EDITORIAL

Toward Universal Deployable Guidelines for the Care of Patients With COVID-19

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Guidelines are developed for various reasons, including the emergence of new, potentially practice-changing evidence or a perceived need for guidance in times of uncertainty. The COVID-19 pandemic presents an almost unparalleled example of the latter, prompting the Surviving Sepsis Campaign (SSC) Task Force to rapidly produce Guidelines on the Management of Critically Ill Adults With Coronavirus Disease 2019 (COVID-19).[1] These guidelines are adapted from the well-known 2016 SSC guidelines,[2] and highlights are excerpted in this issue of *JAMA*.[3] In a brief amount of time, the authors have produced an impressively thorough and expansive set of guidelines, organized as more than 50 recommendations under 4 domains. The intended goal is to reduce unwanted practice variation and provide a focused and informed distillation of the existing evidence in a manner that will be practical for, and accessible to, clinicians in a wide variety of settings around the world. Because COVID-19 is a new disease, the SSC Task Force relied on the expert interpretation of available evidence from analogous conditions, such as sepsis, when generating its recommendation. The intent of the guideline committee is to update the guidelines as evidence specific to the care of patients with COVID-19 emerges.

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The COVID-19 Guidelines will likely be embraced by clinicians already familiar with the SSC, particularly in high-income countries when demand for critical care does not exceed capacity. Building on previous guidelines undoubtedly aided the rapid production of the SSC guidelines. One trade-off is that the recommendations are generally a tailoring and modification of the broader sepsis guidelines. There is less emphasis on some other domains of care that are particular features of critical care management of contagious disease outbreaks. For example, there is less focus on recommendations regarding how to manage the outbreak as a whole (including the considerable disruption to normal health care delivery) and regarding how to address issues such as how enforced isolation to manage contagion can affect patients' psychological and end-of-life care. Presumably, some of these topics will be addressed in subsequent guidelines or updates.

Currently, the guidelines emphasize the inadequacy of evidence supporting the routine use of many interventions, such as extracorporeal life support and inhaled vasodilators. However, many of the recommendations suggest that such therapies might be tried as rescue therapies in patients who become extremely ill. Such caveats for rescue therapies in extremis may be interpreted as an obligation to try anything before transitioning to end-of-life care. However, that approach may not be desirable or practical during a pandemic, especially when resources are scarce, or when interventions are likely to do more harm than good.[4]

Another issue is that it is difficult to create one set of guidelines that can apply in all settings. Rather, a number of the recommendations may have to be carefully analyzed and adapted to each local setting. The recommendations for the use of high-flow nasal cannula (HFNC) and noninvasive positive pressure ventilation (NIPPV) are a case in point. For HFNC and NIPPV, the panel placed a high value on the possibility of avoiding intubation. The risk of airborne transmission is acknowledged for NIPPV, but judged minimal for HFNC on the basis of a single study evaluating environmental bacterial contamination with HFNC vs oxygen masks.[5] Given the potential risks of inadvertent viral aerosolization using high-flow open circuits such as HFNC, more thorough examination of this potential source for disease transmission may be warranted. Currently, clinicians and decision-makers who are trying to contain the outbreak may be uncomfortable with the liberal use of HFNC and NIPPV, especially if prolonged, in crowded emergency departments or on hospital wards.

At a minimum, therefore, the recommendation for HFNC could be interpreted with consideration of the local epidemiological context. For example, when clinicians have adequate personal protection equipment and there are enough negative pressure rooms for hypoxemic patients treated with HFNC, the benefits would almost certainly outweigh the risks. Similarly, when there is a surge of cases and large numbers of confirmed cases are cohorted together but with inadequate access to ventilators, use of HFNC and NIPPV will be necessary. However, under intermediate circumstances (eg, where infected and uninfected patients are potentially together), clinicians may conclude that the risks of using HFNC outweigh the benefits.

One of the many strengths of the COVID-19 guidelines is their emphasis on the importance of providing optimal supportive care. The panel is explicit about the need to intubate patients who require invasive mechanical ventilation. Even though this point may seem obvious, it was nonetheless important to emphasize. Otherwise, any tendency to limit the care of critically ill patients with COVID-19 on the basis of poor prognosis might quickly become a self-fulfilling prophecy.[6]

The guidelines also address resource scarcity (eg, N95 masks) and the effect on clinical care. This is important because scarcity of staff, ventilators, negative pressure rooms, and personal protective equipment is likely be a critical issue in low- and middle-income countries experiencing any reasonably large number of cases, and in high-income countries

experiencing a surge in the demand for critical care. In this regard, one weakness of the current guidelines is the many recommendations in favor of interventions, even though the recommendations are rated as weak because they lack supporting evidence. When prioritizing scarce resources, clinicians and health care systems will have to choose among options that have limited evidence to support them, regardless of which should be the initial options. In future iterations of the guidelines there should be more detailed recommendations for how clinicians should prioritize scarce resources, or include more recommendations against the use of unproven therapies.

As emphasized in the Appraisal of Guidelines for Research & Evaluation (AGREE) II standards, an important feature of high-quality guidelines is accompanying advice and tools to facilitate their implementation.[7] The general SSC guidelines included detailed advice and a wealth of implementation tools. However, as similar support is generated for the COVID-19 guidelines, additional consideration will be required for the wide array of clinician expertise and care settings in which these patients will be managed. Critical care expertise and resources vary considerably across the globe, and during this pandemic response, this variation will only increase.[8] In particular, it will be helpful if future iterations of these guidelines focus on strategies to help clinicians with less experience and access to fewer resources to provide care for COVID-19 patients. For example, for patients in acute hypoxemic respiratory failure, the recommendation to monitor patients closely and intubate if their condition deteriorates will not be feasible to implement in settings where clinicians do not have the ability to perform intubation. Similarly, recommendations for the use of concomitant broad-spectrum antibiotics may be impractical, and perhaps unwise, in some clinical settings.

Implicitly, the guidelines also suggest the need for specific research efforts. In 6 instances, the panel makes no recommendation because the evidence was deemed insufficient. In other instances, the panel issues weak recommendations either in favor (eg, corticosteroids for refractory shock and for acute respiratory distress syndrome [ARDS]) or against (eg, corticosteroids for acute hypoxemic respiratory failure without ARDS and lopinavir/ritonavir for all patients) use of specific therapies despite weak evidence. These statements could be interpreted as implying restricted use of these therapies except in the context of clinical trials, in turn providing justification for such trials. Future guidelines may consider more explicit statements regarding research needs, including ranking which clinical trials should be prioritized to strengthen the evidence base.

In conclusion, the SSC COVID-19 guidelines represent an excellent first step toward optimal, evidence-informed care for patients with COVID-19. The tasks ahead for the dissemination and uptake of optimal critical care are herculean and include a need to generate more robust evidence, consider carefully the application of that evidence across a wide variety of clinical circumstances, and generate supporting materials to ensure effective implementation of the guideline recommendations. The guidelines will likely also be enrichened in future updates as expertise specific to pandemics and disease outbreaks is incorporated.

ARTICLE INFORMATION

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