Emergency Dialysis for Undocumented Immigrants: the Parkland Experience

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Internal Medicine Grand Rounds

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Purpose and Overview:

The purpose is to address the issue of unscheduled, emergency-based dialysis for undocumented immigrants with a focus on the experience and evolution of the problem at Parkland Hospital.

Educational Objectives:

1. To understand how treatment for end stage renal disease (ESRD) is funded in the US and the limitations this places on treatment options for undocumented immigrants
2. To understand the process by which emergent dialysis is delivered at Parkland Hospital, including the scope of the problem
3. To identify ways in which quality of care has been improved for patients receiving emergent dialysis at Parkland
4. To describe possible future alternative care models

Biographic Data

Dr. Berger is a nephrologist who has been on faculty in the Division of Nephrology since 2012. His primary clinical focus has been providing dialysis care to undocumented immigrants in the Parkland Acute Dialysis Unit, and he is the senior faculty member providing care to this population on a day-to-day basis. He is also board certified in Geriatric Medicine and runs a new Geriatric Nephrology clinic at Parkland.

Treatment options for End Stage Renal Disease (ESRD)

Patients who develop ESRD require renal replacement therapy (RRT) which may take the form of hemodialysis (HD), peritoneal dialysis (PD), or kidney transplantation (KT).

Hemodialysis is provided either in an outpatient dialysis clinic or in the patient's home with assistance. Multiple large clinical trials have established superior outcomes with a standard schedule of treatments three times per week[1,2]. A recent retrospective study comparing undocumented immigrants initiated on scheduled vs. unscheduled dialysis demonstrated significant mortality risk and increased need for acute care hospitalization for those not on scheduled hemodialysis[3]. Arteriovenous fistula (AVF) is the vascular access of choice for HD patients, with superior survival compared to those who dialyze via arteriovenous graft (AVG) or tunneled dialysis catheter (TDC)[4,5].

Peritoneal dialysis is a home based therapy in which dialysate fluid is instilled into the peritoneal cavity via a surgically implanted catheter. The patient's own peritoneal membrane is utilized as a dialysis filter, achieving solute clearance and fluid removal. Survival and quality of life have been demonstrated to be at least equivalent to HD, and for many patients (particularly those with chronic low blood pressure and difficulty establishing vascular access) PD is the preferred modality[6,7].

Kidney transplantation offers superior survival and quality of life compared to both HD and PD[8]. KT has also been shown to be cost effective compared to HD and PD after the first year post transplantation[9].

Funding for ESRD in the US

For patients who are able to obtain commercial insurance, all three modalities are covered. This includes patients obtaining insurance through exchange programs established by the Affordable Care Act (ACA).

The Medicare ESRD benefit was established in 1972 (Public Law 92-603, amendment to Social Security Act)[10]. This benefit is available to patients who are citizens or legal residents (at least five years) and have worked long enough to qualify for Social Security benefits (40 quarters). Citizens who are not eligible for Medicare are usually eligible for coverage through Medicaid. All three modalities are covered through this mechanism.

Undocumented Immigrants and ESRD

By most estimates there are approximately 12 million undocumented immigrants living in the US[10]. From this group it is estimated that 6500 have ESRD requiring renal replacement therapy[10]. The overwhelming majority of these patients are Hispanic with Mexico the most

heavily represented country[10]. These patients tend to be younger than the US born ESRD population[10].

The vast majority of undocumented immigrants are not able to afford commercial insurance and are excluded from participating in ACA sponsored exchange programs. They are allowed to purchase off-exchange insurance plans, but without financial assistance premiums are prohibitive, and this is not a viable option. Likewise, these patients are not eligible for the Medicare ESRD benefit.

A handful of states do provide undocumented immigrants with scheduled hemodialysis (and in rarer instances transplantation) through emergency Medicaid programs[11]. However, the vast majority of states (including Texas) choose not to cover these services through emergency Medicaid.

Medical repatriation has been proposed as a potential solution. However, for most patients with ESRD this is not a viable option. Most countries (including Mexico) do not have a benefit equivalent to the Medicare ESRD benefit[10]. Dialysis and transplantation services are available only to those who are able to afford private insurance[10].

Consequently, the vast majority of undocumented immigrants with ESRD living in the state of Texas do not have access to scheduled HD, PD, or KT. The only option these patients have for treatment of ESRD is hemodialysis on an emergency, unscheduled basis.

Emergent Dialysis at Parkland

Based on the Emergency Medical Treatment & Labor Act (EMTALA), patients can present to any emergency department (ED) to be evaluated for dialysis[12]. In Dallas, the vast majority of patients who seek emergent dialysis present to Parkland, largely due to the hospital's status as the primary safety net hospital for Dallas county.

The dialysis unit at Parkland is classified as an Acute Dialysis Unit (ADU). This distinction is important as the classification of "acute" means that Parkland is prohibited by Centers for Medicare and Medicaid Services (CMS) regulations from providing scheduled outpatient dialysis, regardless of funding status.

Patients present initially to the Parkland ED and undergo basic screening tests, followed by evaluation by providers from the ED and Nephrology. Ultimately, a decision is made whether the patient meets criteria for emergent dialysis **(Table 1)**. If the answer is yes, the patient is brought to the ADU, dialyzed, and discharged home if stable. If the answer is no, the patient is discharged home.

Indication	Threshold
Potassium	>5.8 or EKG changes
Hypoxia	Oxygen requirement above baseline
Anemia (blood transfusion)	Hgb <7.5
Time from last treatment	>14 days (admit for reinitiation)
Uremic manifestations	Pericardial friction rub Encephalopathy; Asterixis Intractable nausea/vomiting

Table 1 Indications for emergent dialysis

Scope of the Problem

The Parkland ED historically experiences an overwhelming volume of patients with all types of medical problems. As the initial point of contact for each encounter, the ED also experiences a significant impact of patients seeking emergent dialysis. During a two month period in 2014, it was observed that 33% of all visits to an already very busy ED were for patients seeking dialysis.

From 2009 through 2014, the number of patients seeking emergent dialysis grew steadily and rapidly with a peak of 193 patients in 2014 **(Figure 1)**. This growth was also reflected in the number of dialysis treatments provided in the ADU. There are well over 10,000 treatments provided to all patients each year, with over 13,000 treatments provided just to unscheduled dialysis patients in 2014 **(Figure 2)**. A decrease in volume was observed in 2015. The details for this change will be discussed later.

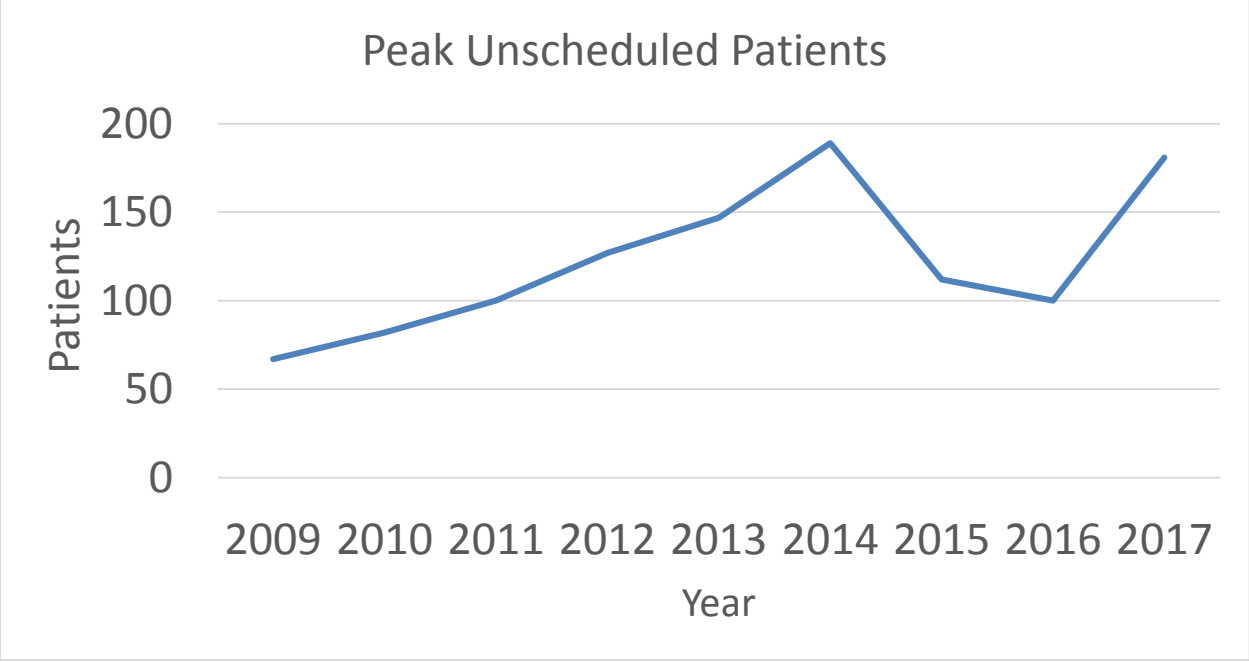


Figure 1 Peak volume of unscheduled dialysis patients at Parkland by year

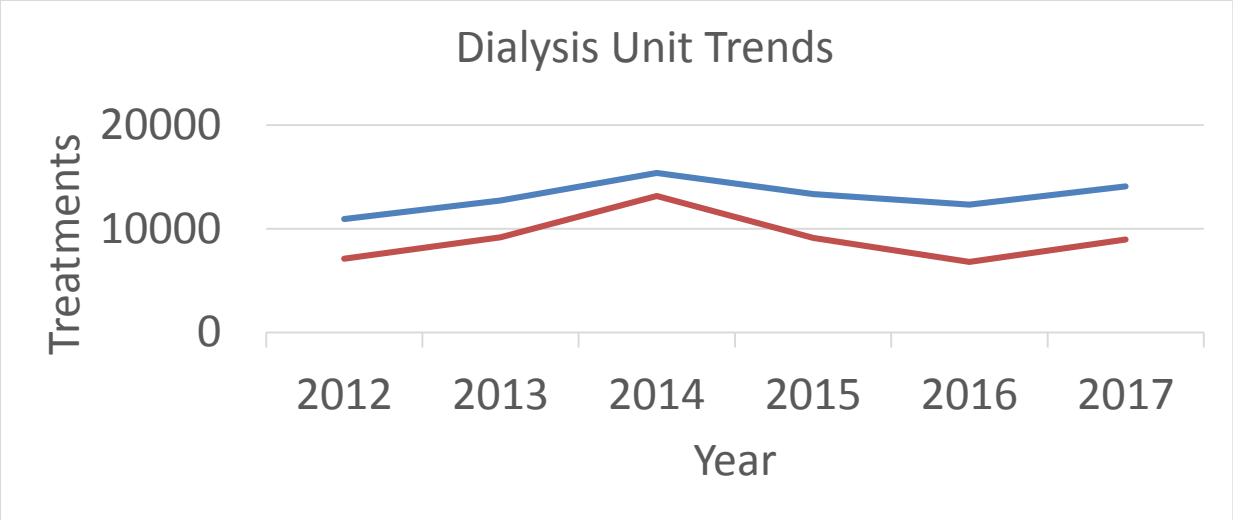


Figure 2 Number of dialysis treatments at Parkland ADU by year (Top line = all patients, Bottom line = unscheduled patients)

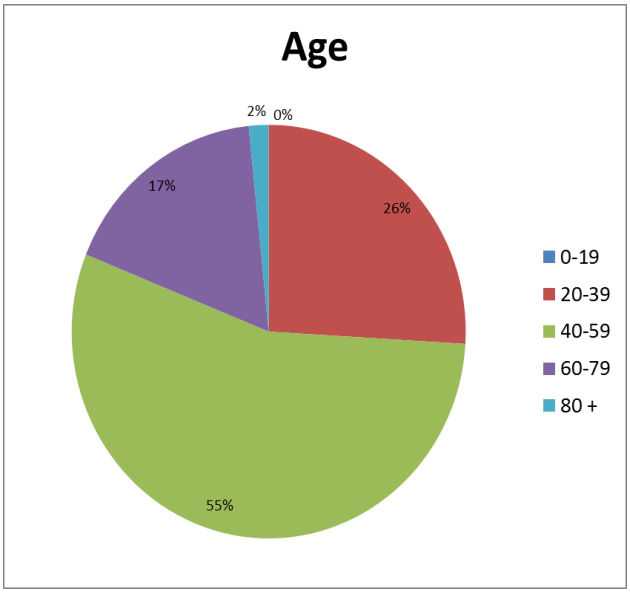
In response to increased demand, the capacity and staffing of the ADU has grown. In 2009 the maximum capacity was 11 beds for two full shifts and a partial third shift. By 2014 this had grown to 18 beds for three full shifts, which was accompanied by an increase in the number of dialysis nurses. Until 2012, the unscheduled dialysis patients were managed by a rotating fellow and faculty who were also responsible for all inpatient dialysis treatments. In October 2012 a dedicated service was created and staffed by two faculty and one nurse practitioner, which has grown to three faculty and five nurse practitioners. While this team's responsibilities have grown to include more than just emergent dialysis, the unscheduled population is now provided with much more continuity of care.

Characteristics of the Patients

The population of patients on emergent dialysis at Parkland is notable for its youth **(Figure 3)**. Patients are overwhelming Hispanic **(Figure 4)**, and 81% speak Spanish primarily. Notable comorbid conditions include diabetes (58%) and congestive heart failure (42%).

Frequency of Dialysis

The frequency with which each patient receives emergent dialysis is highly variable. With time, patients usually require dialysis more frequently as residual renal function is lost. On average, patients receive dialysis every five to six days, a number which has remained consistent. Each treatment is usually two to four hours long, depending on indication(s). This equates to one third to one half of the prescribed treatment that these patients would receive if on scheduled dialysis.



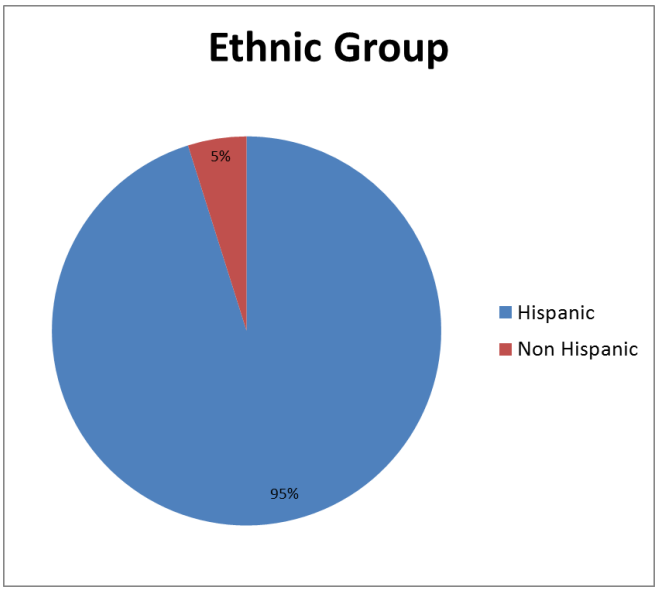


Figure 3 Emergent dialysis patients by age **Figure 4** Emergent dialysis patients by ethnicity

Improving Quality of Care for Emergent Dialysis Patients

Vascular Access

Prior to 2008, patients on emergent dialysis at Parkland were not permitted to undergo placement of either TDCs or AVF/AVGs. A small percentage of patients had previously established forms of vascular access which were used. However, most patients could only receive dialysis via temporary, non-tunneled dialysis catheters. These catheters were placed, usually in a femoral vein, on arrival to the dialysis unit and were removed at the end of each treatment, a process which was repeated each time the patient returned for dialysis.

In 2008, a change in policy allowed for placement of TDCs in patients undergoing emergent dialysis, eliminating the need for repeated placement of temporary catheters. AVF/AVGs were still not permitted. In a select few cases, vascular accesses were created after approval from hospital administration, usually for patients undergoing heart valve surgery or for those who had suffered significant and repeated catheter-related complications.

In 2015, another change in policy allowed for the creation of vascular access for emergent dialysis patients. At that time the process for access creation involved four steps which typically occurred on separate visits: 1. Vein mapping, 2.Pre-op physician evaluation, 3. Anesthesia evaluation, and 4. Surgery. Given the substantial number of patients suddenly eligible for vascular access, a new approach to the process was needed.

A collaborative effort between providers from nephrology and vascular surgery led to the creation of a Fast Track process. For patients who were expected to have fairly straightforward operative plans, the process was streamlined to allow for more prompt access creation. After vein mapping was completed (often performed during dialysis treatments in the ADU), a vascular surgeon reviewed each case. If approved for Fast Track, an OR date was assigned. The surgeon and anesthesia team met with the patient on the day of surgery, and the operative plan was finalized and modified if needed.

At 21 months post creation, 69% of accesses created via the Fast Track process were functional[13]. Furthermore, complication rates were low and well within accepted standards[13]. In two years, the percentage of emergent dialysis patients dialyzing with vascular accesses rose from 12.0% to 50.1%. The Fast Track process is an example of a successful multi-disciplinary collaboration which achieved the goal of vascular access creation in a safe, effective manner.

Catheter-Related Infections

Given the significant dependence on TDCs, it is not surprising that central line-associated bloodstream infections (CLABSIs) have been a significant problem for patients on emergent dialysis. The high incidence of CLABSIs has led to lengthy and repeated inpatient admissions, loss of access sites as the result of the need for placement of new catheters, and serious, life-threating complications including osteomyelitis, endocarditis, and septic shock. CLABSIs have been a major source of morbidity and mortality for emergent dialysis patients and have put significant additional strain on the hospital system.

Date	**Intervention**	**Intended Impact**
October 2012	Creation of dedicated service of providers	Improve care by improving continuity of care
December 2012	Document outlining approach to CLABSI management	Standardize care and minimize variation in management
July 2015	Approval for access creation	Reduce number of catheters
August 2015	Move to New Parkland Hospital	Increased barriers between patients
April 2016	Implementation of new patient handout for catheter care	Improve self care through education to reduce infections from skin flora
February 2017	Limitation of blood cultures drawn from catheters	Reduce number of false positive infections form skin contaminants

Table 2 Timeline of interventions to reduce CLABSI rate in emergent dialysis patients.

Over the past several years there have been multiple efforts made to decrease CLABSI rate for emergent dialysis patients at Parkland **(Table 2)**. The previously discussed approval for creation of vascular access has been a key intervention and has reduced the number of catheters in use.

The creation of a dedicated team of providers has served to improve continuity of care. Around the same time, a group of physicians from nephrology, infectious disease, and interventional

radiology collaborated on the creation of a document outlining practices for diagnosis and management (including antibiotic choice and catheter management) of CLABSIs in dialysis patients. The document incorporated Kidney Disease Improving Global Outcomes (KDIGO) and Infectious Disease Society of America (IDSA) guidelines with allowances for the unique nature of this patient population. The intent was to improve care and reduce infection recurrence by eliminating as much variation as possible in management of CLABSIs.

The August 2015 move to New Parkland Hospital brought with it a new dialysis unit. In the old unit, the primary barrier between patient beds was a moveable curtain. In the new unit, each bed is separated by, at minimum, a half wall on each side. This design increases the barrier between patients and serves as an extra reminder for providers and nurses to engage in proper hand hygiene between patients.

We also had the opportunity to guide a medical student (from UT Southwestern's program for MD with distinction in quality improvement) through a quality improvement project aimed at reducing CLABSI rate. Through process mapping and interviews with patients, providers, and nurses, gaps in patient knowledge related to catheter self care were identified, and an educational handout (available in English and Spanish) was implemented in April 2016.

From 2012 to 2017, the CLABSI rate for emergent dialysis patients at Parkland was cut in half **(Figure 5)**. While it is impossible to say how much each intervention contributed, it is clear that a significant improvement in quality of care was achieved through continuous effort and multidisciplinary collaboration.

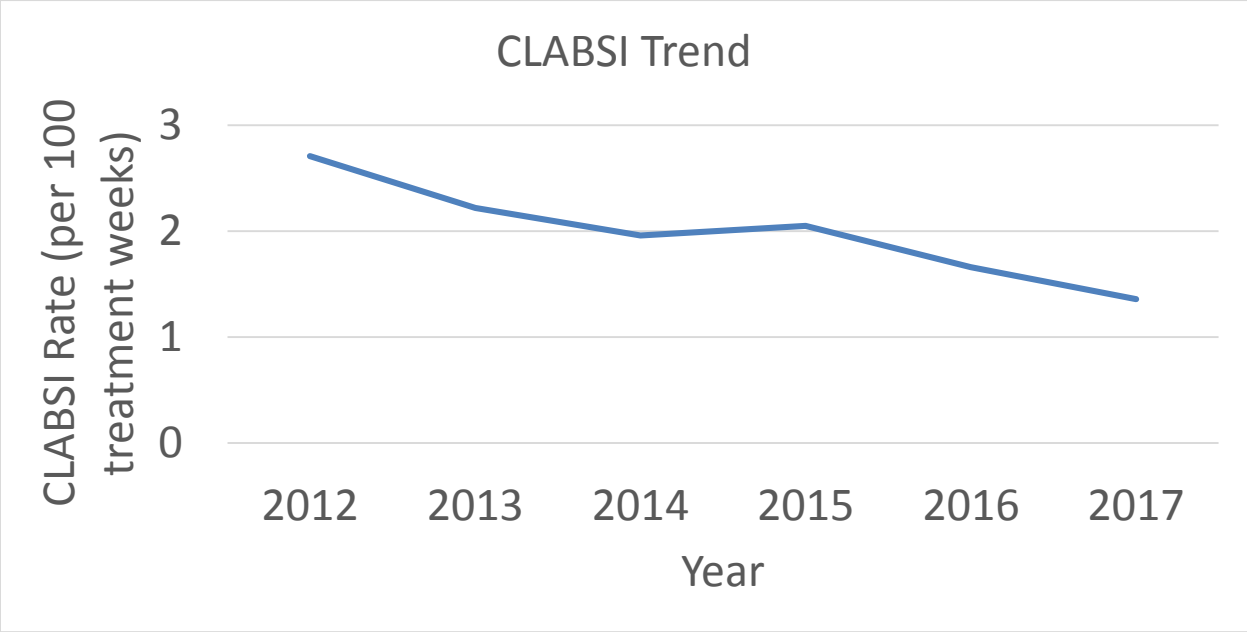


Figure 5. Trend of CLABSI rate for emergent dialysis patients at Parkland

Provision of Scheduled Dialysis

As discussed earlier, there have been no realistic funding options for undocumented immigrants with ESRD in the state of Texas. These patients are excluded from receiving assistance to purchase insurance plans through ACA exchange programs. Because of the ACA provision precluding coverage denial based on preexisting conditions, they can purchase off exchange programs. However, prohibitive premium costs effectively have excluded this as a realistic option.

In January 2015, a third party nonprofit organization with a history of providing assistance paying premiums for dialysis patients stepped forward with an offer to provide assistance to undocumented patients. Once made aware of this opportunity, the team at Parkland, led by our dedicated and resourceful social workers, actively worked to secure assistance and placement in a dialysis unit for as many patients as possible. Ultimately, 108 patients were placed. In subsequent years similar opportunities have been available. In 2016 108 patients were placed, 50 in 2017, and 130 in 2018. There has been variable participation from insurance companies and dialysis clinics, explaining year to year differences in the number of patients placed. This new yearly egress of patients from emergent status is the primary reason for the observed fluctuation of patient volume since 2015.

We are conducting a retrospective analysis of the impact of the 2015 open enrollment. We chose this year because placement into dialysis clinics occurred in a quasi-randomized, opportunistic fashion. Those who were not placed were not excluded for medical reasons. They were not placed primarily because of limitations of dialysis clinic capacity and expiration of the open enrollment period. Unlike other studies evaluating outcomes of scheduled vs. unscheduled dialysis, the patients who were placed had already been exposed to at least 6 months of unscheduled dialysis The first year of open enrollment placements also presented the least amount of crossover, as the majority of patients who were not initially placed did eventually receive scheduled dialysis in subsequent years.

Preliminary analyses reveal a significant survival benefit for patients converted to scheduled dialysis, as well as a substantial reduction in hospital and ED utilization. Our patients have experienced a clear benefit from conversion to scheduled dialysis, which has also been beneficial for the ADU, ED, and hospital in general.

Future Directions

Care for undocumented immigrants receiving emergent dialysis at Parkland has improved significantly. It has been demonstrated that the provision of scheduled dialysis to this population is highly beneficial for the patients and for the health care system. Despite this

progress, a substantial number of patients still receive dialysis on an emergent only basis. Consequently, there is still room for growth and other paths forward to consider.

Scheduled HD for all undocumented patients is one consideration. This option has been proven successful at our institution and others, and for those states in which scheduled dialysis is covered by Medicaid, it is the norm. However, this strategy depends on continued assistance from a third party as well as cooperation from insurance companies and dialysis companies. In our experience, there has been variable participation and restrictions placed by insurance and dialysis companies, which has affected the amount of patients able to benefit from scheduled dialysis from year to year.

Peritoneal dialysis is an intriguing option for undocumented patients with ESRD. The home-based therapy would allow patients to participate in an effective form of RRT which can be delivered on a predictable, consistent basis while eliminating the need for repeated ED visits. This could be a particularly attractive option for patients approaching the need to initiate dialysis as a way to avoid the unpredictable nature of emergent HD. Potential barriers include the lack of medical suitability for some patients, the need for CMS waivers, and the development of substantial infrastructure needed to support such a program. Despite these challenges, PD could provide a medically attractive and cost effective option.

Data for kidney transplantation in undocumented immigrants is sparse but suggests favorable outcomes for KT in this population[14]. Most states that provide scheduled dialysis to these patients do not provide access to transplantation. A small subset of patients in California is eligible, and a 2014 amendment in Illinois has increased access to KT for undocumented immigrants[15].

Conclusion

The management of undocumented immigrants with ESRD with limited access to RRT options is a challenging problem which is burdensome to the patient, to the health care system, and to healthcare professionals caring for them[16]. Through determination, hard work, teamwork, and ingenuity, we have improved the quality of care for patients receiving emergent dialysis at Parkland and are contributing to the growing literature that demonstrates the benefit of scheduled dialysis for undocumented immigrants. In addition to the continued efforts of those caring for these patients, reaching the goal of providing high quality ESRD care for all patients will likely require changes in policy at the state and national level. Hopefully, our story can help to inspire this needed change.

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