Outcome of a Change in Allocation of Livers for Transplant in the United States

On February 4, 2020, the Organ Procurement and Transplant Network and United Network for Organ Sharing (UNOS) implemented a new policy for allocating donor livers for transplant. The policy moves away from a donor service area–based allocation model and instead focuses on radially oriented zones (acuity circles) around potential donors. Its goals are to improve access to transplant for the candidates with the greatest urgency, increase the number of pediatric transplants, and reduce waitlist mortality. However, there are also concerns that it may reduce access for socioeconomically disadvantaged groups (eg, patients in rural areas) and significantly increase travel burden for liver recovery.

Using data from UNOS, we assessed whether implementation of the policy was associated with immediate changes in the distance traveled for recovery or the proportion of organ imports or exports by UNOS regions.

Methods | We identified all accepted liver offers from deceased donors between January 3 and March 3, 2020 (prior to dramatic changes in practice because of the coronavirus disease 2019 pandemic). We collected data regarding donation after brain vs circulatory death, location of the donor and recipient hospitals, and the UNOS regions of both the donor and recipient. Our primary outcomes were the distance between the donor and recipient hospitals as a surrogate for organ recovery travel distance, measured as the straight-line distance between donor and recipient hospitals based on longitude and latitude coordinates. We also measured the proportion of recovered livers that were imported and exported by each UNOS region. This study was deemed exempt by the institutional review board of the University of Michigan. We calculated the raw unadjusted differences and relative change in each outcome before and after implementation of the policy on February 4, 2020. All analyses and geographic mapping were performed in Stata version 15 (StataCorp).
Results The Figure shows changes in the estimated median distance traveled to recover accepted livers for transplant. Implementation of the acuity circle policy was associated with a 105% relative increase in travel by recovery teams (309.8 [77.2 to 370.1 km]). Other regions, such as region 4, experienced little change in travel distance (38.1% [77.2 to 370.1 km]), while some regions, such as region 8, experienced a nearly 400% increase (130.4 to 267.2 km).

The policy was also associated with changes in the number of organs imported and exported by UNOS regions (Table). For example, after implementation, transplant centers imported 309.8% more livers (61 before and 250 after implementation) recovered to another region. At the same time, the number of transplants (797 vs 779 [−2.7%]) and available donors (790 vs 769 [−2.7%]) remained qualitatively stable.

Discussion The median travel distance to recover a liver more than doubled in the month after the acuity circle policy was implemented. While some UNOS regions saw relatively little change in travel, others experienced a nearly 400% increase in the month following implementation. The policy was also associated with a greater proportion of livers being imported and exported from UNOS regions.

This study is limited by its short time frame, and it is too soon to determine whether the increase in travel distance will continue or ultimately limit the policy from reaching its intended goals. We are also unable to determine how this may affect known variation in the median model for end-stage liver disease at transplant in the long term. More travel could affect the policy’s aims if, for example, it leads to higher organ acquisition costs for transplant centers, which in turn affect access for patients who are uninsured or underinsured. These findings nonetheless require ongoing evaluation to establish whether they are a transient consequence of the policy change or a permanent feature of organ recovery under the new policy.

Finally, any change in liver allocation reminds the transplant community that cooperation between transplant centers, organ procurement organizations, and policy makers is key. It can foster innovative changes in organ recovery practices, such as local recovery, that may be necessary should centers continue to experience increasing travel demands under the new policy.

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<table>
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<th>Region</th>
<th>Transplants</th>
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<tr>
<td></td>
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<td>After, No.</td>
<td>Absolute difference, No. (%)</td>
<td>Before, No.</td>
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<td></td>
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<tr>
<td>1</td>
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<td>44</td>
<td>23 (1.1)</td>
<td>17</td>
</tr>
<tr>
<td>2</td>
<td>88</td>
<td>65</td>
<td>23 (−26.1)</td>
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<tr>
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</table>

Abbreviations: NA, not applicable; UNOS, United Network for Organ Sharing.

* The policy change occurred on February 4, 2020. All values before and after implementation are raw numbers. Absolute and relative differences reflect the unadjusted change between the preimplementation and postimplementation period. Statistics are not adjusted for center-level or region-level median models for end-stage liver disease at transplant.
Intersection of Race and Gender in Surgical Training

To the Editor

We would like to first thank Mocanu and colleagues1 for their recent article on gender and visible minority status among general surgery residents in Canada. We commend them on their attempt to gain a clearer understanding of trainees who experience the double bind of race and gender.2,3 Their article draws from recent literature on equity, diversity, and inclusion in medicine and the corporate sector and we appreciate their efforts to further our knowledge. However, we find their use of the term intersectionality without referencing its roots in Black feminist thought or its theoretical framework to be a significant oversight.

The term intersectionality was coined by Black critical race theorist Kimberlé Crenshaw. Intersectionality as a theoretical framework helps us understand how social categories such as race, gender, sexual orientation, and class intersect at the level of the individual to “reflect multiple interlocking systems of privilege and oppression” such as racism, sexism, heterosexism, and classism.4 The term describes more than just the ways in which identity intersects; intersectionality allows bare how power and inequality are experienced by individuals and function to produce disparate outcomes.4 Importantly, Crenshaw did not imply an additive quality to these intersections of identity; rather, these identities intersect in complex ways.

The authors of this study1 found that experiences of discrimination were compounded for trainees who were both female and of visible minority status, providing documentation for those with this lived experience. However, the discussion of the findings would have been enriched by substantive engagement with intersectionality as a theoretical framework. Intersectionality necessitates an analysis of power: why might the experiences of racialized women have been different from their counterparts? How are surgical programs designed in ways that perpetuate sexism and racism? How is leadership in general surgery training programs structured? What are the cultural norms and expectations of surgical programs? How is this mirrored in the training outcomes or career trajectories of racialized women? These are uncomfortable questions but ones that we must confront if we are to use the term intersectionality as Crenshaw intended.

We commend the authors for tackling the question of how our identities may intersect and influence our experience of institutions such as residency training programs. Research on these topics is important. We encourage the authors and others to acknowledge and explicitly engage with the deep well of theory and critical analysis provided by Black feminist scholars who have paved the way.

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To the Editor

We applaud Mocanu et al1 for highlighting the importance of an intersectional approach to gender and race among general surgery residents. Knowledge about women and those of visible minority (VM) status in surgery is vital to ensure a comprehensive approach toward equity for all. This article draws an association between gender, VM status, and resiliency. However, we respectfully assert that beyond defining trainees as “at-risk residents”4 for an adverse training experience based on their gender and VM status, the focus should be not on the nonmodifiable factors of a trainee, but on the modifiable ones, such as cultural issues and barriers, as well as implicit and explicit biases.

In this study,1 women who identify as being of VM status often perceived a poor fit within their programs, and many had significant concerns about receiving fewer training opportunities than men. Importantly, they draw corollary to reports on women being allocated less autonomy in the operating room2 and self-reporting a confidence gap in preparedness for examinations than men, which importantly did not translate...