PD first policy of Thailand: why and how

Dhavee Sirivongs, M.D.
Associate professor, Division of Nephrology, Khon Kaen University Medical School, Thailand
PD clinical specialist, National health security office, Thailand

Abstract: Peritoneal dialysis (PD) first policy of Thailand has been established more than 7 years, includes all branches of renal replacement therapy (RRT) but PD has been assigned as the first option. The expenditure is surely high, but it is quite much less than expected due to proper administration. The outcome of the therapy is comparable to reports in the literature. Keywords for running the policy have included full education program, devoted medical personnel, cheap PD solution, and effective administration. By now PD is a regular practice for ESRD in Thailand. The results has proved that it is possible to provide free of charge renal replacement therapy to poor people in the developing countries.

Keywords: Peritoneal Dialysis, PD First policy, developing countries.

Introduction:
Renal replacement therapy (RRT) is a high cost treatment for end stage renal disease (ESRD) patients, so only ones who can pay by themselves or get reimbursement from somewhere else may receive the treatment. To provide the treatment free of charge to ESRD patients who have no any health security, Thailand has run PD first policy as Hong Kong has done (1) but in a bigger scale.

As one of the developing countries, Thailand also has a high prevalence of chronic kidney disease (CKD) and ESRD (3,4). Renal replacement therapy is a quite expensive therapy and available only in an urban area. Up to 2007 ESRD patients in Thailand, who had no health security, had faced grave destiny or a chance of family bankruptcy. Fortunately Thai government decided to include RRT in health benefits for patients under universal coverage health care scheme (UC) that covered more than 48 million of people. Since 2008 ESRD patients under UC can receive free of charge RRT administered by National Health Security Office (NHSO) (5). By in-country studies, peritoneal dialysis has been chosen as the first therapeutic option for the patients, so named the policy as “PD first policy”(2, 6-7).

Prior to PD first policy
Since 2002 poor people has been taken care under UC run by NHSO. By that time a few diseases, they were AIDS, Malignancy and ESRD, were not included in UC. Anyway the first two conditions were included later. ESRD had been in consideration to be included in UC for years but the therapy could not be provided due to afraid of financial burden to the country. In the meantime few cost studies including cost-effectiveness, feasibility were conducted by multi-center teams. One of the papers showed that CAPD in Thailand was more cost effective than hemodialysis (7). Pilot projects on care providing as stand-alone and network service models were conducted in 3 medical centers, Khon Kaen medical school, Prince of Songkla medical school and Banphaeo
hospital, to test system feasibility in the early of 2007. The results showed that both models can be utilized on providing the therapy for poor patients in rural area. By supporting of academic sectors, Thai guideline on CAPD care was published by Nephrology society of Thailand in the mid-2007(8).

The era of PD first policy in Thailand

In October 2007 Thai government has included PD first policy as a health benefit for patients under UC, and set the policy effective in 2008. The main reason that Thai government has provided complimentary dialysis in UC is to prevent poor patients from bankruptcy and family catastrophe, and they chose Peritoneal Dialysis as the first therapeutic option because of its simplicity, cost saving and less medical personnel usage. Since then NHSO has been assigned to run PD first policy and they were quite busy on organizing an effective way to gain success on providing the therapy for the patients. NHSO set a plan to apply PD first policy in provincial hospitals that were ready to provide the treatment as a stand-alone PD hospital, then connecting community hospitals in the same province and the bigger hospitals in the region as network pattern would be applied later.

Even PD first policy can be started with devotion of medical personnel who has understood what they had to do to the poor patients, but running a policy needed some specific management strategies. Budgeting was the priority to be considered, on the first budget projection for the full scale of care, a humongous amount of money needed if a regular commercial product cost was applied(6). So for the policy, Thailand had to have a cheap product and also a proper effective service plan. By the first year the policy started using a budget of about US$17 million that was moved from AIDS project residual fund. The annual budget has increased every year due to expanding in number of the patients and PD facilities. For this fiscal year a budget of more or less US$ 200 million have been set. Process of running the PD first policy(Table 1.)

Table 1. Actual process of running PD first policy in Thailand

<table>
<thead>
<tr>
<th>• Budgeting</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Formation of the first provider group (Phase I PD hospitals)</td>
</tr>
<tr>
<td>• Obtaining cheap PD solution supplies</td>
</tr>
<tr>
<td>• Training a new generation of medical personnel</td>
</tr>
<tr>
<td>• Learning from the success PD programs in Hong Kong and Singapore</td>
</tr>
<tr>
<td>• Setting up PD technology and training centers for problem solving</td>
</tr>
<tr>
<td>• Policy management by the national RRT committee</td>
</tr>
<tr>
<td>• Setting up regional RRT technology and training centers for quality control</td>
</tr>
</tbody>
</table>

In 2007 more or less 60 hospitals provided PD therapy, and only few centers in Thailand were active on PD. All hospitals were invited by NHSO to join the policy, but only 23 facilities around the country so called “Phase I PD hospitals” accepted the invitation. So, in the last week of 2007, the key nurses from the hospitals attended a 5-day PD training course at KKU to standardize PD practice, to tune their idea about the policy and to set a training program for patients and family (2). On that time some patients had already recruited as pilot patients.

As a cheap PD solution is an essential factor of budget saving for making the policy feasible, NHSO had to find out that solution. On that time regular price for a standard PD (1.5%) solution was US$5.0, even some were produced in the country. NHSO by cooperating with Thai government
pharmaceutical organization, the first million bags were bought from a PD plant in India under an auction process in a price of US$ 2.7 per bag (price in 2008). At present the policy needs about 24 million bags of PD solution a year, most of them still come from India. Fortunately, 2 years ago a PD solution company decided to make a PD solution plant in Thailand, and hopefully the plant will provide the solution in 2016 in cheaper cost. Moreover to save cost for the patients and family, PD solution has been sent home directly free of charge. This process has ideally fit for patients who live long distance from the center.

Well-trained medical personnel has been essential for successful PD program. When the policy started most medical personnel did not get used to PD therapy. They were neutral or even negative to the treatment compared to hemodialysis. Furthermore PD first policy had been negatively predicted to face failure soon. So new generation of medical personnel was needed to serve the policy, they had been trained by KKU, and by a training network in Bangkok organized by Chulalongkorn University. Also a number of surgeons and nephrologists were trained to perform the catheter implantation by these centers. By 7 years of the policy number of hospitals providing the service has increased from 23 to 155 hospitals around the country.

In the first year as the policy needed to academically support the medical personnel and also strengthen moves of the policy, a group of key nephrologists and NHSO administrators visited Hong Kong to learn about PD first policy especially the process and problems (2), the visit organized by the central renal committee of Hong Kong. The message taken home were concerning about the budget and the quality of care, both have been kept in mind since then. To learn an update PD practice, a group of PD nurses visited Singapore general and Tan Tock Seng hospitals to see regular PD practice and patient care problems.

To directly support the policy, in 2009 Khon Kaen university medical school (KKU) had been assigned as a PD technology and training center (PTTC) by NHSO to maintain quality of care. The major roles of the center were providing training for medical personnel including PD nurses, Nephrologists, Internists, and Surgeons; and organizing PD problem solving meetings. In 4 years more than 20 meetings organized, details of the meetings included patient problems, insufficient manpower, and psychological supports. Fortunately most of the problems were solved after the meetings. Later Srinakharinwirot University Chiang Mai University, and Banpaew-Prommitr hospital also assigned as the PTTCs for central region, northern region and Bangkok, respectively.

In 2010 according to number of PD patients and medical personnel had increased very fast, as well as bigger budget needed, a national RRT committee has been set up to administer and regulate the policy. It’s members have included NHSO & Public health administrators, PD specialists, representatives from related academic societies & organizations including the patient sector.

Since 2014 Regional RRT technology and training centers (RRRTc) have been set up in each region of the country to improve the quality of PD care. Their jobs include site visits, data collection and analysis, quality assessment, key performance index monitoring, and running training programs for medical personnel. All RRRTc have been working together as a network to have common standards, common approach, and common key performance index.

Actually the PD first policy has included all branches of renal replacement therapy, but PD is the first option provided for ESRD patients under UC. Hemodialysis is provided for patients who face primary or secondary failure for PD. In addition kidney transplantation is an option for all patients who have no contraindication for it. Also at present the policy is working out on CKD care. All PD hospitals have been
Indian Journal of Peritoneal Dialysis

encouraged to run CKD clinic to take care the patients before
dialysis, besides patients who deny dialysis continue to
receive proper care as conservative treatment.

**Outcome of the policy (9)**

By 7 years of the policy, more that 400 nurses attended the PD
training courses, and nephrologists and internists have been
familiar with the treatment by participating short courses and
academic meetings. So nowadays PD is a common practice in
Thailand for ESRD patients. The access rate to therapy of UC
patients has increased from less than 5% to about 83%. It
indicates much improving in quality of life of Thai ESRD
patients.

Growing in numbers of patients undergoing PD therapy has
been rapidly as in Figure 1. Currently more or less 600
patients monthly are commencing PD therapy compared to
200 of drop-out cases. Penetration of PD compared to HD
rose from 4.76% (10) in 2007 to more than 30% at this time.

*Figure 1. showed numbers of new ESRD cases
registered for dialysis therapy in each year, in 2015
included only the first 6 months.*

Up to June 2015, 59,542 ESRD patients under UC has
registered for RRT, some died without receiving the treatment
after their registration. Currently 58% of the patients have still
been on RRT. Table 2. showed that 38,856 CAPD cases were
registered, 44.28% continue on the therapy. Annual shift-
mode rate was seen in 4.76 + 1.07 %, annual death rate found
in 13.42 + 2.89%. Regarding hemodialysis, 24,868 cases
including about 6000 cases done before the policy, and PD
failure cases were registered. With respect to kidney
transplantation, 1,751 cases including new cases and cases
done before the policy were registered.

At present there are 155 Hospitals around the country
providing CAPD for UC, average number of PD patients per
unit were around 110 cases. Ratio of nurse to patients varied
between 1:50 and 1:200.

About the quality of PD care, all patients and/or their care
givers gained knowledge about self- care from educator
nurses and passed the test. Data from 21 provincial hospitals
in the northeast region had average peritonitis rate was once in
30 months, in the range 28-42 months. Regarding quality of
life a short term study using the EuroQol-five dimensional
questionnaire (EQ-5D) assessed in samples of PD patients
under UC (11). Both mean EQ-5D and visual analogue scale
scores were 0.65 indicating that the patients rated their health
approximately 65% of perfect health comparable with reports
from the literature (12).

*Table 2. Summary of UC* patients on all branches of renal replacement therapy since 2008,
duration 7 years 6 months. Data on June 20, 2015.*

<table>
<thead>
<tr>
<th>Modalities</th>
<th>Registered cases</th>
<th>Continue on treatment</th>
<th>Total shift mode</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peritoneal dialysis</td>
<td>38,856</td>
<td>44.28%</td>
<td>12.34 %</td>
<td>Including about 6000 cases done before the policy, and PD failure cases</td>
</tr>
<tr>
<td>Hemodialysis</td>
<td>24,868</td>
<td>59.6 %</td>
<td>7.94 %</td>
<td></td>
</tr>
<tr>
<td>Kidney transplantation</td>
<td>1,751</td>
<td>75.84 %</td>
<td>5.25 %</td>
<td>Including new cases and cases done before the policy</td>
</tr>
</tbody>
</table>

* UC, universal coverage health care scheme
Even PD first policy of Thailand had brought about a lot of burden to medical personnel, and the country pushed a lot of budget to vitalize the policy, but the outcome was quite satisfaction. Thailand can strengthen the family and community, maintain man-power. Also all patients can contribute some money back to the country as they pay tax, directly or indirectly.

**Conclusion**

PD first policy of Thailand has been established more than 7 years, includes all branches of renal replacement therapy. The expenditure is surely high, but it is quite much less than expected due to proper administration and management. By now PD is a regular practice for ESRD in Thailand. The outcome of the therapy is comparable to reports in the literature. The results has proved that it is possible to provide free of charge RRT to poor people in the developing countries.

**References**