



COVID-19 Survey Summary Report

Overview

Coronavirus disease 2019 (COVID-19) is an infectious disease caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2).¹ COVID-19 results in a rapidly spreading illness, which can result in acute respiratory distress syndrome requiring intensive care unit (ICU) hospitalization in and estimated 5% of patients.^{2,3} The prevalence of hypoxic respiratory failure in patients with COVID-19 is estimated at 19%, with up to 12% requiring invasive mechanical ventilation in the ICU.^{3,4}

As a result of the significant need for ICU care for COVID-19 patients, having an adequate understanding of ICU resource needs is critical in order to meet projected healthcare needs. The Society of Critical Care Medicine (SCCM) recently published an update on ICU resource availability for COVID-19.⁵ However information on ICU readiness remains lacking.

Discussion and Implications

While telehealth in critical care has been identified as a solution to manpower shortages, only 29.5% of respondents said that their ICU is equipped with a telemedicine system to help manage COVID-19 patients if needed. Having adequate ICU capacity to care for COVID-19 patients who require critical care resources is an essential aspect of managing the current pandemic. Addressing the concerns of ICU clinicians is also fundamental because these healthcare professionals are serving on the front lines to provide care to critically ill patients.

Continued evaluation of ICU resource capacity, strategies for managing surge capacity, ensuring adequate PPE, and monitoring the impact of caring for COVID-19 patients on ICU staff including requirements for quarantine, staff infection rates, and ICU staffing capacity including strategies for meeting workforce needs, are still needed.

Methods

To gather this data, SCCM launched a national web-based anonymous survey from March 18 through March 25, 2020, to members of the Critical Care Societies Collaborative, the four major national critical care professional organizations in the United States, which are the American Association of Critical-Care Nurses (AACN), American College of Chest Physicians (CHEST), American Thoracic Society (ATS), and SCCM, in addition to members of the American Association for Respiratory Care. Collectively these organizations represent over 150,000 critical care professionals, including physicians, nurses, respiratory therapists, pharmacists, and other clinicians working in ICU settings.

The 12-item questionnaire assessed practicing ICU clinician perceptions of the degree to which ICU facilities and teams are prepared to treat COVID-19 patients, concerns related to caring for COVID-19 patients in the ICU, efforts that have been made to care for patients, anticipated personal protective equipment (PPE) supply shortages, and techniques being used to add critical care capacity, among others.

Results

A total of 4877 ICU clinician responded to the survey including ICU nurses (n = 3470, 71.3%), physicians (n = 664, 13.6%), advanced practice providers including nurse practitioners and physician assistants (n = 334, 6.9%), respiratory therapists (n = 236, 4.9%), pharmacists (n = 79, 1.6%) and others including certified registered nurse anesthetists, physical therapists, dietitians, ICU directors, nurse managers, and medical residents (n = 82, 1.7%). (**Table 1**). These clinicians represented ICU settings in the United States including Hawaii, Alaska and Puerto Rico, as well as Canada (**Figure 1**). Several responses were also received from ICU clinicians in Mexico, South America, and Europe.

Respondents reported working in community (n = 2936, 60.3%), academic (n = 1536, 31.6%), and government (n = 227, 4.7%) hospital settings, located in metropolitan urban areas with populations of 50,000 (n = 3533, 72.7%), micropolitan urban areas with populations of 10,000-50,000 (n = 1086, 22.3%), and rural areas with populations under 10,000 (n = 241, 5.0%) (**Table 1**).

A total of 2552 respondents (52.5%) reported having cared for a presumptive or confirmed COVID-19 patient in the ICU. Most respondents (n = 3125, 64.5%) said that their ICU facility and team are not well prepared to treat COVID-19 patients. Most respondents (n = 4808, 98.7%) reported concerns related to caring for COVID-19 patients in the ICU, including lack of specific clinical guidance or treatment protocols (n = 2613, 53.6%), lack of PPE training (n = 2120, 43.5%), ICU staffing shortages (n = 2862, 58.7%), ICU resource shortages such as supplies, medications, and beds (n = 3992, 81.9%), patient surge and overcrowding (n = 2984, 61.2%), or receiving pay/benefits during periods of quarantine (n = 1591, 32.7%) (**Table 2**).

Most respondents (n = 4707, 97%) said that some efforts have been made to prepare for COVID-19. Specific measures included providing updates to all ICU staff on COVID-19 (n = 3491, 71.9%), designating specific isolation rooms or areas (n = 3414, 70.4%), activating an incident command and/or convening a team to focus on COVID-19 (n = 3029, 62.4%), creating internal COVID-19 online resources for staff use (n = 2835, 58.4%), conducting general emergency preparedness training/drills within the past 90 days (n = 630, 13%), developing/updating a specific plan to augment ICU staffing in a pandemic (n = 1350, 27.8%), and conducting COVID-19-specific training/drills (n = 1064, 21.9%), among others (**Table 2**).

Most respondents (n = 4547, 93.9%) anticipated PPE shortages in the ICU. A total of 2699 respondents (56.3%) reported that their ICU has made plans to cohort COVID-19 patients if the institution's negative-pressure (isolation) room capacity was exceeded. (**Table 2**).

Similarly, most respondents (n = 4010, 82.9%) said that their hospital was now employing techniques to add critical care capacity. Specific measures including cancelling elective surgeries to free up ICU beds (n = 3557, 73.5%), preparing in-hospital non-ICU space (n = 2323, 48%), preparing temporary spaces (e.g., tents, portable buildings) (n = 1168, 24.1%), or preparing external permanent facilities (e.g., outpatient clinics, surgery centers) (n = 589, 12.2%) (**Figure 2**).

Most respondents (n = 2310, 47.5%) reported that their ICU is not equipped with a telemedicine system to help manage COVID-19 patients.

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Additional Readings

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Table 1. Survey Respondent Background (Overall Number of Responses = 4875)

	Count	%
Primary place providing critical care	N = 4867	
Community hospital	2936	60.3
Academic center	1536	31.6
Government hospital	227	4.7
Other	168	3.5
Location of primary ICU setting	N = 4860	
Metropolitan (urban area with population 50,000+)	3533	72.7
Micropolitan (urban area with population 10,000-50,000)	1086	22.3
Rural (area with population under 10,000)	241	5.0
Profession	N = 4865	
Nurse	3470	71.3
Physician	664	13.6
APP	334	6.9
Respiratory therapist	236	4.9
Pharmacist	79	1.6
Other	82	1.7

Note: *N* indicates the number of valid responses for that question.

Table 2. Preparedness for COVID-19 (Overall Number of Responses = 4875)

	Count	%
Primary ICU facility and team are well prepared to treat COVID-19 patients	N = 4845	
Yes	1720	35.5
No	3125	64.5
Cared for presumptive or confirmed COVID-19 patients in ICU	N = 4862	
Yes	2552	52.5
No	2310	47.5
Concerns related to caring for COVID-19 patients in ICU	N = 4872	
None	64	1.3
Some	4808	98.7
Of those who reported some concerns:	Median	Range
Number of reported concerns per respondent (maximum = 7)	3.0	1-7
Selected concerns (multiple possible):	Count	%
Lack of clinical guidance/treatment protocols	2613	53.6
Lack of PPE training	2120	43.5
ICU staffing shortages	2862	58.7
ICU resource shortages (e.g., supplies, medications, beds)	3992	81.9
Patient surge and overcrowding	2984	61.2
Receiving pay/benefits during periods of quarantine	1591	32.7
Other	735	15.1
Efforts of primary ICU to prepare for COVID-19	N = 4852	
None	145	3.0
Some	4707	97.0
Of those who reported some efforts:	Median	Range
Number of reported efforts per respondent (maximum = 11)	4.0	1-11
Selected efforts (multiple possible):	Count	%
Activated incident command and/or convened a team to focus on COVID-19	3029	62.4
Conducted general emergency preparedness training/drills within the last 90 days	630	13.0
Conducted COVID-19-specific training and/or drill	1064	21.9
Created internal COVID-19 online resource for staff use	2835	58.4
Designated specific isolation rooms/areas	3414	70.4
Posted COVID-19-specific signage around the ICU	2478	51.1
Provided updates to all ICU staff on COVID-19 situation	3491	71.9
Developed/updated a specific plan to augment ICU staffing in a pandemic	1350	27.8
Reviewed/updated other emergency response policies and plans	1391	28.7

	Count	%
Communicated COVID-19 triage protocols to all staff	1771	36.5
Other	204	4.2
Anticipate PPE shortages in primary ICU	N = 4871	
Don't know	110	2.3
Not likely	53	1.1
Somewhat unlikely	134	2.8
Somewhat likely	1026	21.1
Very likely	3548	72.8
Made plans to cohort COVID-19 patients if institution's negative-pressure (isolation) room capacity exceeded	N = 4797	
Yes	2699	56.3
No	2098	43.7
ICU equipped with telemedicine system to help manage COVID-19 patients if needed	N = 4861	
Yes	1387	28.5
No	2310	47.5
Don't know	1164	23.9
Hospital now employing techniques to add critical care capacity	N = 4840	
Not at this time	830	17.1
Yes	4010	82.9
Of those who reported employing techniques:	Median	Range
Number of reported techniques per respondent (maximum = 4)	2.0	1-4
Selected techniques (multiple possible):	Count	%
Cancelling elective surgeries to free up ICU beds	3557	73.5
Preparing in-hospital non-ICU space	2323	48.0
Preparing external permanent facilities (e.g., outpatient clinics, surgery centers)	589	12.2
Preparing temporary spaces (e.g., tents, portable buildings)	1168	24.1

Note: *N* indicates the number of valid responses for that question or series of questions.

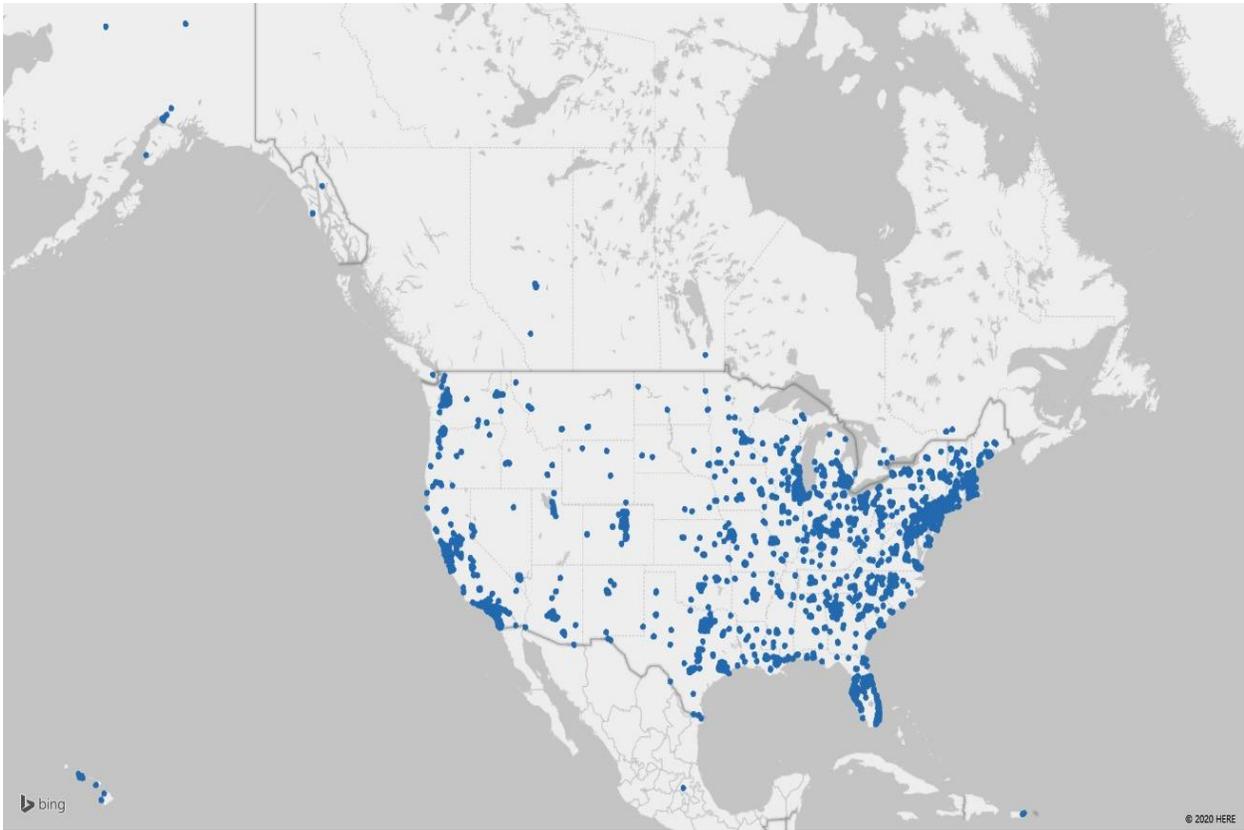


Figure 1. ICU Clinician Respondent Geographical Representation

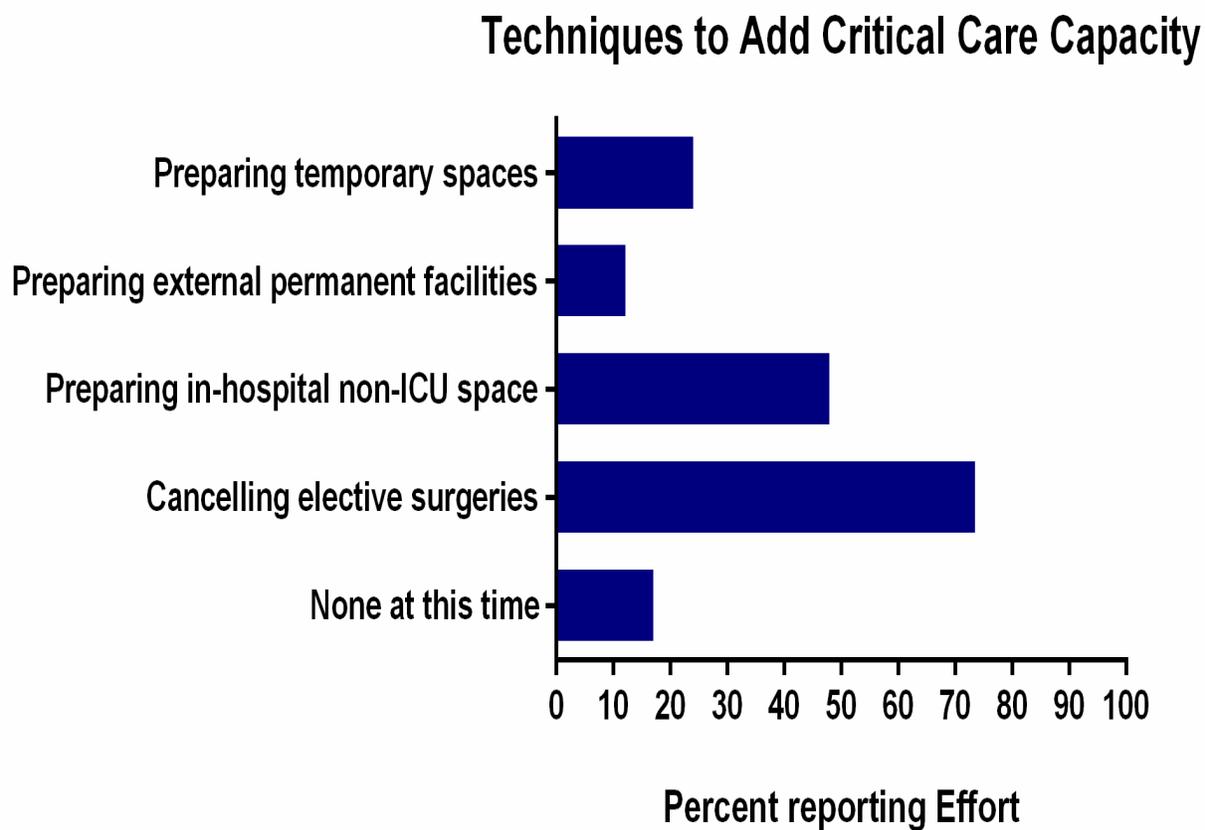


Figure 2. ICU Clinician Reports of Measures Being Implemented to Add Critical Care Capacity

Note: N = 4840.