



## Peritoneal Dialysis in India is Dying—Is Weaning from the Ventilator Likely?

The global nephrology community has suggested peritoneal dialysis (PD) as the preferred dialysis modality for most patients with kidney failure who cannot get kidney transplantation.<sup>1</sup> The short and long term outcomes of the two dialysis modalities are similar, and PD is generally cost-effective. Indian studies also have shown it to be cost-effective.<sup>2</sup> However, the use of this excellent therapy has declined in India over the last decade [Figure 1]. It raises doubts and concerns in the minds of the new generation nephrologists. Questions are being raised to centers that were pioneers in PD practice as to the reason for the crash in their PD practice. Of the 490 centers practicing PD in India, only 40 centers implant more than one catheter per month. Early dropouts remain high [Figure 1]. Are we selecting suitable patients? Is our workforce sufficiently skilled to initiate and maintain patients on this therapy? Are we using the appropriate model of care? Are we honest in the way we present choice of therapies to our patients?

This editorial focuses on the determinants of PD practice and possible solutions to revive this dying therapy for the next generation.

### Choosing as a modality: Patient’s choice or doctors’ selection

Ideally, the choice of kidney replacement therapy should be made through a “shared” decision-making process—by the patients, in consultation with nephrologists, considering their life goals, comorbidities, available resources, and financial and logistic supports. However, not many nephrologists share all options objectively, allowing patients to make informed decisions. Multiple factors determine the selection<sup>3,4</sup> [Table 1].

### Patient related factors

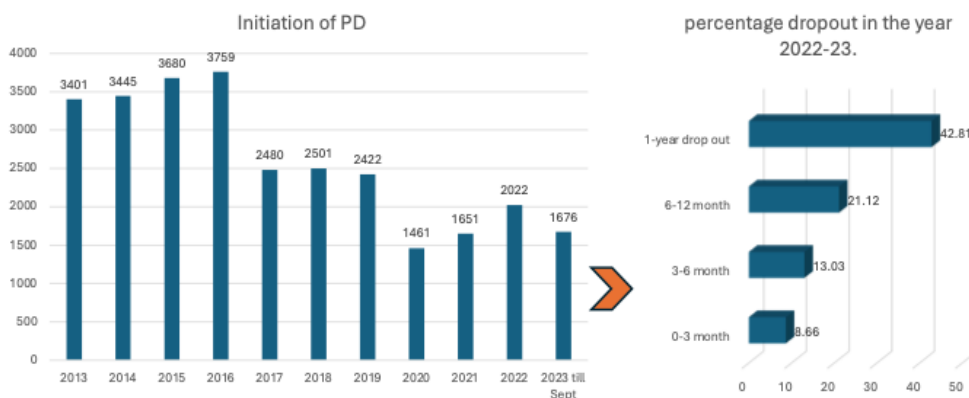
A large proportion of patients present late with advanced kidney failure with uremic complications, and receive

an “urgent start” hemodialysis (HD) while “urgent start” PD is not even considered. The experience in chronic kidney disease (CKD) clinics has been discouraging when discussing the home dialysis option. Referring physicians, unfortunately discourage patients from opting for PD by over-amplifying the issue of infections, the need for a sterile home environment, and personal hygiene. There is no discussion of catheter-related bloodstream infections that are common with HD. The lack of social workers and educators in dialysis units compounds this problem. As a result of this lack of education, patients and family members prefer visiting the hospital and getting HD under supervision.

Another major deterrent is the cost of therapy. Even though the direct cost to the patient is known to be lower than that of HD even after excluding loss of work for the patient and an attendant,<sup>2,5</sup> there is a perception of PD being more expensive.

### Practitioner related factors

Not all training centers (DM or DNB) in India have a thriving PD program. The number of consultants familiar with and interested in PD, the number of patients on this therapy, hours of didactic lectures, and the number of days of rotation of residents in PD is significantly lower than for HD.<sup>6</sup> This lack of training during residency, results in a lack of interest and confidence, which deskills the trainees and deters the nephrologists from discussing the option of PD as kidney replacement therapy. The reasons for this are complicated. In addition to the ones mentioned earlier, a market-related cause must be added. Since there are no formal referral mechanisms and most payment is out of pocket, doctor-shopping is common in India, and several physicians constantly operate in fear of losing their patients to the competition. In such an environment, prescribing HD is a safe bet.



**Figure 1:** Year wise initiation of peritoneal dialysis (PD) in the last decade and dropouts from PD in the year 2022–2023 (Source: Baxter India Ltd data).

**Table 1: Factors affecting PD penetration and possible solutions to overcome the barrier**

Factors affecting selection of RRT	Impact on PD	Possible solution
<b>Patient related</b>		
Late presentation with complications	Failure to discuss PD/default start on HD	Early discussion of RRT/Practice of “urgent start” PD
Lack of motivation for self-care home PD/Fear of making mistakes/comfortable with in-center HD under supervision	Outright denial for PD	Better counselling/Live demonstration/Interaction with ambassadors of PD
Socialization in HD unit	Witness complications and failures of PD	Keep outpatient department away from HD unit, set up independent PD clinics
Poor compliance	High dropouts, complications	Counselling, home visits, remote monitoring, use of telemedicine for online real-time monitoring
Limitation in space for supplies/limited purchases	Missing exchanges/higher cost	Easy supplies/more outlets
<b>Practitioner related</b>		
Lack of training	PD missed as an option	Mandatory training during nephrology residency
Lack of reimbursement	No incentive for PD	Equal incentive as HD
PD catheter insertion, a low priority for surgeons	Stepchild treatment leading to a junior surgeon performing the insertion and post-op complications	Nephrologist performing the procedure
Perception of higher infection in PD	Poor penetration of PD	Update the several comparisons/CRBSI in HD
Perception of higher cost	Poor penetration of PD	Update several comparisons
PD “last” policy	Poor selection of PD patients	Equal opportunity to all patients
<b>Center related</b>		
Poor interest and support system	Lack of facility for care of PD	Awareness, interest, and support for PD
Lack of dedicated PD nurse	Difficult day-to-day management of patients	Mandatory PD nurses at all PD practicing centers
<b>Policy related</b>		
Low priority for noncommunicable diseases	Poor attention toward management of CKD	More funds to be allocated for CKD management
Poor inclusion/implementation of PD in government schemes, despite lower infrastructure cost	Poor penetration of PD	Universal inclusion of chronic PD in all dialysis schemes/uniform acceptance in all states
Competition with low-cost, subsidized, charitable HD centers	Poor penetration of PD, especially for medium- and lower-income groups	Charitable organization to accept and support PD as an alternative form of RRT
Lack of uniform insurance (especially government) cover	Poor penetration of PD	Universal coverage of PD like HD
<b>Industry related</b>		
Lack of competitive price	Price of dialysate bag remains high	Revival of packages/Life-time schemes
Lack of local manufacturing	Nonavailability of 4.25% and 2.5 L bags/higher cost due to import tax	More companies to manufacture locally and cater to local needs/availability of 2.5 L and 4.25% dialysate bags

PD: Peritoneal dialysis, RRT: Renal replacement therapy, HD: Hemodialysis, CRBSI: Catheter related blood stream infection, CKD: Chronic kidney disease.

Another important factor for poor acceptance of PD among practitioners is the lack of equitable reimbursement. Every HD session is counted as a visit and comes with a fee for the nephrologist. PD is a home-based procedure and has no equivalent reimbursement mechanism. The issue of reimbursement is global, and was witnessed in Canada, where an increase in PD practice was seen when reimbursement was made equal to HD.<sup>7</sup> Nephrologists who own dialysis centers or work in corporate hospitals, have a vested interest in filling up their HD units.

**Center related factors**

In low-volume centers, the support system is not geared toward managing PD-related procedures. Complications like peritonitis, flow problems, and primary catheter failure are more common in low-volume centers (< 20–25 PD patients), which is discouraging for new centers keen on developing the program.<sup>8</sup> Centers feel that PD is a poor business compared to HD, leading to apathy toward the program.

Many centers believe that a dedicated PD nurse is not cost-effective. The lack of a dedicated nurse spirals down the

entire chain of management of this procedure with poor patient counselling, and a lack of confidence in patients and even nephrologists to initiate a patient on PD.

### Policy related factors

National healthcare policies have not prioritized noncommunicable diseases like CKD, despite its growing prevalence. Overall, the funds allocated for healthcare are low (2.1–2.2% of the gross domestic product) compared to other countries (5–12%), and for noncommunicable diseases, they are meager.<sup>9</sup> Another example of apathy toward PD is that when the national dialysis policy was announced in 2016, it covered only HD. The government promoted HD centers with public-private partnerships. Health economic analyses have shown the costs to the health system are lower for PD.<sup>5</sup> It took another three years of lobbying from nephrologists to get PD included under the ambit of the National Health Mission. There are several charitable, low-priced, or even free HD centers nationwide, but no subsidized or free PD facility. As a result, the year-on-year uptake of HD is growing at the cost of more patient-friendly, home-based therapy like PD. This gives a perception of increased access for HD and continues to invisibilize PD. It must be pointed out that there has been no monitoring of the quality of treatment or long-term outcomes in these PPP HD centers.

As per the 2017–2018 data, only 37% of the population had access to health insurance.<sup>5</sup> Many health insurance schemes, including the flagship national scheme, the Pradhan Mantri Jan Arogya Yojana (PM-JAY) only provide reimbursement for hospital-based treatments. PD, a home-based treatment, is not universally covered. Even those intending to purchase private insurance discover that the schemes do not cover PD for reimbursement. As mentioned earlier, the PMNDP (Pradhan Mantri National Dialysis Program) does cover PD, but its implementation is subject to acceptance and approval by the state governments. Some states cover PD in their schemes like the Pradhan Mantri Jan Arogya Yojana (PM-JAY). However, there is no clarity on claiming the supplies as a “utility” certificate or proof is not validated.

### Industry related factors

Only a few companies manufacture PD solutions, leading to a market oligopoly. Shortages and the nonavailability of supplies are common. Even when a company provides a “made in India” solution, the prices are comparable to those of multinational companies, where import tax implications are high. The reason for this is not apparent. Manufacturers claim that PD is not profitable, as they must maintain the infrastructure, which is expensive, and given the low numbers, they do not make any profits. This is an example of the vicious cycle that prevents PD from growing and becoming cheaper.

### Possible measures for weaning

The first and foremost measure to revive an underutilized but practical alternative to HD is for all the stakeholders to

“believe” in PD as a critical component of integrated kidney replacement therapy. Nephrologists must be confident in its effectiveness.

The next step is spreading awareness amongst referring physicians, policymakers, hospital management, and patients. This can happen by sharing real-life examples, continuing medical education, conducting workshops, and highlighting the advantages of PD at all levels. Emphasizing evidence-based treatment, focused kidney disease clinics, dedicated outpatient days for PD patients, timely access to dialysis and its benefits, motivating patients for self-controlled therapy, and financial and logistic advantages may increase patients’ use of PD.

The training institutes and the National Board must confirm training residents in PD as they do for HD and kidney transplants at the time of inspection and approval of the center. Practicing nephrologists should take a leadership role in developing a “complete” nephrology department. They should educate the management regarding the advantages of PD. There should be an effort to have a dedicated PD nurse or train a few HD nurses in the PD procedure as well and allow them to work in both

**Table 2: Actionable suggestions for stakeholders**

Stakeholders	Actions/Suggestions
Patient/Family	Early consultation with nephrology and decision of best suited RRT for the future. Timely “access” to avoid “urgency” in dialysis.
Practitioners	Mandatory discussions of all forms of RRT. Regular updates for self and referring physicians. Practicing “incremental” dialysis where applicable.
Institutions	Equal incentives/reimbursement to nephrologists. Start PD training courses for practitioners and nurses.
Students	Mandatory training in PD—catheter insertion, removal, OP follow-up.
Industry	More companies to start manufacturing/marketing PD fluids. Collaborate with HD centers to add beds for PD training and exchanges. To have discounted annual or life-time schemes.
Policymakers	Give preference to PD/PD preferred policy. Inclusion in all government schemes. Facility should be made available at all government hospitals, especially in rural areas where HD is not available. Exempt tax from “lifesaving” procedures.
Insurance providers	PD must be included in the policy. “Utilization” certificate can be collected from the treating practitioner.

RRT: Renal replacement therapy, PD: Peritoneal dialysis, HD: Hemodialysis, OP: Out-patient.

methods. All centres should develop an “urgent start” PD program so patients do not default to HD [Tables 1 and 2].

A large part of the debate boils down to finances. A concerted effort must be made to ensure that the PD benefit package of the Ayushman Bharat Pradhan Mantri Jan Arogya Yojna scheme is implemented locally.<sup>10</sup> Finally, charitable organizations that sponsor HD should also understand that this is a lifesaving therapy and should not be treated as a stepchild, and should fund PD supplies. One of the major hurdles is nephrologist reimbursement in private and corporate hospitals. This is a sensitive but important reason for poor PD penetration. The differential reimbursement between therapies should be urgently addressed.

From an industry perspective, the price must be made competitive. Local manufacturers should try to reduce the price by reducing the margin or through innovative financing schemes. Bringing back 2.5 L bags saves money as patients can reduce the number of exchanges at no extra cost. Getting a 4.25% dextrose solution can be helpful in “high transporter” and fluid overload situations, saving patients from technique failure and moving on to HD.

Though PD numbers have been going down over the last decade, this therapy, considering its merits and advantages, should not be allowed to die but should thrive. With increasing awareness, use of social media, success stories, and policy changes, PD prevalence can improve. If not PD first policy, at least PD preferred policy by the National Health Mission, and inclusion in government health schemes in the state and center and all insurance companies, private or government, will give a boost to this excellent form of renal replacement therapy.

### Conflicts of interest

There are no conflicts of interest.

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