

Society of Critical Care Medicine



The Intensive Care Professionals

SCCM COVID-19 Rapid-Cycle Survey 2 Report

Globally, COVID-19 cases continue to increase exponentially, with over 3 million cases worldwide and over 208,000 deaths.¹

Recent reports have stated that, among hospitalized patients, 30% require ICU care and up to 29% require mechanical ventilation.^{2,3} Understanding ICU resource needs continues to be an essential aspect of meeting current and projected needs of critically ill COVID-19 patients.

The Society of Critical Care Medicine (SCCM), an organization representing physicians, nurses, pharmacists, respiratory therapists, and other clinicians working in ICU settings, launched a series of COVID-19 rapid-cycle surveys to obtain essential information related to ICU care of COVID-19 patients. The first survey, conducted March 18-25, 2020, found that critical care capacity was being augmented, but that the majority of respondents (n = 4547, 93.9%) anticipated ICU personal protective equipment (PPE) shortages based on their current use profile. The chief reported concerns included ICU shortages of resources such as supplies, medications, and beds; ICU staffing shortages; and patient surges leading to overcrowding.⁴

To capture information on the evolving pandemic as it relates to ICU care, a second survey was launched to assess challenging aspects of care in managing COVID-19 patients, ICU clinician perceptions of critical areas of need, and personal concerns.

Data were obtained via a national web-based anonymous survey over the 2-week period April 7-22, 2020. The survey invitation targeted members of the Critical Care Societies Collaborative, a group comprising four major U.S. critical care professional organizations—American Association of Critical-Care Nurses, American College of Chest Physicians, American Thoracic Society, and SCCM. Collectively these organizations represent over 150,000 critical care professionals including physicians, advanced practice providers, nurses, respiratory therapists, pharmacists, and other healthcare professionals.

The 16-item questionnaire assessed ICU clinician perceptions of the most critical ICU needs in managing the COVID-19 pandemic, challenging aspects of care, levels of resources, concerns about being exposed to COVID-19, and levels of personal stress. The survey was created using SurveyMonkey, and distributed via email and newsletter blasts.

Results

A total of 9492 ICU clinicians responded to the survey. Respondents included ICU nurses (n = 6731, 91.3%), physicians (n = 212 2.9%), advanced practice providers (nurse practitioners and physician assistants) (n = 334, 4.5%), respiratory therapists (n = 31, 0.4%), and pharmacists (n = 30, 0.4%). Other respondents included certified registered nurse anesthetists, emergency

medicine flight personnel, ICU medical and nursing directors, trainees in residency, dietitians, and nursing and medical students (n = 33, 0.4%). (**Table 1**). These clinicians represented ICU settings in the United States, including all 50 states and Puerto Rico.

Respondents reported working in community (n = 5752, 63.2%), academic (n = 2589, 28.5%), government (n = 420, 4.6%), and other settings including private, rural, critical access, and telehealth (n = 338, 3.7%). Employment locations included metropolitan urbanized areas with a population of more than 50,000 (n = 6319, 69.5%), micropolitan urbanized areas with a population of 10,000-50,000 (n = 2186, 24.0%) and rural areas with a population of fewer than 10,000 (n = 588, 6.5%) (**Table 1**).

Most respondents (n = 6510, 88%) reported having cared for a presumptive or confirmed COVID-19 patient (**Figure 1**). A total of 4106 (56.9%) respondents were located in states with 20,000 or more COVID-19 cases, while 833 (25.4%) were located in states with 5000 to less than 20,000 cases, and 1104 (15.3%) were located in states with 1000 to less than 5000 cases (**Table 1**).

Most Critical ICU Needs

Respondents identified the most critical needs their ICUs are currently facing to manage the COVID-19 pandemic as PPE masks (n = 2896, 38%) and ICU staffing (n = 1614, 21.2%) (**Table 2** and **Figure 2**).

Other critical needs include:

- Laboratory turnaround time for COVID-19 testing (n = 779, 10.2%)
- Keeping up with information on management strategies (n = 399, 5.2%)
- Isolation room capacity (n = 362, 4.8%)
- Availability of critical ICU medications (eg, sedative/analgesics, paralytics) (n = 299, 3.9%).

ICU Resources

Clinicians identified a number of potentially limited resources in the ICU as the pandemic continues (**Table 2**), including:

- Personnel (n = 3734, 40.9%)
- Medications (n = 3320, 36.4%)
- ICU capacity including surge potential (n = 3292, 36.1%)
- Isolation room capacity (n = 2868, 31.4%)
- Necessary communication from the institution about care strategies (n = 2254, 24.7%)
- Ventilators (n = 2254, 24.7%)

Measures Used to Limit Potential Spread of COVID-19 to Family Members

A number of special measures reported by ICU clinicians to limit the potential spread of COVID-19 to family members (**Table 2**) included:

- Changing clothes before and after work (n = 6551, 71.8%)
- Showering before joining family (n = 5823, 63.8%)
- Limiting physical contact until decontamination (n = 5215, 57.2%)
- Using hand sanitizer before entering their home (n = 4650, 51%)
- Showering and washing clothes away from family (n = 4132, 45.3%)
- Staying in isolation from the household at home (n = 1502, 16.5%),
- Staying in isolation with alternative housing away from the household (n = 1090, 12%)
- Wearing a mask at home (n = 619, 6.8%)

Concern About Exposure to COVID-19

On a scale of 0 to 10, where 10 represents very concerned, the median level of concern about personally being exposed to COVID-19 was 8, while the median level of concern about exposing family members to COVID-19 was 10 (**Table 2**).

Level of Personal Stress

On a scale of 0 to 10, where 10 represents extreme stress, ICU clinicians reported a personal level of stress of 8, compared to a median level of personal stress of 3 before the pandemic (**Table 2**).

Other Key Findings

- Nurses reported that their highest level of concern was exposing family members to COVID-19 (median 10 on a scale of 1-10)
- ICU clinicians' concern about personally being exposed to COVID-19 had a median of 8, regardless of whether or not they personally cared for any presumptive or confirmed COVID-19 patients in the ICU.
- Concern about exposing family members to COVID-19 had a median of 10 for those who personally cared for any presumptive or confirmed COVID-19 patients in the ICU, compared to a median of 9 for those who did not.
- Clinician concern about personally being exposed to COVID-19 was highest in respondents from states with 20,000 cases or more (median 9) compared to 8 otherwise.
- Clinician concern about exposing family members to COVID-19 was highest in respondents from states with 20,000 cases or more (median 10) compared to 9 otherwise.
- Clinicians who personally cared for any presumptive or confirmed COVID-19 patients in the ICU reported a median of 8 compared to 7 among those who did not.

Summary

This survey of a national sample of ICU clinicians finds continued concern about PPE supplies, with the most critical need being PPE masks. Other top critical needs for ICUs to manage the

COVID-19 pandemic include ICU staffing, laboratory turnaround time for COVID-19 testing, and keeping up with information on management strategies. ICU clinicians report high levels of concern about personally being exposed and about potentially exposing family members to COVID-19. Continued assessment of ICU resource needs and clinician reports of priority areas of care remain needed in order to meet ongoing and anticipated pandemic response measures for critically ill COVID-19 patients.

Table 1. ICU Clinician Demographics

	Count	%
Primary place providing critical care	N = 9099	
Community hospital	5752	63.2
Academic center	2589	28.5
Government hospital	420	4.6
Other	338	3.7
Location of primary ICU setting	N = 9093	
Metropolitan (urbanized area with population 50,000+)	6319	69.5
Micropolitan (urbanized area with population 10,000-50,000)	2186	24.0
Rural (population under 10,000)	588	6.5
State COVID-19 level	N = 7210	
20,000 cases or more	4106	56.9
5,000 to less than 20,000 cases	1833	25.4
1,000 to less than 5,000 cases	1104	15.3
Less than 1,000 cases	167	2.3
Profession	N = 7629	
Nurse	6731	91.3
Advanced practice provider	334	4.5
Physician	212	2.9
Respiratory therapist	31	0.4
Pharmacist	30	0.4
Other	33	0.4
Cared for presumptive or confirmed COVID-19 patients in ICU:	N = 7400	
Yes	6510	88.0
No	890	12.0

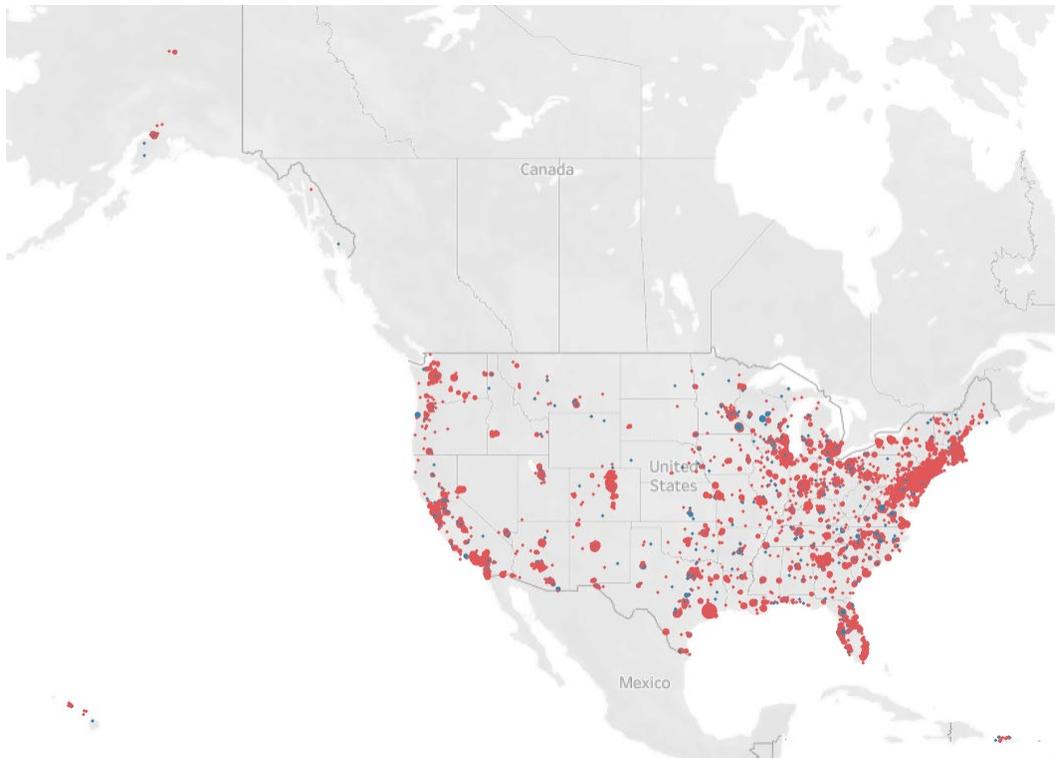
Notes: N indicates the number of valid responses for that question. Data from 9120 clinicians in the United States is reported. Of the 9492 survey respondents, 372 were excluded because they did not practice in the United States.

Table 2. COVID-19 Pandemic Perceptions (overall number of responses = 9120)

	Count	%
Most critical need ICU currently facing to manage COVID-19 pandemic	N = 7616	
PPE masks	2896	38.0
ICU staffing	1614	21.2
Laboratory turnaround time for COVID-19 testing	779	10.2
Keeping up with the information on management strategies	399	5.2
Isolation room capacity	362	4.8
Availability of critical ICU medications (eg, sedative/analgesics, paralytics)	299	3.9
ICU bed availability	272	3.6
PPE gowns	266	3.5
Other	228	3.0
Support from hospital command/administration	221	2.9
PPE eye shields	96	1.3
Ventilator availability	73	1.0
Hand-sanitizing gel	54	0.7
Non-ICU staffing	32	0.4
PPE gloves	25	0.3
Potentially limited resources in ICU (multiple selections possible)		
Personnel	3734	40.9
Medications	3320	36.4
ICU capacity (including surge potential)	3292	36.1
Isolation room capacity	2868	31.4
Necessary communication from institution about care strategies	2254	24.7
Ventilators	2087	22.9
Other	339	3.7
Special measures used to limit spread of COVID-19 to family members (multiple selections possible)		
Changing clothes before/after work	6551	71.8
Showering before joining family	5823	63.8
Limiting physical contact until decontamination	5215	57.2
Using hand sanitizer before entering home	4650	51.0
Showering and washing clothes away from family	4132	45.3
Developing plan for what happens if ill with COVID-19	3644	40.0
Staying in isolation from household at home	1502	16.5
Staying in isolation with alternative housing away from household	1090	12.0
Wearing a mask at home	619	6.8
Other	580	6.4
	Median	IQR
Level of concern about personally being exposed to COVID-19	8.0	6-10
Level of concern about exposing family members to COVID-19	10.0	7-10

	Count	%
Level of personal stress as a result of COVID-19 pandemic	8.0	6-9
Level of personal stress before the COVID-19 pandemic	3.0	2-4
Computed change in stress from before pandemic to response date	4.0	3-6

Note: N indicates the number of valid responses for that question or series of questions. IQR indicates the interquartile range (values that fall between 25% and 75% of responses).



Cared for COVID Pts

- No
- Yes

N = 9120

Figure 1. ICU Clinician Survey Respondents and Reports of Caring for Suspected or Confirmed COVID-19 Patients

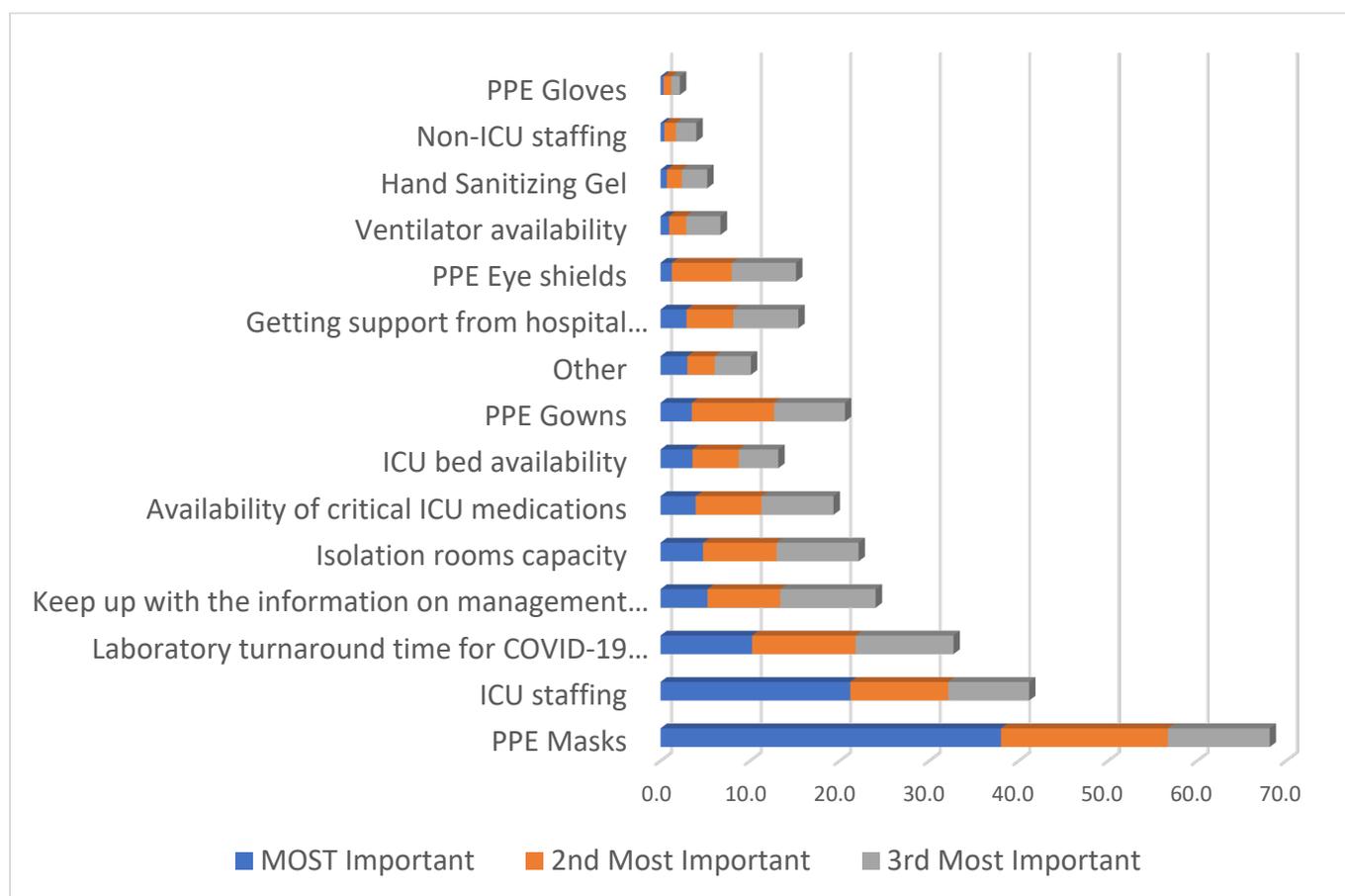


Figure 2. ICU Critical Needs for COVID-19 Pandemic

References

1. Coronavirus COVID-19 Global Cases by the Center for Systems Science and Engineering (CSSE) at Johns Hopkins University (JHU). <https://coronavirus.jhu.edu/map.html>. Accessed April 27, 2020.
2. Richardson S, Hirsch JS, Narasimhan M, et al; Northwell COVID-19 Research Consortium. Presenting characteristics, comorbidities, and outcomes among 5700 patients hospitalized with COVID-19 in the New York City area. *JAMA*. 2020 Apr 22. doi: 10.1001/jama.2020.6775. [Epub ahead of print].
3. Myers LC, Parodi SM, Escobar GJ, Liu VX. Characteristics of hospitalized adults with COVID-19 in an integrated health care system in California. *JAMA* 2020 Apr 24. doi: 10.1001/jama.2020.7202. [Epub ahead of print].
4. Kaplan LJ, Kleinpell R, Maves RC, Doersam JK, Raman R, Ferraro DM. Critical care clinician reports on COVID-19: results from a national survey of 4875 ICU providers. *Critical Care Explorations*. In Press.

Acknowledgement: Society of Critical Care Medicine COVID-19 Rapid Cycle Survey Work Group: Richard D. Branson, MS, RRT, FAARC, FCCM, Division of Trauma & Critical Care, University of Cincinnati; David M. Ferraro, MD, FCCP, National Jewish Health, Division of Pulmonary, Critical Care and Sleep Medicine, Denver CO; Sandra L. Kane-Gill, PharmD, MS, FCCM, FCCP, University of Pittsburgh, Pittsburgh PA; Steven Greenberg, MD, FCCP, FCCM, Department of Anesthesiology & Critical Care Services, Evanston Hospital, NorthShore University HealthSystem; Ruth Kleinpell, PhD, RN, FCCM, Vanderbilt University School of Nursing, Nashville TN; Ryan C. Maves, MD, FCCM, FCCP, FIDSA, Naval Medical Center, Department of Critical Care Medicine, San Diego, CA.

Data review and report writing: Center for Research and Scholarship Development, Vanderbilt University School of Nursing, Vanderbilt University School of Medicine, Department of Biostatistics, Nashville TN: Ruth Kleinpell, PhD, RN, FCCM; Jennifer K. Doersam, MS; Rameela Raman, PhD.