Differences in US Regional Healthcare Allocation Guidelines During the COVID-19 Pandemic

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BACKGROUND: Hospitals faced unprecedented scarcity of resources without parallel in modern times during the COVID-19 pandemic. This scarcity led healthcare systems and states to develop or modify scarce resource allocation guidelines that could be implemented during “crisis standards of care” (CSC). CSC describes a significant change in healthcare operations and the level of care provided during a public health emergency.

OBJECTIVE: Our study provides a comprehensive examination of the latest CSC guidelines in the western region of the USA, where Alaska and Idaho declared CSC, focusing on ethical issues and health disparities.

DESIGN: Mixed-methods survey study of physicians and/or ethicists and review of healthcare system and state allocation guidelines.

PARTICIPANTS: Ten physicians and/or ethicists who participated in scarce resource allocation guideline development from seven healthcare systems or three state-appointed committees from the western region of the USA including Alaska, California, Idaho, Oregon, and California.

RESULTS: All sites surveyed developed allocation guidelines, but only four (40%) were operationalized either statewide or for specific scarce resources. Most guidelines included comorbidities (70%), and half included adjustments for socioeconomic disadvantage (50%), while only one included specific priority groups (10%). Allocation tiebreakers included the life cycle principle and random number generators. Six guidelines evolved over time, removing restrictions such as age, severity of illness, and comorbidities. Additional palliative care (20%) and ethics (50%) resources were planned by some guidelines.

CONCLUSIONS: Allocation guidelines are essential to support clinicians during public health emergencies; however, significant deficits and differences in guidelines were identified that may perpetuate structural inequities and racism. While a universal triage protocol that is equally accepted by all communities is unlikely, the lack of regional agreement on standards with justification and transparency has the potential to erode public trust and perpetuate inequity.

KEY WORDS: equity; health disparities; ethics; discrimination; crisis guidelines; racism.

J Gen Intern Med 38(1):269–72
DOI: 10.1007/s11606-022-07861-2
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BACKGROUND

During the COVID-19 pandemic, hospitals faced unprecedented scarcity of resources without parallel in modern times, leading to increased care coordination across states. In response, scarce resource allocation guidelines were created and/or updated from previously developed crisis preparedness plans. Guidelines are implemented during “crisis standards of care” (CSC) which describes a significant change in healthcare operations and the level of care provided during a public health emergency. While nationwide, nine states and one county in Texas declared CSC, the full extent to which clinicians rationed resources—such as extracorporeal membrane oxygenation (ECMO)—will never be known. Our study provides a comprehensive examination of the latest CSC guidelines in the western region of the USA, where Alaska and Idaho declared CSC, focusing on ethical issues and health disparities.

METHODS

We examined published CSC guidelines across five western states in the same catchment area, reviewing state guidelines if available (Washington, Idaho, and Alaska) and healthcare system-specific (California and Oregon) guidelines otherwise. We used snowball sampling of ten physicians and/or ethicists working in diverse healthcare systems, all of whom were involved in statewide or healthcare system CSC guideline development to further characterize published guidelines. We
Table 1 Healthcare System and Allocation Guideline Characteristics Among Five States in the Western United States

| Healthcare system designation | Private healthcare system | Specialized healthcare system | Public healthcare system | Private healthcare system | Public healthcare system | Private healthcare system | Public healthcare system | Specialized healthcare system |
|-------------------------------|---------------------------|-------------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| **Scope**                     |                           |                               |                          |                          |                          |                          |                          |                          |
| **Final status**              |                           |                               |                          |                          |                          |                          |                          |                          |
| **Operationalization examples**|                           |                               |                          |                          |                          |                          |                          |                          |
| **Allocation teams**          |                           |                               |                          |                          |                          |                          |                          |                          |
| **Allocation criteria**       |                           |                               |                          |                          |                          |                          |                          |                          |
| **Comorbidities**             |                           |                               |                          |                          |                          |                          |                          |                          |
| **Cardio-pulmonary resuscitation** |                   |                               |                          |                          |                          |                          |                          |                          |
| **Short-term survival (<6 months)** |                     |                               |                          |                          |                          |                          |                          |                          |
| **Long-term survival**        |                           |                               |                          |                          |                          |                          |                          |                          |
| **Physiology score**          |                           |                               |                          |                          |                          |                          |                          |                          |
| **Adjustment for health disparities** |                     |                               |                          |                          |                          |                          |                          |                          |
| **Magnitude of health disparity adjustment** |                     |                               |                          |                          |                          |                          |                          |                          |
| **Tiebreakers (in order of application)** |                     |                               |                          |                          |                          |                          |                          |                          |
| **Priority groups**           |                           |                               |                          |                          |                          |                          |                          |                          |
| **Disability**                |                           |                               |                          |                          |                          |                          |                          |                          |
| **Quality of Life**           |                           |                               |                          |                          |                          |                          |                          |                          |
| **Changes in allocation criteria from initial guidelines development** |                     |                               |                          |                          |                          |                          |                          |                          |

(continued on next page)
| Healthcare system designation | Specialized healthcare system | Private healthcare system | Public healthcare system | Healthcare system |
|--------------------------------|-------------------------------|--------------------------|-------------------------|------------------|
| Reclassification of resources | 96 hours | Not defined | Dependent on allocation committee | 48 hours |
| Reassessment and reallocation criteria | Predetermined priority groups | Therapeutic trial | Therapeutic trial | NA |
| Definition | Finalized guidelines were developed in areas with high or recent need. | Finalized guidelines were developed in areas with high or recent need. | Finalized guidelines were developed in areas with high or recent need. | Finalized guidelines were developed in areas with high or recent need. |
| Allocations | For ventilators: worsening ventilatory parameters | Cardiac arrest or recent CPR considered. Life cycle principle/fair innings | Cardiac arrest or recent CPR considered. Life cycle principle/fair innings | Cardiac arrest or recent CPR considered. Life cycle principle/fair innings |
| Abbreviations | ADI = area deprivation index, C = cancer, CKD = chronic kidney disease, CM = case management personnel, E = ethics representatives, DEI = diversity, equity, and inclusion representatives, HCW = health care worker, HF = heart failure, HL = hospital leadership, LC/FI = life cycles/fair innings, LD = liver disease, MD = physicians, mSOFA = modified sequential organ failure assessment, N = neurologic impairment, P = pulmonary disease, PC = palliative care clinicians, PRP = patient relations personnel, RN = nurses, RNG = random number generator, SES = socioeconomic status, SOFA = sequential organ failure assessment, SVI = social vulnerability index, SW = social workers |

administered a 48-question survey developed via an iterative process of review and revision with multiple choice and open-ended questions to inform five domains: hospital/healthcare system characteristics, guideline development, allocation team characteristics/training, allocation criteria, and implementation. Survey response rate was 100%. Responses were aggregated, de-identified to preserve anonymity, and compared descriptively.

### RESULTS

Information about healthcare system characteristics, allocation teams, allocation and reallocation criteria are presented (Table 1). All sites surveyed developed guidelines, but only four (40%) were operationalized either statewide or for specific resources (e.g., ECMO). Most guidelines specified allocation teams separate from clinical teams (90%) with member disciplines including hospital leadership, nurses, physicians, and patient relations personnel among others. Allocation team training was specified in 70% of guidelines. Most guidelines included comorbidities (70%), and half included adjustments for socioeconomic disadvantage (50%), while only one included specific priority groups (10%). No guidelines incorporated disabilities and/or quality of life as exclusions. Allocation tiebreakers included the life cycle principle (i.e., the goal is to give each individual equal opportunity to live through all life phases) and random number generators. Six guidelines evolved over time, removing restrictions such as age, severity of illness, and comorbidities. Additional palliative care (20%) and ethics (50%) resources were planned in some health systems.

### DISCUSSION

Within a shared healthcare catchment area in the western region of the USA, we identified marked differences in current allocation guidelines, many of which risk worsening inequity. Allocation guidelines are essential to support clinicians; however, during the COVID-19 pandemic, significant deficits were identified in previously developed guidelines. Guidelines may perpetuate structural inequities and racism, such as inclusion of comorbidities in allocation criteria, which often arise from unjust differences in healthcare access and the “social conditions in which people are born, grow, live, work, and age”. A focus on survival in guidelines assumes sound and valid prognostication exists, but the lack of definitive data on outcomes and therapeutic options during the pandemic was evident. Even previously validated physiology scoring systems (e.g., SOFA) were found inadequate and at risk of worsening disparities. Some guidelines attempted to mitigate inequities by prioritizing disadvantaged patients (i.e., use of ADI); others did not incorporate any adjustment for disparities.

Our results are limited to the western region of the USA in a catchment area where two states declared CSC and may not be generalizable to other regions. No central repository exists for
state or healthcare system plans related to CSC guidelines. In our cohort, Idaho had no published guidelines prior to 2020, Oregon dissolved published guidelines from 2018 during the pandemic, and Alaska, California, and Washington created or revised previous guidelines. Surveys used a combination of multiple choice and open-ended questions, guiding some responses into predefined categories.

While a universal triage protocol that is equally accepted by all communities is unlikely, the lack of regional agreement on standards with justification and transparency has the potential to erode public trust and perpetuate structural inequities and racism. Ongoing assessments of allocation guidelines and their outcomes are needed to establish and implement policies that more equitably allocate scarce resources which should be a planning priority for the current and future pandemics.

Acknowledgements: We wish to thank those who provided material support for this project: Esther K. Choo, MD, MPH; Department of Emergency Medicine, OHSU, Portland, OR and David Zonies, M.D., M.P.H., M.B.A., F.A.C.S., F.C.C.M; Division of Trauma, Critical Care and Acute Care Surgery, School of Medicine, Associate Chief Medical Officer for Critical Care, OHSU Health System. No compensation was received for their roles.

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Funding D.R.S. was funded through the Sojourns Scholar Leadership Program Award of the Cambia Health Foundation.

Declarations:

Conflict of Interest: The authors declare that they do not have a conflict of interest.

Disclaimer: The Department of Veterans Affairs did not have a role in the conduct of the study, in the collection, management, analysis, interpretation of data, or in the preparation of the manuscript. The views expressed in this article are those of the authors and do not necessarily reflect the position or policy of the Department of Veterans Affairs or the United States Government.

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