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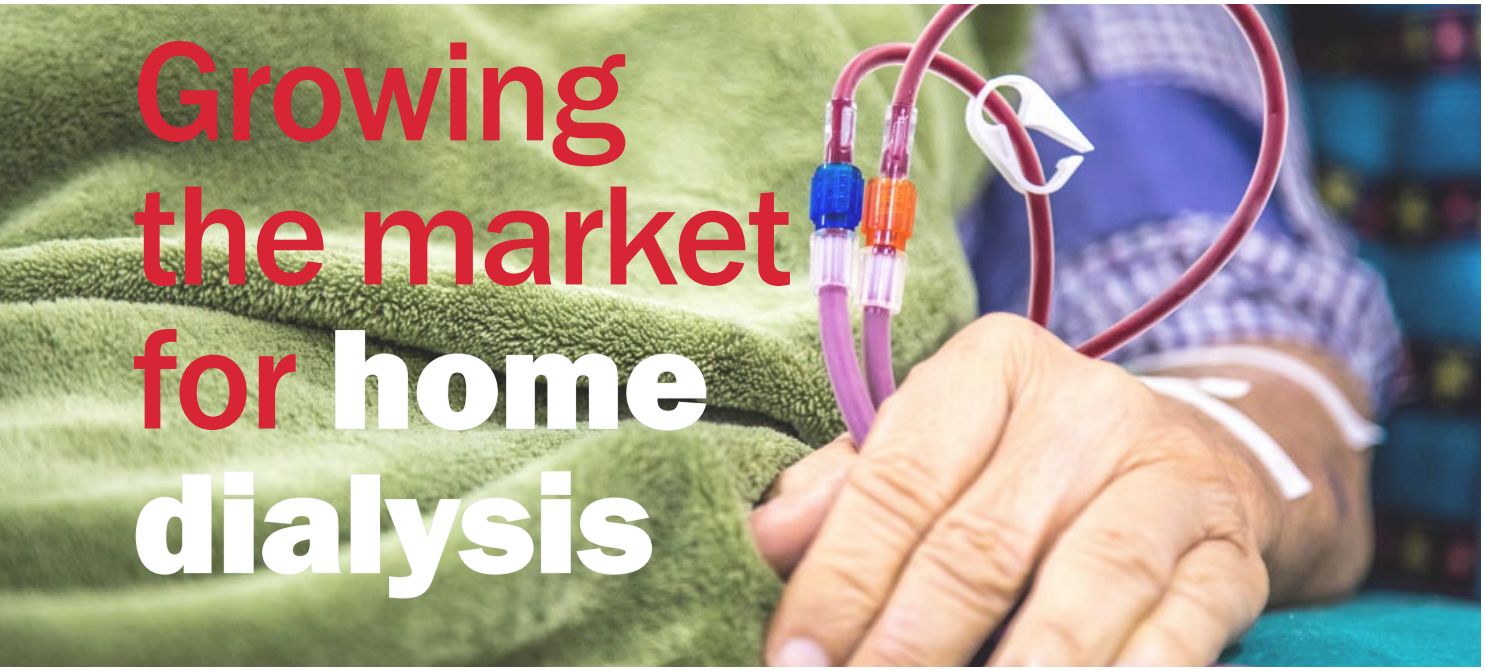
Kidney disease affects over 700 million people worldwide, and centres are reaching capacity. However, despite reduced barriers to home dialysis, growth has not been as high as expected across some of Europe's key markets. Candesic's **Marc Kitten** examines dialysis trends in Germany, the UK, and France, along with the pros and cons and the strategic implications



Growing the market for home dialysis

The trend for increased home healthcare applications is becoming more popular across many therapeutic areas, including the renal sector. Patients are becoming less inclined to be tied to a centre for something as regular as dialysis, regardless of age. As people live longer and work for longer, there is a need for dialysis to fit into their lives, not the other way around. The clinical outcomes support that not only is the quality of life (QoL) much improved by home dialysis and, in particular, home haemodialysis (HHD), but research indicates mortality rates can be significantly improved as well as health outcomes, specifically in mental health, blood pressure and overall cardiovascular health.

The rising incidence of Chronic Kidney Disease (CKD) and End-Stage Renal Disease (ESRD), particularly in developing nations, is driving an increased demand for dialysis. However, the capacity of existing specialist dialysis facilities is insufficient for the growing number of patients. Dr Tim Ringrose, a nephrologist and CEO of Cognitant Group, which provides services to enable patients to self-manage their kidney disease, said: 'Most dialysis units in the UK are struggling to meet the growth in demand for dialysis, which is expected to more than triple by 2030 – there is no doubt that we need to provide more care at home.'

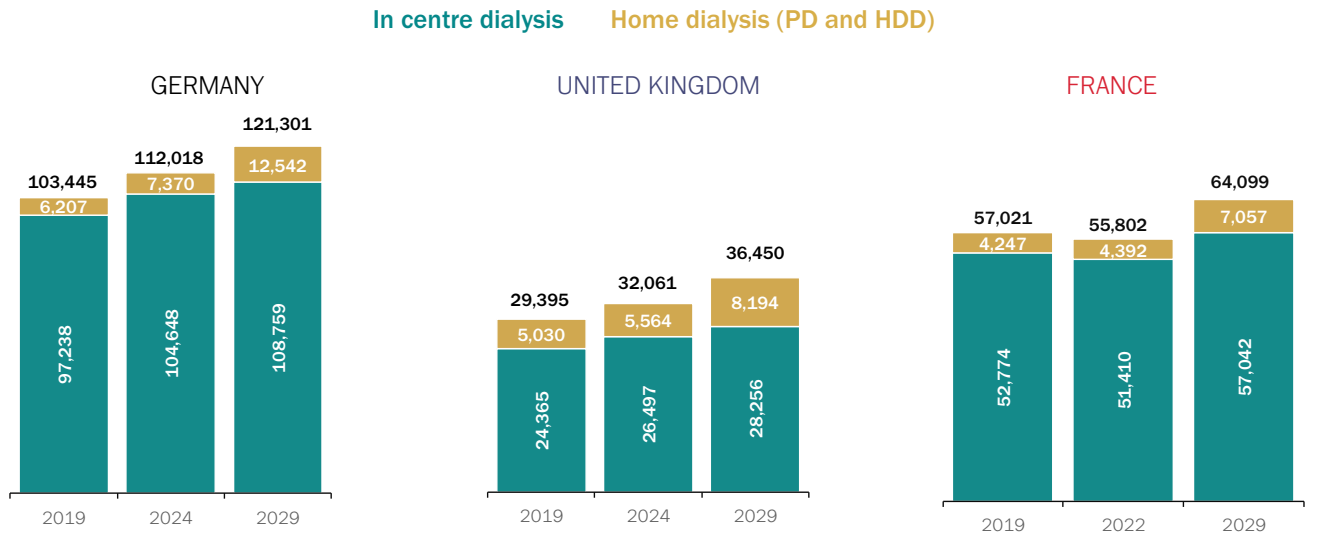
Candesic believes that the new generation of nephrologists is also likely to better support outpatient care over in-centre care, particularly as their numbers are declining.

The slowly increasing adoption of HHD and peritoneal dialysis (PD) is beginning to reshape the dialysis market globally. This shift from traditional in-centre treatments aligns with this broader home healthcare trend. While it is not always possible, being treated at home affords patients greater convenience, flexibility, and a higher QoL, particularly for those with jobs and younger families. Nocturnal HHD (NHHD) further increases both QoL benefits and improved health outcomes, particularly around nutrition, reduced side effects, and mental health.

Alongside better patient health outcomes, patients and their medical practitioners have more control over treatments, and better intervention and prevention through remote monitoring. Patients can go from dialysing 3-4 times in centre, to 5-6 times a week at home and often for longer periods. Previously, dialysis required large, complex machines, lengthy sterilisation procedures, and trained professionals, making it less feasible for home settings. Compact dialysis machines like the ones manufactured by Fresenius and Physidia are now much more widely available and user-friendly to set up than the standard in-centre machines that are otherwise used at home.

Single-use consumables such as blood tubing sets and fistulas are standard in in-centre dialysis and home dialysis in developing countries, and it is increasingly accepted in developing countries that these should not be reused to ensure infection control. The environmental impact of increased medical waste is also a growing concern, especially as sustainability becomes more pressing globally. The volume of waste from consumables in dialysis is substantial, prompting research into recycling methods and eco-friendly materials. Companies like Vascudyne work with biological materials to create regenerative allografts similar to patients' bodies. Instead of their plastic counterparts, these could be used in

FIGURE ONE
NUMBER OF DIALYSIS PATIENTS IN KEY EUROPEAN GEORGRAPHIES, BY SETTING



NOTE PROJECTION TO 2029 BASED ON HISTORICAL GROWTH OF EACH SEGMENT; UK PERITONEAL AND HOME HAEMODIALYSIS HAVE BEEN ADDED FOR HOME SEGMENT HERE
PROPORTIONAL DIFFERENCE TO NUMBER OF PEOPLE IS LIKELY DUE TO THE HIGHER NUMBER OF SESSIONS REQUIRED FOR HOME DIALYSIS IN FRANCE SESSIONS
SOURCE WEIKERT ET AL; RUSTOKER ET AL; UK RENAL REGISTRY; SANTE.FR; CANDESIC RESEARCH AND ANALYSIS

dialysis grafts, carotid, and renal artery/vein repair.

Home dialysis has its drawbacks, primarily in terms of initial outlay costs, expenses and logistics of storage, waste management, machine maintenance and training. The increase in sessions at home may also make it seem more costly, however, considering all expenses, such as wages and other clinic overheads, transportation and overall health outcomes, it has the potential to be cheaper per patient per year. Some studies have suggested these savings can be up to €30,000 per patient annually. Yet in many countries, in-centre dialysis is still encouraged ahead of home dialysis.

Nick Cardoza of DCS Partners, a consulting firm working with NHS Trusts in the UK, breaks down some of the other drawbacks to HHD: 'Dialysing at home requires storing consumables, typically one month's worth of boxes containing fluids and consumables, dropped exactly where the patient requires them, as many patients lack strength. For those without adequate storage space, deliveries will need to be more frequent. Waste accumulates rapidly and needs to be picked up.

'Dialysing at home is intrusive, to a greater or lesser degree. For younger, working patients with busy lives, this is a necessary sacrifice. However, with the average age of in-clinic dialysis patients typically being over 60 and without work constraints, many patients prefer to separate their place of treatment from home; indeed, for lonelier patients, getting out of the house and seeing the same nurses and patients every other day is valuable.'

> A STRONG PUSH FOR HOME DIALYSIS IN THE UK ALIGNS WITH NHS PLANS TO INCREASE OUT OF HOSPITAL CARE

The answer, Cardoza suggests, might be a halfway house: 'Self-care annexes, a part of the clinic with minimal nursing supervision and separate access permit trained patients to book slots and dialyse themselves at their convenience. These patients enjoy the separation of the treatment location from home, no storage, and reduced costs per treatment for payors while still potentially being able to dialyse at more convenient times for them than those required by clinics running fixed shift protocols.'

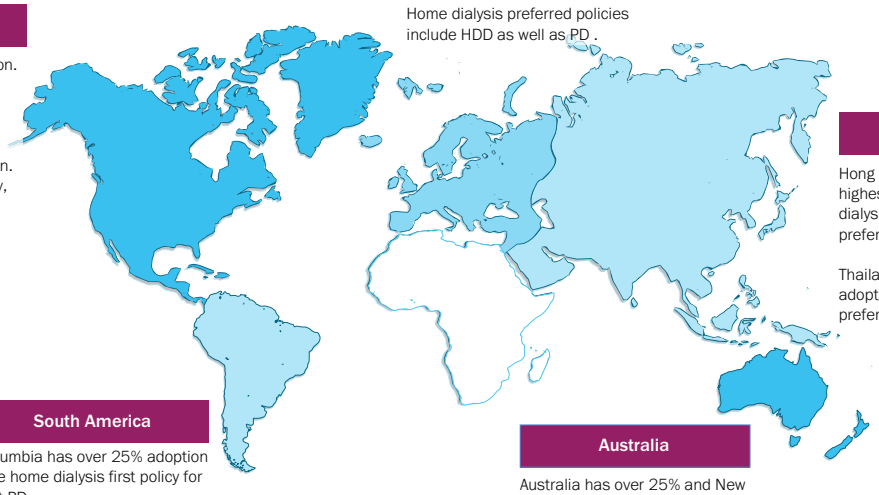
Adoption

As more people take control of their lives from conditions that previously tied them to hospitals, the popularity and demand for home healthcare will likely grow. Cost, resources, and infrastructure will impact home dialysis adoption within healthcare systems. Adoption rates currently vary across Germany, the UK, and France, reflecting different healthcare priorities, budgets and awareness, as we can see in Figure One.

Germany is Europe's largest dialysis market, but despite a well-developed home dialysis programme, only 7-14% of users opt for home dialysis. In-centre care still predominates. This has been because of the limited experience of nephrologists and centres with HHD, lack of patient awareness, inadequate training programs and lack of resources. HHD is now reimbursed at a higher flat rate for material costs than in-centre, and investments are being made into HHD. The likelihood is that Germany will grow as better education and promotion among patients and professionals continue, especially as reimbursement is higher.

A strong push for home dialysis in the UK aligns with the NHS's long-term plan to increase out-of-hospital care. The National Kidney Association has a robust national campaign to promote home dialysis. NHS papers authored by Dr Graham Lipkin, president of the Renal Association, also support this increase.

FIGURE TWO
HOME DIALYSIS HIGH PATIENT ADOPTION RATE COUNTRIES, BY CONTINENT



Europe

The Nordics – Denmark, Norway and Sweden all over 25% adoption.

Home dialysis preferred policies include HDD as well as PD .

North America

Canada has over 25% adoption. Good coverage for both HHD and PD in home dialysis preferred policy.

Mexico has over 30% adoption. Home dialysis preferred policy, but just PD.

El Salvador has over 65% adoption rate.

Asia

Hong Kong currently has the highest adoption rate in home dialysis, over 70%, but the preferred policy is for just PD.

Thailand has close to 30% adoption rate adopting a PD preference.

South America

Columbia has over 25% adoption rate home dialysis first policy for just PD.

Australia

Australia has over 25% and New Zealand 44% adoption, both countries have a preferred policy for HHD and PD.

SOURCE KIDNEY INTERNATIONAL, INTERNATIONAL SOCIETY OF NEPHROLOGY, CANDESIC RESEARCH AND ANALYSIS

Recent data shows that the UK was the largest market of the three for home dialysis if accounting for PD, with around 20% adoption, but rates of HHD only accounted for around 1%.

According to research, despite availability, the key reasons for not using home dialysis in the UK other than the ones already mentioned were reluctance to adapt to their homes, fear of their family becoming carers, in-centre care presented as the norm for dialysis and patients welcomed the social contact they had at hospital/clinic. If the NHS campaigns were successful, more education was made available, and more local care and support groups were introduced, the UK could become a high-adopting country with a rate of around 25-29%.

However, according to some, growth rates may flatten out. 'Despite all the tremendous efforts to increase home dialysis adoption through training, practicality presents a natural ceiling to adoption', says Cardoza cautiously.

The adoption of home dialysis in France was historically very low, mainly due to the lack of promotion, insufficient education and difference in reimbursement between in-centre and HHD/PD. Though it has recently begun to experience growth, it was from a shallow base. In-centre dialysis still accounts for around 90% of all dialysis sessions. HHD currently represents only around 2% of dialysis treatments, with PD a further 7-8%.

Tragically, many dialysis patients lost their lives during Covid in France, prompting a rise in campaigning around HHD. This, coupled with HHD savings to the French social security, which was thought to be around €30,000 per patient per year, prompted the government to promote home dialysis services. The increase has been modest, but improved education and further campaigns post-Covid are thought to be seeing better growth. With the continued promotion, equal reimbursement, and education, HHD could reach 4-5% by 2029 and PD 7-10%, so we have kept our estimates conservative.

France strongly emphasises cost containment, the increase in sessions and, therefore reimbursements, and immediate outlay on machines could explain the reluctance toward home dialysis promotion previously. In France nephrologists are also often shareholders in the dialysis centres, so they may not be incentivised for patients to have home dialysis.

There is also significant concern about the environmental impact of medical waste facilitation and home collection, which is more complex, especially from more remote homes than from centres and hospitals. Reflecting a broader European trend towards the environment and sustainability in healthcare.

Countries with a high home dialysis adoption rate often have a home dialysis first preferred policy (see Figure Two). In Europe, the Nordics lead, and their home dialysis first policy supports HDD and PD. Though adoption rates are much lower in Germany and France, they are growing, and a policy change is expected to support home dialysis market growth.

Novel hybrid approaches using annexes mentioned by Cardoza or compact HHD technology delivering dialysis via travelling clinics or hubs similar to the clinics that we have seen in cancer treatments could also provide further options to the sector.

Implications

The preference for home dialysis services has strategic implications that vary for stakeholders across the healthcare ecosystem.

Health providers will likely require significant training, resource and inventory management changes, and better infrastructure, processes, and procurement strategies. The increasing use of home dialysis will also need improved patient education programmes, remote monitoring infrastructure (or partnerships), procurement, logistics, maintenance, and waste disposal processes. Reimbursement models may also need to be restructured.

Regarding resource management, a lack of nephrologists and dialysis nurses and growing centre costs could mean home dialysis provides more opportunities than challenges. Raising awareness, promotion, and better education for healthcare professionals, patients, and families in all three countries would help to ensure better adoption levels.

Leading equipment suppliers of home dialysis in Europe include Fresenius (NxStage), Physidia and Baxter (see Figure Three). As the market grows, they will see an increase in service demand and need to price services accordingly. Remote monitoring companies are also a vital part of this service, and we may see that larger dialysis companies eventually bring them in-house as standard in some markets.

The growing demand for dialysis machines and related services will impact medical device manufacturers. There will also be a call for innovation and investment in R&D to address environmental concerns and improve product sustainability. Companies that successfully develop more eco-friendly products could gain a competitive advantage.

Payors, including government health systems and private insurers, must reassess coverage, including utility packages (some countries do) and reimbursement policies for home dialysis. While upfront costs may be higher, patient preference, improved outcomes, and reduced infection rates could lead to long-term savings, requiring a shift to value-based reimbursement models that consider the total cost of care.

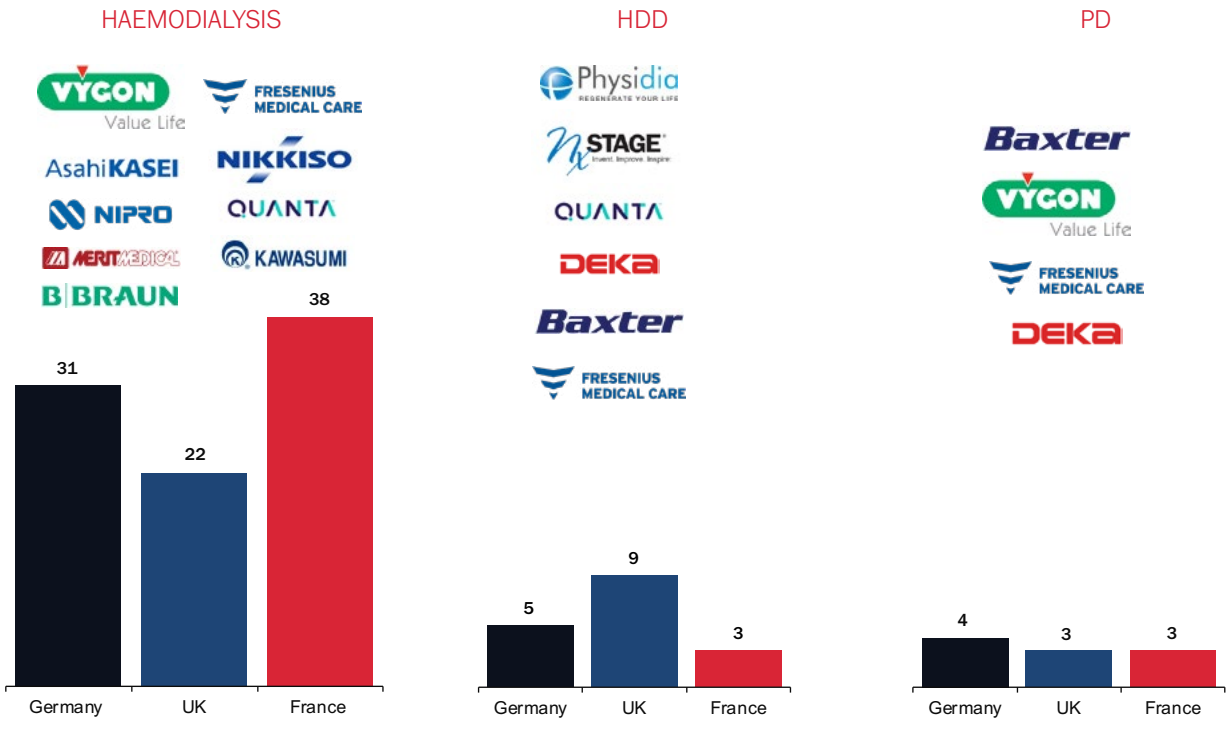
Cardoza suggests: 'Consumables cost per treatment for more compact machines is higher than it is for standard machines – this is somewhat compensated for by the absence of fixed rent and staff costs at a clinic, but to the extent these costs decrease, payors will be more inclined to promote adoption.'

Patients can gain greater autonomy and an improved quality of life. Patient education programmes and remote monitoring technology will be crucial to ensuring the best possible outcome of treatment. Addressing patient fears, especially around education, the impact on the house and utilities, and family becoming carers, could present additional opportunities for the market from a technology and service provider perspective.

The strategic implications are far-reaching, affecting providers, manufacturers, payors, patients, and environmental stakeholders. Continued research, innovation, and collaboration with patients, professionals, technology providers and other stakeholders are crucial, focusing on efficiency, sustainable and optimised supply chains and materials, recycling technologies, and patient welfare and convenience.

Policymakers and healthcare leaders must incentivise the use of home dialysis. The future of dialysis care, especially at home, will depend on balancing these priorities.

FIGURE THREE
NUMBER OF DIALYSIS EQUIPMENT SUPPLIERS IN KEY EUROPEAN GEOGRAPHIES, BY MODE



SOURCE GLOBAL DATA; CANDESIC RESEARCH AND ANALYSIS