THE SIGNAL
BLOG BY SIGNANT HEALTH

VISIT THE SIGNAL

Strategies to Enhance Representation in Clinical Trials

Joan Busner, PhD; Bill Byrom, PhD; Greta Marie van Schoor, PhD; Lauren Crooks, MSc; & Sayaka Machizawa

The absence of adequate representation and accessibility in clinical research poses a critical issue, as the underrepresentation or exclusion of certain population groups can compromise both the validity and generalizability of study outcomes.[1,2]

In our previous white paper, "Underrepresented Populations in Clinical Trials: Considerations, Diversity, Accessibility, and Patient Centricity," we highlighted the importance of representation and patient centricity in clinical trials.

In our second white paper in the series, "Enhancing Representation in Clinical Trial Populations," we underpin the different barriers to achieving optimal representation in clinical trials and explore some potential strategies to overcome such challenges, including leveraging innovative clinical trial technologies.

Barriers to diversity in clinical trials

Several barriers prevent optimal participation of underrepresented groups in clinical trials, including:

Mistrust in medical institutions

Historical injustices and persistent healthcare disparities foster skepticism toward medical research, deterring underrepresented groups from participating.

Logistical and socioeconomic barriers

Financial burdens, time commitments, and logistical challenges—such as transportation, work constraints, and childcare needs—pose significant obstacles, particularly for low-income populations.[3] Language barriers further limit access to trial opportunities.

Systemic barriers

Trials are often concentrated in urban medical centers, inadvertently excluding rural and underserved communities. Underfunded hospitals also lack the resources to participate.

Inadequate awareness and outreach

Traditional recruitment strategies often fail to engage marginalized groups effectively, leading to continued exclusion from clinical trial opportunities.

Cultural competence and bias among researchers

A lack of cultural awareness among researchers and implicit biases among healthcare providers can result in fewer referral rates of patients from underrepresented backgrounds to clinical trials.[4,5]

Balancing recruitment efforts

Efforts to increase diversity must be transparent and ethical. Informed consent should clearly outline risks and benefits, with safeguards to prevent coercion or the undue influence of financial incentives, particularly in vulnerable populations.

Potential strategies to overcome recruitment, enrollment, and retention/ engagement challenges

Participant recruitment, enrollment, and retention challenges are often associated with underrepresented groups in clinical research.[6] Study teams should understand the specific cultural, socio-economic, and demographic landscapes of the target audience, in order to set up effective recruitment campaigns.[7] Suitable communication channels, appropriate language, and culturally-sensitive recruitment materials are all important aspects.[7,8] Importantly, caregivers are often the target audience where underrepresented populations are recruited, which should be taken into account when setting up recruitment strategies.[7] Studies requiring caregiver support, such as dementia studies, pose specific recruitment challenges that should be considered.[9]

Researchers should understand the historical experience of specific racial and ethnic communities with clinical research. Tailored approaches can then be utilized to optimize the recruitment and consenting processes, and to ensure participant retention, engagement, and compliance with trial procedures. Considering the population breakdown is another important aspect when thinking about recruitment tactics.[7]

Achieving diversity in clinical trials is crucial not only for scientific rigor but also for meeting regulatory standards. While the US Food and Drug Administration (FDA) draft guidance on Diversity Action Plans was withdrawn from their public website under the new governmental administration in January 2025, the principles remain important. This draft guidance detailed proposed requirements for sponsors to submit Diversity Action Plans for Phase III trials (or other pivotal studies) and the original draft guidance outlined the format and content of such plans[10], including enrollment and retention strategies for the study population, and specific study enrollment goals per demographic characteristic.

Case study: Sickle Cell Disease (SCD) trials

SCD studies may serve as a case example where many of the considerations mentioned are applicable. The prevalence of SCD is higher in specific ethnic and demographic groups, and varies by country.[11,12,13] In SCD trials including countries with lower SCD prevalence, a special focus on engagement of patients is needed to ensure participant recruitment and retention, as well as compliance with study activities.[14,15] Utilizing input from relevant stakeholders to tailor approaches, as well as providing appropriate educational content to patients, are important strategies for these trials.

Enhancing inclusion of underrepresented populations in clinical trials through Electronic Informed Consent (eConsent)

Although paper-based informed consent forms (ICFs) are traditionally used to carry out the consenting process, eConsent is becoming of interest to supplement or replace paper-based processes, offering several advantages that can help improve the inclusion of underrepresented populations in clinical trials. However, while eConsent platforms may facilitate an improved consenting process, these platforms should be supplemented with opportunities for direct in-person communication to mitigate misunderstandings and foster trust.

Remote consenting

eConsent removes travel barriers, enabling participation from diverse locations and accommodating those with physical limitations or caregiving responsibilities.[16,17]

Overcoming language barriers and improving comprehension

eConsent supports multiple languages without the delays of printing and distributing paper ICFs, ensuring better comprehension for non-English speakers.

Addressing cultural sensitivity and concerns around data privacy

Culturally inclusive consent materials help address mistrust and encourage participation from historically marginalized communities.

Utilizing Artificial Intelligence (AI) in eConsent to drive greater diversity in clinical trials

AI technologies are being increasingly implemented in clinical trials to improve trial processes.[18] In the context of eConsent, opportunities to leverage AI may include the use of AI algorithms to identify and eliminate biased language in ICFs, or to rephrase complex medical jargon to accommodate for varying health literacy levels.[19,20] AI-powered chatbots or virtual assistants can also be implemented to provide dynamic support for participants through the consenting process.[21,22]

While there is the potential for AI to enhance informed consent processes, more investigation into the risks related to data privacy, algorithmic bias, and regulatory requirements is needed before being routinely implemented in practice.

Signant Health's eConsent and Patient Engagement Solutions enable broader participation and optimize retention in clinical trials

Signant Health's eConsent solution, Signant SmartSignals® eConsent, provides a range of feature options to facilitate comprehension and compliance, and accommodate the diverse needs of participants, including multi-lingual capability, remote access, self-service, as well as 24/7 user support. SmartSignals® eConsent offers an interactive consent experience, where multimedia can be incorporated to help create an engaging experience for patients and help improve their comprehension of the trial.

Furthermore, patient engagement and retention rates throughout a study can be optimized with Signant's patient engagement solution. This feature can include information on the indication and provide detailed visit information, thereby ensuring that patients are equipped throughout the entire trial.

Conclusion

Underrepresentation of certain populations limits study generalizability and perpetuates health disparities, resulting in treatments that may not benefit marginalized groups equally. By building trust, raising awareness, and addressing logistical and socioeconomic challenges, researchers and sponsors can begin to dismantle the obstacles that prevent underrepresented communities from participating.

Signant Health's eConsent and patient engagement solutions, combined with culturally sensitive outreach and flexible trial designs, provide practical steps toward inclusive, patient-centered research that delivers reliable outcomes and advances health equity.

About the Authors

Joan Busner, PhD has more than 35 years of experience as an academic psychiatric researcher and psychopharmacology principal investigator and founded and directed two university psychiatric clinical trials units. Dr. Busner served continuously on University Institutional Review Boards for 20 years. At Signant she has scientific and clinical responsibility for studies in mood, anxiety, pediatrics, and rare/orphan diseases. Dr. Busner is currently Affiliate Associate Professor of Psychiatry at Virginia Commonwealth University.

Bill Byrom, PhD has over 30 years' experience as a clinical development specialist, an eClinical product strategy leader, and an industry expert in clinical outcome assessments. He has authored 80+ publications and two industry textbooks on electronic patient-reported outcomes (ePRO), and his recent research includes the use of wearables and bring-you-own-device (BYOD) eCOA in clinical trials. At Signant he provides eCOA science expertise into customer projects and company strategy.

Greta Marie van Schoor, PhD provides scientific expertise and guidance relating to the implementation of electronic clinical outcome assessments (eCOAs) and has a special focus on eDiary design and accessibility of eCOA best practices. She completed her PhD in Physiological Sciences at Stellenbosch University, which focused on the bacterial and inflammatory involvement in colorectal carcinogenesis, and has 3+ years' experience in the clinical research industry. She has given scientific consultation for projects across a wide range of therapeutic areas, including oncology, infectious disease, dermatology, and gastroenterology.

Lauren Crooks, MSc has comprehensive cross-functional experience within the life sciences and information technology sectors. At Signant, she combines this experience to provide scientific consultation and support to clients on the implementation of eCOA to optimize patient care and outcomes in clinical trials. She has supported eCOA projects across multiple therapeutic areas, including dermatology and neurology, with a current focus on respiratory diseases.

Sayaka Machizawa, Psy.D., is an Associate Director of Clinical Science at Signant Health, bringing over 18 years of expertise in neurodegenerative and psychiatric diseases. She has played a key role in supporting large-scale global clinical trials across a wide range of indications. Fluent in both Japanese and English, Sayaka has led rater training sessions at numerous Investigator Meetings worldwide.

With a Doctorate in Clinical Psychology, she has also dedicated 12 years to academia, teaching graduate-level Psychology courses, and conducting neuropsychological evaluations for diverse populations. Her extensive experience bridges clinical research, education, and applied neuropsychology, making her a valuable contributor to advancing scientific rigor in clinical trials.

References:

1. Van Schoor, G.M., Crooks, L., Busner, J., & Byrom, B. (2024). Underrepresented Populations in Clinical Trials: Considerations, Diversity, Accessibility, and Patient Centricity. Signant Health White Paper.
2. Sharma, A., & Palaniappan, L. (2021). Improving diversity in medical research. Nature Reviews Disease Primers 7(11).
3. Carter-Edwards, L., Hidalgo, B., Lewis-Hall, F., Nguyen, T., & Rutter, J. (2023) Diversity, equity, inclusion, and access are necessary for clinical trial site readiness. Journal of Clinical and Translational Science 7(1), e268.
4. Oyer, R. A., Hurley, P., Boehmer, L., Bruinooge, S. S., Levit, K., Barrett, N., Benson, A., Bernick, L. A., Byatt, L., Charlot, M., Crews, J., DeLeon, K., Fashoyin-Aje, L., Garrett-Mayer, E., Gralow, J. R., Green, S., Guerra, C. E., Hamroun, L., Hardy, C. M., Hempstead, B., … Pierce, L. J. (2022). Increasing Racial and Ethnic Diversity in Cancer Clinical Trials: An American Society of Clinical Oncology and Association of Community Cancer Centers Joint Research Statement. Journal of clinical oncology: official journal of the American Society of Clinical Oncology, 40(19), 2163–2171. https://doi.org/10.1200/JCO.22.00754
5. Reopell, L., Nolan, T. S., Gray, D. M., 2nd, Williams, A., Brewer, L. C., Bryant, A. L., Wilson, G., Williams, E., Jones, C., McKoy, A., Grever, J., Soliman, A., Baez, J., Nawaz, S., Walker, D. M., Metlock, F., Zappe, L., Gregory, J., & Joseph, J. J. (2023). Community engagement and clinical trial diversity: Navigating barriers and co-designing solutions-A report from the "Health Equity through Diversity" seminar series. PloS one, 18(2), e0281940. https://doi.org/10.1371/journal.pone.0281940
6. Huang, B., De Vore, D., Chirinos, C., Wolf, J., Low, D., Willard-Grace, R., Tsao, S., Garvey, C., Donesky, D., Su, G., & Thom, D.H. (2019). Strategies for recruitment and retention of underrepresented populations with chronic obstructive pulmonary disease for a clinical trial. BMC Medical Research Methodology 19, 1-10.
7. Recruiting Special Patient Populations. 2006. Applied Clinical Trials. Recruiting Special Patient Populations (appliedclinicaltrialsonline.com)
8. Clark, L.T., Watkins, L., Piña, I.L., Elmer, M., Akinboboye, O., Gorham, M., Jamerson, B., McCullough, C., Pierre, C., Polis, A.B., & Puckrein, G. (2019). Increasing diversity in clinical trials: overcoming critical barriers. Current Problems in Cardiology 44(5), 148-172.

9. McPhillips, M.V., Petrovsky, D.V., Brewster, G.S., Li, J., Gooneratne, N.S., Hodgson, N.A., & Sefcik, J.S. (2022). Recruiting persons with dementia and caregivers in a clinical trial: Dyads perceptions. Western Journal of Nursing Research 44(6), 557-566.
10. Draft FDA guidance, 2024 (withdrawn). Diversity Action Plans to Improve Enrollment of Participants from Underrepresented Populations in Clinical Studies.
11. Sundd, P., Gladwin, M.T., & Novelli, E.M. (2019). Pathophysiology of sickle cell disease. Annual Review of Pathology: Mechanisms of Disease 14(1), 263-292.
12. Kato, G.J., Piel, F.B., Reid, C.D., Gaston, M.H., Ohene-Frempong, K., Krishnamurti, L., Smith, W.R., Panepinto, J.A., Weatherall, D.J., Costa, F.F. and Vichinsky, E.P., 2018. Sickle cell disease. Nature reviews Disease primers, 4(1), pp.1-22.
13. Kavanagh, P.L., Fasipe, T.A., & Wun, T. (2022). Sickle cell disease: a review. JAMA 328(1), pp.57-68.
14. Lebensburger, J.D., Sidonio, R.F., DeBaun, M.R., Safford, M.M., Howard, T.H., & Scarinci, I.C. (2013). Exploring barriers and facilitators to clinical trial enrollment in the context of sickle cell anemia and hydroxyurea. Pediatric Blood & Cancer 60(8), 1333-1337.
15. Badawy, S.M. (2021). Clinical trial considerations in sickle cell disease: patient-reported outcomes, data elements, and the stakeholder engagement framework. Hematology 2021(1), 196-205.
16. Clark III, D., Woods, J., Patki, D., Jones, K., Stasher, S., Jones, D. W., & Summers, R. (2020). Digital Informed Consent in Rural and Low-Income Population. JAMA Cardiology 5(7), 845-847.
17. Almeida-Magana, R., Maroof, H., Grierson, J., Clow, R., Dinneen, E., Al-Hammouri, T., Muirhead, N., Brew-Graves, C., Kelly, J., & Shaw, G. (2022). E-Consent – a guide to maintain recruitment in clinical trials during the COVID-19 pandemic. Trials 23, 388.
18. Weiddler, E. H., Naumann, T., Andersson, T., Ranganath, R., Elemento, O., Luo, Y., Freitag, D. F., Benoit, J., Hughes, M. C., Khan, F., Slater, P., Shameer, K., Roe, M., Hutchison, E., Kollins, S. H., Broedl, U., Meng, Z., Wong, J. L., Curtis, L., Huang, E., & Ghassemi, M. (2021). The role of machine learning in clinical research: transforming the future of evidence generation. Trials 22, 537.
19. MacIntyre, M. R., Cockerill, R. G., Mirza, O. F., & Appel, J. M. (2023). Ethical considerations for the use of artificial intelligence in medical decision-making capacity assessments. Psychiatry Research 328, 115466.
20. Chereji, R. (2024). Translating “medicalese”: The case of informed consent forms. Medical Writing 33(1), 44-47.
21. Bickmore, T., Utami, D., Zhou, S., Sidner, C., Quintiliani, L., & Paasche-Orlow, M. K. (2015). Automated Explanation of Research Informed Consent by Virtual Agents. Intelligent Virtual Agents 9238, 260-269.
22. Xiao, Z., Li, T. W., Karahalios, K., & Sundaram, H. (2023). Inform the Uninformed: Improving Online Informed Consent Reading with an AI-Powered Chatbot. CHI ’23: Proceedings of the 2023 CHI Conference on Human Factors in Computing Systems 112, 1-17.