The effects of COVID-19 on emergency visits, hospitalizations

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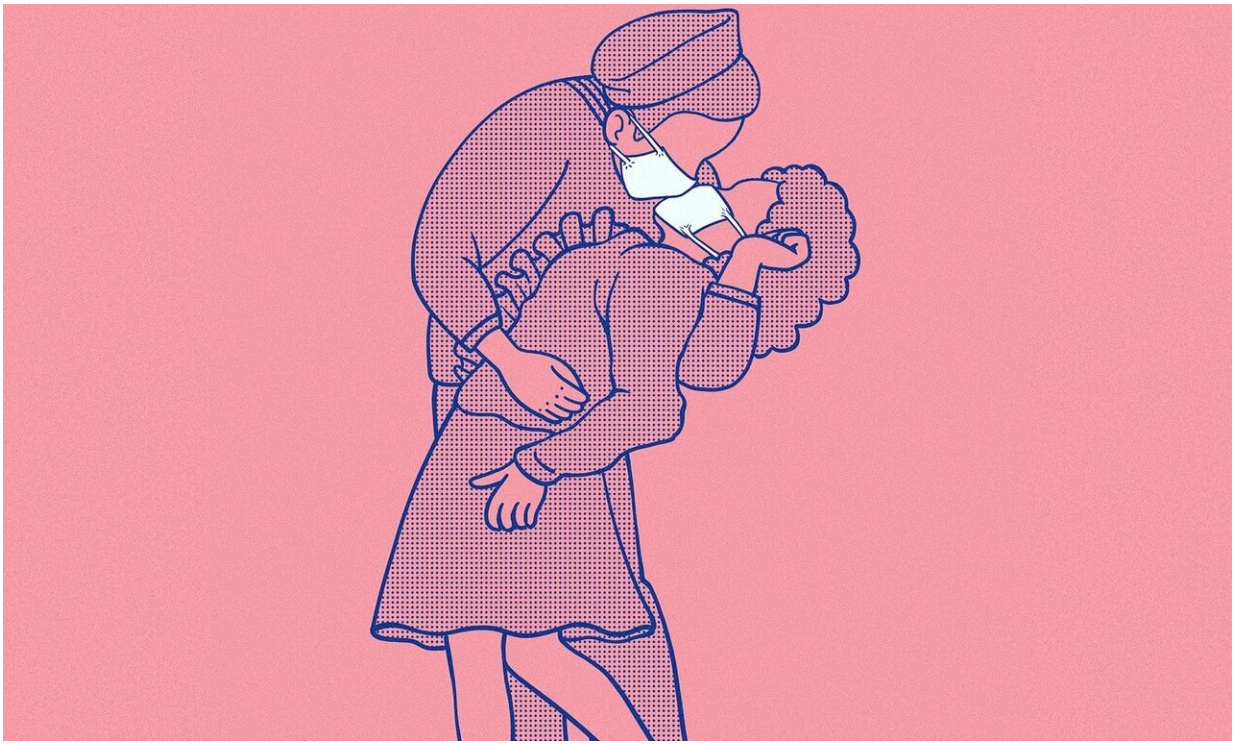

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As COVID-19 swept into the U.S., hospitals across the country have reported that their emergency departments are emptying out. In a new study published Monday, Aug. 3, in *JAMA Internal Medicine*, a team of researchers from multiple institutions provides insights into this phenomenon.

"We knew there were major changes in ED (emergency department) visit volume, but we didn't know how different communities were affected. It was especially important to know how much ED visits declined in areas that had a lot of COVID-19 cases, compared to those with fewer cases. Health care providers and our communities need real evidence for decision-making," says Molly Jeffery, Ph.D., scientific director of Emergency Medicine Research at Mayo Clinic. Dr. Jeffery is the study's lead author.

The investigators collected information on emergency department visits and subsequent hospital admissions from Jan. 1 to April 30. Study data came from 24 emergency departments across five health care systems. Included in the study were four emergency departments in Colorado and five emergency departments in each of these states: Connecticut, Massachusetts, New York and North Carolina. These emergency departments spanned rural, urban and suburban settings, and included regions with a high COVID-19 caseload and regions with lower case counts. Annual baseline volume across these emergency departments ranged from 12,500 to 115,000 visits.

"We found a substantial decline in emergency department visits—between 42% and 64%—during the four-month period of our study, but most of that decline happened over just a few weeks in March," says Dr. Jeffery. "The largest declines were seen in the areas that had a lot of COVID-19 cases. If you think about that, it means that even more people with problems other than COVID-19 must have avoided the ED during this period."

These declining visit numbers corresponded to growing awareness of COVID-19 through increasing coverage in the national and local media, as well as the timing of a good portion of state-issued stay-at-home orders. Although the researchers were unable to determine specific numerical reductions from particular causes, they offered three likely

explanations.

"Reductions in ED utilization could reflect: (1) failure to seek care by patients with serious or life-threatening conditions, including those unrelated to COVID-19; (2) avoidance of the ED for nonemergent conditions; or (3) displacement of ED care to other venues, such as telemedicine visits."

Conversely, the researchers noted that hospital admission rates from the emergency department remained relatively stable across the health systems until there was a local increase in COVID-19 cases, at which time there was an uptick.

"This increase in hospital admissions was dramatic," says Edward Melnick, M.D., an emergency medicine physician at Yale New Haven Health in Connecticut. Dr. Melnick is the study's senior author.

"Here at Yale New Haven, we saw a 36% increase, the median increase across the five systems," he says. "In New York, the epicenter of the largest outbreak of COVID in the U.S., the relative increase of hospital admissions at Mount Sinai Health was 149%—so 2½ times the usual rate of emergency admissions."

The other systems also showed significant relative increases of emergency hospital admissions:

- 22%, UNC Health, North Carolina
- 29.4%, UCHealth, Colorado
- 51.7%, Baystate Health, Massachusetts

The increases in hospital admissions occurred despite the reductions in visits, allowing inferences that emergency hospitalizations for COVID-19 accounted for a substantial portion. However, the researchers

note that they are unable to determine if people with serious symptoms, illnesses and injuries went untreated due to the COVID-19 pandemic.

Recently, the researchers examined May and June data from the states observed in their paper. They found that the lowest amount of visits to the emergency department occurred during the week of April 8, with increasing numbers since then—but not a return to baseline.

Furthermore, although emergency hospital admissions initially increased in correspondence to rising rates of COVID in each state, they stabilized and began to trend downward around that same time. However, admissions have not returned to levels seen before COVID-19 either, even where the rate of new COVID-19 cases has sharply decreased.

"More widely available telehealth options may be keeping the emergency visits below historic norms," says Dr. Jeffery. "Many insurers, including Medicare, are paying for telehealth visits now that they previously did not cover. It will be important to understand how this shift from in-person to virtual visits affects both access to care and patient health outcomes."

As for emergency hospital admissions, Dr. Melnick thinks it's probably for similar reasons. "If a person stays home when sick and treats illnesses early, they may avoid increased severity and the need for emergency care."

"People should continue to seek medical assistance for serious illnesses, injuries and symptoms," says Dr. Melnick. "While nonemergencies make up a certain portion of usual visits, the steep drop in visits to the emergency department seems to indicate that many urgent health situations may have gone untreated. This could lead to worsening symptoms, disability or death. Emergency departments remain a safe place to receive care for non-COVID-related emergencies."

"Since the pandemic started, infection control measures have been increased," says Dr. Jeffery. "Appropriate measures should continue in both the emergency department and other clinical settings to reassure staff and ensure patients feel safe to pursue appropriate care."

Drs. Melnick and Jeffery echo what they and their colleagues said in the paper, "It is essential that public health authorities and health care systems provide guidance and resources to help patients determine the best place to receive care now (and) throughout the pandemic, and into the future."

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