Mitigating Inequities with a Weighted Lottery to Allocate Scarce COVID-19 Medications

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Removing Access Barriers Is Not Enough

Overcoming the access barriers that disadvantaged groups face will not mitigate inequities; it will only prevent a worsening of inequities.

To actually mitigate inequities, it’s necessary to take steps to direct more resources to groups that have been disproportionately affected.
Is Mitigating Inequities an Appropriate Goal When Allocating Scarce COVID-19 Treatments?

“Twin moral impulses animate public health: to advance human well-being by improving health and to do so particularly by focusing on the needs of the most disadvantaged.”

Promote population health outcomes

Mitigate disparities

Gostin L. Health Affairs; 2006
White DB, Lo B. AJRCCM; 2020
Equal Respect

We show equal respect for all members of society by mitigating the negative circumstances that cause disadvantaged persons to bear the greatest burden of the pandemic.
Model Hospital Policy for Fair Allocation of Scarce Medications to Treat COVID-19

Executive Summary

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Endorsed by UPMC Patient & Family Advisory Council

Full policy available at: https://ccm.pitt.edu/node/1133

Weighted Lottery Gives All Eligible Patients a Chance and Mitigates Disparities

Eligible patients: All who meet eligibility criteria

Allocation mechanism: weighted lottery
- Every eligible patient has a chance to receive the drug.
- Baseline chances: \[
\frac{\text{number of treatment courses}}{\text{predicted number of patients until next shipment}}
\]
- Weighting to achieve equity goals.

Weighting factors:

<table>
<thead>
<tr>
<th>Ethical Goal</th>
<th>Specification</th>
<th>Chances</th>
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<tbody>
<tr>
<td>Prioritize frontline workers</td>
<td>Higher chances to frontline workers (who are disproportionately POC)</td>
<td>+25%</td>
</tr>
<tr>
<td>Mitigate inequities in COVID-19 outcomes</td>
<td>Higher chances to those from disadvantaged areas (Area Deprivation Index score 8-10)</td>
<td>+25%</td>
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Achieving Equitable Access: Centralized Lottery and Scheduling of Monoclonal Antibody Infusion

Requests managed through a central allocation center in Pittsburgh, PA

Allocation team confirms eligibility with the treating physician

Lottery is conducted daily by trained staff + witness; all are blinded to patient characteristics except weighting factors.

Referring physician is informed whether patient is allocated drug; gains consent

Centralized infusion scheduling process across the 19 infusion sites; drug infused; all patients’ outcomes tracked
Centralized lottery

- Primary goal: fair allocation when scarcity exists
- Secondary benefit: gaining knowledge of treatment effectiveness
- Lottery creates randomization (i.e., a natural experiment) that allows valid causal inferences
- A single registry increases value

White DB. JAMA; 2020