IUPUI

CENTER FOR HEALTH POLICY

INDIANA UNIVERSITY

RICHARD M. FAIRBANKS
SCHOOL OF PUBLIC HEALTH

The Impact of the COVID-19 Pandemic on Behavioral Health in Indiana

Authors: Harold Kooreman, MSW, MA; Jyotsna Gutta, MPH; Elhaam Bandali, MS, MPH; and Marion Greene, PhD, MPH

About the Center for Health Policy

The Center for Health Policy (CHP) is the research hub of the department of Health Policy and Management at the IU Richard M. Fairbanks School of Public Health. Our mission is to generate evidence that informs decision-making in Indiana and beyond. CHP Fellows and staff conduct rigorous research and evaluation on health system performance and health policy issues, with a specific focus on: population health and analytics; substance misuse and mental health services; and public health systems and services research.

The CHP has a vibrant research portfolio including funding from the National Institutes of Health (NIH), the Agency for Healthcare Research and Quality (AHRQ), the Robert Wood Johnson Foundation, various state agencies in Indiana, and numerous other government agencies nationwide.

The Center is directed by Dr. Joshua Vest. To learn more about the CHP and download a brochure, click here.

About the Indiana State Epidemiological Outcomes Workgroup (SEOW)

The Indiana State Epidemiological Outcomes Workgroup (SEOW) consists of representatives from various state agencies. The SEOW's primary responsibilities include the ongoing and statewide monitoring of substance misuse, mental health, and suicide trends; identifying statewide prevention priorities; and disseminating research findings to policy-makers, state agencies, community organizations, and the general public.

CHP has provided leadership and technical guidance since the SEOW's inception in 2006.

Publication # 21-H03

Contents

The current report is a summary of findings related to the COVID-19 pandemic. It provides a snapshot in time. Data and conclusions were relevant and timely at the time the report was produced.

Introduction

The coronavirus disease of 2019 (COVID-19) is caused by a novel, highly contagious virus called SARS-CoV-2 [1, 2]. The first cases of COVID-19 were identified in Wuhan, China, in December of 2019 [3], but the disease quickly spread to other parts of the world. On March 11, 2020, the World Health Organization (WHO) declared COVID-19 a pandemic [4].

COVID-19 spreads primarily through exposure to respiratory droplets that are produced when a person who has COVID-19 coughs, sneezes, talks, or breathes [1]. It can take up to 14 days for a person who has been infected by SARS-CoV-2 to show symptoms of COVID-19. Infected individuals can spread the virus during the incubation phase and for up to two weeks after they develop symptoms. Approximately 40% of individuals with COVID-19 are asymptomatic, which means they show no symptoms and may be unaware that they are infected and at risk for spreading the virus. Individuals who do develop symptoms often report a wide range of ailments such as a cough, fever, loss of taste and/or smell, muscle aches, chills, and headaches, among others. These symptoms can be quite minor or very severe. In serious cases, individuals who have COVID-19 can experience severe respiratory distress which may require mechanical ventilation and can result in death [5].

According to current clinical knowledge, people with the following conditions are at highest risk for developing serious illness from SARS-CoV-2 [1]:

- Being 65 years or older
- Residing in a nursing home or long-term care facility
- Having an underlying medical condition (e.g., chronic lung disease, moderate to severe asthma, diabetes, chronic kidney disease, liver disease, heart conditions)
- Being immunocompromised (e.g., due to cancer treatment, bone marrow or organ transplantation, unmanaged HIV/AIDS)
- Smoking
- Being severely obese (having a body mass index, or BMI, of 40 or greater)

In efforts to mitigate transmission and "flatten the curve", the Centers for Disease Control and Prevention (CDC) and WHO have recommended containment strategies, including social distancing, quarantine and isolation measures, as well as the use of face coverings or masks [6].

As of January 2021, the Johns Hopkins Coronavirus Resource Center has confirmed more than 20 million SARS-CoV-2 cases and over 350,000 deaths in the United States alone and 100 million cases and more than 2 million deaths globally [7].

COVID-19 Morbidity and Mortality

Incidence, in general, refers to the number of new cases of a disease or condition that occur during a given time period (e.g., day, week, month), while prevalence refers to all cases, both new and old, that have occurred during a given time period [8]. Initially, public health experts were unable to track the incidence or prevalence of COVID-19 within the United States without a reliable test that could detect the presence of SARS-CoV-2. In February of 2020, the CDC introduced the first viral test that could detect whether a person was currently infected, and nationwide testing began shortly thereafter [9]. Subsequently, in April

of 2020, the FDA approved the first of several antibody tests which could determine whether a person had been previously exposed to the virus as evidenced by their body showing an immunological response to SARS-CoV-2 [10].

The most common method for measuring incidence and prevalence of COVID-19 has been by counting the number of positive cases identified through viral testing. Although this measure is easy to understand and provides a sense of how much the virus is spreading, there are some significant drawbacks [11, 12]. Because individuals infected with COVID-19 can be asymptomatic or only have minor symptoms, they are unlikely to get tested, resulting in an under-counting of true cases [11, 12]. Similarly, increased testing capacity also raises the number of COVID-19 cases identified; however, this increase is biased by greater testing availability and motivations for getting tested, both of which fluctuate over time and thus may not represent a true increase in prevalence. Additionally, counts based solely on viral tests indicate who is currently infected, but do not take into account persons who were previously infected and have recovered [11, 12].

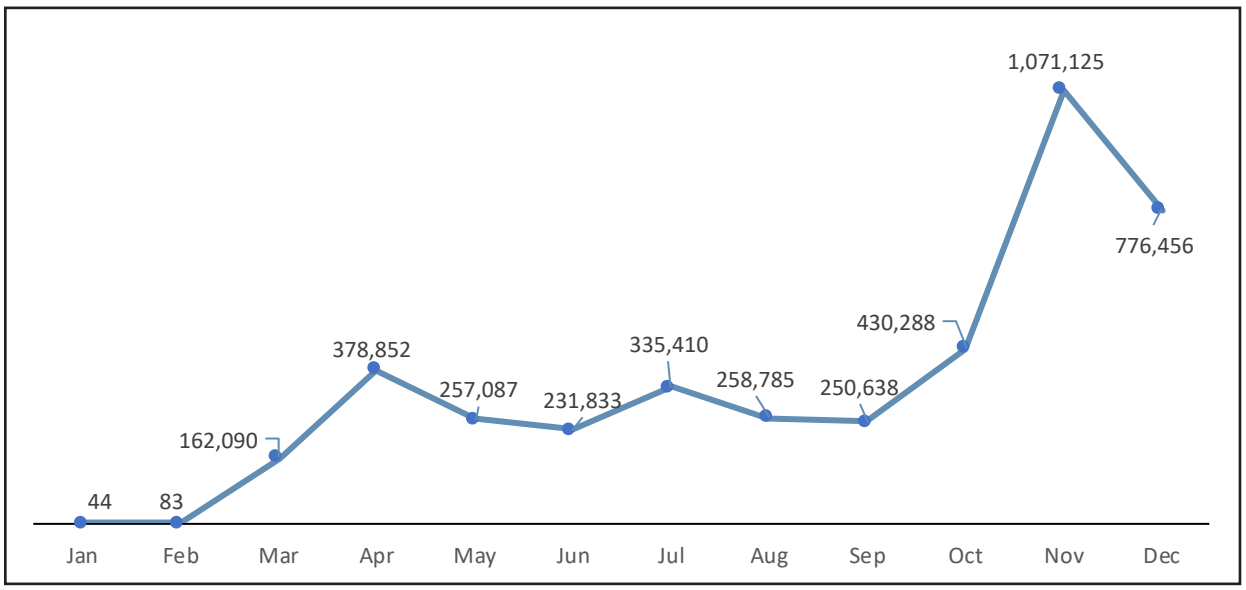
Cases of COVID-19 have been climbing rapidly in the U.S. since the first case was identified in January of 2020 [13]. As of December 31, 2020, at least 20 million U.S. residents had contracted COVID-19, with a rate of 6,069 cases per 100,000 population [14]. Policies such as social distancing and mask wearing were implemented to slow the spread of the virus. Most states implemented stay-at-home orders in mid- to late-March. State and public health officials designed these orders to promote social distancing by limiting the size of group gatherings, encouraging businesses to allow employees to work from home, shifting schools to online or e-learning, and closing or limiting the services of non-essential businesses such as restaurants, bars, gyms, and personal services [15]. During the time that stay-at-home orders were in place the number of positive cases increased relatively slowly. States started to ease stay-at-home restrictions in early to late May. As states reopened, COVID-19 cases began to rise more quickly.

Similar to other human coronavirus infections, COVID-19's transmission rate has shown seasonal variations [16]. During cold weather, most activities take place in indoor settings, which allow for greater virus transmission as respiratory droplets can hang in the air for longer periods of time and social distancing is often more difficult to accomplish. During warmer weather, more activities can take place in outdoor settings, which reduces the time respiratory droplets can be suspended and facilitates social distancing. As seen in **Figure 1**, cases of COVID-19 tended to be lower during Spring and Summer months and increased quickly as the weather turned colder and more activities moved indoors. Holiday celebrations have also been a source of spread. Surges of cases were noted after national holidays, such as Labor Day, and especially after both Thanksgiving and Christmas due to large gatherings of families and friends.

COVID-19 Cases in the U.S.

The number of new COVID-19 cases in the U.S. rose from 44 cases in January 2020 to 776,456 in December of the same year. However, the number of newly reported cases peaked in November with over 1 million cases (**see Figure 1**).

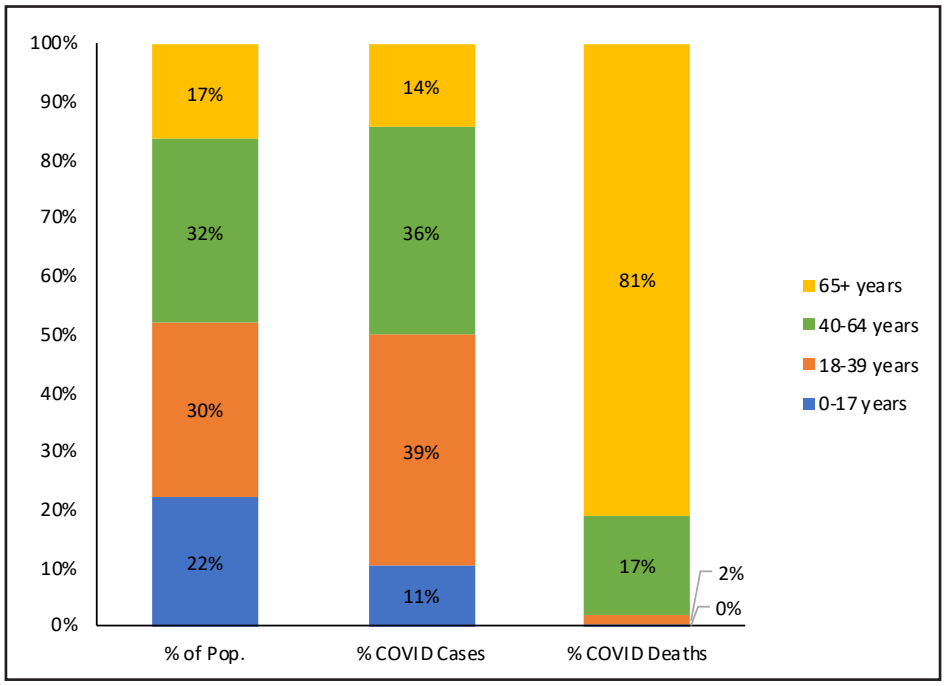
Figure 1. Number of COVID-19 Cases in the U.S. by Month, January 2020 – December 2020



Source: CDC Data Tracker (2021)

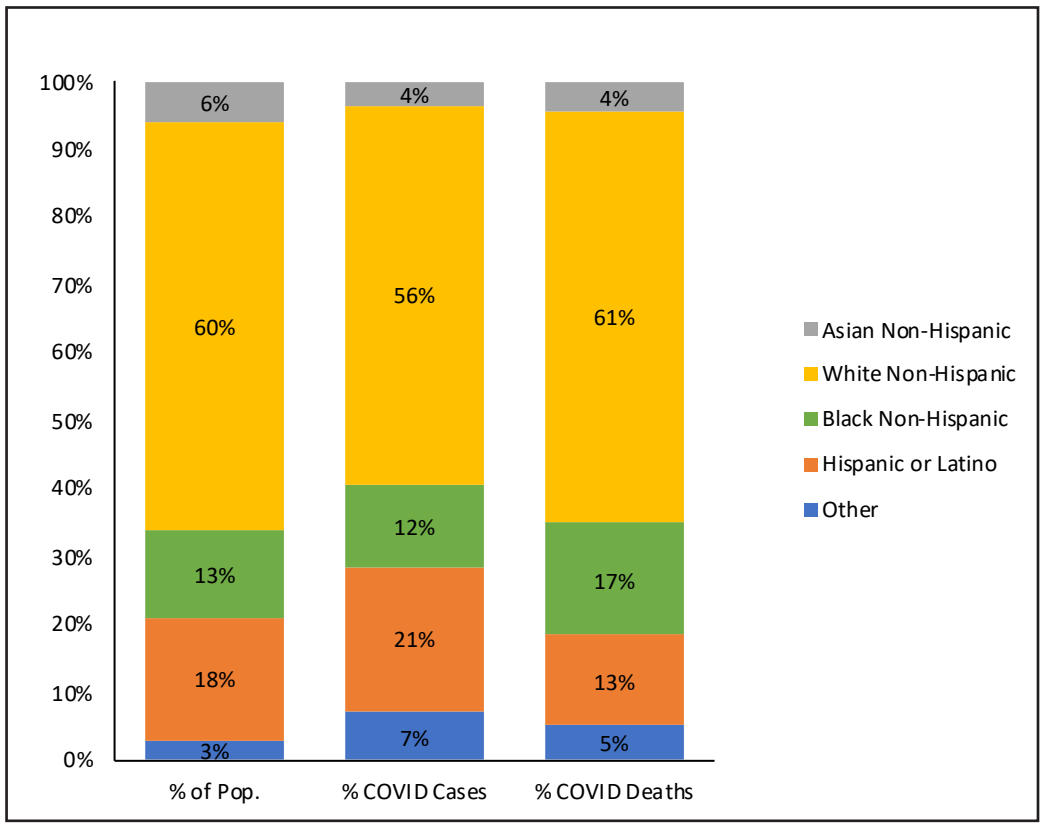
To date, the number of COVID-19 cases varied by gender, age group, and race/ethnicity. Women make up a little over half (52%) of COVID-19 infections in the U.S. Three-fourths (75%) of COVID-19 cases nationally occurred in persons between the ages of 18 to 64 (**see Figure 2**).

Figure 2. Percent of U.S. Population, COVID-19 Cases, and Deaths Attributable to COVID-19 in the U.S., by Age Group, January 2020 - December 2020



Source: CDC COVID Data Tracker (2021)

Figure 3. Percent of U.S. Population, COVID-19 Cases, and Deaths Attributable to COVID-19 in the U.S., by Race/Ethnicity, January 2020 – December 2020



Source: CDC COVID Data Tracker (2021)

Over half of COVID-19 cases in the U.S. have occurred in persons who are non-Hispanic white; however, most Americans are non-Hispanic white. Individuals from races/ethnicities other than white, Black, Asian, or Hispanic, had a much higher percentage of COVID-19 cases, relative to their proportion in the U.S. population. Similarly, Hispanics were also disproportionately affected by COVID-19 (**see Figure 3**).

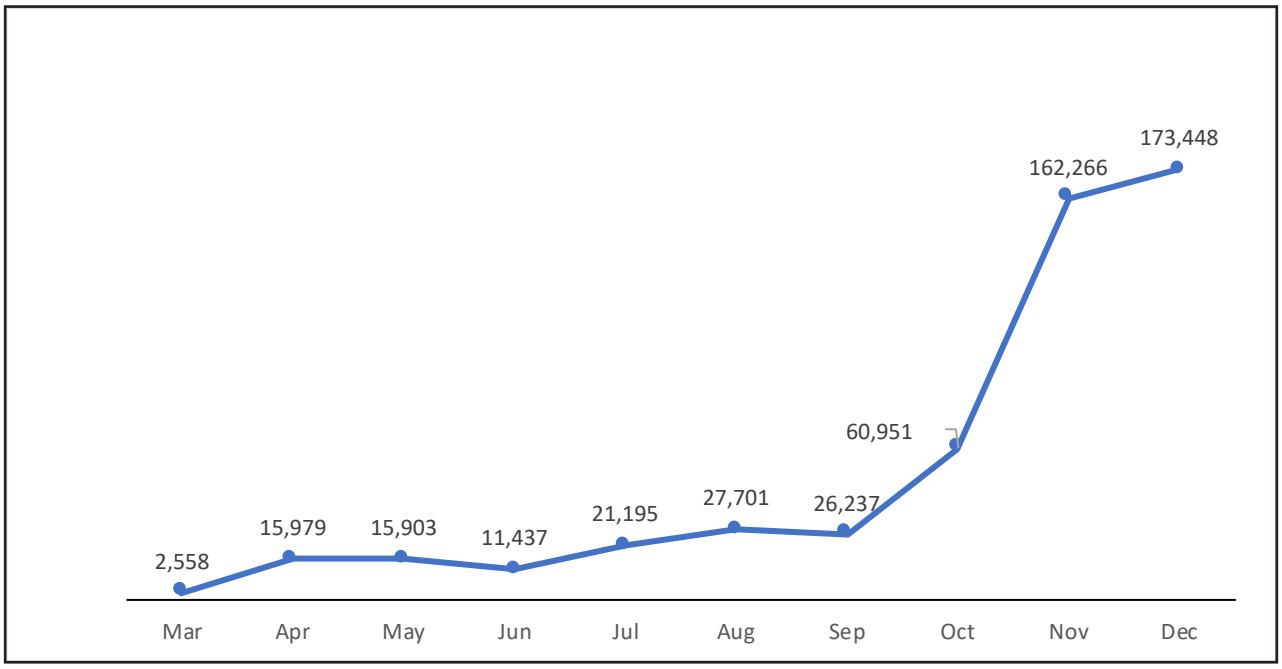
COVID-19 Deaths in the U.S.

The most significant consequence of COVID-19 infection is death. Individuals most at risk of death from the disease are the elderly, persons with compromised immune systems, and those with pre-existing health conditions such as diabetes, kidney disease, lung disease, or cancer. The number of deaths due to SARS-CoV-2 rose quickly in the early part of the pandemic, while little was known about the nature of the virus and how it spread. When COVID-19 cases began to increase in the Fall months, a concomitant rise in deaths was noted with deaths increasing sharply beginning in early November. As of December 31, 2020, approximately 345,700 U.S. citizens have died from COVID-19, although the actual loss of life from COVID-19 may be higher as people who died from COVID-19 may never have been tested. Over 80% of deaths related to COVID-19 occurred in people over the age of 65, though they only comprise 17% of the U.S. population (**see Figure 2**). More than 60% of deaths occurred in non-Hispanic whites. However, Black Americans were disproportionately affected, with their percentage of COVID-related deaths being more than 30% higher relative to their proportion in the population (**see Figure 3**).

COVID-19 Cases in Indiana

The Indiana Department of Health (IDOH) recorded the first case of COVID-19 in Indiana on March 6, 2020. Infections rose from a total of 2,558 cases in March to 15,979 new cases in April. Case counts remained relatively stable through June, with a slow but relatively steady increase in cases beginning in July. After September, new cases of COVID-19 grew rapidly each month (**see Figure 4**). IDOH reports that as of December 31, 2020, approximately 517,675 Hoosiers have tested positive for COVID-19 [17].

Figure 4. Number of New COVID-19 Cases in Indiana, by Month, March 2020 - December 2020



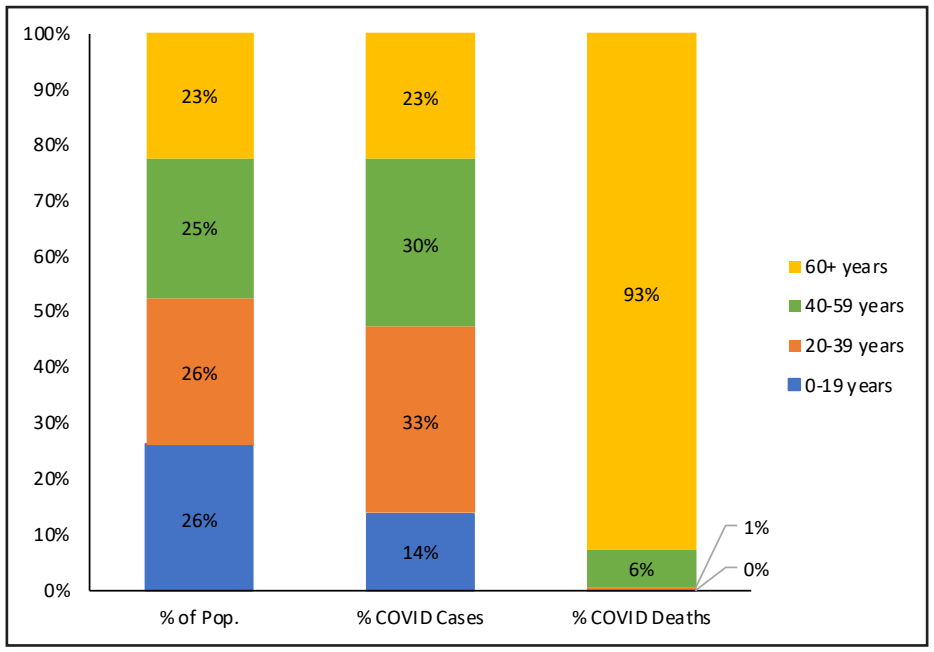
Source: Management Performance Hub (2021)

IDOH data indicate that early on in the pandemic, Hoosiers ages 40 and older were somewhat more frequently infected with COVID-19 than those under 40. Beginning in June of 2020, however, COVID-19 cases also began to increase among younger Hoosiers. Between June 2020 and December 2020, persons between 20 to 59 accounted for the highest percentage of new COVID-19 cases (**see Figure 5**) [18].

In terms of gender, in the early months of the pandemic, tests showed that men and women were represented fairly equally among new cases. In October, new cases of COVID-19 were found more frequently among women than men. As of December 31, 2020, approximately 248,576 (46.5%) of COVID-19 cases were diagnosed in men while 286,161 (53.5%) infections were diagnosed in women [18].

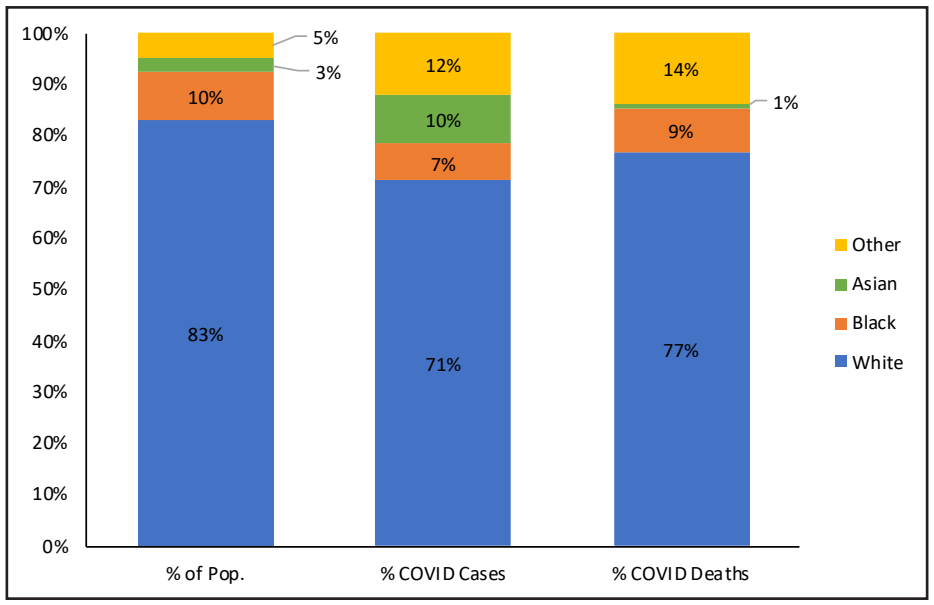
Though white Hoosiers made up the majority (71%) of positive COVID-19 cases, it was Asian and residents from other races/ethnicities (other than white, Black, or Asian) that were disproportionately affected by COVID-19, compared to their proportion in Indiana's population. For example, Asians made up 3% of Indiana's population but represented 10% of COVID-19 cases (**see Figure 6**) [18].

Figure 5. Percent of Population, COVID-19 Cases, and Deaths Attributable to COVID-19 in Indiana, by Age Group, January 2020 - December 2020



Source: Management Performance Hub (2020)

Figure 6. Percent of Population, COVID-19 Cases, and Deaths Attributable to COVID-19 in Indiana, by Race, January 2020 - December 2020

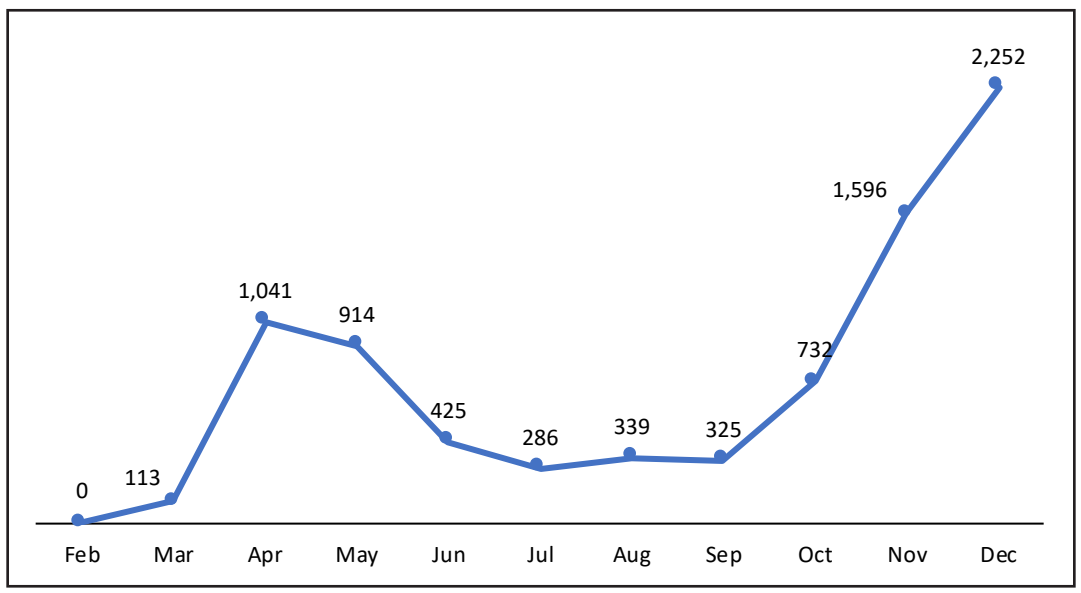


Source: Management Performance Hub (2020)

COVID-19 Deaths in Indiana

The overall trend in COVID-19-related deaths in the state is very similar to what has been reported nationally. Deaths typically rose and fell in relation to increases or decreases in case counts. As of December 31, 2020, over 8,000 Hoosiers have died as a result of complications from COVID-19 (**see Figure 7**) [19].

Figure 7. Number of COVID-19 Deaths in Indiana, by Month, February 2020 - December 2020



Source: Management Performance Hub (2021)

Pandemic-related deaths in Indiana are occurring more frequently among the elderly. Over 90% of all COVID-19 deaths have occurred in Hoosiers 60 years of age and older (**see Figure 5**). Regarding gender, a nearly equal percent of COVID-19-related deaths occurred among males (51%) and females (48%). White Hoosiers have comprised the majority (71%) of COVID-related deaths; however, residents from races/ethnicities other than white, Black, or Asian were disproportionately affected by COVID-19 mortality (**Figure 6**) [18].

Population-based Prevalence of COVID-19 in Indiana

The most precise method for determining the prevalence of COVID-19 in Indiana would be to test all individuals who reside in the state. Since this is not feasible, randomly testing a representative sample of the overall population is a scientific way to obtain accurate prevalence estimates.

Beginning in April of 2020, researchers at the Richard M. Fairbanks School of Public Health, in collaboration with the IDOH, the Governor's Office, and other state agencies launched a random sample study to estimate both the prevalence of COVID-19 in Indiana as well as the risk of death from the disease. The research team randomly selected a representative sample of adult Hoosiers from across the state and invited them to get tested free of charge. All participants were given a viral test

to measure current infection and an antibody blood test to look for evidence of past infection. Participants also provided information on their race, ethnicity, and if they lived with anyone who had been diagnosed with COVID-19. Using the data from the random sample, the researchers determined that as of November 2020, the point prevalence of SARS-CoV-2 infection in Indiana was 15.5% representing approximately 1,043,460 Hoosiers who either currently were or had been infected by the virus [12]. The data also indicated that rates of COVID-19 were higher in minority communities, particularly Hispanic communities, and among people who were currently living with a person who was positive for COVID-19 [20].

Using data from the prevalence study along with publicly available information on COVID-19-related deaths, researchers were able to calculate the infection fatality ratio (IFR). The IFR estimates a person's probability of dying from COVID-19 after they have been infected with the disease. For the state's general (noninstitutionalized) population, the IFR for COVID-19 was 0.26%. This means that for every 380 people infected with COVID-19, we can expect about one death to occur.

However, IFRs varied significantly by age and race. Compared to younger adults, those 60 years of age or older had the highest IFR at 1.71% (or one death for every 58 persons infected). Non-White Hoosiers had a significantly higher IFR (0.59% or 1 death out of every 170 infections) compared to their White counterparts [21]. Table 1 lists the IFRs for Hoosiers based on age, race, ethnicity, and sex.

Table 1. COVID-19 Infection Fatality Ratios for Indiana

Category	Infection Fatality Ratio	Probability of Death, given Infection
Age		
<40	0.01% (0.01-0.02)	1 death out of 8,334 infections
40-59	0.12% (0.09-0.19)	1 death out of 840 infections
≥60	1.71% (1.28-2.58)	1 death out of 58 infections
Race		
White	0.18% (0.15-0.23)	1 death out of 564 infections
Non-White	0.59% (0.34-1.41)	1 death out of 170 infections
Ethnicity		
Hispanic	0.04% (0.02-0.14)	1 death out of 2,652 infections
Non-Hispanic	0.34% (0.28-0.41)	1 death out of 298 infections
Sex		
Male	0.28% (0.18-0.47)	1 death out of 360 infections
Female	0.21% (0.16-0.32)	1 death out of 486 infections
Total	0.26% (0.21-0.35)	1 death out of 379 infections

Source: Blackburn et al. (2020)

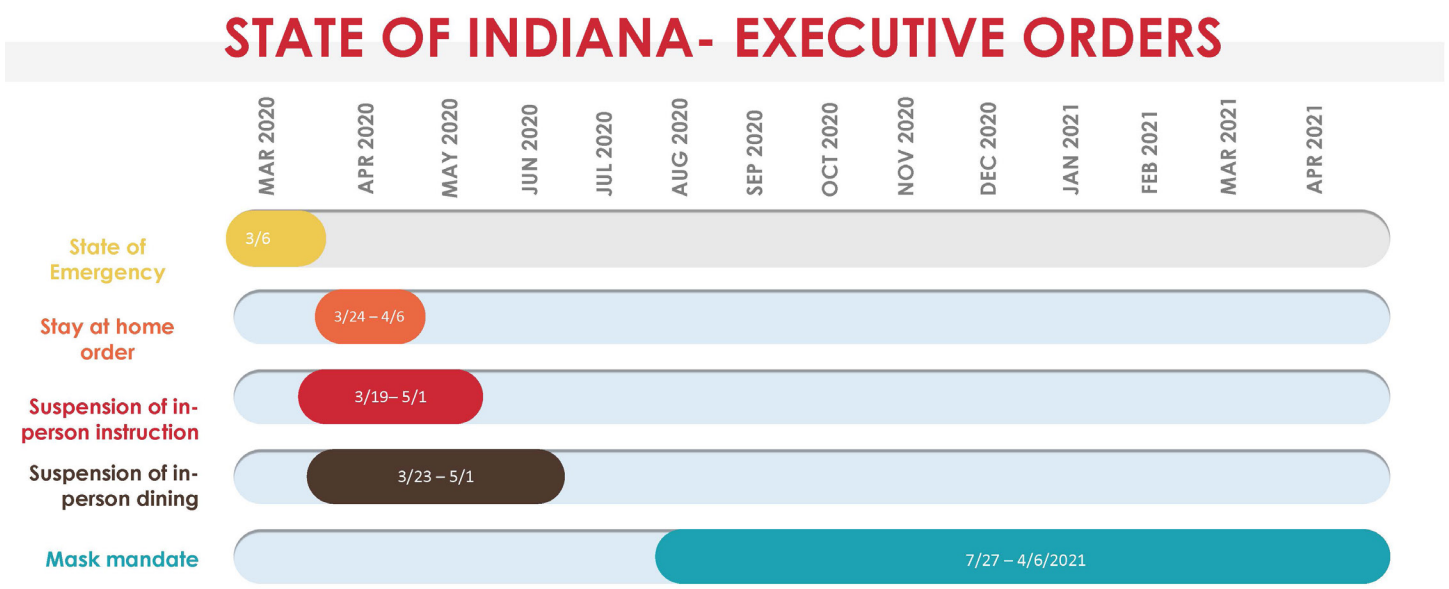
Summary of Indiana Policies to Reduce Transmission

In response to the pandemic, various state policies were enacted to address the evolving pandemic. On March 6th, 2020, Governor Holcomb passed an executive order declaring a state of emergency, directing the Indiana Department of Health (IDOH) to coordinate and oversee all emergency response activities [22]. The order also ensured that:

- Indiana residents filing for unemployment due to COVID-19 received their benefits
- Payments for the Healthy Indiana Plan (HIP) and Children's Health Insurance Program (CHIP) were waived
- Telehealth restrictions and requirements for face-to-face encounters were suspended, which allowed for expanded access to Medicaid-covered services, mental health services, and substance use disorder treatment and prescribing
- In-person instruction for all K-12 public or private schools was suspended in Indiana through May 1, 2020 [23].

With the drastic rise in case numbers, a stay-at-home order was declared from March 24th, 2020, to April 6th, 2020. The stay-at-home order required Hoosiers to shelter in place and partake only in essential activities (e.g., seeking emergency services, obtaining medical supplies and/or groceries, visiting a healthcare professionals). When engaging in outdoor activities with people outside the household, Hoosiers were to comply with social distancing measures. Additionally, all public and private gatherings of any number of people held outside the household were strictly prohibited [24]. To further curtail COVID-19 transmission, dine-in services at restaurants or food establishments were banned [25]. Subsequently, a mask mandate was enacted on July 27th, 2020, requiring Indiana residents to wear a face covering over the nose and mouth when inside a business, public building, or other indoor places open to the public, outdoor spaces where social distancing was not feasible, and while using public transportation [26]. Currently, the Back on Track Indiana Strategy is being utilized to reopen the state's economy and resources for Hoosiers.

Figure 8: Timeline of Indiana Executive Orders



Social Determinants of Health

Social determinants of health (SDOHs) are "conditions in the environment in which people are born, live, learn, work, play, worship, and age that affect a wide range of health, functioning, and quality-of-life outcomes and risks" [27]. Differences in SDOHs can result in drastically different health outcomes, and studies suggest that a person's ZIP code can be more predictive of their health than the person's genetic code [28]. Many social determinants of health, especially poverty, one's physical environment, and race/ethnicity, can have a substantial effect on COVID-19 outcomes [29].

SDOHs are frequently grouped into the following 5 domains:

1. **Economic stability**

   This includes measures such as employment (or lack thereof), poverty, housing stability, nutrition, and healthy eating. Individuals who are unemployed or have trouble keeping their jobs are more likely to live in poverty, have less stable or less housing situations, and are more likely to be unhealthy [30]. In 2019, 11.9% of Hoosiers were estimated to have been in poverty in the past 12 months. Those who were unemployed had a much higher rate of being in poverty than those who were employed (31.0% and 5.7%, respectively) [31].

2. **Education access and quality**

   Children from low-income families, children living with disabilities, and children who face social discrimination or bullying are less likely to graduate from high school or go to college. This often leads to a lower likelihood of having stable, safe, high-paying jobs, and good health [30]. In 2019, 10.4% of Hoosiers did not have a high school graduate level of education.

   Education is strongly linked to economic measures. For example, people with higher levels of education tend to have lower rates of poverty. In Indiana, the highest rate of poverty was found among adults with less than a high school diploma or GED (21.4%). In comparison, 11.5% of Hoosiers who were high school graduates experienced poverty, as did 8.3% of those who completed some college and 4.1% of those with a bachelor's degree or higher [31].

   Similarly, Hoosiers with lower educational attainment experienced higher rates of food insecurity, housing insecurity, employment insecurity, and financial insecurity [32].

3. **Health care access and quality**

   Many individuals who are unemployed do not have health insurance; they are less likely to have a primary care provider or afford healthcare services or medications. Another reason individuals may not seek care is because they live too far away from a health care provider [30]. In 2019, 8.7% of Hoosiers were uninsured. Having health insurance was more common among those who were employed (88.9%) than those who were unemployed (69.7%) [31].

4. **Neighborhood and built environment**

   The environment in which we live, work, and play can significantly impact our health. Factors like low-quality housing, neighborhood violence, unsafe air and water, exposure to secondhand smoke,

and other environmental conditions can all affect a person's health status. Individuals from racial/ethnic minority backgrounds or those with low incomes are more likely to live in unsafe environments, putting them at a higher risk for negative health outcomes [30].

5. **Social and community context**

   Social relationships with friends, family, co-workers, and others in the community can greatly affect a person's health. Factors like discrimination, bullying, or having justice-involved parents can have a negative impact on an individual's health. Conversely, having a safe environment and healthy relationships are associated with more positive health outcomes [30].

However, it is important to note that these five domains are not distinctly separate, but interact with and affect each other [30].

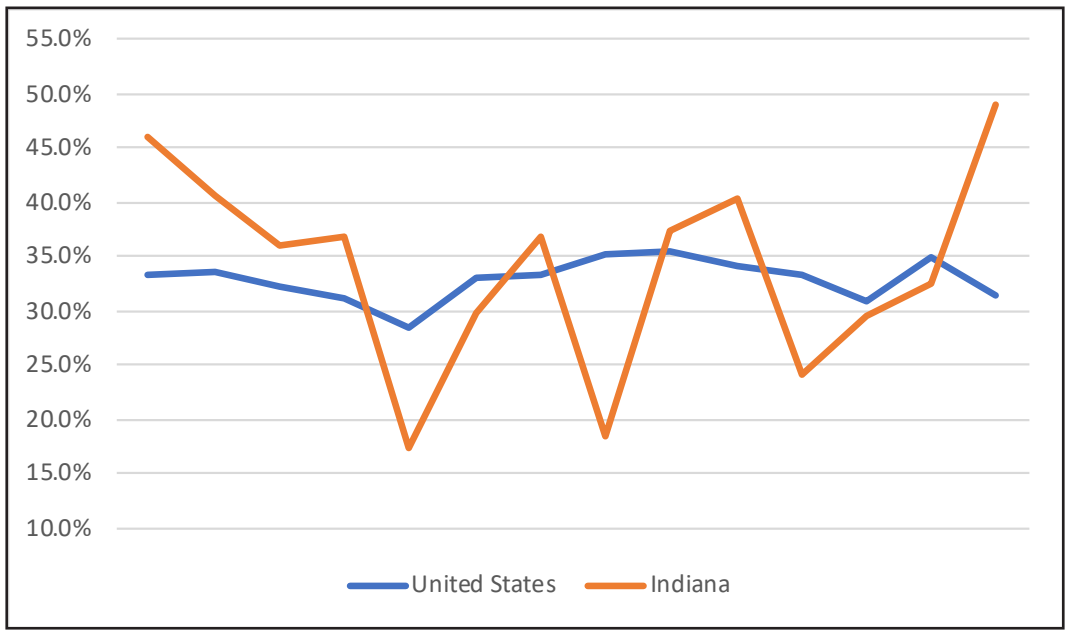
Impact of COVID-19 on SDOHs

Not only did the pandemic disproportionately affect those who are poor or disadvantaged [29], it also increased existing SDOH inequities [33].

Stable Housing

Stable housing is an important determinant of health. Individuals suffering from homelessness already have poorer health outcomes, and are an extremely vulnerable population [34]. The CDC has issued orders to halt residential evictions, which were extended to January 31, 2021 [35]. The Eviction Lab has developed scorecards for each state, based on the following measures: initiation of evictions, court processes, enforcement of eviction orders, short-term supports, and tenancy preservation measures. Indiana received a score of 0.5 out of 5.0 in terms of housing policy, indicating that there are few protections for Hoosier tenants. The Eviction Lab also warns that Indiana may see a surge of evictions immediately following the pandemic [36].

Figure 9: Percentage of Adults Reporting Likelihood of Foreclosure or Eviction During COVID-19, August 19th, 2020 – March 15th, 2021



Source: U.S. Census Bureau Household Pulse Survey (2021)

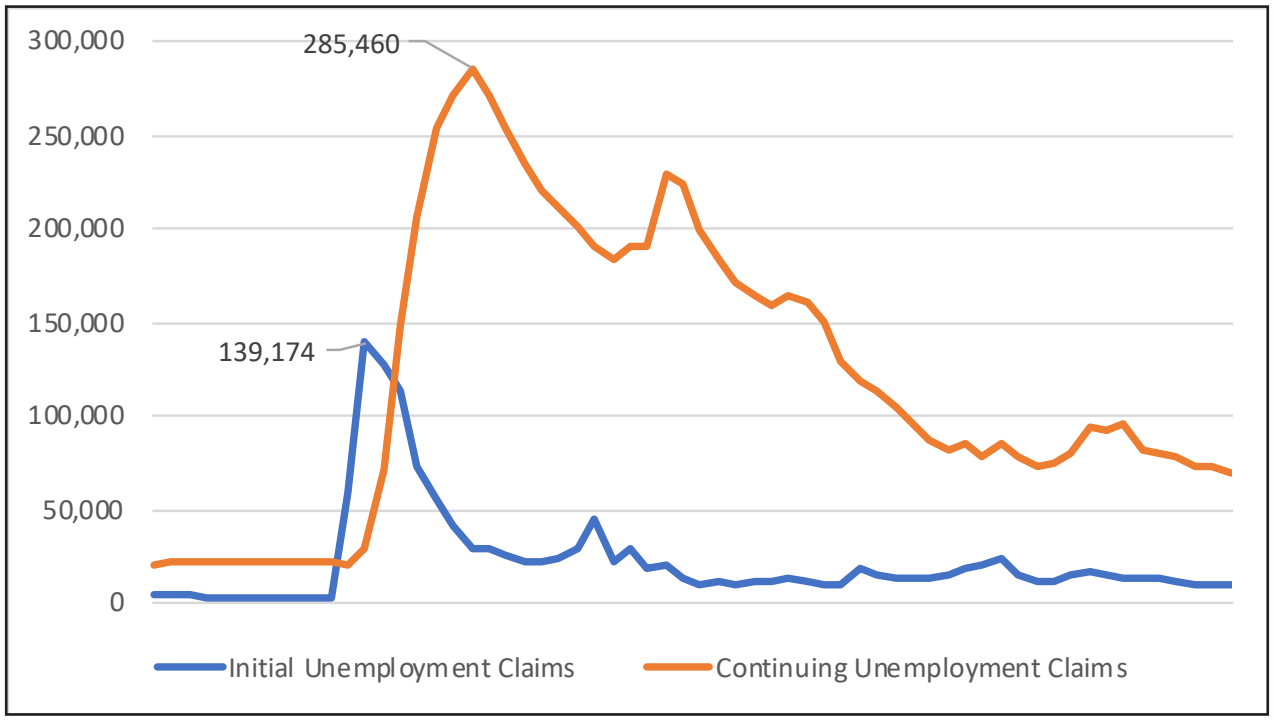
Currently, there are no statewide data on eviction filings, but experts estimate that 313,000 Hoosiers, representing 42% of all renters, could face evictions when the moratorium ends [37]. According to the U.S. Census Bureau's Household Pulse Survey, in May 2021, nearly half of all adults in Indiana reported likelihood of foreclosure or eviction during COVID-19 (**see Figure 9**) [38].

Unemployment

Due to the COVID-19 pandemic, unemployment rose significantly from 4% in February 2020, to 14% in April 2020; though estimates indicate that unemployment may have been as high as 16%, but not recorded due to measurement challenges [39].

Indiana began 2020 with 4,434 initial unemployment claims and 20,062 continued unemployment claims, for the week ending January 4th. Claims rose steeply at the beginning of the pandemic, peaking with nearly 140,000 initial claims at the end of March 2020 and with over 280,000 continued claims in early May 2020 (**see Figure 10**) [40]. In one Indiana study, researchers found that 10% of respondents indicated that they were laid off or unable to find a job during April or May of 2020 because of the COVID-19 pandemic, and 55% indicated worrying about their finances in general [32].

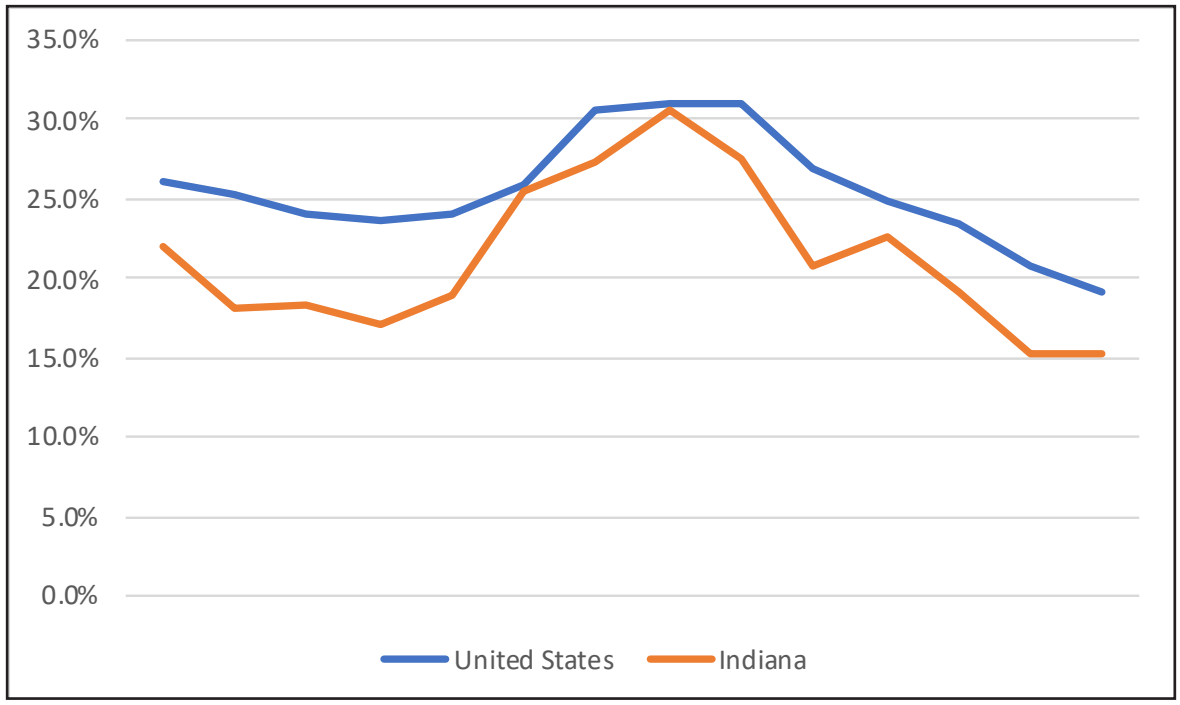
Figure 10: Initial and Continuing Unemployment Claims in Indiana, January 4th, 2020 – March 6th, 2021



Note: Claims data are subject to slight changes.
Source: Unemployment Insurance Weekly Claims Data, U.S. Department of Labor (2021)

Indiana's hospitality industry has been hit hard by the pandemic. The American Hotel and Lodging Association estimates that nearly 10,000 hotel jobs and over 25,000 hotel-related jobs were lost by September 2020 [41]. Furthermore, losses from tourism events, such as the "Indy 500", cost Indiana an estimated loss of over $331 million in total state and local tax revenue [42].

Figure 11. Percent of Adults Reporting Loss of Income Concerns During COVID-19, August 19th, 2020 – March 15th, 2021



Source: U.S. Census Bureau Household Pulse Survey (2021)

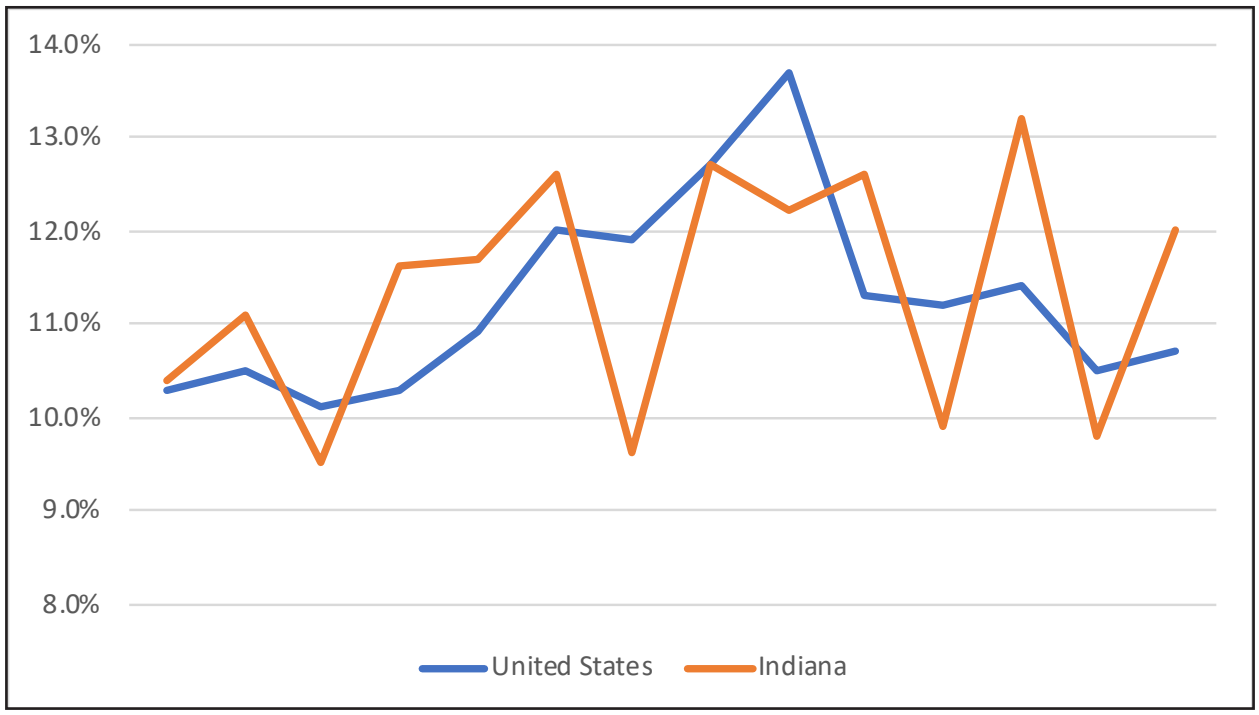
Food Insecurity

Food insecurity refers to a person or household having limited or uncertain access to adequate, nutritious food [43, 44]. In 2019, the U.S. Department of Agriculture (USDA) determined that food insecurity affected 12.4% of Indiana households [45]. Individuals who are food insecure are disproportionately affected by chronic diseases (e.g., diabetes, high blood pressure, obesity, and asthma) [46], which can lead to poorer overall health and increase the risk of serious illness due to COVID-19 [47].

According to a study, 27% of Hoosier survey respondents were worried about their ability to buy food due to the COVID-19 pandemic. Black respondents reported much higher rates of food insecurity (55%) compared to white respondents (24%) [32].

Figure 12 shows the percentage of adults with food scarcity concerns ("where there was either sometimes or often not enough to eat in the last 7 days") between August 2020 and March 2021. See Appendix A for 2018 food insecurity rates and 2020 projected food insecurity rates by Indiana county [48].

Figure 12. Percent of Adults Reporting Food Insecurity During COVID-19, August 19th, 2020 – March 15th, 2021



Source: U.S. Census Bureau Household Pulse Survey (2021)

Vulnerable Populations and Disparities

Communities of Color

Communities of color were disproportionately affected by COVID-19, in a variety of ways. Even prior to the current pandemic, racial minorities (African Americans in particular) had lower rates of health insurance coverage and experienced more barriers to accessing health care. Additionally, African Americans face greater social and economic hardships, such as unemployment. These factors, compounded with the higher rates of distrust in the medical system, lower quality of care, and ongoing structural racism, lead to poorer health outcomes compared to white Americans [49]. Data indicate that nationally, there are large disparities in reported cases and deaths for Black and American Indian/Alaska Native people, as well as disparities in reported cases for Hispanic people, compared to their white counterparts. In early August, the Kaiser Family Foundation conducted an analysis of state data that indicated Black individuals accounted for more cases and deaths relative to their

proportion of the population. This was true in 30 (61.2%) of the 49 states reporting cases and in 34 (77.3%) of the 44 states reporting deaths [50]. The APM Research Lab reported that between April 13th and December 8th, Black, indigenous, and Latinx individuals experienced the highest death tolls from COVID-19. All these groups have age-adjusted death rates of more than 2.7 times the death rate of white Americans [51].

In a CDC survey regarding mental health during the COVID-19 pandemic, Black respondents reported higher rates of increased substance use and past 30-day serious consideration of suicide than white and Asian respondents. Hispanic respondents reported higher prevalence rates of symptoms of anxiety or depressive disorders, trauma- and stressor-related disorder due to COVID-19, increased substance use, and suicidal ideation when compared to non-Hispanic white or non-Hispanic Asian respondents [52]. Economically, Black and Hispanic Americans had more trouble paying bills (e.g., food, housing, utilities, credit card, or health care expenses) due to COVID-19, when compared to white Americans [53].

Similarly, Indiana minority residents were also more impacted by the pandemic than their white counterparts. Prior to COVID-19, Black Hoosiers reported lower rates of having insurance or a primary care physician, which are significant barriers to accessing care [54]. In a statewide random sampling study, researchers determined that individuals of Hispanic ethnicity were more likely to test positive for COVID-19 [55]. Researchers who examined COVID-19 hospitalizations determined that in Indiana, there was a significant difference in the cumulative percentage of hospitalizations for African Americans compared to the state's overall population (28.1% versus 9.8%). Also, white Hoosiers had a significantly lower infection fatality ratio compared to non-white Hoosiers (0.18% vs 0.59%), indicating that among those estimated to have contracted the coronavirus, non-white individuals had higher mortality rates [56].

In Indiana, minority communities were also more likely to suffer economically. Black and Hispanic low-income households were less likely to be able to pay energy bills and were more likely to receive disconnection notices, when compared to their white counterparts [57]. Furthermore, non-white Hoosiers were more likely to work in activities that were deemed essential during Indiana's stay-at-home order. Though non-white employees make up 18% of the working population, they accounted for 26% of employees in the food sector, 29% in health care support occupations, and 29% in material moving occupations (e.g., bus or truck drivers). Additionally, poor neighborhood conditions (e.g., poverty, air pollution, housing instability, etc.) may increase risk factors and exposure for Black residents [58]. Perry et al. (2021) reported that Black Hoosier respondents had higher rates of economic precarity for almost all measures that were studied, including food insecurity, financial insecurity, and employment measures [32]. In Indiana, nearly one-third of the prison population is Black, over 3.5 times as much as the state's Black population. Conditions in prisons are more likely to result in transmission of the coronavirus [59].

Findings from Key Informant Interviews

Key informants noted that many minority individuals in Indiana may be economically disadvantaged, compounding COVID-19 related issues. In addition to health inequities, these individuals face economic hardship as, due to the pandemic, their hours were reduced, thereby reducing income. Many families struggled with basic needs, such as "rents, mortgage,

utilities and things, ... everyday food acquisition, nutrition...".

Key informants also stated that organizations that previously assisted individuals from minority backgrounds, especially undocumented individuals, reported that the shift to virtual services greatly reduced their capacity to help those individuals. Organizations cited "huge challenges" with communication and linking individuals to help. Minority individuals also reported more barriers in accessing testing sites, which were "not as convenient or accessible for minority groups". Additionally, minority communities require different outreach, and "the minority communities ... they're a smaller population and so cultural tailoring is not considered at the beginning".

It was also noted that many people from communities of color, have additional barriers when seeking mental health care. These barriers include accessibility of care, stigma, and cultural norms, which have been exacerbated by the pandemic. Key informants stated that many individuals of color are distrustful of the medical system, due to historical reasons, current events, and a lack of representation in the system. This distrust translates into increased rates of "vaccine hesitancy" among communities of color, which will drive further inequities and disparities resulting from the COVID-19 pandemic.

"People from communities of color have all sorts of different barriers, whether it's accessibility to care, to stigma, to cultural norms. You know, just in a general sense when it comes to mental health... and I feel it's been even more exacerbated through COVID".

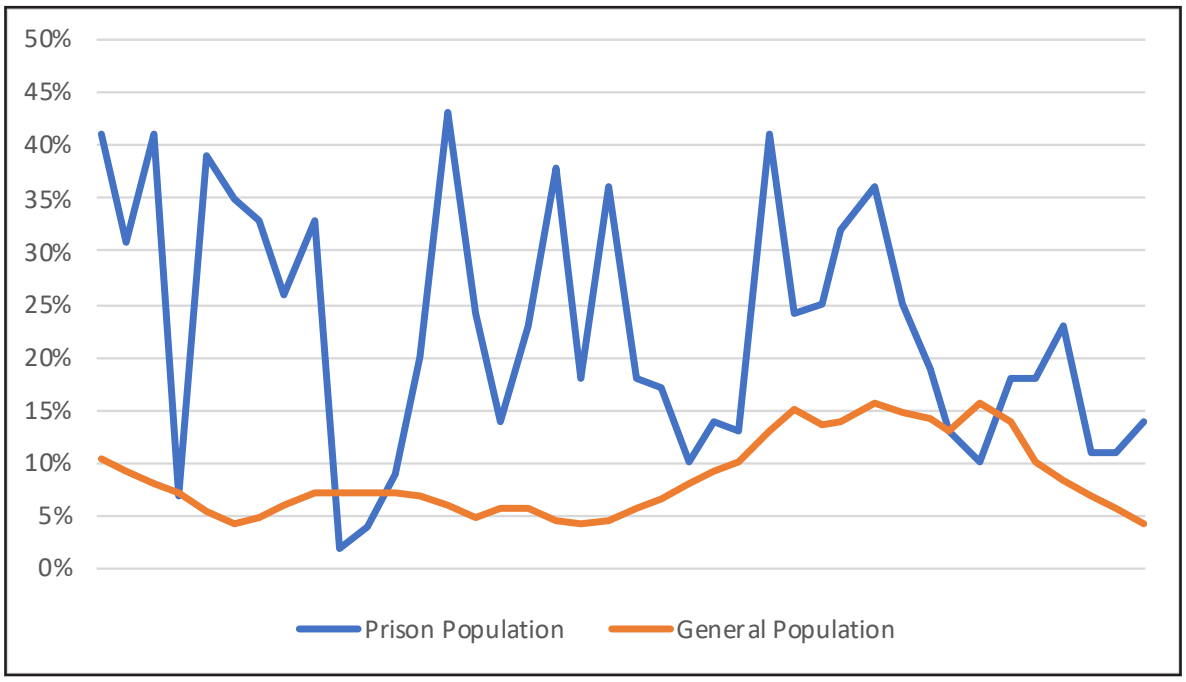
Key informants mentioned that current events have increased frustration and combined with isolation and depression, affect "overall wellness and well-being". One participant specifically pointed out that people of color are underrepresented in mental health, crisis, and inpatient claims data (i.e., people of color do not receive these services as often as white individuals).

Individuals in the Justice System

COVID-19 is a concern within incarcerated settings due to ease of transmission. The Indiana Department of Corrections (IDOC) tests staff and offenders based on symptoms and exposure risk, and in accordance with CDC guidelines [60]. IDOC follows a comprehensive response plan to help slow the spread of COVID-19 within their facilities [61].

Weekly test positivity rates for COVID-19 were considerably higher within the prison population compared to the general public (**see Figure 13**) [62, 63].

Figure 13. Weekly COVID-19 Test Positivity Rates, May 15th, 2020 – February 12th, 2021



Note: Prison population includes those who are incarcerated in Indiana facilities (excluding the facility in Rockville).

Source: Indiana Prison COVID Project (2021) and Indiana Department of Health (2021)

Of particular concern are incarcerated youth. Similar to the adult setting, spread is inevitable in these congregate settings. Racial/ethnic disparities occur in the incarcerated youth population, just as in the adult setting, and as mentioned earlier, COVID-19 disproportionately affects minorities. As of September 2020, the Sentencing Project reported that there was one Indiana youth correction facility which had more than 20 positive cases of COVID-19 [64].

The detention population and new admissions have decreased in Indiana's juvenile system since March 2020. However, youth from racial/ethnic minorities still are overrepresented. From September to October 2020, both the detention population and admissions began to increase for youth of color, while for white youth they continued to decrease [65].

Behavioral Health

In this section, we will review the impact COVID-19 had on the mental and behavioral health of Hoosiers. Specifically, we will review pandemic-related stress on children, parents, and the elderly; substance use, misuse, and overdose deaths; mental health concerns; suicide; domestic violence; and child abuse and neglect.

The Impact of Pandemic-Related Stress

Elevated levels of stress, anxiety, fear, and isolation have been reported due to the pandemic. This has been linked to illness and death associated with COVID-19 but is also caused by some of the mitigation strategies (e.g., social distancing, stay-at-home orders) [6].

Impact on Children

In efforts to reduce COVID-19 transmission, social distancing and isolation strategies have had an unprecedented impact on children's mental health. According to a national survey conducted from March to June 2020, 14% of parents reported worsening mental health for their children [66]. The Kaiser Family Foundation (KFF) suggests that school closures, social distancing, loss of health insurance, and disruptions in medical care are contributing factors to a declining mental health status in children [67].

School closures and the abrupt shift to virtual learning as well as social distancing measures have disrupted normal routines, posing challenges for parents and children alike. A study conducted at the onset of the pandemic reported high rates of clinginess, distraction, irritability, and fear in children ages 3 to 18 years [68]. These effects seem to be exacerbated in children with preexisting mental health conditions because of the limited access to healthcare services. Children with preexisting mental health conditions rely heavily on resources available at schools (e.g., peer support groups, and face-to-face services), all of which have been likely suspended or transitioned to phone or online [67]. For example, school-based health clinics offer primary care and behavioral health services to 6.3 million students in 10,600 public schools in the United States [69] and with school closures are rendered inaccessible. These clinics play an integral role in providing health care to low-income and minority students. Additionally, social distancing measures have also led to decreased extracurricular and physical activity, and overall social interactions. Students who are avid members of clubs, sports, or participate in music and dance were forced to stay at home, resulting in limited interaction with peers and reduced physical activity [70]. Furthermore, to alleviate feelings of uncertainty, anxiety, and isolation due to the pandemic, parents are utilizing media entertainment instead of reading and physical activity [70]. Other factors that have contributed to the worsening of mental health of children include economic distress as a result of parental job loss and financial difficulties, and child abuse and maltreatment [71-73]. Furthermore, for children from low-income families, access to free and/or reduced-price school meals remains largely unavailable during pandemic-related school closings [74].

Impact on Parents

Worsening mental health for parents occurred alongside worsening behavioral health for children. In the aforementioned national survey, 48% of parents reported loss of regular childcare, 16% reported change in insurance status, and 11% reported worsening food insecurity [66]. Increased responsibilities such as meeting work deadlines while parenting and finding time for essential activities (e.g., grocery shopping, meal preparation, and ensuring a safe environment in the context of the pandemic) have resulted in a phenomenon called parental burnout. Parental burnout is a chronic condition characterized by high levels of stress due to an imbalance between the demands of parenthood and the limited resources available to facilitate parenting. Some factors that contribute to parental burnout include unemployment, financial insecurity, uncertainty about future employment stability, limited social support from family and friends, and lack of leisure time. These factors have been characteristic of shelter-in-place mandates that have been enacted to reduce the spread of COVID-19. Parental burnout can have severe implications on the health and well-being of children. A higher level of burnout is a risk factor for child abuse and neglect, irrespective of education and income levels of the family [75].

Impact on the Elderly

COVID-19 has serious implications, especially for older Americans, as they are at greater risk to experience severe cases of the disease, due to age-related factors (e.g., underlying chronic conditions and weaker immune systems) [76, 77]. As of October 2020, the CDC reports that 95% of COVID-19 deaths have occurred among people who were 50 years and older [77].

Older Americans also face financial and retirement insecurity as well as job loss related to the pandemic [78-80]. Adults 50 years and older have lost jobs and experience difficulty in getting new jobs [80]. Furthermore, 4 million seniors aged 65 years or older who worked in 2020 were from families with incomes below 400% of the federal poverty level [79]. According to the Kaiser Family Foundation, the median savings amount among these seniors was significantly lower for those from Black and Hispanic backgrounds than for Whites [79].

By April 2020, 95% of US residents were under stay-at-home orders [72]. As a result, the elderly population experienced social isolation, loneliness, and therefore, higher levels of depression. Social isolation is a known concern in the aging population; with age and retirement, engagement with close friends is sometimes the only source of social interaction the elderly may experience [81]. Social distancing guidelines and stay at home orders have only exacerbated the risk of anxiety and further diminished the mental health status of the elderly. A study found that 24% of Americans 65 years or older experienced anxiety or depression amid the pandemic. However, rates were higher for some groups, such as Hispanics (33%), people with an annual income below $25,000 (37%), and those who rated their own health as fair or poor (48%) [82].

According to a nationwide survey, over half of all Americans ages 70 and older have experienced disruptions in their medical care due to COVID-19. Many reported canceling or delaying non-essential medical treatment (39%) and primary or preventive care (32%), and in some cases even essential medical treatment (15%), since social distancing began [83].

Although one-fourth of older adults reported that their healthcare providers reached out via telehealth portals; perceptions about whether the experience is similar to in-person visits vary [83]. Also, a considerable proportion of older Americans felt not ready to participate in virtual medical visits; 38% felt unready because of inexperience with technology and 20% were not ready for telephone consults because of hearing and communication difficulties and dementia [84].

Substance Use and Misuse

Substance use and misuse has been identified as a consequence as well as a risk factor for COVID-19 and associated outcomes.

During June 2020, 13.3% of respondents to a CDC survey reported having either started or increased their substance use to cope with stress or emotions related to COVID-19 [52].

In an analysis of electronic health records, Wang et al. (2020) found that individuals who had been diagnosed with a substance use disorder (SUD) in the past year had a significantly higher risk of COVID-19 compared to individuals without a SUD diagnosis. While this relationship was observed for various types of SUD, the effect was strongest for opioid use disorder (OUD), tobacco use disorder (TUD), and alcohol use disorder (AUD). Compared to individuals without a recent SUD diagnosis, those with OUD were over 10 times as likely, those with TUD were more than 8 times as likely, and those with an AUD were nearly 8 times as likely to have contracted COVID-19 [85].

Among the COVID-19 patients with a recent diagnosis of SUD, 41% were hospitalized, a rate significantly higher than for the overall COVID-19 patient population (30%) in the study. Furthermore, there was a notable racial disparity in hospitalization for COVID-19 patients with a recent diagnosis of SUD, with African Americans having higher hospitalization rates (54%) than Caucasians (38%) [85].

Findings from Key Informant Interviews

Key informants noted that substance use during the pandemic has increased. One key informant mentioned that there has been a rise in the number of individuals seeking and receiving treatment, while multiple key informants commented on the increase in overdose rates and mortality.

"The overdose trends we're seeing are frightening. I'm trying to not use hyperbole here or be dramatic but they are kind of terrifying".

Our key informants stated that during the pandemic, many changes were enacted. Substance use treatment programs tried to adjust to the new situation, attempting to balance the need for continuity of care with the need to limit the number of people and traffic within facilities, often relying on telehealth to provide services. These changes in treatment services together with social distancing and other COVID-19 related policies made it more difficult for individuals to maintain treatment and recovery. As one key informant stated:

"The solution for COVID and the solution for SUDs are diametrically opposed... for some people the risk of overdose and death is much more deadly. The disease of addiction is much more deadly than COVID".

Several key informants noted that there were significant increases in the amount of naloxone being distributed to reverse opioid overdoses, as well as other changes in policy regarding medication-assisted treatment (e.g., increase in number of methadone take-home doses, waiving of some in-person requirements, etc.).

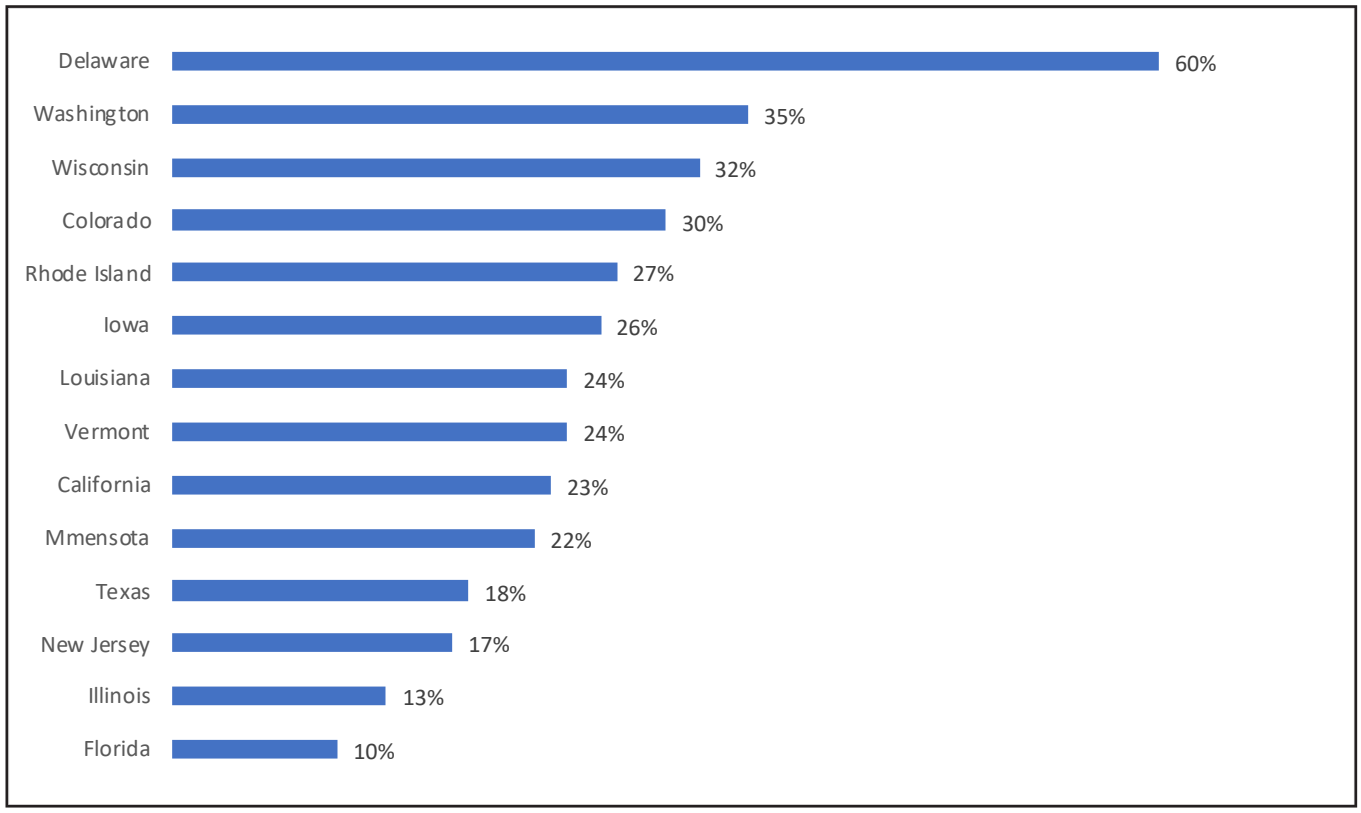
It was mentioned that Indiana had access to care issues due to an insufficient number of behavioral health providers in the state, even prior to COVID-19. With the pandemic, recovery residence services have been severely limited, as they had to cut down on the number of individuals they were able to accept. Providers and clinicians had to quickly pivot to providing services via telehealth.

Overdose Deaths

Since the early 1990s, fatal and nonfatal drug overdoses have risen steadily. The CDC reported that In 2019 alone, 70,630 individuals died from a drug overdose, the most ever reported in a calendar year [86]. Though overdoses may involve various drugs, opioids, primarily heroin and synthetically produced fentanyl, are responsible for the majority of overdoses nationally [87]. The COVID-19 pandemic, which emerged in the U.S. in early 2020, has led to an unprecedented upheaval in the lives of nearly every American. Stay-at-home orders and social distancing measures have isolated people from friends and family. Thousands of individuals have lost their jobs and are struggling financially. Millions of individuals have gotten sick and hundreds of thousands have died. There is concern among public health experts that the ramifications of the pandemic may further exacerbate the nation's already serious overdose epidemic. Emerging data appear to support experts' concerns.

Numerous news reports from across the country describe surges in opioid overdoses and related deaths. Many of these surges began shortly after states enacted social distancing measures and other restrictions to control the spread of COVID-19 [88]. The New York Times recently reported that several states have recorded significant increases in overdose deaths during the first half of 2020 compared to the same time period in 2019 [89] (**see Figure 14**).

Figure 14. Increase in drug-related deaths, June 2019 - June 2020



Note: All data are provisional
Source: https://www.nytimes.com/interactive/2020/07/15/upshot/drug-overdose-deaths.html

More systematic data from the Overdose Detection Mapping Application Program, a federal initiative that gathers overdose data from ambulance teams, hospitals, and police across 28 states, indicate that suspected overdoses rose 18% in March, 29% in April, and 42% in May of 2020 from the same time periods in 2019. In some areas, overdose calls have increased by 50% since the start of the pandemic [90-92].

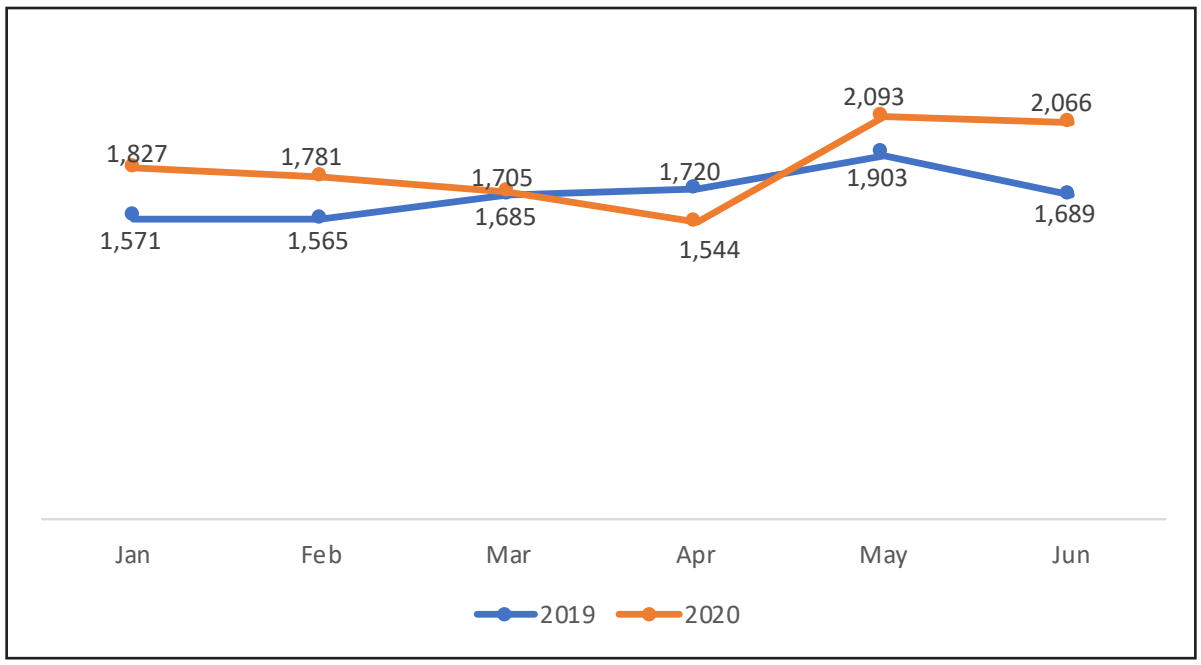
Descriptive studies using emergency medical service (EMS) and emergency department (ED) data have also noted increases in the frequency of overdoses and overdose deaths. In Kentucky, EMS opioid-overdose-related runs increased by 17% after the implementation of stay-at-home orders, while opioid overdose runs resulting in death increased by 50% [93, 94]. Similarly, emergency departments in San Francisco saw a 79% increase in overdose admissions after the city enacted

social distancing mandates and a 55% increase in overdose deaths [95]. Locally, an analysis of EMS runs in Indianapolis for overdoses prior to and after the Governor implemented the stay-at-home order found that naloxone administration increased by 61%, EMS impression of overdose increased by 43%, and drug overdose deaths rose by 47% [96].

The CDC recently released data that appear to support locally observed overdose trends. These data indicate that during the first quarter of 2020, a total of 19,416 individuals died from a drug overdose compared to 16,682 in the same 3-month period of 2019 [86, 97]. More alarmingly, the CDC noted that over 81,000 drug overdose deaths occurred in the U.S. from June 2019 through May 2020; this is the highest number of overdose deaths ever recorded in a 12-month period [87].

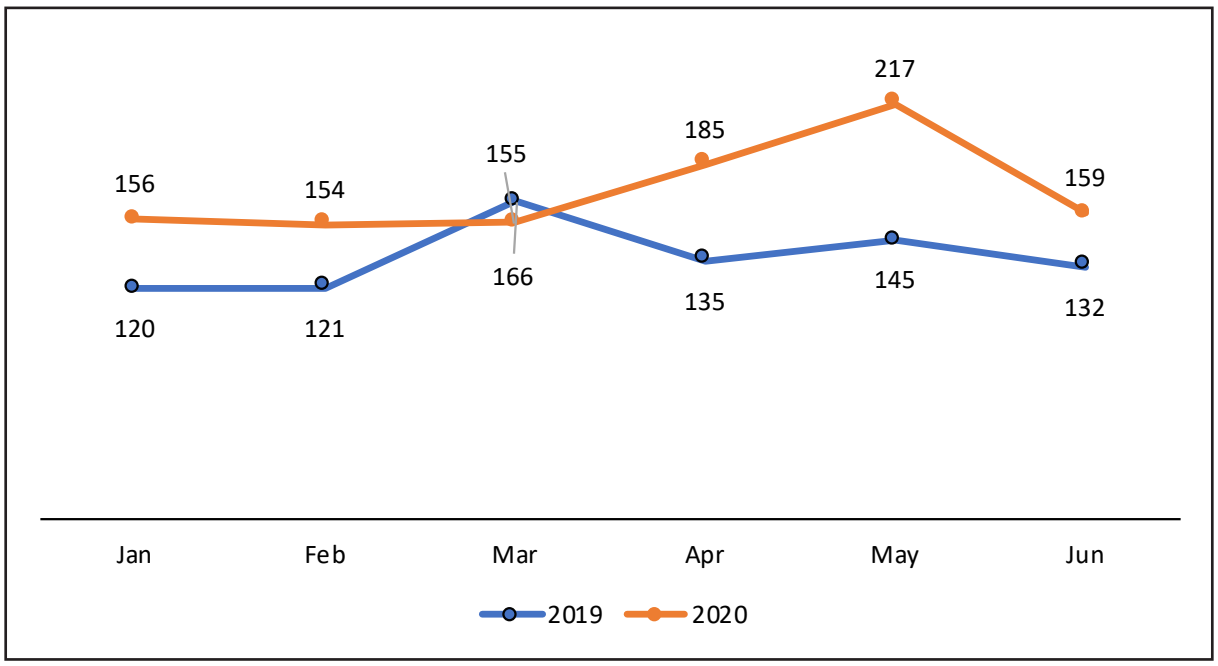
Similar to other state and national reports, overdoses in Indiana also seem to be increasing. Overdose data from the Indiana State Department of Health covering the first six months of 2020 show that overdose-related hospital and emergency department discharges were typically higher than what was observed for the same period in 2019 (**see Figure 15**). In terms of overdose deaths, data for the first six months of 2020 show that, with the exception of March, Indiana reported more overdose deaths each month compared to the same time period in 2019 [98]. The number of overdose deaths was particularly high during April and May, the two months during which social distancing measures were most stringent. A total of 1,026 Hoosiers died from a drug overdose during the first six months of 2020, a 25% increase from the same period in 2019 (**see Figure 16**) [98].

Figure 15. Overdose-related ED and hospital discharges in Indiana



Source: Indiana Department of Health, Division of Trauma and Injury Prevention (2021)

Figure 16. Overdose deaths in Indiana for the first six months of 2019 and 2020



Source: Indiana Department of Health, Division of Trauma and Injury Prevention (2021)

Factors Associated with Overdose and Death

Although the extent to which COVID-19 is affecting rising rates of fatal and non-fatal overdoses nationally and locally is unclear, many of the social distancing measures put in place to limit the spread of COVID-19 could potentially be contributing factors. Starting in March of 2020, most countries, including the U.S., enacted stay-at-home orders which required non-essential businesses to close or limit services, encouraged people to remain in their homes, and limited both national and international travel. These disruptions are thought to have altered drug trafficking patterns resulting in some drugs becoming more difficult to obtain or more expensive, forcing those who use them to either use drugs with which they are unfamiliar or to search for alternate suppliers whose drugs may be of a different purity, potency, or quality [92, 95, 99, 100].

Isolation and Loneliness

As individuals are forced to spend more time away from family and friends, feelings of isolation and loneliness can lead to increased drug use, thus heightening one's risk for overdose. Quarantines and fear of contracting COVID-19 may encourage individuals to use alone, another significant risk factor for overdose as in those situations, others are unavailable to provide life-saving medication or call for medical assistance [92, 101, 102]. For persons in recovery, losing contact with a supportive recovery community may lead to a return to drug use. Among persons who use opioids, returning to use after a period of abstinence can greatly increase overdose risk [93, 100, 103].

The COVID-19 pandemic is a global crisis unlike anything most people have ever experienced. As a result, individuals are often dealing with multiple types of pandemic-related stress, such as stress from trying to avoid illness, stress from loss of connections with friends and family, stress from loss of income, stress from the loss of family members, and stress from living during extremely trying times. COVID-19-related stress has been tied to increases in symptoms of anxiety, depression, suicidal ideation, and substance use [104-106]. As a way to cope with these symptoms persons who currently use drugs may increase their substance use to dangerous levels while those in recovery may return to drug use [102, 107-109].

Reduced access to treatment

It is well established that among persons who use drugs, those who are engaged in treatment are much less likely to experience a fatal overdose. On the other hand, persons who leave treatment or whose treatment is disrupted are at greater risk [110-113]. Due to the pandemic, many substance use treatment programs have had to limit their programming, stop admitting new clients, or been forced to close altogether [92, 102, 113]. Such changes to the treatment system are likely preventing people who could benefit from care from getting it and disrupting the care of persons currently receiving it.

Reduced access to naloxone

Naloxone (Narcan) is a life-saving medication designed to rapidly reverse opioid overdose. When administered, naloxone binds to opioid receptors, quickly restoring normal respiration to a person whose breathing has slowed or stopped due to overdosing [114]. With the advent of the pandemic, many agencies that distributed naloxone have temporarily closed, shifted to work-from-home policies, or limited their hours, making access difficult both to persons who are at risk for overdose and to their friends and family members who may be needed to administer it. Additionally, due to social distancing measures and concerns around becoming ill, many people may be choosing not get naloxone and other harm reduction supplies [115, 116].

Policy Changes

The U.S. government has made several policy changes to assist persons who currently use buprenorphine or methadone continued access to these treatments. Both buprenorphine and methadone are highly regulated. Initiation and maintenance on buprenorphine involves complicated dosing. For this reason, the U.S. Drug Enforcement Agency (DEA) and the Substance Abuse and Mental Health Services Administration (SAMHSA) require physicians working outside of opioid treatment programs to obtain a waiver certifying that they have met certain educational requirements for prescribing. Additionally, because buprenorphine is a controlled substance, SAMHSA and the DEA require that patients have in-person visits with their physician prior to receiving a prescription. With the onset of the pandemic, many doctors' offices suspended in-person appointments, creating a potential barrier to patients receiving buprenorphine. To address this barrier, SAMHSA and the DEA have given doctors increased flexibility by allowing physicians to use video and telephone consultations when starting patients on buprenorphine and for providing maintenance treatment [117, 118].

In the U.S., methadone can only be dispensed at opioid treatment programs (OTP) certified by SAMHSA. Patients receiving methadone are required to visit the OTP daily to receive their medication, although take-home doses may be given to patients for whom this is deemed appropriate by medical personnel. Due to these dispensing requirements, patients on

methadone often have to wait for long periods of time in congested conditions where social distancing is not possible creating increased risk for transmission of COVID-19 for both patients and staff. To address these concerns, SAMHSA has allowed OTPs to apply for a waiver that would afford them greater flexibility in providing methadone. Under the waiver program, OTPs are allowed to provide 14 take-home doses to clinically less stable patients and 28 doses for clinically stable patients. OTPs are also allowed to provide continuing care to existing patients using video or telephone consultations [118]. As a way to support these changes, the Centers for Medicaid and Medicare Services has begun to reimburse providers for patient visits that are done through telehealth or telephone, something that was not allowed prior to the pandemic.

While there are no federal regulations that govern the distribution of naloxone, public health experts have encouraged states to make adjustments to local policies and procedures to ensure continuing access to those who most need it [100]. In Indiana, the IDOH is responsible for overseeing the distribution of naloxone. Due to the pandemic, naloxone distribution became difficult for IDOH. To address this supply chain issue, the Governor's office and the Indiana Division of Mental Health and Addictions (DMHA) awarded one million dollars to the Overdose Lifeline so they could increase their capacity to distribute naloxone throughout the state. With the use of these funds, Overdose Lifeline can now provide naloxone through the mail to persons who are quarantining and at various recovery organizations throughout Indiana. The increased funding has also allowed Overdose Lifeline to pilot the use of "nalox boxes", boxes containing naloxone placed at stores in areas with high rates of overdose, where individuals can take a kit from the box without going into the store or identifying themselves [119].

Findings from Key Informant Interviews

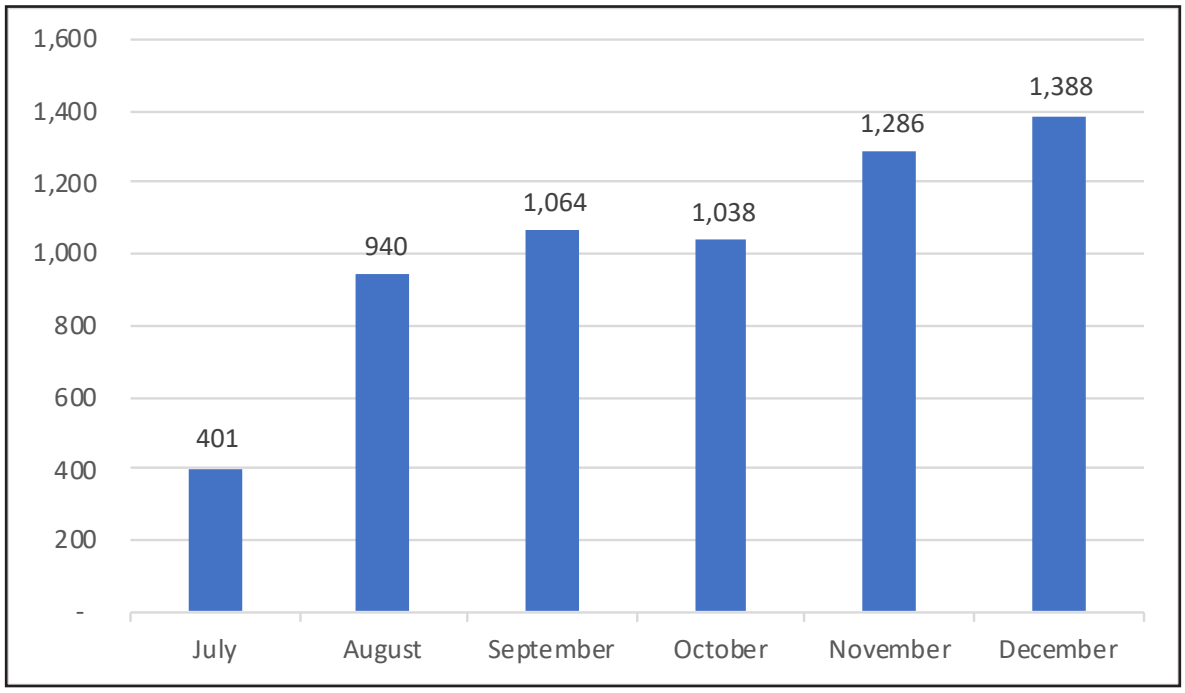
A key informant reported that although overdose trends in the state had been increasing prior to the onset of the pandemic, once the pandemic hit, *"it didn't take long for our alarm bells to start going off and getting word back from the community that we are going to have problems here; this isn't good."* According to our key informant, one of the drivers of overdose is isolation and lack of social connections and *"... as early as April of last year...we started hearing anecdotal stories again of people using [drugs] alone."* Although the key informant indicated that *"ED visits for overdose are skyrocketing. It was up about 82% or something, just insane as of September..."*, he believed this was a sign that prevention strategies, like Narcan, are working because overdose deaths were not climbing at the same rate. The key informant cited the federal government's revisions to buprenorphine prescribing guidelines as a positive change which opened treatment opportunities to more people. Unfortunately, the key informant was distressed to learn that rather than start providing virtual buprenorphine consultations, many clinics reported *"...we actually shut our buprenorphine clinic down and we're not sure when we're going to reopen"*. The key informant indicated that recovery organizations are the best choice to help in reducing overdoses and helping persons who use drugs deal with the pandemic as the people in those organizations *"...face a lot of adversity in recovering from addiction, they had experience with isolation... really challenging circumstances...having to maneuver in some chaos is not new to them."* The key informant indicated that keeping the supply of naloxone flowing the state was also essential for reducing fatal overdoses. The key informant applauded Indiana's decision to shift naloxone distribution from IDOH to a non-profit organization that was prepared to do the job.

Mental Health

Mental health is an important part of an individual's overall health and well-being. According to a survey conducted by the CDC in June 2020, 41% of Americans reported experiencing at least one adverse mental or behavioral health condition, primarily anxiety and depressive disorders, trauma and stressor related disorders, initiation or increase of substance use, and serious suicidal ideation, due to pandemic-related stress. Past-month prevalence was highest among those aged 18-24 years, but decreased with age [52].

The BeWell Crisis Helpline is the public facing component of Indiana's FEMA-funded Crisis Counseling Program (CCP). It was launched July 2020 in response to the pandemic. The program provides community-based outreach and psychoeducational services to individuals and communities, helping them to recover from the effects of natural or human-caused disasters. Between July 2020 and December 2020, the BeWell Crisis Helpline received over 6,000 calls. **Figure 17** shows the monthly call volume during the 6-month period. Most calls were related to loneliness and isolation (35%), anxiety and fear (35%), and sleep problems (33%) [120].

Figure 17: Number of Calls to the BeWell Crisis Helpline, July 2020 – December 2020



Source: Mental Health America (2021)

Mental Health America (MHA) launched an online screening tool in 2014, which is now the most widely used online self-screening tool in the nation. Between January 2015 and December 2020, over 85,000 self-screenings were completed in Indiana. In the nine months from April 2020 to December 2020 during the pandemic, a higher than average number of self-screenings (more than 31,000) were performed by Hoosiers. Nearly 60% of Indiana screenings were completed by young people between the ages of 11 and 24. Among Hoosiers of all ages, the top three reasons for self-screening were:

- depression (43.3%)
- bipolar disorder (18.4%), and
- anxiety (17.4%).

These three conditions (depressive, bipolar, and anxiety disorders) are also associated with suicidal ideation, suicide-related behaviors, and suicide fatalities [120].

Community resilience is a measure that reflects the ability of individuals and households to absorb, endure, and recover from the impacts of a disaster. The greater the number of risk factors, the more vulnerable (or less resilient) an individual or community is [121]. See Appendix B for estimates on community resilience by county.

Findings from Key Informant Interviews

Key informants remarked that the pandemic affected nearly everyone's mental health. As one participant remarked, *"who's the affected populations? It's everybody"* and that *"it's affected all of us, you know, we are seeing just panic and high levels of anxiety and depression"*. Mental health concerns are not particular to any one group, as *"people from all walks of life...are recognizing that they're not alone. Everybody's kind of going through the same thing".*

Key informants also mentioned the rise in help-seeking behaviors. This included increases in call volume to 911 and various hotlines, expressing mental health concerns. There has also been a considerable increase in online self-screenings. One interviewee stated that the expansion of telehealth and reimbursement of these services, has boosted accessibility for many individuals. On the other hand, it was also noted that individuals from economically disadvantaged groups may be less likely to have access to a computer, smartphone, or the internet, and are, therefore, less likely to access telehealth services. One participant remarked that many people from economically disadvantaged communities are calling hotlines and seeking help. Multiple key informants remarked on the need to quickly scale up service infrastructure, as existing infrastructure levels were not able to keep up with the new levels of demand.

Some key informants noted that older adults are also, anecdotally, experiencing higher levels of depression. This may be in part due to increased isolation and fear of being at a higher risk of dying. Multiple participants noted that isolation has also been hard on youth. Developmentally, socialization with peers is important for youth and adolescents, but due to COVID-19 precautions, youth are unable to connect with peers in real life and are connecting through social media. Youth who are already vulnerable and experienced or are experiencing trauma (e.g., adverse childhood experiences or ACEs) are struggling with added difficulties due to COVID-19.

Suicide

Suicide, or intentional self-harm, is one of the leading causes of death in the United States, and in 2018, was the 10th most common cause of death [122]. Suicide can have a number of risk and protective factors, and some

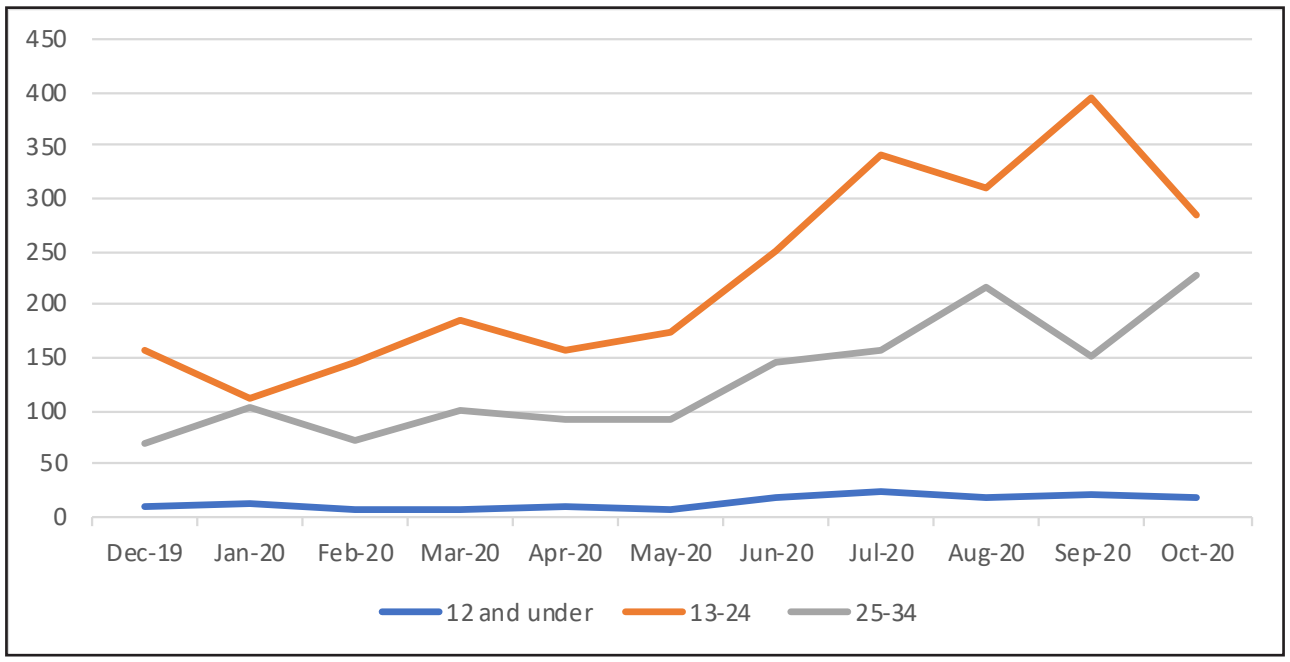
populations (e.g., veterans, youth, sexual and gender minorities, etc.) may be more vulnerable to suicidal ideation than others. A notable risk factor for suicidal ideation is social isolation. Though it may be too early to know the full impact of COVID-19 on morbidity and mortality associated with suicide, there are early findings indicating that suicidal ideation is a very real consequence associated with this pandemic.

The CDC survey administered in June 2020 indicated that overall, 11% of respondents considered suicide in the past 30 days. This measure was significantly higher for unpaid caregivers for adults (31%), those aged 18-24 (26%), essential workers (22%), and for minority racial/ethnic groups (Hispanics: 19%; non-Hispanic Blacks: 15%). Overall, suicidal ideation was more prevalent among males than females [52].

Generally, women report higher rates of suicidal thoughts and non-fatal suicide attempts, while men are more likely to die by suicide. This phenomenon is referred to as the gender paradox, which is attributable to men attempting to die by suicide using more fatal methods [123].

Between December 2019 and October 2020, calls to the Indiana Suicide Hotline increased for every age group, but was highest among young people aged 13 to 24 (**see Figure 18**) [120]. Additional data show a substantial increase in suicide-related 911 calls received by dispatch centers throughout Indiana between March 13, 2019, and April 13, 2020 [120].

Figure 18. Number of Calls to the Indiana Suicide Hotline, by Age Group, December 2019 – October 2020



Source: Mental Health America (2021)

Findings from Key Informant Interviews

Multiple key informants remarked that the frequency and severity of suicide-related calls has increased since the pandemic. One interviewee noted that Indiana suicide rates are consistently higher than U.S. rates. However, the rate for White individuals is lower in Indiana, compared to the U.S. This indicates that suicide mortality among minority populations (specifically, Black Hoosiers) is higher in Indiana compared to the nation. Key informants further mentioned that a significant number of sexual and gender minority individuals (or LGBTQ), who are considered to be a vulnerable population and at high risk of suicide, are self-screening for mental health concerns at higher rates.

Domestic Violence

Stay-at-home orders during the pandemic may have had some unintended consequences on the incidence of domestic violence (or intimate partner violence). Though many victims of domestic violence usually use text or call hotlines, they may not be able to do so while their partners are at home and, therefore, may not be able to get help until the violence reaches a point where police are called to the home. Reports indicate that some cities saw increases in service calls for domestic violence, while other data show a decrease in call volume [124].

In October of 2020, the Indiana Criminal Justice Institute (ICJI) surveyed organizations in Indiana that offer help to victims of domestic violence about the effect of COVID-19 on their organizational capacity and ability to serve clients. Here are some of their key findings:

- 52% of organizations have seen a decrease, while 22% have seen an increase in clients
- 44% of organizations have seen an increase in crisis hotline calls
- 22% of organizations reported being understaffed
- 75% of organizations stated not having enough volunteers
- 38% of organizations indicated that they did not have adequate resources to effectively serve clients
- 32% of organizations reported they had to turn away clients due to a lack of organizational capacity [125].

The Indiana Coalition Against Domestic Violence (ICADV) stated that there was an 86% increase in deaths related to domestic violence, which COVID-19 clearly contributed to [126].

Domestic violence is not only dangerous to the victimized spouse, but can have lasting consequences on children in the household, often leading to adverse childhood events (ACEs). ACEs, which have been identified as a major risk factor for many behavioral health issues, may involve experiencing and/or witnessing emotional, physical, or sexual abuse and neglect [127-129].

Child Abuse and Neglect

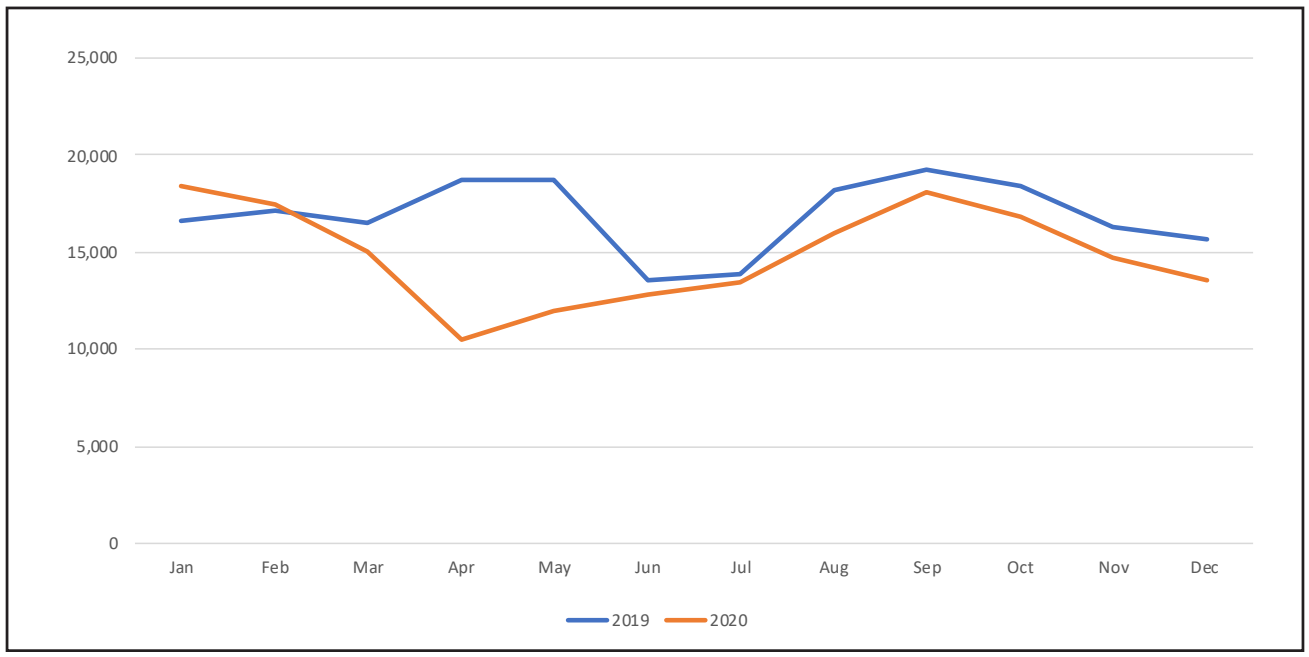
Though the United States has seen a decrease in the total number of emergency department visits, the percentage of child abuse related ED visits has increased from 2019 to 2020 [130]. However, researchers found a 24% drop in reports of child mistreatment in 2020 compared to the year before [131] and declines in substantiated reports during April and May, likely due to school closures during the pandemic [132]. Studies show that educators, counselors, and school staff play a pivotal role in identifying potential child abuse [67].

A recent study using data from the Department of Child Services (DCS) together with mobile phone movement data of Indiana

residents indicated a substantial drop in child maltreatment from March to April 2020. Counties whose residents stayed home for a prolonged period reported significantly higher numbers of child maltreatment reports than counties whose residents stayed home for a shorter period of time. According to the authors, parental mental health factors, such as stress and depression, as well as economic hardship were associated with increased risk of child maltreatment [72].

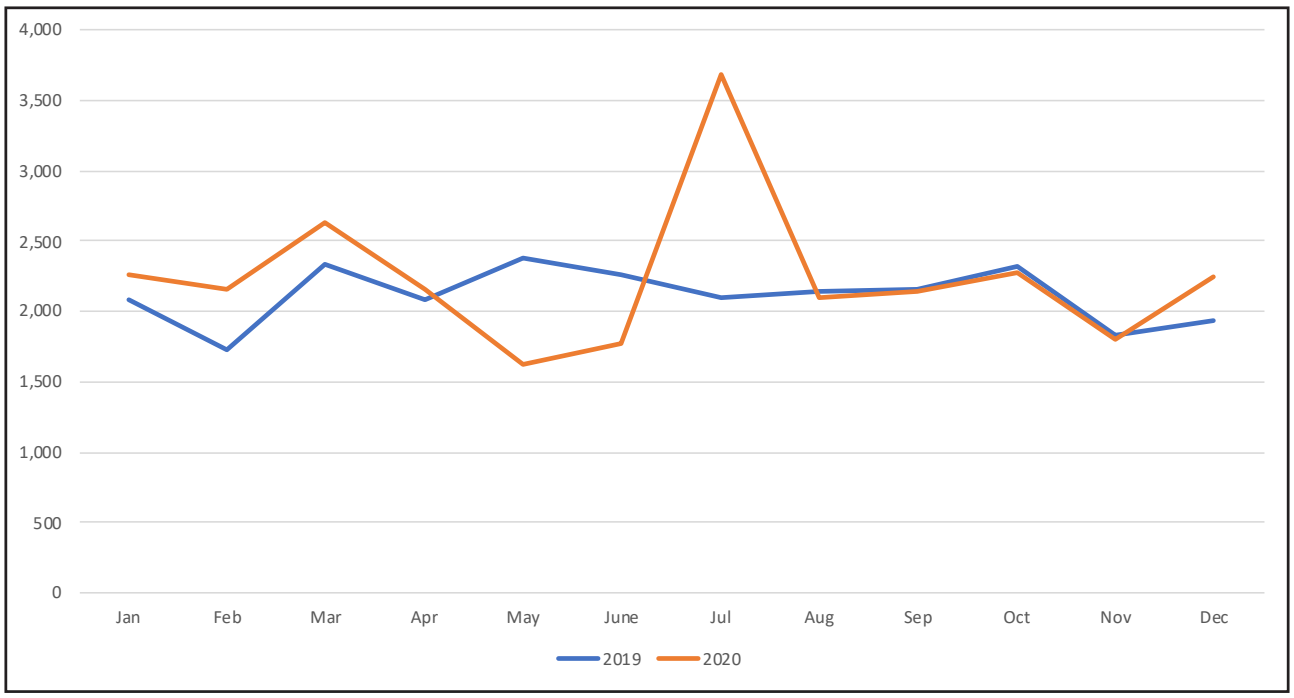
Indiana DCS data show that fewer calls were made to the hotline reporting suspected cases of child maltreatment in 2020 (178,772 calls) compared to 2019 (203,158 calls). Furthermore, a sharp decline in the number of calls occurred between January and April of 2020 (**see Figure 19**). However, the number of substantiated cases of physical abuse, sexual abuse, and/or neglect was slightly higher in 2020 (26,856 cases) than in 2019 (25,363 cases); case numbers spiked in July 2020 (**see Figure 20**) [133].

Figure 19. Number of Calls to the Indiana DCS Hotline Suspecting Child Maltreatment, 2019-2020



Source: Indiana Department of Child Services (2021)

Figure 20. Number of Child Maltreatment Cases involving Physical Abuse, Sexual Abuse, and/or Neglect in Indiana, 2019-2020



Source: Indiana Department of Child Service (2021)

Findings from Key Informant Interviews

A key informant revealed that the pandemic had a crucial impact on how DCS provided services to families. In order to ensure child safety, interviews with families were conducted onsite prior to the onset of the pandemic; now these interviews are generally conducted virtually, which makes it more "difficult to pick up on warning signs". The respondent also mentioned that child abuse/neglect cases and the number of calls made to the hotline decreased, probably because of school closures, as teachers were not able to directly observe children at risk, resulting in cases going undetected.

Although the pandemic changed the way some services were provided, DCS ensured that child safety came first and analyzed every case individually to determine whether in-person or virtual meetings were appropriate and would benefit the family. As a result, a mandate was passed in June 2020 to require young children to have a face-to-face visit with their parents at least once a week. This was rendered important because young children need parental bonding and attachment to feel safe and these feelings cannot be fostered virtually.

Conclusion

In a matter of months, the COVID-19 pandemic has impacted the life of every American. The disease has led to dramatic changes in how people are conducting their day-to-day lives. Millions across the country have been negatively affected through separation from friends and family, loss of employment, stress from ongoing social distancing measures, fear of becoming ill or making others ill, and grief from the loss

of loved ones. For persons who use drugs, changes in supplies of drugs stemming from travel restrictions; isolation and loneliness tied to social distancing measures; increasing feelings of anxiety, depression, and despair; and lack of access to treatment are creating an environment that puts them at increased risk for overdose and death. To address some of these risks, the federal government has given providers greater flexibility in how they manage patients who are using medication to assist their recovery while many states have adjusted their naloxone distribution programs to allow for continued access to this life-saving medication. Although these changes are an important step, additional changes are likely needed to prevent further loss of life.

APPENDIX A: Food Insecurity and Projected Food Insecurity Rates by County

County	Overall Food Insecurity Rate (2018)	Predicted Overall Food Insecurity Rate (2020)	Child Food Insecurity Rate (2018)	Predicted Child Food Insecurity Rate (2020)
Adams	12.2%	15.8%	17.9%	25.0%
Allen	12.6%	17.0%	17.2%	25.8%
Bartholomew	11.6%	15.5%	15.8%	23.5%
Benton	14.0%	17.0%	19.8%	25.6%
Blackford	13.8%	18.5%	20.6%	29.7%
Boone	8.5%	11.2%	10.5%	15.5%
Brown	10.6%	14.5%	13.5%	21.0%
Carroll	11.6%	15.2%	16.2%	23.3%
Cass	12.9%	16.8%	17.9%	25.6%
Clark	11.7%	15.9%	15.8%	24.1%
Clay	13.7%	17.3%	20.2%	27.0%
Clinton	11.6%	15.0%	15.6%	22.2%
Crawford	14.9%	18.8%	21.5%	28.9%
Daviess	12.0%	14.4%	15.6%	20.1%
Dearborn	11.0%	15.0%	15.8%	23.6%
Decatur	12.5%	17.2%	17.3%	26.4%
De Kalb	11.3%	15.6%	15.6%	24.0%
Delaware	15.1%	19.1%	20.9%	28.6%

County	Overall Food Insecurity Rate (2018)	Predicted Overall Food Insecurity Rate (2020)	Child Food Insecurity Rate (2018)	Predicted Child Food Insecurity Rate (2020)
Dubois	10.4%	13.2%	14.0%	19.2%
Elkhart	11.6%	16.3%	15.1%	24.4%
Fayette	15.9%	21.4%	22.4%	33.1%
Floyd	11.2%	15.1%	15.3%	22.9%
Fountain	13.1%	17.0%	16.8%	24.6%
Franklin	10.7%	14.3%	14.6%	21.5%
Fulton	13.1%	16.9%	18.3%	25.7%
Gibson	11.4%	15.4%	15.6%	23.2%
Grant	15.9%	19.6%	23.5%	30.5%
Greene	14.0%	17.3%	19.7%	26.1%
Hamilton	7.7%	10.5%	9.3%	14.7%
Hancock	9.9%	13.3%	13.5%	20.1%
Harrison	12.2%	16.0%	15.9%	23.3%
Hendricks	8.8%	11.8%	11.3%	17.0%
Henry	14.1%	18.0%	20.2%	27.7%
Howard	14.7%	20.9%	21.0%	33.3%
Huntington	11.7%	15.8%	16.2%	24.1%
Jackson	13.2%	17.8%	17.4%	26.3%
Jasper	11.4%	15.2%	15.6%	23.0%

County	Overall Food Insecurity Rate (2018)	Predicted Overall Food Insecurity Rate (2020)	Child Food Insecurity Rate (2018)	Predicted Child Food Insecurity Rate (2020)
Jay	14.2%	18.2%	19.6%	27.6%
Jefferson	13.4%	17.8%	19.4%	28.1%
Jennings	13.7%	18.2%	19.5%	28.3%
Johnson	10.1%	13.5%	13.3%	19.8%
Knox	15.0%	18.7%	20.8%	27.8%
Kosciusko	10.9%	14.6%	14.6%	21.7%
Lagrange	9.0%	13.2%	12.2%	20.4%
Lake	13.9%	18.9%	19.8%	29.6%
La Porte	13.9%	18.8%	21.2%	30.9%
Lawrence	13.2%	17.0%	18.6%	26.2%
Madison	15.0%	19.3%	21.4%	29.7%
Marion	15.3%	19.2%	19.7%	27.4%
Marshall	11.6%	15.5%	14.9%	22.5%
Martin	12.9%	15.4%	17.9%	22.6%
Miami	14.7%	19.3%	21.4%	30.6%
Monroe	14.1%	17.2%	17.3%	23.1%
Montgomery	11.7%	14.8%	15.7%	21.7%
Morgan	12.0%	15.1%	17.2%	23.2%
Newton	13.1%	16.9%	20.2%	27.4%

County	Overall Food Insecurity Rate (2018)	Predicted Overall Food Insecurity Rate (2020)	Child Food Insecurity Rate (2018)	Predicted Child Food Insecurity Rate (2020)
Noble	10.1%	15.2%	13.0%	23.0%
Ohio	10.0%	14.5%	13.0%	21.7%
Orange	15.4%	21.4%	21.9%	33.7%
Owen	14.6%	17.9%	22.7%	29.0%
Parke	14.0%	17.1%	20.7%	26.6%
Perry	12.8%	16.7%	19.7%	27.3%
Pike	12.4%	15.9%	18.7%	25.4%
Porter	10.6%	15.0%	14.1%	22.8%
Posey	10.6%	13.5%	14.1%	19.5%
Pulaski	13.3%	16.9%	18.9%	25.8%
Putnam	12.7%	16.3%	18.5%	25.4%
Randolph	14.0%	17.8%	20.5%	27.8%
Ripley	11.9%	15.7%	17.0%	24.4%
Rush	13.7%	17.7%	19.0%	26.6%
Saint Joseph	13.4%	18.0%	18.0%	27.0%
Scott	14.5%	19.5%	21.0%	30.8%
Shelby	11.6%	16.0%	16.1%	24.6%
Spencer	11.0%	14.0%	16.0%	21.9%
Starke	13.4%	17.7%	18.6%	27.1%

County	Overall Food Insecurity Rate (2018)	Predicted Overall Food Insecurity Rate (2020)	Child Food Insecurity Rate (2018)	Predicted Child Food Insecurity Rate (2020)
Steuben	11.5%	15.3%	16.7%	24.3%
Sullivan	14.3%	18.0%	19.5%	26.6%
Switzerland	15.6%	20.2%	22.4%	31.5%
Tippecanoe	13.1%	16.6%	15.2%	22.0%
Tipton	11.1%	15.0%	15.7%	23.3%
Union	11.7%	15.2%	14.8%	21.4%
Vanderburgh	14.5%	18.4%	19.9%	27.4%
Vermillion	15.4%	19.3%	23.0%	30.6%
Vigo	15.9%	19.9%	21.4%	29.4%
Wabash	12.5%	16.1%	18.2%	25.2%
Warren	11.5%	14.7%	17.6%	23.8%
Warrick	9.8%	13.0%	12.8%	18.9%
Washington	13.5%	17.6%	18.9%	26.9%
Wayne	15.0%	18.6%	20.9%	27.9%
Wells	10.6%	14.1%	14.8%	21.6%
White	11.1%	14.2%	15.1%	21.0%
Whitley	10.6%	14.3%	16.3%	23.4%

Source: U.S. Department of Agriculture (2020)

APPENDIX B: Estimates of Community Resilience by County

		0 Risk Factors		1-2 Risk Factors		3+ Risk Factors	
County	Population	Number	Percent	Number	Percent	Number	Percent
Adams	35,543	12,797	36.0%	15,634	44.0%	7,112	20.0%
Allen	372,777	109,822	29.5%	178,058	47.8%	84,897	22.8%
Bartholomew	82,494	27,643	33.5%	38,343	46.5%	16,508	20.0%
Benton	8,632	2,678	31.0%	4,153	48.1%	1,801	20.9%
Blackford	11,838	3,500	29.6%	5,351	45.2%	2,987	25.2%
Boone	66,822	27,398	41.0%	30,663	45.9%	8,761	13.1%
Brown	15,229	4,598	30.2%	7,119	46.7%	3,512	23.1%
Carroll	20,088	6,672	33.2%	9,129	45.4%	4,287	21.3%
Cass	37,618	11,105	29.5%	16,989	45.2%	9,524	25.3%
Clark	116,918	36,733	31.4%	55,455	47.4%	24,730	21.2%
Clay	26,076	8,988	34.5%	11,277	43.2%	5,811	22.3%
Clinton	32,070	7,315	22.8%	16,814	52.4%	7,941	24.8%
Crawford	10,558	3,531	33.4%	4,682	44.3%	2,345	22.2%
Daviess	32,956	9,918	30.1%	13,967	42.4%	9,071	27.5%
Dearborn	49,320	18,213	36.9%	21,735	44.1%	9,372	19.0%
Decatur	26,736	7,230	27.0%	13,749	51.4%	5,757	21.5%
De Kalb	43,150	15,467	35.8%	20,008	46.4%	7,675	17.8%
Delaware	107,402	30,272	28.2%	51,494	47.9%	25,636	23.9%

		0 Risk Factors		1-2 Risk Factors		3+ Risk Factors	
County	Population	Number	Percent	Number	Percent	Number	Percent
Dubois	42,405	14,622	34.5%	19,080	45.0%	8,703	20.5%
Elkhart	203,899	56,554	27.7%	100,726	49.4%	46,619	22.9%
Fayette	22,997	6,760	29.4%	9,470	41.2%	6,767	29.4%
Floyd	77,320	25,692	33.2%	35,282	45.6%	16,346	21.1%
Fountain	16,330	4,868	29.8%	7,949	48.7%	3,513	21.5%
Franklin	22,736	7,547	33.2%	10,827	47.6%	4,362	19.2%
Fulton	20,021	6,307	31.5%	8,863	44.3%	4,851	24.2%
Gibson	33,080	10,682	32.3%	15,453	46.7%	6,945	21.0%
Grant	61,950	16,625	26.8%	28,891	46.6%	16,434	26.5%
Greene	31,899	9,739	30.5%	14,659	46.0%	7,501	23.5%
Hamilton	329,715	142,610	43.3%	141,329	42.9%	45,776	13.9%
Hancock	76,183	31,296	41.1%	31,876	41.8%	13,011	17.1%
Harrison	40,177	13,457	33.5%	18,363	45.7%	8,357	20.8%
Hendricks	163,853	67,501	41.2%	71,382	43.6%	24,970	15.2%
Henry	45,138	12,492	27.7%	21,753	48.2%	10,893	24.1%
Howard	81,957	22,829	27.9%	39,279	47.9%	19,849	24.2%
Huntington	35,366	11,526	32.6%	17,465	49.4%	6,375	18.0%
Jackson	43,938	14,186	32.3%	19,857	45.2%	9,895	22.5%
Jasper	32,609	11,218	34.4%	14,973	45.9%	6,418	19.7%

		0 Risk Factors		1-2 Risk Factors		3+ Risk Factors	
County	Population	Number	Percent	Number	Percent	Number	Percent
Jay	20,702	7,087	34.2%	9,232	44.6%	4,383	21.2%
Jefferson	30,548	9,235	30.2%	13,218	43.3%	8,095	26.5%
Jennings	27,474	8,274	30.1%	12,831	46.7%	6,369	23.2%
Johnson	154,973	59,477	38.4%	68,921	44.5%	26,575	17.1%
Knox	35,168	10,959	31.2%	16,005	45.5%	8,204	23.3%
Kosciusko	78,358	26,165	33.4%	36,515	46.6%	15,678	20.0%
Lagrange	39,193	10,597	27.0%	18,432	47.0%	10,164	25.9%
Lake	481,382	105,787	22.0%	235,630	48.9%	139,965	29.1%
La Porte	104,385	25,824	24.7%	51,908	49.7%	26,653	25.5%
Lawrence	45,511	13,936	30.6%	21,361	46.9%	10,214	22.4%
Madison	124,555	37,219	29.9%	58,211	46.7%	29,125	23.4%
Marion	945,387	207,535	22.0%	486,107	51.4%	251,745	26.6%
Marshall	46,114	15,126	32.8%	20,263	43.9%	10,725	23.3%
Martin	10,176	3,279	32.2%	4,774	46.9%	2,123	20.9%
Miami	32,460	7,504	23.1%	16,967	52.3%	7,989	24.6%
Monroe	132,865	42,051	31.6%	64,703	48.7%	26,111	19.7%
Montgomery	37,489	11,897	31.7%	17,246	46.0%	8,346	22.3%
Morgan	69,883	20,040	28.7%	35,247	50.4%	14,596	20.9%
Newton	13,971	4,620	33.1%	6,239	44.7%	3,112	22.3%

		0 Risk Factors		1-2 Risk Factors		3+ Risk Factors	
County	Population	Number	Percent	Number	Percent	Number	Percent
Noble	47,220	14,730	31.2%	21,913	46.4%	10,577	22.4%
Ohio	5,844	1,906	32.6%	2,536	43.4%	1,402	24.0%
Orange	19,410	5,696	29.3%	8,827	45.5%	4,887	25.2%
Owen	20,783	6,292	30.3%	9,550	46.0%	4,941	23.8%
Parke	15,653	5,387	34.4%	6,515	41.6%	3,751	24.0%
Perry	17,769	6,143	34.6%	7,395	41.6%	4,231	23.8%
Pike	12,337	4,140	33.6%	5,584	45.3%	2,613	21.2%
Porter	167,251	58,167	34.8%	75,599	45.2%	33,485	20.0%
Posey	25,486	9,922	38.9%	10,351	40.6%	5,213	20.5%
Pulaski	12,352	4,069	32.9%	5,773	46.7%	2,510	20.3%
Putnam	33,109	12,482	37.7%	13,692	41.4%	6,935	20.9%
Randolph	24,751	8,189	33.1%	10,992	44.4%	5,570	22.5%
Ripley	28,441	9,641	33.9%	12,913	45.4%	5,887	20.7%
Rush	16,620	5,616	33.8%	7,267	43.7%	3,737	22.5%
Saint Joseph	262,259	60,867	23.2%	132,534	50.5%	68,858	26.3%
Scott	23,750	7,059	29.7%	11,241	47.3%	5,450	22.9%
Shelby	44,371	13,745	31.0%	20,712	46.7%	9,914	22.3%
Spencer	20,267	7,427	36.6%	8,730	43.1%	4,110	20.3%
Starke	22,935	7,278	31.7%	10,665	46.5%	4,992	21.8%

		0 Risk Factors		1-2 Risk Factors		3+ Risk Factors	
County	Population	Number	Percent	Number	Percent	Number	Percent
Steuben	33,458	11,018	32.9%	15,201	45.4%	7,239	21.6%
Sullivan	18,604	5,595	30.1%	8,503	45.7%	4,506	24.2%
Switzerland	10,675	3,321	31.1%	5,230	49.0%	2,124	19.9%
Tippecanoe	178,779	48,442	27.1%	91,573	51.2%	38,764	21.7%
Tipton	15,093	4,765	31.6%	7,061	46.8%	3,267	21.6%
Union	7,019	2,710	38.6%	2,644	37.7%	1,665	23.7%
Vanderburgh	176,799	45,524	25.7%	85,847	48.6%	45,428	25.7%
Vermillion	15,479	4,629	29.9%	6,809	44.0%	4,041	26.1%
Vigo	99,084	27,018	27.3%	47,809	48.3%	24,257	24.5%
Wabash	30,170	10,355	34.3%	12,072	40.0%	7,743	25.7%
Warren	8,237	2,978	36.2%	3,314	40.2%	1,945	23.6%
Warrick	62,500	25,148	40.2%	26,995	43.2%	10,357	16.6%
Washington	27,866	8,450	30.3%	13,058	46.9%	6,358	22.8%
Wayne	64,648	16,185	25.0%	31,165	48.2%	17,298	26.8%
Wells	28,098	9,598	34.2%	12,753	45.4%	5,747	20.5%
White	24,027	8,112	33.8%	10,841	45.1%	5,074	21.1%
Whitley	33,904	11,665	34.4%	16,063	47.4%	6,176	18.2%

Source: U.S. Census Bureau (2020)

References

1. Centers for Disease Control and Prevention. Frequently Asked Questions. 2021; Available from: https://www.cdc.gov/coronavirus/2019-ncov/faq.html#Basics.
2. Bowser, M.M. What is COVID-19? 2020; Available from: https://coronavirus.dc.gov/page/what-covid-19.
3. Xu, Z., et al., Pathological findings of COVID-19 associated with acute respiratory distress syndrome. Lancet Respir Med, 2020. 8(4): p. 420-422.
4. World Health Organization. Listings of WHO's response to COVID-19. 2020; Available from: www.who.int/news/item/29-06-2020-covidtimeline.
5. Centers for Disease Control and Prevention. Symptoms of coronavirus. 2020; Available from: https://www.cdc.gov/coronavirus/2019-ncov/symptoms-testing/symptoms.html.
6. Centers for Disease Control and Prevention. Guidance Documents. 2021; Available from: https://www.cdc.gov/coronavirus/2019-ncov/communication/guidance-list.html?Sort=Date%3A%3Adesc.
7. Johns Hopkins University of Medicine. Coronavirus Resource Center. 2021; Available from: https://coronavirus.jhu.edu/.
8. Centers for Disease Control and Prevention. Lesson 3: measures of risk--section 2: morbidity frequency measures. 2012; Available from: https://www.cdc.gov/csels/dsepd/ss1978/lesson3/section2.html.
9. Centers for Disease Control and Prevention. Test for current infection (viral test). 2020; Available from: https://www.cdc.gov/coronavirus/2019-ncov/testing/diagnostic-testing.html.
10. Terry, M. FDA approves 1st COVID-19 antibody test. 2020; Available from: https://www.biospace.com/article/fda-approves-1st-covid-19-antibody-test/.
11. Duzynski, T., Issues around the COVID-19 pandemic in Indiana, H.E. Kooreman and J. Gutta, Editors. 2020.
12. Menachemi, N., Prevalence of SARS-Cov-2 in Indiana, H.E. Kooreman and M.S. Greene, Editors. 2020.
13. Johns Hopkins University of Medicine. Coronavirus Resource Center. 2020; Available from: https://coronavirus.jhu.edu/.
14. Centers for Disease Control and Prevention. COVID Data Tracker. 2021; Available from: https://covid.cdc.gov/covid-data-tracker/index.html#datatracker-home.
15. National Academy for State Health Policy. Chart: Each state's COVID-19 reopening and reclosing plans and mask requirements. 2020; Available from: https://www.nashp.org/governors-prioritize-health-for-all/.
16. Park, S., et al., Global seasonality of human coronaviruses: a systematic review. Open Forum Infectious Diseases, 2020. 7(11).
17. Management Performance Hub. COVID-19 Case Data. 2020; Available from: https://hub.mph.in.gov/group/covid-19.
18. Management Performance Hub. COVID-19 case demographics. 2020; Available from: https://hub.mph.in.gov/group/covid-19.
19. Management Performance Hub. COVID-19 Deaths by Date by Age Group. 2020; Available from: https://hub.mph.in.gov/group/covid-19.
20. Menachemi, N. Random testing in Indiana shows COVID-19 is 6 times deadlier than flu, and 2.8% of the state has been infected. 2020; Available from: https://theconversation.com/random-testing-in-indiana-shows-covid-19-is-6-times-deadlier-than-flu-and-2-8-of-the-state-has-been-infected-138709.
21. Blackburn, J., et al., Infection fatality ratios for COVID-19 among noninstitutionalized persons 12 and older: results of a random-sample prevalence study. Annals of Internal Medicine, 2020. 174(1): p. 135-136.
22. State of Indiana Executive Order 20-02. Declaration of Public Health Emergency for Coronavirus

Disease 2019 Outbreak. 2020; Available from: https://www.in.gov/gov/files/20-02ExecutiveOrderDeclarationofPublicHealthEmergencyforCOVID-19FINAL.pdf.
23. State of Indiana Executive Order 20-05, Helping Hoosiers During the Public Health Emergency Declared for the Coronavirus Disease 2019 Outbreak. 2020.
24. State of Indiana Executive Order 20-08, Directive for Hoosiers to Stay at Home. 2020.
25. State of Indiana Executive Order 20-10, Enforcement Directive Regarding Prohibition of In-person Dining in Response to the Coronavirus Disease 2019 Epidemic. 2020.
26. State of Indiana Executive Order 20-37, Face Covering Requirement. 2020.
27. Office of Disease Prevention and Health Promotion, HealthyPeople 2020- Mental Health and Mental Disorders. 2019: Washington, DC.
28. DeSalvo, K.B., et al., Public health 3.0: time for an upgrade. American journal of public health, 2016. 106(4): p. 621.
29. Abrams, E.M. and S.J. Szefler, COVID-19 and the impact of social determinants of health. The Lancet Respiratory Medicine, 2020. 8(7): p. 659-661.
30. U.S. Department of Health and Human Services. Social Determinants of Health. 2021; Available from: https://health.gov/healthypeople/objectives-and-data/social-determinants-health.
31. U.S. Census Bureau, American Community Survey. 2020.
32. Perry, B.L., B. Aronson, and B.A. Pescosolido, Pandemic precarity: COVID-19 is exposing and exacerbating inequalities in the American heartland. Proceedings of the National Academy of Sciences, 2021. 118(8): p. e2020685118.
33. Shah, G.H., et al., The detrimental impact of the COVID-19 crisis on health equity and social determinants of health. Journal of Public Health Management and Practice, 2020. 26(4): p. 317-319.
34. Lima, N.N.R., et al., People experiencing homelessness: Their potential exposure to COVID-19. Psychiatry research, 2020. 288: p. 112945.
35. Housing and Eviction During Covid 19. 2020; Available from: https://www.in.gov/judiciary/5758.htm#:~:text=The%20Centers%20for%20Disease%20Control,264)%20and%2042%20CFR%2070.2.
36. Eviction Lab. Indiana. 2020; Available from: https://evictionlab.org/covid-policy-scorecard/in/.
37. Townsley, J. and M. Nowlin. Indy Evictions May Reach 34,000 or More in 2020. 2020; Available from: https://www.savi.org/2020/08/19/indy-evictions-may-reach-34000-or-more-in-2020/.
38. U.S. Census Bureau. Household Pulse Survey: Measuring Social and Economic Impacts during the Coronavirus Pandemic. 2021; Available from: https://www.census.gov/programs-surveys/household-pulse-survey.html.
39. Kochhar, R., Unemployment rose higher in three months of COVID-19 than it did in two years of the Great Recession. 2020.
40. United States Department of Labor. Unemployment Insurance Weekly Claims Data. 2021; Available from: https://oui.doleta.gov/unemploy/claims.asp.
41. American Hotel and Lodging Association, STATE BY STATE BREAKDOWN: Estimated Hotel Closures & Additional Jobs Loss If Congress Doesn't Pass Another COVID Stimulus Bill. 2020.
42. American Hotel and Lodging Association, Hotel report: $16.8 billion loss in state and local tax revenue from drop in hotel operations and occupancy. 2020.
43. U.S. Department of Agriculture. Definitions of Food Security. 2020; Available from: https://www.ers.usda.gov/topics/food-nutrition-assistance/food-security-in-the-us/definitions-of-food-security.aspx.
44. Wolfson, J.A. and C.W. Leung, Food Insecurity During COVID-19: An Acute Crisis With Long-Term Health Implications. American Journal of Public Health, 2020. 110(12): p. 1763-1765.
45. Coleman-Jensen, A., et al., Household Food Security in the United States in 2019. 2020, United States Department of Agriculture.
46. Gundersen, C. and J.P. Ziliak, Food Insecurity And Health Outcomes. Health Affairs, 2015. 34(11): p. 1830-1839.

47. Mayo Clinic. Coronavirus disease 2019 (COVID-19). 2020; Available from: https://www.mayoclinic.org/diseases-conditions/coronavirus/symptoms-causes/syc-20479963.
48. Feeding America. Food Insecurity in The United States. 2020; Available from: https://map.feedingamerica.org/.
49. Hamel, L., et al. Race, Health, and COVID-19: The Views and Experiences of Black Americans. 2020; Available from: http://files.kff.org/attachment/Report-Race-Health-and-COVID-19-The-Views-and-Experiences-of-Black-Americans.pdf.
50. Artiga, S., B. Corallo, and O. Pham. Racial Disparities in COVID-19: Key Findings from Available Data and Analysis. 2020; Available from: https://www.kff.org/report-section/racial-disparities-in-covid-19-key-findings-from-available-data-and-analysis-issue-brief/.
51. APM Research Lab, The Color Of Coronavirus: Covid-19 Deaths By Race And Ethnicity In The U.S. 2020.
52. Czeisler, M.É., et al., Mental health, substance use, and suicidal ideation during the COVID-19 pandemic—United States, June 24–30, 2020. Morbidity and Mortality Weekly Report, 2020. 69(32): p. 1049.
53. Altman, D., Coronavirus' unequal economic toll. 2020.
54. Prevention, C.f.D.C.a., Behavioral Risk Factor Surveillance System Survey Data. 2020.
55. Menachemi, N., et al., Population point prevalence of SARS-CoV-2 infection based on a statewide random sample—Indiana, April 25–29, 2020. Morbidity and Mortality Weekly Report, 2020. 69(29): p. 960.
56. Blackburn, J., et al., Infection fatality ratios for COVID-19 among noninstitutionalized persons 12 and older: results of a random-sample prevalence study. Annals of Internal Medicine, 2020.
57. Konisky, D. and S. Carley, Survey of Household Energy Insecurity in Time of COVID. Preliminary Results of Wave-2, and Wave-1 and Wave-2 Combined. 2020.
58. Merritt, B., Indiana's black death rates from covid-19, Institutional sources of disparity. 2020.
59. Indiana Department of Corrections, 2019 Annual Report. 2020.
60. Indiana Department of Corrections. IDOC Facility COVID-19 Statistics. 2020; Available from: https://www.in.gov/idoc/about-idoc/idoc-facility-covid-19-statistics/.
61. Indiana Department of Corrections, Preparedness and Response Plan (Adult and Juvenile). 2020.
62. Indiana Prison COVID Project. Indiana Prison COVID Project. 2021; Available from: https://www.indianaprisonpandemicproject.com/home.
63. Indiana Department of Health. Indiana COVID-19 Dashboard and Map. 2021; Available from: https://www.coronavirus.in.gov/2393.htm.
64. Rovner, J., Youth Justice Under the Coronavirus: Linking Public Health Protections with the Movement for Youth Decarceration. 2020.
65. Annie E Casey Foundation, JDAI Detention Population - Indiana. 2020.
66. Patrick, S.W., et al., Well-being of Parents and Children During the COVID-19 Pandemic: A National Survey. Pediatrics, 2020. 146(4).
67. Panchal, N., et al. The Implications of COVID-19 for Mental Health and Substance Use. 2021; Available from: https://www.kff.org/coronavirus-covid-19/issue-brief/the-implications-of-covid-19-for-mental-health-and-substance-use/view/footnotes/.
68. Jiao, W.Y., et al., Behavioral and Emotional Disorders in Children during the COVID-19 Epidemic. J Pediatr, 2020. 221: p. 264-266.e1.
69. Garfield, R. and P. Chidambaram. Childrens' Health and Well Being During the Coronavirus Pandemic. 2020; Available from: https://www.kff.org/coronavirus-covid-19/issue-brief/childrens-health-and-well-being-during-the-coronavirus-pandemic/.
70. Jenco, M. Study: Virtual Education linked with decreased physical activity, worsening emotional health. 2021; Available from: https://www.aappublications.org/news/2021/03/18/virtual-education-emotional-physical-health-031821#:~:text=A%20new%20study%20found%20virtual,little%20

surprise%20to%20many%20families.
71. Brown, S.M., et al., Stress and parenting during the global COVID-19 pandemic. Child Abuse Negl, 2020. 110(Pt 2): p. 104699.
72. Bullinger, L., et al. The Neglected Ones: Time at Home During COVID-19 and Child Maltreatment. 2020; Available from: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3674064.
73. Lawson, M., M.H. Piel, and M. Simon, Child Maltreatment during the COVID-19 Pandemic: Consequences of Parental Job Loss on Psychological and Physical Abuse Towards Children. Child Abuse Negl, 2020. 110(Pt 2): p. 104709.
74. Kinsey, E.W., et al., School Closures During COVID-19: Opportunities for Innovation in Meal Service. Am J Public Health, 2020. 110(11): p. 1635-1643.
75. Griffith, A.K., Parental Burnout and Child Maltreatment During the COVID-19 Pandemic. J Fam Violence, 2020: p. 1-7.
76. Banerjee, D., The impact of Covid-19 pandemic on elderly mental health. Int J Geriatr Psychiatry, 2020. 35(12): p. 1466-1467.
77. Nania, R. 95 Percent of Americans Killed by COVID-19 Were 50 or Older. 2020; Available from: https://www.aarp.org/health/conditions-treatments/info-2020/coronavirus-deaths-older-adults.html.
78. MedicareAdvantage.com. Senior Guide to Mental Health During Coronavirus (COVID-19) Tips for how seniors can stay healthy and connected during the COVID-19 pandemic. 2020; Available from: https://www.medicareadvantage.com/resources/senior-guide-to-mental-health-during-covid-19.
79. Neuman, T. and W. Koma. Retirement Insecurity in the Time of COVID-19: The Next Shoe to Drop? 2020; Available from: https://www.kff.org/policy-watch/retirement-insecurity-in-time-of-covid-19-next-shoe-to-drop/.
80. Hermann, A. and J. Molinsky. Older Adults in the Workforce: Facing Economic and Health Risks During the COVID-19 Pandemic. Housing Perspectives- Research, trends, and perspective from the Harvard Joint Center for Housing Studies 2020; Available from: https://www.jchs.harvard.edu/blog/older-adults-in-the-workforce-facing-economic-and-health-risks-during-the-covid-19-pandemic.
81. Krendl, A.C. and B.L. Perry, The Impact of Sheltering in Place During the COVID-19 Pandemic on Older Adults' Social and Mental Well-Being. J Gerontol B Psychol Sci Soc Sci, 2021. 76(2): p. e53-e58.
82. Koma, W., et al. One in Four Older Adults Report Anxiety or Depression Amid the COVID-19 Pandemic. 2020; Available from: https://www.kff.org/medicare/issue-brief/one-in-four-older-adults-report-anxiety-or-depression-amid-the-covid-19-pandemic/.
83. Walsh, F. More Than Half Of Older Adults In The U.S. Have Experienced Disruptions In Care Due To Coronavirus. 2020; Available from: https://www.norc.org/NewsEventsPublications/PressReleases/Pages/more-than-half-of-older-adults-in-the-us-have-experienced-disruptions-in-care-due-to-coronavirus.aspx.
84. Lam, K., et al., Assessing Telemedicine Unreadiness Among Older Adults in the United States During the COVID-19 Pandemic. JAMA Intern Med, 2020. 180(10): p. 1389-1391.
85. Wang, Q.Q., et al., COVID-19 risk and outcomes in patients with substance use disorders: analyses from electronic health records in the United States. Molecular Psychiatry, 2020.
86. National Vital Statistics System, Percent of drug overdose deaths by quarter and demographic characteristics: United States 2018-Q1 through 2020-Q1. 2020, Centers for Disease Control and Prevention,: Atlanta, GA.
87. Centers for Disease Control and Prevention. Overdose deaths accelerating during COVID-19. 2020; Available from: https://www.cdc.gov/media/releases/2020/p1218-overdose-deaths-covid-19.html.
88. American Medical Association Advocacy Resource Center, Issue brief: reports of increases in opioid- and other drug-related overdose and other concerns during COVID pandemic, American Medical Association, Editor. 2020.
89. Katz, J., A. Goodnough, and M. Sanger-Katz, In shadow of pandemic, U.S. drug overdose deaths resurge to record, in The New York Times. 2020: New York, NY.

90. Alter, A. and C. Yeager, The consequences of COVID-19 on the overdose epidemic: overdoses are increasing. 2020, Overdose Detection Mapping Application Program.
91. Alter, A. and C. Yeager, COVID-19 impact on US national overdose crisis--ODMAP June 2020 report. 2020.
92. Wan, W. and H. Long, Cries for help: Drug overdoses are soaring during the coronavirus pandemic. 2020.
93. Slavova, S., et al., Signal of increased opioid overdose during COVID-19 from emergency medical services data. Drug and Alcohol Dependence, 2020. 214(108176).
94. Ochalek, T.A., K.L. Cumpston, and B.K. Willis, Nonfatal opioid overdoses at an urban emergency department during the COVID-19 pandemic. JAMA, 2020. 324(16): p. 1673-1674.
95. Rodda, L.N., K.L. West, and K.T. LeSaint, Opioid overdose-related emergency department visits and accidential deaths during the COVID-19 pandemic. Journal of Urban Health, 2020. 97: p. 808-813.
96. Glober, N., et al., Impact of COVID-19 pandemic on drug overdoses in Indianapolis. Journal of Urban Health, 2020.
97. Stephenson, J., Drug overdose deaths head toward record number in 2020, CDC warns. JAMA Network, 2020. Octoboer 20, 2020.
98. Indiana Department of Health - Division of Trauma and Injury Prevention, Overdose ED Discharge, Hospital Discharge, and Overdose Deaths, Indiana Department of Health, Editor. 2021.
99. Stack, E., et al., The impact of COVID-19 on mental health, substance use, and overdose concerns of people who use drugs in rural communities. Journal of Addiction Medicine, 2020. Nov. 3, 2020.
100. Wakeman, S.E., T.C. Green, and J. Rich, An overdose surge will compound the COVID-19 pandemic if urgent action is not taken. Nature Medicine, 2020. 26(June 2020): p. 814-821.
101. Linas, B.P., et al., A clash of epidemics: impact of the COVID-19 pandemic response on opioid overdose. Journal of Substance Abuse Treatment, 2021. 120: p. 1-2.
102. Niles, J.K., et al., The opioid epidemic within the COVID-19 pandemic: drug testing in 2020. Population Health Management, 2020. 00(00): p. XXXX.
103. Samuels, E.A., et al., Innovation during COVID-19: improving addiction treatment access. Journal of Addiction Medicine, 2020. XXXX(XXX): p. XXX.
104. McKay, D. and G.J.G. Asmundson, Substance use and abuse associated with the behavioral immune system during COVID-19: The special case of healthcare workers and essential workers. Addictive Behaviors, 2020. 110(106522).
105. McKay, D. and G.J.G. Asmundson, COVID-19 stress and substance use: current issues and future preparations. Journal of Anxiety Disorders, 2020. 74(102274).
106. Czeisler, M.É., et al., Mental health, substance use, and suicidal ideation during the COVID-19 pandemic -- United States, June 24-30, 2020. Morbidity and Mortality Weekly Report, 2020. 69(32): p. 1049-1057.
107. Henry, B.F., et al., COVID-19, mental health and opioid use disorder: old and new public health crises intertwine. Trauma Psychology, 2020. 12(81): p. S111-S112.
108. Zaami, S., E. Marinelli, and M.R. Vari, New trends of substance abuse during COVID-19 pandemic: an international perspective. Frontiers in Psychiatry, 2020. 11(article 700): p. 1-4.
109. Dunlop, A., et al., Challenges in maintaining treatment services for people who use drugs during the COVID-19 pandemic. Harm Reduction Journal, 2020. 17(26).
110. Degenhardt, L., et al., Mortality among regular or dependent users of heroin and other opioids: a systematic review and meta-analysis of cohort studies. Addiction, 2010. 106: p. 32-51.
111. Degenhardt, L., et al., Mortality among clients of a state-wide opioid pharmacotherapy program over 20 years: risk factors and lives saved. Drug and Alcohol Dependence, 2009. 105: p. 9-15.
112. Evans, E., et al., Mortality among individuals accessing pharmacological treatment for opioid dependence in California, 2006-10. Addiction, 2015. 110: p. 996-1005.
113. Slat, S., J. Thomas, and P. Lagisetty, Coronavirus disease 2019 and opioid use - a pandemic within an

epidemic. JAMA Network, 2020. May 29, 2020.
114. National Institute on Drug Abuse. Opioid overdose reveral with naloxone (Narcan, Evzio). 2020; Available from: https://www.drugabuse.gov/drug-topics/opioids/opioid-overdose-reversal-naloxone-narcan-evzio.
115. Collins, A.B., et al., Addressing co-occurring public health emergencies: the importance of naloxone distribution in the era of COVID-19. International Journal of Drug Policy, 2020. 83(XXXX): p. XXXX.
116. Jenkins, W.D., et al., COVID-19 during the opioid epidemice--exacerbation of stigma and vulnerabilities. The Journal of Rural Health, 2021. 37(172-174).
117. US Drug Enforcement Agency. COVID-19 information page. 2020; Available from: https://www.deadiversion.usdoj.gov/coronavirus.html.
118. Substance Abuse and Mental Health Services Administration. FAQs: provision of methadone and buprenorphine for the treatment of opioid use disorder in the COVID-19 emergency. 2020; Available from: https://www.samhsa.gov/sites/default/files/faqs-for-oud-prescribing-and-dispensing.pdf.
119. George, B., Personal communication, H.E. Kooreman, Editor. 2021.
120. Mental Health America, Mental Health and Suicide Data, M. Greene, Editor. 2021.
121. U.S. Census Bureau, Community Resilience Estimates. 2020.
122. Centers for Disease Control and Prevention. Suicide and Self-Harm Injury. 2020; Available from: https://www.cdc.gov/nchs/fastats/suicide.htm.
123. Gutta, J., L. Heniff, and M.S. Greene, Suicide Trends in Indiana: Recommendations for Prevention. 2020.
124. Kofman, Y.B. and D.R. Garfin, Home is not always a haven: The domestic violence crisis amid the COVID-19 pandemic. Psychological Trauma: Theory, Research, Practice, and Policy, 2020.
125. Christian, K., The impact of COVID-19 on victim serving organizations across Indiana. 2020.
126. Powell, H., Shelters Struggle to Combat Domestic Violence Spike Amid Pandemic. 2020.
127. Felitti, V.J., et al., Relationship of childhood abuse and household dysfunction to many of the leading causes of death in adults. The Adverse Childhood Experiences (ACE) Study. Am J Prev Med, 1998. 14(4): p. 245-58.
128. Centers for Disease Control and Prevention. Behavioral Risk Factor Surveillance System ACE Data. 2020; Available from: https://www.cdc.gov/violenceprevention/aces/ace-brfss.html.
129. Balio, C. and M.S. Greene, Adverse childhood experiences (ACEs) and their impact on substance misuse & overall health. 2018, IUPUI Center for Health Policy.
130. Swedo, E., et al., Trends in U.S. Emergency Department Visits Related to Suspected or Confirmed Child Abuse and Neglect Among Children and Adolescents Aged <18 Years Before and During the COVID-19 Pandemic - United States, January 2019-September 2020. MMWR Morb Mortal Wkly Rep, 2020. 69(49): p. 1841-1847.
131. Hansen, A.L., Child Maltreatment Reporting Statistics During the Covid-19 Pandemic: A Cursory Analysis. 2020.
132. Bullinger, L., et al., The Neglected Ones: Time at Home During COVID-19 and Child Maltreatment. Available at SSRN 3674064, 2020.
133. Indiana Department of Child Services. Reports and Statistics. 2021; Available from: https://www.in.gov/dcs/2329.htm.

The mission of the Center for Health Policy is to conduct research on critical health-related issues and translate data into evidence-based policy recommendations to improve community health. The CHP faculty and staff collaborate with public and private partners to conduct quality data driven program evaluation and applied research analysis on relevant public health issues. The Center serves as a bridge between academic health researchers and federal, state, and local government as well as healthcare and community organizations.

Author(s): Harold Kooreman, MSW, MA; Jyotsna Gutta, MPH; Elhaam Bandali, MS, MPH; and Marion Greene, PhD, MPH

Please direct all correspondence and questions to: Marion Greene, PhD, MPH, Center for Health Policy, IU Richard M. Fairbanks School of Public Health at IUPUI, 1050 Wishard Blvd, RG 5192, Indianapolis, IN 46202; Email: msgreene@iu.edu; Phone: (317)278-3247