

# KidneyNews

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## Cold, Power, and Water Outages Temporarily Upend Dialysis Care in Texas

By Bridget M. Kuehn



A massive mid-February winter storm and a week of freezing temperatures disrupted dialysis care for thousands of patients and temporarily shuttered many dialysis clinics across Texas.

Together, the cold and loss of water and power for millions of people in Texas created a “perfect storm” of crises for dialysis patients and providers, said Rajeev Raghavan, MD, FASN, associate professor of medicine at Baylor College of Medicine in Houston. Icy roads prevented dialysis patients and staff from getting to clinics or hospitals. The loss of power shut down many dialysis clinics, and as pipes froze and burst across the state, it led to a loss of water or water pressure at those clinics that still had power, making it “impossible to do treatments,” he said.

Raghavan, who is also medical director for an outpatient dialysis unit, said he and his colleagues tried to prepare patients ahead of the storm by dialyzing those whose weekday appointments might be disrupted by the storm on Sunday, February 14, before freezing temperatures hit.

“The big issue . . . was that we expected things to improve by Tuesday,” he said. “When they didn’t improve by Tuesday or even by Friday, that’s when we really had to scramble.”

### Patient surge

Dialysis centers across the state faced similar struggles. Six of the 16 clinics operated by American Renal Associates (ARA) in the Dallas area were closed at least temporarily because of a lack of water or power, affecting about 450 patients, said Geoffrey Walker, MD, a nephrologist with Dallas Nephrology Associates, whose patients are served by the clinics. About half of the Fresenius clinics in the Dallas area that serve his patients were also affected. DaVita Kidney Care faced similar outages across the state. Both companies brought in generators and water tankers to try to restore services and contacted patients to connect them with care.

Even these rescue efforts faced challenges. ARA faced a shortage of generators, and centers that had generators couldn’t always get them to work because the diesel fuel froze. The additives used to prevent fuel from freezing in Northern states are not used in Texas where freezing temperatures are rare.

Home dialysis patients also faced hurdles, Raghavan said. Home hemodialysis patients could not dialyze without water and power, and home peritoneal dialysis patients who can dialyze without water and power struggled to find ways

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## Findings: Physical Activity Linked to Reduced Mortality in Advanced CKD

Higher levels of physical activity were associated with a one-half reduction in risk of death among patients with advanced chronic kidney disease (CKD) in a recent study

The prospective study included 579 adults with stage 4 to 5 CKD treated at four Canadian multi-disciplinary kidney health clinics between 2012 and 2018. Patients were not receiving kidney replacement therapy at baseline. The study was published in the *American Journal of Kidney Diseases*.

Physical activity was assessed using the Physical Activity Scale for the Elderly (PASE) questionnaire, which addresses

occupational, household, and leisure activities over the past week. Based on their PASE scores, patients were classified as having low, light, or moderate-to-high physical activity. Physical activity level was analyzed for associations with all-cause mortality, progression to kidney failure, and risk of falls. The researchers adjusted for age, sex, and other medical conditions or risk factors.

The median age of those studied was 72 years and 59% of patients were men. Physical activity was classified as low in 24.5% of patients, light in 34.2%, and moderate to high in 41.3%. Patients with moderate-to-high physical activity

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## Cold, Power, and Water Outages

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to safely warm their dialysis fluid in freezing homes.

As a result, hospitals already filled with patients owing to storm-related illnesses and injuries faced a surge of dialysis patients. A large county hospital in Houston that typically has 15 to 25 inpatient dialysis patients was up to 50 patients by Thursday, Raghavan said. Christopher Teofil Neagra, MD, a nephrology fellow at Baylor, covered the night float during the storm and saw about 25 patients, many of whom had been waiting for hours in the Emergency Department for dialysis. He worked to triage patients most in urgent need of dialysis and use medications to help manage patients until they could be dialyzed.

“As a nephrologist, all you have to do is be ready to help these people, because they are scared,” Neagra said. “They haven’t had their dialysis. They don’t know where to go. You are their last hope.”

Securing medications for patients also proved challenging. Tessa Novick, MD, assistant professor at the Dell Medical School at The University of Texas at Austin, said many pharmacies were closed, and patients had difficulties getting to those that were open.

Having enough machines and skilled nursing staff to dialyze patients was another challenge across the state. Some nurses stayed in the hospital for days. Schedules were created to dialyze patients 24–7, and some sessions were shortened to two hours to try to accommodate as many patients as possible.

With all three of The University of Texas Health San Antonio’s (UHS) outpatient dialysis clinics temporarily closed by the outages, it took teamwork among all staff to find a way to provide inpatient dialysis for about 350 patients from the clinics and walk-ins from other clinics, said Kumar Sharma, MD, chief of the Division of Nephrology. Theresa De La Haya, RN, senior vice president of UHS Community Health and Clinical Prevention Programs, worked with nurses and managers to contact patients and arrange transport.

While nephrologists and staff around the state scrambled to meet patients’ needs, they also faced a personal toll from the storm. Many went without electricity, heat, or water for days, and many had pipes burst in their own homes.

“We have never encountered a situation where our staff and our patients are going through the same unfortunate situation,” De La Haya said.

Most dialysis centers were able to catch up patients and resume normal operations about a week after the storm, but the crisis highlighted the need for better emergency preparations. Novick noted that many dialysis centers in the Northeast prepare patients for potential weather-related emergencies in advance of winter. Some providers in areas of Texas with frequent hurricanes also do this. Novick and Raghavan suggested more dialysis centers have backup water and generators, as well as printouts of patient phone numbers, as a backup for power and internet outages. Sharma said he’d like to see nephrologists form an emergency preparedness network that could mobilize clinicians, equipment, or supplies from other states during a crisis.

“It has to be a big wake-up call that we need these backup measures in place even if it’s rare,” Novick said. “It’s just devastating for the population. The dialysis population is so vulnerable.” ■

## Advanced CKD

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were younger and had lower rates of comorbid conditions. Physical activity level was strongly related to physical functioning.

Over about 8 years of follow-up, approximately 20% of patients died, 35% progressed to dialysis, and 22% had a fall. On adjustment for age, sex, and comorbidity, moderate-to-high of physical activity was associated with substantially lower mortality, with a hazard ratio 0.48.

Physical activity was not associated with progression to kidney failure or to a risk of falls. Previous falls were the only significant risk factor for future falls.

CKD is characterized by declining physical function and physical activity. Low physical activity in CKD patients is associated with adverse outcomes, including poor quality of life and increased cardiovascular risk, and with worsening of CKD. There are few data on outcomes associated with physical activity in patients with advanced CKD who have not yet started dialysis.

The researchers found about a 50% reduction in all-cause mortality for advanced CKD patients with a moderate-to-high level of physical activity. Additionally, physical activity appeared to be unrelated to progression to kidney failure or to future falls. The risk of progressive CKD in this group of patients may be “relatively non-modifiable,” the researchers suggest. “Interventional studies are now needed to investigate the effect of maintaining or increasing physical activity in the CKD population,” they state. ■

Rampersad C, et al. Association of physical activity and poor health outcomes in patients with advanced CKD. *Am J Kidney Dis* [published online ahead of print February 10, 2021]. doi: 10.1053/j.ajkd.2020.12.018; [https://www.ajkd.org/article/S0272-6386\(21\)00082-2/fulltext](https://www.ajkd.org/article/S0272-6386(21)00082-2/fulltext)