



Peritoneal Dialysis in the Comfort of Home—Regain Your Independence

Chronic kidney disease (CKD) afflicts 8–10% of the population globally.¹ In India, CKD affects an estimated 8–17% of the total population²—propelled by an increased number of elderly people, changing lifestyles, and non-communicable diseases (NCD). About 10–20% of those with CKD develop end-stage kidney disease (ESKD) and will need kidney Replacement Therapy (KRT). Over 2 million people worldwide receive dialysis or a kidney transplant. This is less than 50% of persons who need treatment to stay alive.

India reports around 2.2 lakh new ESKD cases every year resulting in an additional demand for 3.4 crore dialysis sessions.³ An estimated 70–80% of kidney patients who start dialysis drop out due to affordability, access to dialysis centers, and caregiver availability. Home-based peritoneal dialysis (PD) offers many benefits like increased physical functioning; higher reported quality of life; increased employment possibilities; less disruptive travel; and lower requirement of trained personnel.⁴ It is easier to isolate PD patients and ward off nosocomial infection in COVID-like situations and to ensure continuity of therapy when natural disasters restrict travel. Chronic peritoneal dialysis (CPD) is the most common dialysis treatment modality used to treat pediatric patients with end-stage kidney disease (ESKD), particularly in children less than five years of age. CPD offers several clinical advantages over hemodialysis (HD) and is easier to administer.

According to the recently published Global Kidney Health Atlas, 63 out of the 124 countries surveyed provided free PD from public funds—compared to 52 that provided free HD. PD is the preferred modality in many countries — Thailand,

Hong Kong, New Zealand, and Australia, being examples.

The Pradhan Mantri National Dialysis Programme (PMNDP) expanded to cover PD in 2019—a very welcome move that will enable much broader coverage of those requiring RRT for survival. An estimated 6,500 patients are on PD in India. Reasons for low PD penetration include higher cost, physician/provider bias, financial incentives, existing HD capacity, and physician discomfort. There is a widespread belief that PD is associated with higher complication and infection risk—a theory negated by the experiences in PD-first countries across the world.

Factors that will drive greater PD utilization

- Build the clinical case for PD.
- Large-scale manufacturing to reduce cost.
- Build the clinical support system.

Building the clinical/health economic case for PD

About 60% of ESKD patients are suited for either HD or PD. PD is the therapy of choice for remote dialysis patients, as a bridge to transplant, for independent patients seeking quality of life, and for those with cardiovascular insufficiencies. Several Indian states have included PD in their health programs including Tamil Nadu, Kerala, Goa, and Chhattisgarh.

On Feb 22, Kerala initiated a “free of cost” PD at-home scheme for CKD patients in 11 districts. Encouraged by the success, the scheme was expanded statewide in April’23, recognizing its importance in decongesting hospitals.

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It is necessary to develop these success stories and provide the foundation for strengthening PD. Some measures are elaborated below:

- Partner with the Indian Society of Nephrology and the Peritoneal Dialysis Society of India to develop CMEs and clinical evidence supporting PD—outcome comparison vs. HD; quality of life benchmarks; DALY, etc.
- Build a mandatory PD component for all centers participating in the PMNDP. Reserving even 10% of patients for PD will ensure commitment and comfort.
- Equating physician incentives on HD and PD—to build objectivity and remove disincentives.
- Build a “Total System Cost” model to compare PD and HD. Equate standards of dialysis adequacy across PD and HD—and build in the hidden costs, e.g., travel, opportunity cost of caregiver time, and other out-of-pocket expenses.

Making it attractive for large-scale manufacturing of PD in India

Manufacturing PD fluid and consumables is not a very complex operation for India but manufacturing scale is vital to the delivery of affordable products.

PD-“friendly” countries have demonstrated that HD and PD costs would be similar at 1 crore bags annually (i.e., 10,000 patients). Manufacturers must be supported in the initial years through incentives such as

- Long-term supply contracts
- Production and quality linked-incentive schemes
- Capital credit
- Research grants for better manufacturing methods/materials
- Subsidies and duty waivers on RM, PM, and capital goods
- Tax benefits to build PD capability in existing large-volume parental lines.

Building the clinical support infrastructure

HD has been the therapy of choice for several decades and has mature clinical processes, care standards, patient review processes, and adverse event support systems. PD will need all this and an additional layer of support from last-mile PD coordinators, social workers, and caregivers who will engage with patients on a regular basis, keep an eye on clinical condition, and feedback to treating physicians as necessary.

Infection is a common concern with both PD and HD. PD infections are largely related to the catheter, viz. peritonitis and exit site infections. HD patients risk vascular catheter-related sepsis, bloodstream infections (bacteremia), infective endocarditis, and pneumonia. Vascular catheters are associated with higher infections as compared to AV

fistula. In comparative studies, hospital admission rates due to infection are twice as high for HD as for PD and mortality risks are even higher. Notwithstanding this, PD Patients and caregivers must be trained on proper techniques to minimize infection at home.

Standardized elements of PD therapy

- Independent counseling centers for therapy choice discussions.
- PD rooms in HD centers to support initiation, onboard patients, provide educational content, and manage complications, if any.
- A patient home care manual (paper and online) where patients can record daily therapy information—exchanges, fluid status, diet, exercise, and medication.
- Scheduled video and in-person evaluations by PD coordinators—covering clinical condition, fluid status, compliance, nutrition, etc.
- Essential training tools—on six-step handwashing, environmental safety, disposal, etc.
- Patient helpline.

The PD Clinical Coordinator is an essential part of the PD ecosystem. This role can be played by trained and incentivized ASHA workers and social workers. Drawing upon the burgeoning home care and telemedicine networks will build confidence with remote attending physicians.

Conclusion

In conclusion, as the RRT needs of the country grow, it is imperative to add PD to the basket of options available to the patient. Bringing PD to the forefront required collaboration and concerted action by all stakeholders.

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