Ethical Framework for the Allocation of Therapeutic Drugs for Covid-19 in Wisconsin

Background

The COVID-19 pandemic has revealed the importance of developing and implementing protocols for the distribution of scarce therapeutics in possession of the state. This framework has been developed by a therapeutics allocation sub-committee of the Wisconsin State Disaster Medical Advisory Committee (SDMAC) and is based upon a foundational ethical framework already developed and adopted by the SDMAC. The Therapeutics Allocation Subcommittee consists of physicians trained in critical care, infectious disease, pediatrics, and internal medicine; hospital pharmacists, and experts in allocation frameworks and ethics.

The intention of this framework is to serve as a guide for the Department of Health Services (DHS) to readily allocate and distribute available drugs, avoiding unnecessary delays in treatment.

The design of this framework is based upon the following assumptions:

- Novel therapeutics released under an Emergency Use Authorization (EUA) may not be sufficiently researched to know with certainty which patients are most likely to benefit.

- Therapeutics may be received in quantities that are unpredictable. This may result in situations of temporary scarcity.

- No single framework will address the detailed allocation requirements of every possible therapeutic drug. **A standing sub-committee of content experts from the SDMAC therapeutics committee will meet whenever a new drug is released to apply specifics of the drug to this framework for final recommendations.**

Underlying Principles to Guide Equitable Vaccine and Therapeutics Allocation

Please refer to Ethics Subcommittee Ethical Framework to Guide the Allocation of COVID-19 Therapeutics and Vaccines for a review of underlying principles influencing this document.

Ethical Justification for Proactively Mitigating Health Disparities in Covid-19 Outcomes

COVID-19 has had a disproportionate impact on low-income communities and certain racial/ ethnic minorities in the United States. Equity calls attention to the systematic differences in health outcomes and opportunities to be healthy that adversely affect socially discounted and/or marginalized groups. For Covid-19, these inequities may arise from higher burdens of pre-existing comorbid disease, poor health care access, or not having the option for social distancing due to living in densely-populated neighborhoods or households. There are also more economically disadvantaged individuals working essential jobs during the pandemic, and many are unable to perform job functions from the safety of their home. This puts them at greater risk of interacting with others who may transmit Covid-19. Public health interventions may be used to attempt to mitigate these disparities in Covid-19 by recognizing the structural inequities that underlie them. One way to do this is to account for a level of social vulnerability in the allocation guidelines used by the state to alleviate disease burden, such as novel therapeutics. The CDC's Social Vulnerability Index (SVI) is one measure that uses 15 US census variables (such as poverty and crowded housing) to measure a community's resilience to stressors, including disasters like the

Covid-19 pandemic (https://www.atsdr.cdc.gov/placeandhealth/svi/at-a-glance_svi.html). SVI is preferred over other measures like the Area Deprivation Index (ADI) due to its increased number of variables included. SVI has also been shown to provide greater advantage to racial and ethnic minorities than ADI in vaccine allocation simulations.[1] Considering SVI may increase the allocation of a scarce resource to areas most heavily impacted by **both** Covid-19 and structural inequities, recognizing that those inequities may independently increase the risk of poor outcomes from Covid-19.

Potential Approaches for DHS distribution of therapeutics in possession of the state.

1. *Distribution by geography*: Therapeutics in possession of the state could be distributed on a geographic basis (e.g., county, region) based upon size of population, burden of disease, and/or by weighting for baseline health disparities. The geographic unit of distribution may be a county (smallest) or region (largest), with subsequent distribution decisions made by receiving party.

    a. *Example*: Please see the "Ethical Allocation Framework for Bamlanivimab Treatment of Covid-19 in Wisconsin." This drug was allocated based on disease burden and SVI at the county level.

2. *Targeted Geographical "Hot Spot" Approach*: Therapeutics could be directed to geographic areas of the state that are most in need of relief, due to disease burden or health care system strain. This maximizes the utility of a therapeutic drug as a public health tool.

3. *Centralized Geographical Distribution Hub*: Therapeutics in possession of the state could be allotted to a central distribution hub in each region of the state (i.e. county or group of counties served by a major healthcare system). This allotment could be determined by Covid-19 case burden weighted for baseline health disparities, as described in Approach 1, above. The state should set forth a uniform lottery system for use by all health systems/providers in this scenario. The drug would be transferred from the hub to the healthcare provider for use by each individual. This scheme allows for a more equitable distribution of scarce medications via micro-allocation on the patient-level, and works best when the number of qualifying patients is low or when the available supply is low. Difficulties include the need for appropriate lead-time, considerations about drug transport and other logistical concerns related to not having drugs on-site.

4. *Distribution by facility*: Therapeutics could be distributed to healthcare facilities or systems, local public health departments, or outpatient clinics based upon disease burden in the community or within a particular institution.

5. *Distribution to individual patients*: Therapeutics could be distributed to individual patients via random allocation for those meeting clinical criteria for treatment as defined by FDA authorization. Alternatively, therapeutics could be distributed to a subset of patients that have been identified in published research as being most likely to benefit. This scheme allows for a more equitable distribution of scarce medications via micro-allocation on the patient-level, and works best when the number of qualifying patients is low or when the available supply is low. Distribution to individual patients by DHS may be impractical for large quantities of medication or if complex clinical criteria must be considered.

5.a. *Step-wise/Tiered approach by patient risk factors/criteria:* A tiered approach creates multiple levels of eligibility distinguished by clinical criteria, where those prioritized higher are those most

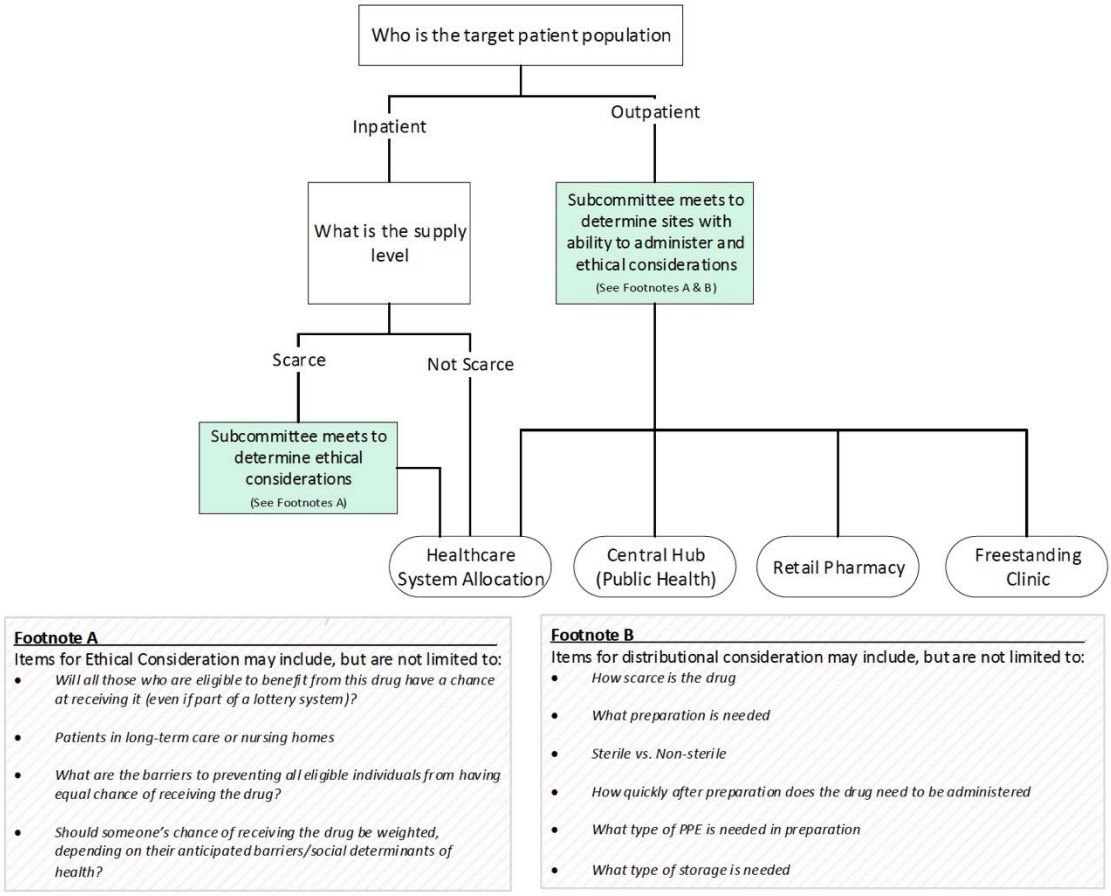
likely to benefit and most likely to have serious adverse effects from COVID-19. Tier-based inclusion/exclusion criteria can be formulated in light of scarcity. Once all patients within a tier are treated, patients in the next (less stringent) tier would be considered. If there is not enough medication to treat all patients within a tier, then random allocation methods (random or weighted lottery) can be used. This has been the approach already used by local health-systems in Wisconsin when supply is limited. This type of allocation could take place directly to the patient from the state, or could be provided as guidance from the state to sites of care receiving therapeutics, depending on the scarcity of the therapeutic and the criteria for use.

Generic algorithm for therapeutic distribution.

Depending on a particular drug's unique considerations, some of the above allocation schemas may be more appropriate than others. A standing sub-committee of content experts from the SDMAC therapeutics committee will meet whenever a new drug is released to apply specifics of the drug to the framework below for final recommendations on allocation and distribution.

The following flow diagram has been constructed in order to assist in determining which allocation schema may work best for a particular drug. Please refer to **Figure 1** for a flow diagram illustrating the process of consideration recommended for new therapeutics.

Figure 1. Consideration process for new therapeutics.



Detailed explanation of flow diagram branch points:

1) **Who is the target population?**

    a. Is this therapeutic indicated for inpatient (severe disease) or outpatient (mild/moderate) disease populations?

    b. Patient eligibility criteria will be outlined in the drug-specific EUA and Provider Fact Sheet.

2) **What is the supply level?**

    a. Scarce: This refers to therapeutics for which demand from eligible patients exceeds current supply of the state.

    b. Not scarce: This refers to therapeutics for which demand and supply are equal, or there is greater supply than demand from eligible individuals.

3) **Distributional Considerations**

    a. A therapeutics sub-committee will meet to discuss drug-specific considerations about distribution and administration. These considerations include, but are not limited to:

        i. Drug supply

        ii. Preparation required for administration, such as sterile vs non-sterile compounding

        iii. How quickly after preparation the drug needs to be administered

        iv. Type of Personal Protective Equipment (PPE) required for administering personnel

        v. How the drug is stored

4) **Ethical Considerations**

    a. A therapeutics subcommittee will meet to determine the ethical considerations of distributing a scare therapeutic. The SDMAC Ethics Subcommittee Framework to Guide the Allocation of COVID-19 Therapeutics and Vaccines will be consulted. Specific considerations include, but are not limited to:

        i. Will all those who are eligible to benefit from this drug have a chance at receiving it, including patients in long-term care, nursing homes or correctional facilities?

        ii. What are the barriers to preventing all eligible individuals from having equal chance of receiving the drug?

        iii. Should someone's chance of receiving the drug be weighted, depending on their anticipated barriers/social determinants of health?

5) **Allocation Framework Determination:** After the above questions have been considered, a general allocation framework of one (or more) of the types described above may be relevant. Receiving entities will be determined by the target patient population, distributional and ethical considerations.

Incorporating the SDMAC ethical framework into the allocation of therapeutic drugs.

Institutions who receive a supply of therapeutics are encouraged to develop a process of allocation to individual patients based on ethical principles.

This document outlines some initial frameworks for the allocation of therapeutics to hospitals and health systems, but these systems must develop their own treatment protocols for individual patients consistent with the ethical principles outlined in the accompanying "Ethical Framework" document.

In general, treating clinicians should not be responsible for operationalizing the allocation framework. This should be led, instead, by crisis triage officers or clinic leaders. The principle of "fairness," as outlined in the Ethics Subcommittee Ethical Framework to Guide the Allocation of COVID-19 Therapeutics and Vaccines requires that healthcare resources be allocated using criteria based **only on relevant characteristics**, using impartial procedures for allocation and distribution. This means that the team making allocation decisions should be blinded to information that is not relevant. As stated in the Ethics Subcommittee document, the following considerations should not be used to unjustly disadvantage individuals in allocation decisions, in no particular order: age, race, color, disability, gender, immigration/citizenship status, incarceration status, national origin, religion, sexual orientation and gender identity, socioeconomic status and ability to pay. Methods that should generally be avoided include "first-come, first-served" or random lottery of all who test positive for Covid-19. These strategies do not preserve resources to maximize the common good and may exacerbate existing health disparities.

We recommend that ethics committees and crisis triage teams be involved in determining a process for allocation that is equitable, fair, and reasonable.

Based upon the following SDMAC "Ethical Principles," these are some topics for ethics committee and crisis triage teams to <u>consider</u> in the development of hospital/health system level allocation frameworks:

1. **Common Good**
    - **a.** Therapeutics used for prevention and early treatment may significantly reduce transmission, offering community benefit. Done well, this could contribute to economic recovery and expedite return to normal community activities and interactions.
    - b. Consider/discuss prioritization of essential workers.
2. **Unity**
    - **a.** In order to provide unity among Wisconsinites, patient care responsibility for patients tested outside the hospital/health system should be considered. Health systems that participate in community testing should include all those tested as possible recipients of allocation if they meet criteria. Plans should be made with non-affiliated testing sites to ensure those who test positive and meet criteria have a chance to receive the drug.
3. **Equity**

a. If after risk-based criteria and ethical principles are applied, there still are not enough resources for each person who meets the criteria, lottery systems can be ethically appropriate strategies to use in decision making. In this way, lotteries allow for each eligible patient to have an equitable chance of receiving the drug. One approach is to randomly allocate among eligible patients. Another is to weight the lottery based on relevant factors in order to advance fairness and health equity.

4. **Evidence-Based**
    - **a.** Allocation decisions should be based on the best available science. All sources, whether peer-reviewed or not, should be critically appraised.
    - **b.** Allocation frameworks should be regularly updated as available evidence evolves.
5. **Respect for persons**
    a. Consider the risk versus benefit of the therapeutic for each individual patient and whether a robust informed consent process may be required.
    b. Use of authorized experimental therapies requires disclosure of the investigational nature of the treatment. Medical jargon should be avoided, and translation available whenever necessary. Additionally, presentation should not bias groups of patients towards accepting or refusing treatment.
6. **Fairness**
    a. Allocation principles should be applied with transparency, accountability and consistency. Protections to avoid backlash against those administering medications should be built in.
    b. Consider whether this therapeutic shows benefit for a particular population/cohort for whom no or few other therapeutics have shown benefit or been available.
7. **Reasonableness**
    a. Consider whether there is anything about this therapeutic in the current context of the pandemic that would make it higher or lower priority for allocation than another therapeutic needing allocation, given that allocation itself requires resources that may be limited.
    b. Consider the risk of wasted therapeutic if allocated to geographical areas or entities unable/unlikely to administer it.

For an example of a policy that aligns with the ethical allocation goals outlined in this document and makes use of a weighted lottery, please refer to Appendix A. This is one example from the state of Pennsylvania, but there are many other possible methods that meet ethical goals stated here.

References

1) Harald Schmidt, Utku Ünver, Michelle Williams, Parag Pathak,Tayfun Sönmez, and Lawrence Gostin. “What prioritizing worse-off minority groups for COVID-19 vaccines means quantitatively: practical, legal, and ethical implications.” SEII Discussion Paper #2020.10 October 2020.

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