



11/15/2021

Epidemiological Brief

## KEY FINDINGS

- Between March 2020 and June 2021, there were 46,593 COVID-19 emergency department (ED) visits. The number of visits among residents was 44,324; of these, 77.4% were among younger patients (< 65 years), 64.2% were among rural residents, 59.7% were among women, and 55.1% were among African Americans.
- Nearly one out of every four COVID-19 ED visits had a coexisting diagnosis for pneumonia. This finding demonstrates that complications were frequent among patients suffering from COVID-19.
- During the study period, total charges for COVID-19 ED visits reached \$189 million. Medicaid, the publicly funded insurer of low-income patients, was responsible for \$43 million or 22.7% of COVID-19-related ED charges. Self-pay patients accounted for ten percent (4,438) of all COVID-19 ED visits.

**Goals and Data:** This study evaluated the epidemiology of COVID-19 visits to Mississippi emergency departments (ED) during March 2020-June 2021. We also described the demographic characteristics and comorbidity profiles of patients seeking emergent health care for this infection. We analyzed ED data from all non-federal hospitals in the state. The study included all-listed COVID-19 diagnoses among state residents. To select ED visits only related to COVID-19, we excluded all encounters for injuries, poisonings, and other external causes in any diagnostic field.

**Overview:** There were 44,324 COVID-19 ED visits among Mississippi residents during the study period. Of these, 90.6% had a COVID-19 diagnosis in the primary diagnostic field. The rest (9.1%) of the primary diagnoses were distributed as follows: 2.8 % were clinical symptoms (e.g., cough), 2.7% were diagnoses for infectious and respiratory diseases, and 3.9% were diagnoses for other illnesses caused or complicated by COVID-19.

Nearly one fifth (18.5%) of ED COVID-19 visits occurred during December—the month with the highest statewide transmission rates during the period studied (Figure 1). The average charge for a patient with a COVID diagnosis was \$4,253. Patients with Medicare had the highest mean charge of \$5,354. The total charges for COVID-19 ED visits amounted to \$188,510,004. Over one third (37.6%) of all COVID-19 ED visits were covered by private insurance plans (Figure 2). Medicaid was responsible for almost one-fourth (24.3%) of such visits and 22.7% (\$43 million) of the total charges (Figure 3). There was a high proportion (10.1%) of self-pay patients among COVID-19 ED visits.

FIGURE 1. EMERGENCY DEPARTMENT VISITS FOR COVID-19: TOTAL AND PERCENT PER MONTH, MS, MARCH 2020 - JUNE 2021

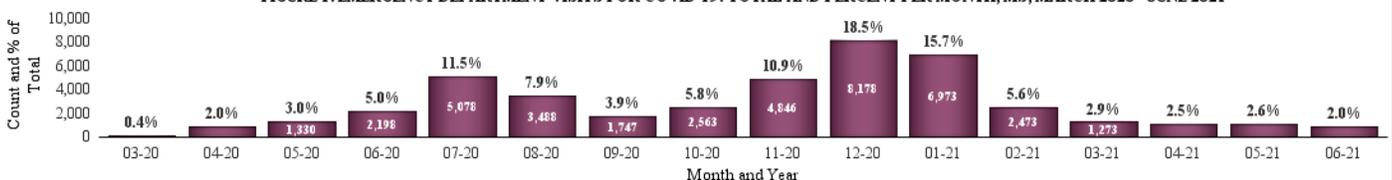


FIGURE 2. COVID-19 EMERGENCY DEPARTMENT VISITS: COUNT AND PERCENT OF TOTAL PER PAYER, MS, MARCH 2020 - JUNE 2021

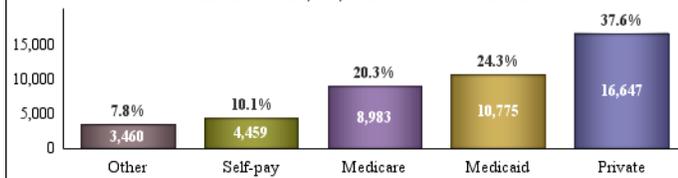
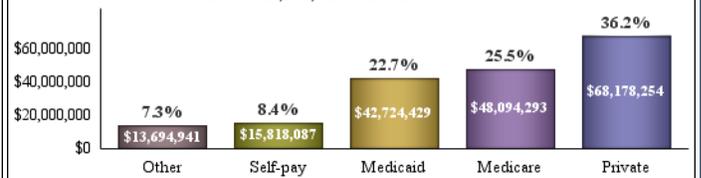


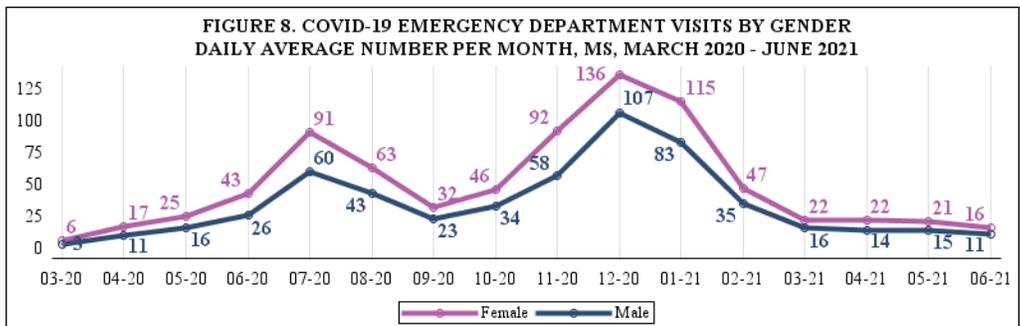
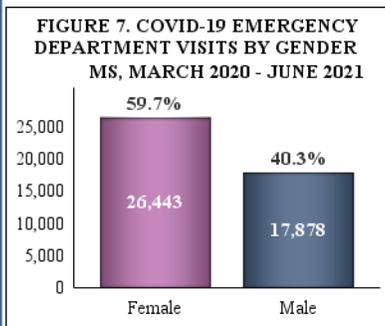
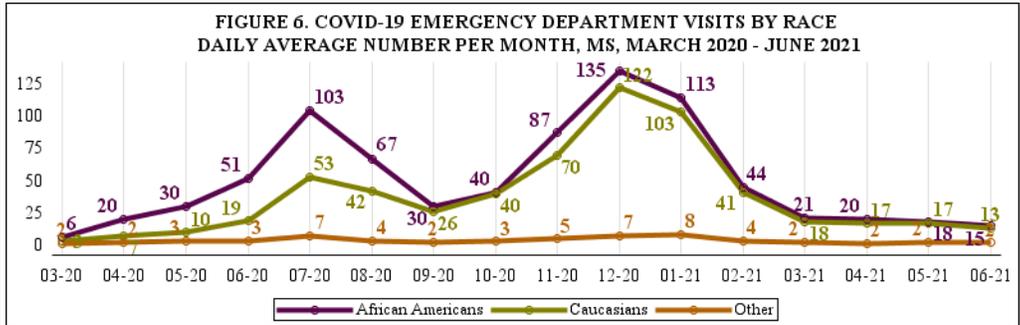
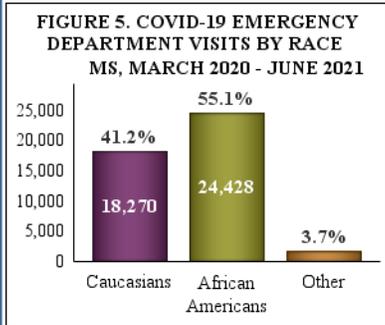
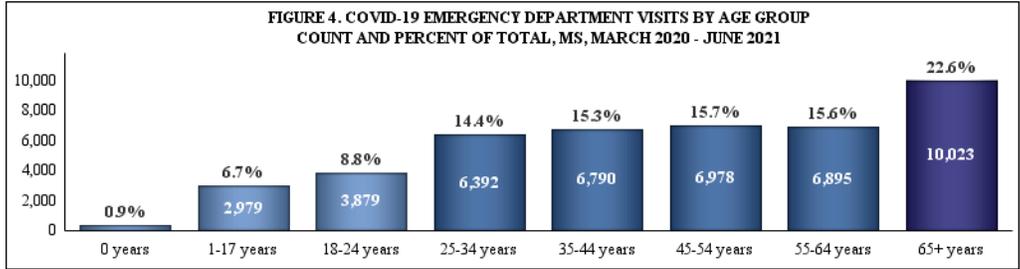
FIGURE 3. COVID-19 EMERGENCY DEPARTMENT VISITS: PERCENT OF TOTAL CHARGES PER PAYER, MS, MARCH 2020 - JUNE 2021



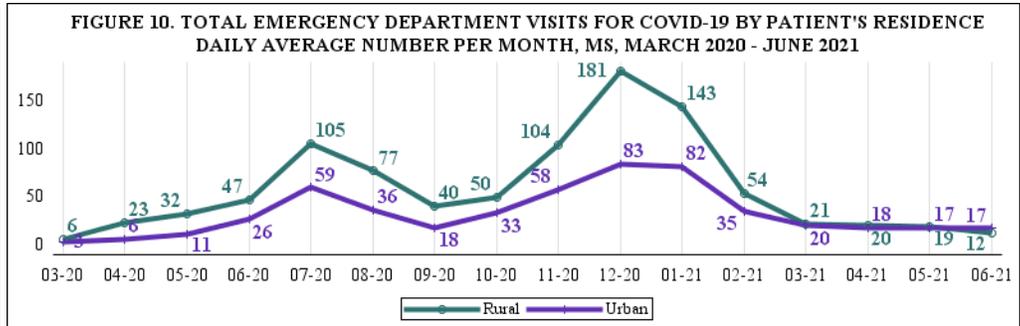
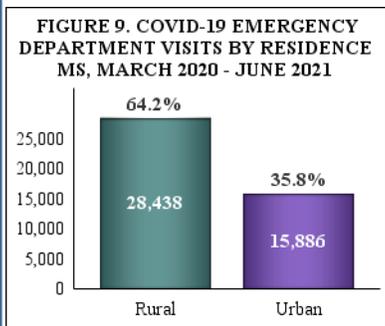
**Comorbidities:** Comorbidity analyses revealed that 45.7% of ED encounters for COVID-19 had one or more coexisting morbidities as determined by the Elixhauser Comorbidity Index. Hypertension was the most prevalent chronic comorbidity—28.4% of all COVID-19-related ED encounters had a coexisting hypertension, followed by diabetes (14.2%) and chronic pulmonary disease (7.6%). These are not mutually exclusive categories.

**Acute Complications:** Pneumonia due to COVID-19 was the most frequent acute condition, with 17.7% (7,835) of COVID-19 ED visits having this complication. During the period studied, the overall number of ED encounters with a diagnosis for pneumonia among residents was 29,297; of these, 26.7% were associated with COVID-19. Fluid and electrolyte disorders were recorded in 10.5% (4,630) of all COVID-19-related ED visits.

**Demographic Disparities:** On average, patients with a COVID-19 diagnosis were older (47.4 years) compared to patients without such a diagnosis (39.3 years). Over three-quarters (77.4%) of COVID-19-related ED encounters were among patients younger than 65 years of age (Figure 4). African Americans accounted for 55.1% of all ED visits during the study period (Figure 5). This racial gap between African Americans and Caucasians started to close during the third wave, however (Figures 5 and 6). African-Americans accounted for 63.2% of all COVID-19 ED visits during July 2020 but for 51.1% of such encounters during December 2021. In terms of gender distribution, COVID-19 ED visits were more prevalent among women than men (59.7% vs. 40.3%) and this proportion remained stable throughout the study time frame (Figures 7 and 8).



**Residence Status—The Forgotten Disparity:** The demographic factor associated with the greatest disparity was patients’ residence status. Nearly two-thirds (64.2%) of all COVID-related ED visits were among rural residents (Figures 9 and 10). This demographic gap between urban and rural patients widened during the third wave—the proportion of COVID-19 ED visits among rural residents was 63.8% in July 2020 but 68.5% in December 2021.



**Data and Methods:** To select COVID-19 cases, we used the following International Classification of Diseases (ICD-10-CM) diagnosis codes: B97.29 and B34.2 before 1 April 2020 and U07.1 from 1 April 2020 onward, as well as J1282 and M3581 from 1 January 2021 onward. We analyzed data on COVID-19 ED visits from Mississippi’s Inpatient and Outpatient Data System. This source has information on patient demographics, diagnoses, procedures, and hospital resource utilizations from all non-federal hospitals in the state. We included ED visits with these diagnostic codes in the primary and secondary data fields. To categorize comorbidities, we used the Elixhauser Comorbidity Index.<sup>1</sup> To categorize residence status, we applied the Urban-Rural Classification Scheme for Counties developed by the National Center for Health Statistics.<sup>2</sup>

**References:**

- Elixhauser A, Steiner C, Harris DR, Coffey RM. Comorbidity measures for use with administrative data. *Med Care* 1998;36:8-27.
- NCHS Urban-Rural Classification Scheme for Counties. National Center for Health Statistics. *Vital Health Stat* 2(166). 2014.

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