



DEPARTMENT OF VETERANS AFFAIRS

Improving Access to Specialized Care: The Telehealth Kidney Transplant Clinic at the Iowa City VAMC

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Introduction

Currently, in the US, more than 400,000 patients with chronic kidney disease receive treatment with hemodialysis. Of these patients, approximately 95,000 are awaiting kidney transplant, the treatment of choice for those with advanced, irreversible kidney disease. Among those receiving dialysis are 35,000 Veterans, many of whom are also awaiting kidney transplant. As part of the Department of Veterans Affairs' response to that need, in 2001 the Iowa City Veterans Affairs Medical Center (VAMC) was designated a transplant center, becoming one of four kidney transplant centers treating our Veterans and the only one offering combined kidney-pancreas transplants.

Since its inception, the Iowa City program has evaluated and performed transplant surgery on patients from 44 states including such distant areas as Puerto Rico, the Philippines, and the Virgin Islands. More than 1800 referrals have been received at the Iowa City VAMC for transplant evaluation, and more than 300 patients have received transplants. Two-hundred-and-eighty transplant recipients are currently followed in the Iowa City VAMC's post-transplant clinic, while more than 100 patients are on the transplant waiting list.

Effective transplant care requires a dedicated multi-disciplinary team. Typically, transplant physicians and surgeons work with psychologists and social workers who evaluate potential candidates, while treatment and long-term follow-up of patients are performed by pre-

Key Findings

The Telehealth Transplant Clinic at the Iowa City VAMC has been found to

- Reduce travel time for transplant patients seen at the San Juan, Puerto Rico VAMC, allowing them to receive annual follow-up exams remotely
- Reduce costs to the patient in travel/hotel expenses and lost work time
- Reduce costs to the VA in travel subsidies for the transplant patient

These enhancements in patient access have been accomplished with no reduction in quality of care.

and post-transplant coordinators and transplant pharmacists. Infectious disease specialists with expertise in caring for immunocompromised patients also play a role.

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After undergoing transplant surgery at the Iowa City VAMC, patients stay in the Iowa City area for three weeks before returning home. During the first year following transplantation, patients are closely monitored in four visits to the Iowa City VAMC transplant clinic, and then on a yearly basis for the life of the kidney.

Telehealth Care

Because a significant number of the patients receiving transplants at the Iowa City VAMC are from distant areas, maintaining their follow-up appointments can entail the inconvenience and expense of long travel distances. In particular, of patients coming to Iowa City for annual post-first-year follow-ups, those from Puerto Rico have had the longest travel time.

As a way to relieve these burdens, in August of 2012, a *Kidney Transplant Telehealth Clinic* was initiated at the Iowa City VAMC to provide annual telehealth appointments to its kidney transplant patients living in Puerto Rico.

Candidate selection

As part of the development of the Telehealth Transplant Clinic, the transplant team first established criteria for selecting patients suitable for telehealth appointments. Records of patients with a transplant that has functioned for at least 2 year, and requiring an annual visit to the transplant center as per the transplant center's long-term follow-up protocol, are initially reviewed by a team which consists of a staff transplant nephrologist, post-transplant coordinator, and a social worker. Patients with stable transplant function, having no recent medical or surgical transplant issues, and with excellent treatment adherence are selected. In the case of patients from Puerto Rico, this selection is reviewed by the Nephrology Team at the San Juan VAMC to reach consensus that these patients are viable candidates for telehealth visits.

Preparation for the appointment

The selected patients are then scheduled to come to the Nephrology Clinic at the San Juan VAMC. A Nurse Coordinator at the San Juan VAMC is present during the appointment and will have updated the Iowa City team regarding the patient's current medications, vital signs, any hospitalization, and other relevant information.

A staff nephrologist at the San Juan VA will be available to conduct a physical exam when required. Prior to the interview, the Iowa City team orders and reviews follow-up laboratory results identical to those customary with on-site visits. These tests focus on immunosuppression management and potential complications from long-term use of associated medications, such as infections and some forms of cancer. The Iowa City VAMC staff transplant pharmacist reviews anti-rejection medications as well as other medications being utilized by the transplant patients, minimizing toxicity and unwanted drug interactions that may jeopardize transplant function. Kidney function lab tests are screened for signs of rejection or other complications, and it is confirmed that the patient is updated with routine preventative tests.

The interview

Informed by the data described above, the teams at both sites proceed with the clinic interview via telehealth equipment available in the Transplant Clinic at the Iowa City and San Juan VAMCs (Figures 1 and 2). This equipment consists of a video monitor and microphone at each site, comprising a Video Teleconferencing (VTC) system. This system requires high capacity connections due to the volume of data exchanged and performs most smoothly over high-speed data networks.

The Iowa City team interviews each patient regarding chronic illness, disability, or his or her psychological adjustment to the rigorous post-transplant protocols. The patient is assessed for depression, anxiety, non-adherence, weight management, and many other psychosocial issues. Lastly, recommendations are provided to the patient regarding management of long-term immunosuppression. If it's determined that the patient has a medical or surgical reason to make the journey to Iowa City, arrangements for the trip are then made immediately and the necessary appointments and tests are scheduled in advance at the Iowa City VAMC. Direct patient/physician interaction during the conference usually lasts 20 to 30 min, while the preparatory review phase may take also take approximately 30 minutes.

Figure 1. Iowa City Site



Shown is the Iowa City team, including the social worker, kidney transplant coordinator, and staff transplant nephrologist.

After the appointment, patients are sent instructions regarding any necessary follow-up lab tests and medication dose adjustments as needed. The program has benefitted by pairing with a dedicated team in Puerto Rico, and so far 25 patients have been seen via the Telehealth Kidney Transplant Clinic.

Benefits/Impact

Benefits to the patient in terms of reduced travel time and costs are impressive. In the case of Puerto Rican transplant patients, each telehealth visit saves the patient 2,210 miles in travel distance. Costs of airfare and 2 nights at a local hotel (at a discounted price contracted with VAMC) are approximately \$1,150. Twenty-five telehealth transplant visits have so far amounted to a total patient savings of more than 55,000 travel miles and \$28,750.00. The savings are twice as much in most of the visits since the VA covers full expenses for a support person to travel with the patient to each clinic appointment. Travel time is approximately 7 hours each way between San Juan and Iowa City; therefore, 350 hours of travel time were spared, which is the equivalent of 43 days of work absence when accounting for only the patients or 86

Figure 2. San Juan Site



Shown is the San Juan team, including the kidney transplant coordinator, telehealth clinical technicians, nephrology fellows, and Chief of the Renal Section.

days if we include the support personnel who are present at nearly all appointments. Savings were also accrued by the VA in terms of subsidies and hotel discounts.

Future plans/potentials

As our transplant program continues to grow, we foresee a larger number of patient visits per year via telehealth. Encouraged by the program's success, we are considering expanding the Kidney Transplant Telehealth Clinic to other sites in areas that would otherwise require the expense and time of long travel distances to Iowa City. Many of these are *rural and highly rural areas* where patients can more conveniently connect to our telehealth system from a local VA outreach clinic. This will further expand access to specialized transplant care and at the same time decrease travel time for our Veterans while reducing costs.

Next Steps

The Iowa City VAMC transplant program continues to expand, and with this will come a larger number of telehealth visits. Under consideration is an increase in the number of telehealth sites distant to Iowa City, many of which would be situated in *rural and highly rural areas* where patients could access local VA outreach clinics equipped with the telehealth system, expanding access to specialized transplant care while reducing costs.



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