

**Racial and Ethnic Disparities in Home Dialysis Use in the  
United States: Barriers and Solutions**

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**Racial and Ethnic Disparities in Home Dialysis Use in the United States: Barriers and Solutions**Katherine Rizzolo MD<sup>1</sup>, Lilia Cervantes MD<sup>2</sup>, Jenny I. Shen MD<sup>3</sup><sup>1</sup>University of Colorado, Department of Renal Medicine and Hypertension<sup>2</sup>University of Colorado Anschutz Campus, Department of Medicine<sup>3</sup>The Lundquist Institute at Harbor-UCLA Medical Center

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In 2019, the Advancing American Kidney Health (AAKH) Executive Order set a goal: by 2025, 80% of patients with incident kidney failure should be started on home dialysis therapies or receive a kidney transplant. Racial and ethnic minority populations have a disproportionately high risk of kidney failure: Black and Latinx individuals have a 3.4 times and 1.3 times greater risk, respectively, compared to non-Latinx White people.<sup>1</sup> Despite this, Black and Latinx patients are less likely than non-Latinx White patients to be treated with home dialysis: 7.3% of Black patients and 7.4% of Latinx prevalent patients with kidney failure are treated with home dialysis therapies, compared with 9.3% of non-Latinx white patients.<sup>1</sup> The lower rates of home dialysis use in the Black and Latinx communities are not completely explained by geographic, demographic, and clinical factors.<sup>2</sup> This perspective examines other contributing factors, specifically environmental, social, and system-level barriers to home dialysis faced by Black and Latinx patients with kidney failure. It also offers solutions to the problem of inequitable access to home modalities.

*Barriers to Home Dialysis*

Many barriers to home dialysis exist, as do potential solutions to these barriers (**Figure 1**). Environmental and social conditions as well as healthcare systems and policies all play pivotal roles in access to home dialysis.

Environmental and Social Conditions

Lack of home space to store dialysis supplies and absence of social support are more likely to be barriers to peritoneal dialysis (PD) use for patients with low income and education.<sup>3</sup> Financial factors – inability to pay for out of pocket costs for home dialysis and lack of health insurance - compound these challenges. In the US, this has translated into community-level disparities. At the neighborhood level, zip codes with higher Black populations are associated with less home dialysis utilization.<sup>4</sup> Dialysis facilities that serve higher numbers of incident Black and Latinx patients, patients who are uninsured or Medicaid-insured at

dialysis initiation, or patients residing in neighborhoods of high social disadvantage have lower rates of home dialysis referral and initiation.<sup>5</sup>

### Systems and Policies

Black and Latinx patients with kidney failure are more likely to have later referral to nephrologists, less pre-dialysis nephrology care, inadequate patient-centered dialysis modality education, and higher rates of unplanned dialysis initiation than non-Latinx White patients. Lack of pre-dialysis nephrology care is associated with less modality education and higher rates of urgent dialysis initiation, which is predominantly hemodialysis with a dialysis catheter, except in rare areas where urgent-start PD is offered. Even with adequate pre-dialysis education, many patients report they did not make their own choice regarding dialysis modality.<sup>6</sup> Provider bias may play a role in these provider-patient interactions, though this connection has not been studied in home dialysis.

At the policy level, many value-based models disproportionately penalize healthcare systems caring for racial and ethnic minorities. The ESRD Treatment Choices Model (ETC), introduced under the AAKH, aims to positively adjust Medicare payments for home dialysis modality use. In its first ETC model, the Centers for Medicaid Services (CMS) considered excluding beneficiaries with social barriers (such as unstable housing) from home dialysis payment models under the ETC, potentially widening barriers to home dialysis. Following public review, CMS has since made changes more broadly incorporating health equity into this model.<sup>7</sup> In order to address social barriers, implementation of the models under the AAKH will require stakeholder and health system coordination to improve existing barriers and implement novel solutions.

### *Solutions*

The AAKH initiative offers an opportunity for improvement in the care of patients with kidney disease which cannot be reached without strategic efforts to care for racial and ethnic minorities.

Several innovative strategies have demonstrated improved home dialysis access through addressing social and environmental barriers. Community house hemodialysis, where multiple patients perform home hemodialysis in a common house, is performed in New Zealand for those with unstable housing and has been especially helpful in Indigenous communities.<sup>8</sup> Assisted PD (PD at home with the assistance of a trained caregiver) is reimbursed by healthcare systems in Canada, Denmark, and France. This addresses issues of social isolation, lack of caregiver support, and transportation.<sup>9</sup> Further, telehealth appointments for those with adequate internet access and technological proficiency, or home visits may increase access for patients who do not live near a home dialysis clinic. Patient financial incentives, such as reimbursement for days off work for training, or covering travel costs for those who do not live close to a home dialysis clinic, can mitigate issues such as transportation barriers which often affect individuals with lower income. Studies of peer navigators and mentors (typically non-medical individuals who share patients' lived experiences) have also demonstrated improved patient education, motivation, and quality-of-life in other health conditions.<sup>10</sup>

At the healthcare system level, changes to pre-dialysis education and care delivery require interdisciplinary effort. Nephrologists must be confident in their knowledge of home therapies to offer the modality, as well as to dispel the myth that patients from under-resourced communities are not good candidates. Financial incentives for providers to provide better pre-dialysis care, including proper modality education, and high-quality home therapies, may encourage providers to build the infrastructure to facilitate home dialysis. Patient education must be provided in a culturally and language-concordant way. Providers should receive training to provide culturally responsive care and use language interpreters for patients with limited-English proficiency.<sup>11</sup> Healthcare system-level changes to improve access to home dialysis includes wider implementation of urgent start PD programs. These programs allow patients who unexpectedly and urgently initiate dialysis, a population that is disproportionately Black, Latinx, and under-resourced, to start on home modalities.

At the policy level, socioeconomic disadvantage must be carefully and strategically addressed in payment models. Early value-based care models penalized healthcare systems taking care of socially disadvantaged patients.<sup>12</sup> Indeed, the first version of the ETC under AAKH did not incorporate risk adjustment accounting for potential barriers to home dialysis, such as unstable housing or access to care, into payment models. This threatened to inadvertently penalize dialysis units and providers taking care of socially disadvantaged patients, through lack of financial incentivization and further limiting investment in care delivery required for those with more barriers to home dialysis. In response to this concern from stakeholders, CMS released the Health Equity Incentive in October 2021, which aimed to improve financial incentives for dual-eligible patients. These changes include a payment incentive for home dialysis and transplant uptake for dialysis facilities and providers managing lower-income beneficiaries, improved data collection monitoring health disparities, and limiting payment reductions under the ESRD Quality Incentive Program (QIP).<sup>7</sup>

Further revisions to the Health Equity Incentive may include incorporating disparities-sensitive quality measures, social risk factor adjustments, and universal social needs screening into alternative payment models in order to equitably meet AAKH goals.<sup>12</sup> Reddy et al have proposed utilizing payments through AAKH initiatives to further address barriers to home dialysis through novel means, including partnering with governments to prioritize subsidized housing for those unstably housed, allowing transitional care units to function as self-training units for home therapies, and incentivizing participant investments in kidney replacement therapy education and referral programs.<sup>13</sup> In addition, the Improving Access to Home Dialysis Act was recently introduced in Congress. This Act would allow Medicare to pay for assisted PD and require government to study racial disparities in home dialysis use.

### *Conclusion*

Despite the higher incidence and prevalence of kidney disease in Black and Latinx communities, home dialysis therapies are disproportionately underused. Meeting AAKH goals will require establishing systems and policies that center the margins, specifically addressing barriers faced by racial and ethnic minorities to equitably provide access to home dialysis care.



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## Author Contributions:

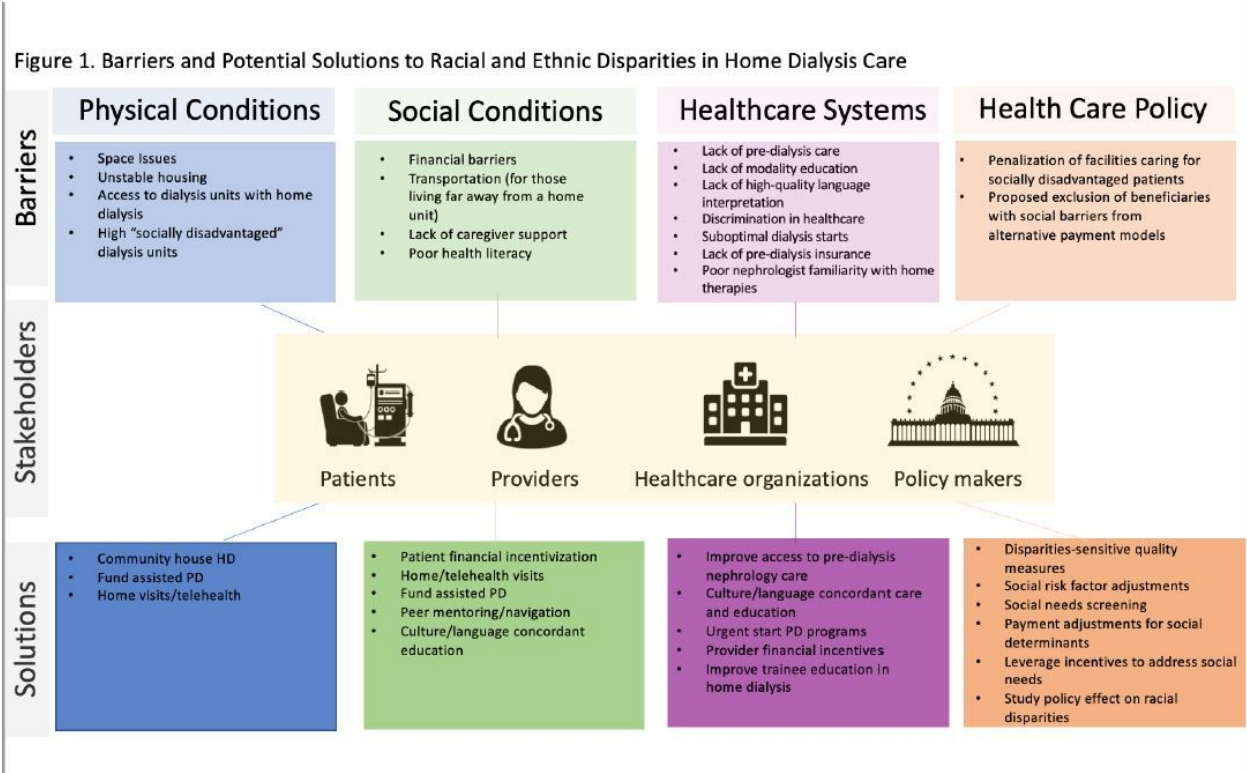
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Katherine Rizzolo: Conceptualization, Formal analysis, Writing – original draft, Writing – review & editing

Lilia Cervantes: Formal analysis, Supervision, Writing – review & editing

Jenny Shen: Formal analysis, Supervision, Writing – review & editing

Figure 1. Barriers and potential solutions to racial and ethnic disparities in home dialysis care.



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