



## CKJ REVIEW

# Towards a better uptake of home dialysis in Europe: understanding the present and looking to the future

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## ABSTRACT

Use of peritoneal dialysis and home haemodialysis remains low in Europe, with the highest use in Scandinavian countries and the lowest in Eastern and Central Europe despite the advantages for people on dialysis and economic advantages for healthcare systems. This is partly due to the impact of the haemodialysis industry resulting in proliferation of haemodialysis units and nephrologist reimbursement related to use of haemodialysis. Equally important is the bias against home dialysis at both clinician and healthcare system levels. The underlying causes of this bias are discussed in relation to a mechanistic view of the human body, lack of compassion, failure to adjust dialysis provision for older age and frailty, proliferation of small dialysis centres, and complexity of decision-making and clinical care. For home dialysis to flourish, we need to foster a change in attitude to and vision of the aims of healthcare so that enabling meaningful activities of people requiring dialysis, as explored in the Standardized Outcomes in Nephrology initiative, rather than achieving biological numbers become the focus of care delivery.

**Keywords:** elderly, healthcare resources, home haemodialysis, peritoneal dialysis, shared decision-making

Europe is far from a homogenous region, with substantial differences in economies, geography, population demographics, language, culture and organization of healthcare delivery. Although there is some political and economic cohesion with 28 countries being members of the European Union, organization of healthcare delivery remains mostly individual country dependent. There are therefore inevitable differences in the organization and delivery of healthcare between countries. As shown in the Global Kidney Health Atlas 2023, the use of peritoneal dialysis (PD) in Europe is variable, but low [1]. This is the more remarkable as most nephrologists indicate they would choose PD or home haemodialysis (HHD) for themselves or their relatives [2–5].

Although the remit of this paper is to discuss how to optimize uptake of both PD and HHD, most of the available data relate to

PD as the predominant home dialysis modality. The number of people initiating chronic PD is 9 per million population (pmp) in Eastern and Central Europe and 21 pmp in Western Europe compared with 43 pmp in North America and Caribbean and 133 pmp in North and East Asia [1]. The principles underlying the barriers for a more optimal uptake of home dialysis have been well described in the recently published outcomes from the KDIGO Controversies Conference on Home Dialysis held in May 2021 [6]. Most of these barriers are quoted as stand-alone problems, and many concern items directly related to PD itself. However, while informative, such an approach fails to dig up the more in-depth structural problems of internalized and deep-rooted beliefs and practices present in ‘modern’ healthcare. Within this vision, there is an enormous weight on bio-mechanistic reasoning, seeing a patient as a biological machine

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**Table 1: Advantages of home dialysis.**

Perspective of person on dialysis:
Increased time at home for usual activities
In control of timing and location of dialysis
Avoids travel to and from dialysis centre and associated costs
Lower risk of acquiring blood-borne or airborne infections
Increased ability to travel
Avoids haemodynamic instability associated with 3/week ICHD
Perspective of healthcare provider:
Lower use of often complex transport systems to and from dialysis centres
Lower investment in building and equipping new dialysis centres
Fewer nurses required
Lower hospitalization rates for blood-borne or airborne infections

with parts that can be repaired or replaced rather than as a 'person' with life goals and meaningful activities [7]. Furthermore, the individual rather than the society is the primary focus. As a result, healthcare systems are toppling over with surging expenses and lack of staffing [7, 8].

In nephrology, ageing and increasing comorbidities, particularly diabetes, will result in a further increase of patients with end-stage kidney disease (ESKD). A report from Kidney Research UK suggested that there could be an alarming explosion of persons requiring dialysis from the current 30 000 to 143 000 by 2033 [9]. Even a fraction of this growth could not be sustained by growth of in-centre haemodialysis (ICHD) with the estate and building needs for new units, let alone the nursing support capacity at a time when there is a worldwide shortage of nurses [10]. To sustain care for these ESKD patients in the future, it is imperative to understand what the current societal, political, organizational, cultural and intellectual barriers to patient-centered care and home dialysis are, and what is needed to optimize each patient getting the treatment he wants and needs. The aim of this paper is therefore to think broadly and beyond the existing comprehensive literature on barriers to PD and HHD.

## WHAT HISTORY CAN TELL US ABOUT THE PRESENT

The advantages of dialysis at home, whether PD or HHD, from both economic and patient viewpoints are well recognized (Table 1). Even so, the use of home dialysis in Europe remains low, with only 8% of those on dialysis being on PD in the 2020 European Renal Association (ERA) registry [11]. As lower prevalent rates can be correlated with high transplantation rates [12], incident rates give a truer picture of use of home dialysis. Overall, only 11% of people starting dialysis do so on PD, with as low as  $\leq 5\%$  in some countries (e.g. Greece, Romania, Czech Republic) and only a few countries achieve levels up to 25%–35% (Denmark, Finland, Norway, Sweden). Very few,  $\leq 1\%$ , start on HHD, with half of European countries not offering HHD at all [13].

Another conundrum is the low use of PD for older age groups. Only 12% of people in the 65–74 and >75 years age brackets start on PD compared with 19% in the 20–44 years age group [13]. Prevalent figures are even lower, with 7% of those on dialysis over age of 75 years on PD compared with 12% in the 20–44 years age group, despite the much lower proportion of those with trans-

plants in the older age group (19% compared with 66%). However, use of PD does not decline with increasing age in Denmark, France, Norway, Sweden and the Netherlands. Whereas of those >65 years of age starting dialysis, 35% do so on PD in Denmark, Norway and Sweden, this is only  $\leq 5\%$  in Austria, Belgium, Romania or Greece. There are no objective rational reasons to explain this difference: there is increasing evidence of potential harm from the haemodynamic swings associated with HD, particularly on cognitive function decline [14–18]; PD is less intrusive and associated with better treatment satisfaction in older people [19–23]; and hospitalization rates are similar between HD and PD [24]. Furthermore, older frail people can be maintained on minimally intrusive low-dose PD with sufficient symptom control [25]. All these suggest a cultural or organizational explanation for the low uptake of PD and the default choice for ICHD. A good example is assisted PD [26], which is associated with higher prevalence of PD [27]. However, it is unclear whether PD increases because of the assisted PD program, or because people intending to grow PD in the elderly succeeded in getting it financed in their region [28]. The history of dialysis itself demonstrates the substantial impact of political and policy choices on dialysis modality selection.

Maintenance dialysis started as HD, initially as a home treatment for the selected few. In the UK, home rather than ICHD was the predominant modality throughout the 1970s and early 1980s, partly because of limited finance for building and staffing in-centre units, and partly because of outbreaks of hepatitis B in centres between 1965 and 1971 [29]. Only those starting dialysis or with intercurrent illness dialysed in-centre. Introduction of PD in the 1980s in the UK led to an expansion in people having dialysis but a decline in HHD. This was followed in the 1990s by an expansion in provision of satellite HD centres, a fall in PD numbers and almost disappearance of HHD. In Belgium, as in many other countries in Europe, a choice for satellite HD centres was made from the start, resulting in much higher incidence rates of patients starting on dialysis, but with low numbers on PD. Expanding the provision of HD centres meant that patients were more likely to be on HD, renal healthcare teams became deskilled in PD and HHD so less likely to use it, and a vicious cycle is set up as shown in Fig. 1.

## HD industry: financial incentives

Barriers to home dialysis are well-described in the report from the KDIGO controversies conference on home dialysis [6] and are summarized in Table 2. The pressure of filling HD centres rather than enabling dialysis at home is even higher in countries dependent on commercial funding of HD, compounded by higher nephrologist reimbursement for HD than PD if related to number of patient visits. Although universal healthcare is available in most European countries, this is often achieved by a mixture of private and public funding and in many countries a high proportion of HD centres are private commercial ventures, e.g. Italy, France and Germany. In countries with a public healthcare structure and salaried nephrologists, there is a higher use of PD, e.g. Scandinavian countries, the UK and the Netherlands.

## Vision on health and care

The underlying causes and consequences of bias against home dialysis need to be understood and recognized if the goal of increasing home dialysis in Europe is to be achieved. Bias is not only at the healthcare professional level, but also exists within healthcare systems as illustrated in Table 3.

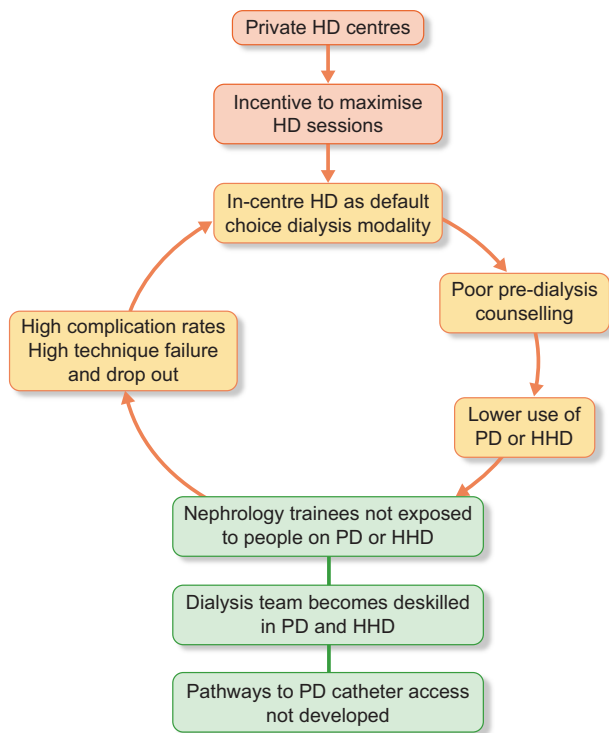


Figure 1: Impact of 'for profit' HD on availability of home dialysis: a vicious cycle.

Table 2: Well-recognized barriers to home dialysis.

Person on dialysis—barriers related to:
Medical contraindications (very few)
Access to education and involvement in decision about dialysis modality
Health literacy
Social and family support
Kidney centre:
Physician and team bias against home dialysis
Lack of expertise of healthcare professionals
Education about home dialysis not prioritized
Lack of education programmes for people starting dialysis
Staffing not organized to provide time for SDM about dialysis options
Absence of pathways and personnel supporting PD catheter insertion and surgical complications
Assisted PD not available
Healthcare system factors:
Privatization of HD with large number of centres, often franchised to nephrologists
Nephrologist reimbursement related to number of patient visits (inevitably more for ICHD)
Limited understanding of benefits of home dialysis to patients or healthcare system

### Mechanistic view of the human body

As part of a landmark series of papers on 'Right Care' in the *Lancet*, Saini *et al.* discuss the origins of bias and how it impacts on quality of medical care [8]. Healthcare education and training until recently has focused on the biomedical model of care and many physicians remain more comfortable with this model

rather than embracing a broader one encompassing the social and psychological needs and preferences of patients. In addition, as stated by Saini *et al.*, competing interests and poor information are universal drivers of poor care that occur across all systems and settings [8]. This may seem harsh, but unfortunately is true across the dialysis world—and not just in Europe. Whereas financing is not the primary incentive for most nephrologists, it might accommodate complacency. ICHD is a convenient, well-established modality, and it works from the mechanistic perspective on health. Furthermore, it provides psychological comfort when making the choice for (more expensive and lucrative) interventional approaches to health, such as ICHD, as it is perceived to be 'better' for the patient. This idea that 'technology fixes everything' might explain why nephrologists continue to start frail older people on ICHD despite the obvious negative impact on the patient as a person, further fuelled by the reality that this is often also the most lucrative path. Fortunately, this change to patient relevant outcomes rather than pure biochemical outcomes is progressively gaining more interest, as is exemplified by the excellent work of the Standardized Outcomes in Nephrology (SONG) initiative [30, 31]. Furthermore, there is growing attention to the concept of meaningful activities as an important issue in patients on renal replacement therapies [32].

### Lack of compassion

When a group of patients were asked individually to review updated recommendations from the International Society for Peritoneal Dialysis, their universal comment was to replace the word 'patient' with 'person or individual on dialysis' [33]. Compassion is a key component of being able to support people on dialysis to live their life and achieve their goals. Studies about compassion use questionnaires or qualitative research and there is an expanding literature about what compassion is, and what are the barriers and educational tools to increase compassion in healthcare [34]. Studies show that barriers to compassion are dependent on medical specialty and also on professional expertise [35, 36]. This is a relevant observation in the discussion of low uptake of home-based therapies, as many nephrologists have limited expertise and experience in this area. This lack of comfort with the technique might reduce their ability to find creative solutions for the specific PD-related problems of the patient. As a consequence, they tend to avoid empathizing with the patient, and strictly stick to technical considerations for decision-making.

### Failure to adapt dialysis provision for age and frailty

Multimorbidity associated with ageing populations are already stressing European healthcare systems and will continue to do so over the coming decades. When many current nephrologists trained, the number of older frail people developing advanced kidney disease was considerably lower than now, and most renal healthcare teams will not have had specific training in old age medicine. Even today, with the dramatic increase in older people with multimorbidity, medical students and trainees have low interest in their needs or in geriatrics as a career [37, 38]. The resulting lack of knowledge about ageing processes and needs of older people contribute towards ageism [39] and poor care for older adults. A recent systematic review has shown that the three underlying wishes regarding healthcare for people aged over 80 years are: feeling safe, feeling like a meaningful human being, and maintaining control and independence [40]. One could argue, therefore, that the continued default use of ICHD

Table 3: Bias against PD: causes and consequences.

Causes	Consequences
Individual professional: Belief in 'technology is better' Belief in 'new and expensive is better' Ageism Lack of empathy: failure to think of 'patient' as 'person' Experience of adverse outcomes Herd instinct: keep to common practice Reimbursement advantages for HD	Individuals requiring dialysis: No or biased information about home or in-centre No or biased information about PD compared with HD Not able to make educated decision about modality Failure to tailor treatment to needs of older frail people, who then face consequences of ICHD Holistic multiprofessional care often poorly developed or not available
Healthcare system: Pressure from HD industry 'More of the same' rather than change Lack of experience or knowledge about PD or HHD Belief in 'technology is better' No local PD or HHD enthusiasts to drive change	Healthcare system: Low use of PD or HHD disadvantaging patients and need to expand supply of HD facilities Increased transport costs Trainees get no or little experience of home dialysis No experience developed in nephrology workforce Increased hospitalization requirements: more dementia, infection transmission

Table 4: Strategies to expand home dialysis targeted to some key barriers.

Barrier	Strategy	Implementation
Pressure to fill 'over-supply' of HD units	Review of nephrologist reimbursement related to dialysis modality Planning permissions for new HD units related to full costs and staffing levels Stop practice of 'for profit' HD centres	Regional nephrology societies, patient groups to lobby government and healthcare management
Belief that 'new and expensive is better'	Promote benefits of person-centered care and home dialysis through education	Increase education and training at national meetings Reinforce through student and training curricula Empower patient groups to support need for patient education
Ageism	Increase knowledge about old age	Changes in student and training curricula Kidney patient groups to include older people Healthcare management focus on use of resources and engagement with older people services
Older people not able to perform home dialysis	Develop and promote assistance—supporting family carers or paid healthcare workers	Government and healthcare management developing community care for older people Nephrology education Focus on harm of HD and cost of transport from medical societies, healthcare management Empower older people patient groups
Decrease burden of dialysis at home	Use SDM to adjust dialysis prescription to person's goals and well-being Increase use of remote monitoring Improved networking with community care	PD industry to develop remote monitoring of all home dialysis Industry to develop easy to use devices and equipment Greater use of community teams and networking with primary care
Absence of pathways to home dialysis	Access to home dialysis as standard of care Regional centres for PD access, patient training, purchasing supplies	Regional nephrology societies, nephrology clinical leads to lobby healthcare management to develop networks of smaller centres with specialist hub

for older frail people is not just lack of interest in an individual's wishes for a home-based treatment to maintain a quality of life, but also poor care given the well-evidenced risks of HD in this age group, particularly the risk of decline in cognitive function and the development of dementia [14–17, 41], something which older people want to avoid. Continuing to use treatments that have been shown to be no longer safe is, of course, not unique to nephrology; an excellent example was the continued use of

insulin coma to treat schizophrenia long after it had been shown not to be effective or safe [42].

#### Proliferation of small dialysis centres

Proliferation of small dialysis centres is a direct consequence of healthcare policy focusing on ICHD for dialysis provision

compounded by the HD industry encouraging development and financing multiple centres. As with other areas of commerce, small centres, however, lose the advantage of scale and breadth of expertise in staff. The impact of small centre size on PD outcomes, particularly technique survival, has been well documented [43–45]. In Italy, it was shown that use of PD is related to centre size, with less or no use of PD in smaller centres [46]. To give the scale of the problem, the 2020 ERA registry report [12] shows that in France there are 1481 centres for a population of 67 million and in Greece 200 centres for 10.5 million; both countries have low utilization of PD (10.1% and 4.4% of incident patients, respectively). In comparison, Sweden has 67 centres for a population of 10.5 million and England 51 for 56.5 million; both have higher rates of PD in incident patients (34.3 and 23.1%, respectively). Small centres will either have no patients on PD, or have so few that without much PD specific expertise, outcomes are poor thereby reinforcing the inherent bias against PD. Furthermore, small centres cannot have the expertise required for PD catheter insertion and management [47]. A recent survey of European nephrologists concluded that good networks with dedicated PD catheter insertion teams are essential for growth of PD programmes [48].

#### Complexity of decision-making and clinical care

If home dialysis is not an option, people can be started on HD using a well-trodden pathway and without time spent discussing options. Once on HD, care is mostly provided by nurses. Starting people on PD or HHD or enabling people to change to a home modality having started on ICHD is complex. It involves time and pathways for education and shared decision-making (SDM), and then the often less familiar and more complex pathway of PD access, home assessment, patient education, and training and holistic support. SDM should be embedded in care to enable person-centered dialysis care; however, it requires communication skills that many nephrologists do not have [49]. Even though this has been advocated as a key feature to enable person-centered care for some years, a just-published study from the Netherlands has concluded that it was rarely observed in nephrology healthcare visits [50].

## LOOKING TO THE FUTURE

The huge existing variation in use of PD between different countries, and between regions within these countries, can only be described as perpetuating inequity of access for Europeans requiring dialysis to person-centered care. As discussed in depth by Vanholder *et al.* [51], it is the ethical responsibility of all nephrology professionals to reduce inequities in kidney care and improve patient outcomes. To move from the existing status quo of low use of home dialysis in the majority of European countries (all except those in Scandinavia), the key steps (i) for all those involved in dialysis delivery (clinicians, professional societies, healthcare management, dialysis industry) to recognize the inequity of access to home dialysis, (ii) advocacy by the nephrology community (clinicians, professional societies and people with kidney disease) to politicians and healthcare delivery administrators for expansion of home dialysis, (iii) for nephrology healthcare teams (clinicians supported by professional societies and management supported by healthcare funders) to embrace the principles of person-centered care thereby enabling people with advanced kidney disease to have

education and choice of dialysis modality and (iv) improved care for older people, awareness of harm of ICHD and enabling PD by supporting assistance when needed. These steps can only be achieved by all stakeholders collaborating together [52]—politicians responsible for healthcare delivery, healthcare management, commercial companies involved in dialysis delivery, professional societies responsible for education and ensuring standards, and nephrology healthcare teams delivering dialysis and patient education. Only achieving this collaboration will ensure the effectiveness of the various strategies needed to enable equitable availability of home dialysis as outlined in Table 4.

#### Recognition of and addressing inequity of access to home dialysis

The current inequitable situation in Europe is well-recognized by PD and HHD enthusiasts and has been publicized in a number of academic reports [53–56]. There are also ongoing research studies analysing centre differences for PD uptake and how these can be counteracted, e.g. the Inter-CEPt study in the UK [57], a multicentre study in Germany examining low uptake of PD [58] and the DOMESTICO study in the Netherlands [59] which aims to improve the SDM process and give more guidance to healthcare professionals, in particular to assess which type of patients may benefit most from home dialysis. Academic publications are needed to provide the information about inequities and evidence for strategies to mitigate the identified inequities, but it is the ethical responsibility of all stakeholders to ensure that these strategies happen. The opportunities for mitigating inequities for individual stakeholders are summarized in Table 5.

Inevitably, the building blocks for addressing inequities will vary depending on how far any individual country is along the pathway to increasing home dialysis, as illustrated in Fig. 2. For example, in the UK there are already powerful and effective national patient groups (UK Kidney Care and National Kidney Federation) as well as local hospital kidney patient associations; nephrologists are on salaries with no relation to dialysis modality; home dialysis is embedded in the structure of UK Kidney Association and there is already a recommendation from NHS England for home dialysis prevalence to be a minimum of 20% [60] which, as already discussed, can only be achieved with a much higher incidence rate. In contrast, in Germany, dialysis is dominated by ICHD with multiple HD centres, nephrologists' income is related to ICHD provision, and few programmes deliver PD related education or training; Germany does not contribute data to the ERA Registry to enable European comparisons, but there is evidence of concern from the nephrology community with a recent publication about poor patient outcomes on dialysis and highlighting low use of PD (only 4% prevalence) [61] and funded research to examine the low use of PD in Germany [58].

#### Advocacy by the nephrology community

Advocacy, meaning 'recommendation of a policy' is complex and as shown in Fig. 2, is not just advocating the advantages and therefore use of home dialysis to politicians and healthcare providers, but also to the many nephrology teams that currently are biased against or under-utilize home dialysis. Experience from different countries shows that policies to expand home dialysis need to be supported by government reimbursement policies, in particular policies that support development of HD centres and increased nephrologist reimbursement. For

Table 5: Opportunities for stakeholders to reduce inequities related to home dialysis provision.

Nephrology professionals	<ul style="list-style-type: none"> <li>Empower individual patients in treatment choices</li> <li>Empower patient organizations</li> <li>Advocacy efforts to increase awareness of benefits of home dialysis</li> <li>Identify and support pathways needed for access to home dialysis</li> <li>Identify and support other professionals required, e.g. surgeons for PD access</li> <li>Embed training and education of professionals for home dialysis</li> <li>Avoiding ageism and being aware of needs of older people</li> <li>Supporting awareness that home dialysis is for all patients; only very small minority not eligible</li> </ul>
Nephrology societies	<ul style="list-style-type: none"> <li>Collect reliable data about use of PD and HHD</li> <li>Promote education about use of PD and HHD</li> <li>Promote education and discussion about needs of older patients</li> <li>Create patient education materials in different languages</li> <li>Empower and engage with patient organizations</li> <li>Ensure all nephrologist trainees are competent in home dialysis</li> <li>Advocate at country and regional levels</li> </ul>
Patient organizations	<ul style="list-style-type: none"> <li>Ensure that membership is diverse with representation from different geographical areas, social groups, older people, etc.</li> <li>Enable access to and distribution of education about home dialysis</li> <li>Enable peer support for people starting dialysis</li> <li>Advocate for provision of PD and HHD</li> </ul>
Commercial dialysis providers	<ul style="list-style-type: none"> <li>Awareness of harm of current proliferation of HD centres</li> <li>Development of patient friendly HHD equipment</li> <li>Develop devices for PD to increase access and decrease burden</li> <li>Development of remote monitoring for HHD and PD</li> <li>Support education of professionals regarding home dialysis</li> <li>Provide information for patients and caregivers</li> <li>Ensure that products are available in all countries</li> <li>Ensure that products are adapted to needs of people with special needs, e.g. poor vision, low health literacy, different languages</li> </ul>
Research developers	<ul style="list-style-type: none"> <li>Ensure that studies focus on patient related outcomes</li> <li>Develop studies that address inequities</li> <li>Develop studies that investigate strategies to promote PD and HHD</li> </ul>
Governments, healthcare funders and administrators	<ul style="list-style-type: none"> <li>Awareness of current high costs of dialysis and predictions for increased demand for dialysis with ageing European populations</li> <li>Awareness of global nursing shortage</li> <li>Ensure that nephrologist reimbursement is not related to dialysis modality</li> <li>Address current perverse incentives regarding ICHD with multiple HD units and higher nephrologist reimbursement</li> <li>Ensure transparency of costings for dialysis modalities to enable true comparisons</li> <li>Awareness of advantages of PD and HHD for patients</li> <li>Enable funding for pathways to enable home dialysis for all people including older age groups</li> <li>Facilitate creation of pathways and networks to enable provision of home dialysis, e.g., surgical centres for PD access</li> </ul>

example, the Thailand government developed a PD-first policy in 2008 because of the realization of inequitable access to dialysis in different healthcare systems. To implement this mandated change in practice there was focused training of medical personnel, policy and guideline development, enablement of insurance cover for PD, and establishment of a registry to monitor practice and patient outcomes [62].

The key outcomes of the advocacy cycle are developing reimbursement policies that enable breaking away from the dominance of ICHD provision, and changes in culture in dialysis units to support growth of home dialysis with the necessary multiprofessional support. The latter can only be achieved with the engagement at local level by management and nephrology teams.

Changing the way people and teams work is challenging, and requires time and energy. In Europe, there are the added challenges of needing education, guidelines and policies in multiple languages delivered to multiple small units often working quite independently.

### Embracing SDM and person-centered care

Person-centered care with SDM for key treatment choices and management plans at end of life have become the mantra of many healthcare systems [63] and underly the latest clinical practice recommendations from the International Society for Peritoneal Dialysis (ISPD) [64]. SDM at time of choice of

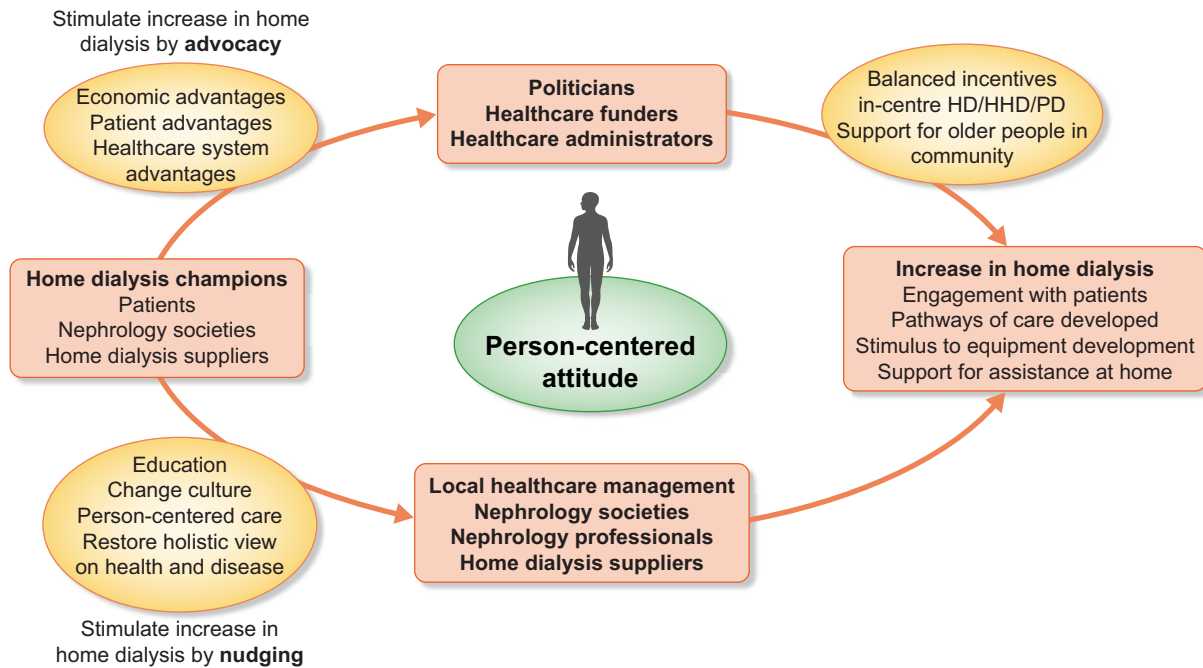


Figure 2: Targets for advocacy to enable home dialysis provision.

dialysis modality requires patient education. The challenges are well recognized with less education, information about home dialysis and choice in less wealthy European countries [56, 65]. The hope for the future is that many European nephrologists want greater access to home dialysis [66]. SDM is an iterative process and repeated throughout time on dialysis and involves patient empowerment as well as a changed culture for nephrology teams away from paternalistic care [67]. Person-centered care follows on naturally from using SDM and this has led to the development of incremental prescribing with reduced dialysis dose at the start of dialysis when there is still some residual kidney function. This is much easier to deliver in individualized home dialysis than for ICHD. Incremental PD is key to the updated ISPD practice recommendations [64] and is a key part of person-centered PD [68]; doing two exchanges rather than four a day makes PD a much more acceptable treatment for people starting on dialysis [69].

### Enabling home dialysis for older people

The previous three steps should lead to a change in attitude of nephrology teams to older people starting dialysis. The inequity of older when compared with younger people being less likely to be offered PD needs to be addressed either by nephrologist awareness of the unethical status quo and the increasing evidence of harms of HD, or by government financial mandates resulting from advocacy about the advantages of home dialysis. Incorporating SDM and person-centered care into dialysis practice should also enable more older people to choose home dialysis. Home dialysis has challenges for older people [70] and can be made more feasible with assistance from paid healthcare workers or by family members [71]. Currently only 5 of 13 Western European countries offer assistance by paid healthcare workers [26] leading to higher proportions of older people on PD.

## CONCLUSION

Modality choice for kidney replacement to be performed at home or in-centre is initiated by decision-making within the doctor-patient relationship. However, there appears to be a substantial influence of factors outside this relationship, such as resources available to support and incentivize home-based therapies, the state of global and local scientific knowledge, the configuration and capacity of the delivery system, and the vision on healthcare of the providers and society. If we intend to provide the right care for the right person in the right place, in a safe and effective way while taking into account personal preferences, just promoting PD or HHD will not be sufficient. Rather, we need to foster a change in attitude to and vision of the aims of healthcare so that enabling meaningful activities of patients rather than achieving biological numbers become the focus of care delivery. Such a societal vision should be the yardstick of quality control and financing of healthcare. In such a climate, patient-centered home-based treatments will increasingly become the default option for those who can and want to do it.

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