3 Workforce Development and Models of Care in Home Hemodialysis

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Abstract

Creating and maintaining a successful home hemodialysis (HD) program is highly dependent on the workforce model and quality of staff. We describe the minimum staff required to start a home HD program (eg, a clinical champion and lead nurse) and detail what additional workforce (eg, renal technician, dietitian, psychologist and others) may be necessary as the program evolves and expands. The goal of the program and allied staff should be to provide a seamless patient journey, a process that requires consideration of a patient recruitment strategy, a patient training pathway, thoughtful initiation of home HD, and development of support systems for routine care and emergencies at home. This module describes how care models are implemented at centers of excellence in various locations around the world, highlights the importance of an integrated care pathway, and describes workforce challenges that programs may encounter.

Introduction

Successful launch and self-sustaining maintenance of an effective home hemodialysis (HD) program depends on a team of professionals with particular expertise and specific skill sets to ensure the best care for patients undergoing HD. Typically, large and successful centers have a well-defined care model delivered by dedicated staff skilled in patient training, monitoring, and support.[1,2] For a care model to be successful, active participation, collaboration, and willingness to be flexible in the face of change are all essential attributes of team members. Home programs can only succeed with a motivated and caring workforce. This module focuses on how to organize such a team to successfully deliver home HD therapies.

The team structure and organization typically develop in stages and evolve over time as the program expands and becomes more established. The profile of the workforce can change with respect to staff members, the variety of skills, and operational responsibilities. At the outset, however, the program has to be led by a clinical champion and a lead trainer, and supported by clinicians, technicians, social workers, community support staff, and an administrator. As the program grows, other key personnel may be required to support patient pathways. The attributes of individuals within these roles are fundamental to the program's success, and they consist of a combination of generic and specific skills for home HD.

Workforce Development

Phase 1

Clinical champion — is a key individual, often at the epicenter of a vibrant and successful home HD program. The program needs a designated individual in charge—from the outset—and can be any one of the following: a dialysis physician, nurse, technician, clinical director, or departmental head. The 2 essential attributes of this individual are: (i) a passion and strong belief in home HD and its benefits in patients with end-stage renal disease, and (ii) leadership skills, with a clear vision and strategy for developing a successful care model.

Sufficient knowledge of the local kidney disease network and its infrastructure is desirable. Other roles for this individual would include the development of a quality assurance and governance framework for care delivery. This individual is a key player in establishing the model, and is often instrumental in energizing the workforce through building confidence, morale, and support for both junior and senior members on the team

Lead trainer / home HD nurse lead — is responsible for setting up a patient training program in home HD. Essential attributes include:

- Sound practical knowledge of HD combined with a passion to teach and empower

- Strong belief in the philosophy of self-care and in the benefits of home HD
- Good communication skills, including an understanding of adult learning techniques and an ability to speak the local language(s)
- Leadership and organizational skills

This individual in this role often takes the lead in the development of policy, procedures, and training pathways, and engages in and promotes staff development opportunities for all team members, including nephrologists, primary care physicians, technicians, in-center staff, and chronic kidney disease (CKD) nurses and trainees. Knowledge and skills in both peritoneal dialysis (PD) and home HD could be particularly useful in integrating home therapies into the care model.[3] In the United States, the Centers for Medicare and Medicaid Services provide regulations for home HD nurses.

Physician/nephrologist — a dialysis physician with an interest in and passion for promoting home HD, with expertise and experience in clinical management of patients on dialysis. Other attributes include skills in quality improvement and the ability to work in an interdisciplinary environment. He or she does not have to be senior member or a newly appointed nephrologist.

Dialysis technician — is the lead in HD equipment and technical support, installation, and maintenance. Typically this individual is an HD technician or engineer with an understanding of the machines used in home HD. Specific skill sets include knowledge of equipment maintenance and water quality issues with home HD, participation in the on-call service rotation, and an ability to perform home assessments and modifications to patients' dwellings to accommodate home HD. The ability to interact with patients and work with interdisciplinary staff can have a positive impact on patients' experience with home HD. Close collaboration and liaison with equipment manufacturers is the key to successful machine maintenance programs. The home HD centers may have their own technician or have a contract with dialysis machine manufacturers for technical support.

Renal social worker — plays a key role as a patient advocate with experience and knowledge in dealing with complex social issues for dialysis patients. For patients and care partners considering home HD, as well as those already undertaking treatment, the renal social worker is a valuable resource. This role is unique in that it provides support and assistance necessary to address patients' practical, emotional, social, financial, and psychological needs. Individuals in this role will be part of an interdisciplinary team and should work closely with patients to address and resolve their specific issues. Renal social workers perform statutory duties and responsibilities in accordance with social care legislation and framework, including assessments for at-home risk, community care needs, and care partner needs. Renal social workers are specialist advisors who are in fact healthcare liaisons, representing patients with specific needs and referring them to organizations and professionals, health and local authority services, housing organizations, benefits organizations, education establishments, employers, and other specialist services. Members of the medical team often refer patients who need such support to enable them to pursue home HD as a treatment option.

Renal social workers also play a supporting role in locations where HD patients may have less contact with community resources, and where care partners may feel more isolated in their role. Care partners frequently contact renal social workers for support and are encouraged to do so at any time. Through the renal social worker, patients and their care partners can continue to access information, get advice, request assistance, and obtain further support as they develop different needs or circumstances change.

Patient care technicians/healthcare assistants/community nurses — are patient advocates with good practical knowledge of HD. Key attributes include the ability to work both independently or on a team, travel to patients' homes, and participate in remote helpline/support and on-call services for home HD patients. Staff must proactively support the use of home HD and have some understanding of the benefits of at-home treatment. The ability to deal with issues between patients and care partners with sensitivity is a desirable attribute. The role

of non-nursing support staff is limited in many countries and therefore may have little impact on a home HD program.

Home HD administrative assistant/secretary or manager — is responsible for management of logistics (eg, clinic, supplies, deliveries), activity log, and billing. Often, he or she will act as the central coordinator of operations and therefore will need to communicate and maintain close links with staff, and may also have to liaise with patients at home.

Dietician — is a person knowledgeable in HD and nutritional issues, with an awareness of the benefits of home HD and its impact on nutritional management. Requisite skill sets should include the ability to adapt and adjust dietary requirements with patients' variable HD schedules at home.

Phase 2

As the program expands, the clinical outcomes and patient benefits are often sufficient incentive to keep the staff committed to the provision of home HD. The workload eases to some extent as staff gains experience, but workforce expansion is necessary to meet demand. The staff needs to have a greater understanding and ability to train, support, and engage with challenging HD patients, while at the same time addressing their complex training needs and directing them to the support available in the community.[3] Additional expertise in dealing with issues of treatment burden and its complications is of paramount importance to sustain and further develop the program. The 2 phases of workforce development should be in continuum and may require overlap for seamless growth and development of the program. In Phase 2, there may be a need to draw on additional skills and personnel such as:

- *Additional training and support nurses* — who can either be seasoned or younger/new nurses. These team members must meet the same criteria and specific skills to complement the program, such as demonstrating a practical knowledge of dialysis, assisting in cannulation training, performing assisted dialysis for those patients in need, and exhibiting a passion to teach and empower
- *Outreach link educator* — who develops an outreach model and clinical interface with other patients and treatment modalities such as those patients who are on PD or in-center HD, individuals failing transplant, and patients with CKD stage 4 or 5
- *Expert patients* — who provide peer support to other patients and staff, before, during, and after training (see "Psychosocial Issues and Support in Home HD" module)
- *Psychologist or counselor* — an important member of the interdisciplinary team who addresses psychosocial issues and patient burden in home HD patients and their care partners

Workforce Challenges

Given the general shortage of dialysis workforce available to meet demand, adequate staffing—particularly acquiring those with adequate home HD skills—can be a formidable challenge in care delivery. A successful strategy could be to integrate or restructure care teams in allied therapies by having the same individuals overlap between modalities, such as PD and home HD (ie, grouped home therapies), or even between in-center HD and home HD. However, it is important that this strategy reinforces rather than reduces the overall skill base of the team. Investing in a self-sufficient home HD team should be considered an essential first step before an integration or overlap with other modalities. The specific expertise relevant to the home HD program must also be well-defined at the outset and have dedicated time set aside for these overlapping positions, depending on the activity of the program. It may also be advisable to delineate the program activity in different areas and adjust staff time to match the workflow.

Expansion of the home HD program can lead to increasing demand in the support of vascular access and self-cannulation. Home access support needs to be carefully monitored so that adequate staff is available to continue with the development and care of patients in the program (see "The Care and Keeping of Vascular Access in Home HD Patients" module).

Workforce and Models of Care

Almost certainly there will be geographical differences in staffing.[4] In many countries, registered nurses are employed extensively (eg, Canada, United Kingdom) and less so in others (eg, United States). The proportion of registered nurses with specific renal qualifications also varies by region.[5] Staff-to-patient ratios in dialysis units vary greatly by region and organization, especially where there is variation in the prevalence of home therapies. Typically, a caseload of 20 to 25 patients is managed per registered nurse for home HD patients, but support at home can be variable due to substantial challenges in scheduling and coverage arrangements. The need for other allied health professionals also varies between countries depending on local practice, care delivery patterns, and the specific duties performed within these positions. Activities such as water sampling are typically performed by the technician, but in some centers, nurses and patients may be trained to undertake some monitoring procedures. The type of machines used and arrangements with the dialysis provider and manufacturer determine the need for workforce such as renal technicians. Typically, 1 full time renal technician is required to fully manage a program of 50 home HD patients.

Another challenge includes the ability of staff to support patients who are not proficient in the local language. The program must allocate enough resources to allow staff to be equipped to communicate with such patients, either through outside training, use of translators, or hiring of multilingual staff.

As the program grows to a sizeable patient population, case mix and comorbidities are likely to increase, which will impact the staffing ratios required to care for home HD patients. Staff must be well-versed in dealing with issues of nonadherence, difficult home situations, and changes in social circumstances that impact treatment. It is possible to build such expertise over time; however, buddy schemes or links with mentor programs may help staff learn to address some of these challenges. An effective model could be developed to include a range of mature programs that partner with and support staff in newer programs, providing guidance and encouragement on the management of these challenges. A similar buddy or mentor approach can be used within a program for training new or junior staff members, including rotational training schemes within the workforce. Such initiatives can be the key to achieving and sustaining growth of home HD programs.

Important issues to consider during program growth are education, training, and management of workflow. Observing how patients benefit in terms of lifestyle and clinical goals can be a rewarding experience for the staff; however, achieving these results can be labor-intensive with regard to patient monitoring, unscheduled visits, and addressing patient challenges, including clinical issues that result from home and family circumstances. These challenges can lead to staff and patient stress and burnout, if adequate support and resources are not made available.

Lack of support in the community can also be an isolating experience for staff, as home therapies are less visible than in-center programs, and community members may not understand or be aware of the therapy. Rotational training programs, a mix of junior and senior staffing in home care teams, and integration with in-center program staff are methods that can be employed to integrate the workforce across modalities. It is crucial that senior members support junior members and make themselves available as mentors to answer queries, provide guidance, and help solve problems. The key domains of workforce challenges to consider are depicted in Figure 1.

Key Workforce Challenges

Home Support	Patient Training	Transitioning Patients	Technical Support	Staff Training
• Difficult or changing home, social, or family setting • Coordination with in-center program • Unscheduled visits • Nonadherence	• Language (non-native) • Complex training needed • Training comorbid or complex patients	• Training to home dialysis • PD to home HD • Home to in-center HD • Failing transplant to home HD	• Cannulation • Medical issues • Dialysis disruptions • Retraining issues • Clinical governance • Helpline	• Adequate knowledge • Resourcing and allocation • Confidence • Support

Figure 1. Domains for workforce challenges.
HD = hemodialysis ; PD = peritoneal dialysis.
See "Psychosocial Aspects in Home Hemodialysis: A Review", "The Care and Keeping of Vascular Access for Home Hemodialysis Patients", and "Patient Selection and Training for Home Hemodialysis" modules.

Models of Care at Home

A Typical Care Model in Home HD Center of Excellence

An efficient home HD care model should aim to provide a seamless patient journey that is personalized, evidence-based, safe, and effective. The essential steps to consider in the patient care pathway when developing a care model are[6]:

1. Recruitment strategy and treatment pathway for all patients with CKD stage 5, including those who are not on dialysis, are on other dialysis modalities, and those who have received a kidney transplant approaching end-stage renal disease (see "Cultivating Suitable Patients for Home Hemodialysis" module).
2. Training module and pathway (see "Patient Selection and Training for Home Hemodialysis" module).
3. Treatment commencement at home with continued clinical and nursing support while the patient is on home HD.
4. Patient support systems for routine care and for clinical and technical emergencies at home (see "Ensuring Patient Safety During Home Hemodialysis" module).

Typically, the dialysis provider will either provide home HD services or will arrange onward referral to another unit that offers such services.[7] The number of staff required, monitoring schedules, and interdisciplinary team meetings are determined

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Table 1. Comparative Care Models in Centers of Excellence

	Location				
Key Elements	**Brussels[a]**	**Manchester[b]**	**Geelong[c]**	**Hong Kong[d]**	**United States[e]**
Patient Visits					
Home Assessment (by whom)	Team approach (nurse/tech/ patient)	Team approach (nurse/tech/ patient)	Team approach (nurse/tech/ patient)	Team approach (nurse/tech/ patient)	Team approach (nurse/tech/patient)
Home Assessment (timing)	Start of training	At the time of modality decision	At the time of modality decision	Start of training	Varies. May be at time of modality decision to during training
Machine Location at Home	Decision in consultation with the patient and partner	Decision in consultation with the patient and partner	Decision in consultation with the patient and partner	Decision in consultation with the patient and partner	Decision in consultation with the patient and partner
Home Visits	Day 0, Month 1, then 3 visits per year, or as necessary	First week, month 1, then at least 3 visits per year, and then as necessary	At start of home HD and then as necessary	In the first 3 months, then as necessary	On first day home after training completed, and then as needed
Clinic Visits	Every 6-8 weeks	At 1 month and then every 3-6 months	Every 6-8 weeks	Every 6-8 weeks	Monthly

by the scale of each service and its stage of development. The provider will manage referrals in line with any relevant national or local guidelines or recommendations. The regulations, requirements, and infrastructure will vary from country to country, as well as from state to state. Patient training may be provided through 1 of a variety of geographical location options including in-center care facilities, community house centers, stand-alone facilities, or in the patient's own home.[8] The infrastructural setup will also depend on existing capabilities, patient populations, local utilities, and service delivery arrangements (eg, single-center model, health network, or regional care models) (see "The Home Hemodialysis Hub: Physical Infrastructure and Integrated Governance" module). The following section describes exemplar care models and interlinked support structures used in 5 home HD centers of excellence, including the variances that exist (if any) between these successful and comparable care models (Table 1).

Large, successful programs are often based on an integrated interdisciplinary team responsible for all self-care modalities: PD, home HD, and a self-care HD satellite unit. The nurses are cross-trained for all treatment modalities.

The following describes a service configuration and practical considerations in a typical center of excellence, including patient support and follow-up, logistics, technical support, and advantages and disadvantages. It has been adapted from the model used at University Hospital St Luc in Belgium, which has a home HD prevalence of 50 patients.

Table 1. Comparative Care Models in Centers of Excellence (cont'd)

	Location				
Key Elements	**Brussels[a]**	**Manchester[b]**	**Geelong[c]**	**Hong Kong[d]**	**United States[e]**
Patient Visits					
Respite and In-Center Backup (cannulation, retraining, complications, burnout, etc.)	Yes, facility based	Yes, in home training unit and in-center facility	Yes, in home therapies unit	Yes, facility based	Yes, in home training unit
Correspondence (communication, dialysis log sheets, and blood samples)	Monthly	Every 3 months (combined with a home visit/review), monthly in-center interdisciplinary team review	Monthly, blood samples every 6 weeks	Dialysis logs and blood samples monthly, biweekly case meeting	Dialysis logs monthly, laboratory evaluations monthly
Logistics					
Deliveries at Home	Monthly	Monthly	Every 1-2 months	Monthly	Monthly

Patient Support and Follow-Up

- *In-center dialysis backup.* Backup dialysis sessions in the unit are often necessary due to burnout, cannulation problems, medical complications, technical issues, retraining requirements, and other concerns. A minimum of 1 machine per 20 patients at home may be necessary for in-center dialysis as backup
- *On-call service.* On-call nursing support is mandatory and can be provided 24 hours a day, 7 days per week. Internet communication and telemedicine tools (eg, Skype) can also be used to communicate with patients
- *Outpatient clinics.* Every 6 to 8 weeks, the patients come to the clinic to be seen by the nephrologists, nurses, and, if needed, by the dietician and social assistant/social worker
- *Home visits.* A home visit is organized for the start of the first HD session and after 1 month of home treatment. Later visits are scheduled according to the wishes or needs of the patients with an average of 3 per year. During the visit, emergency procedures are reviewed and patients are retrained, if necessary
- *Correspondence.* On a monthly basis, patients send in their dialysis log sheets (per mail, email, or fax) and pre- and post-dialysis blood samples for testing (patients are provided with a centrifuge for home use and special envelopes to protect the vials). Overall frequency of communication and clinic visits can vary depending on the patient's level of experience and overall health

Table 1. Comparative Care Models in Centers of Excellence (cont'd)

	Location				
Key Elements	**Brussels[a]**	**Manchester[b]**	**Geelong[c]**	**Hong Kong[d]**	**United States[e]**
Logistics					
Waste Disposal	Monthly collection with deliveries	Monthly in line with local council regulations and arrangements	Monthly collected by the local councils	Disposed of with regular household waste in well-sealed double plastic bags. Sharps in hospital sharp boxes sent back to unit for disposal	NA
Technical Support					
Installation (plumbing, electrical)	Own tech team	Own tech team includes buildings manager	Own tech team	Techs (supplier) and external contractor	Tech
Equipment Maintenance (machine, reverse osmosis, water softener)	Own tech (assistance from company technicians)	Own tech (24/7 on-call for emergencies)	Own tech (aim to rectify issues within 24 hours)	Tech (supplier)	Tech or dialysis vendor

Logistics

- *Supply deliveries.* Monthly delivery of disposables, disinfectants, and salt for the water softeners are made to patients' homes. The packages of supplies for individual patients are prepared in the center's own home dialysis warehouse
- *Waste disposal.* The collection of the dialysis waste in special, sealed containers is picked up at the same time monthly deliveries are made. The delivery van is adapted with 2 compartments to separate the delivery materials from the waste products

Technical Support

- *Assessment of the home.* This is performed by nurse and technician before or at the start of the patient's training. In consultation with the patient and care partner, the decision of where the dialysis machine will be installed is made
- *Plumbing and electrical changes.* All plumbing and electrical wiring needed for dialysis is installed and managed by the technician
- *Equipment maintenance and repair.* The dialysis machine, reverse osmosis device, and water softener are maintained and repaired by the technician. On weekdays, technical problems are resolved within 24 hours. Assistance from dialysis company technicians is used as needed

Table 1. Comparative Care Models in Centers of Excellence (cont'd)

	Location				
Key Elements	**Brussels[a]**	**Manchester[b]**	**Geelong[c]**	**Hong Kong[d]**	**United States[e]**
Technical Support					
Water Sampling	Quarterly by the tech, delivery driver, or nurse during a home visit	Every 4 months by tech during a home visit	Every 6 weeks (water chlorine testing daily prior to dialysis)	Quarterly by the supplier's tech or patients.	AAMI water analysis prior to starting home HD treatment
On-Call Nursing and Technical Support	24/7	24/7	24/7	24/7	24/7

[a]University Hospital St. Luc, Brussels, Belgium; [b]Central Manchester University Hospitals NHS Foundation Trust, Manchester, UK; [c]The Geelong Hospital, Barwon Health, Geelong, Australia; [d]Queen Mary Hospital and Princess Margaret Hospital, Hong Kong, Special Administrative Region of the People's Republic of China; [e]Barnes-Jewish Dialysis Center, St Louis, Missouri, USA.
Tech = technician; HD = hemodialysis; NA = not applicable; AAMI = Association for the Advancement of Medical Instrumentation.

- *Water sampling.* Performed quarterly by the technician, delivery driver, or nurse during a home visit

Key Advantages

- Nurses become real experts in training patients for self-care dialysis
- Less staff and space needed
- Only 1 on-call service is needed (1 nurse is on-call for both home HD and PD patients)
- Home visits of HD and PD patients can be combined
- Outpatient clinics can be combined
- Patients who change dialysis modality (ie, PD to home HD) are still in partnership with the same interdisciplinary team in a collaborative care model

Disadvantage

- Longer time is needed to train new nurses to become "expert" HD and PD nurses; however, this is easily compensated for by the care model's several advantages

Table 2. Allied Services in Home HD Care Model

Independent Services	Related Services
Medical and nursing coverage for emergencies	General practitioners and community services
Support at home by the community team	Specialist transplant teams
Technical support for equipment	Patient transport and delivery services
Surgery and interventional radiology	Estates and utilities
Psychosocial support	Environmental waste service
Pharmacy services and pathology	
Vascular access support services	
Nutrition and dietetic services	
Anemia management team	

Integrated Care Pathway

An integrated, multidimensional care model, fit for purpose with strong and well-defined links and interfaces with other existing modalities, can provide solid foundations for sustaining a large home HD program. Table 2 identifies key allied and interdependent services that may be involved in the care delivery. All models of care should develop links to transitional care (on a temporary or permanent basis) such as respite care, a vascular access management pathway, transplant program, and in-center HD support structures. Traditional segregation of these care processes has hindered growth of home programs.

Figure 2 demonstrates patients' journeys from early education and training to effective patient care delivered at 3 levels, each with clearly defined roles:

- Community- or home-based support led by a team of nurses
- Clinic review process that defines management plans
- In-center support dealing with emergencies that is responsive, immediate, and aimed at restoring patient's dialysis and home-based treatment needs at the earliest opportunity with minimum disruption to the patient's lifestyle

This care pathway is achieved by a team supported by an efficient administrative structure with appropriate links and pathways at transition points. The program must undergo a regular audit and quality assurance assessment of the pathway and its care indices to ensure best clinical practices and high standards within a defined care model.

Other Considerations

The workforce and infrastructure vary considerably in structure and working patterns between centers. The best practice would be to identify and implement the most productive ways to deliver an efficient model at the outset, and perform subsequent service design review at agreed intervals. Innovative care models focus attention on high-risk touch points in the care pathway. Slowly introducing incremental innovations when the program is doing well can help consolidate success in the care model.

The American Society of Nephrology Accountable Care Organization Task Force developed a set of principles for an integrated nephrology care delivery model.[9] Integrating complex dialysis care models will require incorporation of such holistic concepts in future care delivery. Specialty education for nurses is fundamental and needs to be effective in the practice of home HD.[10] Consideration should also be given to training an adequate number of nephrologists, accredited in the set up and practice of home therapies, to drive and sustain high-quality home HD programs in the future.

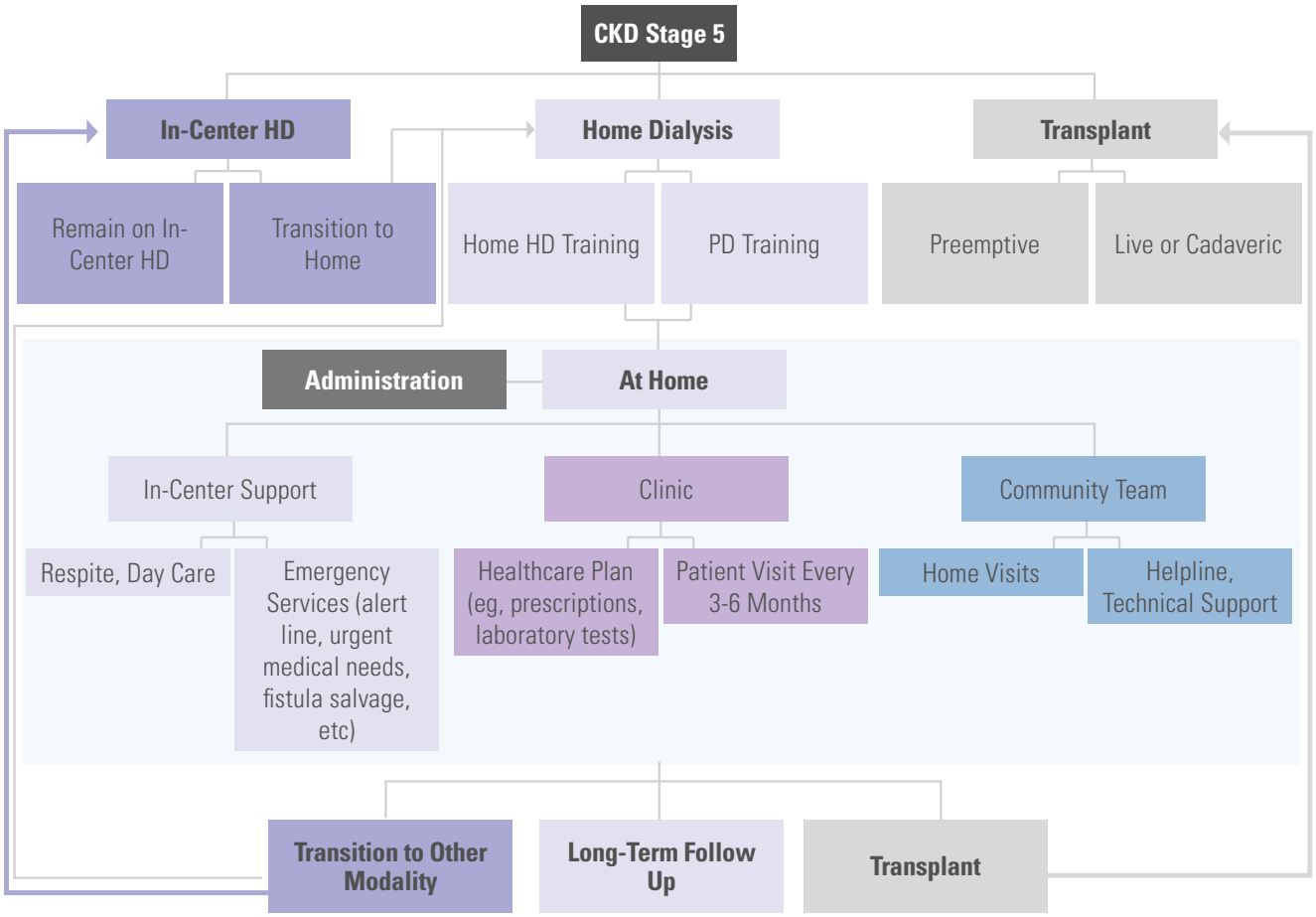

Figure 2. Integrated patient care pathway in home dialysis. CKD = chronic kidney disease; HD = hemodialysis; PD = peritoneal dialysis. Figure adapted from Greater Manchester East Sector Renal Network, UK.

References

1. Moran J, Kraus M. Starting a home hemodialysis program. Semin Dial. 2007;20:35-39.
2. National Institute for Clinical Excellence. Guideline TA48. Guidance on home compared with hospital haemodialysis for patients with end-stage renal failure. September 2002. Available at: http://guidance.nice.org.uk/TA48. Accessed June 20, 2014.
3. Peters A. Supporting and retaining nephrology nurses new to the peritoneal dialysis specialty. Nephrol Nurs J. 2013;40:21-23.
4. Murphy-Burke D, Haskett S, Sondrup B. Provincial organization: local implementation. (abstract) Hemodial Int. 2009;13:129-130.
5. Chow J, San Miguel S. Evaluation of the implementation of assistant in nursing workforce in haemodialysis units. Int J Nurs Pract. 2010;16:484-491.
6. National Health Service. Kidney Care. Improving choice for kidney patients: five STEPS toolkit to home haemodialysis. February 2010. Available at: **http://www.wmrn.co.uk/admin/resources/uploads/TOOLKIT:%20Improving%20Choice%20for%20Kidney%20Patients:%205%20steps%20toolkit%20to%20Home%20Haemodialysis.pdf**. Accessed October 14, 2014.
7. Mactier R, Mitra S, Boakes, S, et al. Renal Association Working Party on Home Haemodialysis final draft report 02.12.09. 2009. Available at: **http://www.wmrn.co.uk/admin/resources/uploads/TOOLKIT:%20Improving%20Choice%20for%20Kidney%20Patients:%205%20steps%20toolkit%20to%20Home%20Haemodialysis.pdf**. Accessed June 20, 2014.
8. Kidney Health Australia. A Model for Home Dialysis, Australia – 2012. Available at: **http://www.kidney.org.au/LinkClick.aspx?fileticket=BfYeuFvtJcI=&tabid=811&mid=1886**. Accessed June 20, 2014.
9. Hamm LL, Hostetter TH, Shaffer RN, ASN Accountable Care Organization Task Force. Considering an integrated nephrology care delivery model: six principles for quality. Clin J Am Soc Nephrol. 2013;8:682-686.
10. Polaschek N, Bennett PN, McNeil L. The Australian and New Zealand dialysis workforce survey in the international context. J Ren Care. 2009;35:170-175.