CMS
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Case STUDY

Learning Systems
for Accountable Care Organizations

Fresenius Kidney Care's Home Dialysis Program

This case study describes Fresenius Kidney Care's approach to increasing patients' access to home dialysis. The organization's leaders laid the foundation for this transition by meeting with clinic staff and nephrologists to increase their understanding of home dialysis while expanding the Fresenius Kidney Care staffing model to support this care option. Fresenius Kidney Care also established a workflow to identify and engage patients for whom home dialysis is appropriate, prepare them for treatment, and provide them with support in their homes. This case study is useful for dialysis organizations and other health care organizations that are considering strategies for expanding access to, and participation in, home dialysis.

BACKGROUND

Fresenius Kidney Care is a nationwide dialysis organization that treats patients with chronic kidney disease (CKD) and end-stage renal disease (ESRD). Fresenius Medical Care North America (FMCNA) joined the Comprehensive ESRD Care (CEC) Model in October 2015. This model enables dialysis organizations, nephrologists, and other health care providers to join together to form ESRD Seamless Care Organizations (ESCOs) that work to create and coordinate person-centered care and improve health outcomes for patients with ESRD.[1] As of January 2020, FMCNA was operating 23 ESCOs that include approximately 1,000 ESCO dialysis clinics and 1,500 nephrologists to serve about 46,000 ESCO-aligned patients.

Fresenius Kidney Care recognized that enabling more patients to choose home dialysis would improve both the patient's experience of care and health outcomes, goals that were consistent with its participation in value-based contracts like the CEC Model. The organization's internal analyses showed that satisfaction scores of home dialysis patients averaged 20 points higher than those for patients receiving care in the dialysis centers.

FMCNA's fast facts:

- Joined CEC Model in 2015
- 1,500 nephrologists
- 46,000 ESCO-aligned patients

Fresenius Kidney Care's experience also showed that transitioning patients to home dialysis reduced hospitalization and mortality rates. These data suggest that there is an opportunity to improve a patient's experience and outcomes by expanding access to home dialysis.

Around the same time, emerging technology further encouraged Fresenius Kidney Care to focus on bringing more patients onto home dialysis. For instance, the organization built on over 25 years of experience in providing home dialysis when considering how to strategically use telehealth and other forms of remote monitoring to support patients who choose home dialysis. In 2019, Fresenius Medical Care merged with another organization, NxStage, that brought additional expertise in delivering hemodialysis in patients' homes as well as access to new home-monitoring technology. This case study describes Fresenius Kidney Care's strategic and operational approaches to increasing the utilization of home dialysis.

IMPLEMENTING A HOME DIALYSIS STRATEGY

Fresenius Kidney Care leaders implemented a strategy with three foundational steps to support an increase in access to home dialysis: (1) meeting with staff and nephrologists to generate buy-in for the transition, (2) expanding the staffing model to support home dialysis, and (3) educating and training on the home dialysis treatment options for providers who support patients' decision making.

Generating organization-wide buy-in

In 2016, physician leaders began developing a vision for how Fresenius Kidney Care would increase access to, and participation in, home dialysis. The development of this vision and the approach to communicating it widely was led by Chief Medical Officer of Fresenius Kidney Care, Dr. Jeffrey Hymes, along with Associate Chief Medical Officer for Fresenius Kidney Care, Dr. Dinesh Chatoth. The Chief Medical Officer of the Integrated Care Group, Dr. Terry Ketchersid, and the Associate Chief Medical Officer for Fresenius Kidney Care, Dr. Michael Kraus, have helped drive this vision further since 2019. This team sought to create a "home first" mentality by encouraging staff and nephrologists to consider whether home dialysis best addresses the patient's needs and preferences. To promote this vision, Fresenius Kidney Care leaders emphasized the benefits of home dialysis both for patients and for the organization's overall strategy of providing value-based care.

Fresenius Kidney Care leaders also used in-person and phone conversations to engage a wide variety of staff and physicians in order to generate buy-in for the home dialysis option. Leaders met with frontline staff at their dialysis clinics—including nurses, clinic administrators, and support staff—to articulate the benefits of home dialysis for patients, to explain the goal of increasing patient access to the treatment option, and to listen to the staff's concerns. Fresenius Kidney Care leaders also met with affiliate nephrologists who admit patients to Fresenius Kidney Care facilities to both describe the home dialysis goal and highlight points in the care experience to discuss the treatment options with patients. In all these conversations, the leaders emphasized the potential to engage patients in informed decision making about home dialysis, ultimately leading to improved patient satisfaction and outcomes.

> *"One of the messages we communicated was that home dialysis was everyone's job . . . getting everyone involved in the process was critical."*
>
> —Dr. Dinesh Chatoth

Expanding the staffing model to support home dialysis

Fresenius Kidney Care recognized the importance of adjusting its staffing model to meet the needs of the growing number of home dialysis patients while continuing to effectively care for the majority of its patients, who receive care in dialysis centers. Fresenius Kidney Care already used a multidisciplinary care team in the dialysis center, including nephrologists, social workers, dieticians, and patient care technicians. When expanding access to home dialysis, Fresenius Kidney Care transitioned some of these in-center team members to a role in which they also provided care for patients who were receiving home dialysis. Fresenius Kidney Care also added the following team members: home dialysis nurses to prepare, treat, and monitor patients receiving treatment in the home; non-licensed practitioners to expand the nurses' capacity by educating patients on the treatment options and helping with documentation; and kidney care advocates (KCAs) to support patients and families as they make a decision about the new treatment option. Figure 1 describes the roles of the Fresenius Kidney Care team members and their focus on in-center dialysis patients, home dialysis patients, or both.

In June 2017, Fresenius Kidney Care created the new KCA role in the care team to better support and educate CKD and ESRD patients and their families when navigating the dialysis experience and choosing the care option that best matches their needs and interests. KCAs engage patients at the hospital, on the phone, and during home visits to explore barriers that they will face as they move toward home dialysis. For example, the patient may cite the absence of a support system at home or a concern with administering dialysis to oneself. KCAs then partner with patients and their families to address these barriers using the insight they gained from a training provided by Fresenius Kidney Care as well as their experience in nursing, nutrition, or social work. The combination of this education and experience enables KCAs not only to speak candidly and empathetically with patients about the benefits of home dialysis but also to work with patients to identify ways to overcome their barriers and to transition to home dialysis.

> *"It really takes a special person to do what KCAs do. They're comfortable talking to patient's families, and they understand learning mechanisms and different ways that patients and families learn."*
>
> —Dr. Terry Ketchersid

Training the care team in home dialysis

Fresenius Kidney Care partners with affiliate nephrologists to raise patients' awareness of the value of home dialysis when making decisions about their care and to prescribe this treatment option

Figure 1

Fresenius Kidney Care staffing model for in-center versus home dialysis care teams

Staff	Role	Care teams	
		In-center dialysis	Home dialysis
Nephrologist	Provides medical care, including discussing dialysis treatment options with patients and identifying the best modality for them		
Social worker	Talks with patients about their home environment, support system, and psychosocial barriers		
Dietician	Provides education on diet, fluid intake, and potassium levels		
Patient care technician	Assists with treatment (cannulation in particular)		
Home dialysis nurse	Educates, trains, treats, and remotely monitors home dialysis patients		
Kidney care advocate	Educates patients and families about home dialysis care options; seeks to understand patients' needs and values to recommend appropriate treatment		
Non-licensed practitioner	Non-clinical staff member who reinforces home dialysis education with patients and supports documentation		

if appropriate. However, Fresenius Kidney Care observed that only 30 to 40 percent of nephrologists develop substantive and practical experience with home dialysis modalities during their fellowship training, creating a gap in the understanding of this treatment option. In spring 2018, Fresenius Kidney Care developed a home dialysis champion program to address this gap. The program began with eight physician home champions and in 2019, the program was expanded to include up to fifty physician home champions. Through this program, Fresenius Kidney Care identifies a small number of nephrologists in each region who are knowledgeable and supportive of this treatment option to serve as champions. The nephrologists then meet with other nephrologists within their regions to educate and engage them on home dialysis.

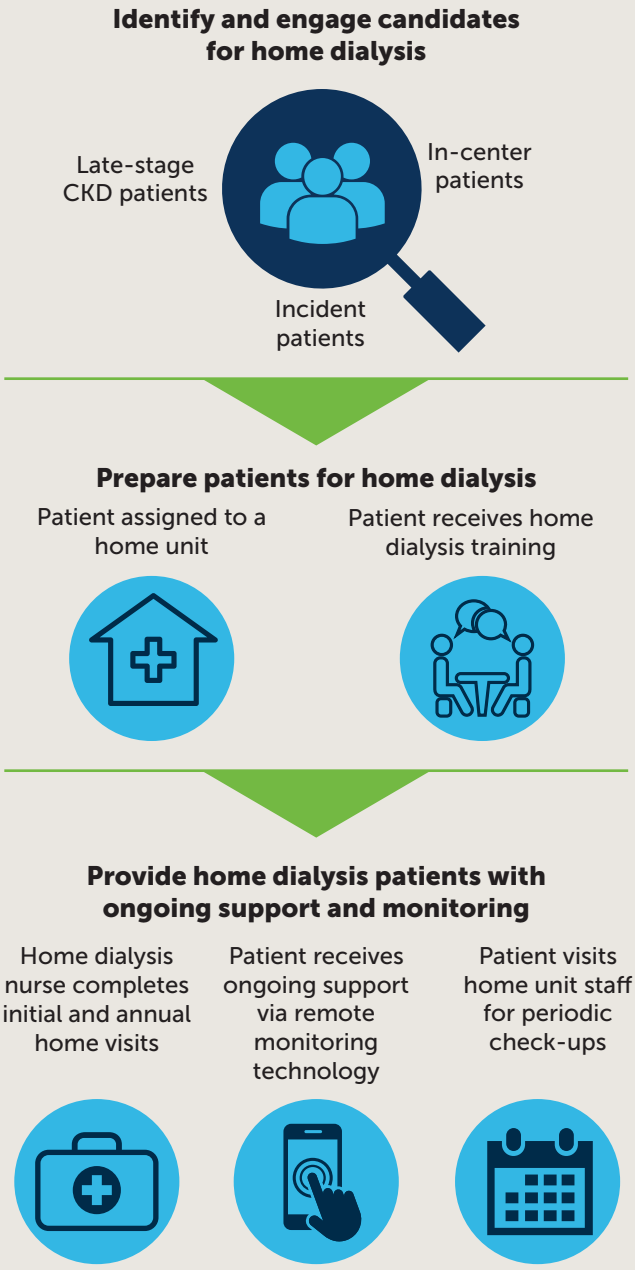
Fresenius Kidney Care also trains home dialysis nurses on how to monitor and adjust treatment and coordinate the patient's home dialysis care plan to ensure consistency in home dialysis care regardless of where, among Fresenius Kidney Care's many dialysis units across the country, the patient typically receives care. These home dialysis nurses are trained in both home dialysis modalities: peritoneal dialysis (PD) and home hemodialysis (HHD). The Fresenius Kidney Care education department, quality department, and marketing team collaborate to provide instruction on how to help patients understand the ESRD treatment process, the available dialysis modalities and medication, and the steps that patients can take if they encounter difficulties when administering dialysis at home.

OPERATING A HOME DIALYSIS PROGRAM

Fresenius Kidney Care defined a process for operating its home dialysis program that begins with identifying and engaging patients for whom home dialysis is appropriate, continues with preparing the patients for treatment at home, and ends with providing ongoing monitoring and support in patients' homes. These three steps in the typical workflow for a patient who is choosing a dialysis modality are shown in Figure 2.

Figure 2

Workflow for supporting patients in choosing a dialysis modality



Identifying and engaging patients

Fresenius Kidney Care believes that comprehensive patient education on all care options will underscore the benefits of home dialysis and lead to an increase in uptake. To provide this education, Fresenius Kidney Care developed a process for identifying and engaging patients based on their disease progression and previous experience with dialysis. Fresenius Kidney Care considers all patients for education and engagement, regardless of whether the patients are aligned to the ESCO or not. The process reflects the questions and challenges for the following three groups:

- Late-stage CKD patients who are nearing dialysis treatment
- Incident dialysis patients who are new to dialysis treatment
- In-center dialysis patients who are experienced with dialysis but may be open to other treatment options

Nearing treatment: Late-stage CKD patients

Fresenius Kidney Care intends to educate late-stage CKD patients about home dialysis before their disease progresses to ESRD in order to facilitate a smooth and successful transition to dialysis treatment. For instance, Fresenius Kidney Care highlights the benefits of home dialysis when the patient begins to actively consider options for forthcoming dialysis care. These patients learn about their treatment options during visits with their nephrologist, who may bring in Fresenius Kidney Care KCAs to work with the patients and explore their needs, address questions, and support the decision-making process. Late-stage CKD patients are also encouraged to connect with Fresenius Kidney Care's patient peer advocates, who are dialysis patients who speak about their own experience with the transition to dialysis.

New to treatment: Incident dialysis patients

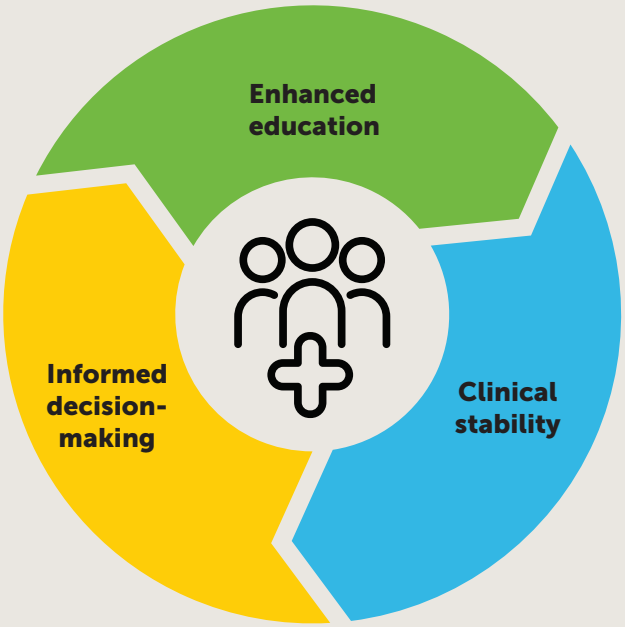
Fresenius Kidney Care emphasizes treatment education when engaging incident dialysis patients, with the goal of increasing the patients' awareness of home dialysis as an option. About 50 to 60 percent of incident patients "crash" into dialysis, meaning that they have kidney failure that requires emergency hospitalization and dialysis. These patients are new to the process of ongoing dialysis treatment and are likely to appreciate an opportunity to learn about the home-based option. During the hospital stay, when patients receive dialysis for the first time, a nephrologist explains the treatment modalities that are available to them. Similar to the strategy for engaging late-state CKD patients, the nephrologist may then introduce a Fresenius Kidney Care KCA to further discuss the care options with the patient and their caregivers and to support the decision-making process.

Fresenius Kidney Care focuses on encouraging incident patients in the inpatient setting to consider urgent-start PD, a treatment option that allows patients to transition quickly and efficiently to home dialysis. By engaging patients in their care at this stage and informing them about this option while they are in the hospital, the nephrologist can coordinate with the hospital or a dialysis center to complete catheter placement and initiate PD. Fresenius Kidney Care believes that this support for urgent-start PD patients early in their care experience will lead to a smooth transition to home dialysis and increase the likelihood that this option will prove to be the right choice.

For incident patients who are not ready to select a dialysis option while they are in the hospital, the nephrologist can refer them to a transitional care unit (TCU) in select dialysis facilities. The TCU creates an opportunity to provide intensive, in-person education that supports patients through transitions in care. Fresenius Kidney Care established TCUs with the goal of helping to stabilize patients clinically and to then inform them about self-management and treatment options (including home dialysis). Specialized TCU nurses lead patients and families through a four-week training program on topics such as the definitions of dialysis and renal failure, nutrition, transplantation access, dialysis modalities, and cannulation. In addition, TCU nurses help patients and caregivers navigate the emotional aspects of their treatment experience and the modalities that are available to them. When patients complete the TCU program, a large percentage elect to transition to home dialysis, whereas others select in-center treatment. The strategic components of the TCU are shown in Figure 3.

Figure 3

Components for supporting patients in the TCU



Experienced with treatment: In-center dialysis patients

Fresenius Kidney Care developed a strategy to identify prevalent in-center dialysis patients for whom home dialysis is appropriate in order to further educate them about the availability of the treatment and to encourage the transition. In the current strategy, the organization uses predictive modeling based on clinical variables, such as patient length of time on dialysis, age, co-morbidities, and support at home, to target outreach to the most likely candidates for home dialysis. Each month, Fresenius Kidney Care generates a list of the top 10 to 15 percent of patients with the highest likelihood of successfully transitioning to home dialysis, which KCAs use to direct their patient engagement efforts. In addition to the predictive model, Fresenius Kidney Care encourages the staff in the dialysis units to recommend patients who may be good candidates for home dialysis education provided by either the KCAs or the TCU.

To supplement the insight that patients receive from the KCAs or the TCU, all in-center staff are educated on the benefits of home dialysis so that they feel comfortable talking with patients about the value of the treatment options and the strategies to address the barriers to treatment. Staff can also supplement this education with the Advanced Renal Education Program (AREP), a public tool created by Fresenius Medical Care North America that provides in-person and online training on the home dialysis modalities to providers and nurses.[2]

> *"The goal of the in-center identification strategy is to use tools to prioritize where to deploy a limited set of resources, whether it's a predictive model or group of people collaboratively talking about who is most likely to move to home dialysis. The bottom line is, you don't need a sophisticated model to do this"*
>
> —Dr. Terry Ketchersid

Preparing patients for home dialysis

Once a patient chooses to transition to home dialysis, Fresenius Kidney Care assigns him or her to a home unit, which is a clinic specifically for home dialysis patients that provides training and education on how to safely administer dialysis at home and where the patient will periodically meet in person with his or her nephrologist and care team. The patient meets with appropriate providers for dialysis access placement if necessary, and to initiate treatment. The education and training in the home unit goes into detail on the progression of kidney disease and on the patient's medication, infection control practices, how to safely operate the dialysis machine, and how to troubleshoot for common errors, such as an issue with the machine, a drop in blood pressure, or the needle coming out during treatment.

Monitoring and supporting patients at home

As part of the home dialysis training, Fresenius Kidney Care staff provide patients with access to remote monitoring technology that is specific to the PD or HHD treatment modality. The software for PD enables patients to view laboratory results and

sends treatment information from their dialysis machines to their care teams. Patients on HHD use a tablet application to transmit information on their treatments; input their weight, blood pressure, and temperature; and record medications taken. The patient's care team can also monitor adherence to treatment and may identify health problems from the data to support early intervention. Home unit staff review the information entered by patients and reach out to retrain or coach patients if necessary, redirecting treatment if clinical indicators begin to deviate from a patient's established norms. Moving forward, Fresenius Medical Care North America plans to integrate the two remote monitoring systems into one platform so that patients do not have to learn a new monitoring technology if they decide to change their home treatment modality.

In addition to ongoing remote monitoring, home dialysis patients have in-person meetings with home unit staff, as mentioned in the previous section. PD patients visit the home unit at least twice per month—first for a blood test and to meet with their home dialysis nurse and second to meet with their nephrologist. HHD patients generally visit the home unit just once per month because they do not need to get their blood drawn, with more frequent meetings with the care team if necessary. Fresenius Kidney Care has begun to explore telehealth to reduce the number of in-person meetings at the home unit.

Fresenius Kidney Care staff also meet patients in their homes, both for an initial visit within 30 days of starting treatment and annually to confirm appropriate treatment. During the initial visit, a home dialysis nurse confirms that the patient understands the treatment process and has sufficient resources in the home environment. The home dialysis nurse conducts the annual home visit as well, sometimes accompanied by a social worker based on the needs of the patient or family. The nurse brings a checklist to assess the patient's health status and environment. Others from the patient's care team may make home visits, such as a patient care technician to repair the dialysis device or a dietician to discuss nutrition challenges.

RESULTS

As a result of these efforts, the percentage of ESRD patients cared for by Fresenius Kidney Care who receive home dialysis has steadily increased over the past several years. Fresenius Kidney Care expects the growth to increase in the next few years, given recent investment in staff training and targeted engagement and education for different patient populations. To understand which strategies are most effective, Fresenius Kidney Care is investigating the portion of patients who progress through the home dialysis process. For example, the organization found that more than 70 percent of in-center dialysis patients identified as candidates for home dialysis accepted education about the treatment option. In addition, approximately 60 percent of patients who received care in a TCU chose home dialysis. In the future, Fresenius Kidney Care will continue to examine the effectiveness of the patient engagement and transition process by determining whether new home dialysis patients were once late-stage CKD patients or incident dialysis patients, or whether they transitioned from in-center dialysis.

Fresenius Kidney Care monitors clinical outcomes for patients who transition to a home dialysis program, including hospitalization and mortality rates relative to in-center dialysis patients, to ensure that it continues to provide the best therapy for patients. In addition to these clinical variables, Fresenius Kidney Care tracks dropout rates for home dialysis patients and psychosocial indicators, including patient satisfaction and engagement and patient and caregiver burnout.

LESSONS LEARNED

Fresenius Kidney Care was able to scale its home dialysis program incrementally by leveraging the time and expertise of existing staff, and as a result the organization increased its capacity to care for additional home dialysis patients. Example steps they took or are considering include:

- Fresenius Kidney Care redirected some of its social workers and dieticians who had supported in-center dialysis patients to the home unit, either completely if the home unit had enough home dialysis patients to need dedicated staff or by splitting their time between in-center work and the home unit when the number of patients in the home unit was smaller.
- The organization also hired nurses who specialize in home dialysis and non-licensed staff to support home dialysis education and then redirected the in-center patient care technicians to the home dialysis staffing team to join them. These deployments freed up the nurses and allowed them to work at the top of their licenses and focus on conducting more home visits.
- In the future, Fresenius Kidney Care plans to move to a staffing model in which home units are staffed with wholly dedicated professionals by both continuing to redirect current staff from the in-center unit and hiring new staff at all levels.

Fresenius Kidney Care found that intensive patient education about the dialysis treatment options and disease management helped patients and their families to better navigate the grief, depression, anger, and anxiety that they may experience during a care transition. The TCU—staffed with nurses, social workers, and dieticians—provides incident patients with a dedicated team to help stabilize their condition and give them space not only to explore whether home or in-center dialysis is a better match for their health needs but also to address the psychosocial concerns that may influence their approach to self-care. With this comprehensive education and support, Fresenius Kidney Care found that patients felt better equipped to choose the dialysis modality that works best for them and to navigate their new lives as they enter their next phase of treatment.

NEXT STEPS

Fresenius Medical Care North America remains dedicated to increasing the utilization of home dialysis. The organization continues to educate frontline staff on home dialysis so that they feel comfortable initiating conversations with patients on care options. Given early encouraging data on patients' interest in home dialysis after participating in the TCU educational program, Fresenius Kidney Care plans to establish TCUs in more dialysis facilities. In addition, the organization plans to refine the predictive model to identify in-center patients who are failing with traditional dialysis and may clinically benefit from the transition to home dialysis.

ENDNOTES

[1]See more information about the CEC Model on the CMS website: https://innovation.cms.gov/initiatives/comprehensive-ESRD-care/.

[2]To learn more about the AREP, visit https://www.advancedrenaleducation.com/.

About the ACO Learning Systems project
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