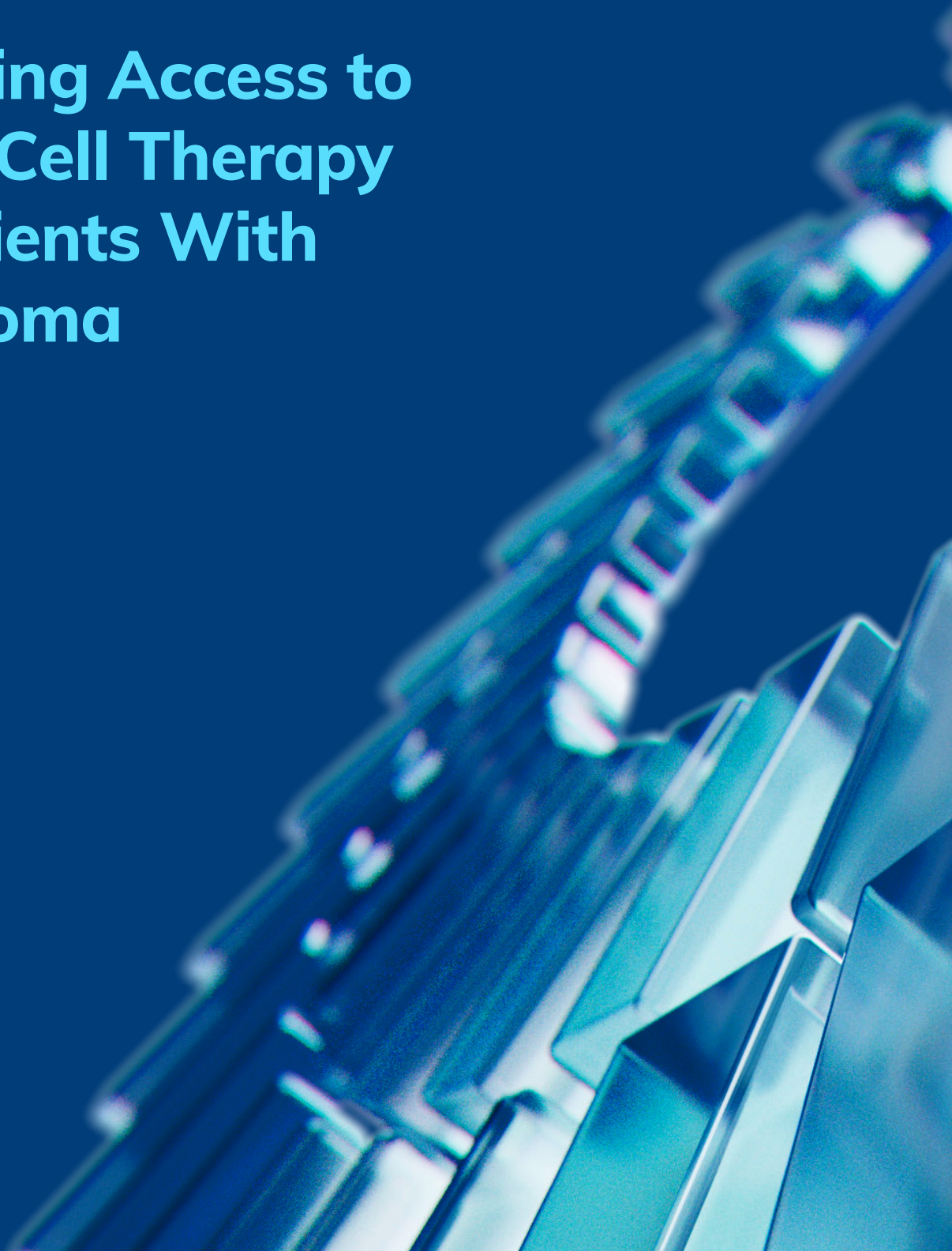
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WHITE PAPER

Improving Access to CAR T-Cell Therapy for Patients With Lymphoma



Chimeric antigen receptor (CAR) T-cell therapy has shown great promise for treating certain blood cancers. Still, specific barriers prevent some patients from accessing this innovative and potentially curative new treatment.

Christie Teigland, Ph.D. and Karl Kilgore, Ph.D. have worked with colleagues to explore disparities in access to CAR T-cell therapy in the U.S. for patients with large B-cell lymphoma. They aim to identify the demographic, social, and clinical factors that may limit equitable access to this potentially life-saving therapy to help providers, manufacturers, payers, and other stakeholders address barriers and reduce disparities.

A breakthrough in cancer treatment

In recent years, CAR T-cell therapy has emerged as a groundbreaking treatment for certain types of blood cancers that have not responded to other therapies. This form of immunotherapy involves collecting a patient's own T cells (a type of immune cell), genetically modifying them to target cancer cells, and then infusing them back into the patient. CAR T-cell therapy can lead to long-lasting remission for some patients with advanced blood cancers who have exhausted other treatment options.

Large B-cell lymphoma, the most common type of non-Hodgkin lymphoma, was one of the first cancers for which CAR T-cell therapy was approved. This aggressive cancer affects the lymph system and can be difficult to treat, especially when it relapses or becomes resistant to standard therapies. The advent of CAR T-cell therapy has provided new hope for patients with relapsed or unresponsive large B-cell lymphoma.

However, despite the promise of CAR T-cell therapy, not all eligible patients may have equal access to this treatment. CAR T-cell therapy is complex and resource-intensive, requiring specialized centers and expertise to administer. As with many cutting-edge medical treatments, there are questions about whether socioeconomic factors, geographic location, or other variables may create barriers for some patients.



Investigating disparities in access

The research team examined potential disparities in access to CAR T-cell therapy for patients with relapsed or treatment resistant large B-cell lymphoma. They conducted a large observational study using data from Inovalon's MORE^2 Registry®, the industry's largest primary source patient dataset detailing Medicare, commercial, and Medicaid insurance claims databases in the U.S. This involved analyzing information on over 5,000 patients eligible for CAR T-cell therapy based on relapsed or refractory disease after at least two prior lines of treatment.

By comparing patients who did and did not receive CAR T-cell therapy, the study identified and isolated demographic, clinical, and socioeconomic factors associated with receiving this treatment. Geographic factors, such as travel distance to treatment centers, were also determined to impact access.

The impact of age and sex

One of the key findings was that a patient's age influenced their likelihood of receiving CAR T-cell therapy. For each year's increase in age, patients were about 4% less likely to receive CAR T-cell therapy. The median age of patients who received CAR T-cell therapy was 70, compared to 74 for those who did not.

This age disparity could reflect concerns held by providers and patients themselves about the ability of older patients to tolerate the potential side effects of CAR T-cell therapy. However, the researchers note that recent studies have shown CAR T-cell therapy can be safe and effective even in older adults. As such, more education may be needed to combat potential biases against offering this treatment to older patients.

Interestingly, men were about 29% more likely than women to receive CAR T-cell therapy, even after accounting for other factors. The reasons for this large gender disparity are not clear and warrant further investigation.



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Racial and ethnic disparities

Perhaps the most striking disparities uncovered relate to race and ethnicity. Even after controlling for factors like income, location, and burden of illness, Black patients were less than half as likely as White patients to receive CAR T-cell therapy. There was also a trend toward Hispanic patients being less likely to receive the treatment, though this did not quite reach statistical significance.

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These racial and ethnic disparities persisted even when comparing patients of similar socioeconomic status. The researchers point to deeper issues of structural racism and discrimination in healthcare that go beyond just income differences. This emphasizes the need for targeted interventions to promote health equity and ensure all eligible patients have equal access to advanced therapies like CAR T-cell treatment.

The role of income and insurance

As might be expected, a patient's income level was strongly associated with their likelihood of receiving CAR T-cell therapy. Patients in the lowest income group were more than 50% less likely to receive the treatment than those in the highest income bracket. This highlights how the high costs associated with CAR T-cell therapy – both direct medical costs and indirect expenses like travel, accommodation, and lost wages – may create barriers for lower-income patients.



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The type of health insurance a patient had also appeared to play a role, though this was difficult to fully untangle as it was not a primary focus of the analysis. In unadjusted comparisons, patients with commercial insurance were 1.5 to 3 times more likely to receive CAR T-cell therapy than those with government insurance like Medicare or Medicaid. In other words, insurance coverage and required authorizations, co-pays, and reimbursement policies may influence access to this treatment.

The effect of geographic barriers

Another factor was how far patients had to travel to reach centers offering CAR T-cell therapy. The researchers found that patients who lived between two to four hours of driving distance from the nearest treatment center were about 36% less likely to receive CAR T-cell therapy than those who lived within 30 minutes. Patients who lived up to two hours from a treatment center were also not significantly different from those within 30 minutes.

Interestingly, patients who lived more than four hours away did not show significantly lower rates of receiving the treatment. The researchers speculate this could be because patients traveling very long distances may be more likely to have alternative living arrangements near the treatment center selected, which was not always the one nearest to the patient's residence, such as staying with family. However, more research is needed to fully understand these geographic patterns.

Strategies to improve access

Based on these findings, efforts are needed to educate both patients and healthcare providers about the safety and efficacy of CAR T-cell therapy, especially for older adults. This could help combat potential biases that may be limiting referrals. Healthcare systems need to examine and address potential biases and institutionalized discrimination (which may not be explicitly apparent) that may be contributing to racial and ethnic disparities in access to advanced therapies.

Given the strong impact of income on access, expanding financial support programs to help cover both medical and non-medical costs associated with CAR T-cell therapy could make a big difference. Working with public and private insurers to improve coverage and streamline approval processes for CAR T-cell therapy may help reduce disparities related to insurance type. Increasing the number of centers able to provide CAR T-cell therapy, especially in underserved areas, could help address geographic barriers to access.



Healthcare systems need to examine and address potential biases and institutionalized discrimination (which may not be explicitly apparent) that may be contributing to racial and ethnic disparities in access to advanced therapies



A call for health equity

This research highlights how even groundbreaking and potentially life-saving new cancer treatments like CAR T-cell therapy are vulnerable to longstanding issues of health disparities and inequitable access to care. By shining a light on these access barriers, the researchers hope to spur action to address them.

As CAR T-cell therapy and other novel cellular therapies continue to advance, innovation in treatment must coincide with innovation in healthcare delivery and access. Only by addressing both can we realize the full promise of these new therapies to transform cancer care and improve access for all patients.

Read the next installment of this three-part series on SDOH research, "How Social Factors Impact Care for Patients With Bipolar Disorder"

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N Ahmed, F Sun, C Teigland, KM Kilgore, et al., Chimeric Antigen Receptor T-Cell Access in Patients with Relapsed/Refractory Large B-Cell Lymphoma: Association of Access with Social Determinants of Health and Travel Time to Treatment Centers, Transplantation and Cellular Therapy, 2024, 30(7), 714–725. DOI: https://doi.org/10.1016/j.jtct.2024.04.017

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Christie Teigland leads the design and implementation of studies focused on quality measurement, health equity, and health economics and outcomes research. She works closely with health plans, providers, and life science organizations to develop actionable, real-world data insights.

Dr. Teigland co-chaired the National Quality Forum (NQF) Scientific Methods Panel for four years and served on the Pharmacy Quality Alliance (PQA) Quality Measure Expert Panel and as co-chair of PQA's Health Equity Technical Expert Panel, as well as on many Centers for Medicare & Medicaid Services (CMS) expert panels. She has served as principal investigator on large foundation and government-funded projects over two decades focused on improving healthcare quality.

Dr. Teigland earned her Ph.D. in Economics and Econometric Forecasting from the University of New York at Albany.

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