

Trends in Opioid-Associated Hospitalizations in Mississippi, 2016-2020



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Epidemiological Brief

Data and Goals: All Mississippi hospitals, except for federal facilities, are required to report their hospital discharge data to the Inpatient Outpatient Data System. For ten years, the Mississippi State Department of Health has used this population data source to build surveillance systems. In addition to clinical diagnoses and procedures performed, these data contain information on patient demographics, expected payers, hospital charges, and length of stay. We analyzed hospital discharge data to evaluate trends in opioid-associated hospitalizations and assess the impact of COVID-19 on such admissions in Mississippi. This analysis included primary and secondary opioid diagnoses among residents and non-residents. For an in-depth epidemiological investigation, we stratified all opioid-associated stays into three groups: opioid use disorder, overdoses, and adverse effects.

Numbers: Opioid-associated hospitalizations have trended down since 2017 (Figure 1). The decrease in opioid-associated hospitalizations in 2020, however, may also reflect the steep decline in the number of all hospital admissions during this year. During 2020, Mississippi’s hospitals had to preserve capacity and limit admissions for non-COVID and non-urgent hospital treatments. Between 2019 and 2020, for instance, hospital admissions in the state dipped by 9.2%, from 378,494 to 343,789. During the same period, opioid-associated stays declined by 10.9%, from 6,725 to 5,995.

Rates: To account for the overall decline in all-cause hospital admissions in 2020, we evaluated opioid hospitalization rates (i.e., opioid stays per 10,000 all-cause hospitalizations). Unlike the downturn in the absolute number of opioid hospitalizations, the percentage decline in opioid hospitalization rates was not as dramatic. Specifically, there were 178.2 opioid-related stays in 2019 per 10,000 hospitalizations and 174.4 opioid-related stays per 10,000 hospitalizations in 2020—this represents only a 2.1% decline (Figure 2). This analysis suggests that the decrease in opioid-related admissions in 2020 was mainly driven by the overall decline in hospital admissions.

Figure 1. Opioid-Associated Hospitalizations Numbers, Mississippi, 2016-2020

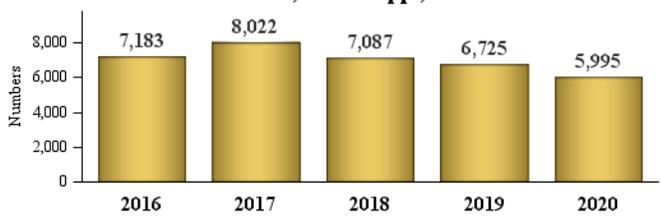
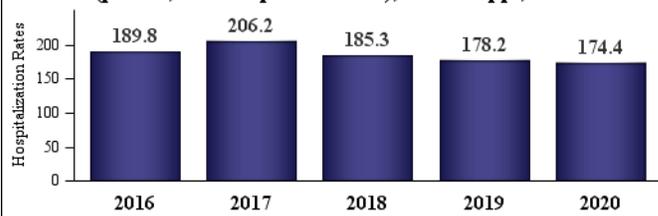


Figure 2. Opioid-Associated Hospitalization Rates (per 10,000 Hospitalizations), Mississippi, 2016-2020



Admissions by Month: The number of opioid-associated admissions was similar for the first three months of 2019 and 2020. Such admissions dropped, however, during April and May 2020, but increased in June 2020. During the second half of 2020, these stays remained lower compared to the same period in 2019. The average monthly decline between July and December 2020 was 10.3% (Table 1). The lack of hospital treatment for patients with opioid dependence may have worsened their health status, leading to preventable complications and increasing the risk for overdose and death.

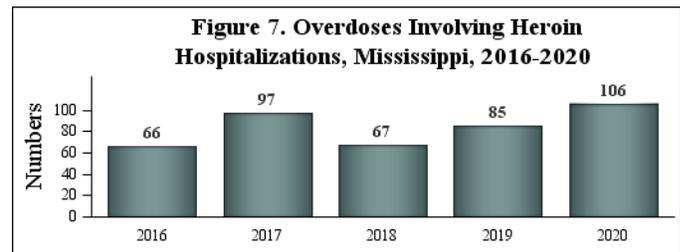
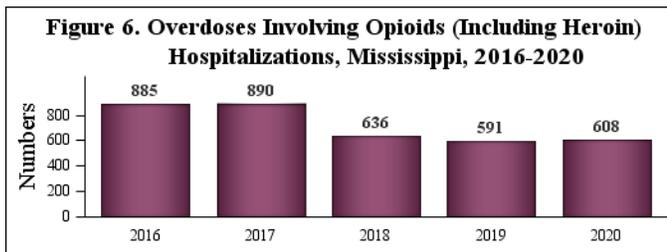
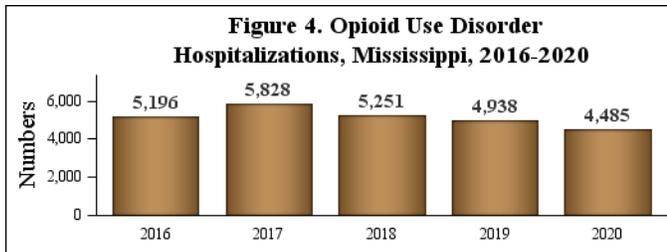
Table 1. Percent Change in the Number of Opioid-Associated Hospitalizations between 2019 and 2020 by Admission Month

Month	January	February	March	April	May	June	July	August	September	October	November	December
Change	-0.7%	6.4%	-2.1%	-34.3%	-25.2%	-1.0%	-9.3%	-11.7%	-18.5%	-6.1%	-11.4%	-13.8%

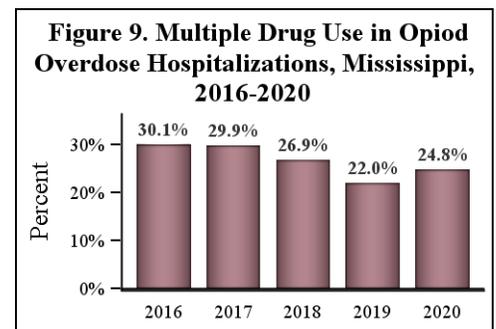
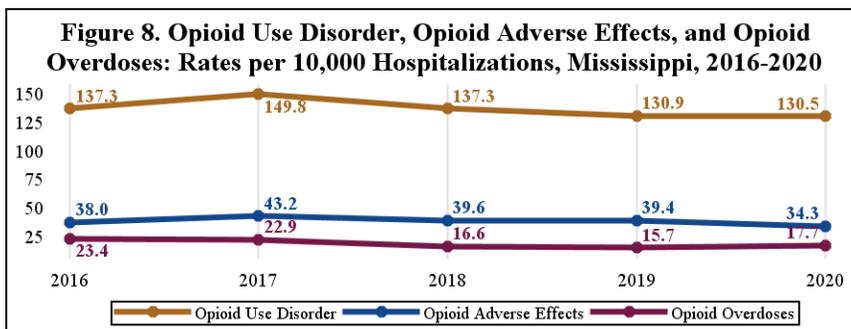
Figure 3. Opioid-Associated Hospitalization Numbers by Month of Admission, Mississippi, 2019 and 2020



Types of Opioid Hospitalizations: During 2020, three-fourths (4,485 or 74.8%) of all opioid-related hospitalizations had a diagnosis for opioid use disorder. By comparison, 1,178 (19.6%) had a diagnosis for opioid-related adverse effects, and 608 (10.1%) had a diagnosis for overdose (Figures 4, 5, and 6). Among hospitalizations associated with opioid use disorder, 3,055 (68.1%) were for dependence, 1,007 (22.5%) were for abuse, and 430 (9.6%) were not specified. It is important to note that these groups are not mutually exclusive since patients may have more than one diagnostic code.



Hospitalization Rates by Types of Opioids: Between 2019 and 2020, hospitalization rates for opioid use disorder were almost identical (130.9 vs. 130.5 per 10,000 hospitalizations). During the same time, hospitalization rates declined for opioid-related adverse effects, but hospitalizations for opioid overdoses increased, from 15.7 to 17.7 per 10,000 hospitalizations (Figure 8).



Overdoses: The number of hospitalizations for overdoses involving opioids increased from 591 in 2019 to 608 in 2020—jumping for the first time since 2017. Of special concern is the increase in overdose hospitalizations involving heroin. Such admissions accounted for one out of every six hospitalizations for opioid overdoses (Figure 7) in 2020. The number of opioid overdose hospitalizations involving prescription opioids increased slightly, from 283 in 2019 to 294 in 2020. Surprisingly, there were fewer admissions due to overdoses with synthetic opioids in 2020 (57) compared to 2019 (62). The type of opioid was not specified in 159 opioid overdose hospitalizations. Multidrug use (benzodiazepines, cocaine, stimulants) was recorded in 24.8% of opioid overdose hospital stays (Figure 9).

Call for Action: In Mississippi, hospitalizations for opioid overdoses worsened in 2020—a finding requiring immediate attention, public health measures, and clinical action. Inevitably, opioid-related deaths will contribute to the mounting excess deaths in our state. Public health professionals must examine causes for the increase in opioid overdoses, while clinicians should find ways to treat patients suffering from opioid use disorder. In April 2021, the Department of Health and Human Services released new buprenorphine guidelines that removed a certification requirement for clinicians treating patients suffering from opioid use disorder. The Mississippi State Department of Health encourages clinicians to engage in proactive office-based buprenorphine treatment of patients with opioid dependence. For more information, please visit: [HHS Releases New Buprenorphine Practice Guidelines, Expanding Access to Treatment for Opioid Use Disorder | HHS.gov](https://www.hhs.gov/newsroom/2021/04/21/buprenorphine-guidelines)

International Classification of Diseases-10-Clinical Modifications codes used: F11, T40.0, T40.1, T40.2, T40.3, T40.4, T40.5, T40.6, T42.4, T43.6
Authors: Manuela Staneva, MPH; Thomas Dobbs, MD, MPH; Meg Pearson, PharmD, MS; Jonathan Hubanks, PharmD; Paul Byers, MD