

# A Succinct Analysis of the Components of a Successful Peritoneal Dialysis Program

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## Abstract

Renal-replacement therapy options should be made available to patients because of the high incidence of chronic kidney disease (CKD) and the expanding number of persons with end-stage renal disease (ESRD) worldwide. Clinical studies have demonstrated the many advantages of peritoneal dialysis (PD) as a home-based dialysis therapy. These advantages include longer preservation of residual renal function, reduced hemodynamic stress, potential for improved patient survival, relatively high patient quality of life and a greater capacity to serve more ESRD patients due to its lower cost and infrastructure requirements.

**Keywords:** Dialysis • Chronic kidney disease • Renal transplant

## Introduction

Due to the rising prevalence of ESRD in the context of limited resources, strategies are needed to maximise the use of less expensive PD while also improving therapeutic effects. To establish a successful PD program, it is essential to consider a number of important factors, such as adequate CKD education, reimbursement for the therapy, medical professionals trained in the theories and practises of PD, clinical management, continuous quality improvement and adequate supportive systems [1].

## Description

### CKD education programs

For CKD patients to get the most out of a self-care modality like PD, it is essential that they get predialysis education. Through education on therapeutic alternatives, patients will be better equipped to understand PD, enabling them to make informed decisions about the types of dialysis. Despite the fact that mortality rates have decreased over the past few decades, dialysis patients still have significant rates of morbidity. Investigations have nonetheless shown that patients' understanding of the disease and their familiarity with the treatments on offer are lacking.

Given the importance of patient involvement in therapy, the necessity of predialysis education cannot be emphasised. Clinical outcomes for several chronic diseases, including diabetes mellitus, have been proven to be improved by patient education. Patients would require lifelong renal replacement therapy if CKD progresses to end-stage renal disease (ESRD), which would only be effective with diligent self-management on their part. Patient education is the first step in improving clinical outcomes in a PD program.

Additionally, Fresenius Medical Care, North America initiated the TOPs

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nationwide education campaign to teach predialysis patients and their families about the modality options for renal replacement therapy. One out of every four patients who attended the TOPs session chose PD as their home therapy as a result of this guidance. Patients who participated in TOPs education used PD at a rate that was almost eight times higher than that of non-participants [2-4].

Along with the increase in patients choosing PD as their method of dialysis, patient education has a tonne of other benefits. Studies suggest that CKD education may be more effective than many other therapies in improving the care of dialysis patients. Two Canadian randomised controlled clinical studies showed that predialysis CKD education was associated with lower short- and long-term mortality and may delay the need for dialysis. In a study including CKD patients, a pre-dialysis psychoeducational intervention increased overall survival by 2.25 years and a median of 8.0 months after the onset of dialysis therapy. An evaluation period of 20 years was included in the study.

Participating in a CKD education program is therefore associated with higher rates of PD use and better survival. Therefore, predialysis education is crucial for creating a successful PD program.

### Standard training for staffs

Life expectancy and quality of life for PD patients have significantly increased in recent decades. Despite the advantages offered, this modality has not always been given the support it merits. Lack of access to qualified physicians and nurses could play a big role.

The amount, calibre and expertise of the medical staff, including doctors and nurses, is also dropping in regions or programs where the number of PD patients is declining. Lack of knowledge about PD compromises the standard of care for individuals already receiving it and lowers the likelihood that patients will select PD therapy. A successful PD training program enhances doctors' and nurses' knowledge.

PD nurses are important team members in the interim. Typically, nurses must perform a number of duties, such as those of an educator, care coordinator and caretaker. A PD nurse is instantly recognised by patients as the expert on all aspects of therapy who should be consulted. Without competent, seasoned and dedicated nurses, a strong PD program is unlikely to be operationalized. Both academic knowledge and practical skills are required of PD nurses. All new nephrology nurses should receive at least 12 weeks of training and experience in a PD unit, including 6 to 8 weeks of orientation, with supervision by a veteran PD nurse and observation of procedures, patient education and patient education, according to the International Society for Peritoneal Dialysis [5,6].

A standardised training program and treatment protocols are followed by the full-time PD doctors and nurses in the satellite centres. These protocols

cover catheter insertion techniques, managing PD complications, patient education and training procedures, gathering and analysing clinical data and putting into practise a continuous quality improvement process. This program significantly increased the number of PD patients in Guangdong Province and enhanced medical care.

The growing competency of PD nationwide is projected to expand its use, particularly in rural and remote areas and that PD penetration will rise in the near future through the satellite centre model and county hospital training program. This approach needs to be adopted by other countries in order to increase the number of ESRD patients.

## Patient management

How to ensure that the PD program maintains acceptable standards for the calibre of care with a higher penetration rate is a big challenge. The First Affiliated Hospital of Sun Yat-sen University in Guangzhou houses one of the largest PD centres on earth. Over the past few years, the facility's PD patient population has quickly risen, surpassing 1,000 patients as of 2017. At 1, 3 and 5 years, the survival rates for these patients are 94%, 81% and 64%, respectively. The technical survival rates after death censoring are 98%, 91% and 86%, respectively. Peritonitis occurred 0.14 times per patient year in 2018. For diabetic and elderly patients, ensuring favourable clinical outcomes has been demonstrated to be feasible.

As a result, the centre has devised a reliable and practical technique for experienced nephrologists inserting catheters. Additionally, the insertion and removal of PD catheters by nephrologists reduces the need for pointless surgical consultations and enables quick treatments. In order to promote patient self-management and independence in a short period of time, the program has developed a well-planned training and retraining program. This is because more than 80% of patients start dialysis unexpectedly and have no prior knowledge. Patients and their assistants—including their spouse and relatives—are trained and graded for successfully completing the PD procedure.

The clinical management, a systematic approach to uphold and improve the standard of patient care within a particular health system, can be used to boost the PD program's overall effectiveness. A performance metric that may be applied to both intracenter and intercenter comparisons is a key performance index. It serves as a gauge of the PD center's quality. 44 Given the size of the current centre and the program's clinical outcomes, the key performance indicator objectives should be chosen in accordance with international standards. Measurement of key performance indicators can be an essential component of PD practise and is necessary for continual quality improvement (CQI).

The development of appropriate CQI programs might monitor several things, including the efficiency of the dialysis, the frequency of peritonitis, catheter-related problems, anaemia management, calcium and phosphorus control, patient psychosocial status and satisfaction with the PD therapy. PD team meetings once a week, PD symposiums once a month and frequent clinical meetings in the morning are a few examples of ways to evaluate, identify and enhance performance [7,8].

Numerous patient factors, like as genetic make-up, comorbidities, dietary choices, way of life, adherence to therapy, body size and even peritoneal transport characteristics, may have an impact on PD patients' outcomes. Because of this, patient attributes have a big impact on the program's performance. In order to consistently enhance the quality and management of PD, research must be done to improve therapeutic outcomes.

## Support systems

A team of trained, dedicated, conscientious and hardworking medical professionals is universally recognised as the cornerstone of an effective PD program. The team now also consists of qualified PD nurses, access surgeons, dieticians and social workers. The role of nephrologists and nurses has already been discussed. A program needs both social workers and dieticians in order to be successful [9].

Because dietary management is essential for PD patients, dieticians must provide patients with particular guidance regarding their consumption of sodium, phosphorus, potassium, energy and protein. Psychosocial assessments and interventions are crucial for patients still undergoing home therapy. Every facility needs to implement a regular assessment to identify psychological problems and plan interventions accordingly. Medical experts that specialise in infectious diseases, diabetes and physiotherapy are also essential for a PD program.

## Conclusion

The growing ESRD population in the face of limited resources highlights the need for actions to maximise the use of less expensive PD while simultaneously improving clinical outcomes. However, there are notable regional variations in the progression of PD. Together, these components support a high-quality PD program that improves patient clinical outcomes. They are separate from one another but connected to one another.

## Acknowledgment

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## Conflict of Interest

None.

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