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# Time to Expand Access and Utilization of Home Dialysis: Lessons From the COVID-19 Pandemic



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Coronavirus disease 2019 (COVID-19) in the hemodialysis population is a potential disaster looming on the horizon. On any given weekday or Saturday in the United States, almost 460,000 patients with end-stage kidney disease undergo life sustaining hemodialysis treatments for 3 to 5 hours in crowded outpatient hemodialysis centers.<sup>1</sup> Three times a week, patients congregate in waiting rooms, have direct physical contact with multiple nurses and technicians, and are just feet away from other dialysis patients. Dialysis units are therefore a fertile ground for the rapid spread of viral pathogens such as COVID-19. A report from Wuhan, China identified COVID-19 in 37 of 230 hemodialysis patients and 4 of 33 staff over a 1-month period.<sup>2</sup> An H1N1 outbreak in Brazil in 2016 led to infection in 20% of all patients in one dialysis clinic.<sup>3</sup> Dialysis patients are also uniquely susceptible to significant morbidity and mortality from infectious diseases by virtue of reduced host defenses from end stage kidney disease.

Another major concern in hemodialysis is the dependence on a small, highly trained workforce that is required for delivery of life-sustaining dialysis therapy. In the event of an outbreak afflicting dialysis staff, the workforce could be crippled. The work done every day by dialysis nurses and technicians cannot easily be replaced by most registered nurses and certainly not by nephrologists, who are not trained in the manual aspects of hemodialysis treatment delivery.

In response to COVID-19, several strategies are being adopted by hemodialysis units, including cohorting of patients with suspected COVID-19 infections, or establishment of

COVID-19-only dialysis units. Outside of major cities, this is unlikely to be easily adopted across the country. What, then, could be done to prevent COVID-19 or future pandemics from endangering hundreds of thousands of hemodialysis patients and staff? We believe that greater adoption of home dialysis technologies could avert such disasters in the future. Home dialysis therapies are uniquely poised to help some of the most vulnerable patients to be at lower risk for contracting COVID-19. Home dialysis modalities include peritoneal dialysis and home hemodialysis, and typically require 1 to 2 clinic visits per month, even via telemedicine, rather than in-person visits 3 times per week. Unfortunately, these modalities are significantly underutilized within the United States for a number of reasons, including lack of training and education on the part of nephrologists, lack of education for patients, and insufficient support in the home for treatments. In the United States, only 7.7% of prevalent dialysis patients in 2017 were treated with peritoneal dialysis, and fewer than 2% of prevalent patients were treated with home hemodialysis.<sup>1</sup> Several countries have been much more effective in implementing home dialysis, with the highest utilizers being Hong Kong (82%), the Jalisco region of Mexico (51%), and New Zealand (30%).<sup>1</sup>

One of the barriers to expansion of home dialysis in the United States is the lack of insurance coverage for assisted dialysis for patients that are unable to perform their own dialysis treatments at home. This can be due to frailty or lack of family members available to assist with the procedure. A number of countries in Europe and the Middle East have systems in place for



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assisted peritoneal dialysis, and outcomes in these programs are similar to those with self-care.<sup>4</sup> One study of assisted peritoneal dialysis showed that the rate of peritonitis may actually be lower among elderly assisted patients.<sup>4</sup> Assisted dialysis may also be a viable alternative way to provide bedside dialysis care for patients in nursing homes and rehabilitation facilities. Having home therapies be more widely available in these settings can minimize exposure to patients in dialysis clinics and also save money on costly and frequent ambulance transportation.

Before the current pandemic, President Trump signed the Advancing American Kidney Health executive order calling for an expansion of home dialysis. This initiative on favoring home therapies has added urgency given the necessity for social distancing, which hemodialysis patients and their staff cannot do. Increased utilization of home hemodialysis or peritoneal dialysis has been made straightforward with adjustments for reimbursement by Centers for Medicare and Medicaid Services that incentivize home therapies and implementation of telehealth visits.<sup>5</sup> There are also a number of remote home monitoring systems in place that provide the dialysis teams the opportunity for frequent assessment of the dialysis therapy and its impact on the patient's stability.

Unfortunately, in the midst of this crisis, rapidly transitioning in-center hemodialysis patients to home hemodialysis or peritoneal dialysis is not practical. Such a transition would require extensive training, simplified technology, and surgical access in the case of peritoneal dialysis. Furthermore, not all end stage kidney disease patients are candidates for home dialysis, either from a medical or social perspective.

Home therapies in many individuals would require caregiver assistance, which is not feasible for many of our most vulnerable patients.

The delayed United States and global response to COVID-19 highlights systematic lack of planning and preparation, despite substantial warnings by many experts about the need for anticipating a viral pandemic. Our patients are too vulnerable and too high risk to allow in-center hemodialysis—a treatment model that originated in the 1960s—to remain the dominant treatment for the 2 million ESRD patients around the world. Now is the time to plan for expanded access to home dialysis in order to save thousands of lives in future pandemics.

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