OPIOID-RELATED OVERDOSE VULNERABILITY IN IDAHO: AN EPIDEMIOLOGICAL ASSESSMENT

July 26, 2024

Olivia M. Lewis, Shikhar Shrestha, and Thomas J. Stopka

THE DEPARTMENT OF PUBLIC HEALTH AND COMMUNITY MEDICINE, TUFTS UNIVERSITY SCHOOL OF MEDICINE, IN COLLABORATION WITH THE IDAHO DEPARTMENT OF HEALTH AND WELFARE

STUDY TEAM

OLIVIA M. LEWIS, BA

ASSISTANT RESEARCHER

DEPARTMENT OF PUBLIC HEALTH AND COMMUNITY MEDICINE,

TUFTS UNIVERSITY SCHOOL OF MEDICINE, BOSTON, MA

SHIKHAR SHRESTHA, MS, PHD

ASSISTANT PROFESSOR

DEPARTMENT OF PUBLIC HEALTH AND COMMUNITY MEDICINE,

TUFTS UNIVERSITY SCHOOL OF MEDICINE, BOSTON, MA

THOMAS J. STOPKA, PHD, MHS

PROFESSOR

DEPARTMENT OF PUBLIC HEALTH AND COMMUNITY MEDICINE, TUFTS UNIVERSITY SCHOOL OF MEDICINE, BOSTON, MA

FOR QUESTIONS ABOUT THIS REPORT, CONTACT:

Thomas J. Stopka, PhD, MHS

Professor

Department of Public Health and Community Medicine

Tufts University School of Medicine

Thomas.stopka@tufts.edu

617-636-2110

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Mylana McArthur

Karyn Kershaw

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GLOSSARY OF TERMS

ACS: American Community Survey (U.S. Census Bureau)

IDHW: Idaho Department of Health and Welfare

GIS: Geographic information system

HCV: Hepatitis C virus

MME: Morphine milligram equivalent (unit for opioid prescription dosage)

MOUD: Medication for opioid use disorder

OD: Overdose

OTP: Community-based opioid treatment programs (provide methadone treatment)

OUD: Opioid use disorder

PWUD: People who use drugs

PWID: People who inject drugs

SSP: Syringe services program

SUD: Substance use disorder

EXECUTIVE SUMMARY

The state of Idaho continues to face challenges from the current opioid overdose crisis, with 270 fatal opioid overdoses occurring in 2022, a record 188 of which were connected to fentanyl use.[1] In the same year, the opioid dispensing rate was 45.4 prescriptions per 100 people, higher than the national dispensing rate of 39.5.[2] Injection drug use, a common mode of opioid use, is closely connected to the transmission of bloodborne infectious diseases through sharing needles or other equipment used to inject drugs.[3] In 2022 there were 1,155 newly diagnosed cases of chronic hepatitis C viral (HCV) infections and 43 diagnoses of human immunodeficiency virus (HIV) in Idaho.[4] Despite the implementation of programs aimed at combating the opioid overdose epidemic, numerous factors related to the COVID-19 pandemic have contributed to elevated overdose risks among people who use drugs (PWUD) in the state.

In 2021, we conducted a multi-methods study to identify counties vulnerable to opioid-related overdose in Idaho utilizing opioid-related outcome and socioeconomic data from 2016 to 2018.[5] Through the results highlighted in this report, we provide an updated version of the vulnerability assessment based on recent opioid-related data from 2020 to 2022, as well as estimates of sociodemographic measures from 2018 to 2022 using the U.S. Census Bureau's American Community Survey (ACS) data. We used a geographic information system (GIS) for descriptive mapping of our core measures and covariates at the county level as well as to map data tied to harm reduction and medication for opioid use disorder (MOUD) treatment facilities. We then conducted statistical analyses to generate opioid overdose vulnerability scores for each county. Through collaborative efforts with our partners at the Idaho Department of Health and Welfare (IDHW), we aimed to develop a comprehensive report to disseminate findings to key stakeholders to help inform policymakers regarding high-priority areas that could benefit from expanded opioid use disorder (OUD) treatment, overdose prevention, and public health resources in the coming years.

We used fatal opioid overdoses as our primary outcome variable, while nonfatal suspected opioid-related overdose emergency department visits, high-dose opioid prescriptions, drug-related crimes, chronic HCV infections, buprenorphine-prescribing physicians, and per-capita income were our core measures. We used sociodemographic variables (e.g., percent of residents who were unemployed, percent of residents with no health insurance, Gini index of income inequality) obtained from the ACS as covariates. To determine weights for the opioid overdose vulnerability scoring, we first used ordinary least squares regressions on all core variables and covariates using fatal opioid overdose rates as the outcome. We included all core variables, and all statistically significant covariates (at the $p<0.2$ level) in our final score calculations. We calculated vulnerability scores using a regression-weighted summed risk calculation approach.

We found that Ada, Bannock, Bear Lake, Boise, Clearwater, Kootenai, Benewah, and Nez Perce Counties were most vulnerable to opioid-related overdoses. Kootenai, Nez Perce, Benewah, and Bannock Counties were in the top quintile rank for opioid overdose vulnerability in our previous and current assessment, while the rest of the top-ranking counties had low vulnerability scores in the previous report. Covariates that were significantly correlated with fatal opioid overdose rates were the percent of residents who were American Indian and Alaska Native, the percent non-Hispanic White, percent living in crowded households, percent Hispanic

or Latino population, percent of households with a married couple, percent of residents 25 years or older without a high school diploma, percent of households without a vehicle, and percent unemployed population.

We found limited access to opioid treatment programs (OTP), buprenorphine-waivered providers, and syringe services programs (SSP) outside of major urban areas of the state; naloxone was available in both urban and rural areas. At the time of writing this report SSPs were located in Moscow, Coeur d'Alene, Nampa, Caldwell, Boise, and Pocatello. OTPs, which provide methadone treatment, were only available in Coeur d'Alene, Nampa, Boise, and Pocatello. Buprenorphine-prescribing physicians were located mainly along the interstates 84, 86, 90, and 15 as well as major highways that traverse large urban areas. People living outside of these areas faced drive-times of over two hours round-trip to access vital public health resources.

Based on our findings, we recommend targeting responses to high-vulnerability counties and populations at elevated risk of opioid-related overdose. We also recommend expanding MOUD treatment through the promotion of telehealth prescribing and take-home doses, in addition to establishing mobile methadone units and more brick-and-mortar locations that provide MOUD treatment. Finally, we recommend that Idaho adopt policies to expand harm reduction programs while continuing to build on current naloxone distribution initiatives.

We hope that our findings provide an evidence base for the adoption of policies that expand OUD treatment availability and prevention efforts in Idaho, targeting highly vulnerable regions of the state to reduce opioid-related overdose mortality.

BACKGROUND

The opioid overdose epidemic, now in its third decade, continues to present major public health and clinical challenges in the United States.[6] The age-adjusted fatal drug overdose rate in the U.S. from December 2021 to 2022, was 32.5 deaths per 100,000 people.[7] The current opioid crisis has further exacerbated several other drug use-related harms, including HCV infections, largely connected to injection drug use, and HIV outbreaks, driven by the changing drug supply and subsequent changes in injection drug use behaviors during the past 10 years.[8–10] In 2022, the provisional age-adjusted death rate for HIV in the U.S. was 1.4 deaths per 100,000 people.[7] In the same year, there were 12,717 deaths related to HCV, and 8,915 through November 20, 2023.[11]

The state of Idaho has been significantly impacted by the current opioid crisis. In 2022, there were 270 fatal opioid overdoses in Idaho.[1] In the same year the opioid dispensing rate in Idaho--45.4 prescriptions per 100 population--continued to surpass that of the U.S. (39.5 per 100 population), contributing to an elevated risk of overdose.[2] In 2018, the high-dose opioid prescription dispensing rate, greater than 90 morphine milligram equivalent (MME) per day, was higher in Idaho at 5.4 prescriptions per 100 people than in the U.S. overall, at 3.9; this is concerning since opioid prescriptions with a dose of 50 or more MME per day provide only a small reduction in pain while posing an increased risk of opioid-related overdose, and the Centers for Disease Control and Prevention (CDC) recommend clinicians take measures to avoid prescribing dosages above 90 MME daily.[12–14] HIV and HCV are also public health threats in Idaho; in 2022, there were 43 newly diagnosed cases of HIV, eight cases of acute HCV, and 1,155 chronic HCV diagnoses.[4]

To reduce opioid overdoses in Idaho, the state has implemented various programs and pieces of legislation. In 2018, Idaho enacted laws that provide legal protection for those seeking medical assistance related to complications from the use of illicit substances.[15] In 2019, Idaho officially allowed the operation of SSPs (Idaho code, Title 37, Chapter 34 Syringe and Needle Exchange Act), harm reduction establishments that provide sterile injection equipment while safely disposing of used equipment, while also offering other wrap-around services that prevent injection drug use-related harms (HCV and HIV testing and counseling, opioid overdose education and naloxone distribution, and referrals to social services).[16] However, in 2024, the state passed a bill (House Bill 617) repealing the aforementioned law.[17] In 2023, after an eight-month suspension, the IDHW resumed its naloxone distribution program, through which organizations can request free naloxone that is distributed by Emergency Medical Services (EMS) personnel.[18,19] In 2020, the state updated the Idaho Prescription Monitoring Program (IPMP), intended to prevent the overprescribing of opioids by mandating reporting of prescriptions, and now providers are required to check the IPMP website when prescribing an opioid to take for longer than three days.[20–22]

Measures were also implemented in Idaho to improve access to treatment for substance use disorders in response to the COVID-19 pandemic. In 2020, the Centers for Medicare and Medicaid Services (CMS) approved Medicaid Section 1135 waivers for Idaho to reduce barriers to treatment for Medicaid beneficiaries by increasing available providers, covering services from previously unlicensed facilities, and suspending prior authorization and pre-admission screening requirements.[23] CMS also approved a Section 1915c waiver for Idaho, improving access to

home and community-based care by covering services offered in those settings for Medicaid beneficiaries instead of in an institution.[24] The Idaho 1115 Behavioral Health Transformation waiver, approved in 2020, allows Idaho's Medicaid agency to reimburse beneficiaries for short-term institutional stays, an array of crisis services, and medication for opioid use disorder (MOUD), in addition to providing support for integrating behavioral health into primary care and streamlining reimbursement for telehealth services.[25] In addition, the waiver aims to improve the Idaho Behavioral Health Plan, which provides outpatient services to Medicaid members for issues related to behavioral health, by targeting discharge planning, early identification of SUD, integration of health technology, and provider education as areas for improvement.[26]

During recent years, with support from the CDC and the Council of State and Territorial Epidemiologists (CSTE), several opioid, HIV, and HCV vulnerability assessments have been conducted using statistical and geospatial methods to identify the most susceptible local and national regions based on various contributing factors.[5,27–30] These assessments mapped variables connected to opioid use or related infectious diseases at the jurisdictional level and developed a statistical modeling framework to calculate vulnerability scores. Furthermore, access to OTPs, SSPs, opioid overdose education and naloxone distribution (OEND) programs, and buprenorphine-waivered providers centers was assessed by calculating drive-time service areas and enhanced two-step floating catchment area (E2SFCA) analyses.

In 2021, our team completed an opioid overdose vulnerability assessment for the state of Idaho aimed at identifying the highest-risk counties for opioid overdose and areas where it was most vital to consider expanding access to opioid treatment.[31] In this assessment, we identified Bannock, Benewah, Canyon, Clark, Kootenai, Nez Perce, Payette, and Shoshone Counties as most susceptible to opioid overdose. Much of Clark, Adams, Washington, Owyhee, and Idaho Counties lacked proximity to MOUD prescribers, and harm reduction services were mostly located along interstates leading in and out of urban areas. High opioid overdose death rates were associated with high levels of poverty and other related socioeconomic variables. Furthermore, we found drug-related crime, buprenorphine prescription capacity, and non-fatal suspected all-drug overdose EMS trips to be significantly and positively associated with opioid overdose mortality.

In this report, we update the prior opioid vulnerability assessment for the state of Idaho to determine the highest-risk counties for opioid overdose and areas with low access to harm reduction, prevention, and treatment for opioid use disorder based on more recent data from 2020 to 2022. The overarching goal of this report and related analyses is to establish a foundation for targeted interventions that will reduce opioid-related harms in Idaho.

METHODS

Collaborative Efforts.
Our team, consisting of public health experts and researchers from the Tufts University School of Medicine and the IDHW met consistently from April 2023 - July 2024 to outline project goals as well as discuss methods, results, and figures. These vital conversations contextualized our findings and helped to inform policy recommendations.

Data Sources and Measures.
In collaboration with the IDHW, we identified critical indicators of opioid vulnerability, drawing on the prior vulnerability assessments and local realities of the opioid crisis. IDHW facilitated data access from the Division of Public Health, the Board of Pharmacy, the Bureau of Vital Records and Statistics, and the Idaho State Police. Our previous assessment utilized the framework created by Van Handel et. al (2016), which calculated the risk for infectious disease outbreaks at the county level among people who inject drugs (PWID) in the United States, to inform the selection of variables.[30] Our primary outcome variable was fatal opioid overdose rates. Based on our discussions with the IDHW and considering our prior vulnerability assessment, we identified core variables for opioid vulnerability to be chronic HCV infections, high-dose opioid prescriptions, drug-related crimes, per-capita income, non-fatal suspected opioid overdose emergency department visits, and buprenorphine-prescribing physicians (Table1). In addition, we identified several covariates derived from the U.S. Census Bureau's ACS (Table 1). We conducted all descriptive mapping and statistical analyses at the Idaho county level (N=44).

Table 1: Data Sources

Outcome variable	**Unit or Rate**	**Year(s)**	**Source**
Opioid overdose deaths*	Per 100,000 population	2020-2022	Bureau of Vital Records & Health Statistics, IDHW
Core Variables			
Chronic hepatitis C viral (HCV) infections, adults 18-34 years of age	Per 100,000 population	2020-2022	Division of Public Health, Epidemiology Section, IDHW
High-dose opioid prescriptions, >90 morphine milligram equivalent (MME) units per day	Per 100 population	2020-2022	Idaho Board of Pharmacy
Drug-related crimes	Per 100,000 population	2020-2022	Idaho State Police
Per-capita income	U.S. $	2018-2022 5-Year Estimates	U.S. Census Bureau's American Community Survey
Buprenorphine-prescribing physicians	Per 10,000 Population	2022	Idaho Board of Pharmacy
Suspected non-fatal opioid overdose emergency department (ED) visits	Per 10,000 ED visits	2020-2022	ESSENCE, NSSP Biosense Platform
Covariates			
Socioeconomic and	Percentage	2018-2022 5-	U.S. Census Bureau's

demographic		Year Estimates	American Community Survey
Gini index of income inequality	0 to 1	2018-2022 5-Year Estimates	U.S. Census Bureau's American Community Survey
Other			
Opioid-related service locations: Methadone maintenance programs, syringe services programs, crisis and recovery centers, and Certified Community Behavioral Health Centers (CCBHCs)	XY coordinates	2023	Division of Behavioral Health, IDHW
Organizations that requested naloxone kits from the IDHW	XY coordinates	2021, 2022	IDHW
Buprenorphine-waivered physicians	XY coordinates	2022	Substance Abuse and Mental Health Services Administration
Population density	People per square mile	2018-2022 5-Year Estimates	U.S. Census Bureau's American Community Survey
Tribal lands boundaries		2020	IDHW
High Intensity Drug Trafficking Areas (HIDTAs)	Counties	2013	Oregon-Idaho HIDTA
Health Professional Shortage Area (HPSA)	Score; facilities, XY coordinates	2023	Health Resources and Services Administration
Urban/Rural Classification	Counties	2013	Centers for Disease Control and Prevention, National Center for Health Statistics

*Opioid overdose deaths were based on the county of residence of decedents at the time of the overdose.

Data Preparation and Management

We cleaned and formatted data and calculated rates using Python 3.11.6 (Python Software Foundation, Wilmington, DE). For most of our core measures and covariates, we aggregated data from 2020 to 2022 and calculated annual averages to avoid low counts. Using the U.S. Census geocoder, the U.S. Census Bureau's online geocoding service which matches street-level addresses to longitude) and latitude coordinates, we mapped the address-level locations of opioid-related services and Health Professional Shortage Area (HPSA) facilities.

Descriptive Maps

We generated descriptive maps of core measures, opioid-related variables, and covariates, categorized by quintiles, at the county level using ArcGIS Pro 3.1.3 (Esri, Redlands, CA). We suppressed counties with non-zero counts less than five to avoid skewing of results to make counties with low populations appear to have high rates of health-related variables and to protect the confidentiality of residents. We created descriptive maps showing the locations of

major cities and highways, as well as Idaho counties, when relevant. We overlaid tribal land boundaries on overdose vulnerability scores and mapped High Intensity Drug Trafficking Areas (HIDTAs). We mapped primary care Health Professional Shortage Area (HPSA) scores by county and created maps depicting locations of HPSA facilities symbolized by facility type. We mapped population density by census tract and the CDC's urban/rural classification by county to visualize population distributions throughout the state.

We also developed a map depicting the number of buprenorphine-prescribing providers by county to complement the map of rates of buprenorphine-prescribing physicians and mapped opioid prescription rates per 100 population to contextualize our map of high-dose opioid prescriptions. To map these locations and assess geographic access to buprenorphine, we used the Substance Abuse and Mental Health Administration (SAMHSA) locator data which included the office addresses of physicians waivered to prescribe buprenorphine in 2022 (Table 1). For statistical analyses and county-level maps depicting the numbers and rates of buprenorphine-prescribing physicians, we used the IDHW dataset as it had less missing data.

Vulnerability Scores and Ranking

To calculate the vulnerability index, we used a regression-weighted summed risk score calculation based on methodology our team developed conducting vulnerability assessments for multiple states with varying levels of data availability and units of analysis.[31] We first standardized all indicators (core and covariates) and then used bivariate ordinary least square regression models with standardized opioid overdose rates as the outcome, to estimate the weights for each indicator (core and covariates). We selected core indicators *a priori* for inclusion in the final models. We chose covariates for inclusion in the final model if they were significant at the $p<0.2$ level. We multiplied the coefficient obtained from the regression model with the standardized value of the core indicators and the selected covariates and summed the values to obtain the vulnerability score for each county. Higher vulnerability scores correlate to higher opioid vulnerability risk, whereas lower scores are associated with lower vulnerability. We used Python (version 3.11) for statistical analyses.

Opioid-Related Services, SSP, and MOUD Accessibility Maps

Using the U.S. Census Geocoder, we geocoded and mapped the locations of crisis and recovery centers, sober housing, and Certified Community Behavioral Health Centers (CCBHCs) to visualize the availability of public health services related to opioid use disorder. We generated 30- and 60-minute drive-time buffers around SSPs, OTPs, and the locations of buprenorphine-waivered physician offices (sourced from SAMHSA, as of 2022) to determine accessibility to SSPs and MOUD treatment. To create the drive-time service areas, we used a network dataset created with TIGERLINE road data in ArcGIS Pro 3.1.3. We selected the cutoffs for the drive-time buffers to be 30 and 60 minutes, based on recommendations from IDHW and studies on geographic analyses of access to treatment, which indicate that the average drive-time to MOUD providers in Idaho is 60 minutes or more.[36,37]

Opioid Overdose Vulnerability and Harm Reduction Services and MOUD Availability

Using the top two quintile ranks for our opioid overdose vulnerability scores, we selected counties whose rates of buprenorphine-prescribing physicians (IDHW, 2022) were at least two quintile ranks lower than their vulnerability scores. This allowed us to identify counties susceptible to high opioid-related overdose vulnerability that had relatively low MOUD availability. We received geocoded data from the IDHW that had the mapped locations of organizations across Idaho that requested free naloxone kits from the IDHW in 2021 and 2022. We overlaid the locations of SSPs and organizations that requested naloxone on top of our opioid overdose

vulnerability scores by county to assess the availability of harm reduction services in high-vulnerability counties.

RESULTS

DESCRIPTIVE MAPPING

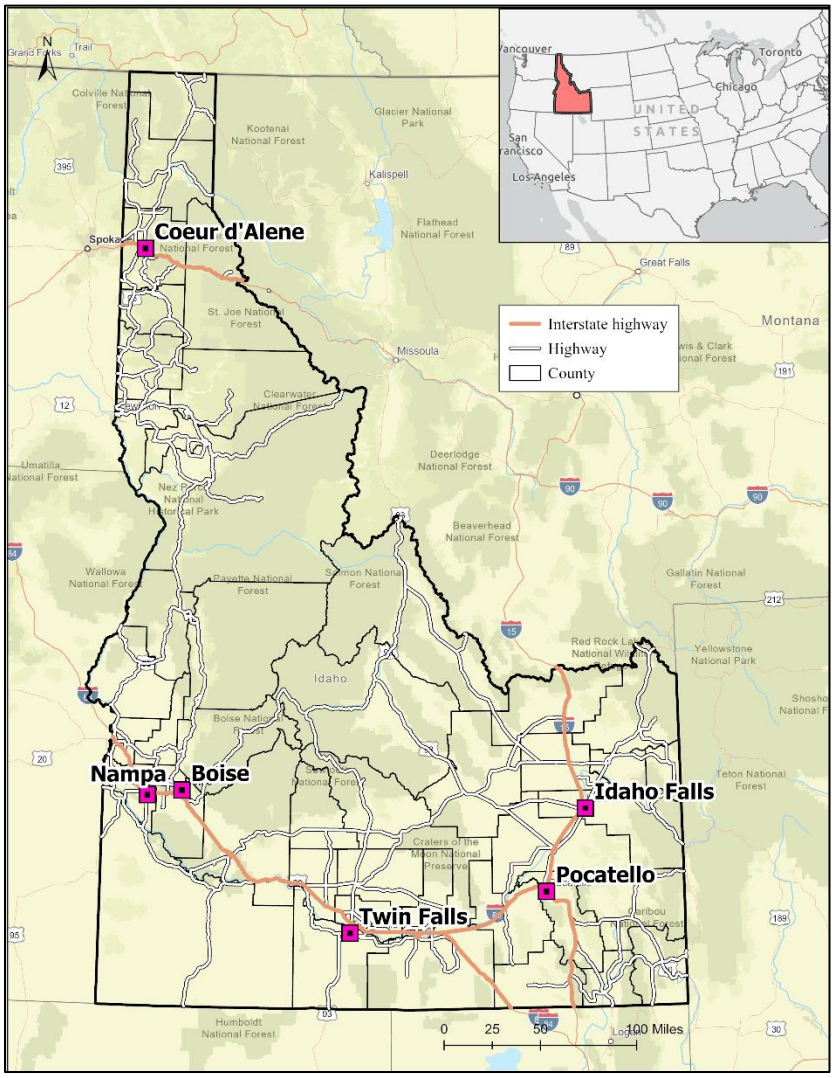

Figure 1: State of Idaho

The state of Idaho is situated in the western United States, east of Oregon and Washington, north of Nevada and Utah, west of Montana and Wyoming, and south of the Canadian border (Figure 1). Idaho has 44 counties (Figure 2), and much of the state is rural and comprised of national parks and uninhabitable wilderness. Interstate highway I-90 crosses through Northern Idaho, while Interstates I-84, I-86, and I-15 run through many cities in Southern Idaho. Among the most populous cities in the state are Boise, Coeur d'Alene, Idaho Falls, Nampa, Pocatello, and Twin Falls.

Figure 2: Idaho Counties

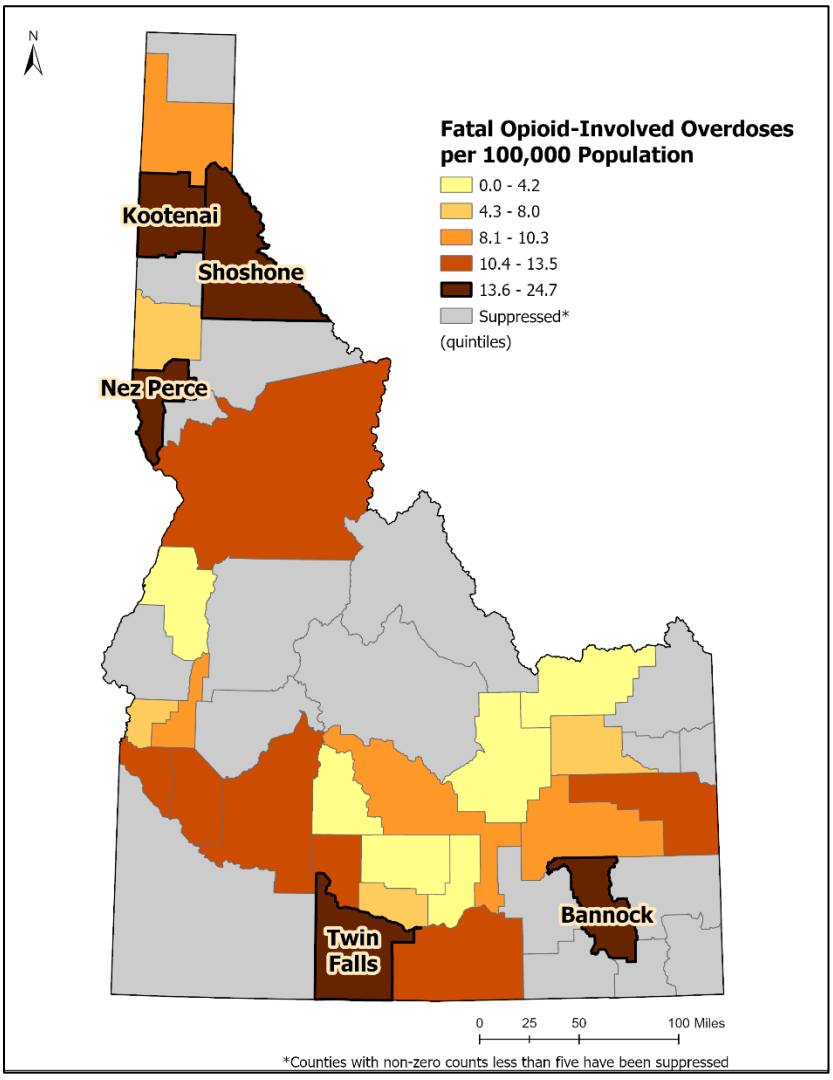

Figure 3: Fatal Opioid-Related Overdose Rates, Idaho Counties, 2020-2022 (Annual Average)

Fatal opioid-related overdoses in Idaho ranged from 0 to 24.7 deaths per 100,000 population in each county (Figure 3). The counties that had the highest rates of fatal opioid-related overdoses in this period were Bannock, Kootenai, Nez Perce, Shoshone, and Twin Falls. Of the counties in the top quintile for fatal overdose rates, Kootenai, Nez Perce, Twin Falls, and Bannock all contained highly populated census tracts (Appendix 1). Bannock and Kootenai Counties are two of the four counties in Idaho that are designated HIDTAs (Appendix 5).

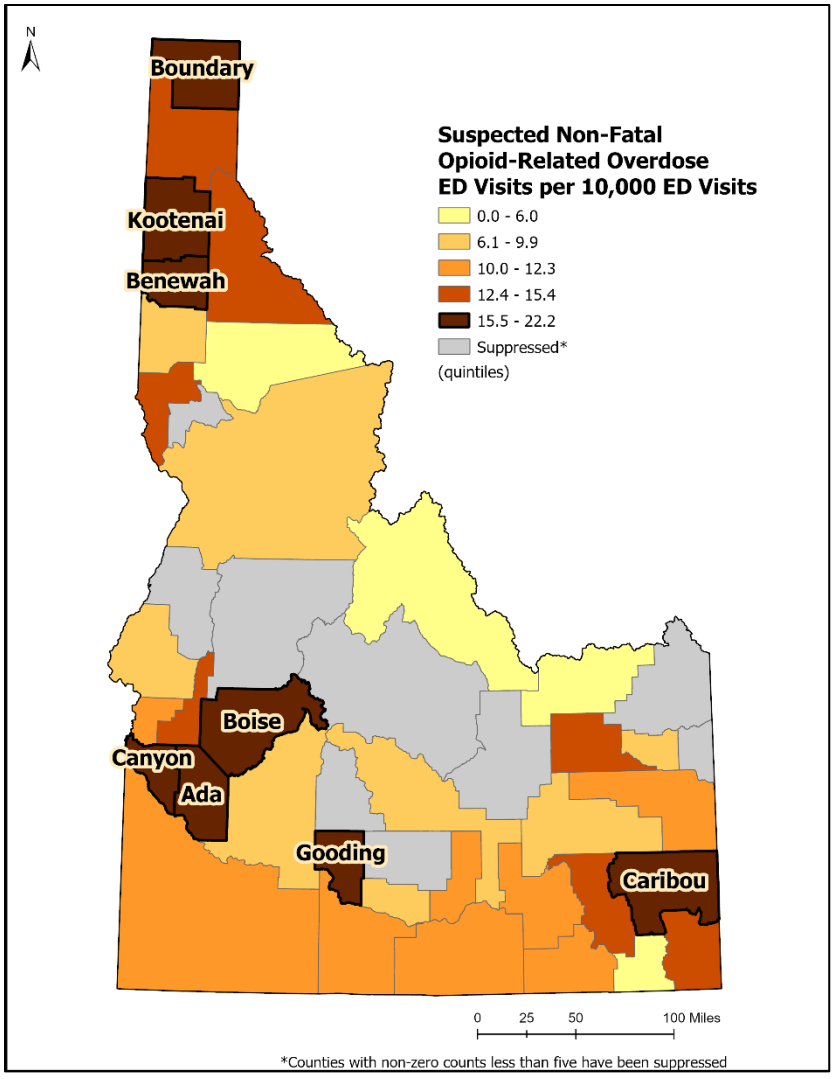

Figure 4: Suspected Nonfatal Opioid-Related Emergency Department (ED) Visit Rates, Idaho Counties, 2020-2022 (Annual Average)

The average annual rate of opioid-related ED visits in Idaho varied by county from 0 to 22.2 per 10,000 ED visits from 2020 to 2022 (Figure 4). Ada, Benewah, Boise, Boundary, Canyon, Caribou, Gooding, and Caribou Counties had the highest opioid-related ED visit rates, ranging from 15.5 to 22.2 per 10,000 ED visits. Kootenai was the only county in the highest quintile for both fatal opioid-related overdose deaths and non-fatal opioid-related ED visits (Figures 3 and 4).

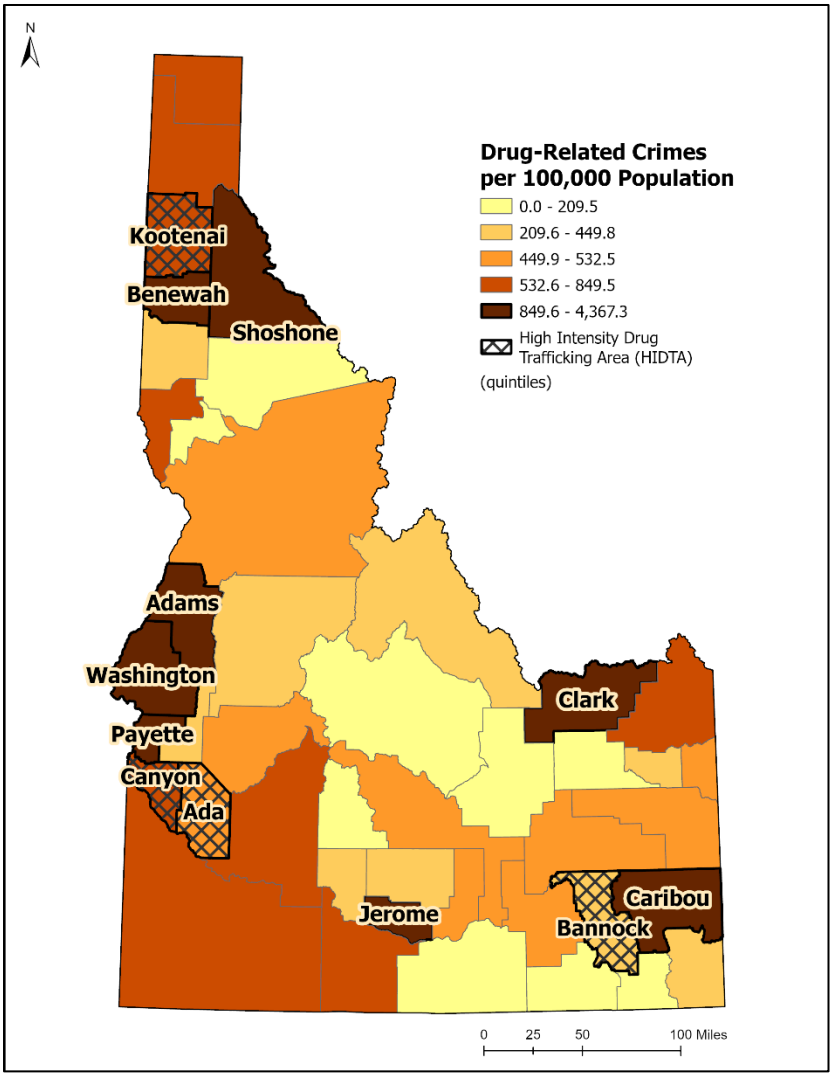

Figure 5: Drug-Related Crime Rates, Idaho Counties, 2020-2022 (Annual Average)

For this assessment, we defined drug-related crimes as drug equipment or drug/narcotic-related arrests. While Adams, Benewah, Caribou, Clark, Jerome, Payette, Shoshone, and Washington Counties had the highest rates of drug-related crimes, Canyon and Kootenai Counties, both designated HIDTAs, also had high crime rates (764.1 and 648.9 drug-related crimes per 100,000 population, respectively) (Figure 5 and Appendix 5).

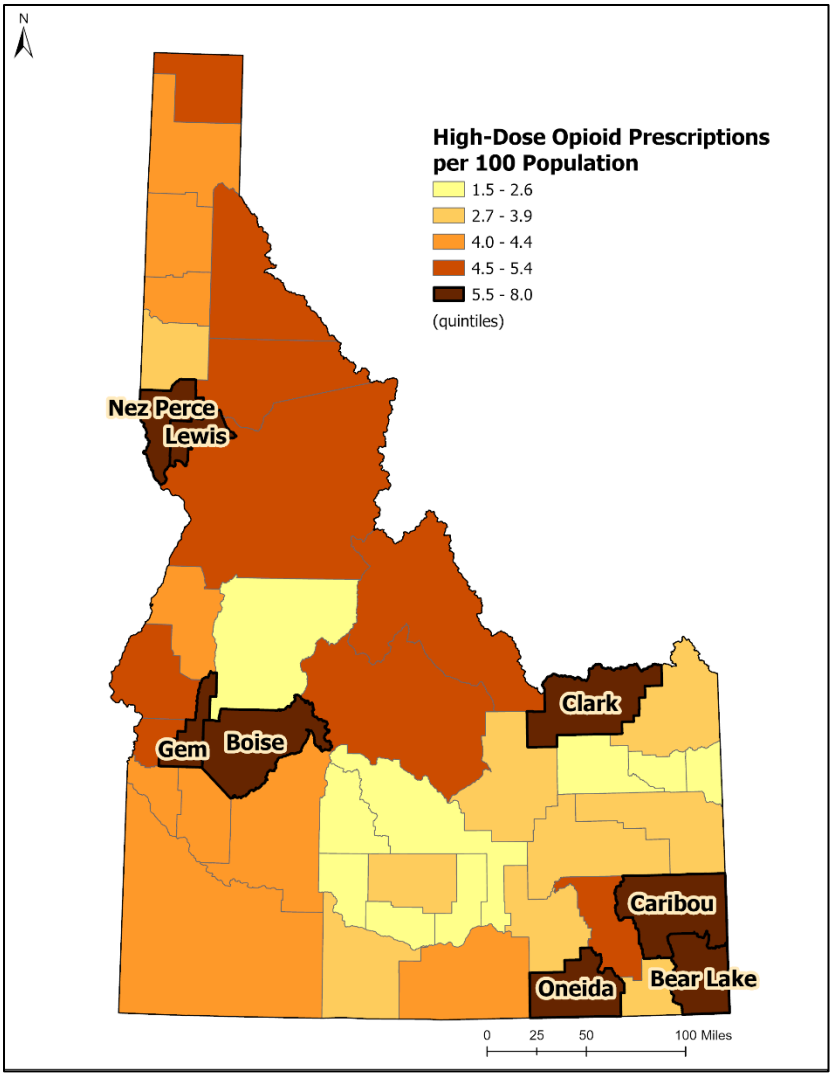

Figure 6: High-Dose (>90 morphine milligram equivalent (MME) units per day) Opioid Prescription Rates, Idaho Counties, 2020-2022 (Annual Average)

High-dose opioid prescription rates varied across counties, with the highest rates ranging from 5.5 to 8 prescriptions per 100 population in Bear Lake, Boise, Caribou, Clark, Gem, Lewis, Oneida, and Nez Perce Counties (Figure 6). While Clark County was in the lowest quintile for fatal opioid-related overdoses and nonfatal opioid-related ED visits, it was in the highest quintile rank for drug-related crimes and high-dose opioid prescriptions (Figures 3-6).

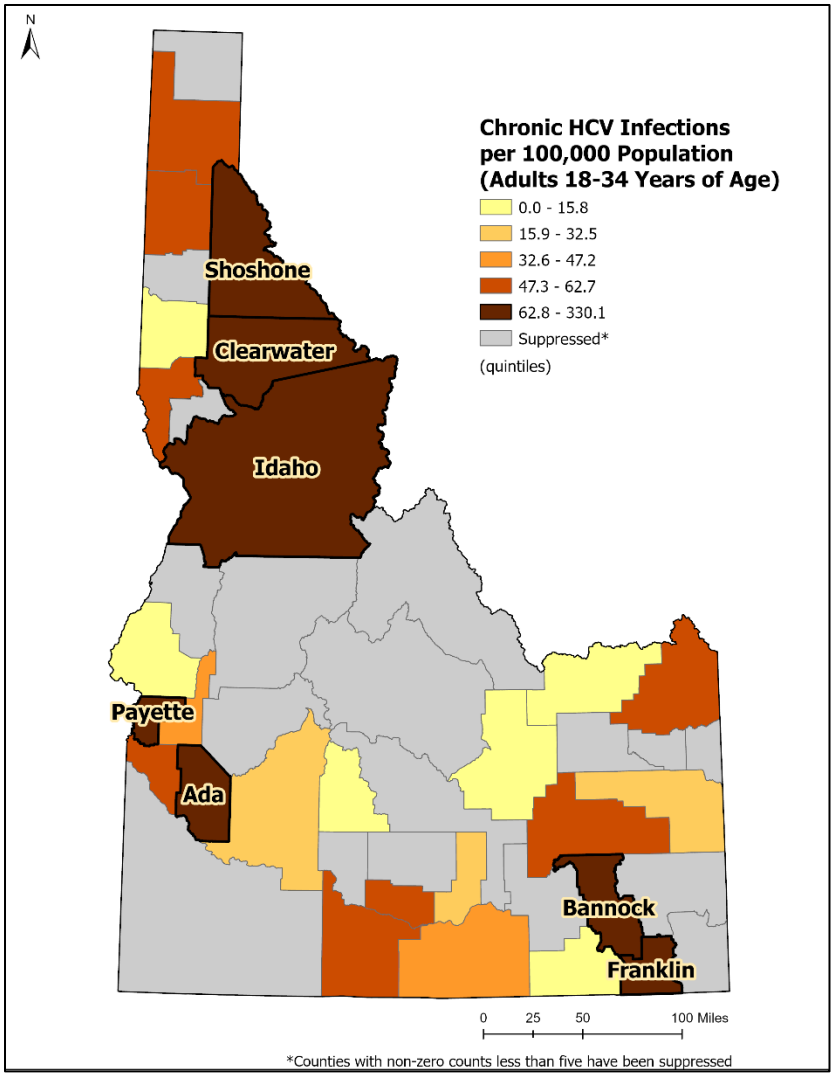

Figure 7: Chronic Hepatitis C Viral (HCV) Infection Rates, Adults 18-34 Years of Age, Idaho Counties, 2020-2022 (Annual Average)

During the study period, Shoshone, Clearwater, Idaho, Payette, Ada, Bannock, and Franklin Counties had the highest rates of chronic HCV infections among adults 18-34 years of age (Figure 7). Clearwater County had the highest rate of chronic HCV infections at 330.1 infections per 100,000 population, while the second highest rate, in Bannock County, was 98.9. Many counties were suppressed due to low counts (1-4) of newly diagnosed chronic HCV infections.

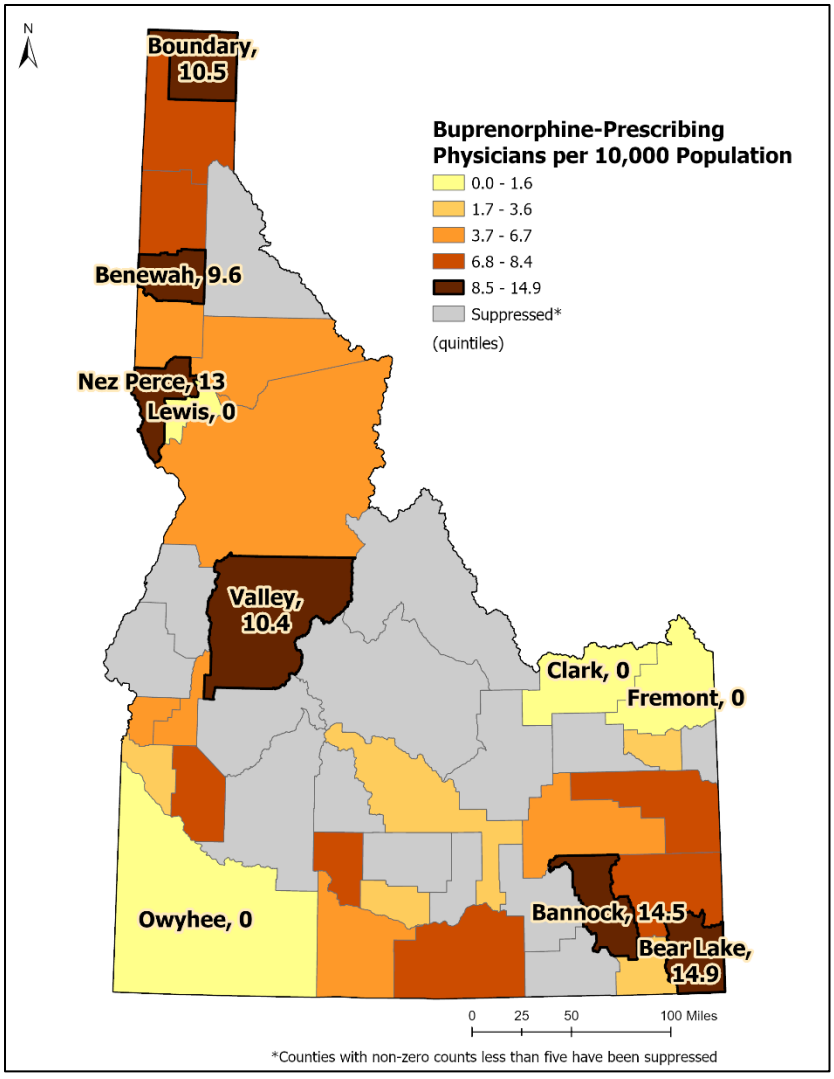

Figure 8: Buprenorphine-Prescribing Physician Rates, Idaho Counties, 2022

The rates of buprenorphine-prescribing physicians (IDHW, 2022) varied by county, from 0 to 14.9 physicians per 10,000 population (Figure 8). Many counties had very few (1-4) physicians who wrote buprenorphine prescriptions, and Clark, Fremont, Owyhee, and Lewis Counties had no physicians who wrote buprenorphine prescriptions in 2022 (Appendix 4).

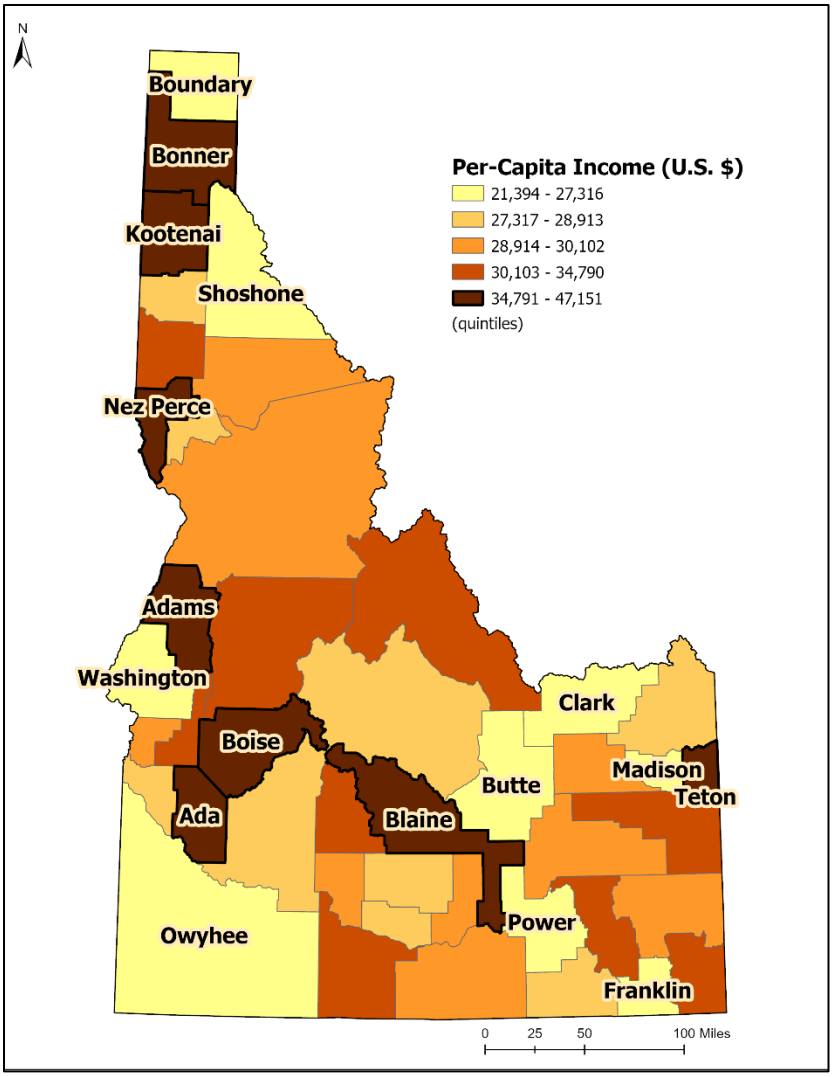

Figure 9: Per-Capita Income (U.S. Dollars), Idaho Counties, 2018-2022 (Annual Average)

We obtained average annual per-capita income using the U.S. Census Bureau's ACS five-year estimates for 2018-2022. Counties with high per-capita income were Ada, Adams, Blaine, Boise, Bonner, Kootenai, Nez Perce, and Teton (Figure 9). The counties with the lowest per-capita income were Butte, Boundary, Clark, Franklin, Shoshone, Madison, Owyhee, Power, and Washington. Except for Madison County, all the counties with the lowest per-capita income had low population densities (5 people or less per square mile) (Appendix 1).

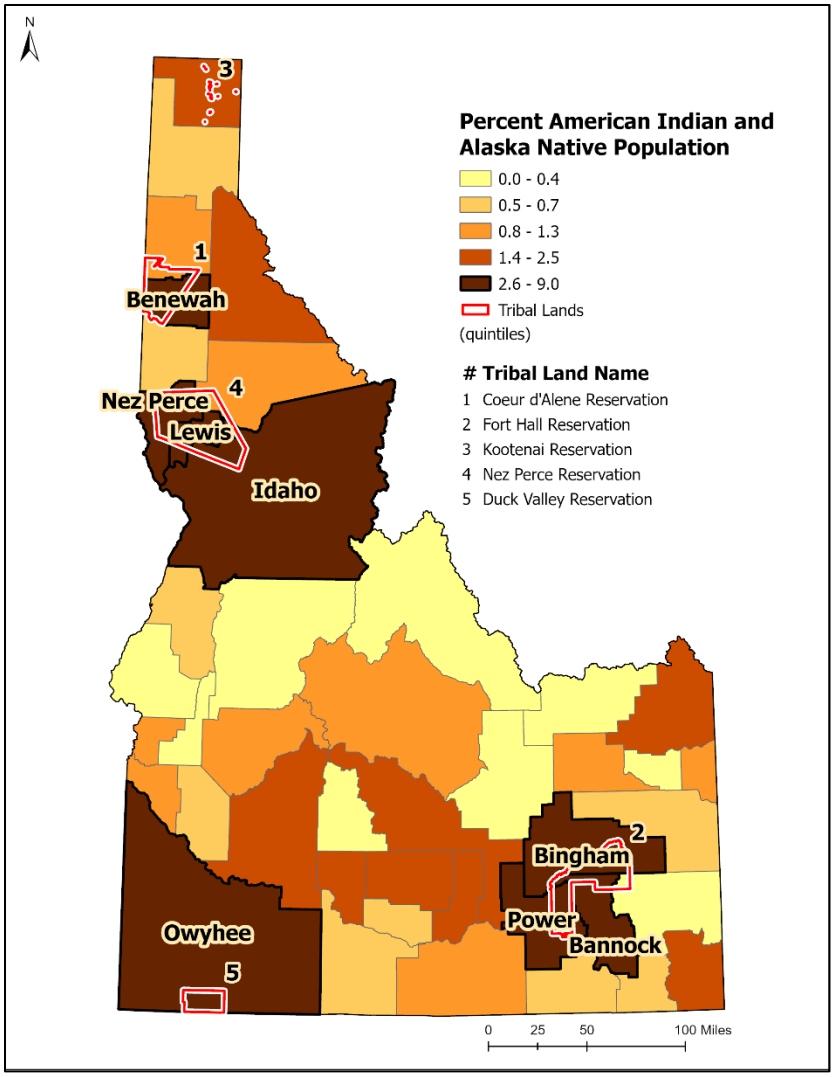

Figure 10: Percent American Indian and Alaska Native Population, Idaho Counties, 2018-2022 (Annual Average)

Benewah, Nez Perce, Lewis, Idaho, Owyhee, Bingham, Power, and Bannock Counties had the highest percentages of American Indian and Alaska Native populations, which ranged from 0 to 9 percent throughout all counties in the state (Figure 10). All these counties contained portions of tribal lands, such as Coeur d'Alene, Nez Perce, Fort Hall, and Duck Valley Reservations. The southern part of Duck Valley reservation, not pictured here, extends into northern Nevada.

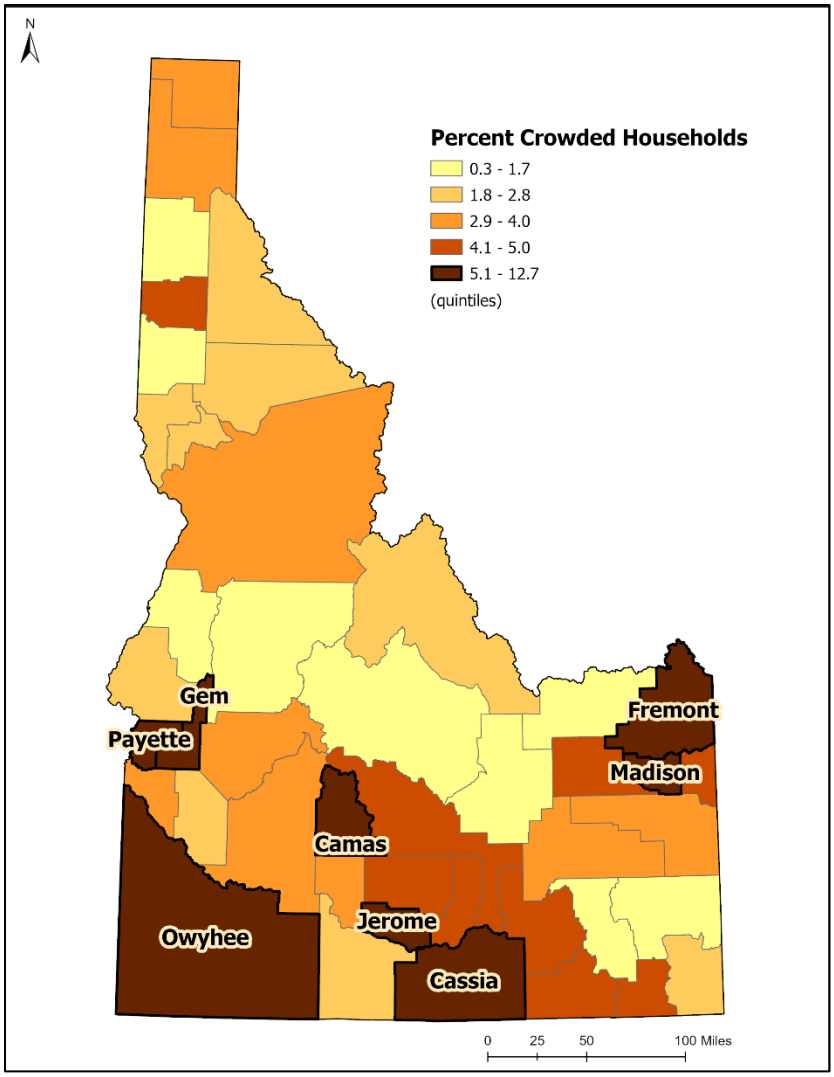

Figure 11: Percent Crowded Households, Idaho Counties, 2018-2022 (Annual Average)

Percent crowded households ranged from 0.3 to 12.7 throughout Idaho counties (Figure 11). Owyhee and Madison Counties were both in the top quintile for crowded households and the lowest quintile for per-capita income (Figures 9 and 11).

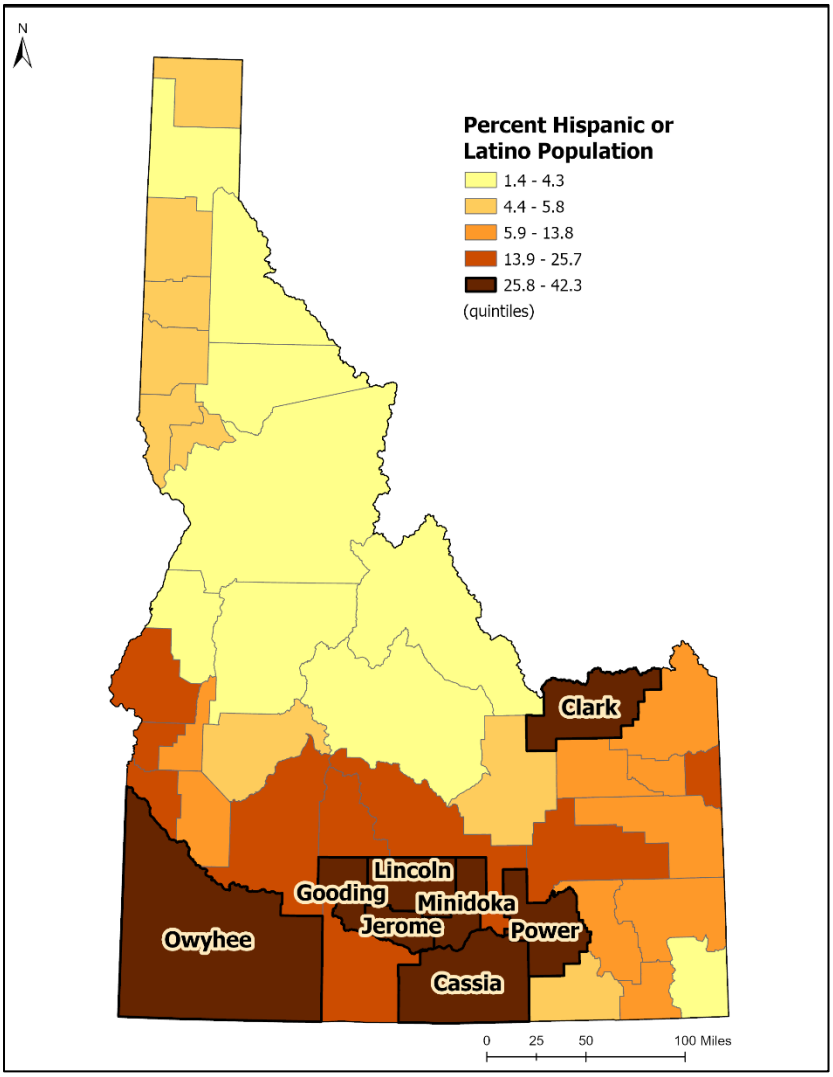

Figure 12: Percent Hispanic or Latino Population, Idaho Counties, 2018-2022 (Annual Average)

The percentage Hispanic or Latino population by county ranged from 1.4 to 42.3 throughout Idaho (Figure 12). The counties in the south-central region of the state tended to have the highest rates of Hispanic or Latino residents, while those in the northern and central regions had much lower percentages.

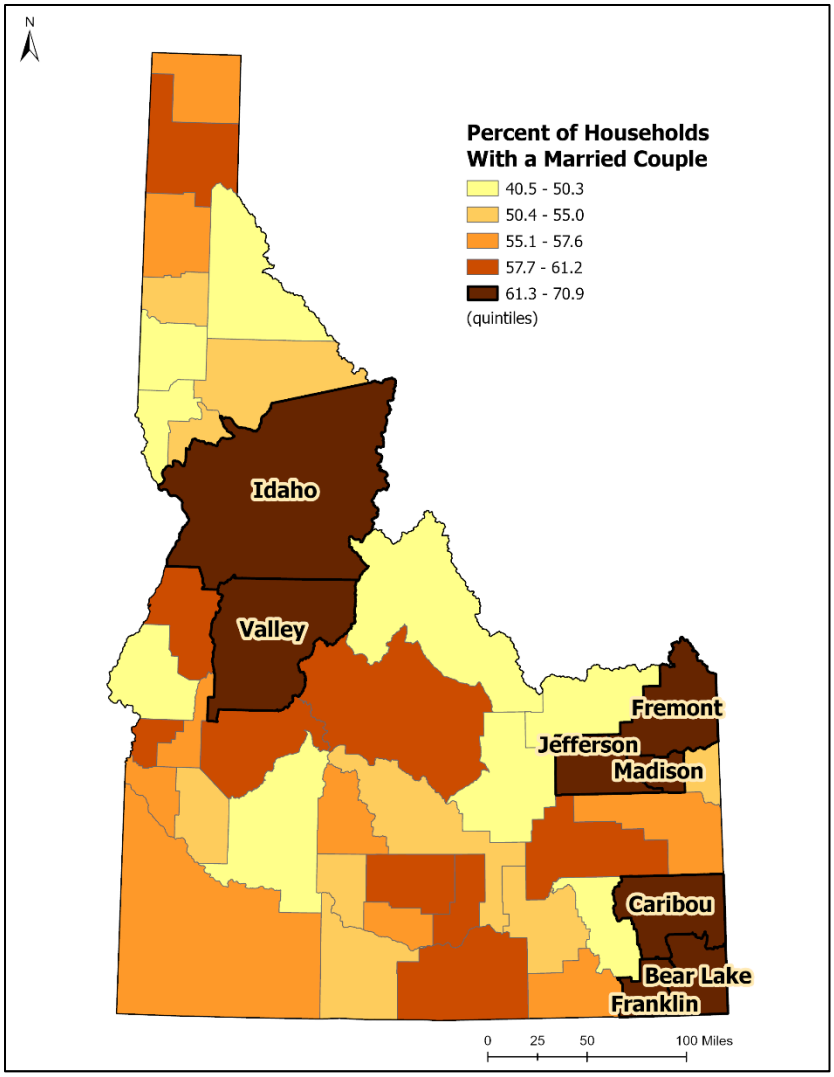

Figure 13: Percent of Households with a Married Couple, Idaho Counties, 2018-2022 (Annual Average)

The percentage of households led by a married couple ranged from 40.5 to 70.9 percent by county (Figure 13). Half of the counties with the relatively highest percentages of households with married couples bordered Wyoming or Utah. All counties in the top quintile, except Madison County, had low population densities (Appendix 1).

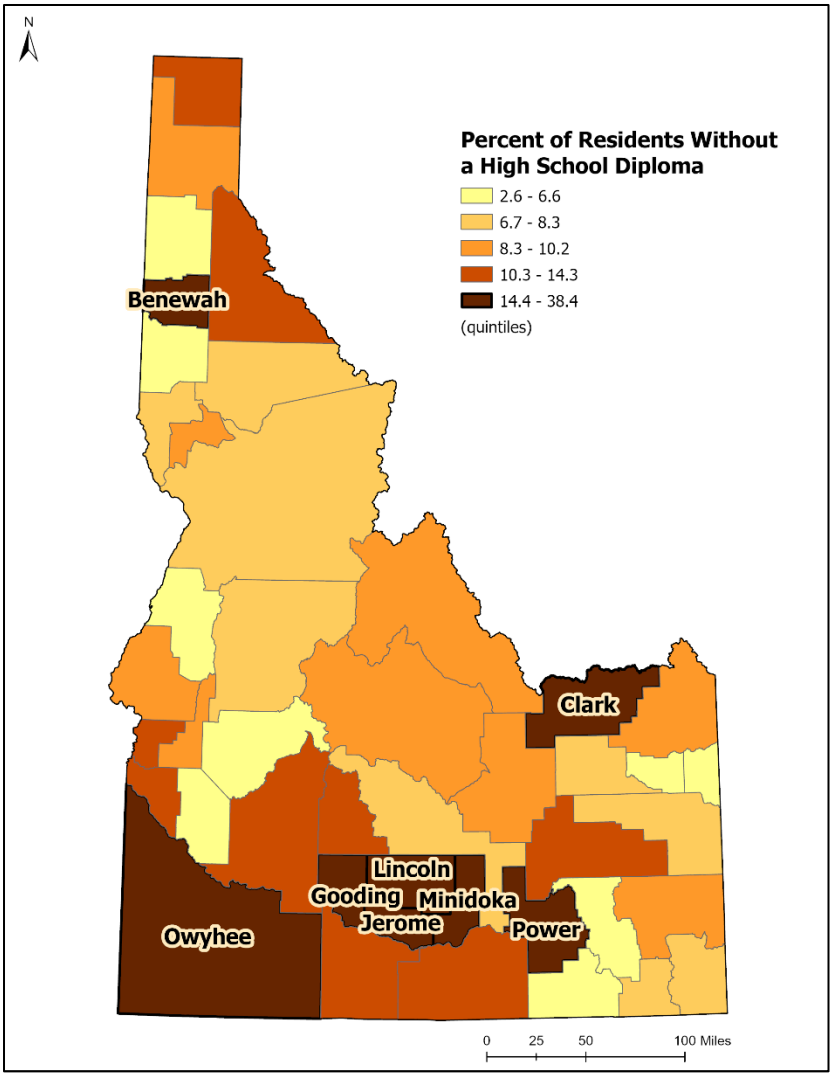

Figure 14: Percent of Residents 25 Years of Age or Older Without a High School Diploma, Idaho Counties, 2018-2022 (Annual Average)

The percentage of residents who had not completed high school or obtained a General Educational Development (GED) certification was high in Benewah, Clark, Gooding, Jerome, Lincoln, Minidoka, Power, and Owyhee (Figure 14). All counties in the top quintile for residents without a high school diploma besides Benewah were also in the top quintile for percent Hispanic/Latino population (Figure 12).

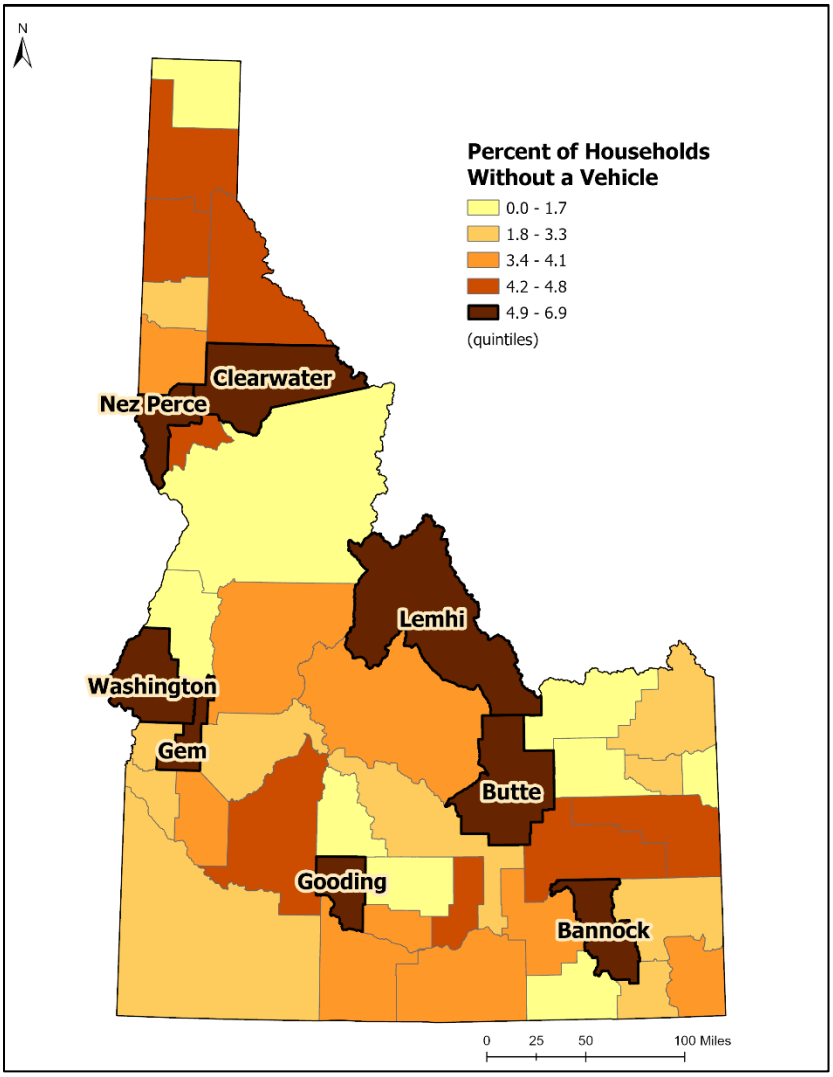

Figure 15: Percent of Households Without a Vehicle, Idaho Counties, 2018-2022 (Annual Average)

Based on the ACS 5-year estimates for 2018 to 2022, the percentage of households with no vehicle ranged from 0 to 6.9 throughout Idaho counties (Figure 15). Counties with the highest percentages of households with no vehicle were mostly rural, but Nez Perce and Bannock Counties were semi-urban (Appendix 1). Census tracts in Lemhi and Butte Counties, both in the highest quintile, had low population densities (Appendix 1).

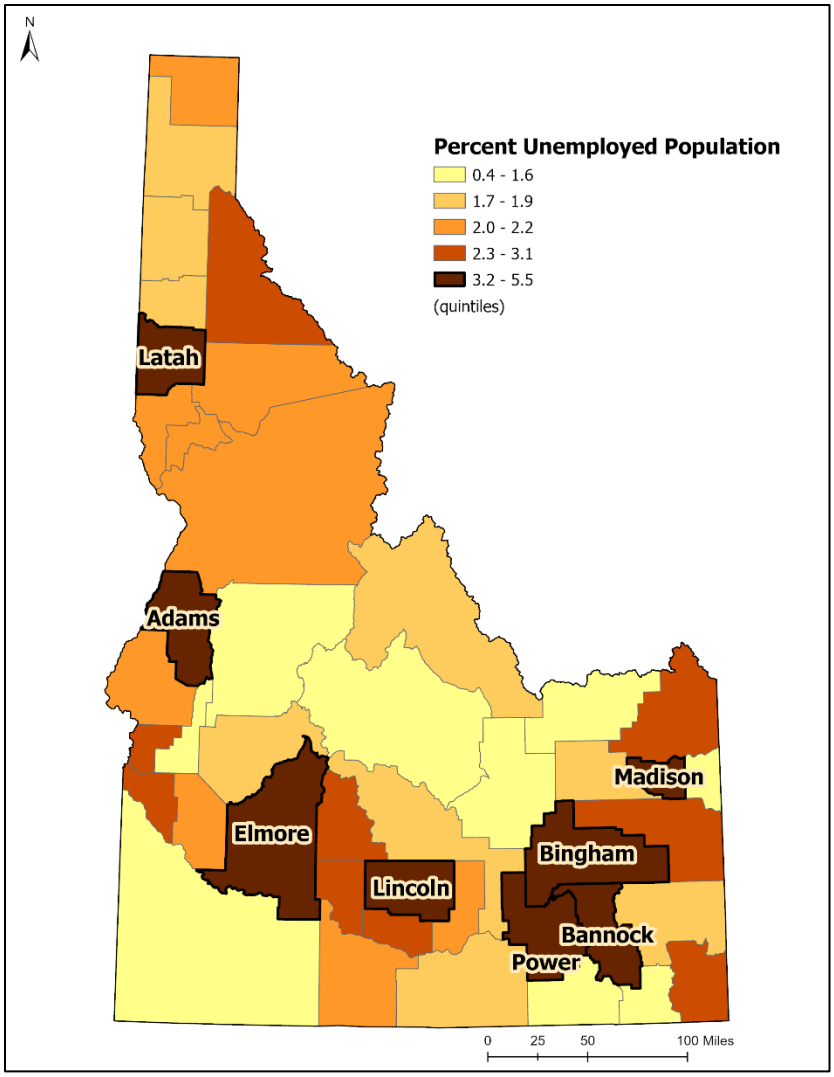

Figure 16: Percent Unemployed Population, Idaho Counties, 2018-2022 (Annual Average)

All the counties surrounding the City of Pocatello were in the highest quintile for the percent unemployed population across the state (Figures 1 and 16). All counties with the highest unemployment rates, besides Adams and Latah Counties, were located along interstate highways (Figure 1).

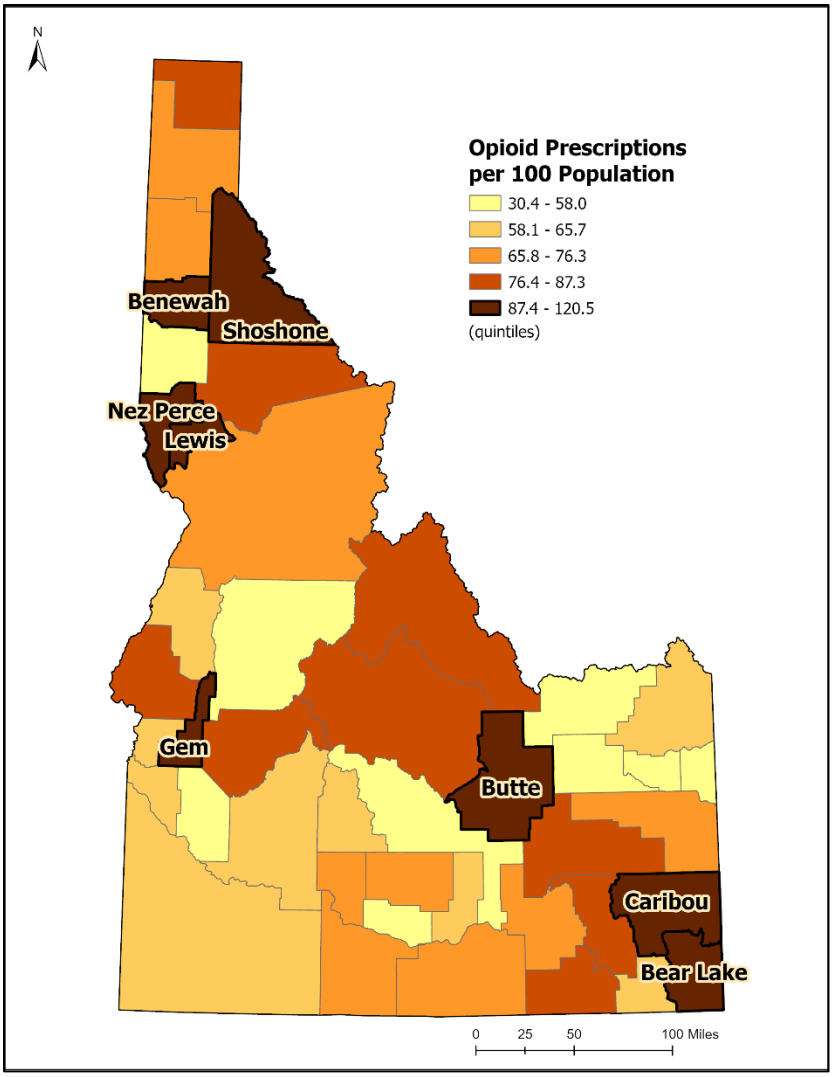

Figure 17: Opioid Prescription Rates, Idaho Counties, 2020-2022 (Annual Average)

In addition to mapping our outcome variable, core indicators, and covariates, we mapped opioid prescriptions per 100 population to identify the counties with the highest rates of opioid prescriptions (Figure 17). Benewah, Shoshone, Nez Perce, Lewis, Gem, Butte, Caribou, and Bear Lake Counties had the highest opioid prescription rates in Idaho in the study period. Nez Perce, Lewis, Gem, Caribou, and Bear Lake were also in the highest quintile rank for high-dose opioid prescriptions (Figure 6).

STATISTICAL ANALYSIS

Table 2: Factors Associated with Opioid-Related Overdose Outcomes, Idaho, 2018-2022.

Outcome Variable	Mean (SD)	Range	Beta Coefficient	SE*	p-value
Fatal opioid overdoses per 100,000 population, 2020-2022	9.09 (6.18)	0 -24.67	-	-	-
Core Indicators					
Chronic HCV infections, adults aged 18-34, per 100,000 population, 2020-2022	46.73 (51.46)	0 – 330.09	0.16	0.15	0.29
High-dose opioid prescriptions per 100 population, 2020-2022	4.28 (1.58)	1.52 – 8	0.38	0.14	0.01
Drug-related crimes per 100,000 population, 2020-2022	625.09 (678)	0 – 4367.35	-0.04	0.15	0.79
Buprenorphine-prescribing physicians per 10,000 population, 2022	5.4 (3.9)	0 – 14.9	0.31	0.15	0.04
Suspected nonfatal opioid overdose emergency department visits per 10,000 visits, 2020-2022	10.73 (5.64)	0 – 22.17	0.4	0.14	0.01
Per-capita income ($), 2018-2022	30,845.82 (5,224.08)	21,394 – 47,151	0.16	0.15	0.29
Covariates					
Gini index of income inequality (0-1)	0.43 (0.04)	0.33 – 0.52	-0.02	0.15	0.9
Poverty (%)	12.28 (5.01)	5.01 – 36.29	-0.07	0.15	0.63
No high school diploma (%)	**11.18 (6.54)**	**2.59 – 38.35**	**-0.24**	**0.15**	**0.11**
Crowded households (%)	**3.51 (2.25)**	**0.32 – 12.72**	**-0.22**	**0.15**	**0.15**
Never married (%)	25.85 (6.64)	16.29 – 54.32	-0.16	0.15	0.3
Married households (%)	**56.31 (6.51)**	**40.49 – 70.93**	**-0.28**	**0.15**	**0.07**
Disability (%)	10.38 (2.29)	6 – 14.54	-0.17	0.15	0.26

Female-led households (%)	7.48 (2.57)	1.94 – 16.05	0.19	0.15	0.21
Unemployment (%)	**2.25 (1.08)**	**0.4 – 5.48**	**-0.26**	**0.15**	**0.09**
No health insurance (%)	11.86 (3.77)	5.95 – 23.64	-0.17	0.15	0.26
Households with no vehicle (%)	**3.41 (1.58)**	**0 – 6.87**	**0.32**	**0.15**	**0.04**
Households with no internet access (%)	9.89 (3.96)	1.79 – 20.05	0	0.15	0.97
Hispanic or Latino (%)	**13.61 (11.17)**	**1.44 – 42.33**	**-0.32**	**0.15**	**0.03**
White, non-Hispanic (%)	**85.4 (7.41)**	**62.7 – 97.86**	**0.23**	**0.15**	**0.13**
American Indian or Alaska Native (%)	**1.53 (1.72)**	**0 – 9.03**	**0.25**	**0.15**	**0.11**
Black, non-Hispanic (%)	0.4 (0.5)	0 – 2.35	0.12	0.15	0.45
Asian, non-Hispanic (%)	0.61 (0.73)	0 – 2.99	0.13	0.15	0.4

*Standard error

The county average for fatal opioid overdose rates, 9.09 fatal opioid overdoses per 100,000 population, was higher than that in the prior report, which was 7.4 overdoses per 100,000 population, highlighting a 22.8% increase in the rate of fatal overdose.[31] Chronic HCV infection rates also increased between assessments by 8.7%, from 43 to 46.73 new infections per 100,000 population. We identified an uneven distribution of newly diagnosed chronic HCV infections across Idaho counties, since the maximum number of new infections was 330.09 per 100,000 population and the median was only 41.36. This indicates that one county (Clearwater) had a high rate of infections while the rest had much lower rates. There were, on average, 10.73 suspected nonfatal opioid overdose emergency department visits per 10,000 ED visits, a 5% decrease from the rate in the prior report. High-dose opioid prescription rates were much lower than our previous assessment, with a county average of 43 prescriptions per 100 people in 2016-2018 while our updated assessment (2020-2022) had a mean of 4.28. Drug-related crimes were also on average lower than in our previous report (previous mean of 1,324 crimes per 100,000 population using data from 2016-2018 vs. the updated 625.09 with data from 2020-2022).

In addition to the mean values for all measures at the county level (Table 2), we calculated overall opioid prescription rates and high-dose opioid prescription rates per 100 people at the state level for Idaho to ensure accuracy and robustness of our analyses. In 2022, there were 64 opioid prescriptions per 100 people in Idaho, higher than the national rate of 39.5 in the same year.[2,38] In 2020, there were 4.5 high-dose opioid prescriptions per 100 people in Idaho, which was higher than the national rate of 3.9 in 2018.[14]

From our county-level statistical analyses, we found that the mean percent of adults 25 years or older with no high school diploma, the percent of residents living in crowded households, the percent living in married households, the percent unemployed, the percent of households without a vehicle, the percent residents reporting Hispanic or Latino ethnicity, percent non-Hispanic White population, and percent American Indian or Alaska Native population, were

significantly associated with fatal overdoses at p<0.2, indicating that these variables should be included in the final vulnerability model.

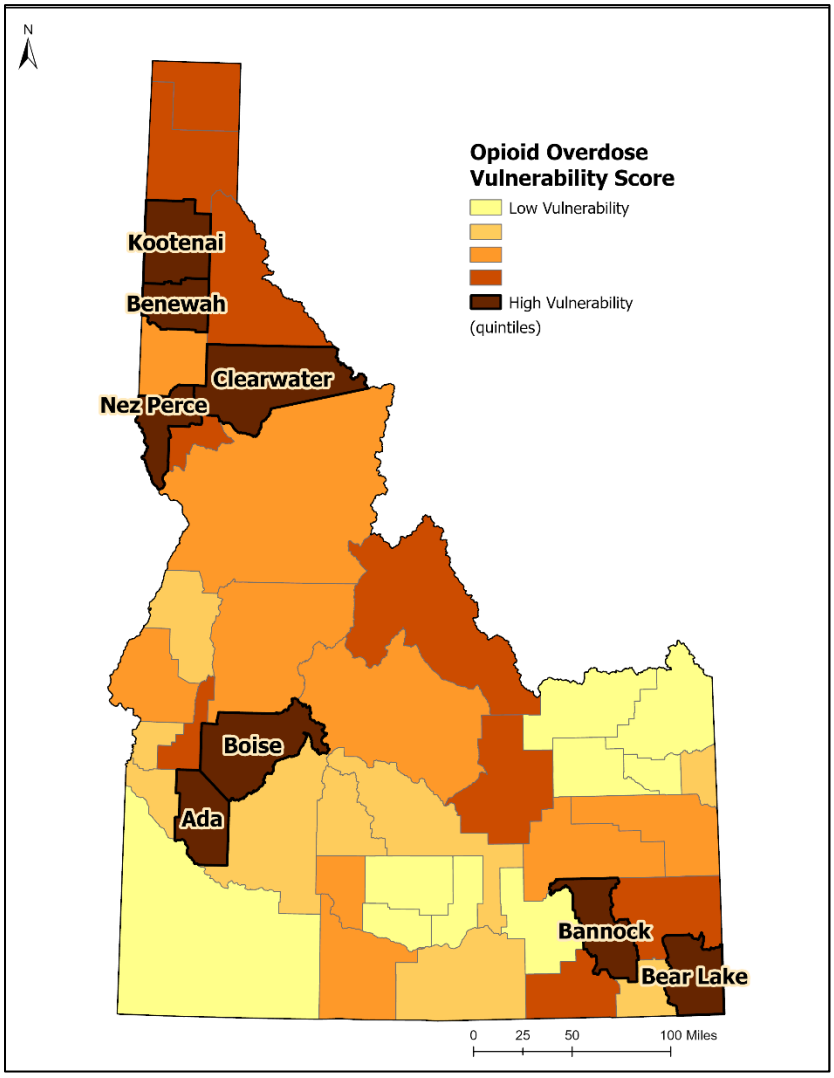

Figure 18: Opioid Overdose Vulnerability Scores, Idaho Counties, 2020-2022

Ada, Bannock, Bear Lake, Benewah, Boise, Clearwater, Kootenai, and Nez Perce were in the top quintile rank for opioid overdose vulnerability (Figure 18). While most counties in the highest vulnerability quintile contained major urban centers, census tracts in Bear Lake and Clearwater Counties had low population densities (Appendix 1). Among residents 18-34 years of age, Clearwater County had a much higher rate of chronic HCV infections than any other county in Idaho (Figure 7). Nez Perce and Kootenai Counties were in the highest quintile for fatal opioid overdose rates; Kootenai County was also in the highest quintile for opioid-related ED visits (Figures 3 and 4). Ada County was in the top quintile for opioid-related ED visits as well as chronic HCV infection rates (Figures 4 and 7). Despite being in the highest quintile for buprenorphine-prescribing physicians, Bannock County had one of the highest rates of fatal

overdoses, as well as chronic HCV infections (Figures 3, 7, and 8). Benewah County was in the top quintile rank for buprenorphine-prescribing physicians, drug-related crimes, and opioid-related ED visits (Figures 4, 5, and 8). Boise County was in the top quintile ranks for high-dose opioid prescriptions and nonfatal opioid-related ED visits (Figures 4 and 6).

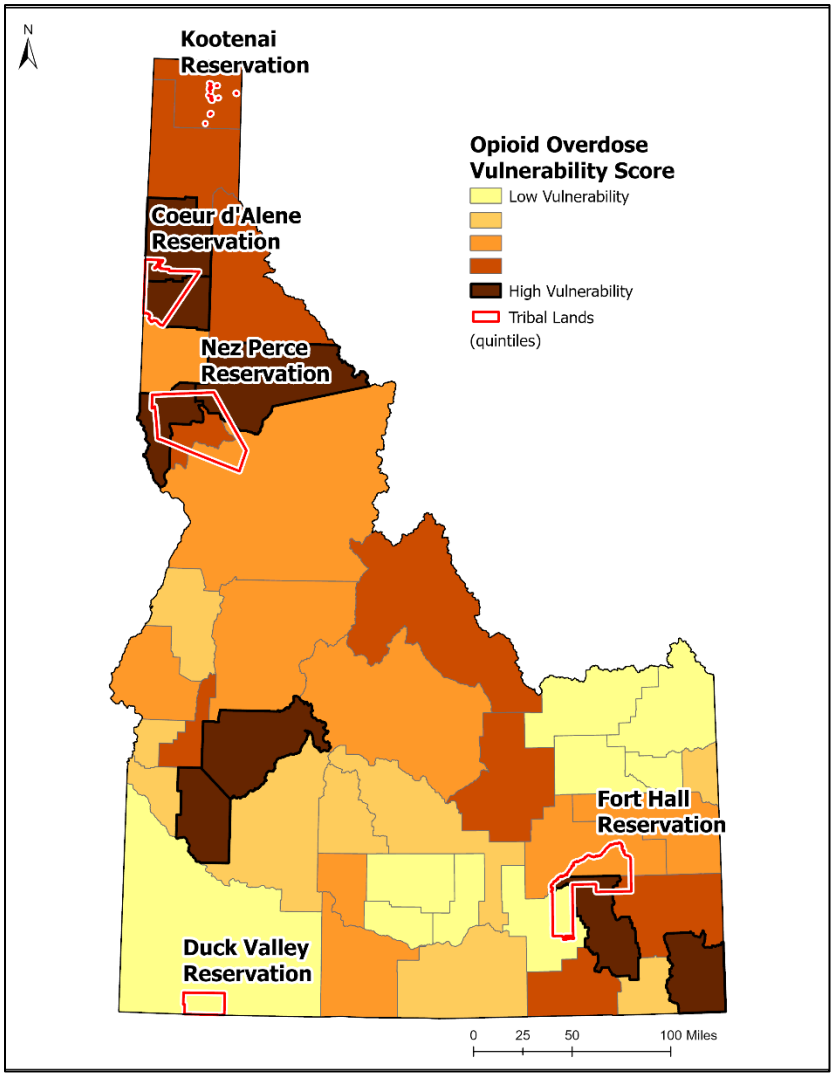

Figure 19: Opioid Overdose Vulnerability Scores by County with Tribal Lands, Idaho, 2020-2022

When overlaying tribal land boundaries onto the opioid overdose vulnerability scores by county, we see that many reservations are in high-vulnerability counties (Figure 19). Kootenai Reservation is located within Boundary County, which is in the second highest quintile for overdose vulnerability. Coeur d'Alene Reservation l is in Kootenai and Benewah Counties, and the Nez Perce Reservation crosses Nez Perce, Clearwater, and Lewis Counties which are all in the top two quintiles for opioid overdose vulnerability. Fort Hall Reservation contains the northernmost part of Bannock County, also in the top quintile rank for vulnerability. The top part of Duck Valley reservation, which has its lower half across the border in Nevada, is within

Owyhee County, which was identified as low vulnerability in this assessment but was in the second highest vulnerability quintile rank in our prior report.

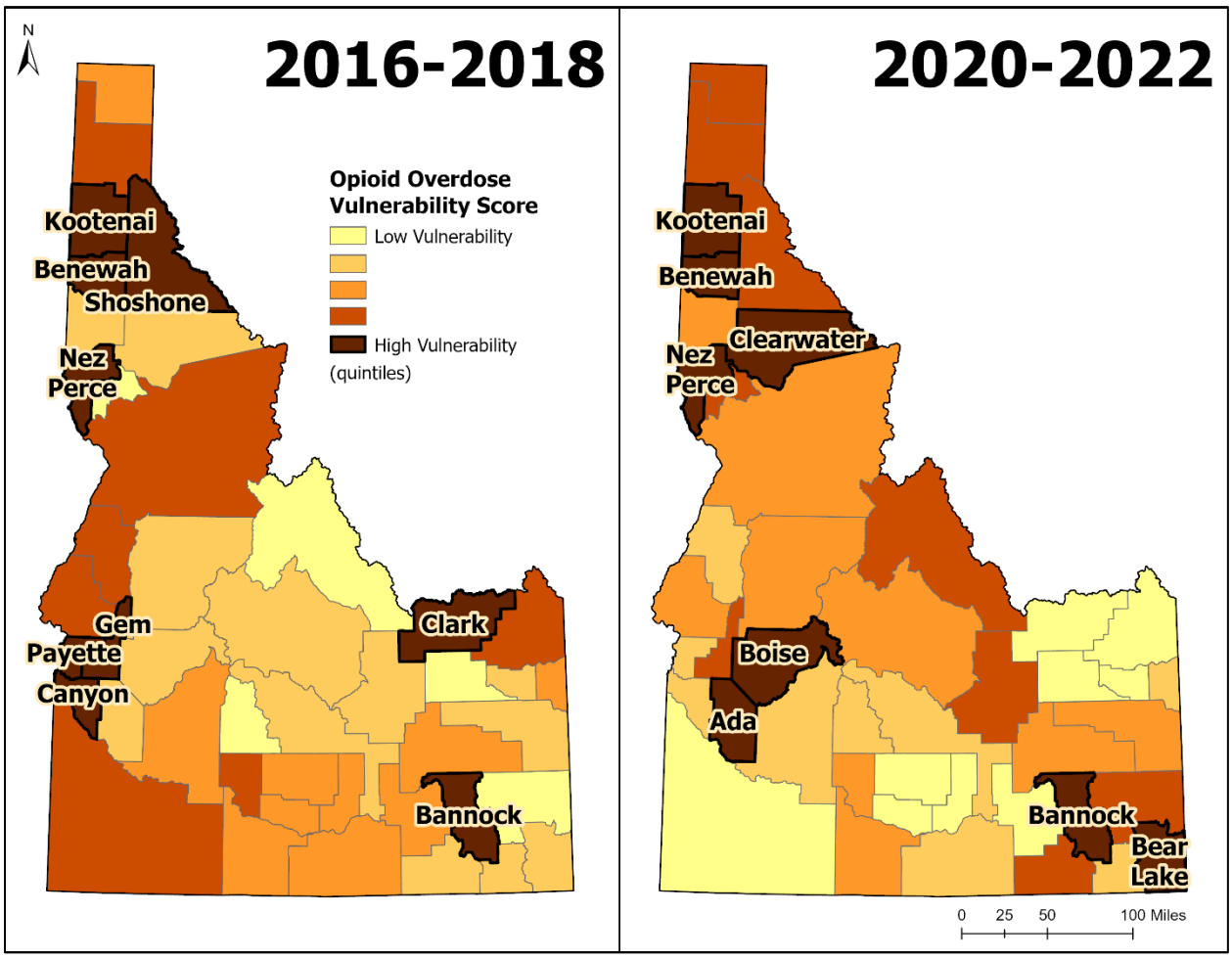

Figure 20: Opioid Overdose Vulnerability Scores, Idaho Counties, 2016-2018 and 2020-2022

Our prior Idaho opioid overdose vulnerability report was released in 2021, and used data from 2016 to 2018, while our current assessment is based on opioid-related data from 2020 to 2022.[31] Kootenai, Nez Perce, Benewah, and Bannock Counties were in the highest quintile rank for vulnerability in both our prior assessment and in our updated report (Figure 20). Boise, Ada, Clearwater, and Bear Lake Counties have emerged as being in the highest quintiles for opioid overdose vulnerability despite being in the lower two quintiles of the previous assessment. Shoshone, Payette, Gem, Canyon, and Clark Counties were in the highest vulnerability quintile rank for the prior report but were not in the highest quintile in the updated assessment.

OPIOID-RELATED SERVICES, SYRINGE SERVICES PROGRAMS, AND MOUD ACCESSIBILITY

While Kootenai, Canyon, Ada, and Bannock Counties had the highest total numbers of buprenorphine-prescribing physicians, there were no buprenorphine-prescribing physicians in Clark, Lewis, Owyhee, and Fremont Counties (Appendix 4). OUD-related services such as CCBHCs, crisis centers, and recovery centers were mostly located in cities, including Coeur d'Alene, Moscow, Lewiston, Caldwell, Boise, Twin Falls, Pocatello, and Idaho Falls (Appendix 4). While there were many HPSA-designated facilities in the same cities as OUD-related services, there were no HPSA facilities in the counties with the highest HPSA scores, Gooding and Minidoka (Appendix 5).

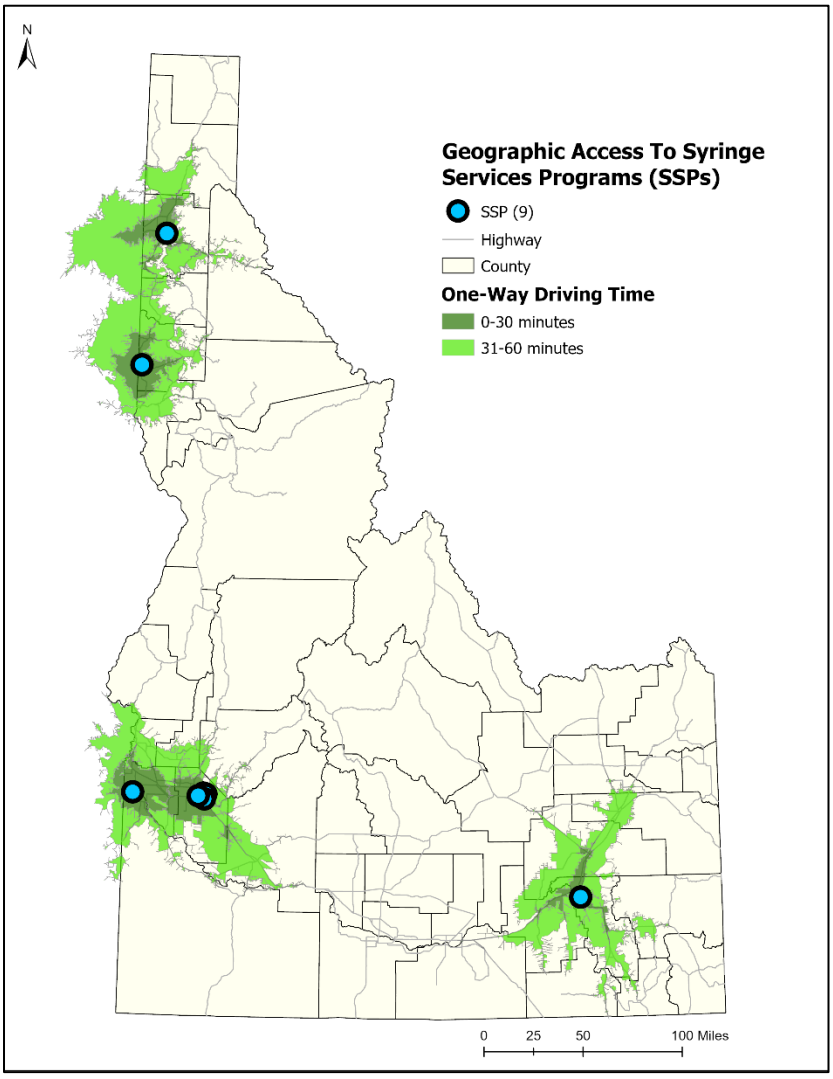

Figure 21: Geographic Access to Syringe Services Programs, Idaho, 2023

We observed that geographic access to SSPs was limited to the areas surrounding Boise, Coeur d'Alene, Moscow, Pocatello, and Homedale, and along the major highways leading in and out of these cities (Figure 21). HB 617 (Idaho Code, Chapter 192) repealed the Syringe and Needle Exchange Act (Idaho code, Chapter 34, Title 37), effective July 1, 2024. While other harm

reduction services will be provided at these locations, needle exchange services in these areas were no longer available once the legislation took effect. In addition, large parts, if not all, of Boundary, Shoshone, Butte, Lemhi, and Caribou Counties, which were in the second quintile rank for opioid overdose vulnerability, were farther than an hour driving to nearest SSPs (Figure 18). Most of Clearwater County, which has a very high rate of chronic HCV infections, is also more than an hour driving to the closest SSP (Figure 7).

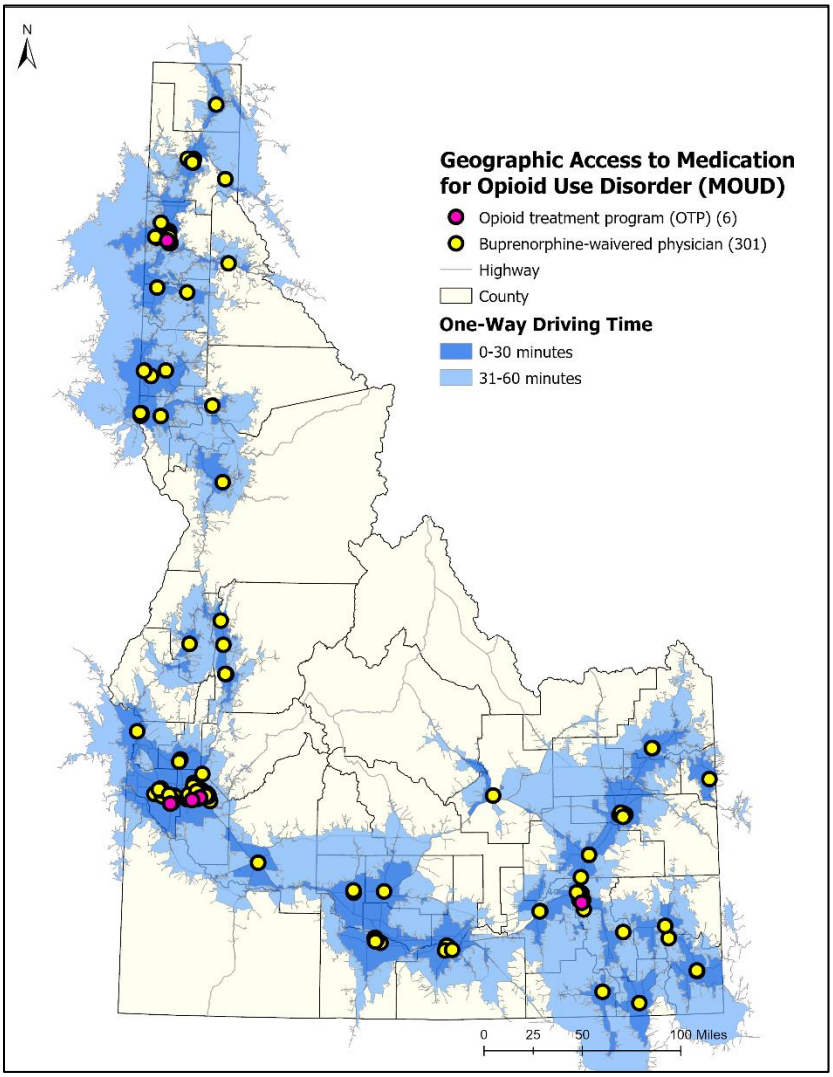

Figure 22: Geographic Access to Medication for Opioid Use Disorder, Idaho, 2023

Methadone clinics, also known as opioid treatment programs (OTPs) were accessible by car to those living around Coeur d'Alene, Nampa, Boise, and Pocatello (Figure 22). OTPs were in only three (Ada, Bannock, and Kootenai) of the eight counties in the highest opioid overdose vulnerability quintile (Figure 18). While not all physicians who prescribed buprenorphine were included in the SAMHSA dataset used to map buprenorphine-waivered providers, it's clear that

major rural areas of the state, especially in central Idaho, had very limited MOUD availability (Appendix 1). While the population density in these areas was very low, people living in those regions would have to travel over two hours round-trip by car every day to obtain methadone or buprenorphine. Mobile buprenorphine services were also offered in the Magic Valley, a region containing Blaine, Camas, Cassia, Gooding, Jerome, Lincoln, Minidoka, and Twin Falls Counties (Figure 2).

OPIOID OVERDOSE VULNERABILITY AND MOUD SERVICE AVAILABILITY

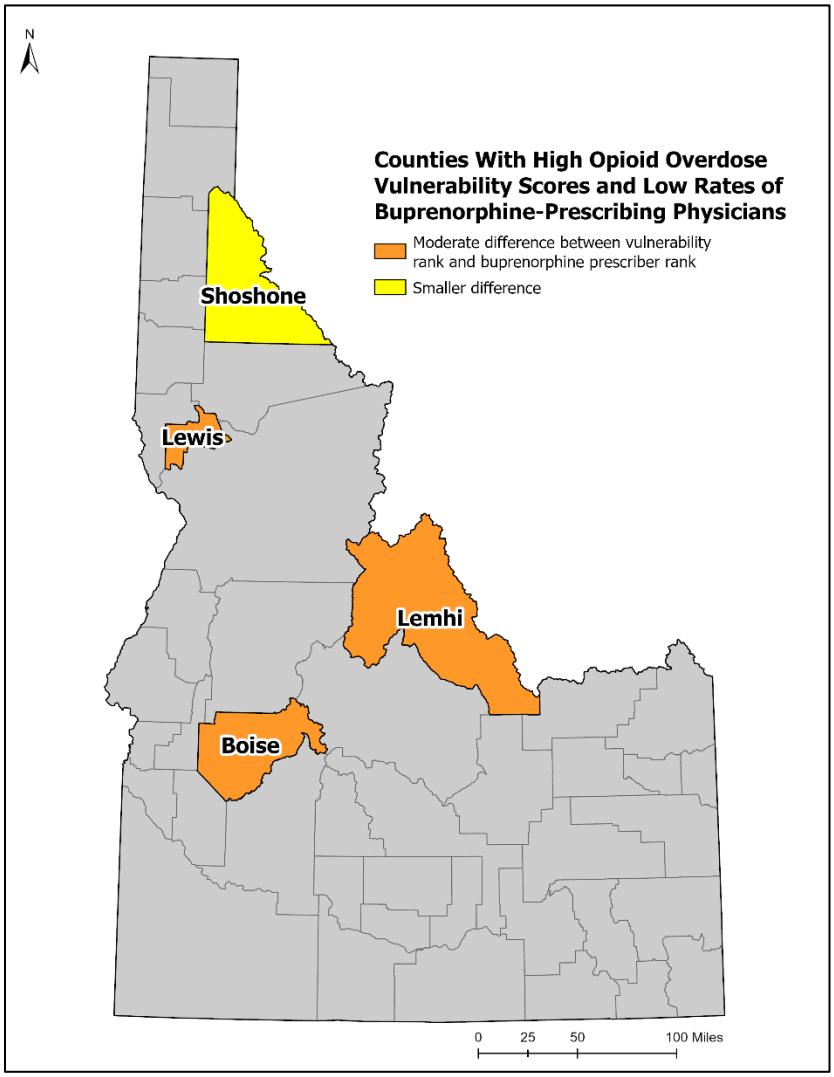

Figure 23: High Opioid Overdose Vulnerability Scores and Comparatively Low Rates of Buprenorphine Availability, Idaho Counties, 2020-2022

Lewis, Boise, Lemhi, and Shoshone Counties had high opioid overdose vulnerability scores and low rates of buprenorphine-prescribing physicians (Figure 23). Boise County was in the top quintile for opioid overdose vulnerability yet was in the second lowest quintile for buprenorphine-prescribing physicians (Figures 8 and 18). Lemhi and Lewis Counties were in the second highest quintile rank for opioid overdose vulnerability but had no buprenorphine-prescribing physicians in 2022 (Figures 8 and 18). Shoshone County also had a low rate of buprenorphine-prescribing physicians and a high vulnerability score (Figures 8 and 18).

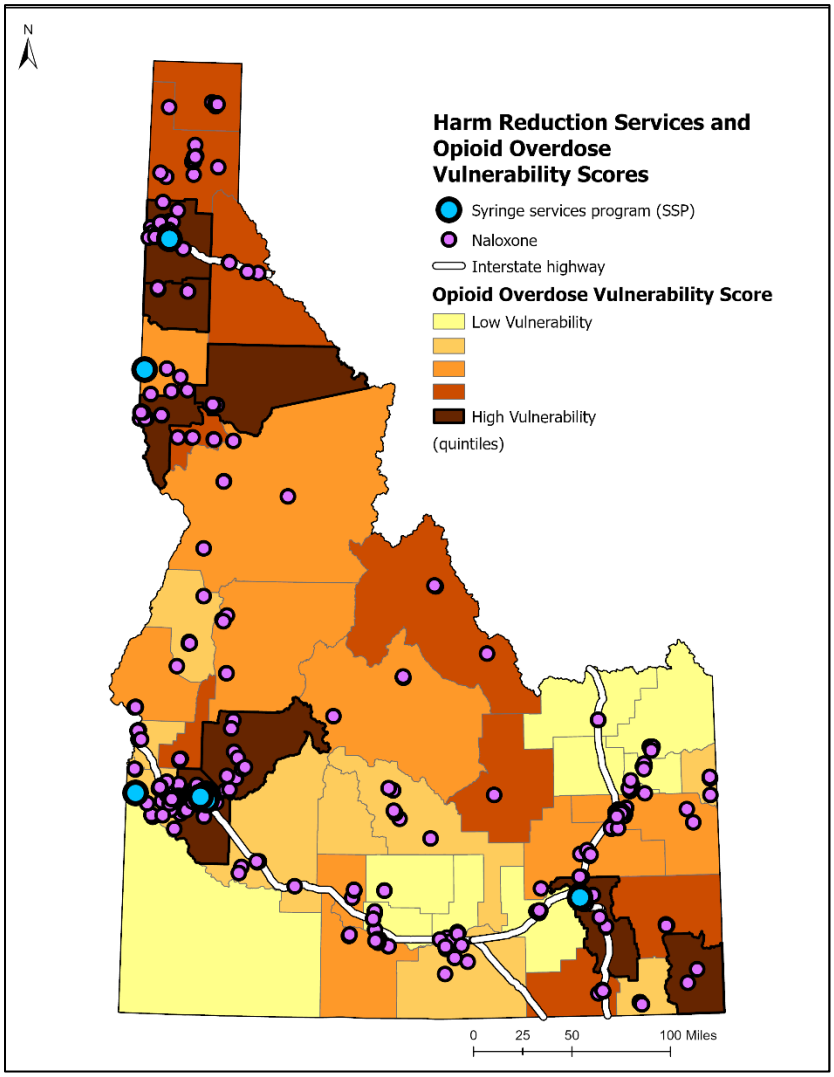

Figure 24: Harm Reduction Services and Opioid Overdose Vulnerability Scores, Idaho Counties, 2020-2022

At the time of our analyses, SSPs were located in Kootenai, Latah, Canyon, Ada, and Bannock Counties (Figure 24). There were no SSPs in Bear Lake, Boise, Nez Perce, Benewah, and Clearwater Counties, despite their high vulnerability to opioid overdose. Many high-vulnerability counties in north-central Idaho, such as Boundary, Shoshone, and Lemhi Counties, were far from

the nearest SSPs. While there were many organizations that requested free naloxone from the state to distribute to their clients in urban centers and along interstate highways, there were also many in the more rural and sparsely populated areas of the state. Despite being in the top quintile for opioid overdose vulnerability, there were only two organizations that requested free naloxone kits from the state in Bear Lake County, and naloxone in Clearwater County was limited to the southwestern corner of the County.

DISCUSSION

Our updated vulnerability assessment identified Idaho counties at the highest risk of fatal opioid overdose: Ada, Bannock, Bear Lake, Benewah, Boise, Clearwater, Kootenai, and Nez Perce. Many counties in the top quintile rank for opioid overdose vulnerability also had higher rates of non-fatal opioid related ED visits and chronic HCV infections. In addition, our findings also highlight that the counties that had the highest risk were typically the most populous, mirroring our prior vulnerability assessment report. However, we also identified several rural counties as having the highest vulnerability, indicating that several rural and urban areas of Idaho are highly vulnerable to opioid-related overdose mortality. When comparing our findings from the current study to the prior vulnerability assessment, Kootenai, Nez Perce, Benewah, and Bannock Counties remained as highly vulnerable counties.

In addition, we observed that access to methadone treatment was limited to Coeur d'Alene, Nampa, Boise, and Pocatello, while buprenorphine-prescribing providers were located mostly along the interstates and major highways connecting urban areas throughout the state. Lewis, Boise, Lemhi, and Shoshone Counties all had high vulnerability scores and low rates of buprenorphine-prescribing physicians, indicating need for the expansion of MOUD. In many instances, Idaho residents living in rural counties would have to travel two hours or more round-trip to access MOUD. Since longer distances to access treatment are correlated with lower rates of treatment initiation and retention, this increases the risk of opioid-related harm in those areas.[39] Furthermore, rates of fatal opioid-related overdoses were correlated with the percentage of households without access to a vehicle. Even families located within an hour or less driving to MOUD resources could be unable to access methadone or buprenorphine because they are unable to travel by car or need to rely on other means of transportation. However, the Consolidated Appropriation Act of 2023 removed the federal requirement for "X-waiver" along with patient caps on buprenorphine prescription.[40] This greatly increases opportunities to enhance access to MOUD in urban areas and rural counties where there may have not been a physician waivered to prescribe buprenorphine prior to the policy change.

There was a 22.8% increase in the county average rate of fatal opioid overdoses between the vulnerability assessments and an 8.7% increase in the county average rate of chronic HCV infections in Idaho. There is strong evidence that mental and economic health effects of the COVID-19 pandemic, which began in 2020, have heightened the risk of opioid-related overdose mortality through increased depression, anxiety, and financial stress, among others.[41] These are likely contributing factors for increased substance use and overdose mortality during the pandemic; in fact, drug overdose deaths increased by 31% between 2019 and 2020 nationwide.[42] While CMS approved multiple waivers to expand access to care during the pandemic, drug overdose deaths continued to increase.[43]

Fatal opioid overdose rates were also higher in Idaho counties with higher percentages of American Indian or Alaska Native residents. Nationally, American Indians and Alaska Natives experienced a drastic rise in fatal opioid overdose rates during the COVID-19 pandemic, increasing from 25.9 opioid overdose deaths per 100,000 population in 2019 to 51.9 in 2021.[44,45] In addition, age-adjusted fatal opioid overdose rates were the highest for American Indian and Alaska Native populations out of all racial groups in 2021 and 2022.[44] In Idaho, the fatal drug overdose rate among American Indian and Alaska Native populations has been on the rise

since 2017, reaching 1.7 times the overall state rate in 2020.[46] We observed that the COVID-19 pandemic exacerbated the risk of fatal drug overdose for all PWUD, and has disproportionately impacted American Indian and Alaska Native communities given the high overdose death rates in this population in Idaho.

The Syringe and Needle Exchange act (Idaho code, Title 37, Chapter 34) passed in 2019 allowed for the operation of SSPs in Idaho.[16] SSPs provide essential harm reduction services and referrals to treatment for PWUD, and, in Idaho, were located in Boise, Coeur d'Alene, Moscow, Pocatello, and Homedale. Idaho legislators repealed the Syringe and Needle Exchange Act in March 2024 (House Bill 617).[47] The locations where SSPs were geolocated continue providing other harm reduction services besides needle exchanges to reduce the risk of opioid-related overdoses and transmission of infectious disease. Access to services offered at SSPs can reduce high-risk behavior among PWID and lower transmission of HIV and other infectious diseases.[10,48] In fact, in 2021, the six SSPs operating in Idaho at the time served people in 34 counties, prevented an estimated 116 HCV and 35 HIV infections, and had a 0.91 return ratio of used syringes for safe disposal.[49] Given that our findings point to an observed 8.7% increase in chronic HCV infection rates in Idaho before the repeal, safe needle exchange services are increasingly important. Following the 10-month restriction on free naloxone distribution, the dissemination of free naloxone to organizations across Idaho increased by 187% from 2021-2022.[50] The increasing availability of naloxone is an important step forward, even as legislative changes make vital needle exchange services unavailable.

LIMITATIONS

While the findings of our study are critical in highlighting the risks of opioid-related overdose in the context of state and local policies, as well as availability of OUD treatment and harm reduction services, it is important to consider study limitations. Many counties had low numbers of fatal overdoses and other core indicators, which skewed rates higher in rural jurisdictions with low populations. In addition, since rural counties have smaller populations, some of the estimates we used could have wide margins of error. We were unable to obtain Emergency Medical Services data for this analysis, which was used as a covariate in our prior report; this makes the final vulnerability scores between the two assessments less comparable. Although cases of acute HCV are more indicative of recent infection, we had to use chronic HCV infections since the counts for acute HCV cases were too low. Despite mapping drive-time service areas for SSPs, OTPs, and buprenorphine-prescribing physicians in Idaho, our analysis was limited to the state boundaries and we were unable to account for service locations in neighboring states that are close to the Idaho border. The SAMHSA dataset used to map locations of buprenorphine-waivered providers only includes those who opt-in for inclusion in the dataset and is not wholly representative of all physicians who were able to prescribe buprenorphine at the time.

RECOMMENDATIONS

Based on our updated findings and comparison with the results of our previous report, we recommend several courses of action for Idaho policymakers to consider:

1. *Targeted response:* We recommend that policymakers use the findings of this report to inform evidence-based solutions implemented in high-vulnerability counties and other high-risk communities with limited resources to combat the opioid overdose epidemic. Kootenai, Nez Perce, Benewah, and Bannock counties are high-priority counties for continued interventions given their presence in the top quintile for vulnerability in both assessments. Additional public health resources should be directed to Ada, Boise, Clearwater, and Bear Lake Counties due to their emerging status as high-vulnerability counties. There was a significant increase in rates of fatal opioid overdoses between 2019 and 2021 within the American Indian and Alaska Native populations.[51] Tailored interventions that recognize the unique strengths and resilience of American Indian and Alaska Native individuals and communities are important to reducing fatal opioid overdoses in this population.[52,53]
2. *Expand access to MOUD:* Given the lack of MOUD availability in many areas of the state and long drive times to treatment centers, we recommend a multifaceted approach to expanded access to methadone maintenance and buprenorphine. Telehealth prescribing can increase access to MOUD by eliminating the need to travel to see a physician in person, which is especially helpful for those who lack access to transportation.[54] In addition, mobile methadone clinics can be a way to reach rural areas where brick-and-mortar OTPs are not yet established. Take-home methadone doses are also a way of relieving OTP patients of traveling long distances daily to access necessary treatment. Studies measuring the effects of take-home doses and mobile methadone units post-COVID-19 show promising results in increased treatment initiation and retention.[55,56] We recommend continuing to encourage use of telehealth and take-home doses while implementing mobile methadone units to increase access to MOUD for those in rural areas and people without access to transportation.
3. *Improve access to harm reduction services:* Needle exchange programs are a vital tool that have demonstrated effectiveness in reducing transmission of HIV and HCV.[58,59] Recent changes in legislation in Idaho has severely impacted access to clean needles among PWUD increasing their risk of injection-related infectious disease.[49,57] There is a critical need for resources and policies that improve access to these services along with additional harm reduction programs in Idaho.

CONCLUSION

Through our opioid-related overdose vulnerability assessment, we have provided a comprehensive analysis, identifying the urban and rural counties most at risk for fatal opioid overdoses throughout Idaho. While some counties retain the same high-vulnerability designation as that in our prior report, many have emerged as being among the most vulnerable in recent years, indicating the need for new targeted interventions in those jurisdictions. The increase in fatal opioid-related overdose rates and chronic HCV infections between assessments underlines the increasing need for public health responses to address the ongoing opioid epidemic.

MOUD, harm reduction, and public health services are lacking in many areas of the state, especially in rural locales. The lasting impact of the COVID-19 pandemic as well as the legislation outlawing needle exchange services pose an increased risk of overdose for PWUD and transmission of HCV and HIV among PWID. In the wake of these developments, it's important to promote the utilization of evidence-based SUD treatment such as telehealth prescribing of MOUD and take-home doses while implementing alternative ways of increasing treatment access such as mobile methadone units to ultimately reduce opioid overdoses.

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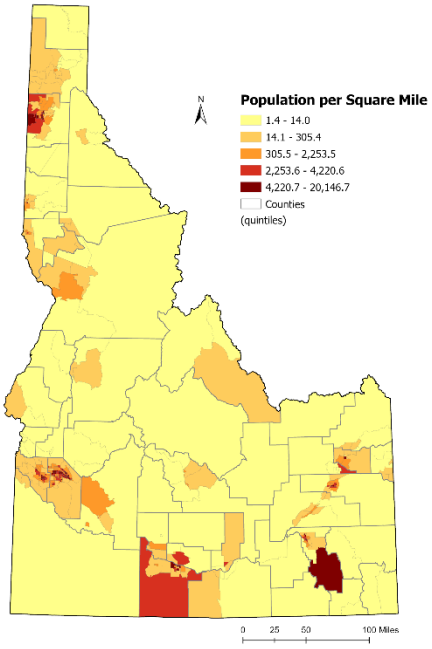
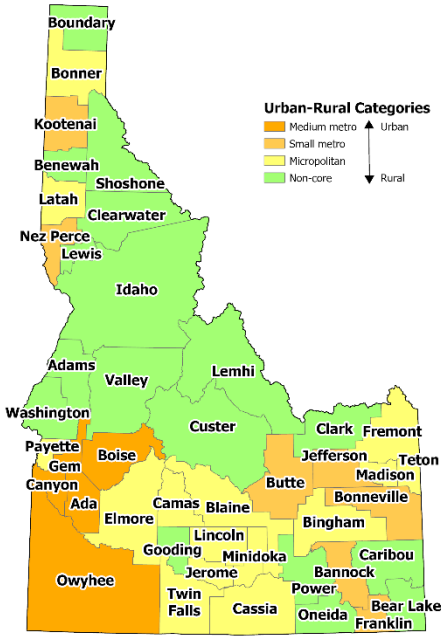
APPENDIX

A



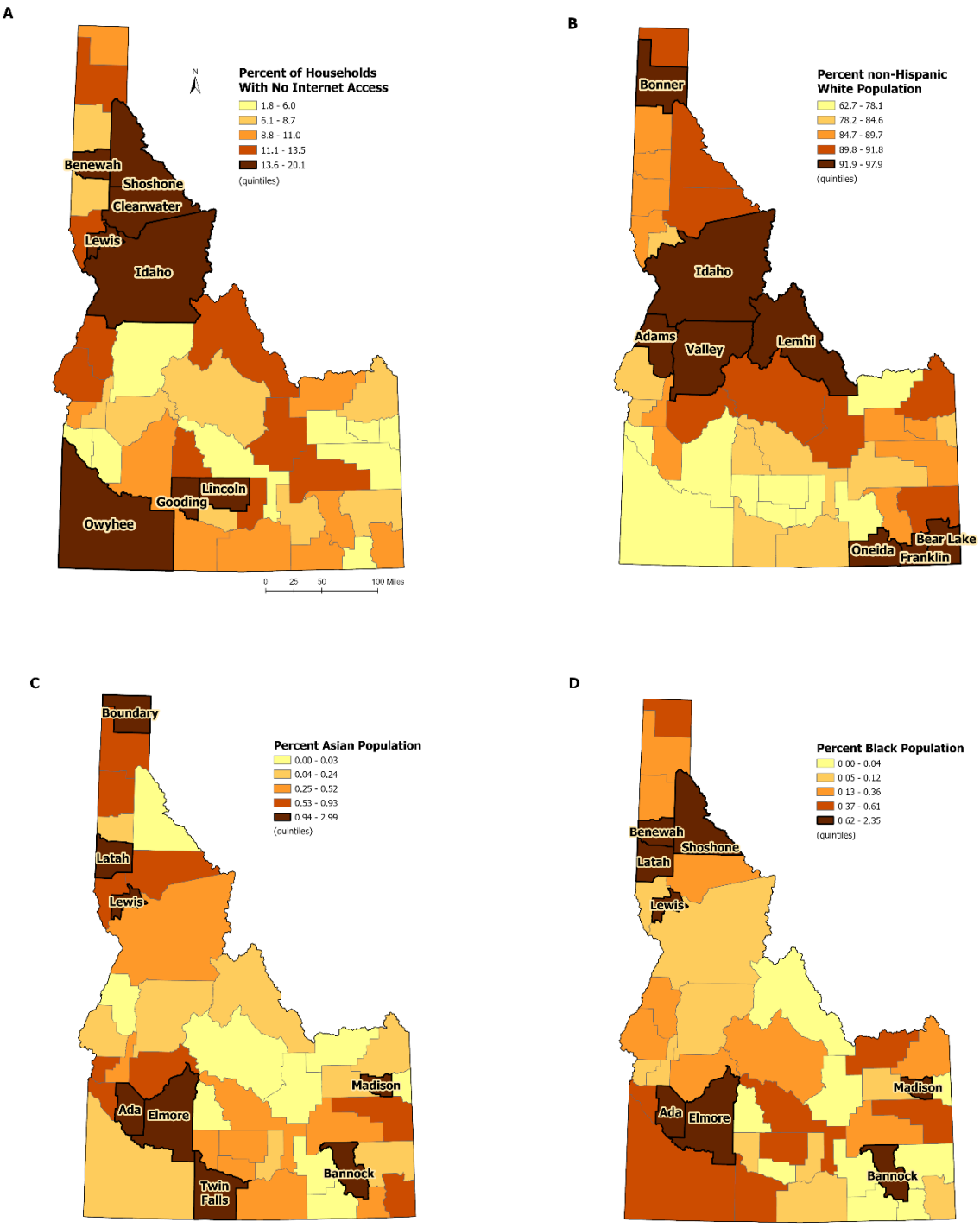
B



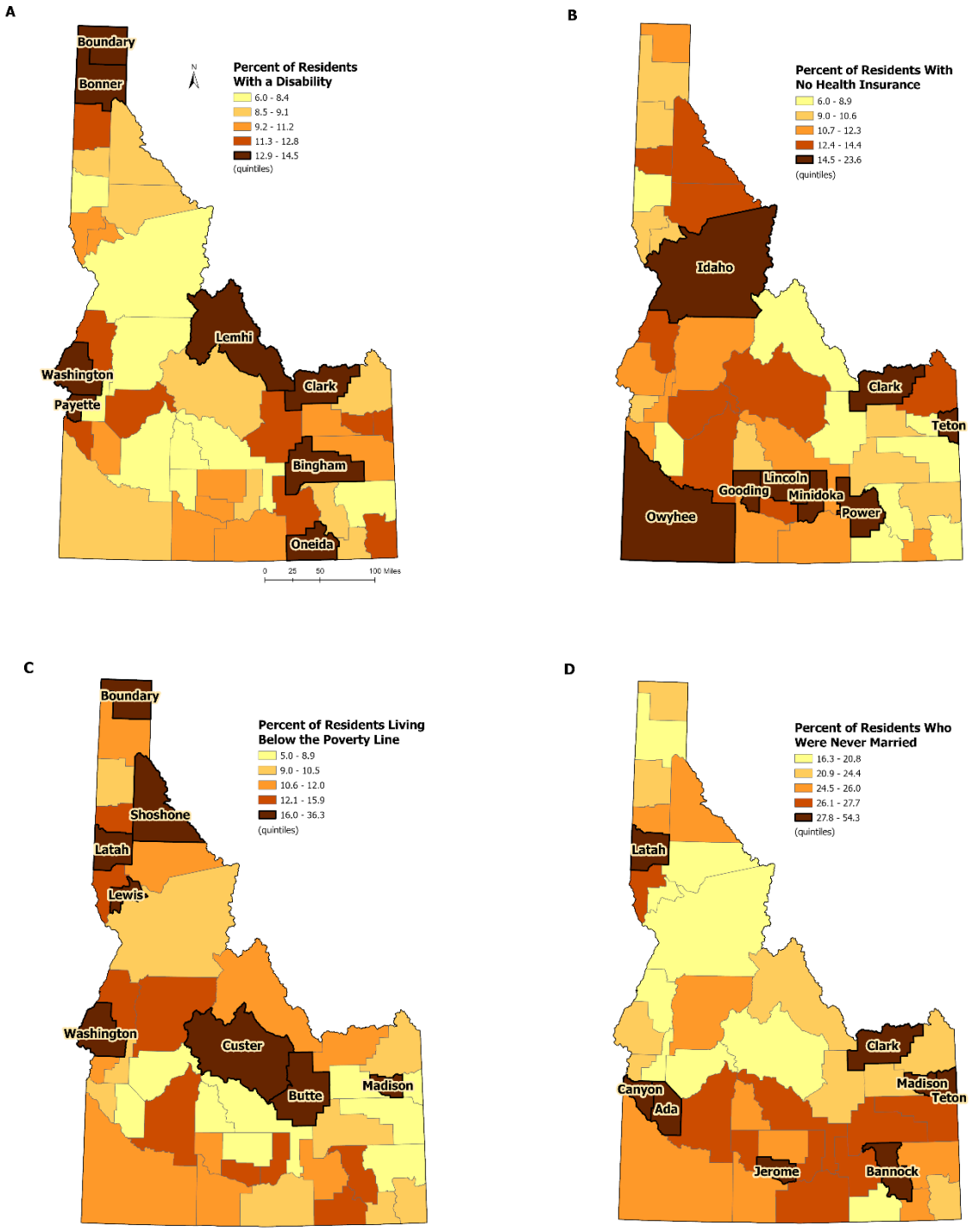
C

Least Vulnerable				Most Vulnerable
Clark	Adams	Bingham	Bonner	Ada
Fremont	Blaine	Bonneville	Boundary	Bannock
Jefferson	Camas	Custer	Butte	Bear Lake
Jerome	Canyon	Gooding	Caribou	Benewah
Lincoln	Cassia	Idaho	Gem	Boise
Madison	Elmore	Latah	Lemhi	Clearwater
Minidoka	Franklin	Twin Falls	Lewis	Kootenai
Power	Payette	Valley	Oneida	Nez Perce
Owyhee	Teton	Washington	Shoshone	

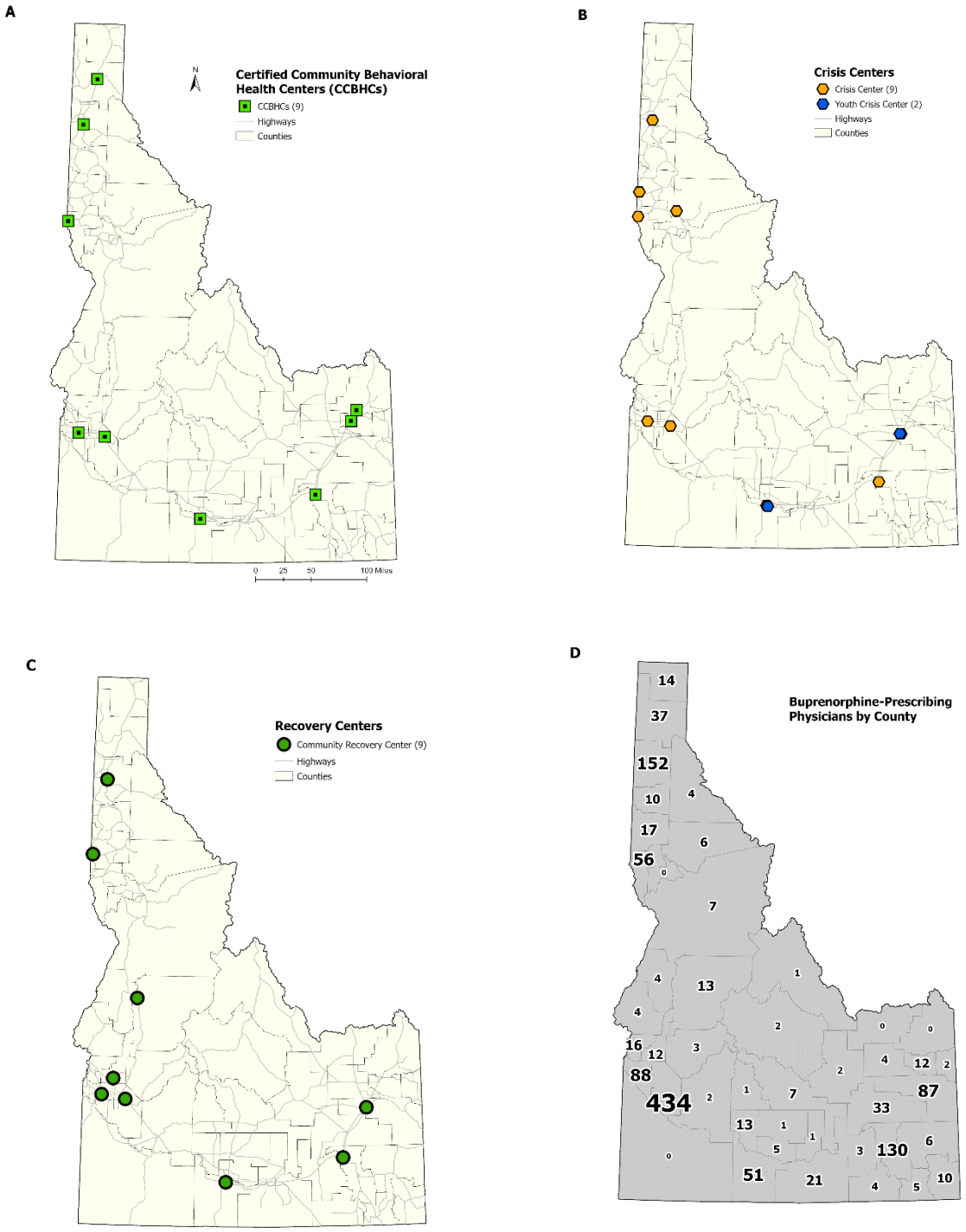
Appendix 1: Indicators of Population Distribution, 2022 and 2013, and Idaho Counties by Vulnerability Quintile (2020-2022)



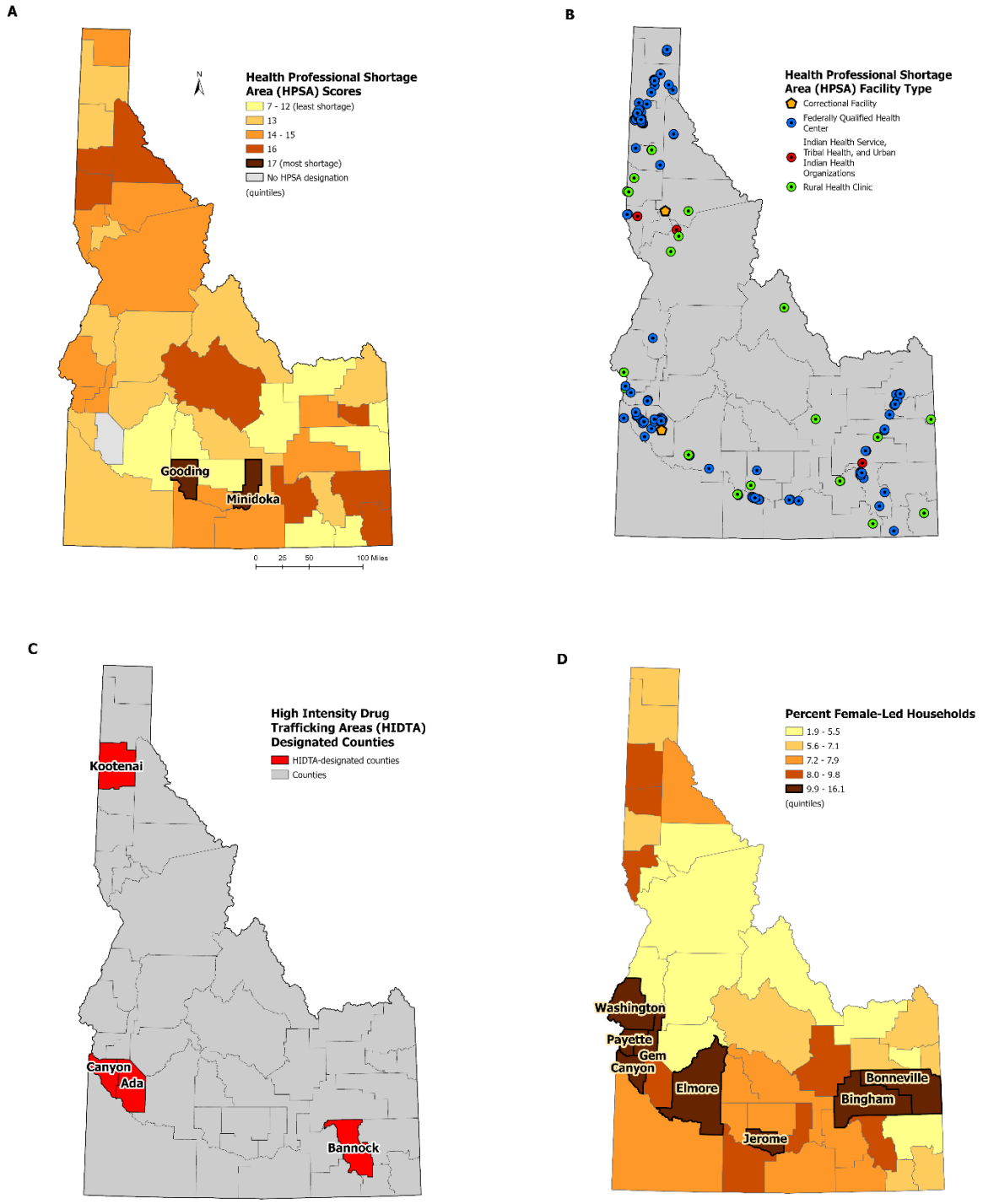
Appendix 2: Sociodemographic Variables, Idaho Counties, 2018-2022 (Annual Average)



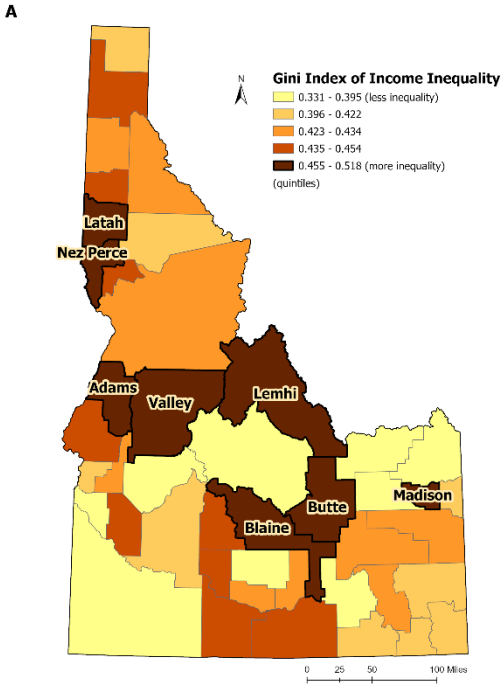
Appendix 3: Covariates of Opioid Overdose Vulnerability, Idaho Counties, 2018-2022 (Annual Average)



Appendix 4: Opioid-Related Services (2023) and Buprenorphine-Prescribing Physicians by County (2022), Idaho



Appendix 5: Primary Care Health Professional Shortage Area (HPSA) Scores and Facilities (2023) (A, B), High Intensity Drug Trafficking Area (HIDTA) Counties (2024) (C), and Percent Female-Led Households (2018-2022, Annual Average) (D), Idaho



Appendix 6: Gini Index of Income Inequality, 2018-2022 (Annual Average)