

Medical News & Perspectives

Finding Ways to Reduce Coronavirus Exposure During Dialysis

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Suzanne Watnick, MD, got the call at 9 PM Friday, February 28. A man in his 50s who received dialysis treatments at a Northwest Kidney Centers facility in Seattle was the [first person](#) with coronavirus disease 2019 (COVID-19) to die in the United States.

Watnick, the nonprofit dialysis organization's chief medical officer, immediately called Elizabeth McNamara, RN, vice president of patient care services and chief nursing officer. The patient had last undergone dialysis at one of Northwest Kidney Centers' 19 sites a week earlier.

That center wasn't open on Saturdays, "so we had a bit of time to decide what to do," Watnick recalled in an interview a few weeks later. "We brought in a group to disinfect the facility head to toe." They also made lists of patients who had dialyzed next to the man when he could have been infectious and staff who had come in contact with him at the dialysis center and in the hospital where he was treated for COVID-19. All were told to self-quarantine for 14 days, with 1 exception: The patients needed to continue coming into the dialysis center for treatment.

By the time the facility opened for business early Sunday morning, Northwest Kidney Centers had developed a patient handout about COVID-19. In addition to distributing the handout, "we sat chairside, one-on-one, to explain what had happened," Watnick said. "We didn't want to spread fear and have patients not come."

That night, 10 members of the COVID-19 response team from the US Centers for Disease Control and Prevention (CDC), [which includes](#) clinicians, epidemiologists, and data scientists, arrived in Seattle, at the time the epicenter of the US COVID-19 outbreak. Two of them were deployed to Northwest Kidney Centers.

Also that night, Watnick said, she and her team learned that a second person in the US with COVID-19 had died. That individual, who resided in a nursing home with an outbreak, had been treated at the same dialysis center as the first person to die, albeit on different days and a different shift.



Northwest Kidney Centers updated its patient handout twice in the first 3 weeks as more became known about the novel coronavirus that causes COVID-19.

"We have moved forward with 3 guiding principles: We have an obligation to provide dialysis, we are going to follow science, and we are going to provide leadership and support to all of our patients," said Watnick, who recently coauthored an [article](#) with McNamara describing their response—disbelief at first—to the news that the first US COVID-19 death was one of their patients.

A High-Risk Group

By the end of 2017, the most recent year for which data are available, approximately 750 000 people in the United States had end-stage renal disease (ESRD), and nearly half a million of them were being treated with hemodialysis, [according to](#) the US Renal Data System (USRDS), which is funded by the National Institute of Diabetes and Digestive and Kidney Diseases.

Simply having ESRD puts people at an increased risk of severe COVID-19, and many people with kidney failure are older and have additional risk factors such as diabetes and heart disease. But the vast majority of indi-

viduals who require maintenance hemodialysis can't wait out the pandemic by continuously sheltering in place. They must spend 3 to 5 hours at a dialysis center 3 days a week, where, typically, rows of machines dialyze many patients at once.

Detroit nephrologist Joel Topf, MD, said he met with all 70 of his dialysis patients during the last full week of March, and every single one wanted to talk about COVID-19. "People seemed appropriately nervous, but fine," Topf said in an interview.

Three out of 10 people with ESRD in 2017 had received a kidney transplant by the end of the year, according to the USRDS. However, that proportion could decline during the pandemic and lead to increased demand for in-center dialysis.

The Centers for Medicare & Medicaid Services (CMS), which oversees the [Medicare End Stage Renal Disease Program](#), the [national insurance program](#) for people with ESRD, [has deemed transplants](#) to be nonelective surgery that shouldn't be deferred because of the pandemic. However, many kidney transplants likely are being postponed, according to Michael Spigler, vice president of patient services and kidney disease education at the American Kidney Fund.

"Many of the centers in the country have stopped or significantly reduced the number of transplants that they're doing," Spigler said in a [video](#) posted March 30, in which he cited a shortage of beds and personal protective equipment. "Many, many programs have stopped living donor transplants almost completely.... Deceased donations are continuing pretty well so far...but it's almost inevitable that we're going to see those start to drop soon as well."

Minimizing Exposure

As of early April, no documented cases of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) transmission within US dialysis centers had been reported, and the facilities had implemented a number of safety measures to reduce the chance of that happening.

However, dialysis centers weren't designed with a highly infectious virus such as SARS-CoV-2 in mind.

"Some dialysis units have nothing but a big open room with people sitting around in it," said Alan Klinger, MD, chair of [Nephrologists Transforming Dialysis Safety](#) (NTDS), a partnership between the CDC and the American Society of Nephrology (ASN) whose goal is to eliminate preventable infections in dialysis units. When the NTDS was launched in 2016, its focus was on hepatitis B, influenza, and *Clostridioides difficile* infections.

Klinger, a clinical professor of medicine at Yale, noted that his dialysis unit has an isolation room used mainly for patients with hepatitis B, as well as 2 other rooms for patients who need privacy for emotional or physical reasons, such as a gastrointestinal infection.

"Isolation in dialysis units is less than ideal," said Jeffrey Silberzweig, MD, cochair of the ASN Emergency Partnership Initiative and chief medical officer of the Rogosin Institute, a New York City nonprofit with 9 dialysis centers that also focuses on kidney disease research and prevention. "We don't have the facilities to truly isolate patients who are COVID-19 positive," he noted in an interview, adding that one Rogosin dialysis center has no separate treatment room at all.

"Obviously, we're afraid," Silberzweig said. "Our approach is to try to narrow the exposure as best we can."

He and Klinger, along with CDC physicians, infectious disease specialists, and di-

alysis nurses, serve on the ASN COVID-19 Response Team, which has published a list of regularly updated [frequently asked questions](#) based on current CDC guidance. The 2 nephrologists recently published an [article](#) about how dialysis facilities can mitigate the risk of COVID-19.

Dialysis facilities should instruct patients with symptoms or contact with an infected person to call ahead to allow for proper preparation, Klinger and Silberzweig wrote. The centers should also [screen](#) every person entering by asking about symptoms or possible exposures.

Those who answer yes to any of the questions should wear a face mask and be directed to a room away from the general waiting area. If separate rooms are available, patients with confirmed or suspected COVID-19 can be treated behind closed doors. If a separate room isn't available, dialysis centers should consider treating such patients during the same shift or, if necessary, in a designated COVID-19 facility. If patients with COVID-19 symptoms must be treated at the same time as those without symptoms, they should dialyze in a corner or at the end of a row.

Now that the CDC [recommends](#) that everyone wear a cloth mask in settings where social distancing is difficult, Rogosin provides all staff and patients with masks. Patients who don't have confirmed or suspected COVID-19 aren't required to wear masks during treatment, Silberzweig said, but they are advised to wear them at least when traveling between their home and the dialysis center, which is often via a van that transports 3 to 5 patients. "In terms of supply" of masks, he acknowledged, "we are thin but managing."

Even before the recent CDC recommendation, DaVita Kidney Care and Fresenius Medical Care North America, the 2 big for-profit chains that treat approximately 85% of US patients who receive in-center dialysis, began requiring that every patient and employee—symptomatic or not—don a mask when they enter a center.

When asked how DaVita acquired enough masks to implement its policy, Chief Medical Officer Jeffrey Giullian, MD, said via email that his company had launched COVID-19 task forces in January "to prepare, prevent, and respond" to the virus.

"Those task forces began proactively working with our suppliers and vendors," Giullian said, adding that DaVita is still con-

cerned about having enough masks as the pandemic continues.

Watnick said Northwest Kidney Centers lacks the supplies to implement a universal mask policy: "If we used masks for every patient who came in and every staff member, we'd be out." Already, she said, her organization, unable to buy enough hand sanitizer, purchased a 55-gallon drum of alcohol so it could have a batch made.

Segregating Centers

In late March, DaVita and Fresenius began designating certain shifts and, in some cases, entire centers for confirmed or suspected COVID-19–positive patients only.

DaVita implemented a 3-tier system for dialysis centers, designating tier 1 for asymptomatic patients; tier 2 for patients with suspected infections; and tier 3 for those with confirmed COVID-19, said Topf, who is a part-owner of several DaVita centers in the Detroit area.

As of early April, he said, Davita had designated 1 Detroit-area dialysis center for patients with COVID-19. Topf, who said he doesn't have a financial interest in that center, visited one of his patients there shortly after it opened. Because of the staff's additional personal protective equipment, "It's like walking onto the set of *Contagion*," he said, referring to the 2011 film about a fictional pandemic.

Ashley Henson, DaVita's director of communications, said the company has also identified centers in other parts of the country that could be restricted to patients with confirmed COVID-19 or those suspected of being infected, although she didn't know how many had begun treating only those patients.

Fresenius has both entire dialysis centers and certain shifts at other centers reserved for people who have tested positive as well as persons under investigation (PUIs)—people with or without symptoms who've been exposed to a confirmed COVID-19 case but whose own infection status is not yet known. The isolation centers are dialyzing patients with confirmed COVID-19, symptomatic PUIs, and asymptomatic PUIs on different shifts.

On March 31, DaVita and Fresenius [announced](#) that they were creating a nationwide contingency plan for smaller dialysis organizations to send patients who are or may be infected to the larger companies' COVID-19–only facilities or shifts.

The collaboration's goal is to help "maintain continuity of care for dialysis patients by creating isolation cohort capacity that can be accessed by these dialysis providers, if needed," Fresenius Chief Medical Officer Robert Kossmann, MD, said in an email.

In contrast, Northwest Kidney Centers, which has 4 facilities without a private room, decided against designating centers for patients with COVID-19 and PUIs. "We have discussed it thoroughly and have back-up plans along those lines if needed," Watnick said, explaining that her organization would rather not shift patients to different, unfamiliar centers. "The dialysis clinic is a patient's home, so we are trying to maintain that paradigm."

No Place Like Home

A mid-March Twitter chat hosted by the ASN and NephJC, a Twitter-based journal club, [touched on](#) Ottawa Hospital's plan to create a COVID-19-only dialysis unit. The unit would occupy 6 rooms currently dedicated to training patients how to dialyze at home. Located within the Ontario, Canada, hospital's outpatient dialysis center, the unit would accommodate 36 patients each week.

Two weeks after the Twitter chat, though, the plan had fallen through, University of Ottawa nephrologist Swapnil Hiremath, MD, MPH, said in an interview. "Given ongoing concerns [about COVID-19], we decided that the home dialysis training program should not be shut down," he explained.

Few people with ESRD dialyze at home. Among those who do, the vast majority are treated with peritoneal dialysis, which uses the abdominal cavity lining instead of a hemodialysis machine to filter blood. At the end of 2017, only about 7% of people with ESRD were treated with peritoneal dialysis, while 63% were undergoing hemodialysis—only 2% of them at home, according to the USRDS.

But the COVID-19 pandemic has heightened interest in home dialysis, Kliger said, adding that his institution is encouraging people new to dialysis to consider learning how to do it at home.

Fewer Hours?

Dialysis organizations have considered temporarily reducing the number of hours patients dialyze each week during the pandemic, which would limit their potential exposure to COVID-19 and increase dialysis centers' capacity.

"It won't be optimal, but we hope it would provide enough dialysis for people to at least continue to be with us until we can provide full treatments again," Watnick said, noting that on average, treatment sessions are longer at her centers than at other US dialysis facilities.

Dialysis centers might eventually have no choice but to shorten or decrease treatment sessions, Silberzweig said: "Depending on how [the pandemic] progresses, we may need to resort to extreme measures like that." Not every patient would be a candidate for reduced treatment hours, he noted, because some of them build up excessive fluid between regular treatments, which can cause respiratory and cardiac problems.

However, Silberzweig emphasized, for all patients with ESRD, the potential harm of dialyzing fewer hours per week is not as great as that of COVID-19.

Fortunately, Watnick said, COVID-19 fears have not stopped patients from getting treated. They tell her, "We feel safer coming to your dialysis facility than going out in the community to our doctor appointments." ■

Note: Source references are available through embedded hyperlinks in the article text online.