



# Transitional Care Units: Greater Than the Sum of Their Parts

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## Introduction

In 1981, alarmed at the trend of incident patients selecting in-center hemodialysis over home therapies, Northwest Kidney Centers (NWK) established the first “dialysis orientation unit” under the direction of Dr. Joel Eschbach (1). The orientation unit provided a 2-month stabilization program emphasizing modality and diet education, patient “rehabilitation,” and transitioning safely to home dialysis. What was the historically “low” rate of home hemodialysis uptake that spurred development of this program? 50%. Today, any dialysis organization would consider a 50% home therapy start rate a resounding success.

In subsequent years, nephrologists learned hard lessons about the dangers posed to patients in the first year of dialysis, particularly those “crashing in.” It is now understood that the first 90 days of dialysis remain a period of high cost, high hospitalization rates, and mortality (2). This finding is often attributed to a lack of or insufficient nephrology predialysis care (3). US Renal Data System information suggests nearly 40% of patients with ESKD initiate dialysis without adequate preparation (2). Despite efforts to improve these statistics, so-called “suboptimal starts,” patients initiating dialysis in a hospital or with a central venous catheter (CVC), predominate making up 80% of the incident dialysis cohort (2). A detailed review of the causes of this phenomenon is beyond the scope of this article; however, one underappreciated contributor to suboptimal starts is unexpected and rapid loss of GFR in established CKD immediately preceding dialysis initiation. This situation catches patient and physician unaware, precluding or abbreviating participation in pre-ESKD care. Estimates of the number of patients experiencing this scenario are hampered by a lack of predialysis kidney function data, but a recent retrospective study noted that approximately 50% of patients may enter dialysis this way (4). Another study of incident patients with ESKD followed previously in long-term CKD clinics compared those initiating dialysis with a CVC against patients with an existing fistula or graft. The CVC group experienced double the rate of GFR loss in the 6 months preceding dialysis compared with the fistula/graft group (5). These studies imply that a sizeable portion of patients, irrespective of predialysis nephrology care, may not have access to adequate preparation due to sudden rapid GFR

decline. Such individuals require “rescue therapy” in their first weeks and months of dialysis to navigate what has been rightly described “the trauma of dialysis initiation” (6,7).

## Goals of Transitional Dialysis Care

Transitional dialysis care, referring to the medical and psychosocial support provided during the peridialysis initiation period, may take many forms from simple programs where designated staff provide focused chairside education to physically separate dialysis units providing broad support services. Although terminology is still evolving, specialized units dedicated to the needs of incident patients may be termed “transitional care units” (TCUs). These units share many characteristics with existing home training programs, and therefore, many goals of a TCU will already be familiar to clinicians.

- Gentle medical stabilization of the patient who is new to dialysis
- In-depth education on modality, nutrition, and financial aspects of ESKD
- Provide emotional and psychologic support
- Provide a welcoming environment and education for caregivers/partners
- Provide “patient navigation” services to facilitate multiple appointments, such as access and transplant
- Provide a supportive, low-risk environment to sample home therapies

Although patient-centered goals have been the primary driver for establishing TCUs, in the era of value-based care, these units may also represent a cost-effective quality improvement intervention. This is accomplished by adopting proven elements of existing programs, such as checklists, patient navigators, teaching methods, *etc.*, and placing them under a single geographic and programmatic “roof.” In doing so, it is possible a TCU model can attain similar quality improvements, such as

- Decreased access placement latency times
- Improved transplant referral timing and volume
- Improved adoption of home therapies
- Decreased hospitalizations and mortality

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A typical transitional care program may last 4–8 weeks and involves all members of the interdisciplinary care team providing scheduled chairside teaching and enhanced educational activities. At program conclusion, patients should emerge with an understanding of all aspects of their disease, allowing for truly informed decisions in areas such as modality and transplant. Early support interventions have the potential to reduce disparities in home therapies and transplant by reducing provider modality bias in favor of patient choice.

### Historical Perspectives on Transitional Care

The first documented example of a TCU (established as the “Dialysis Orientation Unit” at NWK) brought together distributed patient care activities and work flows. The goal was to “rehabilitate the patient,” promote self-care, and allow the patient to attain a quality of life as close as possible to their pre-ESKD self (1). The program featured a physically separate unit, high staff-to-patient ratio, and close collaboration with the home training group. Unit staff members were selected not only on the basis of clinical skill but also on the ability to empathize and educate. Primary nursing was a focus, with a now hard to imagine 1:2 nurse-to-patient ratio. All new patients began in the orientation unit—no cherry picking was allowed. In the first year, 93 patients completed the training curriculum and spent an average of 9 weeks in the program. Results were impressive: 62% of patients transitioned to the home dialysis training unit; 24% of patients, unable or unwilling to dialyze at home, transitioned to “limited care”—similar to today’s “in-center self-care,” and only 10% joined the general in-center population (1). Over the next decade, more medically complex patients began to enter dialysis, and the early results proved difficult to maintain. However, before its closing in the mid-1990s, this early TCU example attained a still impressive 25% uptake rate of home therapies (1).

In the 2000s, large United States-based dialysis providers initiated dedicated quality improvement programs targeting incident patients. Although these programs included many elements of the dedicated TCU model, they did not use the separate physical plant component. Demonstrable improvements were observed in hard outcomes, such as access placement rates, hospitalizations, and mortality (8). Although modality education was a component of these programs, effects on home therapy uptake were not reported. In Canada, a number of hospital-based dialysis entities with a “home first” focus established TCUs with an emphasis on psychosocial support and meaningful modality education. One such example, Humber River Hospital’s TCU, reported results of 180 incident dialysis starts in a six-station dedicated unit. In their hands, home dialysis uptake rates more than doubled for participants in the TCU (56%) versus nonparticipants (21%) (9). More striking, patients with “unplanned” dialysis starts had a 50% home therapy uptake rate when funneled through the TCU.

Today in the United States, TCUs are just beginning to take root, with only anecdotal outcome data available. One such program at Satellite Dialysis, termed “Optimal Transitions,” has described early results. Their TCU uses traditional education and psychosocial support program

pillars but adds a new element—a 5-day per week dialysis schedule using home dialysis machines to provide a gentler break-in experience (10). The final weeks of the program conclude with a dedicated “self-care” phase, where patients are given hands-on training and time to experiment with home dialysis therapy.

### Conclusions

Aside from transplantation, there is currently no single intervention in kidney disease that is as impactful as improving the transition from CKD to ESKD. Despite recent improvements in referral timing and the overall proportion of patients receiving pre-ESKD care, a substantial population of patients remains vulnerable to poor health outcomes and is deprived of meaningful modality choice at dialysis initiation due to lack of adequate support and education. A TCU provides the framework to both medically and emotionally support these patients. These units stitch together multiple proven interventions to provide a supportive medical home. Operationally, transitional units can scale as needed. A dialysis clinic with low-incident patient volumes may dedicate as few as one to two stations to transitional care and easily handle a year’s worth of incident patients. Although the intervention is intensive from the patient perspective, the program is limited to a unit’s new patients only. Staff and physicians are not overwhelmed by wholesale changes to dialysis operations, like those seen in more complex alternative payment models. The expected increased time commitment for the physician is akin to a couple of extra clinic visits per week.

However promising early TCU results may be, clinical trials remain necessary to justify upfront investments in such units. Increases in home therapy adoption seem the most assured outcome; however, larger study populations are required to show improvements in hospitalization rates, mortality, and access placement. By bringing incident patients, providers, and proven interventions together in one location, the TCU model may prove greater than the sum of its parts.

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### Disclosures

Dr. Bowman is the principal investigator on a proposed multisite trial of the effect of the transitional care unit concept. NxStage Medical Inc. has agreed to provide data hosting for this trial. All other expenses are self-funded by the participating units.

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