RENAL
REPLACEMENT THERAPY
UNDER THE NATIONAL HEALTH SECURITY SYSTEM

NHSO
National Health Security Office

GLOSSARY

PATIENTS WITH END-STAGE RENAL DISEASE [ESRD]

Patients with chronic renal disease are patients with prolonged renal impairment and progressing to end-stage renal failure. This condition renders the body unable to excrete waste or excess water. The patient suffers from excretion of waste products in the blood and requires renal replacement therapy (RRT) by hemodialysis, peritoneal dialysis, or kidney transplant.

HEMODIALYSIS [HD]

HD is a method of RRT for patients who use hemodialysis or blood dialysis machines. In principle, the hemodialysis machine processes a patient's blood through a filter in the machine. One dialysis session takes 4 - 5 hours and must be done at least 2 - 3 times a week according to the patient's kidney condition.

PERITONEAL DIALYSIS [PD]

PD administers dialysis fluid into the abdominal cavity, and the lining of the abdominal wall is used to filter waste from the blood. The peritoneum is a thin membrane lining the inside of the abdomen and covers the fat tissue in the abdominal cavity. As PD is performed, waste is removed from the blood into the abdomen and drained.

CONTINUOUS AMBULATORY PERITONEAL DIALYSIS [CAPD]

In this method, the dialysis fluid is kept in the abdomen to filter waste from the blood. The patient is able to move freely during dialysis, and CAPD can be administered in the home setting. Patients will have to do dialysis daily and change the solution at least four times per day.

AUTOMATED PERITONEAL DIALYSIS [APD]

This is a method of PD that the patient can do at home and can be performed while sleeping by using the dialysis machine only one time a day. The APD machine reduces the time it takes for the infusion of the dialysis solution and removal of fluids, which is done automatically. The solution container is refilled automatically after each cycle.

KIDNEY TRANSPLANTATION [KT]

KT is the most extreme measure for treating end-stage renal disease patients so that they can have the same quality of life as others. After KT, hemodialysis services or PD are no longer required. However, transplant patients must take immune-suppressants throughout their life to prevent donor-organ rejection. The kidney to be transplanted into the patient may be from a healthy person who died an accidental death or a living person (usually a close blood relative). The donor must match the blood and tissue types to be as compatible as possible with the recipient.

TABLE OF CONTENTS

1

INTRODUCTION

CHRONIC RENAL DISEASE
IN ADDITION TO CAUSING SUFFERING
DUE TO THE BURDEN OF THE DISEASE,
ESRD TREATMENT IS SO COSTLY
THAT SOME PATIENTS AND/OR THEIR FAMILIES
ARE FINANCIALLY BANKRUPTED
BY UNPAID BILLS FOR TREATMENT

1.1

SITUATION OF KIDNEY DISEASE AND TREATMENT OF END-STAGE RENAL DISEASE (ESRD) IN THAILAND

Chronic renal disease is a public health problem in Thailand that adversely affects the life of the sufferer. Chronic renal disease patients have a poor quality of life, have reduced immune protection from infectious disease, and have an elevated rate of disability and death compared to other chronic non-communicable diseases (NCD) or conditions.[1] Kidney disease also comes with a high cost of treatment. In 2017, it was estimated that 11.6 million people (17.5% of the total population) in Thailand had chronic renal disease. Of these, over half (5.7 million) had chronic renal disease in stage 3-5[2]. In 2017, fully 100,000 patients required hemodialysis (HD)[3], and an estimated 20,000 were ESRD patients who needed HD or peritoneal dialysis (PD).[4] In addition to causing suffering due to the burden of the disease, ESRD treatment is so costly that some patients and/or their families are financially bankrupted by unpaid bills for treatment.

Initially, Thais who were covered by the Civil Servants Medical Benefits Scheme (CSMBS), employees of state enterprises, and workers enrolled in the Social Security System (SSS) could obtain subsidized renal replacement therapy (RRT). However, beneficiaries in the National Health Security System (or Universal Coverage Scheme, UCS) – who account for most Thais – were not eligible for RRT. However, on December 28, 2007, the National Health Security (NHSO) Board elected to include RRT in the benefits package for UCS members as part of the 'PD First' policy, which gave priority to peritoneal dialysis for patients with ESRD.

1.2

BACKGROUND OF RRT UNDER THE NATIONAL HEALTH SECURITY SYSTEM

The journey toward adding RRT to the NHSO system began long before the inclusion of RRT in the UCS benefits package in 2008. This development represented the culmination of a growing trend for patients with ESRD and the enormous expense associated with treatment. Thus, various stakeholders such as patient groups, professional groups, doctors, nurses, government officials, and others recognized the importance of expanding the UCS benefits package to include RRT. The key factor that finally led to the expansion of the benefits package was the disparity between the NHSO coverage and the CSMBS, state enterprise employee insurance, and the SSS. Under the SSS, the patient may receive any one of the main types of RRT services, with a co-pay for hemodialysis (HD) that exceeds 1,500 baht per time or if there is a need for HD more than twice a week. One study, conducted in 2000 found that three out of four kidney disease patients in Thailand did not have access to RRT services.[5] This inequality of care was a major force that pressured the NHSO to add RRT to the UCS package.[6] (See Table 1.)

In 2000, 3 out of 4 kidney disease patients in Thailand did not have access to RRT services

Table 1: Right to RRT in the Three Main Government Health Insurance Schemes: 2007[7]

Type of Insurance	RRT by HD or PD	Kidney Transplant [KT]
Civil Servants Medical Benefits Scheme (CSMBS)	- HD: 2,000 baht per time - PD: actual cost for the solution - Reimbursed for the cost of drugs to stimulate red blood cell formation (Erythropoietin) at actual cost	- Right to treatment in public hospitals, surgical fees, and inpatient care, paid according to the co-diagnosis group criteria (Diagnosis-Related Group - DRG) - Reimbursement of the actual cost of immune-suppressants
Social Security System (SSS)	- HD: 1,500 baht per time, not more than 3,000 baht per week, but HD must be performed at least twice a week - PD: No more than 15,000 baht per patient per month - Right to be reimbursed for the actual cost of Erythropoietin, but not more than 750 baht per week (4,000 U)	- Surgery: 230,000 baht; plus immune-suppressant medication in the first year: 300,000 baht - 2nd year immunotherapy: 240,000 baht - Future immune-suppressants: 120,000 baht per year.
NHSO (Gold Card, or UCS)	None	None

It was clear that patients covered by the National Health Security System were not entitled to the same protection as the other government insurance funds. However, some studies had shown that the cost-benefit ratio was not favorable if RRT was included in the UCS package.[5] The state would have to bear an enormous burden given the large and increasing caseload. A study in 2000 estimated the cost of RRT and found that a typical patient would cost approximately 436,800 baht per year on dialysis (in the case of using HD), assuming machine HD at dialysis at 1,500-2,500 baht per time. Two HD sessions per week would cost 156,000-260,000 baht per year. The cost of Erythropoietin was estimated to be about 120,000 baht per year. If the patient used PD, the cost of the dialysis solution was estimated to range from 292,000-365,000 baht per year. Combined with Erythropoietin, the cost would add about 120,000 baht per year. There is also the travel cost of a trip to the hospital twice a week that has to be factored in.[8]

Studies had shown that the cost-benefit ratio was not favorable if RRT was included in the UCS package.

The government would have to spend more than 5 billion baht in the first year after adding RRT to the UCS benefits package

In the case of KT patients, the estimated expense was 100,000-200,000 baht if using government hospital services, with the additional cost of approximately 10,000 baht per month for anti-organ rejection drugs for the rest of the beneficiary's life. In sum, the cost of KT in the first year would be 200,000-320,000 baht and, in the following years, would total about 80,000-120,000 baht per year.[4] It can quickly be seen that the expense burden on RRT is many times greater than the average Thai household could bear. Indeed, there were numerous anecdotal stories of patients who drove themselves and their families into debt and poverty from bearing the cost of RRT.

A study of the International Health Policy Program (IHPP) and the Nephrology Society of Thailand in 2005[5] found that the government would have to spend more than 5 billion baht in the first year after adding RRT to the UCS benefits package. The cost could even rise to tens of billions of baht or more per year in cumulative costs, or about one-third of the entire budget for UCS in a 15-year period (Table 2).

Table 2: Estimate of the Cost of RRT under the UCS (Gold Card) System in Years 1, 4, and 16*[5]

Cost Scenario	Cost (baht) per patient per year**	Cost of the program in Year 1 (million baht)	Cost of the program in Year 4 (million baht)	Cost of the program in Year 16 (million baht)
Low	250,000	3,994	14,358	55,776
Medium	350,000	5,400	19,881	74,355
High	425,000	6,455	24,024	90,100

Remarks:
* Annual incidence of disease: 300 per million population, increasing 2% per year
**Used as the basis for an estimate of the cost for both HD and CAPD patients with the "low cost" scenario

Dr. Viroj Tangcharoensathien and colleagues predicted that, if all eligible ESRD patients have access to RRT services (universal access), and the ESRD incidence is 300 per million population (PMP), the number of ESRD patients accessing RRT services will increase to more than 50,000 by the fourth year of expanded access to RRT services (yielding a prevalence rate 1,087 PMP). The number of cases would accumulate to over 100,000 (prevalence rate 2,112 PMP) by Year 9 and would reach 188,435 (prevalence rate 3,650 PMP) by Year 20. The incidence of RRT is set to increase by 2% per year. In any event, the above scenario is considered as the extreme case if RRT services are extended to all patients in the UCS. By contrast, if the minimum scenario is used, with prevalence of 100 PMP, the total number of cases drops to 62,812 (prevalence rate 1,217 PMP) by Year 20[5], as shown in Figure 1.

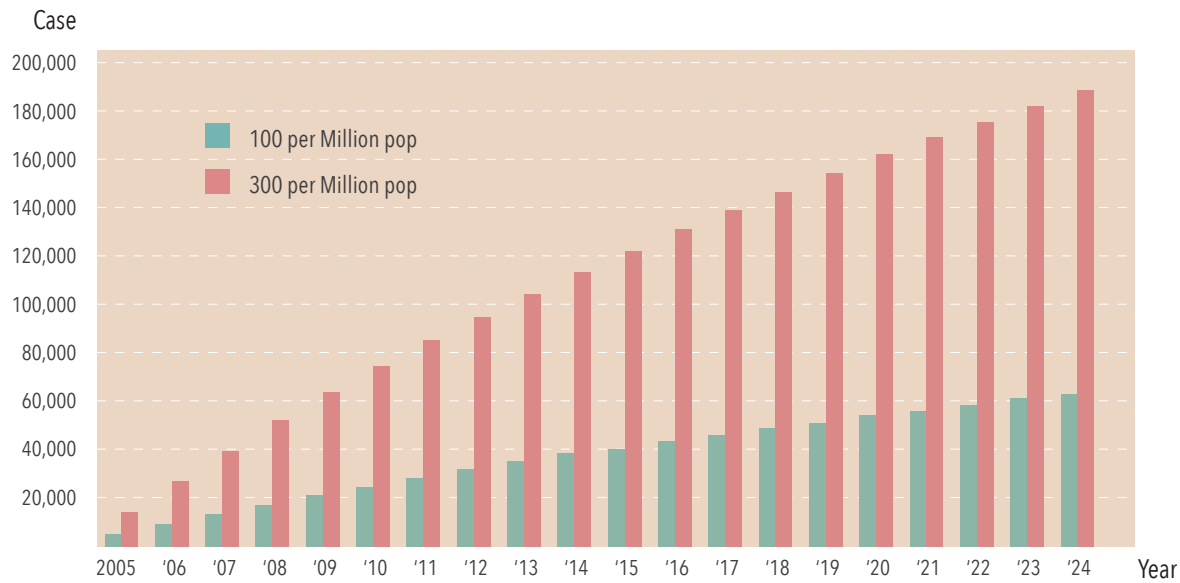


Figure 1: Estimates of the Prevalence of ESRD Patients Accessing RRT Services under the UCS System, Classified by Different Incidences between 2005 and 2024

The Commission on Macroeconomics and Health of the WHO states that a health service that has utility costs three times lower than that of national annual per capita income is a worthwhile investment, and the government should support it

The health investment criteria presented by the Commission on Macroeconomics and Health of the WHO states that a health service that has utility costs three times lower than that of national annual per capita income is a worthwhile investment, and the government should support it. However, in 2003, Thailand's annual per capita income was $2,240 or about 87,360 baht ($1 equaled 39 baht in 2003), while RRT could cost up to 400,000-500,000 baht per person per year. Moreover, from the above estimate, if the incidence of disease is 300 PMP, the state will have to spend enormous sums in expanding the benefits package to serve all eligible ESRD patients. Therefore, expanding the benefits package was considered not economically feasible.[5] However, health policy decisions and investing in health services in Thailand are not solely based on economic cost-benefit. The decision also rests on the consideration of ethics and fairness. What is more, patients with ESRD have a high risk of death, so cost calculations need to take that into account. In addition, the cost of treatment creates a financial burden for both patients and their families, which also puts a burden on the wider community. Thus, policymakers weighed a variety of factors – not just the cost of lifelong RRT – in making the decision on the UCS benefits package.

Health policy decisions and investing in health services in Thailand are not solely based on economic cost-benefit. The decision also rests on the consideration of ethics and fairness.

1.3

GOALS AND OBJECTIVES OF POLICY[6]

Thailand is a middle-income country that still has budget, material, and personnel constraints. Thus, the number of service units which can provide RRT is limited. The aim of the country in expanding UCS to cover RRT was to achieve equitable access through cost-effective implementation, and create better access and utilization. Expanded service would also reduce access costs, especially for persons living in rural areas. Based on all these considerations, the decision-makers articulated the following policy objectives of the expanded benefits package:

01 To create equitable access by providing PD as it is a service that patients can administer by themselves at home and, thus, both urban and rural patients have equal access

02 To prevent households from going bankrupt (due to cost of RRT) by subsidizing all costs for PD and KT without co-pay since a standard co-payment would place a huge financial burden for the typical household since it requires long-term care

03 To invest in cost-effective interventions, where KT is a cost-effective choice because patients have a better quality of life and do not need to perform chronic HD procedures

04 To invest in a technically-efficient alternative, such as PD, due to the potential to reduce costs since PD does not require per capita investment and does not require a lot of personnel compared to HD

05 To minimize the impact on the health services system and minimize burn-out or resignation of nurses and doctors who provide critical services patients (such as ICU) because PD does not require much medical intervention compared to HD; if private providers increase the provision of HD, that would drain clinical personnel from the public to the private sector

06 To promote efficient allocation of resources by investing in more cost-effective services such as KT and PD, rather than the more expensive HD service

07 To increase the cost-effectiveness ratio by reducing the cost of producing PD solutions and related drugs domestically instead of relying on imports. This can be done by national bulk purchasing (i.e., monopsonistic purchasing power) of Erythropoietin and immune-suppressant drugs to prevent graft rejection. There is also the strategy of greater use of generic drugs to replace patented drugs

1.4

PILOT PROJECT IN THREE PROVINCES[6]

After establishing the objective and preliminary management model for the expansion of RRT services in 2005, the NHSO conducted a PD pilot program at Srinakarin Hospital (Khon Kaen Province), Songkhla Nakarin Hospital (Songkhla Province), and Ban Phaeo Hospital (Samut Sakorn Province). As a result of the pilot project in Khon Kaen, doctors and nurses were trained at community hospitals to expand PD services to more rural locations. The criteria for the selection of patients were age between 8-50 years and the ability to make a co-payment of 1,000 baht per month as a sign of commitment to self-care. A network of connections between the university hospital and community hospitals was created to form a referral network. The university hospital is the host to consult on cases and situations beyond the capabilities of service providers in community (i.e., district-level) hospitals. The pilot project tested the distribution system to deliver the PD solution to the patients' house, and produced acceptable results. Of the initial caseload of nine patients, four had to drop out (three cases of mild infection and one death), while the other five successfully practiced uninterrupted RRT. Among these five cases, three never experienced abdominal infection. However, there were some limitations in providing services, such as the back-up from medical personnel at the district level. In particular, some participating physicians felt that this activity was an additional burden on their hospital since they already had a high workload and had limited ability to support patients in the home setting. In addition, some persons with renal disease who otherwise would qualify for PD under the program refused to participate since they felt healthy enough and/or did not want the burden of self-care. The conclusion of the pilot study was that, if PD service was decentralized to the community hospital level, then the maximum caseload should be four patients per site.

'PD First' policy was the optimal solution for RRT if it was to be included in the UCS benefits package

At Ban Phaeo Hospital, there were 22 applicants to participate in the project, but three were unable to perform PD, resulting in a study population of 19 patients. More than half of the patients who initiated RRT were already physically debilitated from not receiving treatment. As a result, five patients died and three had to shift from PD to HD. The Ban Phaeo pilot project demonstrated the feasibility of shared cost of services by both patients themselves and the local administrative organization (LAO). In this arrangement, the patient and LAO each covered 25% of the cost of HD treatment. However, if the case elected to practice PD, then no co-pay was required. This was an important option since some populations with low income could not afford the 25% co-pay.

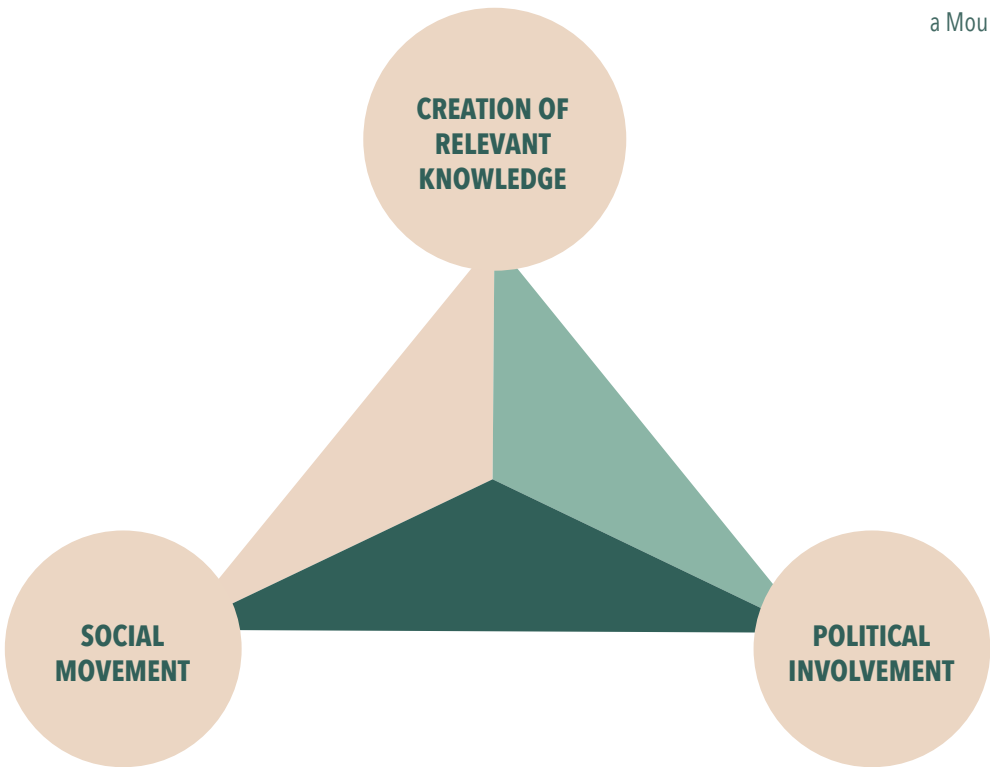
Results from various studies, assessments, analysis of policy goals, and the pilot projects helped to determine the most appropriate option. It was concluded that PD, as the procedure of choice (hence, the "PD First" policy), was the optimal solution for RRT if it was to be included in the UCS benefits package.

1.5

SUCCESS IN ADVOCACY FOR THE INCLUSION OF RRT IN THE UCS BENEFITS PACKAGE

The success of the push to include RRT in the UCS benefits package is an example of applying the concept of Prof. Prawet Wasi's "Triangle That Moves a Mountain" with its three main components: The creation of relevant knowledge; social movement, and political involvement (Figure 2).

Figure 2: Triangle That Moves a Mountain Strategy[9]



CREATION OF RELEVANT KNOWLEDGE

Prior to fully advocating for RRT to be included in the UCS benefits package, the academic sector had to conduct extensive studies on the necessity and feasibility of providing RRT services to the general population. On the surface, it would seem that providing RRT under the National Health Security System would not be economically viable. But providing a cost-effective service could be justified on humanitarian grounds, in that the treatment would greatly enhance the quality of life of patients and their families, in both economic and health aspects. That gain would then be shared in the wider community and society at large.

POLITICAL INVOLVEMENT

After consultation and consideration by the various working groups and subcommittees, a draft policy was presented to the Cabinet for approval to expand the benefits package of coverage for ESRD patients in the National Health Security System. Initially, there was some reluctance to approve such a costly proposal with a long-term budget commitment since it was late in the administration of the ruling government. Nevertheless, the policy was approved by the government, which had Gen. Surayuth Chulanon as Prime Minister and Dr. Mongkol Na Songkhla as the Minister of Public Health. On October 30, 2007, and later on December 28, 2007, the NHSO Board approved the RRT criteria and conditions in accordance with the Cabinet resolution to expand the benefits package for ESRD patients, and began the process of providing RRT starting at the beginning of 2008.

SOCIAL MOVEMENT

In addition, Civil Society organizations (CSO) such as the Nephrology Society of Thailand, the Kidney Foundation, Love Kidney Group, groups of service providers, researchers, and kidney disease patients joined forces and called for RRT to be included in the UCS benefits package. Different groups gathered to discuss the issue of Gold Card holders (i.e., UCS beneficiaries) who were not covered by the cost of RRT. These groups advocated for the inclusion of RRT in the UCS with a unified voice at various forums. At the same time, the NHSO, as the body responsible for the management of UCS benefits, opened a platform for these groups to discuss and present policy positions.

The key factor for success in advocacy for the expansion of the benefits package to cover ESRD is the political climate. The policy advocacy movement was driven by Dr. Mongkol, the Minister of Public Health at that time. There was also the crucial support of Paiboon Wattanasiritham, who was the Minister of Social Development and Human Security and Deputy Prime Minister at that time. Ultimately, the proposal for inclusion of RRT in the UCS benefits package was approved by then-Prime Minister Gen. Surayud Chulanont, although the government had earlier announced that it would no longer approve projects with long-term budget obligations as the term of the reigning government was about to expire. Indeed, the proposal to expand the benefits package to include RRT was approved as one of the last major actions of that government.[10]

Connecting all three corners of the triangle was a key factor in successful advocacy for a broadened policy for RRT. That is, the work of the academic sector was required to compile the relevant technical information to inform the standpoint of CSO and the political parties. This was combined with the direct experience of patients and open forums to exchange opinions and give a voice to the needs of the group. In sum, the combined efforts of the political parties, government civil servants, professional personnel and CSO were able to take advantage of the favorable political environment to push through approval of the expansion of the UCS benefits package to include RRT.

According to Dr. Suwit Wibulpolprasert, the chairman of the 1st National Health Assembly in December 2008, Prime Minister Gen. Surayud Chulanont was invited to be the keynote speaker of the Assembly. After the end of the Assembly session, Gen. Surayud and Dr. Suwit had a private conversation whereby Dr. Suwit asked Gen. Surayud regarding his decision to include RRT in the UCS benefits package. Gen Surayut thought for a moment and answered in the following way:

"In this regard, people with money can get (RRT) service and survive. As for the poor, they die or go bankrupt. Given such an unfair situation, the government must step in and take action."

Gen. Surayud's remarks reflect empathy for ESRD patients and are evidence of the importance of advocating for patients with little or no voice in the matter. This landmark decision also reflected the government's humanitarian viewpoint of medical treatment rights.

1.6

KEY MILESTONES IN THE EVOLUTION OF RRT UNDER THE UCS

In the past decade of experience with the inclusion of RRT in the UCS, there have been developments and changes in order to maximize the cost-effectiveness of the service. The following are key milestones in that effort:

SEPTEMBER 26, 2007

The NHSO Board committee passes a resolution to expand the benefits package for ESRD beneficiaries in the National Health Security System as follows:

1. The government subsidizes RRT by including kidney transplant (KT) for both new and continuing ESRD patients under the UCS system, whereby patients do not have to make a co-pay, and the organ donor recruitment effort was accelerated, starting from January 1, 2008

2. The government subsidizes services for Continuous Ambulatory Peritoneal Dialysis (CAPD) for both new and continuing ESRD patients under the UCS system, whereby patients do not have to make a co-pay. This service was launched simultaneously in all provinces on January 1, 2008. In the first phase, each province built capacity to bring the system to parity across locations. If it was not possible to provide PD, then HD was offered as a secondary option, but only when the criteria, mechanisms, and process for selecting patients has been completed.

3. For patients who had been using HD and who are eligible for UCS but do not want PD, the government provides subsidies by allowing patients to pay one-third of the cost of the HD services. Starting in FY 2009, new ESRD patients who meet the criteria for PD but elect to have HD are not eligible for a subsidy from the NHSO.

OCTOBER 30, 2007

The Cabinet passes a resolution to approve the extension of the benefits package for ESRD patients in the National Health Security System to cover RRT, except for those with contraindications. This was a manifestation of the PD First policy.[1]

DECEMBER 28, 2007

The NHSO Board approves the criteria and conditions for RRT in accordance with the Cabinet resolution.

JANUARY 1, 2008

This date marks the first time that the NHSO provided the following services:

1. The Government subsidizes the cost of CAPD for both new and continuing ESRD patients under the Gold Card (UCS) system without co-pay requirement, and launches this service simultaneously in all provinces nationwide. In the first phase, each province was given one year to build capacity to bring the system to parity across locations. Patients who initially did not meet the criteria for CAPD were referred for machine-HD until they met the CAPD criteria.

2. For the continuing patients on HD who have a Gold Card but declined CAPD, then the government provides subsidies whereby the patient pays one-third of the cost of HD.

3. To emphasize and accelerate action on the control and prevention of diseases that cause chronic renal failure, especially hypertension and diabetes, there is intensified cooperation between the relevant agencies such as the Ministry of Public Health (MOPH), NHSO, and other related agencies.

OCTOBER 1, 2010

Beneficiaries are granted the right to receive Erythropoietin if they are a new HD patient using an HD machine and who do not wish to receive PD in accordance with NHSO guidelines.

OCTOBER 1, 2012

NHSO cancels co-payments for RRT cases using HD machines for continuing ESRD patients but who do not wish to shift to PD.

AUGUST 7, 2017

The NHSO Board reviews implementation over the past ten years to identify successful components and obstacles that remain. The Board reviews the system of management of the RRT budget and previews the budget burden in the next phase with an emphasis on reducing the number of new chronic renal disease patients by slowing the progression of the disease and coordinating with the Nephrology Society and the Royal College of Physicians of Thailand to review the process of adjusting conditions (shift mode) in PD and HD[11], while anticipating new technologies, such as Automated Peritoneal Dialysis (APD).

JUNE 22, 2018

A technical conference is convened on quality development of PD (*"Ten Years of Thailand's 'PD First' Policy: Dialysis For All, No One Left Behind"*). The conference was held at the Impact Exhibition Center, Muang Thong Thani, to announce the success of the PD First policy over the past ten years. The conference was organized by the Nephrology Society of Thailand in collaboration with the MOPH, the NHSO, and the Thai Nephrology Nurses Association, among others.

AUGUST 7, 2020

NHSO starts the APD service by first conducting a research project involving 100 patients and later, in October 2020, adding another 100 patients to the study cohort. It was found that patients who used CAPD therapy in the past used four bags of dialysis solution per day, which caused patients to lose sleep due to the need to change the solution bag at night. However, with APD, patients use only two bags of solution per day and, thus, were better able to get a full night's rest.

In sum, it can be seen that, over time, the NHSO has strived to continually improve RRT. One of the highlights of NHSO Policy is the PD First approach which is intended to encourage ESRD patients to have equal access to services and improve their quality of life.

2

PD FIRST POLICY

RRT is a very costly treatment and requires long-term care of patients. There are different forms of therapy in terms of cost and access to services that address these challenges. The PD First policy attempted to address those inequities in the system. As its name indicates, the NHSO has the policy to put kidney disease patients on PD before other more expensive or restrictive therapies. The main objective of the PD First policy is to increase the access to RRT for beneficiaries under the National Health Insurance System, prevent patients from financial bankruptcy, and reduce the impact on the NHSO budget. However, in the beginning, there was some resistance to the policy from some nephrologists who felt that PD therapy was less effective and less safe than HD.[12] On the other hand, in the context of Thailand, many people are unable to use HD services because they live in remote areas. In addition, the need to travel to an HD service provider costs patients and relatives time and expense. Other things being equal, the cost of PD and HD treatment is not significantly different, but HD patients incur high indirect costs such as travel expenses, and HD also requires more healthcare personnel to operate.[10]

RRT using PD is a popular method in Australia, Canada, New Zealand, the Netherlands, the United Kingdom, and countries of Scandinavia. These are countries where the state provides generous medical welfare to its citizens, and they report a PD utilization rate that is 20-30% higher than HD. PD is also considered to incur lower costs than HD.[13] In addition, from the study of the RRT model in neighboring countries such as Hong Kong, it was found that 90% of persons in need of RRT could access it and, of these, 79% were put on PD treatment. Implementation of RRT was through the Hong Kong Nephrology Foundation, which is funded by the public and donations. The Hong Kong Kidney Foundation began providing HD services in 1981, and added home-based Automated Peritoneal Dialysis (APD) in 1997. Hong Kong encouraged patients to use self-care dialysis, i.e., PD, rather than HD. Hong Kong analyzed the cost-effectiveness of its ESRD treatment and found that PD is superior and, thus, is the procedure of the first choice.[6]

The push for the PD First policy went relatively smoothly. However, prior to the introduction of the policy in Thailand, there was a predominance of HD service delivery units since HD was covered under the CSMBS and SSS health insurance schemes. In addition, there was a built-in incentive for clinicians to prescribe HD since they were compensated by the number of patients put on HD, and that produced resistance to the PD First policy from this group as well. Thus, the draft of the PD First policy faced a number of obstacles, and advocacy for the draft policy had to be advanced gradually in order to be finally accepted and approved.

2.1

STRATEGIES FOR IMPLEMENTING THE PD FIRST POLICY

The key factor behind the success in achieving the PD First policy was the close cooperation between three key stakeholder groups: Policymakers, experts, and CSO. The leader of the group of policymakers is the NHSO, with the MOPH being a key contributor to the implementation of the policy. These stakeholders' policies are based on five strategies to persuade professional groups to adopt PD as the first method of RRT under the National Health Security System, as described below.

STRATEGY 1

LEADERSHIP OF PHYSICIANS WHO SUPPORT PD

Among PD advocates, there was a group of experienced nephrologists who are the pioneers. They provided a clear and knowledgeable voice to counter the objections of HD-sponsored healthcare professionals. The PD group also had the support of the Nephrology Society of Thailand, and together they educated the public and all interested persons to recognize the value and advantages of PD.

STRATEGY 2

DEVELOPING A COMPREHENSIVE AND EFFICIENT RRT SYSTEM

The PD First policy was part of a strategy to develop an efficient and convenient service system to enable patients to access services thoroughly around the country. Initially, Thailand had more HD than PD units. For the PD First policy to be successful, therefore, the number of PD units had to be increased so that it could be demonstrated empirically that patients could access services more conveniently and more equitably than HD. The expansion of the PD units also took into account the capacity building for service units to be ready and able to implement the PD services. This was especially critical in remote areas where access to standardized services is lacking. The NHSO also recognized the travel constraints for patients in remote areas, and that provided an even stronger rationale for home-based dialysis.

In the first phase of implementing the PD First policy, three PD training centers were set up in three regions: Khon Kaen University (northeast), Chiang Mai University (north), and Ban Phaeo Prommitr Hospital (Bangkok). In addition, 20 additional PD service units were set up around the country. What is more, the Nephrology Society, the Thai Nephrology Nurses Society, and the Dietetic Association of Thailand added PD-focused training courses for students at the Master's degree level. Training in PD was integrated into programs of those receiving scholarships for treating diseases of the kidney or Nephrology Training Programs. The NHSO also supports the Thai Red Cross College of Nursing and Chulalongkorn University to organize a 16-week training course for nephrologists in the use of PD, with approximately 70-80 graduates per year.[14] In conjunction with the expansion of the PD unit and educating personnel, it was imperative to create incentives for healthcare professionals working in the HD unit to provide honest medical advice to patients, and motivate them to change the treatment method to PD.[13]

STRATEGY 3

COST CONTROL

Most of the expense of the RRT budget for ESRD patients comes from the purchase of dialysis solutions, and the NHSO plays a key role in obtaining the best bulk price through its purchasing system. As a centralized procurer, the NHSO could control prices and avoid price competition after the PD First policy was approved. Similar strategies were also used in purchasing Erythropoietin and catheters to control the cost for ESRD case management. Relevant personnel negotiated with dialysis manufacturers abroad to procure dialysis solution through bulk purchase, which is a key factor in the subsequent reduction of the cost of RRT. What is more, there were negotiations with foreign dialysis solution manufacturers to open factories in Thailand in order to reduce production and transportation costs, and reduce the delivery time of dialysis solution. Cost control is a strategy that takes into account the long-term sustainability of the domestic budget, especially for conditions requiring life-long treatment.[13] HD service also has price control measures and, under the UCS, the cost of HD was set at 1,500 baht per treatment in 2008, and that cost has remained the same up to the time of this report.

Another important component of cost control is the Committee to Support ESRD Patients in the National Health Security System which promotes access to district-level RRT. That Committee also influences how patients enter the service system. The criteria for consideration of HD or PD are based on medical indications. That said, the Committee has the duty to consider guidelines for steering patients to certain procedures of equal or better cost-benefit potential. That is the only way that the UCS can ever achieve financial sustainability.

STRATEGY 4

PEOPLE PARTICIPATION

Civil Society is also an important part of supporting and advocating the PD First policy. For example, the Thai Kidney Club (or the current Thai Kidney Association), founded by the late Mr. Subin Noksakul, recruited kidney disease patients across the country as members to advocate for RRT to be included in the UCS benefits package, and also support the PD First policy. That group was a powerful voice since they are the ones in society who stand to benefit the most from improved RRT – or have the most to lose if the system is not improved. Mr. Subin observed the plight of kidney disease patients who were spending all their resources on treatment, and he formed the Thai Kidney Club to promote programs and policies that would ease the burden on ESRD patients.

Initially, the Thai Kidney Club was small and was not widely known. Over time, the Club started to receive support from HIV and cancer patient support groups. The regional Thai Kidney Club joined forces with PD services units to provide direct and indirect care of patients.[13] These groups provided psychological care of both patients and families of new and continuing ESRD patients. The patients would get together and share experiences in daily life, receive tips on medical services, and collect various information related to both economic and social aspects to support living with kidney disease. The application of these strategies depends on the management of each service provider.[15]

STRATEGY 5

HAVING UNIMPEACHABLE ACADEMIC DATA TO SUPPORT THE DRAFT POLICY

Before the draft policy could be successfully advocated for, there was extensive research conducted by experts on RRT policy, comparing international experience on the weaknesses and strengths of various policy approaches, and calculation of the costs that the state will have to bear under various scenarios. This involved projecting disease incidence and other factors affecting the status and longevity of ESRD patients. With that data in hand, the advocates then had a solid academic foundation to build upon when advocating for the draft of the PD First policy. This allowed policymakers and the relevant personnel to use research and empirical data to refute arguments from opponents of the draft policy, and address the concerns of the public.

The technical information also included the results from a feasibility study of adopting new technologies or innovations to develop services such as APD, which needs to be addressed before wide adoption. This process entails sophisticated cost-benefit calculations and objective comparisons of the pros and cons in management of budget and efficacy in treatment outcomes.

It took 10 years of policy advocacy for the adoption of a PD First policy in the national health insurance system. In accomplishing this milestone, Thailand achieved a vision of access to quality treatment and reduced burden of patients from crushing treatment costs. It is access to the service without leaving anyone behind...

Dr. Sakchai Kanjanawatana, MD.
Secretary-General of the National Health Security Office

Source: Speech at a symposium on improving the quality of peritoneal dialysis services
("10 Years of Thailand's 'PD First' Policy: Dialysis for All, No One Left Behind")
June 22, 2018 at Muang Thong Thani

3

MANAGEMENT OF RRT BUDGET FOR ESRD PATIENTS

The strategy for budget management for ESRD care under the National Health Security System is through the PD First policy. There are operational guidelines where patients will be covered in all types of RRT including PD, such as CAPD and APD, HD, KT, and kidney transplant immunosuppression (KTI). CAPD is prescribed for all patients without contraindications to enable equal access to services.[16] If a patient has a contraindication for CAPD (either medical or social), they can shift to HD by going through the Committee to Support ESRD Patients in the National Health Security System at the district level. However, if the patient chooses to use HD as their first method of RRT, and that option is not approved by the Committee, NHSO budget will not cover such expenses (HD Self-Pay).[13]

3.1

GUIDELINES FOR DEVELOPMENT OF RRT

RRT is a costly medical treatment and this adds significantly to the burden on the country budget. Thus, it is necessary to develop a system that is efficient, while assuring quality services equitably. In order to control expenses to make the best use of the limited budget of the country, the NHSO has established the following guidelines:

1. RRT is to be administered to all patients by initiating the CAPD method in patients without contraindications;
2. Services are provided without co-pay for RRT by CAPD, HD in new patients unable to use PD, and KT; HD in continuing patients is charged a flat rate;
3. The RRT system must be sufficient, with quality standards, and have fair access, including effective management of budget;
4. There must be on-going improvements and quality control, along with research and development of information systems;
5. RRT is to be implemented in coordination with the prevention of diabetes and hypertension;
6. There is to be support for the participation of patients, LAO, and society.[17]

3.2

OBJECTIVES

1. To ensure that ESRD patients receive RRT of standard quality according to health necessity;

2. To prevent the bankruptcy of patients and their families from the expense of RRT;

3. To promote and support the participation of management of all sectors, and organize services and care for kidney disease patients to be effective and efficient.[15]

4

MANAGEMENT OF EXPENDITURE FOR SERVICES FOR ESRD PATIENTS

Management of costs of ESRD patient care can be divided into the following:

1. Peritoneal dialysis (PD) services
2. Hemodialysis (HD)
3. Prescription of Erythropoietin for patients using PD, HD, and HD self-pay
4. Renal replacement therapy (RRT) via kidney transplant (KT).

The costs for each of these approaches are discussed next.

4.1

PERITONEAL DIALYSIS SERVICES

The cost of CAPD includes the cost of abdominal surgery to insert a catheter, ongoing check-ups, peritoneal dialysis, basic dosing devices, Erythropoietin, other necessary drugs, and treatment of complications arising from the use of CAPD services using out-patient services according to the clinical practice guidelines set by the Nephrology Society of Thailand. (For in-patients, apply the cost for general in-patient services.) There is a mechanism for committees or working groups to develop services, networking among service units, quality control, and evaluation of the provision of CAPD services in the area.

4.2

HEMODIALYSIS

The NHSO had supported the cost for continuing ESRD patients receiving HD prior to October 1, 2008. However, ESRD patients entering the National Health Security System after October 1, 2008 who did not wish to shift to PD services and did not receive the Committee's approval to use the HD method, had to take responsibility for the expenses themselves (HD self-pay).

Starting from October 1, 2008, the NHSO covers the cost of HD for new ESRD patients who were unable to use PD services and received the Committee's approval for HD, including preparation of the blood vessels, cost of Erythropoietin, and cost of treatment of complications that occur during HD, especially in the case of using services in outpatients according to the clinical practice guidelines prescribed by the Nephrology Society of Thailand.[15]

4.3

PRESCRIPTION OF ERYTHROPOIETIN FOR PATIENTS USING PD, HD, AND HD SELF-PAY

Starting from October 1, 2008, new HD who elected not to receive PD incur costs in accordance with prior NHSO announcements.[15]

4.4

RENAL REPLACEMENT THERAPY BY KIDNEY TRANSPLANT

NHSO covers the costs of services for kidney donor and donor recipient in the case of a transplant. The costs that are covered include preparation for the donor recipient, surgery of the recipient, preparation of the donor, surgery of the donor, treatment of complications such as graft rejection, postoperative immune-suppressants, and follow-up after kidney transplantation according to practice guidelines of the Transplantation Society of Thailand or per additional announcements.[15]

PROCESS OF RECEIVING RRT SERVICE BY A GOLD CARD HOLDER

1. Persons with ESRD present their national ID card and notify their intention to apply for RRT services at the hospital specified in the Gold Card system

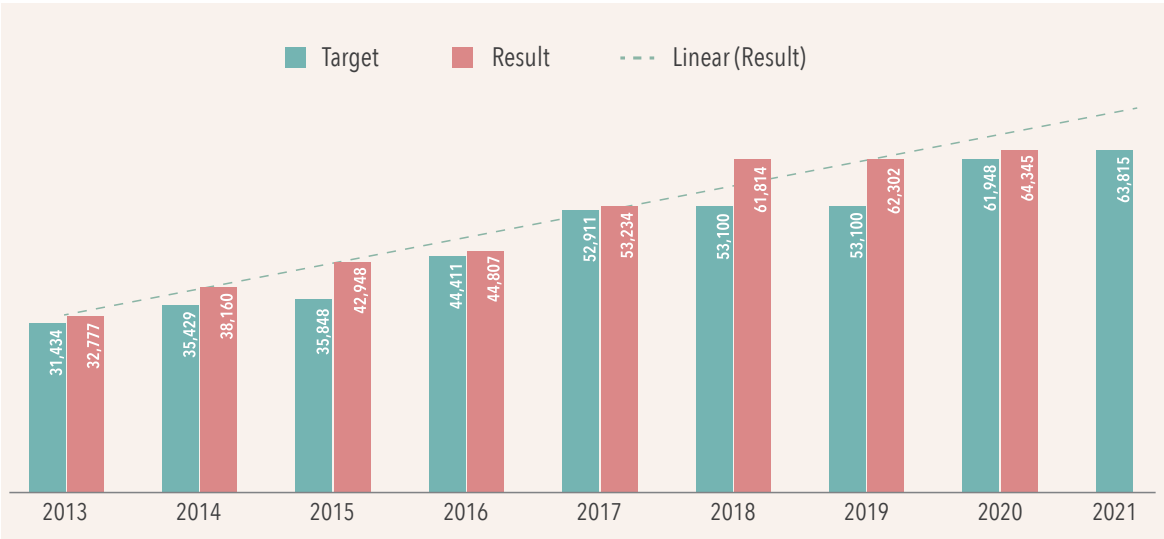
2. A list of patients with ESRD seeking RRT is compiled by the participating hospital and forwarded to the district committee for consideration

3. ESRD cases who meet the criteria for RRT are then registered by the district committee in the system

4. Patients with ESRD are informed by their participating hospital in preparation for being admitted to the hospital for RRT

5

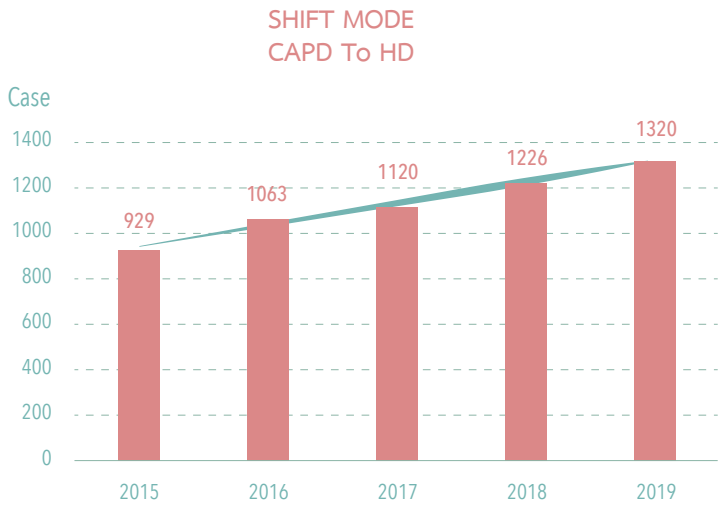
RESULTS OF IMPLEMENTATION



Unit : Cases
Date as of July 31, 2020

Figure 3: Number of service recipients: Target and Achievement: FY 2013-21

As shown in Figure 3, in 2020, there were 64,345 cases receiving RRT under the National Health Security System, which is double the level in 2013 (32,777). Ever since RRT was included in the UCS benefits package in 2008, the number of patients receiving services increased every year, and it was evident that the NHSO was able to achieve more than the specified target almost every year.



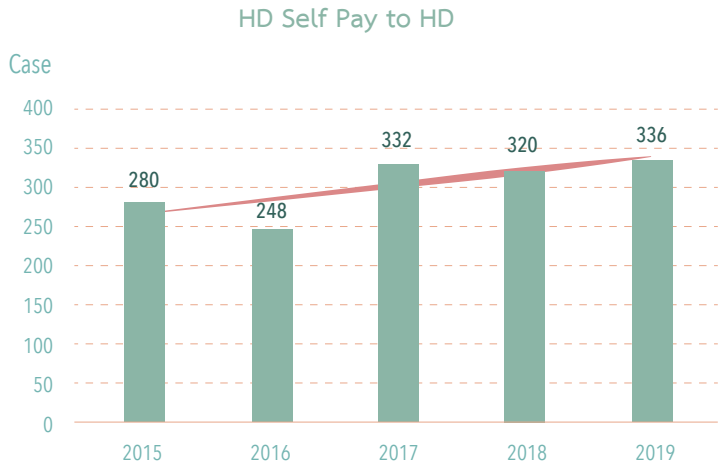


Figure 4: Number of Patients Shifting from CAPD and HD Self-Pay Receiving HD Benefits FY: 2015-2019

Supporting the distribution of PD units was the objective of the PD First policy in order to reduce inequality and facilitate equal access to services for people in different areas. However, despite the push to make PD the procedure of choice, HD services continued to increase (Figure 4). It can be seen that the ratio of HD patients to those with CAPD increased from 2015 to 2019. The explanation for this was that a number of CAPD patients had to switch to HD due to complications or occurrence of abdominal infection, as well as the NHSO policy to compensate HD self-pay patients if they were Gold Card holders.

The survival rate of ESRD patients in Thailand after the launch of the PD First policy increased during 2013-16 compared to the period 2008-2016

Based on research of Thai ESRD patients receiving RRT under the UCS, between January 2008 and November 2016, it was found that the survival rate of chronic ESRD patients in Years 1, 3 and 5 of treatment was 83%, 64% and 54%, respectively. Also, about half of ESRD patients under the UCS who were receiving PD were age 55 years or older, with a mean age of PD patients at initiation of 56.2 years. The number of patients with pre-existing diabetes was 60%. First-year survival rate of ESRD patients in Thailand is lower than in other Asia-Pacific countries (e.g., Hong Kong, Australia, New Zealand, South Korea, Singapore and Taiwan, where survival rates are 91%, 94%, 94%, 94%, 89% and 95%, respectively). However, Thai PD recipients had higher rates of co-diabetes than their counterparts in these countries. Diabetes was one of the risk factors for the health of patients undergoing PD. That said, it was found that the survival rate of ESRD patients in Thailand after the launch of the PD First policy increased during 2013-16 compared to the period 2008-2016.[18]

The researchers commented that the survival rate of patients from 2008-16 was satisfactory and was evidence that the PD First strategy was appropriate and beneficial. In the case of Thailand, it was found that the mean life expectancy of 45,000 ESRD patients in the UCS increased during the first decade of the PD First policy, or 2008-16.[17] The Thai case is an example for other developing countries with limited infrastructure, budget, and experienced healthcare workers.

EXAMPLES OF SUCCESS

1

Phranakorn Sri Ayutthaya Hospital was successful in prolonging the life of patients after the hospital participated in the NHSO PD pilot program in October 2007. The survival rate of patients with peritoneal dialysis at the hospital at Years 1, 3, 5, and 10 was 91.8%, 80.4%, 77.8%, and 76.9%, respectively. According to hospital statistics, it was found that, before RRT was included in the UCS, ESRD patients in Year 5 had only a 50% survival rate. By contrast, being treated by PD increased survival to 78% after five years.[19]

2

At the 2018 International Society of Peritoneal Dialysis (ISPD) Conference in Vancouver, Canada, data from the Peritoneal Dialysis Outcomes and Practice Patterns Study (PDOPPS) were presented. Comparing treatment outcomes among Australia, New Zealand, Canada, Japan, UK, US, and Thailand, the peritoneal infection rate in Thailand was at the middle level. Importantly, however, budget per patient in Thailand was the lowest compared to the other countries in the PDOPPS.[20]

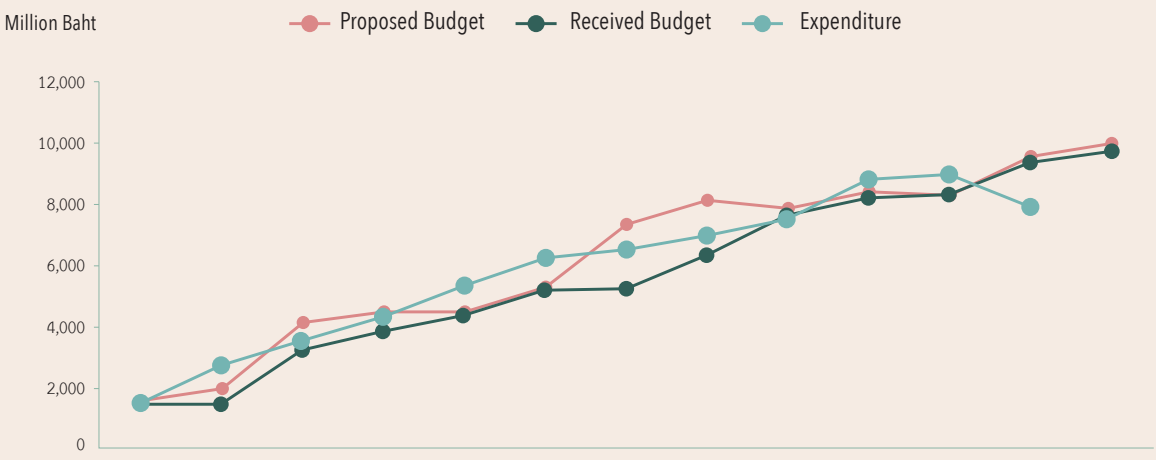
3

On June 22, 2018, a conference marking "10 Years of Thailand's 'PD First' Policy: Dialysis for All, No One Left Behind" was held at IMPACT Exhibition Center, Muang Thong Thani. Data were presented covering the period from the launch of the PD First policy (2008) up through 2018. During that period, a total of 24,244 PD patients had been admitted, and up to 80,000 ESRD patients' lives were saved. The implementation of the aforementioned policy was able to improve the quality of life of patients and reduce the hospitalization rate and mortality in ESRD patients. In 2018, the mortality rate of CAPD patients was only 9.2%.[21]

6

BUDGET FOR CHRONIC RENAL DISEASE PATIENTS

Although, in the past, it was speculated that the cost of including RRT under the National Health Security System could be as much as one-third of the total budget, in reality the proportion was much less. In 2020, the budget for RRT was only 4.9% and, by 2021, it remained at 5% total budget of the National Health Security System services budget.



	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Proposed Budget	1,530	1,928	4,098	4,437	4,417	5,234	7,315	8,098	7,842	8,332	8,281	9,532	9,978
Received Budget	1,530	1,455	3,227	3,858	4,358	5,179	5,247	6,318	7,592	8,165	8,281	9,375	9,720
Expenditure	1,488	2,704	3,512	4,316	5,306	6,233	6,470	6,991	7,462	8,830	8,962	7,879	

Figure 5: Trends in Budget for ESRD Case Management: FY 2009-21

The budget for RRT has been increasing every year since 2009 (Figure 5), as NHSO has been changing and adding services continuously to improve the service, and the number of patients receiving RRT in the UCS has increased. That said, the NHSO has tried to control costs based on the strategies discussed above to ensure that the budget RRT for ESRD patients is sustainable.

7

ROLE AND RESPONSIBILITY OF THE RELEVANT AGENCIES

7.1

A number of committees/working groups/task forces were set up to promote efficiency of management of the RRT service in the National Health Security System. The following describes some of the principal entities.

1 Committees

1. Committee for Overseeing Support for the Improvement of RRT in the National Health Security System. This committee is responsible for compiling and providing feedback on the policy, budget, and services system, as well as the manpower of the system, establishing criteria and guidelines for the provision of services, and performing standard quality control of RRT system.

2. Committee at the Regional Level to Support ESRD Patients in the National Health Security System to access RRT. This committee is responsible for supporting and promoting the provision of services for ESRD patients at the regional level, overseeing quality services of the services unit, suggesting solutions to various obstacles to enable ESRD patients to access services thoroughly and fairly, considering/selecting/ranking/assigning renal disease patients in their area of jurisdiction to receive RRT by means of CAPD or HD or KT, and requesting consideration of changing the RRT from CAPD to HD for qualified patients.

3. Committee for Considering the Cases Unable to Receive CAPD. This committee has the duty to consider appeals in cases where a patient is unable to administer PD by themselves or have no caregiver(s) and wish to change to HD.

2 Working Groups

1. There is the Working Group for Organ Donation and Kidney Transplantation in the National Health Security System, which is responsible for developing a plan for organ donation and kidney transplantation in line with the RRT development plan in the National Health Security System. This working group coordinates with relevant agencies, provides systematic support for increasing kidney donation, supports the kidney transplantation needs of patients, and supports public relations and social advocacy in order to increase public understanding and organ donation.

2. The Kidney Disease Information System Development Working Group of Thailand is responsible for preparing a master plan for developing the RRT information system in the NHSO to be able to link with the RRT information system of other related systems. This task force coordinates with relevant agencies and supports the development of the RRT information system for the country as a whole. The working group supports the development of linkages with other databases of other relevant agencies.

3. There is also a working Group to develop services and quality standards for HD using hemodialysis machines in the National Health Security System to develop criteria and guidelines for quality control and HD care standards.

In addition to the committees and working groups mentioned above, the NHSO has other stakeholders, such as the following:

3 The Services Support Office for Secondary and Tertiary Services, which is responsible for coordinating and organizing meetings to support the work of the various working groups, and also to coordinate with professional organizations, the Kidney Disease Patients Club, and related persons involved in the improvement of services. The office supports the implementation of Chronic Kidney Disease (CKD) Prevention, connecting the primary service system with the prevention of diabetes and hypertension, making plans, and supporting the development of the system. In general, this office operates in accordance with the policy on budget, systems, services, manpower development, criteria and guidelines for quality services development, and standardization of the RRT system. The office coordinates with regional branch offices of the NHSO to continue the development of the system in accordance with the guidelines set by the National Health Security System to ensure that there is the compensation for all types of RRT. The office helps to coordinate, monitor, control, supervise, and evaluate services of the regional office and relevant agencies to ensure efficient operations.

4 As noted, the NHSO has branch offices in 13 regions that cover the entire country. Each office is responsible for coordinating and supporting the meetings and operations of various committees/working groups at the regional level, coordinating with professional organizations and patient representative agencies, and working to provide patients with access to services according to the system. The office prepares a system development plan to support RRT operations in the area in accordance with the overall operational guidelines of the country. The office coordinates, procures, registers, and supports the operations of the service units to deliver CAPD, HD, KT services, organ donation, and post-transplant immune-suppressants. The office provides services for patients in the area to help them to fully understand the services according to the established guidelines. The office assists with the registration of patients and solves various problems for patients, in addition to supervising, following up, and inspecting the services of the service units in terms of quality, standards, and compensation for services. The office collaborates with the committee/working group at the regional level or other relevant district-level entities, such as the sub-committee for the quality control of the district level, the MOPH services plan committee, etc.

5 The support system includes service units and networks that provide services to patients in the National Health Security System according to professional standards to continuously improve the quality of services to ensure quality standards. This involves collecting data on the quality of services, and reporting the results of providing services both for compensation of services and for quality improvement. There is cooperation in the management of materials used in the program to be effective, including requesting cooperation to organize the network system as a buffer reserve at the local level and requesting cooperation in various operations as determined by the NHSO for efficiency and quality of services.[22]

8

MANAGEMENT OF DIALYSIS SOLUTION

At the heart of the push to expand the benefits package to include ESRD patients is the equality of access to treatment. One factor contributing to the equality of patients is accessibility for those ESRD patients who live in remote areas and have limited resources to access treatment. To address this challenge, the NHSO provides services to deliver dialysis solutions to patients' homes. This is a time-saving and cost-saving strategy for patients because they do not have to travel to the services unit by themselves, with the main objective to improve the quality of life and enable patients to have access to RRT, no matter where they live.

The NHSO has developed an online Disease Management Information System (DMIS) to facilitate ordering and management of dialysate supply by ordering through the Government Pharmaceutical Organization (GPO), and delivery in collaboration with Thailand Post Distribution Company Limited (THPD). This creates a national distribution system for delivering dialysis solutions to patients nationwide. The orders are checked every day through the DMIS to ensure that there is no omission or duplication of distribution of solution and that each patient receives the appropriate solution in a timely way. That is because dialysate is costly and essential to maintain the health and life of the ESRD patient.

Flow Chart: Management of Dialysis Solution Budget & Delivery

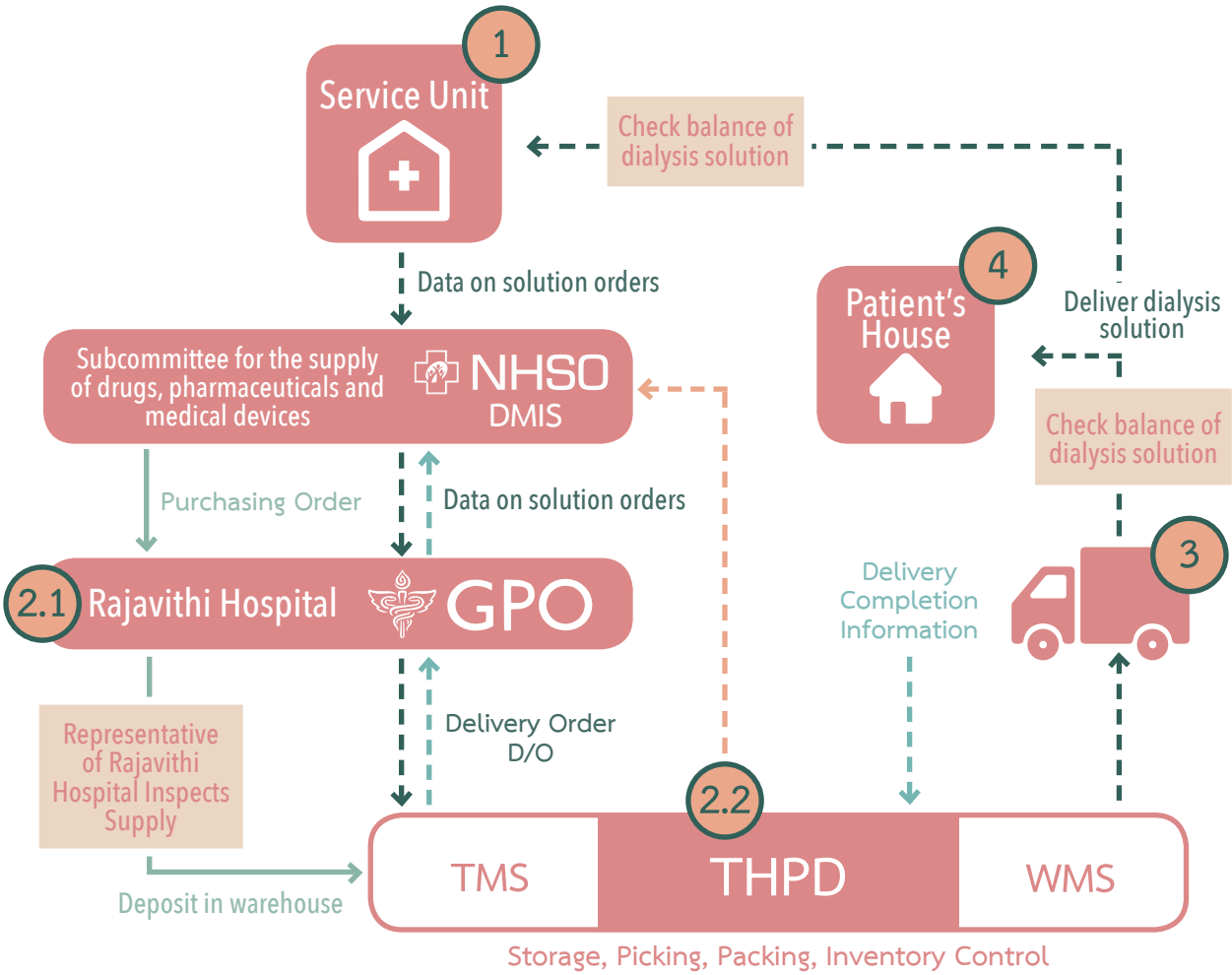


Figure 6: Steps in the Management of Budget and Referral System for Dialysis Solution

NHSO has developed a procedure for the management of finance and dialysis solution delivery, as shown in Figure 6. The NHSO has established a subcommittee for the supply of drugs, pharmaceuticals, and medical devices, which takes into account the need for medication, and consideration of drug management plans to suit each year's requirements and for each relevant category. That helps to produce a systematic plan for purchasing the solution, which is sent to Rajavithi Hospital as the central procurement arm for this part of the NHSO's drug supply system. Rajavithi Hospital coordinates with the GPO to order the dialysate from the manufacturer, and the solution is delivered to the central warehouse of THPD. A representative of Rajavithi Hospital serves as an inspector for dialysis solutions before storage in the warehouse. In addition, the GPO has a contract with THPD to deliver the dialysis solution to all qualified UCS beneficiaries at home.

The system must constantly monitor the PD caseload to confirm that they are still alive and are qualified recipients of continued PD service. There are home visits or laboratory follow-up, for example, whereby patients provide a blood sample to monitor metabolic status, and to flag potential problems. Over 200 participating service units process orders for dialysis solutions for continuing PD patients through the DMIS, which is updated every day at midnight. The requests for dialysate are sent to the GPO for verification of the accuracy of the information and forwarding the requisition to THPD to prepare products and deliver the dialysis solution to patients at home.

THPD sends shipments to regional depots for onward delivery. Throughout the delivery process, there are checks to ensure that the dialysis solutions is not diverted or wasted. The staff of THPD must contact patients and inform of the date and time of delivery in advance in order to verify that patients are alive and can receive the delivery as scheduled. When the THPD staff reaches a patient's house, they must go inside the patient's house to check the remaining solution before delivering the resupply. They check to see what the balance of dialysate is, and then install the resupply in a way that the patient has to use all the remaining solution first before continuing with the resupply. As a further check, the THPD staff take a photo of the process and send that electronically to the central office. That photo represents confirmation that the patient received the delivery, and the photo is forwarded to the GPO to check accuracy.

Figure 7: Transporting Dialysis Solution during the Flood Disaster in Yasothorn Province in September 2019

The NHSO dialysis solution resupply system is considered to be an efficient system. However, during unusual situations such as the massive flooding from the 2019 'Podul Tropical Storm,' ad hoc measures were required to ensure that patients receive the solution on time and to prevent damage to the solution. The NHSO conducted joint planning with THPD, the GPO and other agencies to deliver the dialysis solution safely and without delay. For example, THPD had a duty to build a temporary warehouse if the existing storage facility was at risk of flooding. Dialysis solution was transferred to a safe temporary warehouse that was closest to the hard-to-reach patients. There was special planning for the extra storage of dialysis solutions. The need for dialysate was considered on a case-by-case basis to suit the needs of the patients. In extreme cases such as the flood disaster, the NHSO coordinated with the LAO, various foundations, or even the Royal Thai Navy to deliver the solution by boat if necessary (see photo).

The COVID-19 pandemic and strong government response to contain spread has affected the delivery of the dialysis solution in some aspects. Similar to the contingency plans for a tropical storm and flooding, the NHSO had to produce a rigorous plan for the storage of dialysis solution for patients in each area in order to minimize the impact of resupply transportation to the patients. In addition, both patients and THPD delivery staff have to be screened for COVID-19 to reduce risk of infection.

9

CHALLENGES REMAINING IN THE DELIVERY OF RRT

A major challenge with RRT is the annual increase in the number of patients and the impact on the NHSO budget. Thailand is rapidly transitioning into an "aged society," which means an increase in prevalence and absolute number of people with NCD. This will certainly mean an increased caseload of ESRD patients who need RRT. The following are some ways the NHSO is working to address these challenges.

9.1

SUPPORTING THE WORK OF CHRONIC KIDNEY DISEASE CLINIC [CKD CLINIC]

As the trend of the number of kidney disease patients entering the National Health Security System is increasing every year, measures must be taken now to slow the progression of kidney disease to ESRD. One way to approach this is to support the establishment of a CKD Clinic to stall the progression of renal disease. The NHSO has a major role in providing technical assistance, public relations, and overall support for the implementation process of these clinics.

One of the successful examples of the CKD clinic is the "Klong Klung Model" in Klong Klung District Hospital of Kamphaeng Phet Province. The Klong Klung model focused on intensified management of kidney disease patients and screening and monitoring of kidney function in diabetic and hypertensive patients. The clinic uses integrated implementation with teams of doctors, nurses, nutritionists, physical therapists, village health volunteers (VHV), the Nephrology Foundation, pharmacists, etc. The teams ensure that there is a systematic approach to management of each case. Patients are provided with education about the medicines they need to take, diet, and exercise, and there are periodic home visits to monitor compliance. A 2-year study of the Klong Klung Model found that this CKD clinic could significantly retard renal impairment (as measured from the estimated Glomerular Filtration Rate - eGFR).[24] This set of interventions has the potential to delay the time until RRT is required by six to seven years. The Klong Klung Model demonstrates that the CKD Clinic is a viable strategy, and the NHSO is working on replicating this model wherever possible.

9.2

CAMPAIGN TO ENCOURAGE PEOPLE TO DONATE ORGANS AND RECEIVE ORGAN TRANSPLANTATION

Although PD and HD can help alleviate the burden of kidney disease, the ESRD treatment that has the greatest effect on the quality of life of patients is, at present, a kidney transplant (KT). That said, Thailand still has a relatively low number of organ donors, so eligible ESRD patients have to wait a long time to receive KT, if at all. The National Health Commission (NHC) has increased its support for the development of Thailand's organ donation and transplantation system. The NHSO is responsible for making a step-by-step plan to facilitate KT services. The NHSO has also carefully analyzed the cost-benefit ratio of KT and found it to be acceptable. Even though KT is the most costly treatment for ESRD in the short-term, the cost is returned over the long-term compared to patients who have to undergo lifelong PD or HD. Part of the savings is from the foregone cost of travel and time for PD and HD. There is also the intangible cost saving in terms of gain in quality of life which is hard to quantify in monetary terms. Accordingly, in the future, one of the strategies for RRT in Thailand is to try to maximize the number of KT procedures. Moreover, with a higher number of KT cases, the overall RRT budget for ESRD patient care is reduced and more sustainable.

9.3

APPLICATION OF NEW TECHNOLOGY IN RRT, SUCH AS THE USE OF AUTOMATED PERITONEAL DIALYSIS

The NHSO is always looking for new technologies to improve the quality of life of UCS beneficiaries and help reduce long-term costs of managing NCD. In 2020, the NHSO launched a pilot project to provide APD for ESRD patients in areas which have the capacity to deliver the service, while the NHSO covers the cost of PD solution, equipment, and drugs related to APD. The NHSO coordinates with the service units to prepare a system to support access to the available services. There is an organized management system to mobilize resources in the relevant areas, such as the following: 1) Recruiting medical personnel such as nephrologists, nurses who have trained in the Master of Nursing Practice in RRT Nursing (PD nurse), and a multidisciplinary team (dietician, pharmacist, stand-by surgeon, VHV); 2) Providing services such as training patients and care providers to be able to administer dialysis using APD at home; 3) Providing a Call Center system to deliver client education and home visiting for on-site backup; 4) Providing an APD machine in patients' homes; and 5) Conducting treatment monitoring and evaluation.[15]

The results from the pilot project showed that the patients had a better quality of life. Cases who had used ordinary PD over a long period of time and used more dialysis solution were able to use the dialysis solution more efficiently with the APD machine since that was automated and calibrated for optimal delivery of dialysate.[25] Moreover, patients using APD experience greater comfort because they do not need to change the dialysate bags frequently, and can perform routine tasks more conveniently than with conventional PD.

10

SUMMARY

Over the past ten years of supplying subsidized RRT to UCS beneficiaries, the NHSO has faced many challenges. However, with a strong policy foundation, combined with the cooperation of many parties, including policymakers, medical personnel, academia, CSO, and in collaboration with policy development and careful budget planning for ESRD patients, RRT administration has been successful through a systematic process of patient care. The NHSO continues to look for new therapeutic technologies, cost control strategies, service enhancements, quality-of-life development of patients, and support for equal access to services. That said, it is still necessary to study implementation and extract lessons learned (both positive and negative) in order to advance RRT so that it is cost-effective and sustainable.

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2. The stages of renal disease are indicated by the estimated Glomerular Filtration Rate (eGFR). There are five stages of renal disease;
   Stage 1, patient with eGFR more than 90 (normal to high kidney function)
   Stage 2, eGFR 60-89 (mild loss of kidney function)
   Stage 3, eGFR 30-59 (moderate to severe kidney function)
   Stage 4, eGFR 15-29 (severe loss of kidney function)
   Stage 5, eGFR less than 15 (kidney failure)

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