ABSTRACT

Despite an acknowledgement of the ethical and clinical importance of recruiting diverse populations into clinical trials, there is a continued under enrollment of patients with diverse demographic characteristics within the field of Neurology and more specifically, in stroke-related device trials. Efforts on the part of the United States Congress, the National Institutes of Health, the Food and Drug Administration, and the Centers for Medicare and Medicaid Services over the last several decades have attempted to increase trial participant diversity with varying success. This historical context provides an important lens for analyzing diversity efforts and more specifically, in stroke patients with diverse demographic characteristics within the field of Neurology.

Table 1: Considerations for trial diversity efforts

<table>
<thead>
<tr>
<th>Theme</th>
<th>Challenge</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Generalizability</td>
<td>Lack of participant diversity within a trial can limit how applicable the results are to other groups [2].</td>
<td>Early genetic studies of warfarin were performed largely in populations of European descent which resulted in dosing structures that could not be adequately generalized to US populations of African and Asian descent (who carried different genetic variants) [2].</td>
</tr>
<tr>
<td>Innovation</td>
<td>Studies aimed specifically at exploring risk within populations can lead to clinically significant and previously unknown findings [2].</td>
<td>A study intentionally designed to explore variation in cardiovascular risk factors, disease, and care by demographic group (i.e., race, gender, location) resulted in the discovery of a key player in cholesterol homeostasis [2].</td>
</tr>
<tr>
<td>Economic costs</td>
<td>Improved trial diversity could help reduce costs associated with health disparities [2].</td>
<td>The Future Elderly Model, an economic model designed to estimate the potential benefit of reducing disparities in chronic disease, estimates that eliminating all life expectancy disparities for diabetes, heart disease, and hypertension has a societal value of roughly $11 trillion [2]. More inclusive clinical trials could help mitigate those outcome disparities.</td>
</tr>
</tbody>
</table>

METHODS

- Literature review conducted to explore current trends in representation within neurologic clinical trials.
- Policy analysis used to examine historical policies that have impacted clinical trial diversity.
- Policies from the United States Congress, the NIH, the FDA, and the CMS explored for intended impact and challenges encountered.
- CDC’s Policy Analytical Framework was used as a guide to identify the problem (current state of diversity in neurologic trials, current trial approval processes), analyze historical policies, and recommend directions for future policy development (Figure 1) [32].

RESULTS

- Major clinical trials in neurology have not enrolled appropriately diverse patient populations.
- Research in many subspecialties (e.g., dementia, stroke) have revealed underrepresentation of several populations [4-10].
- Global neurovascular device market: Represents a small percentage of the overall medical device market share but is growing at a faster rate than other sectors [11,12].
- Policies from Congress, the NIH, the FDA, and the CMS have had varying success in determining appropriate diversity requirements for trials, monitoring enrollment diversity, and linking funding and regulatory approval to clinical trial diversity requirements [2].
- Ongoing challenges to trial diversity efforts: Balance between trial size/duration and cost, potential for justifiable exclusion of groups, lack of clear definitions for certain demographic categories, relative lack of diversity data for medical device trials [22-27].
- Proposed efforts to increase diverse enrollment: Financial incentives (e.g., direct grants, tax credits), expanded requirements for post-approval studies/screening logs/clinical databases, community engagement [1,9,28-31].

LIMITATIONS

- The relative lack of data on diversity and the implementation of diversity efforts for medical device trials specifically required us to rely on and extrapolate from the available data for medication trials.
- This project is a review of available literature and texts, future developments or publications could affect the relevancy of these findings.

REFERENCES

No outside funding was obtained for this project. Dr. John Carroll holds active consulting relationships with Abbott Vascular and ReCross Cardio. Dr. Nicole Gonzales holds a position as Associate Editor for Diversity, Equity, and Inclusion for Neurology. Dr. Karen Orjuela holds a position as Digital Editor for Stroke and has received research compensation from Abbott Laboratories and Bristol Myers Squibb Foundation.

ACKNOWLEDGEMENTS

Thank you to Dr. Karen Orjuela for her mentorship in crafting and executing this project. Thank you to Dr. John Carroll and Dr. Nicole Gonzales for their contributions to the manuscript.