As the nurse supervisor of a home dialysis program, I admit that this has been one of the most challenging times of my dialysis career. The home program training facility is one of seven satellite dialysis facilities in the state of Vermont, and one of five satellite facilities that are under the umbrella of the University of Vermont Medical Center (UVMMC). Due to its physical layout and central location in the state, our training site was the ideal location for the UVMMC coronavirus disease 2019 (COVID-19) dialysis treatment facility. The resultant change in the use of our clinic space, however, has affected both our routine workflow and usual procedure practices, prompting us to reexamine unit operations.

COVID Corridor Development

Setting up our COVID-19 treatment corridor took careful planning, more planning, and replanning. We designated three of our six private exam rooms as COVID-19 treatment rooms and the hallway became known as the “COVID corridor.” Additional travel staff were hired and a designated COVID-19 staff roster was developed. Our home program uses NxStage machines but, based on the number of estimated cases positive for COVID-19 and the limited number of staff familiar with NxStage technology, we decided to bring in Fresenius machines and portable reverse osmosis machines to dialyze the patients positive for COVID-19 in these rooms. There is a plan in place to employ NxStage machines if the number of patients exceeds the Fresenius fitted room capacity, but we have not needed to do so.

Having the right equipment available in the corridor has been essential to provide safe care and eliminate the need to send out for additional items necessary during treatment. Affording easy access to supplies and setting up makeshift storage areas was a struggle due to the limited corridor space, but with a lot of creativity and old-fashioned ingenuity, we were able to pare down the number of items in the hall and keep unnecessary clutter to a minimum (Figure 1).

All staff were educated on the latest information related to the COVID-19 pandemic procedures and protocols. This was extremely problematic because information came from many different sources with many different messages; ensuring information was accurately filtered and pertinent to our specific work area required daily diligence before putting it into practice. Correct donning and doffing of personal protective equipment (PPE) was especially crucial to make sure our staff and patients limited their exposure to the virus. The COVID corridor staff practiced various patient care scenarios daily: cardiac resuscitation, bringing patients into the facility, toileting on a commode, discharging patients from the facility, as well as disinfection of the rooms and the equipment. Surprisingly, one of the most perplexing processes was disposing of the trash and linen, because the soiled linen room and trash bins were located on the other side of the building. This meant going through the lobby or outside of the facility and walking around the building.

One of the most important qualities during this pandemic season has been the ability to remain flexible, be open minded, and not take things personally. We found that no amount of preparation work could prevent us from finding glitches in our workflow. Even after rehearsing various scenarios multiple times, when the actual situation arose, we would find steps in the process that had to be “tweaked.” Through much teamwork and application of scientific fact, we have been able to overcome barriers and devise workable solutions. I would strongly advocate using valuable resources that are available such as the National Renal Administrators Association, American Society of Nephrologists, American Nephrology Nurses Association, and the Centers for Disease Control and Prevention (CDC). The frequent updates posted on these sites and the webinars they offered were extremely helpful in helping us to maintain our focus and develop our strategies.

COVID-19 Patient Care

Coordinating the transportation, testing, and scheduling of patients dialyzing in our COVID-19 space required collaboration with many different departments within our healthcare system. An incident command center, set up by UVMMC, was a vital asset. Infectious disease consults, transportation contacts, and laboratory testing resources were available to tap into with minimal red-tape delay. Vermont rallied as a state and supported our efforts as well, making special considerations for our dialysis community related to COVID-19 testing accessibility and special transportation needs.

Based on CDC recommendations (1), we use fitted N95 masks, face shields, protective gowns, and gloves...
The COVID corridor was an evolving process.

When caring for the patients with COVID-19, staff exposure time in the room is kept to a minimum, and the patient wears a surgical mask at all times while in the facility. Our renal nurse educator remains in close contact with our infection prevention team and has been instrumental in developing and updating the disinfection procedure of our treatment rooms and equipment. After discharging a patient from the facility, the dialysis staff wipe down all surfaces and equipment in the room with a 2:100 bleach solution. At the end of the day, a 2-hour delay is in place until this date, has not created a burden. Patient census has remained low and we have been able to accommodate all treatment needs. We believe this has been due in part to the decision by our clinical medical director to implement masking of all patients and staff, along with social distancing, in our facilities very early on. Realizing there could be a surge of patients with COVID-19 at any time, we continue to be vigilant and keep our unit in the ready state.

Home Dialysis Patient Care

From the onset of the COVID-19 pandemic, we began strategizing about how to keep our patients on home dialysis safe, minimize face-to-face contacts, and prevent anything “falling through the cracks.” We conducted brainstorming sessions among the staff to look at what was necessary, what steps could be streamlined, and what was of low-priority focus. These planning sessions included our medical director, registered nurses (RNs), certified clinical hemodialysis technician (CCHT), dietician, social worker, and secretary. Getting everyone’s perspective was crucial and insightful.

Home Visits

Serving the needs of our home dialysis patient population and early detection of complications during this period has been essential. We are determined to keep our patients safe and ourselves protected during necessary home visits and clinic appointments. Procedures that warrant “hands-on” interventions are evaluated on a case-by-case basis and, if possible, staff go to the patient’s home rather than have the patient come into the facility. Our RNs and CCHT staff are equipped with a “to-go bag” of supplies to keep in their car in the event of an unplanned, necessary home visit. The kit contains an N95 mask, gown, gloves, disinfectant wipes, hand sanitizer, and a plastic bag in which to put the soiled gown when the visit is completed. Staff call the patient before going to their home and screen for any COVID-19 symptoms (fever, cough, myalgia, loss of taste or smell) or if they have had contact with anyone who has been symptomatic or tested positive for COVID-19. Staff don their PPE before entering the home and remove PPE upon exiting.

Figure 1. | Creative optimization of space and minimizing clutter in the COVID corridor was an evolving process.

Supplies

With the prospect of supplies being at a premium, we chose to review, with all of our home patients, items that are appropriate for reuse (i.e., nonsoiled Chux pads, surgical masks) and items that need to be discarded after one-time use (i.e., needles, gloves, alcohol pads, gauze). Monthly resupply of needed items is scheduled and accomplished via curbside pickup. Patients call from the facility parking lot and staff, dressed in proper PPE, meet the patient at their vehicle and load requested supplies. If appropriate, erythropoiesis-stimulating agents are administered during this time as well. This has been working out very well, increasing patient awareness of supplies on hand, and has improved overall program efficiency.

Weekly Check-ins

Multiple times during the week, the home program RNs review treatment logs (Nx2Me and AMIA/Sharesource if applicable), looking for any changes in weights, vital signs, missed treatments, and recurring alarms. The RN contacts the patients weekly to inquire as to any COVID-19 symptoms, review their treatment data, laboratory test results, and medications; assess their supply status; and reinforce COVID-19 education. Patients identified as having potential issues require tighter monitoring and more frequent phone calls. At first, patients were wary of our hypervigilance, but most have now come to see the weekly check-ins as a source of security and a welcomed interaction with the home program team.

Our dietitians and social workers are keeping close tabs on the patients as well, and we dialogue frequently to compare notes and identify any potential complications. Aside from routine dialysis status questions, the social worker and dietitian inquire as to the patient’s social support, financial or utility concerns, and nutritional needs.

Telemedicine

We felt strongly that if we could connect to our patients virtually for their monthly clinic appointments, we would be able to get a better handle on their medical status as well as provide much needed face-to-face interaction. Our telemedicine process, still in its infancy phase, became a vital source of achieving this goal. Zoom was the platform of choice because our hospital already used this application...
and had necessary contracts in place. Patients received individual instruction on downloading the application onto their personal electronic device and connecting to a meeting. They have been educated to have their most current vital signs and weight available, and to be prepared to show us their dialysis access during the virtual visit. Patients without telemedicine access were set up for telephone visits and asked to send us a picture of their access via email if possible.

**Staff Communication**

Maintaining conformity and communication during this unsettling time has been vital to quell the ongoing rumors, alleviate fears, and empower staff. Keeping our healthcare team and support staff abreast of the program’s activities, patient status, and any practice changes keeps everyone on the same page and allows for sharing of information as needed. Our hospital sends out a daily COVID-19 newsletter that provides ongoing state statistics as well as any changes in UVMMC practice, policy, or project updates. I have been sending out weekly updates to our home program team as well, outlining current program status and any plans for the next week that would be of interest (i.e., patient admissions, infections, COVID-19 tests pending, procedures, trainings, etc.). This appears to be a welcome source of communication and eliminates unnecessary surprises. In conclusion, many changes to our work environment and operational practices have been out of our control over the past few weeks. The fear of contracting a potentially deadly virus has added to the pressure and stress we face daily (2). This article has not even addressed the financial burdens placed on our medical system, our dialysis facilities, and our personal lives. As nurses, we have always kept the care of our patients at the forefront of our focus. Through the course of history, we have been able to deal with crisis, collaborate across divides, apply our knowledge, and forge a better way for the future. As we emerge from this pandemic, I am confident that we will once again lead the path to change. Reflecting on our experiences, reviewing outcome data, and reevaluating our workplace structure will afford us the opportunity to open a new chapter of what dialysis care can look like going forward. This task will require a new or enhanced skill set focused on wellness and population care of our patients, true care coordination, data analytics, and quality improvement initiatives (3). The future will hold many challenges for our dialysis community; we must not let this experience fade without taking the lessons learned and making the changes necessary to improve care outcomes. Together, as a unified force, we will come out better on the other side.

**Acknowledgments**

I dedicate this article to all of the healthcare workers who are putting their lives on the line every day to save lives during this unprecedented COVID-19 pandemic. My thoughts and prayers go out to you all.

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