The "PD First" Policy in Thailand: Three-Years Experiences (2008-2011)

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Universal coverage (UC) scheme is a reformed national healthcare insurance that has been set up since the year 2002 and covers more than 80% of Thai population who are self-employed and do not work as government employees. Initially, this scheme offered only basic and comprehensive healthcare while renal replacement therapy (RRT), the financial cost of which was high, was not included. Without the support from the government healthcare insurance, the patients and their families will become insolvency. The benefit of peritoneal dialysis (PD) over hemodialysis (HD) has been shown in terms of medical expenses and cost-effectiveness. The "PD First" policy in Thailand has been implemented on January 1st 2008 as a model of initial treatment of end stage renal disease (ESRD) patients under the UC scheme. During the year 2008-2011, 12,753 cases, 6,177 were male and 6,576 were female, registered in this modality. The technical survivals at 1, 2 and 3 years were 92, 85 and 80%, respectively while the patient survivals were 79, 66 and 57% at 1, 2 and 3 years, respectively. The hematocrit level had been significantly increased from 25.9 ± 5% in October 2009 to 28.0 ± 5% in October 2010. The Peritonitis rate was decreased from 20.7 per patient months during the year 2009 to 25.8 per patient months at the year 2011 and the exit-site infection rate was 1 episode per 40.7 patient months. Currently, there are 111 PD centers that service for ESRD patients nationwide. There are strong supports from The National Health Security Office, The Nephrology Society of Thailand, The Dialysis Nurse Association, The Kidney Foundation of Thailand, The Ministry of Public Health, The Thai Kidney Patient Association, Chulalongkorn University, Thai Red Cross Society, community, and social network, all of which are the major factors to guarantee the salutary outcomes in the future.

Keywords: *"Thai PD First Policy", Government healthcare insurance scheme, Universal coverage, National health security office.*

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End stage renal disease (ESRD) or chronic kidney disease (CKD) stage 5 is the stage that kidney function decline to glomerular filtration rate below 15 ml/min/1.73m^2[1]. The main causes of ESRD in Thailand are diabetes, hypertension, kidney stones and glomerular diseases. The standard treatment to save life of the patients is one of any three forms of renal replacement therapy (RRT) including kidney transplantation (KT), hemodialysis (HD), and peritoneal dialysis (PD). All these modalities have been available in Thailand for over 30 years but accessibility is limited. This is because each RRT is the life-long therapy, the cost of which is tremendously high. Due to financial constraint, only few ESRD patients could be able to access to the RRT. A line of evidence supports that this catastrophic illness often makes the patients and their families got financially collapsed[2].

In Thailand, there are three public health insurance schemes: Civil Servant Medical Benefit Scheme (CSMBS), Social Security Scheme (SSS) and National Health Security Scheme (NHSS) or Universal Coverage Scheme (UC). The UC scheme is a reformed national healthcare insurance that has been set up by the National Health Security Law since the year 2002 and covers 48 million population or more than 80% of the Thai population who are self-employed and do not

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work as the government employees. This UC scheme offers the basic and comprehensive healthcare such as critical care for accident, HIV infection, diabetes, glaucoma, and cataract while RRT was not initially included in the UC scheme.

The National health security office (NHSO), a government organization responding for the UC scheme, has developed a proposal called the "Thai PD First Policy" for supporting RRT in ESRD patients and has been accepted by the government cabinets since October 30th 2007. This "Thai PD First Policy" has been implemented on January 1st 2008. The objective of this policy is to provide RRT for all, make the therapy accessible and prevent financial collapse of the patients. Additionally,this new policy must not cause substantial budget impact to the overall healthcare budget[3]. The policy prioritizes "PD" and "KT" as the first modalities of choice with full reimbursement. In parallel with the reimbursement for RRT, the policy also emphasizes the strategy to implement the primary prevention of CKD in diabetes and hypertension and slow progression of any forms of CKD.

Preparation for the policy

National Peritoneal Dialysis Forum, a unique academic forum, has been annually hosted by Khon Kaen University since 1999. In 2005, it was the first year that NHSO hosted this forum in collaboration with Khon Kaen University, before launching the "PD First Policy". This important academic forum has attracted the PD healthcare professionals all over the country and this keeps Khon Kaen University to be the leader in PD.

In the year 2004-2005, the International Health Policy Program conducted a very important research which originated this "PD First Policy". "Equity of the accessibility to renal replacement therapy: situation and policy analysis" was one of many research series to delineate the evidence supporting the needs from the patient's side and the possibilities from the provider's side. The main content of this research demonstrated that expanding the healthcare benefit package for the patients under the UC scheme was possible in terms of financial and infra-structure resources. Since the main population of these patients are in agricultural sector and live in the rural area, the policy maker should push the effort toward the home-based therapy, and PD might be the prefered modality[4].

The establishment of 3 pilot PD centers in 2005-2006 was the last step in this policy preparation part. Srinakarind Hospital (Khon Kaen University), Songklanagarind Hospital (Prince of Songkhla University) and Banphaeo Hospital (Public organization) were the pilot centers which had diversities in terms of setting of the hospitals. The conclusions from these pilot centers comprised center management, development of PD-related healthcare personnel and patient's perspective about the acceptance to the therapy and co-payment system from the local administrative body[5].

The "Thai PD First Policy"

Continuous Ambulatory Peritoneal Dialysis (CAPD) is offered in the UC scheme patients who have ESRD without co-payment while the patients who have contraindications to CAPD treatment will get benefit from HD after approval by the provincial RRT committee. The ESRD patients who received HD treatment before October 1st 2008 and decided to continue HD modality, would pay for 500 bahts per dialysis session while the remainder, 1,000-1,200 bahts, was subsidized by the NHSO. In contradistinction, ERSD patients who required dialysis after October 1st 2008 and decided to undergo HD, were not get the compensation from the NHSO. Regarding the "Thai PD First Policy", the NHSO had provided PD fluid with double bag system at the maximum dose of four 2-liter bags per day that were distributed to the patients' home by The Government Pharmaceutical Organization (GPO). Regarding erythropoietin hormone, the reimbursement was started on October 1st 2009 and the compensation was based on hematocrit level. The 4,000 units of erythropoietin hormone at 4-5 doses per month were provided for the patients who had the hematocrit levels between 30-36% and 8-10 doses per month for the patients with the hematocrit levels below 30%. The hormone was distributed to the CAPD centers and subdistrict health centers by the GPO. The demographic data, erythropoietin requirement, volume and concentration of PD fluid, and outcomes of the treatment such as Kt/V and peritoneal equilibration test (PET) were recorded in the online NHSO software program by the PD nurse case manager. The patients were followed-up by physicians, internists, nephrologists or PD nurses every 1-3 months while home visit program was organized by the CAPD centers. To improve the quality and sustainment of CAPD, the NHSO had provided 4 strategies including the preparation of medical personnels, developing the guidelines and training course, increasing the participation from the patients and public and preparation of the fund.

CAPD guidelines and training course

Since the knowledge for caring CAPD patient is important, there are collaboration among NHSO, the Division of Nephrology and Nursing Department of King Chulalongkorn Memorial Hospital (KCMH); Thai Red Cross College of Nursing; the department of Health service. Ministry of Public Health (MOPH); The Nephrology Society of Thailand (NST); The Thailand Nursing and Midwifery Council (TNC); and The Thai Nephrology Nurses Association (TNNA) as well as 19 medical schools to develop the 4-month training course for PD nurses every years. The curriculums consist of basic knowledge in PD, nursing care, dietary evaluation for 1 month, and CAPD-based training in CAPD centers for 3 months. The update knowledge on CAPD has been provided in the agenda of the annual nephrology meeting by The Nephrology Society of Thailand. Also, the national CAPD guidelines were developed for caring CAPD patients and treatment of complications such as malnutrition, peritonitis, and inadequate dialysis. The workshop for Tenckhoff catheter insertion with the assistances of Faculty of Medicine, Chulalongkorn University and the NST. The collaboration between the NHSO and the Thai Dietetic Association has been developed since 2010 for training about food recommendation, nutritional assessment, and the advice for CAPD patients. Currently, there are more than 250 nurses graduated from the PD training program and are currently working in all CAPD centers.

Patient education and the participation from the community

The education and counseling for pre-dialysis patients are carried out by the physician and nursing staff regarding symptom and sign of uremia, diet control, and physical activity. The patients and their families are informed about the advantage of CAPD such as the modality is simple and can be performed without complicated machines, the patients do not require fluid and diet restriction as much as HD, and there is more flexible time for dialysis which might not disturb their occupation. The "Thai Kidney Patient Association", the non-government organization organized by the group of CKD patients, develops the activities about self care and psychological support for the community with CKD via the media such as website, newspapers, and radio broadcast.

Outcomes of the "Thai PD First Policy" during 2008-2011

During 2008-2011, three and a half years of the "Thai PD First Policy" implementation, four CAPD technology and training centers has been developed. Two hundred sixty-nine nurses were trained from the PD nurse course and 345 physicians were registered for Tenchkoff catheter insertion workshop. In June 2011, there were 111 CAPD centers responsible for caring 8,033 active CAPD patients nationwide. Most of the patients reside in the rural area (Fig. 1). Of 111 centers,

Fig. 1 Typical CAPD patients in the "Thai PD First Policy"

the trend of CAPD centers having patients more than 100 cases has been increased (Fig. 2). Currently, there are 24 centers that have the patients more than 100 cases/center, 35 centers serve the patients between 50-100 cases/center, and the rest have the patients below 50 cases per center (Fig. 3).

Since January 2008, the numbers of ESRD patients who registered in the "Thai CAPD First Policy" have been increased from 53 cases per month to 403 cases per months in June 2011 and the total CAPD patients were 12,629 cases. After three and a half years, of 12,629 cases who registered in the UC scheme, 8,033 cases or 64% were alive while 4,596 cases or 36% were shifted to chronic HD, KT, or died (Fig. 4). The age distribution and gender were demonstrated in Fig. 5. The technical survival at 1, 2, and 3 years were 92, 85, and 80%, respectively while the patient survivals were 79, 66, and 58% at 1, 2, and 3 years, respectively (Fig. 6). The average level of hematocrit had significantly increased from 25.9 $\pm$ 5% on October 2009 to 28.0 $\pm$ 5%

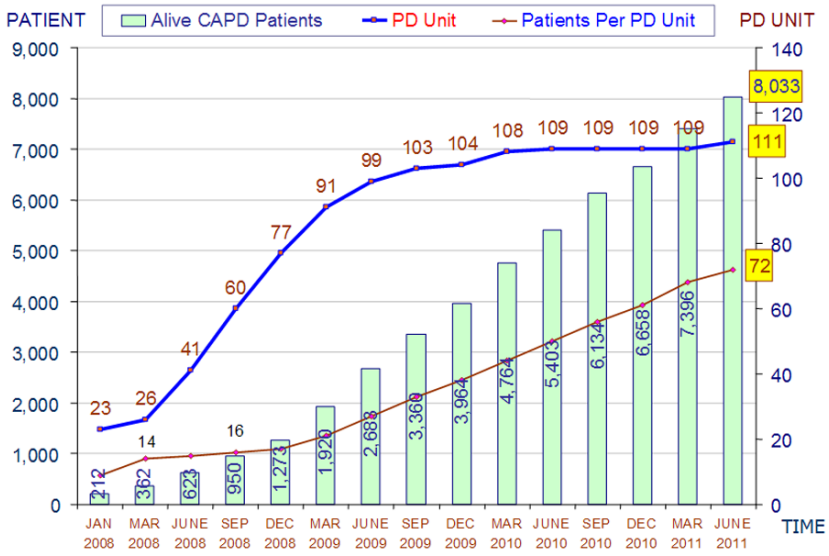


Fig. 2 Arising of PD units with active CAPD patients

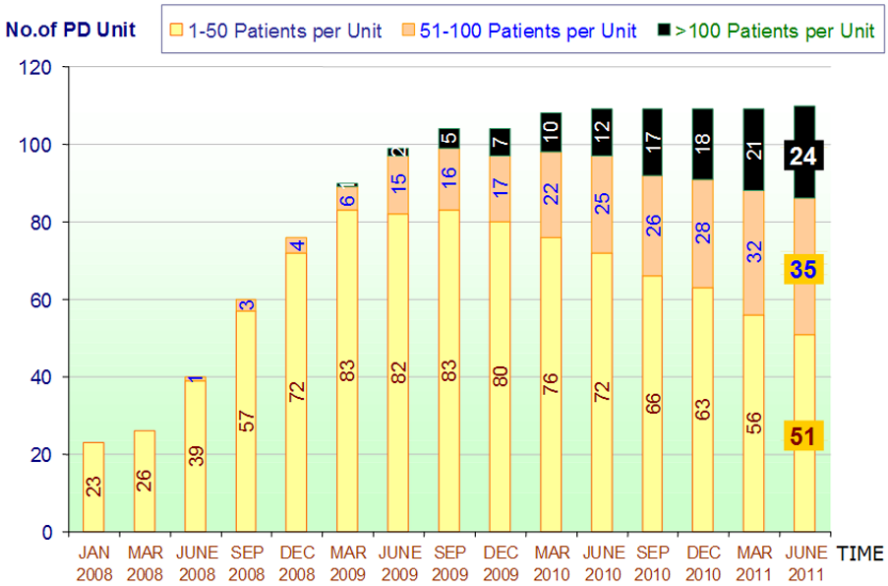


Fig. 3 Arising of PD units of different patient size

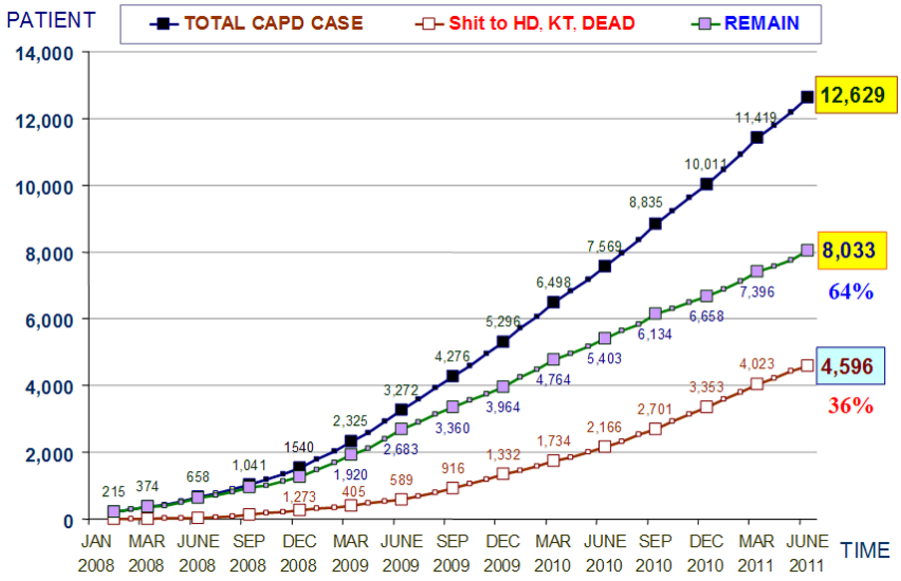


Fig. 4 The cumulative number of CAPD patients in UC scheme

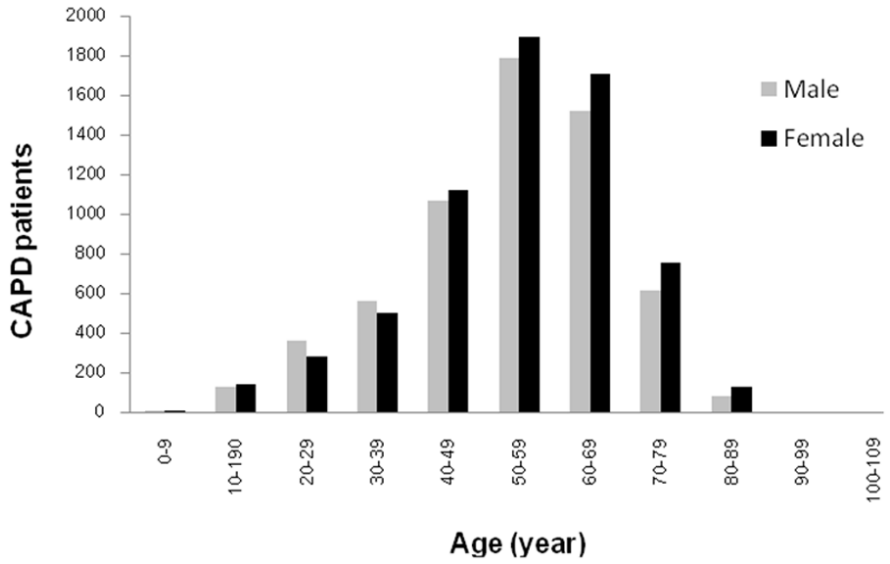


Fig. 5 Age distribution of CAPD patients

on October 2010 (Fig. 7). The proportion of the CAPD patients who had hematocrit levels more than 30%, had increased from 23% in October 2009 to 40% in October 2010 (Fig. 8). The average doses of erythropoietin were 5,272 $\pm$ 2,707 units per week. The rate of peritonitis rate during the year 2009 in 10 PD centers reported by Chuengsaman et al was 1 episode/20.7 patient-month. In 2011, Kanjanabuch et al[6] demonstrated that the rate of peritonitis rate during the year 2011 in 102 PD centers was 1 episode/25.6 patient-month while the exit-site infection rate was 1 episode per 37.7 patient-month. The current proportion between the patients in the UC scheme who registered in CAPD and HD is 46.2%: 53.8%.

Regarding the financial expenses, the forecasted budget for RRT, including CAPD, HD and KT, were 836, 2,466, 3,445, and 5,727 millions baht on the year 2008, 2009, 2010, and 2011, respectively while the actual expenses were 160, 1,488, 2,704, and 3,512 millions baht on the year 2008, 2009, 2010, and 2011,

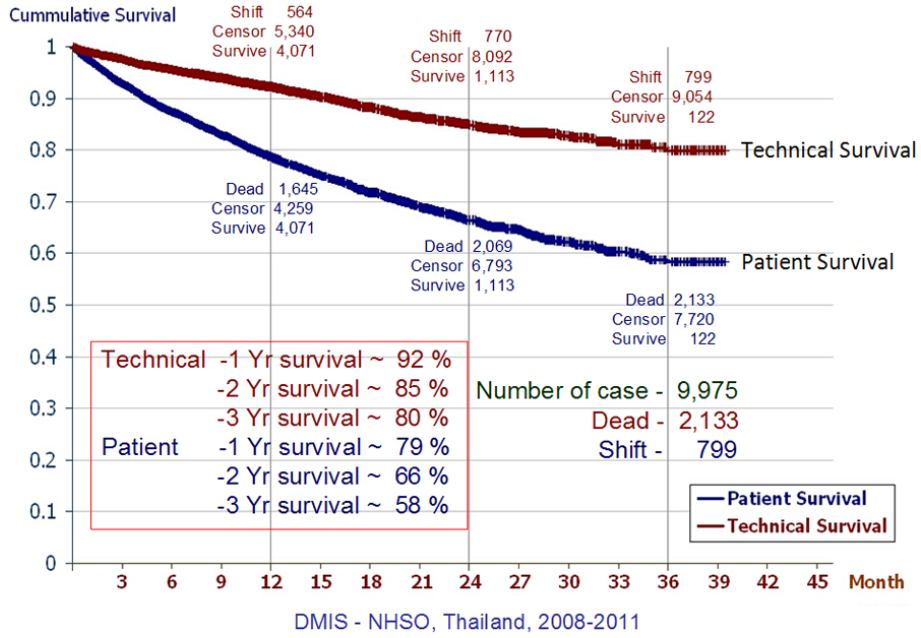
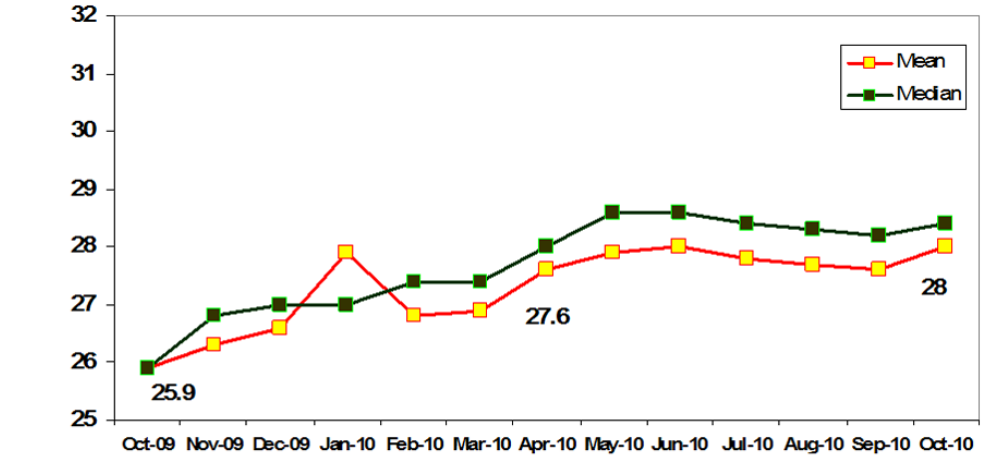


Fig. 6 Technical and patient survival in CAPD patients in UC schem (excluding the first 3 months)



	Oct-09	Nov-09	Dec-09	Jan-10	Feb-10	Mar-10	Apr-10	May-10	Jun-10	Jul-10	Aug-10	Sep-10	Oct-10
Mean	25.9	26.3	26.6	27.9	26.8	26.9	27.6	27.9	28	27.8	27.7	27.6	28
Median	25.9	26.8	27	27	27.4	27.4	28	28.6	28.6	28.4	28.3	28.2	28.4

Fig. 7 Mean and median value of hematocrit level during Oct 2009-Oct 2010

respectively (Fig. 9).

Comment

Increasing number of CAPD patients registering in the UC scheme has been demonstrated during the three years after the "Thail PD First Policy" implementation while the data from Thailand renal replacement registry (TRT) collecting the data on ESRD patients who receive RRT also reveal that the prevalence of ESRD was increased from 302 cases per million population (PMP) in 2006 to 497 cases PMP in 2008[7]. From the UC data, most of the CAPD patients have the age between 40-60 years old (Fig. 5), thus, these patients can perform dialysis by themselves and can earn for the family without lossing the time to perform HD or lost their jobs.

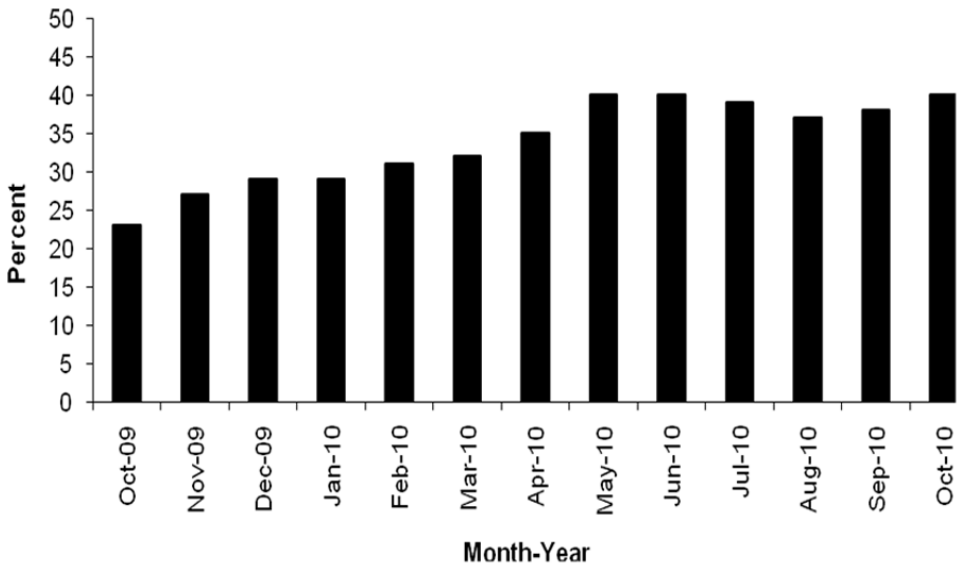


Fig. 8 The prevalence of CAPD patients with hematocrit ≥ 30%

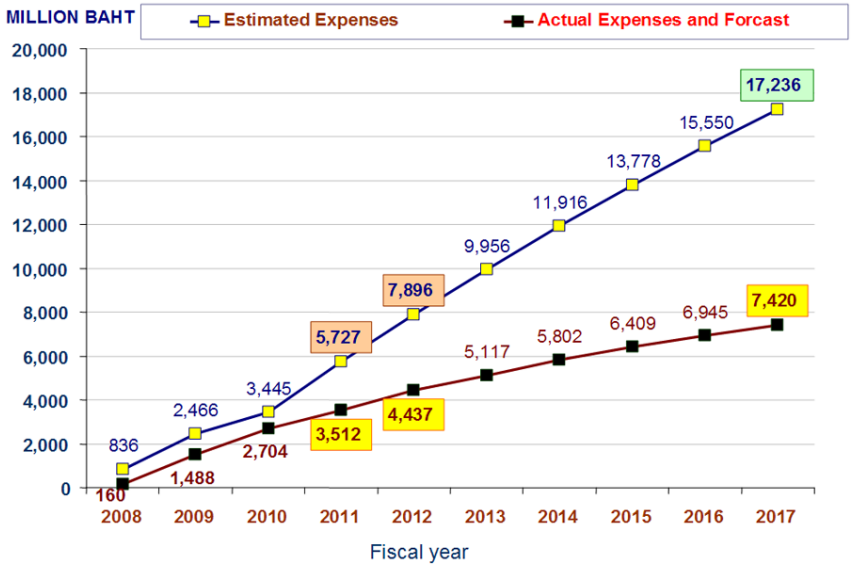


Fig. 9 Financial expenses of RRT patients in the UC scheme

Despite being gradually increased after implementing the reimbursement policy, the mean hematocrit level (Fig. 7) is still less than the recommended target[8]. Iron status, parathyroid hormone level, and adequacy of dialysis will be evaluated for improving the outcome. Safety of the erythropoietin hormone is continuously monitored for each brand name included in the scheme. The rate of peritonitis is quite comparable with the ISPD recommendations[9] and has been steadily decreased in the year 2011. The possible factors for reduced peritonitis rate consist of patient education and the nursing care from the PD nurses who have graduated the PD training program. To decrease the mortality rate in the UC scheme, quality of dialysis, anemia management, cardiovascular morbidity, malnutrition, and knowledge for caring by health care provider are going to be investigated. All possible explanations will be included and assessed as the patients registering in the UC scheme are not strictly selected for suitable

criteria for chronic dialysis, especially in elderly patients or the patients might develop co-morbidity diseases due to delayed diagnosis of ESRD.

Concerning the total budget of CAPD which is high in developing country[10], NHSO provides the deal with the pharmaceutical company for the affordable price with acceptable quality of the PD fluid and erythropoietin. The present study has demonstrated that the actual cost for RRT has been less than the expected cost since the year 2008 (Fig. 9). Slowing the progression of CKD and identifying the high risk groups to prevent CKD are the points to focus for decreasing the financial cost of RRT. The data from TRT clearly demonstrate that diabetes is the most common cause of ESRD in Thailand[7]. Currently, the CKD clinic has been set up for evaluation and identification of high risk patients and slowing the progression of CKD.

Preparation of health care providers including medical knowledge, human resource, workload, is the important factor to improve the treatment outcome. With the collaboration between NHSO, The Thai Society of Nephrology, The Dialysis Nurse Association, The Thai Kidney Patient Association, The Kidney Foundation of Thailand, and The Ministry of Public Health, the process for the issue is developing.

In conclusion, the three-year experiences on the "Thai PD First Policy" are reported. The prevention of CKD, identification of high risk patients, slowing the progression of CKD, patient education, improving quality of dialysis treatment, encouragement for organ donation, and reduction of the medical expenses will guarantee the favorable outcomes on RRT in the future. Also, the preparation of the health care providers, the facility of CAPD centers, and networking system are needed for supporting the system to be successful.

Potential conflicts of interest

None.

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การบริการผู้ป่วยไตวายเรื้อรังระยะสุดท้ายด้วยวิธีทดแทนไตผ่านทางช่องท้องในระบบหลักประกันสุขภาพถ้วนหน้าของประเทศไทย: ประสบการณ์สามปี (พ.ศ. 2551-2554)

ประทีป ธนกิจเจริญ, ทวี ศิริวงศ์, สุรพล อริยปิติพันธ์, ปิยะธิดา จึงสมาน, อดิสรณ์ ลำเพาพงศ์

ไตวายเรื้อรังระยะสุดท้าย คือภาวะที่การทำงานของไตน้อยกว่า 15 มล./นาที/1.73 ตรม. ทำให้ร่างกายไม่สามารถขับถ่ายของเสียที่เกิดขึ้นออกจากร่ายกาย รวมถึงขาดการควบคุมสมดุลน้ำ และเกลือแร่หากผู้ป่วยไม่ได้รับการรักษาด้วยการบำบัดทดแทนไตจะทำให้เสียชีวิต และการรักษาด้วยการบำบัดทดแทนไต ซึ่งได้แก่ การล้างไตทางช่องท้อง การฟอกเลือด และการปลูกถ่ายไต มีค่ารักษาพยาบาลที่สูงมาก ผู้ป่วยมีโอกาสล้มละลายจากภาระค่ารักษาพยาบาล และต้องรักษาต่อเนื่องจนกว่าจะเสียชีวิต ภาวะล้มละลายเกิดขึ้นในกรณีที่ผู้ป่วยไม่มีสิทธิ์ในระบบสวัสดิการรักษาพยาบาล สาเหตุสำคัญของไตวายเรื้อรังในประเทศไทย ได้แก่ โรคเบาหวาน ความดันโลหิตสูง ไตอักเสบ และนิ่วไต

คณะรัฐมนตรี มีมติเมื่อวันที่ 30 ตุลาคม พ.ศ. 2550 ให้การบริการทดแทนไตสำหรับผู้ป่วยไตวายเรื้อรังระยะสุดท้ายอยู่ในสิทธิประโยชน์ของระบบหลักประกันสุขภาพถ้วนหน้า ตั้งแต่วันที่ 1 มกราคม พ.ศ. 2551 โดยให้ความสำคัญกับการทดแทนไตด้วยวิธีผ่านทางช่องท้องอย่างต่อเนื่อง และการปลูกถ่ายไตควบคู่ไปกับการควบคุมป้องกันไม่ให้เกิดภาวะไตวายเรื้อรังจากโรคเบาหวาน และโรคความดันโลหิตสูง

ผลการดำเนินการพบว่ามีผู้ป่วยลงทะเบียนรับการทดแทนไตผ่านทางช่องท้องสะสมจำนวน 12,629 ราย ผู้ป่วยส่วนใหญ่เป็นเพศหญิง อายุ 51-70 ปี อยู่ในชนบท ความสำเร็จของการทดแทนไตผ่านทางช่องท้องปีที่ 1, 2 และ 3 เท่ากับร้อยละ 92, 85 และ 80 ตามลำดับ และอัตราการรอดชีวิตเท่ากับร้อยละ 79, 66 และ 58 ในปีที่ 1, 2 และ 3 ของการรักษาระดับความเข้มข้นของเลือดเพิ่มขึ้นจาก 25.9 $\pm$ 5% ในเดือนตุลาคม พ.ศ. 2552 เป็น 28.0 $\pm$ 5 ในเดือนตุลาคม พ.ศ. 2553 และอัตราการติดเชื้อในช่องท้องลดลงจาก 20.7 เดือนต่อการติดเชื้อ 1 ครั้ง สำหรับผู้ป่วย 1 ราย ใน พ.ศ. 2552 เป็น 25.6 เดือนต่อการติดเชื้อ 1 ครั้งสำหรับผู้ป่วย 1 ราย ในปี 2554 ปัจจุบันมีหน่วยบริการ ให้การดูแลผู้ป่วย 111 แห่ง ทั่วประเทศ ผู้ป่วยมีชีวิต 8,033 ราย และงบประมาณที่ใช้จริงในภาพรวมต่ำกว่า ที่ประมาณการไว้แต่แรก การรักษาด้วยวิธีดังกล่าวได้รับการสนับสนุนจาก สำนักงานหลักประกันสุขภาพแห่งชาติ สมาคมโรคไตแห่งประเทศไทย ชมรมพยาบาลโรคไตแห่งประเทศไทย ชมรมเพื่อนโรคไตแห่งประเทศไทย มูลนิธิโรคไตแห่งประเทศไทย กระทรวงสาธารณสุข และองค์กรภาคส่วนต่างๆ และความร่วมมือที่เกิดขึ้นนี้เป็นปัจจัยสำคัญที่จะช่วยพัฒนาระบบ การดูแลผู้ป่วยไตวายเรื้อรังระยะสุดท้ายด้วยวิธีทดแทนไตผ่านทางช่องท้องให้มีประสิทธิภาพ และประสบผลสำเร็จมากยิ่งขึ้นในอนาคต