

Assessment of County Vulnerability to Increases in Injection Drug Use-Related Infectious Disease and Opioid Overdose

Georgia, 2018

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Background

The opioid epidemic in the United States, sparked initially by the overprescribing of opioid painkillers, continues to harm communities across the U.S. and in Georgia with the increasing availability of heroin and synthetic opioids. Rates of injection drug use (IDU)-related infectious diseases such as hepatitis C virus (HCV) and human immunodeficiency virus (HIV) have risen nationally alongside the rates of opioid overdose morbidity and mortality^{1,2}. Many communities across the country lack the resources to adequately address the epidemic from a prevention and treatment standpoint, leaving certain areas particularly vulnerable to high rates of opioid overdose or IDU-related infectious disease. The well-documented HIV and HCV outbreak in Scott County, Indiana in 2014-2015 was determined to be the result of individuals sharing needles and other paraphernalia to inject prescription opioids, in addition to a lack of HIV and substance use disorder treatment resources³. In response to this outbreak, the Centers for Disease Control and Prevention (CDC) conducted a nationwide assessment to identify counties that could be vulnerable to a similar outbreak of IDU-related infectious disease based on a range of factors that were known or plausibly associated with IDU⁴. Since there is no adequate measure of IDU at the county level, IDU was approximated using rates of acute HCV. Using data from 2012-2013, this assessment identified the 250 most vulnerable counties in the U.S., 4 of which were in Georgia. CDC recommended that “targeted interventions in accordance with efforts to prevent and treat substance use disorder and to reduce risk of infectious complications of IDU are warranted” in these counties.

Georgia Assessment

In 2018, the Georgia Department of Public Health (DPH) received funding from CDC to conduct an in-state analysis of vulnerability to both IDU-related infectious disease and opioid overdoses, with the goal of using more up-to-date data, as well as data that may not have been available to CDC researchers at the national level. Using data aggregated from 2016-2017, the Georgia assessment included more than 40 predictors from a variety of data sources covering health outcomes, prescription drug monitoring program (PDMP) indicators, treatment availability, demographic variables, and socioeconomic variables. Two separate assessments were conducted. The first, measuring vulnerability to IDU-related infectious disease, used acute HCV combined with chronic HCV (age <40) as the outcome, or proxy for IDU. Chronic HCV among those aged less than 40 was used to provide more robust data, as there are many counties that report no acute HCV, and many cases of chronic HCV in individuals younger than 40 can be attributed to IDU. The second, measuring vulnerability to increases in opioid overdoses, used nonfatal opioid overdose as the outcome. In short, the goal of both assessments was to a) identify factors associated with injection drug use (using HCV as a proxy) and opioid overdose at the county level, and b) identify other counties that shared characteristics of counties with high rates of IDU and opioid overdose to determine which counties may be vulnerable to increases in each.

The Georgia assessment used statistical modeling methods to identify a small subset of variables that were significantly associated with each outcome. The value of these variables at the county level were then used to calculate a vulnerability “score” that could be assigned to each county. Scores were mapped onto each county, and counties were then separated into 5 equal-sized groups from most to least vulnerable (see attached maps).

IDU-related Infectious Disease Vulnerability Results

There were 7 variables significantly associated with HCV that were used to calculate vulnerability scores for the IDU-related infectious disease assessment—1) HIV prevalence rate⁵, 2) narcotics treatment programs per 100,000 population⁶, 3) percent of households without vehicle access⁷, 4) median age⁷, 5) percent of population that is white, non-Hispanic⁷, 6) percent of population age 16+ not in labor force⁷, and 7) Social Vulnerability Index percentile rank (a CDC measure of community resilience to external stresses on human health such as disasters or disease outbreaks)⁸. As indicated in the attached map, the counties determined to be most vulnerable to potential increases in IDU-related infectious diseases are primarily clustered in southeast Georgia (excluding coastal counties) and north Georgia, in addition to a few isolated counties in southwest and central Georgia. These results do *not* indicate that other counties are not also vulnerable to increases in IDU-related infectious diseases. A high vulnerability level also does not necessarily indicate that a county has had or will have high rates of IDU-related infectious disease. Rather, the map is meant to identify and prioritize areas of potential risk so that resources can be allocated effectively to prevent future harm.

Opioid Overdose Vulnerability Results

There were 5 variables significantly associated with nonfatal opioid overdose that were used to calculate vulnerability scores for the opioid overdose assessment—1) opioid prescription rate per 1,000 population⁹, 2) percent of days that patients had overlapping opioid prescriptions⁹, 3) percent of days that patients had overlapping opioid and benzodiazepine prescriptions⁹, 4) percent of population that is male⁷, and 5) percent of households with food stamp/SNAP benefits in the past year⁷. As indicated in the attached map, the counties determined to be most vulnerable to potential increases in opioid overdoses are also clustered in southeast Georgia (in a somewhat *smaller* area than the infectious disease assessment) and north Georgia (in a somewhat *larger* area than the infectious disease assessment). There are also clusters of counties in central Georgia with relatively high vulnerability. These results do *not* indicate that other counties are not also vulnerable to increases in opioid overdoses. A high vulnerability level also does not necessarily indicate that a county has had or will have high rates of opioid overdose. Rather, the map is meant to identify and prioritize areas of potential risk so that resources can be allocated effectively to prevent future harm.

Conclusions & Recommendations

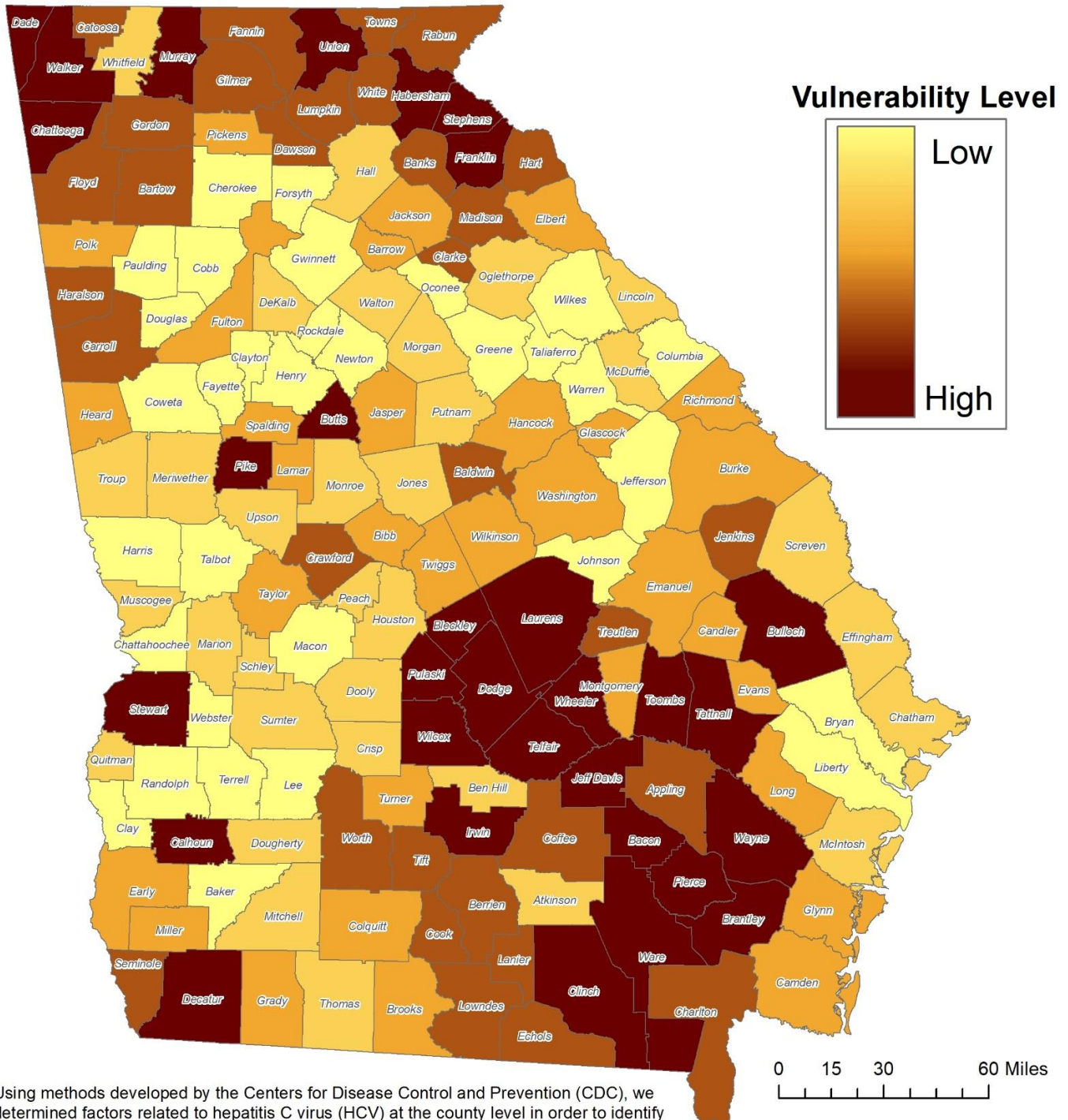
As the opioid epidemic continues to evolve, it is necessary to understand what factors make communities particularly susceptible to opioid overdose and IDU-related infectious disease, and to focus efforts in areas that may be most vulnerable when prioritizing the allocation of finite resources. Both Georgia vulnerability assessments clearly highlight areas of

the state that should be considered a priority when such decisions are made. These results have implications for a wide range of efforts including (but not limited to) opioid misuse education and prevention for both youth and adults; availability of treatment for substance use disorder, HIV and HCV; naloxone distribution, syringe service programs, and other harm reduction services; and various other community support services that play a role in addressing the opioid epidemic and injection-related infectious diseases. These assessments should be replicated regularly so that they best reflect the most current reality in counties across Georgia. These results should also be used to guide the development of response plans at the local level so that communities are better prepared for increases in opioid overdoses and IDU-related infectious diseases.

References and Data Sources

1. Jon E. Zibbell et al. "Increases in Acute Hepatitis C Virus Infection Related to a Growing Opioid Epidemic and Associated Injection Drug Use, United States, 2004 to 2014", *American Journal of Public Health* 108, no. 2 (February 1, 2018): pp. 175-181.
2. TA Schwetz et al. Opioids and infectious diseases: A converging public health crisis. *Journal of Infectious Diseases* DOI: 10.1093/infdis/jiz133 (2019).
3. Centers for Disease Control and Prevention. Community Outbreak of HIV Infection Linked to Injection Drug Use of Oxymorphone--Indiana, 2015. *MMWR*. 2015; 64:443-4.
4. Van Handel MM, Rose CE, Hallisey EJ, Kolling JL, Zibbell JE, Lewis B, et al. County-Level Vulnerability Assessment for Rapid Dissemination of HIV or HCV Infections Among Persons Who Inject Drugs, United States. *J Acquir Immune Defic Syndr*. 2016; 73:323-31.
5. Georgia Department of Public Health. HIV/AIDS Epidemiology Section. 2016-2017 surveillance data.
6. Georgia Department of Community Health. GAMap2Care Find a Facility tool. 2017.
7. United States Census Bureau. 2017 American Community Survey. 2017 5-year estimates.
8. Centers for Disease Control and Prevention/ Agency for Toxic Substances and Disease Registry/ Geospatial Research, Analysis, and Services Program. Social Vulnerability Index 2016 Database [Georgia]. [data-and-tools-download.html](#).
9. Georgia Department of Public Health. Prescription Drug Monitoring Program. 2016-2017.

County Vulnerability to Potential Increases in Injection Drug Use-Related Infectious Diseases - Georgia, 2018

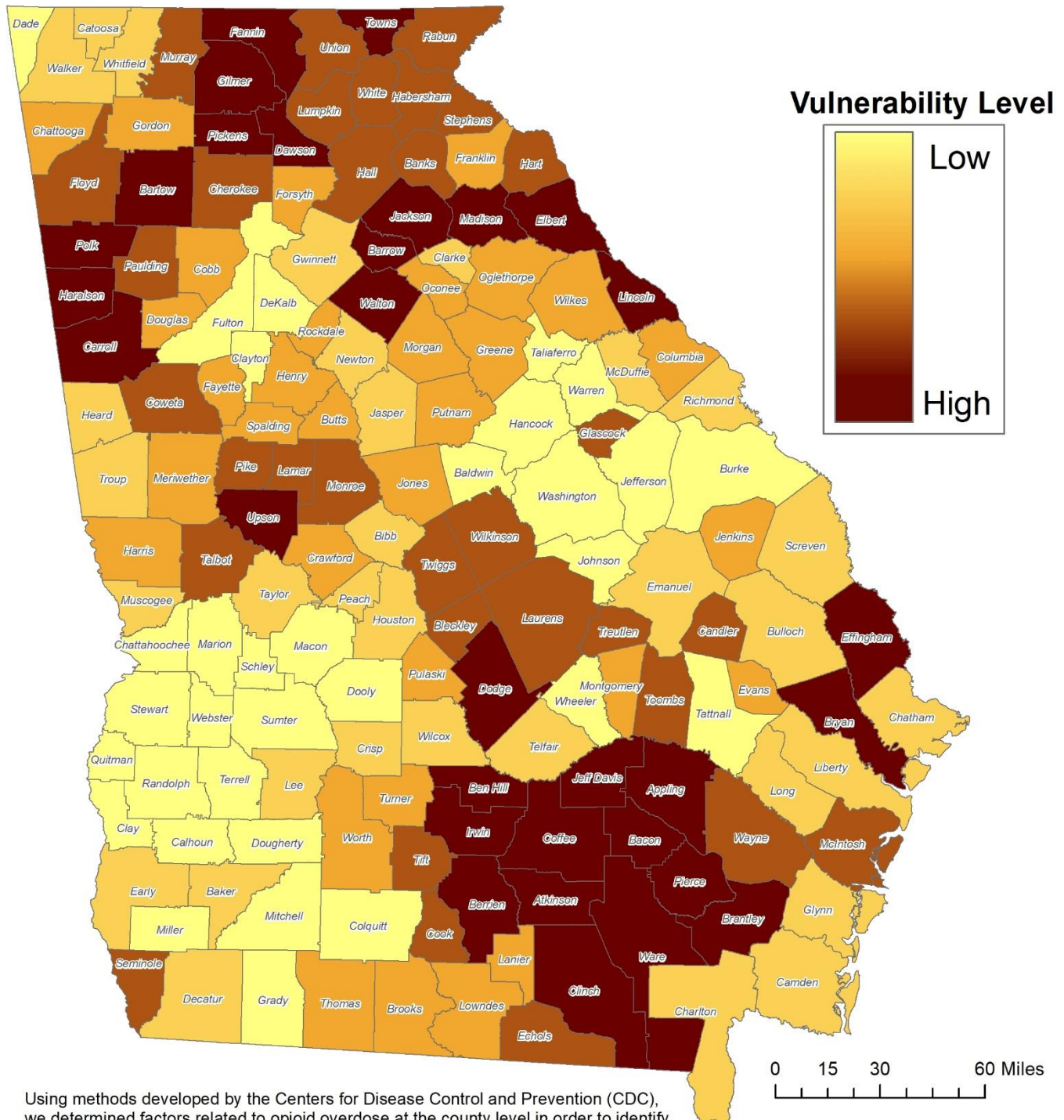


Using methods developed by the Centers for Disease Control and Prevention (CDC), we determined factors related to hepatitis C virus (HCV) at the county level in order to identify counties that may be vulnerable to increases in HCV and other injection drug use-related infectious diseases (e.g., HIV) in the future.

Counties shaded darkest--those with highest vulnerability--indicate areas with characteristics similar to counties that have seen high rates of HCV.

A high vulnerability level does not necessarily indicate that a county has had or will have high rates of injection drug use-related infectious disease. Rather, the map is meant to identify areas of potential risk so that resources can be allocated effectively to prevent future harm.

County Vulnerability to Potential Increases In Opioid Overdoses - Georgia, 2018



Using methods developed by the Centers for Disease Control and Prevention (CDC), we determined factors related to opioid overdose at the county level in order to identify counties that may be vulnerable to increases in opioid overdoses in the future.

Counties shaded darkest--those with highest vulnerability--indicate areas with characteristics similar to counties that have seen high rates of opioid overdose.

A high vulnerability level does not necessarily indicate that a county has had or will have high opioid overdose rates. Rather, the map is meant to identify areas of potential risk so that resources can be allocated and effectively to prevent future harm.