Unmasking the Truth of **Health Care Workers' Well-being** During the COVID-19 Pandemic

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Background Burnout is a well-documented multifactorial phenomenon that affects up to 47% of intensive care unit staff at some point in their career. The literature highlights increased rates of anxiety, depression, and posttraumatic stress disorder among staff as a result of the COVID-19 pandemic.
Local Problem Following the second and, at the time of writing, largest surge of the COVID-19 pandemic, concern for staff's mental health prompted a hospital-wide study to assess depression, anxiety, posttraumatic stress disorder, and alcohol misuse and to determine the use and effectiveness of employee resources.
Methods Through REDCap, 212 intensive care unit employees were surveyed with validated screening tools for depression, anxiety, posttraumatic stress disorder, and alcohol misuse. The use and perceived effectiveness of hospital initiatives were assessed.
Results A total of 212 surveys were evaluated. Among respondents, 54% experienced mild anxiety, more than 50% screened positive for mild depression, and 37% screened positive for posttraumatic stress disorder. Most employees (74.5%) were aware of at least 1 resource; 37% knew of the COVID-19 newsletter, one of the top resources highlighted in the survey. Perceived effectiveness of resources ranged from 0.9% (disaster helpline) to 82.5% (prayers, readings, and the on-call chaplain—all "somewhat helpful"). The results correlate with the progressive trend of increased mental health concerns among intensive care unit employees. Survey results prompted an expansion of hospital resources.
Conclusions COVID-19 has brought unique mental health challenges and stressors to intensive care unit staff. By adapting and expanding resources, hospitals can improve staff resiliency and mitigate some mental health concerns with the aim of decreasing the overall psychological impact of the pandemic.
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Burnout among intensive care unit (ICU) staff has been well documented in the literature, with rates ranging from 6% to 47%. How to address burnout, however, remains poorly understood.[1] Since the onset of the COVID-19 pandemic, more than 35 million cases of COVID-19 and more than 615 000 related deaths have occurred in the United States.[2] Burnout rates among ICU staff have become an area of increased focus given the emotional and psychological challenges that surround caring for patients during a pandemic. A recent study showed that COVID-19 strongly affected ICU workers' mental health, causing high rates of depression (16%), anxiety (48%), and symptoms of posttraumatic stress disorder (PTSD; 27%).[3] Furthermore, workers who have contracted COVID-19 have reported higher levels of depression, anxiety, and burnout than those who have not.[4] Potential causes of these symptoms and resultant burnout include limited staffing resources, personal protective equipment shortages, concerns about transmitting COVID-19 to family members, and poor communication with hospital supervisors.[5]

Some studies have focused on psychological symptoms stemming from COVID-19 and burnout rates among providers,[2-4,6-8] whereas others have offered suggestions on how to care for staff members' emotional well-being during the pandemic to prevent the aforementioned symptoms and curb burnout rates.[9-11] Many, if not most, hospital systems have robust employee resource programs in place to address such symptoms. To date, however, it is unclear whether these programs have been effective in mitigating burnout and addressing emotional wellness in relation to COVID-19.

Local Problem

From March 15, 2020, to April 15, 2021, St. Luke's University Health Network (St. Luke's) provided critical care to an estimated 840 patients with COVID-19 across 9 ICUs, with a total of 5934 total hospital admissions. From November 2020 through March 2021, St. Luke's critical care staff were caring for 52 patients with COVID-19 per day. As of April 15, 2021, 539 COVID-19–related deaths had occurred within the health system, and 154 patients had been discharged with hospice services. The first COVID-19–related death occurred on March 24, 2020, and the most recent death (by the end of this study) was April 14, 2021.

Given the large volume of patients with COVID-19 who have been cared for within the St. Luke's system, we aimed to assess depression, anxiety, PTSD, and substance use disorder among ICU staff following the second and, at the time of writing, largest surge of the COVID-19 pandemic (November 2020 through March 2021). We also sought to determine the use and effectiveness of employee resources that the hospital system provides, which are known as "St. Luke's Strong" initiatives—a robust offering of resources available to address employee wellness.

Methods

In this study, we used a REDCap survey to assess the mental health of health care staff during the COVID-19 pandemic and their engagement with St. Luke's Strong initiatives. The study was approved by the Institutional

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Review Board (no. SLIR2021-20, approved March 17, 2021). We, in conjunction with the institutional review board, did not identify any ethical concerns for this project.

The survey included 4 validated screening tools: the 9-item Patient Health Questionnaire for depression (PHQ-9),[12] the 7-item Generalized Anxiety Disorder (GAD-7) scale for anxiety,[13] a 6-item PTSD scale for posttraumatic stress,[14] and the Alcohol Use Disorders Identification Test–Concise for alcohol misuse.[15] The survey consisted of 26 distinct questions from the aforementioned validated screening tools. The identity of survey respondents was confidential and participation was voluntary, but we included questions to obtain basic demographic data including role, age range, and gender (if participants chose to disclose that information). In addition, the survey assessed use and perceived effectiveness of the St. Luke's Strong initiatives. Finally, staff were asked to provide further insight into and comments about the St. Luke's Strong initiatives, their mental health in the face of a pandemic, or both.

Department managers distributed the survey via email to all members of the ICU team, including physicians, advanced practitioners, nurses, aides, respiratory therapists, environmental services personnel, chaplains, care managers, and dietitians, and to their respective staff, representing approximately 700 employees (collectively referred to here as "staff"). Responses were gathered from March 25 to April 15, 2021.

Results

Staff completed a total of 212 surveys, for a response rate of approximately 30%. The largest group represented were nurses, accounting for 50% of respondents; 70% of respondents were women. Participants' ages were evenly distributed, with 80% of respondents reporting an age ranging from 18 to 50 years.

Figure 1 highlights the results of the mental health screenings. Results from the GAD-7 scale, which screens for anxiety symptoms during the 2 weeks before survey completion, were as follows (among 212 respondents, unless otherwise indicated): 169 (80%) reported feeling nervous, anxious, or on edge for at least several days; 140 (66%) reported not being able to stop or control worrying for at least several days; 174 (82%) reported worrying too much about different things; 168 (79%) reported having trouble relaxing; 116 (55%) reported being so restless that it was hard to sit still; 170 (80%) reported becoming easily annoyed or irritable; and 130 of 211 (62%) reported feeling afraid, as though something awful might happen.

Results from the PHQ-9, which screens for depression during the 2 weeks before survey completion, were as follows (among 212 respondents, unless otherwise noted): 119 of 211 (56%) felt little interest or pleasure in doing things; 116 (55%) reported feeling down, depressed, or hopeless; 161 (76%) reported trouble falling or staying asleep, or sleeping too much; 174 (82%) reported feeling tired or having little energy; 132 (62%) reported poor appetite or overeating; 103 of 211 (49%) reported feeling bad about themselves or like a failure; 123 (58%) had trouble concentrating on things; 56 (26%) reported moving slowly or being restless to the point of others noticing; and 15 (7%) had thoughts that they were better off dead or thoughts of hurting themselves.

Staff were also screened for PTSD symptomatology during the month before they completed the survey. Results were as follows (among 212 respondents, unless otherwise indicated): 83 (39%) reported having repeating and disturbing memories, thoughts, or images of a stressful experience; 86 (41%) reported feeling very upset when something reminded them of a stressful experience from the past; 45 (21%) reported avoiding activities or situations because they reminded the person of a stressful experience from the past; 80 (38%) reported feeling irritable or having angry outbursts; 84 (40%) reported difficulty concentrating at moderate or higher levels; and 55 of 210 (26%) reported feeling jumpy or easily startled.

Among other things, respondents reported feeling depressed, having trouble sleeping, feeling tired, and feeling like a failure.

To assess for increased alcohol consumption during the year leading up to the survey, staff were asked 3 questions from the Alcohol Use Disorders Identification Test–Concise screening tool. Among 212 respondents, 21 (10%) reported drinking alcoholic beverages 4 or more times a week, 36 (17%) reported drinking 3 or more alcoholic beverages on a typical day, and 29 (14%) reported drinking 6 or more alcoholic beverages on 1 occasion during the past year.

Our survey also screened staff to assess their awareness of the St. Luke's Strong initiatives, which are designed to help staff cope with stressors encountered

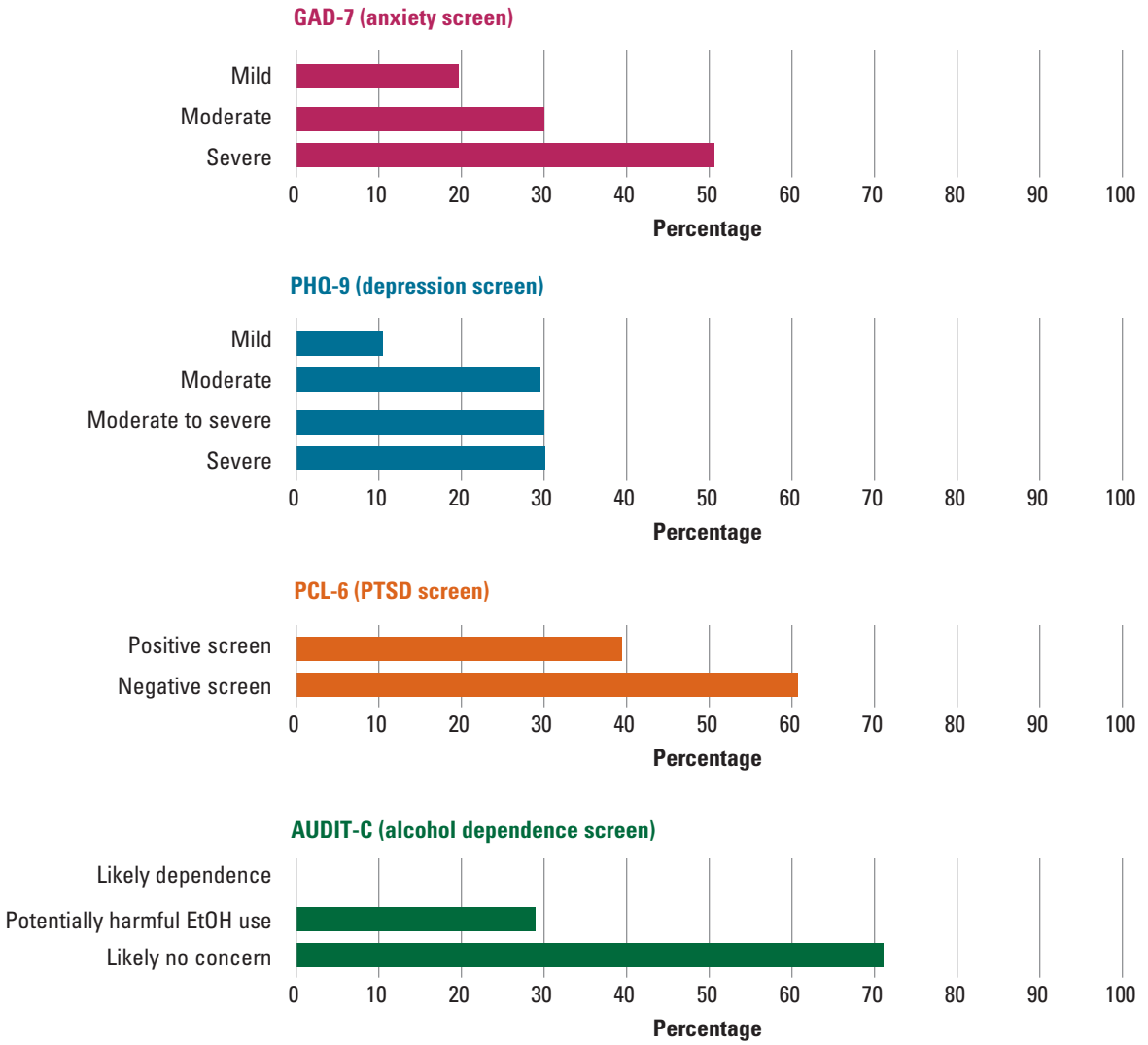

Figure 1 Results of mental health screening.

Abbreviations: AUDIT-C, Alcohol Use Disorders Identification Test-Concise; EtOH, ethanol; GAD-7, Generalized Anxiety Disorder 7-item scale; PCL-6, Post-Traumatic Stress Disorder Checklist 6-item Civilian Version; PHQ-9, 9-item Patient Health Questionnaire; PTSD, posttraumatic stress disorder.

during the COVID-19 pandemic; 75% of staff were aware of at least 1 available St. Luke's employee resource that specifically addresses emotional health, substance use issues, or both. In our assessment of the use and perceived effectiveness of existing resources, results varied on the basis of the resource. For example, resource usage ranged from no reported usage of the Disaster Distress Helpline or the substance use disorder virtual and online resources to a high of 37% reported usage (at least 1 time) of the COVID-19 newsletter. Perceived effectiveness of resources ranged from 0.9% for the Disaster Distress Helpline to 82.5% for prayers, readings, and the on-call chaplain, which were all reported as being at least "somewhat helpful." Figure 2 highlights respondents' awareness and the perceived effectiveness of the St. Luke's Strong resources.

Discussion

The survey unfortunately showed that a large percentage of the St. Luke's ICU staff experienced depression, anxiety, PTSD, and increased alcohol consumption despite the multitude of resources provided through the St. Luke's Strong initiatives. More than 54% of staff screened positive for at least mild anxiety on the GAD-7 scale; more than 50% screened positive for at least mild depression on the PHQ-9; and more than 37% screened positive for PTSD symptoms. These values are alarmingly high and indicate both the grave impact of COVID-19 on ICU staff

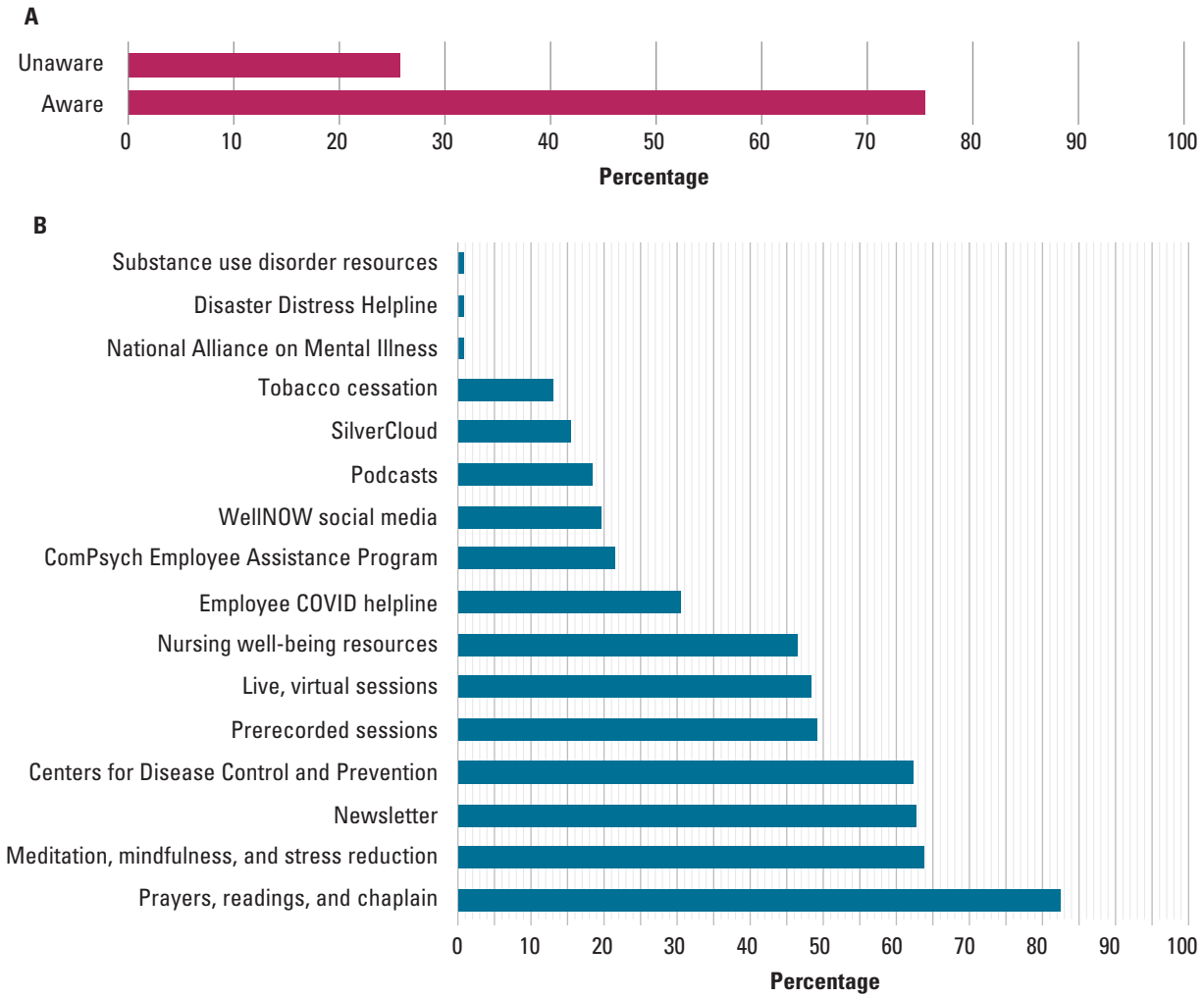

Figure 2 Awareness (A) and perceived effectiveness (B) of St. Luke's Strong resources.

and the need for effective resources to be in place to address mental health.

In selecting resources to address the impacts of COVID-19, St. Luke's looked at responses to past traumatic events and outbreaks for guidance, including the response to the 9/11 terrorist attacks. Individuals involved in 9/11 have a far greater lifetime incidence of PTSD and depression than the general population. A research study of police officers who responded to the scene in New York City on 9/11 showed that 13% reported PTSD symptoms more than a decade after the attacks,[16] and 72% reported problems with depression and anxiety.[17] Lessons learned from the 9/11 attacks were pivotal in our organization's selection and development of resources used during the COVID-19 pandemic.

Resources were chosen to address depression, anxiety, PTSD, and substance use disorder resulting from exposure to a traumatic event. In March 2020, St. Luke's implemented measures to mitigate mental health symptoms for all employees in response to the COVID-19 pandemic, calling this program "St. Luke's Strong." The resource committee chose to use live real-time debriefings because of the organization's success during the past 12 years with evidence-based critical incident stress management interventions.[17] In addition, staff requested 24/7 access to support, given their long hours and extended shifts. To address this request and to expand access options, St. Luke's began to offer virtual resources that included prerecorded trainings, lectures, and support videos that staff could access wherever and whenever they needed them.

Awareness of St. Luke's Strong initiatives was high among staff: 74% of respondents indicated that they were aware of the resource offerings. Staff potentially benefited from this high level of awareness, as knowledge that the resources are available may help staff feel supported and create an overall sense of well-being separate from any benefit gained from using the resources. Therefore, regardless of whether a staff member uses a particular resource, they benefit from knowing that it exists and is available if they need it. Further increasing staff awareness of resources could lead to increased use of resources and improved staff well-being. During the COVID-19 pandemic, information regarding resources has been distributed only through email. With so many emails received on a daily basis, staff may have experienced information overload and fatigue. Better marketing tactics including posters, mailers, incentive programs, and leading by example would increase staff's awareness and use of resources.

Staff also perceived certain resources as being more effective than others. For example, 83% of respondents perceived prayers, readings, and the chaplain as effective, indicating that they potentially benefited from resources that addressed spirituality in times of crisis. Similarly, staff highly valued resources that provided an opportunity for relaxation: 64% of respondents perceived guided meditation, mindfulness, and stress reduction videos as effective. Resources identified as being highly effective should be the crux of future programing initiated within St. Luke's. Staff placed less value on substance use disorder resources, the Disaster Distress Helpline, the National Alliance on Mental Illness, and tobacco cessation resources. We are uncertain why these resources were rated low; in the future they could continue to be offered but not as main supports during pandemics.

Given the results collected from this survey and the conclusions drawn, St. Luke's has committed to expanding the St. Luke's Strong resources moving forward.

Given the results collected from this survey and the conclusions drawn, St. Luke's has committed to expanding the St. Luke's Strong resources moving forward. One potential way to increase use is to provide staff with time during their shift to use the resources, which would encourage resource usage that may not otherwise occur outside work hours because of fatigue or prior commitments. Therapy dogs have been introduced into rotation, providing ICU staff members a chance to decompress while spending time with a playful animal. On a broader level, St. Luke's Psychiatric Associates plan to make changes to meet the pandemic-related needs of hospital staff, with the staff's long-term mental health in mind. These changes entail adding a licensed counselor within the hospital system to expand access to counseling services and foster an integrated health care environment that links access to mental and physical health services. A final consideration is to remove financial barriers to accessing care, which could be done by waiving co-payment or financial obligations for mental health–related services.

Limitations

Because of the rapidly changing landscape of the COVID-19 pandemic, our study had some limitations. We performed this analysis after the second and, at the time of writing, largest surge of COVID-19, and the results were subject to recall bias. Use of these resources varied among those who responded to the survey, and thus this survey may not be the best measure of actual resource usage. Respondents opted in to complete the survey, and therefore results may be subject to self-selection bias. We did not adjust for respondents' baseline mental health nor assess for COVID-19–related mental health issues. Therefore, we are unable to determine whether these interventions affected mental health issues that were present at baseline. In addition, the survey was provided to managers and required their participation by encouraging participation and distributing surveys, potentially limiting the response rate. Finally, survey accessibility was limited to those respondents who could read and understand English and who had access to email and the internet.

Conclusions

The COVID-19 pandemic has proven to be a challenging time for all who work in health care. Frontline workers who have provided critical care services throughout the pandemic face potentially grave and long-lasting psychological effects. Results from our survey show high rates of depression, anxiety, and PTSD among critical care staff immediately after the second wave of the pandemic. As described in this article, St. Luke's Strong initiatives were in place to mitigate and minimize these

psychological impacts. These resources have proven effective when used after other traumatic events. Staff awareness of these resources was high, with 75% of staff surveyed reporting that they were aware of at least 1 available St. Luke's employee resource that specifically addressed emotional health, substance use issues, or both. Most notably, staff perceived the resources to be effective tools that helped mitigate the psychosocial stressors encountered during the COVID-19 pandemic. Through the St. Luke's Strong initiatives, St. Luke's has built a new foundation using lessons learned from past and current events to prepare the organization for future traumatic events or pandemics. CCN

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Financial Disclosures
None reported.

See also

To learn more about how the COVID-19 pandemic has affected nurses, read "Critical Care Nurses' Experiences During the COVID-19 Pandemic: A US National Survey" by Guttormson et al in the *American Journal of Critical Care,* 2022;31(2):96-103. Available at **www.ajcconline.org**.

References

1. Chuang CH, Tseng PC, Lin CY, Lin KH, Chen YY. Burnout in the intensive care unit professionals: a systematic review. *Medicine (Baltimore).* 2016;95(50):e5629. doi:10.1097/MD.0000000000005629
2. Coronavirus in the U.S.: latest map and case count. *New York Times.* Accessed August 2, 2021. https://www.nytimes.com/interactive/2021/us/covid-cases.html
3. Caillet A, Coste C, Sanchez R, Allaouchiche B. Psychological impact of COVID-19 on ICU caregivers. *Anaesth Crit Care Pain Med.* 2020;39(6):717-722. doi:10.1016/j.accpm.2020.08.006
4. Firew T, Sano ED, Lee JW, et al. Protecting the front line: a cross-sectional survey analysis of the occupational factors contributing to healthcare workers' infection and psychological distress during the COVID-19 pandemic in the USA. *BMJ Open.* 2020;10(10):e042752. doi:10.1136/bmjopen-2020-042752
5. Sharma M, Creutzfeldt CJ, Lewis A, et al. Health-care professionals' perceptions of critical care resource availability and factors associated with mental well-being during coronavirus disease 2019 (COVID-19): results from a US survey. *Clin Infect Dis.* 2021;72(10):e566-e576. doi:10.1093/cid/ciaa1311
6. Lai J, Ma S, Wang Y, et al. Factors associated with mental health outcomes among health care workers exposed to coronavirus disease 2019. *JAMA Netw Open.* 2020;3(3):e203976. doi:10.1001/jamanetworkopen.2020.3976
7. Pastores SM, Kvetan V, Coopersmith CM, et al; Academic Leaders in Critical Care Medicine (ALCCM) Task Force of the Society of the Critical Care Medicine. Workforce, workload, and burnout among intensivists and advanced practice providers: a narrative review. *Crit Care Med.* 2019;47(4):550-557. doi:10.1097/CCM.0000000000003637
8. Azoulay E, De Waele J, Ferrer R, et al; ESICM. Symptoms of burnout in intensive care unit specialists facing the COVID-19 outbreak. *Ann Intensive Care.* 2020;10(1):110. doi:10.1186/s13613-020-00722-3
9. Sasangohar F, Jones SL, Masud FN, Vahidy FS, Kash BA. Provider burnout and fatigue during the COVID-19 pandemic: lessons learned from a high-volume intensive care unit. *Anesth Analg.* 2020;131(1):106-111. doi:10.1213/ANE.0000000000004866
10. Albott CS, Wozniak JR, McGlinch BP, Wall MH, Gold BS, Vinogradov S. Battle buddies: rapid deployment of a psychological resilience intervention for health care workers during the COVID-19 pandemic. *Anesth Analg.* 2020;131(1):43-54. doi:10.1213/ANE.0000000000004912
11. Ripp J, Peccoralo L, Charney D. Attending to the emotional well-being of the health care workforce in a New York City health system during the COVID-19 pandemic. *Acad Med.* 2020;95(8):1136-1139. doi:10.1097/ACM.0000000000003414
12. Kroenke K, Spitzer RL, Williams JB. The PHQ-9: validity of a brief depression severity measure. *J Gen Intern Med.* 2001;16(9):606-613. doi:10.1046/j.1525-1497.2001.016009606.x
13. Spitzer RL, Kroenke K, Williams JB, Löwe B. A brief measure for assessing generalized anxiety disorder: the GAD-7. *Arch Intern Med.* 2006;166(10):1092-1097. doi:10.1001/archinte.166.10.1092
14. Lang AJ, Stein MB. An abbreviated PTSD checklist for use as a screening instrument in primary care. *Behav Res Ther.* 2005;43(5):585-594. doi:10.1016/j.brat.2004.04.005
15. Bush K, Kivlahan DR, McDonell MB, Fihn SD, Bradley KA. The AUDIT alcohol consumption questions (AUDIT-C): an effective brief screening test for problem drinking. Ambulatory Care Quality Improvement Project (ACQUIP). Alcohol Use Disorders Identification Test. *Arch Intern Med.* 1998;158(16):1789-1795. doi:10.1001/archinte.158.16.1789
16. Bowler RM, Kornblith ES, Li J, et al. Police officers who responded to 9/11: comorbidity of PTSD, depression, and anxiety 10-11 years later. *Am J Ind Med.* 2016;59(6):425-436. doi:10.1002/ajim.22588
17. Richardson K. Internal peer support for healthcare professionals during the COVID-19 pandemic. *Crisis Stress Hum Resil.* 2020;2(3):112-124.