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The Impact of Coronavirus Disease 2019 on US Emergency Departments



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KEYWORDS

- Behavioral emergencies COVID-19 Emergency department Hospitalization
- Mental health
 Pandemic

KEY POINTS

- Behavioral emergencies in the United States are increasing with some studies even reporting a doubling in the number of people experiencing symptoms related to mental health conditions, although visits to US EDs decreased during the COVID-19 pandemic.
- Emergency departments have experienced substantial volume changes throughout the coronavirus disease 2019 (COVID-19) pandemic.
- Health care professionals, especially those working in emergency department, have been mentally and financially challenged by the effects of the COVID-19 pandemic.

INTRODUCTION

The emergence of a fast-spreading, novel infectious respiratory virus in late 2019 caused alarm among public health officials, health care providers, and the general public. The World Health Organization declared the coronavirus disease 2019 (COVID-19) outbreak a pandemic on March 11, 2020, and by that date, several countries around the world were already confronting the rapid spread of the novel coronavirus (COVID-19) within their borders. In the United States, one of the initial and immediate impacts of this declaration, and of the emergency declaration by the US government¹ 2 days later on March 13, was an overall decrease in the number of patients presenting for emergency care.^{2,3} This overall decrease in patient volume early in the pandemic was in stark contrast to a common trend that emergency departments (EDs) have experienced in recent years before the pandemic: substantial overcrowding.⁴

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The impact of COVID-19 on EDs is unprecedented in modern times. The first part of this article provides an overview of the major changes experienced by EDs both before COVID-19 and during the peak of the COVID-19 pandemic, including some of the major challenges in caring for patients with behavioral emergencies. The second part of this article discusses strategies for rational ED management of these patients during the pandemic and postpandemic periods. As the impact of COVID-19 on medical practice may continue for some time and thus influence the care of psychiatric patients in EDs for the foreseeable future, it is important to consider the impact of these changes on care for patients with behavioral emergencies.

EMERGENCY DEPARTMENT TRENDS BEFORE CORONAVIRUS DISEASE 2019

Before COVID-19, EDs provided more than half of all medical care in the United States,⁵ and despite the fact that emergency medicine only became an official specialty in 1979, these have long been recognized as the primary clinical setting in which patients received emergency care.⁶ The onset of the COVID-19 pandemic represented the first decrease in visits to US EDs, which before that time had experienced increases in patient volumes for decades. Between 2010 and 2014, for instance, the rate of increase in overall ED utilization was greater than the growth rate of the US population.⁷ In particular, EDs experienced large increases in patient volumes in patients with behavioral emergencies.^{8,9} Between 2006 and 2014, for instance, ED visits for behavioral emergencies overall increased by 44%, whereas visits by patients for some behavioral emergencies, such as suicidal ideation and self-harm, more than guadrupled.¹⁰ Before COVID-19, resources to treat this patient population did not keep up with the demand. According to a 2016 American College of Emergency Physicians (ACEP) survey, for example, only 17% of emergency physicians had on-call psychiatrists to consult, whereas 11% of respondents reported having no specialist at all to consult for any patient with mental health conditions or substance abuse issues.¹⁰

EMERGENCY DEPARTMENT CHANGES IN PATIENT VOLUMES DURING CORONAVIRUS DISEASE 2019

In the early stages of its spread, limited information on this novel disease was available to both public health officials and health care providers.¹¹ In geographic areas with high rates of COVID-19 infection, some health systems implemented outdoor facilities for treating patients with symptoms of COVID-19 infection.¹² Federal agencies, like the Centers for Disease Control and Prevention (CDC), state public health departments, and private organizations, issued numerous recommendations and mandates intended to limit the spread of the virus in the community.^{13,14} Although these changes were presumably made to limit the spread of COVID-19, many changes may have unfortunately had some unintentional consequences as well, such as leading people to delay emergency care and preventing others from receiving ongoing treatment.¹⁵

Despite efforts by public health officials and others to assure the public that they could safely seek emergency care, many individuals began delaying treatment of many important health concerns such as ischemic heart disease.¹⁶ In sharp contrast to decades of growth, some initial reports indicated that EDs in the United States experienced as much as a 50% decrease in utilization during the early pandemic period.¹⁵ In one study at a community hospital in California, for instance, qualitative interviews with patients about changes in behavior and attitude toward hospital use revealed that patients experienced an overwhelming sense of fear.¹⁵ This fear, as stated by the patients, prevented them from seeking emergency care. Specifically, these patients expressed fears of contracting COVID-19 in hospitals, unfamiliarity

with the efforts implemented by the hospital to limit the spread of COVID-19, and uncertainty about the urgency of their particular medical concern.¹⁵ Collectively, these fears potentially contributed to the significant reduction in ED volumes early the pandemic as discussed earlier.

CORONAVIRUS DISEASE 2019 IMPACTS ON MENTAL HEALTH PRESENTATIONS TO US EMERGENCY DEPARTMENTS

In addition to reductions in the number of individuals seeking emergency care, the COVID-19 pandemic and some of the public health measures implemented to reduce the spread of the virus may have simultaneously exacerbated the severity of ongoing substance use (see section "Coronavirus disease 2019 impacts on substance use disorders"), symptoms of preexisting mental health conditions, and increased the rates of newly arising behavioral health diagnoses (see later). Most mitigation measures, for instance, involved loss of social connections¹⁷ by limiting or restricting public gatherings, closing numerous businesses and schools, limiting outdoor activity, and prohibiting individuals from gathering in large groups, which may have worsened symptoms in patients with preexisting mental health conditions. One study analyzed selfreported responses from an online mental health guestionnaire and concluded that respondents with a diagnosed psychiatric disorder had significantly worse anxiety and depression symptoms.¹⁸ In addition, 17.9% of respondents with a diagnosed psychiatric disorder reported an increase in suicidal ideation severity compared with only 3.8% of respondents without a diagnosed psychiatric disorder who reported an increase.18

At the same time, individuals experienced increasing stressors, such as fear of COVID-19 infection, loss of income, and social isolation.¹⁹ The combination of additional stressors, worsened symptoms in patients with preexisting disease, and increased rates of new diagnoses were catastrophic for the mental health of many individuals.²⁰ According to surveys administered by the CDC in June 2020, for instance, 40.9% of respondents reported having experienced symptoms related to several behavioral health conditions, including depressive disorder and substance use disorder.²¹

At the same time, EDs experienced reductions in presentations for behavioral health issues,^{22,23} although the percent decrease in psychiatric-related visits to general EDs may have been less than the overall decrease in patient visits for other conditions in some locations within the United States.^{24,25} In one survey of billing data from 141 EDs in 16 states, for instance, the greatest decrease was seen in the nonemergent encounters, with the smallest decrease for substance abuse visits.²⁴ Given the increase in rates of anxiety/depression and the increase in drug overdose deaths, however, the smaller decreases in presentations for behavioral health emergencies is not comforting and likely represents a large underutilization of the ED for this group of patients.

The decrease in utilization of mental health services has been reported across different types of facilities providing emergency care. One study comparing patient volume and dispositions in Veteran's Affairs (VA) psychiatric EDs from March to August 2020 to the same period from 3 prior years, for instance, measured an overall decrease in visits with the greatest decrease in April 2020 during the pandemic. This decrease in VA psychiatric ED visits coincided with a peak in COVID-19 cases, suggesting that veterans may have postponed mental health and substance use treatment during that time. If so, this may potentially foreshadow the increased demand for mental health and substance use services in the future, although likely in patients with worsened or more severe disease.²⁶

In contrast to adults, the number of mental health-related ED visits among pediatric patients had a more variable course, with fluctuations during the COVID-19 pandemic. According to the CDC's National Syndromic Surveillance Program, mental health-related ED visits among children were higher during the January 1 to March 15, 2020, period than during the similar period in the preceding year.²⁷ Similarly, one pediatric ED recorded significantly higher rates of suicidal ideation and attempts from February to March 2020 and during the month of July 2020 when compared with the same months in the preceding year.²⁸ However, pediatric ED visits decreased by 43% from mid-March to early April during the peak of the pandemic but then gradually increased through October 2020.²⁷

THE INCREASE IN DOMESTIC VIOLENCE DURING CORONAVIRUS DISEASE 2019

In addition to contributing to an increased rate of new behavioral health diagnoses and the association with worsened symptoms in patients with preexisting behavioral health diagnoses, the increased time at home may have contributed to an increase in domestic violence incidents.²⁹ Domestic violence has been increasing throughout many countries since the onset of the pandemic.³⁰ Some COVID-19 mitigation measures, including shelter-in-place mandates, coupled with stress induced by social isolation and financial insecurity have perpetuated domestic violence incidents. Countries across Europe, Asia, South America, and agencies in the United States have reported increased incidents of domestic violence, and some perpetrators have used the fears surrounding the COVID-19 virus to torment their victims.³⁰

CORONAVIRUS DISEASE 2019 IMPACTS ON SUBSTANCE USE DISORDERS

The United States experienced an unprecedented increase in overdose deaths during the pandemic, with approximately a 60% increase in drug deaths in May 2020 compared with the previous year.³¹ Opioids are predominantly involved in overdose deaths in the United States, accounting for 70.6% of all overdose deaths in 2019.³² One study examining opioid overdose deaths in Cook County, Illinois, before, during, and after an 11-week COVID-19 stay-at-home order, for instance, found that opioidrelated deaths increased during the stay-at-home order period.³³ Another study using medical examiner data in San Francisco documented decreases in deaths for opioids and cocaine but a significant increase for deaths attributable to fentanyl.³⁴ These findings further support the theory that individuals may be delaying treatment of substance use disorders, particularly opioid use disorder, which is similar to the delay in seeking medical care for other conditions. There is also evidence that individuals may be increasingly misusing drugs to cope with COVID-19 stressors. Specifically, surveys conducted on US adults during the COVID-19 pandemic recorded increased behavioral health concerns with initiation of or increase in substance use.³⁵ According to Millennium Health, there was a sharp increase in the positivity rate for several substances, including nonprescribed fentanyl and methamphetamine, after the declaration of the COVID-19 national emergency on March 13, 2020, by the US government.³⁶

INCREASED SUSCEPTIBILITY OF PATIENTS WITH PREEXISTING MENTAL HEALTH CONDITIONS TO CORONAVIRUS DISEASE 2019

Paradoxically, although the number of patients with behavioral health emergencies presenting to EDs decreased during the COVID-19 pandemic,³⁷ there is some evidence that patients with preexisting mental health conditions are at higher risk of contracting COVID-19 and have poorer outcomes if they do become infected. In one

study, a preexisting psychiatric diagnosis was independently associated with an increased risk of contracting COVID-19.³⁸ Patients with schizophrenia, for instance, experience a greater risk of contracting and transmitting COVID-19 during the pandemic, perhaps in part because of the lower awareness of risk and fewer barriers to adequate infection control.³⁹ In addition, many patients with mental health conditions, including those with schizophrenia, have a greater number of medical comorbidities such as substance use disorders. According to a meta-analysis of worldwide studies, more than 60% of people with schizophrenia are frequent smokers,⁴⁰ placing them at higher risk of disease progression and poor outcomes from COVID-19. In one study, schizophrenia ranked only second to age in significance of association with mortality among patients with confirmed COVID-19.⁴¹

In another study, researchers analyzed the association of being recently diagnosed with a mental health disorder such as attention-deficit/hyperactivity disorder, bipolar disorder, depression, and schizophrenia with the risk of contracting COVID-19 and the related mortality. Patients recently diagnosed with a mental disorder had a significantly increased risk of contracting COVID-19 with the strongest association being with depression and schizophrenia. The COVID-19-related mortality rate for patients recently diagnosed with a mental disorder was nearly double (8.5% versus 4.7%) that of patients with COVID-19 without a mental disorder.⁴² The bidirectional association between COVID-19 and psychiatric disorders makes mental health an especially vulnerable and integral aspect of COVID-19 health outcomes.³⁸

The reduction in ED presentations for medical conditions may have also had deleterious effects on patients with preexisting behavioral health diagnoses. As the COVID-19 pandemic has caused an economic recession and disrupted outpatient mental health services, preexisting mental health conditions could worsen, leading to patients with greater agitation during an ED encounter. Furthermore, other COVID-19 data suggest that individuals with milder symptoms have refrained from visiting EDs, whereas those who have visited EDs actually presented more severe forms of agitation and delirium.⁴³

IMPACTS OF CORONAVIRUS DISEASE 2019 ON PERSISTENT NEUROPSYCHIATRIC SYMPTOMS

Although transmitted via the respiratory system, it has long been recognized that COVID-19 does not remain confined to the upper respiratory tract. In an early study of 214 patients from Wuhan, China, 36.4% had central nervous system (CNS) symptoms or disorders.⁴⁴ Subsequent articles^{45–47} have reported the existence of symptoms after resolution of COVID-19 infection, often termed "long-haul COVID." Although the most common symptoms reported are related to the respiratory nature of the virus such as dyspnea, patients in one study experienced psychiatric symptoms, such as anxiety and depression, after a COVID-19 diagnosis.³⁸ In one retrospective cohort study, the most common psychiatric disorder diagnoses within 3 months after COVID-19 infection were anxiety, insomnia, and dementia.

The cause of psychiatric symptoms in long-haul COVID is unclear, and puzzlingly, it does not seem related to the initial severity of the disease. Previous reports in other novel coronavirus diseases such as Middle East respiratory syndrome have linked psychiatric symptoms like depression to the severity of distress experienced by the patient during illness,⁴⁸ but psychiatric symptoms in COVID-19 may instead be related to the severity of the initial inflammatory response.⁴⁹ Regardless, when considering the state of current evidence on the psychological effects of COVID-19, further research is urgently needed to improve treatment and therapeutic options.⁵⁰

RESULTING FINANCIAL CHALLENGES TO HOSPITALS

Although the COVID-19 pandemic was associated with worsening symptoms in patients with preexisting behavioral health conditions, increased rates of new diagnoses of mental health and substance use conditions, and poorer outcomes for patients with behavioral health conditions infected with COVID-19, many hospitals, especially those in rural areas,⁵¹ have paradoxically experienced financial difficulties, because reductions in overall patient volumes also had unfortunate consequences for hospital finances. A survey conducted by the ACEP examined the financial impact of COVID-19 on emergency medicine group practices and individual emergency medicine physicians, finding that approximately 21% of surveyed hospitals had to layoff physicians.⁵² In addition, those surveyed had a substantial level of uncertainty about the future,⁵² leading to the startling conclusion that the emergency medicine workforce may have actually contracted in the midst of a devastating pandemic.

In addition to EDs, hospitals as a whole also suffered financially. The American Hospital Association (AHA), for instance, estimated a \$202.6 billion loss between the months of March and June 2020, and another \$120.5 billion loss from July to December 2020.⁵³ This financial loss may have disproportionately affected rural hospitals with a poorer payer mix.⁵¹ This financial impact could have long-term implications on hospital survival. A June 2020 survey by the AHA showed that 67% of hospitals indicated that they did not think they would achieve baseline patient volumes by the end of 2020.⁵³ Alarmingly, an additional 30% of hospitals reported that the time frame for returning to baseline patient volumes was unknown, or they never expect to return to baseline volumes.⁵³

INCREASED STRESS AMONG EMERGENCY DEPARTMENT PHYSICIANS AND STAFF

In addition to economic uncertainty caused by layoffs of medical staff, frontline workers experienced increased symptoms of burnout⁵⁴; this may have resulted from many factors, including the perception that these workers were being tasked with saving lives without appropriate resources. In many locations, a global surge in demand for personal protective equipment (PPE) limited the supply available to health care workers⁵⁵ and many staff were asked to continue reusing an N95 respirator until visibly soiled. The uncertainty of a novel virus combined with the possibility of infection significantly increased distress among staff. In one study, 74% of surveyed health care workers reported high amounts of distress,⁵⁶ and in another study, almost 50% of respondents reported moderate to severe symptoms of burnout.⁵⁴ ED physicians and other providers reported numerous fears, including the possibility of inadvertently infecting themselves or other family members⁵⁷; moral distress from ethical dilemmas, such as decisions on how best to allocate ventilators to intubated patients⁵⁸; and health care disparities due to racial and structural inequalities, which may have imposed further emotional distress related to social justice and human rights.

One positive change for health care workers may have been the widespread measures, implemented by US hospitals, which were intended to slow the spread of the COVID-19 virus. Using CDC recommendations,¹³ many hospitals implemented both widespread structural and process changes, including increased use of telehealth,⁵⁹ utilization of health screening stations at hospital entrances,¹³ mandatory face masks,¹⁴ and limitations on both the number of visitors per patient, which may have increased difficulty in obtaining collateral information,⁶⁰ and visitation times.⁶¹ Some research, however, has suggested that these measures have been greeted in a generally positive manner among the public and health care workers.⁶² Perhaps more importantly, they may have been effective in detecting and reducing transmission of COVID-19 in the health care environment. One study, for instance, found that 84.2% of COVID-19 cases were detected at the ED triage by using the official screening criteria followed by broader internal screening criteria.⁶³ The combined sensitivity of triage plus internal screening was significantly higher than the official screening criteria (84.3% versus 48.6%), suggesting the utility of layered screening. In the same study, surveillance of patients and ED staff who were potentially exposed to a patient with confirmed COVID-19 detected no cases of nosocomial transmission, which the investigators attributed to enhanced safety protocols and appropriate use of PPE by ED staff.⁶³

EMERGENCY DEPARTMENT MANAGEMENT STRATEGIES FOR THE PATIENT WITH MENTAL HEALTH CONDITION DURING CORONAVIRUS DISEASE 2019

Despite the seemingly insurmountable challenges posed by the COVID-19 pandemic reviewed earlier, there are several strategies, which although relatively underresearched during the pandemic and postpandemic periods, are thought to be effective for management of behavioral emergencies.⁶⁴ Prepandemic, several researchers advocated for methods to improve the care of these patients in the ED, particularly the development of educational training programs for EDs, the initiation of compassionate patient-centered psychotherapeutic interventions early in the ED course, and the development of outpatient mental health treatment capabilities that are able to accept ED referral.⁶⁴ The implementation of these strategies is likely still effective in the pandemic and postpandemic periods. In one study, about 16% of COVID-19-positive patients aged 65 years or older presenting to the ED with delirium experienced symptoms of agitation.⁶⁵

Even before COVID-19, emergency care staff often experienced verbal abuse or violent assault. Expert recommendations for pharmacologic management of agitation have not substantially changed since the 2012 BETA project, in part because of the difficulty in performing prospective randomized trials of agitated patients.⁶⁶ In patients with agitation both from psychiatric and nonpsychiatric causes (such as hypoxemia resulting from severe COVID-19 disease), verbal deescalation remains first-line therapy. If needed, antipsychotics or other calming medication should be administered orally,⁶⁷ with second-generation antipsychotics being preferred.^{68,69} Although underresearched, COVID-19 is likely to accelerate the need for these ED interventions, not replace them.

As a result of the pandemic, there has been a renewed focus on the importance of proper identification and treatment of behavioral health issues in the ED through appropriate screening, intervention, and referral. Given the many precipitating factors related to COVID-19, EDs may simply not find it feasible to continue boarding psychiatric patients without treatment for long periods. Unfortunately, admission to psychiatric inpatient facilities also presents challenges. Many inpatient units are constructed with communal areas. Although this may promote therapeutic interactions,⁷⁰ it may also paradoxically increase the risk for spread of any respiratory disease. In some cases, it may be difficult for patients to properly adhere to mitigation measures, such as requirements for masking.

In an effort to further limit the spread of COVID-19 within the health care setting, some hospitals across the United States have implemented the use of rapid COVID-19 testing before a patient can be admitted to psychiatry services.⁷¹ A positive test result can change the course of treatment of the patient, because patients are typically admitted to a dedicated COVID-19 unit or other unit with the capability for enhanced infectious diseases protocols. The need to isolate COVID-19-positive

patients receiving psychiatric care may also lead to increased stressors for these patients. $^{72}\,$

EMERGENCY DEPARTMENT MENTAL HEALTH INNOVATIONS DURING THE PANDEMIC

One positive development for the care of emergency psychiatric patients during the pandemic was the acceleration of interest and demand for innovative approaches to treat this population in EDs. As health systems reviewed their ED capacity with an eye toward possible COVID surges, the persistent phenomena of "boarding"— otherwise medically stable emergency psychiatric patients remaining in the ED for long hours, awaiting transfer to an elusive inpatient psychiatric hospital bed—seemed an ideal target for improvement.

As many patients nationwide boarding in EDs had historically been referred directly to psychiatric facilities by the ED staff, without any evaluation by mental health professionals, the improved strategy of addition of on-demand emergency telepsychiatry consultations had become more commonplace over the past decade.73 Ondemand emergency telepsychiatry offered the chance for a timely expert psychiatrist consultation at an ED patient's bedside over videoconferencing, allowing for greater possibility of recommendations for discharges or alternative dispositions besides inpatient hospitalization, which then could lead to reduced lengths of stay and enhanced bed turnover.74 On-demand emergency telepsychiatry may be more cost-effective than hiring an onsite specialist and allows a single psychiatrist to see patients at multiple hospitals in one shift without transportation delays or wasted intervals between consultations.⁷⁵ However, although on-demand emergency telepsychiatry had been proved as relatively safe, effective, and well-accepted by patients for several years, regulations nationwide had still often been a barrier.⁷⁶ New policies allowing wider use of telemedicine during the pandemic opened the door for far more EDs to commence with on-demand emergency telepsychiatry programs, improving access to psychiatric care while also reducing percentages of psychiatric hospitalizations and boarding times.^{77,78}

In another recent innovation, owing to the recognition that standard EDs may be a suboptimal environment for psychiatric emergency care, several hospitals looking to prepare for surges during the pandemic created external mental-health-only observation units, to which medically clear ED psychiatric patients could be swiftly moved for targeted care with trained personnel, thus opening up beds in the ED for nonpsychiatric emergency patients.^{79,80} These programs, also known as EmPATH units (Emergency Psychiatry Assessment, Treatment and Healing units) feature a more spacious, calming, and homelike atmosphere,⁸¹ with prompt access to psychiatric patient conditions to subacute status in less than 24 hours; this has resulted in a reported 70% or more of individuals, who in previous protocols would have been boarding in EDs awaiting inpatient admission, instead being discharged to community levels of care, preserving the limited inpatient beds for those patients with truly no alternative to psychiatric hospitalization.⁸²

The authors are aware of several EmPATH units that were able to assist their affiliated EDs even further during the pandemic, and that was via moving medically stable and asymptomatic, yet COVID test-positive acute psychiatric patients out of the ED into specific isolation rooms in the EmPATH unit reserved for this purpose. In relocating these patients from the hectic ED into a more serene setting, the psychiatric professionals on the EmPATH unit could commence psychiatric interventions and better assess these patients for an appropriate and swift disposition, either discharging to home for quarantining, or transfer to an inpatient psychiatric ward reserved for patients with COVID. In doing this ED capacity was increased, whereas the EmPATH unit was used for the primary purpose of the patient visit—psychiatric assessment and treatment—all while maintaining safety protocols.

EXPECTATIONS FOR THE NEAR FUTURE

As the nation comes out of the pandemic and lockdowns, there are indications that the next wave of impact for hospitals may be one of dramatically increasing numbers of behavioral health emergency patients presenting to EDs, many of whom delayed seeking assistance previously due to infection concerns.^{83,84} Thus the true overall mental health consequences of COVID-19 for EDs may be yet to be fully determined.

SUMMARY

The ability to address mental health and substance abuse issues in the ED became more difficult during the COVID-19 pandemic. Challenges to appropriate care of these patients, reviewed in this article, include the underutilization of EDs during the peak of the pandemic, COVID-19-related financial challenges, and increased stress among ED staff. Unfortunately, these changes occurred at a time when many EDs across the country were already facing numerous challenges, ranging from overcrowding to the need for additional resources.

Much of the prepandemic research on the proper approach to behavioral health patients likely remains valid but may have to be flexibly implemented alongside strategies intended to limit the spread of COVID-19. During the pandemic, many EDs used alternative facility space, implemented entrance screening stations, and limited patient visitations. Although some impacts of the COVID-19 pandemic on EDs may resolve in the postpandemic period, many challenges will remain. Thus, health care providers will still need to look to innovative strategies and implement appropriate solutions for the ongoing issues in emergency psychiatry.

DISCLOSURE

Dr M.P. Wilson is an Associate Editor of the Journal of Emergency Medicine. Drs M.P. Wilson and S.L. Zeller are editors of the 2017 book *The Diagnosis and Management of Agitation*. The authors have no other relevant financial interests to disclose.

REFERENCES

- Bragg L. President Trump Declares State of Emergency for COVID-19. National Conference of State Legislatures. 2020. Available at: https://www.ncsl.org/ncslin-dc/publications-and-resources/president-trump-declares-state-of-emergencyfor-covid-19.aspx. Accessed June 25, 2021.
- Hartnett, Kathleen P, Kite-Powell A, et al. Impact of the COVID-19 Pandemic on Emergency Department Visits. Morb Mortal Wkly Rep 2020;69(23):699–704. Available at: cdc.gov/mmwr/volumes/69/wr/pdfs/mm6923e1-H.pdf.
- Boserup B, McKenney M, Elkbuli A. The impact of the COVID-19 pandemic on emergency department visits and patient safety in the United States. Am J Emerg Med 2020;38(9):1732–6.
- Morley C, Unwin M, Peterson GM, et al. Emergency department crowding: A systematic review of causes, consequences and solutions. PLoS One 2018; 13(8):1–42.

- 5. Marcozzi D, Carr B, Liferidge A, et al. Trends in the Contribution of Emergency Departments to the Provision of Hospital-Associated Health Care in the USA. Int J Heal Serv 2018;48(2):267–88.
- 6. Suter RE. Emergency medicine in the United States: a systemic review. World J Emerg Med 2012;3(1):5–10.
- Hooker EA, Mallow PJ, Oglesby MM. Characteristics and Trends of Emergency Department Visits in the United States (2010–2014). J Emerg Med 2019;56(3): 344–51.
- Larkin GL, Claassen CA, Emond JA, et al. Trends in U.S. emergency department visits for mental health conditions, 1992 to 2001. Psychiatr Serv 2005;56(6): 671–7.
- Pandya A, Larkin GL, Randles R, et al. Epidemiological trends in psychosisrelated Emergency Department visits in the United States, 1992-2001. Schizophr Res 2009;110:28–32.
- Zeller S. Pandemic Creates Far-Reaching Challenges for Behavioral Healthcare. 2021. Available at: https://www.vituity.com/blog/pandemic-creates-far-reachingchallenges-for-behavioral-healthcare/. Accessed February 17, 2021.
- Yee J, Unger L, Zadravecz F, et al. Novel coronavirus 2019 (COVID-19): Emergence and implications for emergency care. J Am Coll Emerg Physicians Open 2020;1(2):63–9.
- Konda SR, Dankert JF, Merkow D, et al. COVID-19 Response in the Global Epicenter: Converting a New York City Level 1 Orthopedic Trauma Service into a Hybrid Orthopedic and Medicine COVID-19 Management Team. J Orthop Trauma 2020;34(8):411–7.
- Centers for Disease Control and Prevention. Interim infection prevention and control recommendations for healthcare personnel during the coronavirus disease 2019 (COVID-19) pandemic 2020. Available at: https://www.cdc.gov/ coronavirus/2019-ncov/hcp/infection-control-recommendations.html. Accessed April 13, 2021.
- 14. Advani SD, Smith BA, Lewis SS, et al. Universal masking in hospitals in the COVID-19 era: Is it time to consider shielding? Infect Control Hosp Epidemiol 2020;41(9):1066–7.
- Wong L, Hawkins J, Langness S, et al. Where Are All the Patients? Addressing Covid-19 Fear to Encourage Sick Patients to Seek Emergency Care. NEJM Catal 2020;. https://catalyst.nejm.org/doi/abs/10.1056/CAT.20.0193.
- 16. Porter A, Brown C, Tilford M, et al. Association of the COVID-19 pandemic and dying at home due to ischemic heart disease. Prev Med 2021;153:106818.
- Saeri AK, Cruwys T, Barlow FK, et al. Social connectedness improves public mental health: Investigating bidirectional relationships in the New Zealand attitudes and values survey. Aust N Z J Psychiatry 2018;52(4):365–74.
- 18. Robillard R, Daros AR, Phillips JL, et al. Emerging New Psychiatric Symptoms and the Worsening of Pre-existing Mental Disorders during the COVID-19 Pandemic: A Canadian Multisite Study: Nouveaux symptômes psychiatriques émergents et détérioration des troubles mentaux préexistants pendanturant la p. Can J Psychiatry 2021;1–12.
- 19. Simon N, Saxe G, Marmar C. Mental Health Disorders Related to COVID-19– Related Deaths. JAMA 2020;324(15):1493–4.
- Holingue C, Kalb LG, Riehm KE, et al. Mental distress in the United States at the beginning of the covid-19 pandemic. Am J Public Health 2020;110(11):1628–34.

- Czeisler MÉ, Lane RI, Petrosky E, et al. Mental Health, Substance Use, and Suicidal Ideation During the COVID-19 Pandemic — United States, June 24–30, 2020. Morb Mortal Wkly Rep 2020;69(32):1049–57.
- 22. Westgard BC, Morgan MW, Vazquez-Benitez G, et al. An Analysis of Changes in Emergency Department Visits After a State Declaration During the Time of COVID-19. Ann Emerg Med 2020;76(5):595–601.
- 23. Baugh JJ, White BA, McEvoy D, et al. The cases not seen: Patterns of emergency department visits and procedures in the era of COVID-19. Am J Emerg Med 2020. https://doi.org/10.1016/j.ajem.2020.10.081.
- 24. Lucero AD, Lee A, Hyun J, et al. Underutilization of the emergency department during the covid-19 pandemic. West J Emerg Med 2020;21(6):15–23.
- 25. Goldenberg MN, Parwani V. Psychiatric emergency department volume during Covid-19 pandemic. Am J Emerg Med 2021;41:233–4.
- Mitchell L, Fuehrlein B. Patient Volume and Dispositions in a VA Psychiatric Emergency Room During COVID-19. Community Ment Health J 2021. https://doi.org/ 10.1007/s10597-021-00778-w.
- 27. Leeb RT, Bitsko RH, Radhakrishnan L, et al. Mental Health–Related Emergency Department Visits Among Children Aged <18 Years During the COVID-19 Pandemic — United States, January 1–October 17, 2020. Morb Mortal Wkly Rep 2020;69(45):1675–80.
- 28. Hill RM, Rufino K, Kurian S, et al. Suicide Ideation and Attempts in a Pediatric Emergency Department Before and During COVID-19. Pediatrics 2021;147(3). e2020029280.
- 29. Kofman YB, Garfin DR. Home Is Not Always a Haven: The Domestic Violence Crisis Amid the COVID-19 Pandemic. Psychol Trauma Theory, Res Pract Policy 2020;12(S1):S199–201.
- Campbell AM. An increasing risk of family violence during the Covid-19 pandemic: Strengthening community collaborations to save lives. Forensic Sci Int Rep 2020;2. https://doi.org/10.1016/j.fsir.2020.100089.
- Friedman J, Akre S. COVID-19 and the Drug Overdose Crisis: Uncovering the Deadliest Months in the United States, January–July 2020. Am J Public Health 2021. https://doi.org/10.2105/ajph.2021.306256.
- 32. Centers for Disease Control and Prevention. Drug Overdose Deaths. Available at: https://www.cdc.gov/drugoverdose/deaths/index.html. Accessed June 28, 2021.
- Mason M, Welch S, Arunkumar P, et al. Opioid Overdose Deaths Before, During, and After an 11-Week COVID-19 Stay-at-Home Order — Cook County, Illinois, January 1, 2018–October 6, 2020. MMWR Morb Mortal Wkly Rep 2021;70(10): 362–3.
- Appa A, Rodda LN, Cawley C, et al. Drug Overdose Deaths before and after Shelter-in-Place Orders during the COVID-19 Pandemic in San Francisco. JAMA Netw Open 2021;4(5):e2110452.
- **35.** McKnight-Eily LR, Okoro CA, Strine TW, et al. Racial and Ethnic Disparities in the Prevalence of Stress and Worry, Mental Health Conditions, and Increased Substance Use Among Adults During the COVID-19 Pandemic United States, April and May 2020. MMWR Morb Mortal Wkly Rep 2021;70(5):162–6.
- **36.** Wainwright JJ, Mikre M, Whitley P, et al. Analysis of Drug Test Results Before and After the US Declaration of a National Emergency Concerning the COVID-19 Outbreak. JAMA 2020;324(16):1674–7.
- Di Lorenzo R, Frattini N, Dragone D, et al. Psychiatric emergencies during the covid-19 pandemic: A 6-month observational study. Neuropsychiatr Dis Treat 2021;17:1763–78.

- **38.** Taquet M, Luciano S, Geddes JR, et al. Bidirectional associations between COVID-19 and psychiatric disorder: retrospective cohort studies of 62 354 COVID-19 cases in the USA. Lancet Psychiatry 2021;8:130–40.
- **39.** Kozloff N, Mulsant BH, Stergiopoulos V, et al. The COVID-19 global pandemic: Implications for people with schizophrenia and related disorders. Schizophr Bull 2020;46(4):752–7.
- de Leon J, Diaz FJ. A meta-analysis of worldwide studies demonstrates an association between schizophrenia and tobacco smoking behaviors. Schizophr Res 2005;76:135–57.
- 41. Nemani K, Li C, Olfson M, et al. Association of Psychiatric Disorders with Mortality among Patients with COVID-19. JAMA Psychiatry 2021;78(4):380–6.
- **42.** Wang QQ, Xu R, Volkow ND. Increased risk of COVID-19 infection and mortality in people with mental disorders: analysis from electronic health records in the United States. World Psychiatry 2021;20:124–30.
- **43.** Wong AH, Roppolo LP, Chang BP, et al. Management of agitation during the COVID-19 pandemic. West J Emerg Med 2020;21(4):795–800.
- 44. Mao L, Wang M, Chen S, et al. Neurologic Manifestations of Hospitalized Patients with Coronavirus Disease 2019 in Wuhan, China: a retrospective case series study. JAMA Neurol 2020;77:683–90.
- 45. Rubin R. As Their Numbers Grow, COVID-19 "Long Haulers" Stump Experts. JAMA J Am Med Assoc 2020;324(14):1381–3.
- **46.** Callard F, Perego E. How and why patients made Long Covid. Soc Sci Med 2021; 268:113426.
- 47. Baig AM. Chronic COVID syndrome: Need for an appropriate medical terminology for long-COVID and COVID long-haulers. J Med Virol 2021;93(5):2555–6.
- **48.** Kim HC, Yoo SY, Lee BH, et al. Psychiatric findings in suspected and confirmed Middle East Respiratory Syndrome patients quarantined in hospital: A retrospective chart analysis. Psychiatry Investig 2018;15(4):355–60.
- **49.** Yong SJ. Long COVID or post-COVID-19 syndrome: putative pathophysiology, risk factors, and treatments. Infect Dis 2021;1–18.
- **50.** Holmes EA, O'Connor RC, Perry VH, et al. Multidisciplinary research priorities for the COVID-19 pandemic: a call for action for mental health science. The Lancet Psychiatry 2020;7(6):547–60.
- 51. Fried JE, Liebers DT, Roberts ET. Sustaining Rural Hospitals after COVID-19: The Case for Global Budgets. JAMA 2020;324(2):137–8.
- 52. ACEP Now. ACEP Surveys Members About COVID-19. ACEP Now. 2020. Available at: https://www.acepnow.com/article/acep-surveys-members-about-covid-19/. Accessed April 9, 2021.
- 53. American Hospital Association. Hospitals and Health Systems Face Unprecedented Financial Pressures Due to COVID-19. 2020. Available at: https://www. aha.org/system/files/media/file/2020/06/aha-covid19-financial-impact-report.pdf. Accessed June 25, 2021.
- Chor WPD, Ng WM, Cheng L, et al. Burnout amongst emergency healthcare workers during the COVID-19 pandemic: A multi-center study. Am J Emerg Med 2020. https://doi.org/10.1016/j.ajem.2020.10.040.
- 55. Cook TM. Personal protective equipment during the coronavirus disease (COVID) 2019 pandemic a narrative review. Anaesthesia 2020;75(7):920–7.
- Shechter A, Diaz F, Moise N, et al. Psychological distress, coping behaviors, and preferences for support among New York healthcare workers during the COVID-19 pandemic. Gen Hosp Psychiatry 2020;66:1–8. https://doi.org/10.1016/j. genhosppsych.2020.06.007.

- 57. Shreffler J, Petrey J, Huecker M. The impact of COVID-19 on healthcare worker wellness: A scoping review. West J Emerg Med 2020;21(5):1059–66.
- 58. White DB, Lo B. A Framework for Rationing Ventilators and Critical Care Beds During the COVID-19 Pandemic. JAMA 2020;323(18):1773–4.
- 59. Centers for Disease Control and Prevention. Using Telehealth to Expand Access to Essential Health Services during the COVID-19 Pandemic. 2020. Available at: https://www.cdc.gov/coronavirus/2019-ncov/hcp/telehealth.html.
- Petrik ML, Billera M, Kaplan Y, et al. Balancing Patient Care and Confidentiality: Considerations in Obtaining Collateral Information. J Psychiatr Pract 2015; 21(3):220–4.
- Centers for Disease Control and Prevention. Management of Visitors to Healthcare Facilities in the Context of COVID-19: Non-US Healthcare Settings. 2020. Available at: https://www.cdc.gov/coronavirus/2019-ncov/hcp/non-us-settings/ hcf-visitors.html.
- Saadatjoo S, Miri M, Hassanipour S, et al. Knowledge, attitudes, and practices of the general population about Coronavirus disease 2019 (COVID-19): a systematic review and meta-analysis with policy recommendations. Public Health 2021;194:185–95.
- **63.** Wee LE, Fua TP, Chua YY, et al. Containing COVID-19 in the Emergency Department: The Role of Improved Case Detection and Segregation of Suspect Cases. Acad Emerg Med 2020;27(5):379–87.
- 64. Larkin GL, Beautrais AL, Spirito A, et al. Mental health and emergency medicine: A research agenda. Acad Emerg Med 2009;16(11):1110–9.
- 65. Kennedy M, Helfand BKI, Gou RY, et al. Delirium in Older Patients with COVID-19 Presenting to the Emergency Department. JAMA Netw Open 2020;3(11): e2029540.
- 66. Cole JB, Klein LR, Mullinax SZ, et al. Study Enrollment When "Preconsent" Is Utilized for a Randomized Clinical Trial of Two Treatments for Acute Agitation in the Emergency Department. Acad Emerg Med 2019;26(5):559–66.
- **67.** Mullinax S, Shokraneh F, Wilson MP, et al. Oral Medication for Agitation of Psychiatric Origin: A Scoping Review of Randomized Controlled Trials. J Emerg Med 2017;53(4):524–9.
- 68. Wilson MP, Pepper D, Currier GW, et al. The psychopharmacology of agitation: Consensus statement of the American Association for emergency psychiatry project BETA psychopharmacology workgroup. West J Emerg Med 2012;13(1): 26–34.
- Schneider A, Mullinax S, Hall N, et al. Intramuscular medication for treatment of agitation in the emergency department: A systematic review of controlled trials. Am J Emerg Med 2020. https://doi.org/10.1016/j.ajem.2020.07.013.
- **70.** Jovanović N, Campbell J, Priebe S. How to design psychiatric facilities to foster positive social interaction A systematic review. Eur Psychiatry 2019;60:49–62.
- 71. Bojdani E, Rajagopalan A, Chen A, et al. COVID-19 Pandemic: Impact on psychiatric care in the United States. Psychiatry Res 2020;289:113069.
- 72. Unützer J, Kimmel RJ, Snowden M. Psychiatry in the age of COVID-19. World Psychiatry 2020;19(2):130–1.
- **73.** Telepsychiatry program eases patient crowding in the ED, expedites mental health services to patients and providers. Manag 2013;25:121–4.
- 74. Southard EP, Neufeld JD, Laws S. Telemental health evaluations enhance access and efficiency in a critical access hospital emergency department. Telemed J E Health 2014;20:664–8.

- **75.** Narasimhan M, Druss BG, Hockenberry JM, et al. Impact of a telepsychiatry program at emergency departments statewide on the quality, utilization, and costs of mental health services. Psychiatr Serv 2015;66:1167.
- Turner Lee N, Karsten J, Roberts J. Removing regulatory barriers to telehealth before and after COVID-19. Brookings John Locke Foundation. 2020. Available at: https:// www.brookings.edu/research/removing-regulatory-barriers-to-telehealth-beforeand-after-covid-19/. Accessed July 1, 2021.
- Chen JA, Chung WJ, Young SK, et al. COVID-19 and telepsychiatry: Early outpatient experiences and implications for the future. Gen Hosp Psychiatry 2020;66: 89–95.
- **78.** Whiteside T, Kane E, Aljohani B, et al. Redesigning emergency department operations amidst a viral pandemic. Am J Emerg Med 2020;38(7):1448–53.
- Mohs M. First of Its Kind Mental Health Facility Opens At M Health Southdale Next Week. CBS Minnesota. 2021. Available at: https://minnesota.cbslocal.com/2021/ 03/24/first-of-its-kind-mental-health-facility-opens-at-m-health-southdale-nextweek/. Accessed July 1, 2021.
- 80. Spectrum Health Community Health Assessment Needs. 2021. Available at: https://www.spectrumhealth.org/-/media/spectrumhealth/documents/community-health-assessment-needs/shgr-2021-implementation-strategy-final.pdf?rev=e02 4361a92ad4dc8a7d1d970d626bcb6&hash=EFD0474C098D84EE9B60E9D7A3 7860FE. Accessed June 30, 2021.
- 81. Zeller S. EmPATH Units as a solution for ED Psychiatric Patient Boarding. Psychiatry Advisor. 2017. Available at: https://www.psychiatryadvisor.com/home/practice-management/empath-units-as-a-solution-for-ed-psychiatric-patient-boarding/. Accessed July 2, 2021.
- 82. Stamy C, Shane D, Kannedy L, et al. Economic Evaluation of the Emergency Department After Implementation of an Emergency Psychiatric Assessment, Treatment, and Healing Unit. Acad Emerg Med 2021;28:82–91.
- Joseph A. As the Covid-19 crisis ebbs in the U.S., experts brace for some to experience psychological fallout. STAT News 2021. Available at: https://www. statnews.com/2021/05/07/as-the-covid-19-crisis-ebbs-in-the-u-s-experts-bracefor-a-long-term-impact-on-mental-health/. Accessed July 1, 2021.
- 84. Whelan R. Americans Seek Urgent Mental-Health Support as Covid-19 Crisis Ebbs. Wall Street J Published June 2021;27. Available at: https://www-wsj-com.cdn. ampproject.org/c/s/www.wsj.com/amp/articles/americans-seek-urgent-mentalhealth-support-as-covid-19-crisis-ebbs-11624786203. Accessed June 30, 2021.