

Thinking outside the box—identifying patients for home dialysis

Brigitte Schiller^{1,2}, Hayley Munroe¹ and Andrea Neitzer¹

¹Satellite Healthcare, Department of Research, San Jose, CA, USA and ²Department of Medicine, Division of Nephrology, Stanford University, School of Medicine, Stanford, CA, USA

Correspondence and offprint requests to: Brigitte Schiller; E-mail: schillerb@satellitehealth.com

Abstract

Home dialysis modalities are underutilized in the USA with only 8% of the dialysis patients undergoing renal replacement therapy at home versus 92% being treated with center hemodialysis. This is in contrast to the nephrology professionals' opinion about the best dialysis therapy and their potential choice in the hypothetical situation of choosing a dialysis modality for themselves. Pre-dialysis education changes the distribution of dialysis modality significantly, as 50% of informed patients choose home dialysis. Close collaboration among nephrology professionals, patients and providers is required to make home therapy a reality for any interested patient.

Keywords: Home dialysis; modality options; pre-dialysis education; WellBound

Chronic kidney disease education and dedicated home dialysis centers—a new model in the USA

Pre-dialysis education has been shown to provide patients with a better understanding of modality options, resulting in up to 50% of them choosing a home therapy [5, 6]. Satellite Healthcare/WellBound is a northern California-based non-profit dialysis provider operating free-standing, patient-friendly centers where chronic kidney disease patients Stage 3–5 are educated on all dialysis options, including PD, HHD, center HD and transplantation. Education is offered in both group and one-on-one teaching sessions by certified nephrology nurses as well as through a patient-to-patient mentoring program. Patients receive comprehensive renal care including access to 24/7 clinical and technical support. To date, WellBound has established a network of 18 'Centers of Excellence' US wide, providing home dialysis care to about 1000 patients. Seventy-eight percent of all Satellite Healthcare Inc. patients undergo center HD and 22% are treated with home dialysis modalities. This represents the highest home penetration among US dialysis providers and is three times the national average.

Indeed, this experience has confirmed published data [5, 6], with 46% of patients who are given education on modality options at WellBound choosing a home therapy (internal data). Among those patients, 80% went on PD and 20% on HHD. Patients on HHD are slightly younger (57 ± 13 years) and have been on dialysis for a longer time than the average center HD patient (vintage HHD 5 ± 5 , center HD 4 ± 4 years). More Asians and more incident patients choose PD, while HHD is predominantly selected by males and prevalent center HD patients (current internal demographic data).

WellBound initially experienced robust growth, however, after the first few years, home modality patient census appeared to stagnate. Had the maximum number of patients suitable for home therapies been reached? Was further increase limited because of varying practice patterns by referring nephrologists who appeared to separate into 'believers and non-believers'? To better understand the renal professionals' perception regarding the most beneficial RRT, a questionnaire was sent in 2009 to referring physicians and caretakers in the dialysis facilities, both home and center dialysis. They were presented with the hypothetical situation of being an ESRD patient and asked which RRT

Home therapies in the USA

Home hemodialysis (HHD) was introduced in the USA in the early 1960s when logistic and financial limitations made this modality the primary solution for treatment of end-stage renal disease (ESRD). Thrice weekly hemodialysis (HD) for 6–8 h was the typical dialysis schedule. In 1973, when the Medicare ESRD Program was established providing treatment for all patients suffering from ESRD, there were 7500 dialysis patients, and 35% of them were on HHD [1]. Continuous ambulatory peritoneal dialysis was described in 1976 [2]. Peritoneal dialysis (PD) was used as an alternative modality in the 1980s, reaching its peak around 1993 with 15% penetration in the USA [3]. Today, this distribution has drastically declined, with only 8% of the dialysis patients undergoing renal replacement therapy (RRT) at home (PD: 6.9%, HHD: 1.0%) and 92% being treated with center HD per US Renal Data System (USRDS) data from 2008 [3].

This distribution pattern would lead one to believe that the nephrology community considers center HD the best RRT. However, when asked about the best maintenance dialysis therapy in a 2008 international survey by Ledebro [4], 22% considered PD and 34% HHD-hemodiafiltration the best options. This disparity between belief and reality should make us pause and reconsider how we approach care for our patients.

they would choose for themselves. The responses of both Satellite and WellBound referring nephrologists and nurses were in line with the data published by Ledebro [4]. The vast majority would choose either HHD (daily or nocturnal) or PD as the best initial and long-term dialysis modality for themselves [7]. Only 6% or less would choose conventional center HD—the modality currently used by 92% of ESRD patients nationwide. When asked how many patients they estimated were capable of performing home therapies, >60% of the nephrologists and nurses responded that 10–30% of the patients could perform HHD and 20–50% of the patients were capable of PD.

Responses to the question, ‘Who do you think makes the decision about modality?’ varied among the renal professionals. Fifty-seven percent of the physicians stated that the patient makes the modality decision, while only 19% of the nurses confirmed this perception; 47% of the nurses felt that the nephrologist makes the modality choice. However, agreement was reached that the patient or patient and care team ‘should’ drive the modality choice. These results highlight an apparent incongruity between the way modality options are perceived among professionals and the way they are advocated to patients. One possible missing link between the reality of the dialysis modality distribution to date and the desirable increase in home dialysis penetration appears to be the primary caretaker, the nephrologist.

Furthermore, modality distribution varies greatly among WellBound centers. HHD penetration on the facility level varies from 9 to 50%, with the remaining patients being treated with PD. The wide range of modality distribution by centers likely reflects a degree of bias on the caretaker level. As modality education modules are standardized throughout the organization, educator bias based on personal experience and expertise may contribute to subjective presentation of option classes and influence patient decision-making.

Alternative pilot initiatives

The Conditions for Coverage finalized by Centers for Medicare & Medicaid Services in October 2008 mandate the dialysis providers’ responsibility for increasing patient awareness of home dialysis options: ‘The patient has the right to be informed about all treatment modalities’ [8]. When home dialysis is a suitable choice for a patient, facilities are expected to support the patient to make this modality choice a reality. The Conditions also mandate that the reason a patient is not a home candidate must be documented in the patient’s record.

Two additional initiatives have therefore been piloted within our organization—patient awareness days and one-on-one home therapy patient education. The awareness days are interactive sessions held in the dialysis units and offered to center HD patients providing an opportunity to learn about home dialysis. To date, 15% (77/503) of patients undergoing HD in four centers where awareness days took place showed interest. Upon further evaluation of these patients, 9% (7/77) started a home dialysis therapy. Pre-existing medical conditions were the main reasons preventing patients from switching to a home modality. One of the four centers with awareness days experienced remarkable success

with 44% (18/41) of patients showing interest in home dialysis modalities and 17% (3/18) starting on HHD. The difference in this setting was that the Medical Director and/or referring physicians advocated the initiative resulting in better recruitment outcome compared to the initiative being driven primarily by the dialysis provider.

For the one-on-one education, stable English-speaking prevalent center HD patients aged 18–65 years were pre-selected. Exclusion criteria were dementia, blindness, living in a nursing home and inability to perform activities of daily living. The patients were approached about home dialysis therapies while undergoing center HD. In case of interest in these alternative therapy options, patients received videos and written information about HHD and PD to take home for review. A follow-up visit occurred ~1 week later. Of 125 patients approached, 51% (64/125) instantly declared no interest for home/self-care dialysis because they either were satisfied with the center HD therapy or were afraid of doing the treatment on their own. Almost 50% (30/61) of the patients who showed interest in PD or HHD decided to remain on center HD mainly due to the lack of a proper home environment/partner or due to medical reasons. Of the patients participating in one-on-one education, 3% (4/125) eligible for a home dialysis therapy chose to ‘go home’. One patient started PD, one HHD and two patients are about to be trained for HHD. Although this program

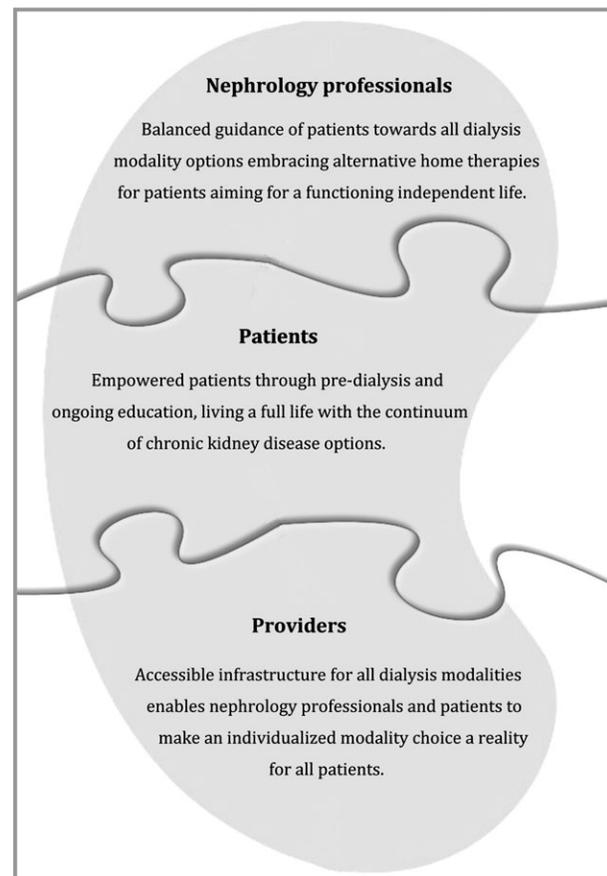


Fig. 1. Paradigm shift: the three critical elements to make home therapy a reality for any interested patient

results in only single patients switching to home therapies, it offers another recruitment tool for home modalities.

These first experiences aiming to increase home penetration further emphasize that in order for home therapies to be more widely embraced, a paradigm shift among nephrology professionals is needed! If medical outcome is the final argument, the distribution of RRT requires some adjustment. Survival in nocturnal HHD compared to a case-mix adjusted matched cohort of USRDS patients is comparable to patients receiving a kidney transplant, the gold standard for ESRD patients [9]. Mehrotra [10] showed similar outcomes of patients on HD or PD starting therapy between 2002 and 2004, defusing the perception that PD is a less desirable therapy. With cost comparison favoring PD over center HD [11] and the forthcoming prospective payment system in the USA starting in January 2011, home modalities are likely to experience a re-emergence in the USA.

Unmistakably, in a world where clinical and economic needs appear to be more aligned, it will require intense collaboration between physicians, patients and providers to enable a reality where every patient who is interested in doing home therapies will be given the opportunity and support required for successful outcomes (Figure 1).

Conflict of interest statement. None declared.

References

1. Bryan FA Jr. *Final Report, June 1967–August 1967. The National Dialysis Registry: Development of a Medical Registry of Patients on Chronic Dialysis. Report No AK-8-7-1387-F. Health System Research Center for Health Studies.* Research Triangle Institute, Research Triangle Park, NC, 1976
2. Popovich RP, Moncrief JW, Decherd JF *et al.* The definition of a novel portable/wearable equilibrium peritoneal dialysis technique. *Trans Am Soc Artif Intern Organs* 1976; 5: 64
3. U.S. Renal Data System. *USRDS 2010 Annual Data Report. Atlas of End-Stage Renal Disease in the United States.* Bethesda, MD: National Institutes of Health, National Institute of Diabetes and Digestive and Kidney Disease, Division of Kidney, Urologic and Hematologic Diseases. Table D1, 2010
4. Ledebro I, Ronco C. The best dialysis therapy? Results from an international survey among nephrology professionals. *NDT Plus* 2008; 6: 403–408
5. Prichard SS. Treatment modality selection in 150 consecutive patients starting ESRD therapy. *Perit Dial Int* 1996; 16: 69–72
6. Little J, Irwin A, Marshall T *et al.* Predicting a patient's choice of dialysis modality: experience in a United Kingdom renal department. *Am J Kidney Dis* 2001; 37: 981–986
7. Schiller B, Neitzer A, Doss S. Perception about renal replacement therapy among nephrology professionals. *Nephrol News Issues* 2010; 24: 36–44
8. *ESRD Program Interpretive Guidance: 42 CFR Part 494 Conditions for Coverage for ESRD Facilities.* Baltimore, MD: Department of Health & Human Services, Center for Medicaid and State Operations/Survey & Certification Group, Ref: S&C-09-01, 2008
9. Pauly RP, Gill JS, Rose CL *et al.* Survival among nocturnal home haemodialysis patients compared to kidney transplant recipients. *Nephrol Dial Transplant* 2009; 24: 2915–2919
10. Mehrotra R, Chiu YW, Kalantar-Zadeh K *et al.* Similar outcomes with hemodialysis and peritoneal dialysis in patients with end-stage renal disease. *Arch Intern Med* 2010, doi:10.1001/archinternmed.2010.352
11. U.S. Renal Data System. *USRDS 2010 Annual Data Report. Atlas of End-Stage Renal Disease in the United States.* Bethesda, MD: National Institutes of Health, National Institute of Diabetes and Digestive and Kidney Disease. Division of Kidney, Urologic and Hematologic Disease, 2010. Figures 11.6 and 11.7