

# Novel Models for Health Care Delivery for CKD for Disadvantaged Populations

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*Clin J Am Soc Nephrol* 13: 1779–1780, 2018. doi: <https://doi.org/10.2215/CJN.12591018>

The United States health care delivery system is currently undergoing significant reform in the way that care is provided and paid for to address shortcomings in existing models of health care delivery; these models face rising costs that are not always paralleled with improved outcomes. As a result, the Center for Medicare and Medicaid Services (CMS) Innovation Center was recently established to spearhead innovations in health care delivery as part of the Affordable Care Act expansion. To achieve its mandate of reforming health care delivery, the CMS Innovation Center has prioritized innovating models that maximize quality in care provision while minimizing cost, engender care coordination among providers, increase attention to population health, and integrate data from diverse sources to improve patient care (1).

Although the majority of contemporary health care models use conventional clinical settings to deliver care—suggesting a “you can come to us” mentality—few leverage nontraditional health care settings, such as patient homes or community centers, for care delivery. The latter approach is of particular importance for disadvantaged communities that often face sociocultural challenges that limit their utilization of a “usual” source of health care—independent of established barriers to care, such as health care access and insurance (2). For instance, individuals from disadvantaged groups are more likely to avoid medical interactions due to language barriers, have higher rates of medical mistrust, and are less likely to engage in routine medical care overall than individuals from advantaged communities (2). All of these barriers, in turn, have been linked with worse health outcomes, including development of CKD (3). Thus, by shifting the paradigm to a “we can and will come to you” framework, the health care community is acknowledging that traditional models of care delivery are not working for all populations and that we must innovate to address barriers to health care utilization that are unique to vulnerable communities.

One such culturally adept health care delivery model that attempts to address these challenges is described in this issue of the *Clinical Journal of the American Society of Nephrology* (4). In this randomized, controlled trial conducted in the Zuni Pueblo community as part of a pilot kidney care program, community-dwelling patients with CKD were

randomized to receive an intervention, namely person-centered, home-based CKD care delivered by community health representatives or usual care. The resultant 12-month intervention was composed of bi-weekly home visits during which participants received lifestyle education designed to promote kidney health, including diet, exercise, and management of CKD risks, such as diabetes and hypertension. Participants in the intervention arm also received motivational messages and attended community health representative–facilitated group sessions at a local clinic to encourage healthy lifestyle habits. During the third- and ninth-month home visits, community health representatives provided point-of-care tests for hemoglobin A1c and albuminuria, and importantly, they explained the testing results to participants and the relevance for improving their health moving forward. Usual care was composed of standard clinical care and health-promoting lifestyle advice that patients normally receive from the Indian Health Service.

The primary outcome of this trial was change in patient activation as assessed by the Patient Activation Measure—a validated instrument that scores and classifies patients’ ability to participate in their own care. After 12 months, the average patient activation score was approximately nine points higher in the intervention versus usual care arm, even after accounting for patients’ baseline activation score. Importantly, patients who received the intervention (versus usual care) were almost five times more likely to have a patient activation level of greater than or equal to three (classified as “taking action”—that is, patients have health-promoting information and are using it to build self-management skills, which represents a patient perspective of “I’m part of my health care team”). In addition, the intervention also improved clinical outcomes, such as markers of metabolic function (body mass index and hemoglobin A1c), inflammation (high-sensitivity C-reactive protein), and mental stress (assessed by the Mental Health Composite Scale of the 12-item Short Form of the Health Survey)—all of which may mitigate risk for CKD progression.

Several of this study’s components highlight pivotal steps for inspiring trust in the medical institution and promoting ownership of CKD care among community members in disadvantaged populations. First, as part of intervention development, the program team

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consulted with a Zuni Tribal Advisory Board and conducted qualitative assessments among community members to understand and incorporate their specific community health care preferences in the design of the intervention. Using this approach, the program team, which was made up of cultural outsiders to the community, gained an emic perspective that informed the design of a culturally sensitive intervention. Second, the use of community health representatives to deliver CKD care at participants' homes under the supervision of a physician was another key factor that led to the remarkable success of the intervention. Altogether, the success of this intervention corroborates a growing body of empirical evidence coming from pilot patient-centered medical home programs that use community health teams to deliver care. As an example, preliminary data from the Vermont Blueprint for Health program showed clinically meaningful improvement in clinical end points, such as BP control, reduction of unnecessary emergency department visits, and hospital admissions, from such an integrated approach (5).

However, despite the remarkable success of emerging population-based approaches for CKD care in improving patient-centered outcomes in disadvantaged communities, critical questions remain regarding how best to integrate them with established clinic-based CKD care infrastructure to realize cost savings to payers. Thus, whereas the program team for the Zuni Kidney Care program did not estimate potential cost savings accrued from the program, it may be worth contemplating whether interventions such as this indeed minimize CKD care expenditure for payers in the long haul. With the paucity of data pertaining to cost savings of home-based delivery models for CKD care, we turn elsewhere for possible insights. A recent analysis of Medicare Parts A and B claims data suggests that medical home programs only lead to cost savings if the program improves care continuity—defined as an uninterrupted patient-provider relationship such that there is continued monitoring of the patient's health status and care during the program (6). Considering that most individuals with CKD will require specialized nephrology care at some point, the results of this claims data analysis suggest that early involvement of nephrologists as a central tenet of community-based CKD care delivery models might be critical if programs, such as the Zuni Kidney Care project, are to maximize cost savings (7), and they should be evaluated in future iterations of community-based CKD care models. Indeed, appropriate referral of patients with predialysis CKD to nephrologists has been shown to slow CKD progression, ease transition to RRT, and generate substantial cost savings for payers (7,8).

Admittedly, there are several potential approaches for integrating specialized nephrology care into home-based CKD care delivery models. However, because telemedicine models for delivery of CKD care to rural communities now exist, it is worth exploring opportunities that health information technology might offer in regard to bringing clinic-based CKD care to patients' homes (9). Although not incorporated in the Zuni pilot kidney care program, the Indian Health Service has a robust "telenephrology" clinic that has provided specialized nephrology care to patients with advanced CKD over the last decade (10). Thus, in future community-based models for CKD care delivery for other disadvantaged populations, community health

representatives could directly consult with a nephrologist during home visits *via* telemedicine to provide advanced clinical diagnostics and management of CKD and comorbid conditions for patients who would benefit from a nephrology consult. Additionally, the robust text messaging infrastructure used to deliver motivational messages to patients in the Zuni pilot kidney care program can also serve as a medium through which nephrologists deliver clinical decision support to patients and community health teams.

Health information technology could also provide a platform through which community health teams employed by medical institutions can access patients' clinical charts to facilitate tailoring of interventions to patients' CKD care needs during home visits. For example, community health representatives who delivered the CKD care intervention to the Zuni community in this trial were employees of the University of New Mexico, and as such, through relevant licensure mechanisms, they could access electronic health records for patients who received their care at the hospital to inform delivery of tailored educational curriculum to them. In the grand scheme of things, such an integrated approach to care would encourage involvement of nephrologists early in the care of patients of CKD, avert care fragmentation, facilitate care coordination, and ultimately, result in a patient-centered approach to CKD care delivery.

#### Disclosures

None.

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Published online ahead of print. Publication date available at [www.cjasn.org](http://www.cjasn.org).

See related Patient Voice, "Home-Based Care for CKD for High-Risk Populations," and article, "Home-Based Kidney Care, Patient Activation, and Risk Factors for CKD Progression in Zuni Indians: A Randomized, Controlled Clinical Trial," on pages 1777–1778 and 1801–1809, respectively.