



Evidence-based Practice Center Rapid Review Protocol

Project Title: *Allocation of Scarce Resources During Pandemics: Strategies for Policy Makers*

Question: What Strategies Are Available to Policy Makers to Optimize Allocation of Scarce Resources During Mass Casualty Events such as pandemics?

Condition or domain being studied: In a pandemic, such as we are currently experiencing with COVID-19, the need for medical resources, including personnel and equipment, quickly outstrips the available supply. Policymakers urgently need information and tested strategies to inform important decisions about how to make the best use of these scarce resources. A 2012 AHRQ evidence review identified strategies for allocating medical resources in a mass casualty event.^{1, 2} We aim to update the evidence review of strategies for policy makers, with a focus on pandemics, in this rapid review.

Searches: We will search the databases PubMed, Web of Science, and Cochrane Database of Systematic Reviews. The draft search strategy is documented in the appendix.

Included studies will focus on:

- **Population:** Policy makers charged with responsibility for developing and implementing strategies to optimize allocation of resources in healthcare.
 - Policy makers include federal departments and agencies (e.g., HHS, Department of Homeland Security); state and local public health officials; state governing officials (e.g., governor, state legislature); local governing officials (e.g., mayor, city council, county supervisors); state and local emergency management officials; tribal officials; and international health officials (e.g., World Health Organization, Pan American Health Organization).
 - The affected population includes people who require medical or psychological treatment.
- **Interventions and comparators:** Strategies used by policy makers to maximize scarce resources regardless of the comparator:
 - Strategies focused on single or multiple components of the health system such as emergency medical services and dispatch and provider payment policies.
 - Actions taken in advance to prepare for large-scale public health (e.g., stockpiling).
 - Adaptive strategies that ensure effective incident command, control, intelligence gathering, and communication systems.
 - Actions taken to maximize resources to avoid the need to shift to crisis standards of care (e.g., substitute, conserve, adapt, and/or reuse critical resources, including reuse of otherwise disposable equipment and supplies, expanding scope of practice laws, and altered approaches that maximize delivery of care).
 - Actions taken to reduce or manage less-urgent demand for health care services in order to avoid the need to adopt a crisis standard of care (e.g., activating call

- centers or websites that provide information about when and where to seek treatment and how to adequately care for oneself or family members at home).
- Strategies for making ethical allocation decisions when critical resources will otherwise be insufficient to meet the population's needs (i.e., crisis standards of care).
- **Outcomes and study design:**
 - Empirical studies evaluating strategies with structured data collection and reporting on process (e.g., number of patients treated), health (e.g., decreased infection rate), or other outcomes (e.g., unintended consequences).
 - Full models, frameworks, theories, and guidelines proposed by a task force convened by the federal government or based on formal consensus exercises.
- **Timing:** Preparedness and response to pandemics, strategies that address the triggers or timing for returning to normal operations, long-term recovery (e.g., community resilience) if these strategies were implemented during the course of the pandemic.
- **Settings:** All settings in which patient care might be directed/managed and delivered.

Data extraction (selection and coding): Literature reviewers will screen publications and complete the data abstraction in online software for systematic reviews. For this rapid update, the work will be pilot tested and checked by an experienced systematic reviewer rather than performed in duplicate as for the original report. Data extraction variables include author, year, evaluation type and study design, type of mass casualty, strategy, findings, potential outcome modulators and critical appraisal items.

Risk of bias (quality) assessment: We will use five critical appraisal criteria consistent with the original report: (1) the level of detail used to describe the resource allocation strategy was adequate, (2) data collection was systematic (and if so, whether it was retrospective or prospective), (3) fidelity (defined as the degree to which the strategy was implemented consistently) was measured or could be inferred from the data provided, (4) generalizability of the findings was assessed, and (5) potential confounders to the strategy's effectiveness were discussed.

Strategy for data synthesis: Details of publications will be compiled in evidence tables, data across studies will be categorized in a summary table and synthesized narratively. We will not employ meta-analysis or formal strength of evidence assessment given the diversity of the research and the rapid nature of this update.

Analysis of subgroups or subsets: COVID studies are a pre-specified subgroup for this update.

External peer review: At least one external peer reviewer will review the draft report.

References:

1. Timbie JW, Ringel JS, Fox DS, et al. Allocation of scarce resources during mass casualty events. *Evid Rep Technol Assess (Full Rep)*. 2012 Jun(207):1-305. PMID: 24422904.
2. Timbie JW, Ringel JS, Fox DS, et al. Systematic review of strategies to manage and allocate scarce resources during mass casualty events. *Ann Emerg Med*. 2013 Jun;61(6):677-89.e101. doi: 10.1016/j.annemergmed.2013.02.005. PMID: 23522610.

Appendix: Search strategy

PubMed (Legacy Platform)

Limits: 2011 – present; English

(disasters[mesh] OR disaster*[tiab] OR "emergency planning" OR "emergency preparedness" OR mass casualt* OR pandemic OR epidemic OR disease outbreak[mesh])

AND ((surge OR scarce OR scarcity OR allocat* OR ration OR rations OR rationing) OR (mass[tiab] AND (vaccin*[tiab] OR distribut*[tiab]))) OR (triage AND (ethic* OR protocol[tiab])) OR ("altered care" OR "adapted care" OR "crisis care") OR ((altered[tiab] OR crisis[tiab] OR adapted[tiab]) AND ("standard of care"[tiab] OR "standards of care"[tiab])) OR ((augment*[tiab] OR optimi*[tiab]) AND resources[tiab]) OR (countermeasure* OR "emergency medical care"))

AND (protocol[tiab] OR strateg*[tiab] OR policy[tiab] OR policies[tiab] OR plan*[tiab] OR distribut*[tiab]))

NOT Clinical Trial[ptyp] OR Clinical Conference[ptyp]

AND (humans[mh] OR inprocess[sb] OR publisher[sb] OR pubmednotmedline [sb])

Web of Science

Limits: 2011 – present; English

Indexes: SSCI; SCI; A&H I

Included Document Types: ARTICLE OR EARLY ACCESS OR REVIEW OR BOOK CHAPTER OR DATA PAPER OR EDITORIAL MATERIAL

Refined by (chosen from the top 100): WEB OF SCIENCE CATEGORIES: (PUBLIC ENVIRONMENTAL OCCUPATIONAL HEALTH OR MEDICAL INFORMATICS OR INFECTIOUS DISEASES OR PHARMACOLOGY PHARMACY OR MEDICAL ETHICS OR MULTIDISCIPLINARY SCIENCES OR EMERGENCY MEDICINE OR IMMUNOLOGY OR CRITICAL CARE MEDICINE OR RESPIRATORY SYSTEM OR PSYCHIATRY OR MEDICINE RESEARCH EXPERIMENTAL OR ORTHOPEDICS OR HEALTH CARE SCIENCES SERVICES OR NURSING OR SURGERY OR ONCOLOGY OR HEALTH POLICY SERVICES OR TROPICAL MEDICINE OR MEDICINE LEGAL OR DERMATOLOGY)

TS=(disaster* OR "emergency planning" OR "emergency preparedness" OR "mass casualt*" OR pandemic OR epidemic OR "disease outbreak*")

AND ((TS=(surge OR scarce OR scarcity OR allocat* OR ration OR rations OR rationing)) OR (TS=(mass) AND TS=(vaccin* OR distribut*)) OR (TS=(triage) AND TS=(ethic* OR protocol)) OR TS=("altered care" OR "adapted care" OR "crisis care") OR (TS=(altered OR crisis OR adapted) AND TS=("standard of care" OR "standards of care"))) OR (TS=(augment* OR optimi*) AND TS=(resources)) OR (TS=(countermeasure* OR "emergency medical care")))

AND TS=(protocol OR strateg* OR policy OR policies OR plan* OR distribut*))

NOT (TS=("clinical trial"))

Cochrane Database of Systematic Reviews

Limits: 2011-present

((disaster* OR "emergency planning" OR "emergency preparedness" OR "mass casualt*" OR pandemic OR epidemic OR "disease outbreak*")):ti,ab,kw OR MeSH descriptor: [Disasters]

explode all trees OR MeSH descriptor: [Disease Outbreaks] explode all trees

AND ((surge OR scarce OR scarcity OR allocat* OR ration OR rations OR rationing) OR (mass

AND (vaccin* OR distribut*) OR (triage AND (ethic* OR protocol)) OR ("altered care" OR "adapted care" OR "crisis care") OR ((altered OR crisis OR adapted) AND ("standard of care" OR "standards of care")) OR ((augment* OR optimi*) AND resources) OR (countermeasure* OR "emergency medical care")):ti,ab,kw

AND (protocol OR strateg* OR policy OR policies OR plan* OR distribut*):ti,ab,kw