profiles





State Profiles





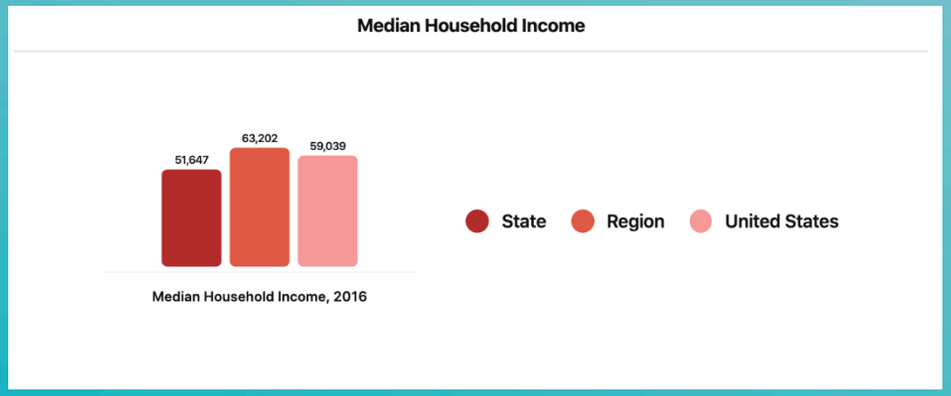
State Profiles

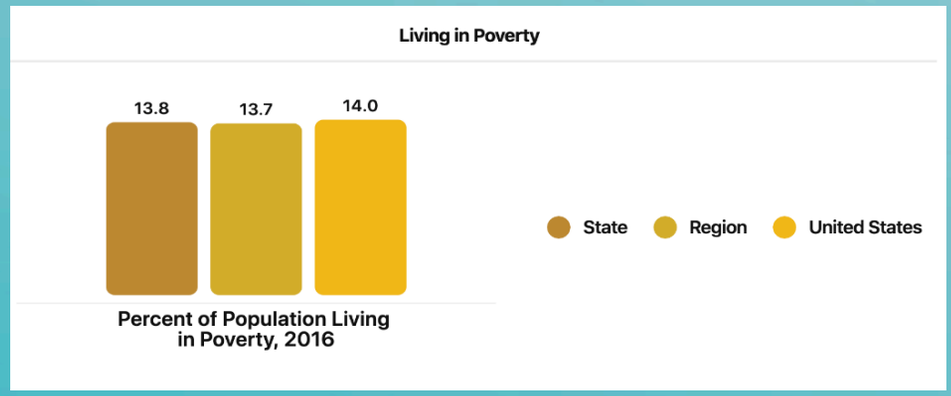
Opioid Indicators

Opioid prescription rate, 2017
70.3

Pain Reliever Misuse Percent, 2015-2016
5.1

Narcotic Overdose Mortality Rate, 2013-2016
12.7

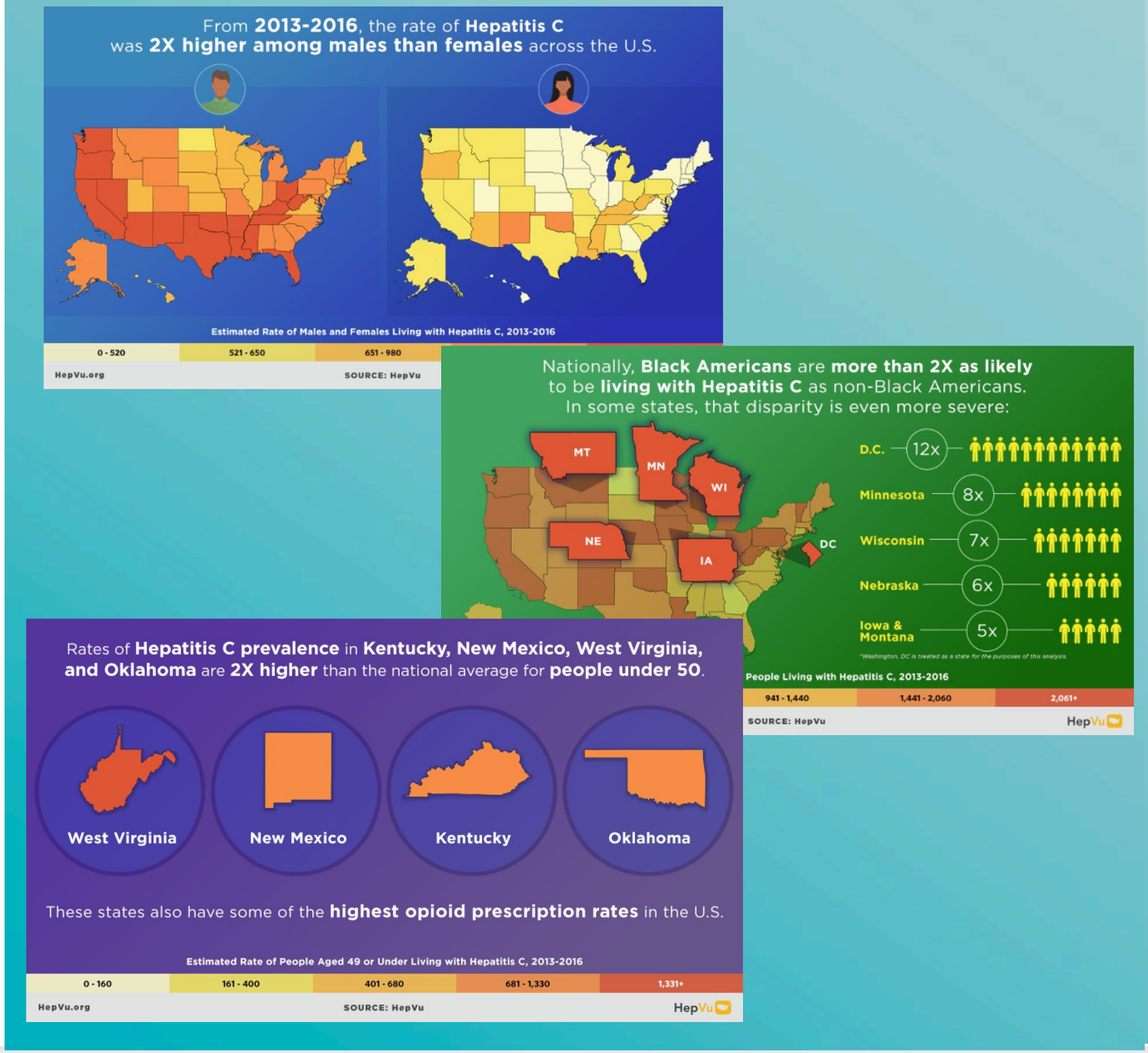




Shareable Resources on Stratified Data

- **New infographics** on Hepatitis C by sex, age, and race

- **Expert Q&A blogs** about viral hepatitis, opioids, and Hepatitis C elimination campaigns, with recent examples including:
  - Dr. John W. Ward, Director of the Coalition for Global Hepatitis Elimination
  - Dr. Monica Graybeal, Hepatitis C ambulatory and community pharmacist at Yakima Valley Farm Workers Clinic
  - Dr. Heather Bradley, HepVu Project Director *(introduction to stratified data)*



HepVu: Coming This Year

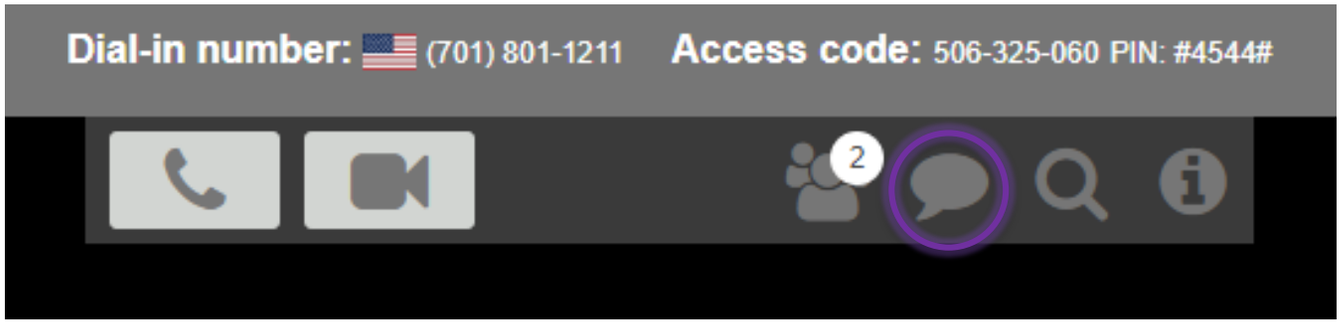
- Focus on viral hepatitis surveillance
  - Webinar with jurisdictional representatives: **Join us January 28, 12:30 – 1:30 PM EST**
- May: Hepatitis Awareness Month and Testing Day
  - National Hispanic Hepatitis Awareness Day
- July: World Hepatitis Day
  - National African American Hepatitis C Action Day
- Ongoing blog series with experts and infographics

Engage With HepVu

- Share the data launch with your networks
- Follow us on social media: **@HepVu**
- Sign up for our newsletter: **www.hepvu.org**
- Let us know how you use HepVu: **info@hepvu.org**

Visit HepVu.org's News & Updates to download today's presentation

Questions?



- To submit questions, click the chat icon and type your question before hitting the “enter” key

Learn more at HepVu.org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