

Ethical Considerations

Care of the Critically Ill and Injured During Pandemics and Disasters: CHEST Consensus Statement

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BACKGROUND: Mass critical care entails time-sensitive decisions and changes in the standard of care that it is possible to deliver. These circumstances increase provider uncertainty as well as patients' vulnerability and may, therefore, jeopardize disciplined, ethical decision-making. Planning for pandemics and disasters should incorporate ethics guidance to support providers who may otherwise make ad hoc patient care decisions that overstep ethical boundaries. This article provides consensus-developed suggestions about ethical challenges in caring for the critically ill or injured during pandemics or disasters. The suggestions in this article are important for all of those involved in any pandemic or disaster with multiple critically ill or injured patients, including front-line clinicians, hospital administrators, and public health or government officials.

METHODS: We adapted the American College of Chest Physicians (CHEST) Guidelines Oversight Committee's methodology to develop suggestions. Twenty-four key questions were developed, and literature searches were conducted to identify evidence for suggestions. The detailed literature reviews produced 144 articles. Based on their expertise within this domain, panel members also supplemented the literature search with governmental publications, interdisciplinary workgroup consensus documents, and other information not retrieved through PubMed. The literature in this field is not suitable to support evidence-based recommendations. Therefore, the panel developed expert opinion-based suggestions using a modified Delphi process.

RESULTS: We report the suggestions that focus on five essential domains: triage and allocation, ethical concerns of patients and families, ethical responsibilities to providers, conduct of research, and international concerns.

CONCLUSIONS: Ethics issues permeate virtually all aspects of pandemic and disaster response. We have addressed some of the most pressing issues, focusing on five essential domains: triage and allocation, ethical concerns of patients and families, ethical responsibilities to providers, conduct of research, and international concerns. Our suggestions reflect the consensus of the Task Force. We recognize, however, that some suggestions, including those related to end-of-life care, may be controversial. We highlight the need for additional research and dialogue in articulating values to guide health-care decisions during disasters.

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ABBREVIATIONS: DNR = do not resuscitate; IRB = Institutional Review Board; MCC = mass critical care

Summary of Suggestions

Triage and Allocation

1. We suggest resources not be held in reserve once a mass disaster protocol is in effect.
2. We suggest disaster and pandemic policies reflect the broad consensus that there is no ethical difference between withholding and withdrawing care and that education regarding such policies be incorporated into training.
3. We suggest triage systems based even on limited evidence are ethically preferable to those based on clinical judgment alone.
4. We suggest critical care resources be allocated based on specific triage criteria, irrespective of whether the need for resources is related to the current disaster/pandemic or an unrelated critical illness or injury.
5. We suggest it may be ethically permissible to use exclusion criteria for critical care resources, since the advantages of objectivity, equity, and transparency generally outweigh potential disadvantages.
6. We suggest protocols permitting the exclusion of patients from critical care during a mass disaster based on a high level of ongoing resource consumption may be ethically permissible.
7. We suggest it is ethically permissible to identify certain resource intensive therapies, procedures or diagnostic tests that should be limited or excluded during crisis standards of care.

8. We suggest policies permitting the withdrawal of critical care treatment to reallocate to someone else based on higher likelihood of benefit may be ethically permissible.

9. We suggest patients who do not qualify under a mass critical care (MCC) protocol for critical care receive do not resuscitate (DNR) orders.

10. We suggest specific groups, eg, health-care workers or first responders, not receive enhanced access to scarce critical care resources when crisis standards of care are in effect.

11. We suggest age of entry for adult critical care units be adjusted down during MCC emergencies that effect substantial numbers of children.

12. We suggest active life-ending procedures are not ethically permissible, even during disasters or pandemics.

Responding to Ethical Concerns of Patients and Families

13. We suggest hospitals communicate the definition of crisis standards of care clearly to patients and families both on admission to the hospital and when triage decisions are communicated.

14. We suggest patients triaged to palliative care be notified of their right to discuss concerns and receive support from hospital personnel, including palliative care, social work, or ethics.

15. We suggest hospitals include ethics resources in planning for MCC and should anticipate a

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need for ethics consultative services during the event.

Responsibilities to Providers

16. We suggest hospitals make plans to assist with moral distress in providers involved in providing MCC.

17. We suggest critical care clinicians who are unable to accept implementation of crisis standards of care be transferred into support or non-clinical roles during disaster response, if possible, but not be absolved of their obligation to participate in the response.

18. We suggest hospitals plan to protect worker safety and encourage providers/workers to create personal/family disaster preparedness plans.

Conduct of Research

19. We suggest researchers collaborate on a national guidance document that develops standards for obtaining institutional review board (IRB) approval in advance of disasters, and offers ethically, clinically, and legally acceptable mechanisms for research in the disaster context.

20. We suggest research conducted during disasters and pandemics focus specifically on improving treatment, safety, and outcomes.

International Disaster Response

21. We suggest international disaster responders coordinate efforts with local officials and clinicians to focus on interventions that will provide sustainable benefits to the population after the disaster.

22. We suggest international disaster responders have an ethical obligation to familiarize themselves with the predominant cultural and religious practices of the affected population.

23. We suggest international disaster responders demonstrate culturally and religiously appropriate respect for the dead within the disaster context by coordinating responses with local institutions.

Introduction

The field of health-care ethics has evolved over decades, primarily to ensure the safety and protect the rights of vulnerable populations. Pandemics and disasters create both a surge in the numbers affected and an environment in which disciplined, ethical decision-making may be at risk. Ethics guidance is crucial in helping providers balance competing substantive and process-

oriented ethical principles, including the duties to honor autonomy, justice, and beneficence and the requirements to steward resources, and promote consistency, fairness, transparency, proportionality, and accountability.

The 2008 consensus document from the American College of Chest Physicians (CHEST) Task Force was an important example of incorporating ethics commentary in public health disaster/pandemic guidance and included a discussion related to triage and allocation of scarce resources.¹ Pandemic and disaster planning guidance documents now routinely include sections that articulate the underlying ethical principles of the plan.^{2,3} This guidance also often documents efforts to engage communities' relevant values-based choices in disaster planning. The Institute of Medicine has supported numerous projects related to disaster planning that included both expert ethics consensus and community engagement efforts designed to elicit relevant values.⁴⁻⁶ Our focus has been to clarify and expand on current ethics guidance for disasters, with specific attention to the provision of care to critically ill or injured patients.

Although some may question whether there is time to consider ethical issues during a pandemic or disaster, we argue that time constraints are precisely the reason that planners need to incorporate ethics guidance in their plans in advance of the event. Failure to do so places the front-line worker in the untenable position of making weighty, life-altering decisions without the opportunity to consult others or fully consider the ethical consequences of various decisions. As an example, overwhelmed clinicians may make ad hoc decisions regarding evacuation based on do not resuscitate (DNR) status, unsupported by any institutional policy.^{7,8} There is, therefore, an obligation to provide ethics guidance for the benefit of both patients and those providing care under austere circumstances. Such guidance, supported by data (when possible), expert opinion, and community values, may help minimize inconsistency in decision-making and therefore unfair treatment of patients. It may also help engender trust and alleviate moral distress and burn-out in providers.

Although ethical issues permeate virtually all aspects of disaster response, we focus here on five essential domains: triage and allocation, ethical concerns of patients and families, ethical responsibilities to providers, conduct of research, and international concerns. The suggestions in this article are important for all of

those involved in a disaster or pandemic with multiple critically ill patients, including front-line clinicians, hospital administrators, and public health or government officials. Although it is important for all providers

to be familiar with the ethical aspects of disaster and pandemic response, Table 1 provides an overview of the suggestions most of interest to each of the above groups.

Materials and Methods

We followed the CHEST Guidelines Oversight Committee’s methodology to develop suggestions (see the “Methodology” article by Ornelas et al⁹ in this consensus statement). Twenty-four key questions were developed, and literature searches were conducted to identify evidence for suggestions (e-Appendix 1 for key questions list and corresponding search terms and results). Searches were limited from 2002 to 2012, and only English-language papers were included. The detailed literature reviews produced 144 articles. Two separate evaluators reviewed each abstract

and selected those that were relevant for group review. Based on their expertise within this domain, group members also supplemented the literature search with governmental publications, interdisciplinary work-group consensus documents, and other information not retrieved through PubMed. Because few scientific studies are available to enable evidence-based recommendations, our suggestions are based upon careful review of the literature, including governmental, advisory group commentary, and expert opinion. Consensus was then developed using a modified Delphi process.

Results

Triage/Allocation

1. We suggest resources not be held in reserve once a mass disaster protocol is in effect.

Once a triage/allocation protocol is in effect, patients who require and meet criteria for resources should be provided care in accordance with the protocols in effect at the time. Government agencies and health-care institutions should stockpile resources that are essential during or after a mass casualty event (eg, ventilators, antibiotics, vaccines, ICU beds).¹⁰ Although these stocks are scarce and may be in short supply, once a mass casualty event has occurred, withholding resources in anticipation that a similar patient might require them in the future is not permissible.

2. We suggest disaster and pandemic policies reflect the broad consensus that there is no ethical difference between withholding and withdrawing care and that education regarding such policies be incorporated into training.

Most ethicists find no moral difference between withholding and withdrawing life-sustaining treatments.¹¹ Nonetheless, some health-care professionals report that withholding and withdrawing do not feel equivalent.¹¹ These feelings represent an opportunity for education of health-care professionals rather than a position upon which policy should be based. Nevertheless, even with appropriate education, policymakers must be aware of the emotional strain and moral distress that withdrawal of treatment may cause for providers.

Under usual circumstances, providers should be sensitive to religious and/or cultural beliefs and should not withdraw life-prolonging treatments if the patient or

their surrogate refuses withdrawal.¹² This accommodation may not be possible during disasters or pandemics. Although providers or decision makers may conclude that under a crisis situation patients who are deemed to have an irreversible, nonsurvivable illness should have

TABLE 1] Primary Target Audiences for Suggestions

Suggestion No.	Primary Target Audience		
	Clinicians	Hospital Administrators	Public Health/Government
1		✓	✓
2		✓	✓
3	✓	✓	✓
4	✓	✓	✓
5	✓	✓	✓
6	✓	✓	✓
7	✓	✓	
8	✓	✓	
9	✓	✓	
10		✓	✓
11		✓	
12	✓	✓	
13		✓	
14	✓	✓	
15		✓	
16		✓	
17	✓	✓	
18		✓	
19	✓		
20	✓		
21	✓		
22	✓		
23	✓		

therapies, including ventilators, withdrawn so that these resources may be used to help others, they should recognize that some groups may object.¹² In some countries, including Israel, laws may prevent withdrawing a ventilator either at all¹³ or unilaterally. Policies should be clearly communicated in advance to community members to help mitigate potential conflicts.

3. We suggest triage systems based even on limited evidence are ethically preferable to those based on clinical judgment alone.

The likelihood of medical benefit is the most ethically sound basis for triage.^{10,14} However, considerable debate exists about how best to estimate the relative medical benefit for individual patients. Decisions about survival or ICU benefit based on clinical judgment alone are subjective and prone to inconsistent application by individual providers or across groups of providers. A system that relies on clinical judgment alone is challenging ethically because it will not provide consistent decisions and, therefore, procedural justice for a large group of patients.

Critical care triage based on scoring systems is more objective, but there are no scoring systems to date that are universally reliable for estimating prognosis for individual patients, either during ordinary ICU triage¹⁵ or during pandemics and mass disasters.¹⁶ The Sequential Organ Failure Assessment score, previously recommended for use during pandemics or disasters,^{3,17,18} has been criticized and may not be adequate in determining prognosis for individual patients in all circumstances.^{19,20}

Therefore, both the use of clinical judgment alone and scoring systems raise ethical problems. Currently, the most ethically appropriate method is to prospectively define patients who meet ICU inclusion and exclusion criteria and then consistently apply a prospectively developed, objective protocol.^{3,21} It may be difficult to attain this standard for some patients, including in pediatrics, since adequately validated, objective measurement tools are lacking. In such cases, the triage team will have no option but to assess prognosis and allocate access to critical care based on clinical judgment. Alternatively, when there is insufficient evidence upon which to formulate objective clinical criteria, after applying inclusion and exclusion criteria, allocating available critical care resources among patients of equivalent prognosis by a fair and random process (eg, a first-come, first-served system or lottery) might be ethically justifiable^{21,22} but logistically challenging

to implement (see the “Triage” article by Christian et al²³ in this consensus statement). Regardless of the system used, procedural justice must be assured by applying the system consistently and fairly to all acute care patients.

4. We suggest critical care resources be allocated based on specific triage criteria, irrespective of whether the need for resources is related to the current disaster/pandemic or an unrelated critical illness or injury.

When mass critical care (MCC) protocols are in place, exclusion, inclusion, and triage criteria should be applied consistently to all patients under consideration for receiving critical care. We recommend that inclusion/exclusion criteria (see the “Triage” article by Christian et al²³ in this consensus statement) be the same regardless of whether the patient’s need for critical care arises from disaster/pandemic or unrelated conditions (eg, traffic accident).²¹

5. We suggest it may be ethically permissible to use exclusion criteria for critical care resources, since the advantages of objectivity, equity, and transparency generally outweigh potential disadvantages.

Exclusion criteria that are developed prospectively by a multidisciplinary group of experts, in alignment with community values, are more likely to be objective, transparent, and equitably applied. However, they are unlikely to have been validated for patients in pandemic or disaster situations, and hence whether they can accurately predict which patients have the lowest potential to survive with intensive care is unknown. Nevertheless, prospectively defined criteria applied equitably are a more ethically acceptable decision-making approach than clinical judgment alone, despite potential disadvantages.

6. We suggest protocols permitting the exclusion of patients from critical care during a mass disaster based on a high level of ongoing resource consumption may be ethically permissible.

Protocols for MCC must be based on the goal of achieving the greatest good for the greatest number of people (the principle of utility), within constraints of respect for human dignity and fairness. Protocols that permit withdrawal of critical care based on a patient’s disproportionately high level of critical care resource use may be ethically permissible when MCC protocols are in effect, since these protocols support the goal of achieving the greatest good for the greatest number of people.

7. We suggest it is ethically permissible to identify certain resource intensive therapies, procedures or diagnostic tests that should be limited or excluded during crisis standards of care.

MCC protocols should only be in use when resources across a broad geographic area are constrained (see the "Triage" article by Christian et al²³ and the "Surge Capacity Principles" article by Hick et al²⁴ in this consensus statement). Interventions that have been prospectively identified to represent disproportionate resource use (stuff, staff, or space) and impact the ability to respond to the event under the MCC protocol should not be used during disasters.^{18,21} Limiting access to specific resources must be done carefully to ensure that patients with conditions widely known to be resource-intensive (eg, those on dialysis) are not unfairly penalized in relation to other patients who may require equal amounts of resources but with less probability of benefit (eg, those requiring extracorporeal membrane oxygenation). Careful advance review by experts to select excluded interventions is essential to assuring substantive and procedural justice.

8. We suggest policies permitting the withdrawal of critical care treatment to reallocate to someone else based on higher likelihood of benefit may be ethically permissible.

Withdrawal protocols must demand that the likelihood of survival of the original patient is reliably predicted to be low, or use of the critical care resources is reliably predicted to be disproportionately high/prolonged, and the likelihood of survival of the second patient is reliably predicted to be significantly higher without disproportionate resource use. Importantly, however, to ensure both procedural justice and a fair opportunity for the first patient to benefit from any trial of therapy, treatment should only be withdrawn from one patient in favor of another in the context of carefully developed and implemented protocols that include time trials of life support as well as other considerations.¹⁰

9. We suggest patients who do not qualify under a MCC protocol for critical care receive DNR orders.

Resuscitation from cardiopulmonary arrest in the acute care setting is a critical care intervention. Patients who are not eligible for critical care according to the protocol in effect should not have resuscitation attempts and should have clear DNR orders. All other treatments and procedures for which the patient is eligible should be offered regardless of DNR status. The application of DNR status irrespective of patient/surrogate

preferences should apply only when the MCC protocol is in place.

10. We suggest specific groups, eg, health-care workers or first responders, not receive enhanced access to scarce critical care resources when crisis standards of care are in effect.

There may be instances in which a designated group should be prioritized for non-critical care resources, such as vaccines, that allow them to continue with their professional responsibilities.²⁵⁻²⁸ However, it is unlikely that workers who become critically ill during a pandemic or disaster will recover in sufficient time to allow them to return to work and carry out professional responsibilities. Thus, the goal of returning workers to the job is not a justification for enhanced access to critical care. Furthermore, it would be impossible to fairly decide which specific groups would receive enhanced access, since many groups might be affected by working during the crisis.

11. We suggest age of entry for adult critical care units be adjusted down during MCC emergencies that effect substantial numbers of children.

Adjusting entry age corrects for the baseline lower number of ICU beds available to children.²² Adult ICUs that accept children need to provide appropriately trained clinicians. Children tend to have higher survival rates than adults in some disasters, so adjusting age for adult ICU assignment aligns with the goal of maximizing survival.

12. We suggest active life-ending procedures are not ethically permissible, even during disasters or pandemics.

We recommend that policies explicitly state that measures to hasten the death of patients (euthanasia) are not acceptable, even in disasters or pandemics. Clinicians have an obligation to understand and abide by the significant ethical differences between withdrawing treatment, providing appropriate end-of-life comfort care (both ethically permissible under appropriate circumstances), and actively hastening death, which is not permissible.^{11,29,30}

Responding to Ethical Concerns of Patients and Families

13. We suggest hospitals communicate the definition of crisis standards of care clearly to patients and families both on admission to the hospital and when triage decisions are communicated.

When clinicians follow MCC protocols, patients and families have the right, based on procedural justice, to expect that those with similar needs for critical care resources will be treated in similar ways.³¹ Critical care clinicians should communicate to patients and family members both prognosis and treatment decisions, as well as the basis for making any recommendation.³² Hospitals should ensure a smooth transition to palliative care. Patients/families should receive clear communication regarding the ethical and procedural triage process that prompted this transition.^{33,34}

14. We suggest patients triaged to palliative care be notified of their right to discuss concerns and receive support from hospital personnel, including palliative care, social work, or ethics.

Most patients and family members will be distressed when faced with treatment limitations due to the disaster or pandemic. Although preprinted information may help patients and families comprehend the constraints of a crisis situation, additional support resources should be made available for them.³⁵

15. We suggest hospitals include ethics resources in planning for MCC and should anticipate a need for ethics consultative services during the event.

As much as possible, we recommend that access to ethics consultation resources be included in planning for disasters. Timely ethics consultation via e-mail has been used in disasters to address clinical questions and support mutual trust and transparency.^{36,37} Normal ethics consultation practices, like all other standards of care, should resume as soon as resources allow.

Ethical Responsibilities to Providers

16. We suggest hospitals make plans to assist with moral distress in providers involved in providing MCC.

Timely communication from hospital leadership regarding the nature of triage during disasters and pandemics may help minimize moral distress. The scope and nature of support for moral distress will vary based on the type and duration of the event and institutional resources.^{33,38}

17. We suggest critical care clinicians who are unable to accept implementation of crisis standards of care be transferred into support or non-clinical roles during disaster response, if possible, but not be absolved of their obligation to participate in the response.

Critical care clinicians should be educated in advance about hospitals' expectations regarding MCC and should have the opportunity to voice concerns about the shift to crisis standards of care prior to an incident.³⁹⁻⁴¹

18. We suggest hospitals plan to protect worker safety and encourage providers/workers to create personal/family disaster preparedness plans.

Hospitals have clear obligations, both legally and ethically, to protect the safety of workers. Although it is impossible to completely eliminate the risk of providing health care, hospitals should make efforts to supply personal protective equipment and a safe working environment. Hospitals may need additional security precautions to protect the safety of the health-care providers making triage decisions or informing families about them. Health-care systems should educate workers regarding establishment of personal/family preparedness plans. Systems should consider developing services to facilitate worker availability, such as emergency child care.

Conduct of Research

19. We suggest researchers collaborate on a national guidance document that develops standards for obtaining IRB approval in advance of disasters, and offers ethically, clinically, and legally acceptable mechanisms for research in the disaster context.

Research during disasters and pandemics is sorely lacking and is needed to provide evidence about the impact of these events; to study the effectiveness of clinical interventions; and to shape risk assessment, education, policy, and ongoing disaster/pandemic preparedness.⁴² It could be considered unethical to refrain from conducting such research, given the lack of empirical evidence for disaster/pandemic operations. Research goals, however, must be balanced with the primary responsibility to ensure continued clinical care and the need to respect and protect the interests, privacy, safety, preferences, and autonomy of those affected by the disaster/pandemic.

A disaster or pandemic is no justification for circumventing the ethical conduct of research. As with all research, an institutional review board (IRB) should approve disaster/pandemic research studies. There is a need for national guidance that addresses standards for obtaining IRB approval in advance of disasters/pandemics, including increased efficiency in real-time IRB review of disaster/pandemic-related research protocols. Such guidance should offer ethically, clinically, and

legally acceptable mechanisms for data collection and review in the disaster context. Research guidance should address circumstances, if any, in which individual consent might be waived, and should incorporate protections for privacy and risk-minimization strategies.⁴³⁻⁴⁸

20. We suggest research conducted during disasters and pandemics focus specifically on improving treatment, safety, and outcomes.

The delivery of clinical care must always be the priority in a disaster, as in any clinical context. Well-designed protocols for research during disasters and pandemics will minimize impediments to the delivery of care and risks to patients and providers, and should address topics that cannot be studied under normal circumstances.⁴⁹⁻⁵² Although the priority is to study the efficacy and safety of disaster/pandemic responses, researchers have additional responsibilities, including to design studies with scientific and technical merit, recruit subjects fairly, address consent to participate, monitor the safety of subjects and researchers, demonstrate sensitivity to the local culture, and avoid inducing additional stress on the population.^{49,53}

International Disaster Response

Please see also the “Resource-Poor Settings” articles by Geiling et al^{54,55} in this consensus statement.

21. We suggest international disaster responders coordinate efforts with local officials and clinicians to focus on interventions that will provide sustainable benefits to the population after the disaster.

The determination of which benefits are sustainable should not be based solely on technology available to provide this care during the short-term crisis response but also on whether resources to sustain the gains will be available postdisaster. Initiatives must also be sensitive to the need to maintain ongoing care at local institutions. Key to a successful international response is effective coordination with host providers to transition care responsibilities back to local resources once the acute need for international support has resolved.⁵⁶

22. We suggest international disaster responders have an ethical obligation to familiarize themselves with the predominant cultural and religious practices of the affected population.

Ethical treatment of survivors entails a blend of knowledge about culture, religious beliefs, and human rights.^{57,58} Despite good intentions, humanitarian assistance has made errors based on religious or cultural

insensitivity (eg, an overemphasis on an individualistic orientation that is alien to the local culture).^{36,59,60}

23. We suggest international disaster responders demonstrate culturally and religiously appropriate respect for the dead within the disaster context by coordinating responses with local institutions.

Responders to international mass casualties must strike a balance between safety in disposal of bodies and sensitivity to local customs and religious beliefs. Providers should attempt to honor religious and cultural rites around death in disasters as much as possible.

Areas for Research

New evidence-based triage tools that predict survival, resource consumption, and quality-of-life outcomes with a high degree of accuracy for individual patients in specific circumstances would add significantly to current efforts to fairly allocate scarce critical care resources during public health disasters. All current tools fall short of this goal, despite major efforts on the part of many researchers. Pediatric research in developing triage tools lags significantly behind even that available for adult patients. Additionally, specific guidance regarding modifications in IRB protocol review and research processes during disasters and pandemics is needed.

Conclusions

Ethics issues permeate virtually all aspects of disaster and pandemic response. We have addressed some of the most pressing issues, focusing on five essential domains: triage and allocation, ethical concerns of patients and families, ethical responsibilities to providers, conduct of research, and international concerns. We have not covered areas and issues conclusively addressed in prior documents but instead have focused on questions for which debate, controversy, or inadequate information remain. Triage and allocation of scarce critical care resources remain persistently controversial issues in public health emergencies. Research and international concerns have received minimal attention in previous guidance documents. We argue that in these areas there are best practices regarding ethical policies that may be adopted, and we suggest that additional research and reflection on these key ethical issues is warranted.

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Endorsements: This consensus statement is endorsed by the American Association of Critical-Care Nurses, American Association for Respiratory Care, American College of Surgeons Committee on Trauma, International Society of Nephrology, Society for Academic Emergency Medicine, Society of Critical Care Medicine, Society of Hospital Medicine, World Federation of Pediatric Intensive and Critical Care Societies, World Federation of Societies of Intensive and Critical Care Medicine.

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Additional information: The e-Appendix can be found in the Supplemental Materials section of the online article.

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