

Home Dialysis

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received FDA clearance in 2017 and has greatly expanded access to home dialysis, according to Thomas Golper, MD, Medical Director of Home Dialysis at Vanderbilt University Medical Center. NxStage currently accounts for much of the market for home dialysis in the US.

“NxStage is easier to use than the equipment we were using before, and the more frequent [dialysis sessions with the device] have reduced the complication rate,” said Golper, who also serves on the advisory board for NxStage. He explained the device also doesn’t require changes to patients’ homes to use and patients can be trained to use it in a shorter time frame.

These developments, along with Advancing American Kidney Health (AAKH), created by an executive order by President Donald Trump in July 2019, are expected to help increase the number of patients on home dialysis. The AAKH will create payment incentives to increase patient access to home dialysis and kidney transplant.

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—Outset Medical CEO Leslie Trigg

User-friendly technology

The latest generation of portable dialysis devices emphasize high-tech, user-friendly features. Tablo needs only a plug and tap water. NxStage can be combined with another device the company makes to use tap water as well.

Leslie Trigg, CEO of Outset Medical, said the Tablo device was designed to be patient-friendly in any setting, from an intensive care unit to a dialysis clinic, and if their application is approved by the FDA, eventually in the home setting. “The same machine that [the patient] becomes comfortable with in the hospital can follow the patient through their journey, whether that might be in a conventional clinic setting, or in the future all the way to home,” Trigg said.

Bruce Culleton, chief medical officer for CVS Kidney Care, said the company wanted to develop a device that would be easy to use for a broad population of patients, would ease the burden on patients and their caregivers, and help alleviate patients’ and caregivers’ fears about safety. Only half of patients trained to do home dialysis are still on the therapy one year later, Culleton noted.

“We do not believe that home hemodialysis will be sustainable if dropout rates are as high as they are today,” Culleton said. “That’s just not a way we think home hemodialysis is going to grow.”

As a patient, Tablo clinical trial participant Crawford said the flurry of new devices in development is encouraging. Often, he said, current dialysis options whether home or center-based are not “conducive to traveling,” which limits his professional prospects. He said he hopes the new technologies becoming available make travel easier.

“Technological advancements should help reduce the cost of these systems and give the patient more options,” he said.

Training and policy needs

In addition to the need for easier-to-use technology, systems-level and policy changes are needed to make home dialysis more widely available.

“While better technology can make it easier to facilitate the use of certain renal replacement therapies at home, healthcare system-level improvements can have a larger impact by ensuring implementation of comprehensive, effective approaches to the care of patients with end stage

kidney disease,” said Leonid V. Pravoverov, MD, chief of nephrology at Kaiser Permanente’s East Bay service area.

Pravoverov was the lead author of a study published recently that showed Kaiser Permanente of Northern California was able to increase enrollment of new dialysis patients in home peritoneal dialysis (PD) from 15.2% in 2008 to 33.8% in 2018 with 80% continuing on home PD beyond one year. The results, which far outstripped the US-wide increase from 6.1% in 2008 to 9.7% in 2016, were enabled by a multi-disciplinary, systemwide initiative to expand PD. That program included identify-

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Troubleshooting in Disaster Zones

Planning, Partnerships, and New Devices to Help Kidney Patients

By Bridget M. Kuehn

The one-two punch of Hurricanes Irma and Maria in the United States and the Caribbean in 2017 was a wake-up call to the nephrology community and first responders. The twin disasters left more than 56,000 dialysis patients in the lurch, and kidney transplant patients in destroyed communities desperately seeking immunosuppressive medications.

To better prepare for future disasters, ASN created the Emergency Partnership Initiative (EPI), which held its first meeting in September 2019. The partnership aims to bring together dialysis and transplant clinicians; patients; federal, state, and local emergency responders; public health leaders; and companies that make up the supply chain to anticipate and prepare for kidney patients’ needs in future disasters, said Nicole Lurie, MD, chair of the EPI and former Health and Human Services (HHS) Assistant Secretary for Preparedness and Response.

“It comes very much out of the experience of ASN members who have been called upon or found themselves in disaster situations where the system broke down for patients,” Lurie explained. The EPI, she said, is working to anticipate such problems and be proactive in working with partners to support patients, clinicians, and first responders before and when disasters strike.

One of the challenges during hurricanes and other disasters is that dialysis patients may be displaced from their homes and usual care providers. Other providers may be unable to handle the surge of patients or may be incapacitated by the disaster.

“You have to be able to anticipate that and have a plan for how you’re going to deal with it so that people don’t get into even more emergency situations,” Lurie said. “Then, when the crisis is over, to the extent that it’s possible, you need to get patients back into their regular routine.”

That process starts with knowing who the dialysis patients are and how to reach them in an emergency, knowing how much surge capacity dialysis providers have, and preparing to provide additional dialysis as needed. To help expand capacity, HHS recently awarded a contract to Outset Medical (San Jose, CA). HHS will purchase Tablo Hemodialysis Systems devices and supplies to deploy in communities experiencing a disaster. The portable devices have received US Food and Drug Administration clearance for center-based use. Outset Medical has already delivered 25 of the 50 machines ordered by HHS and expects to deliver the other half by the end of the year.

Outset Medical CEO Leslie Trigg said that during recent disasters there was limited access to dialysis in the affected communities and many patients on dialysis were temporarily relocated to other cities across the US for weeks or months. The situation takes a psychological toll on patients and their families and is also costly for the government, she noted. To curb these costs and allow patients to stay close to home, the HHS put out a request for proposal for devices that could more easily be used in communities affected by disasters and Tablo was selected. Tablo doesn’t require as much infrastructure as other systems, Trigg said. The device only requires a plug and tap water and can handle tap water with a wide range of characteristics, she said.

“I think they chose Tablo for its flexibility,” Trigg said. “It offers a lot more options about where patients can be treated in the affected areas.”

Lurie said she’s glad both the HHS and EPI are considering patients’ experiences in their disaster planning.

“I’m very excited that we have some forward thinking and proactive thinking about dialysis and disasters [through the EPI and HHS’s purchase of Tablo devices],” Lurie said. ■