

Framework for Public Private Partnership

In

The Management of End Stage Renal Disease

In Hong Kong



Fresenius Medical Care

Approach Paper

June 2008



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I. Executive Summary

This document sets out a proposal for the management of End Stage Renal Disease (ESRD) in Hong Kong, in partnership with Fresenius Medical Care.

Incidence of treated ESRD is expected to rise from current 147 pmp to approximately 170 pmp by year 2015. Over similar timeframe, treated prevalence is anticipated to rise from less than 1,000 pmp to in excess of 1,400 pmp with more than 10,000 patients dependent on renal replacement therapy (RRT).

Were current dialysis modality preferences to continue, the next decade will see a significant expansion of demand for dialysis services and its consequent resources. Providing for adequate numbers of specialist nurses for an expanded in-centre HD population is also likely to prove challenging.

Hence, alternative options in delivering dialysis services need to be considered. The alternative options could include:

- Home-based Hemodialysis
- Satellite or community-based dialysis centres

In this context, a Public Private Partnership approach in delivering dialysis services becomes a credible option. This approach seeks to combine the resources and expertise available in the public and private domains.

The document puts forward the key principles for a public private partnership (PPP) model for the management of ESRD in Hong Kong. Its intent is to provide a basis for further analysis and discussion between Fresenius Medical Care and the Hospital Authority of the Government of Hong Kong SAR.



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II. Introduction to Fresenius Medical Care

Fresenius Medical Care is the world's largest integrated provider of products and services for individuals undergoing dialysis for management of end-stage renal disease (ESRD), a condition that affects more than 1,600,000 individuals worldwide.

Through its network of more than 2,200 dialysis clinics in North America, Europe, Latin America and Asia-Pacific, Fresenius Medical Care provides dialysis treatment to in excess of 170,000 patients worldwide.

Fresenius Medical Care is also the world's leading provider of dialysis products such as hemodialysis machines, dialyzers and related disposable products.

Fresenius Medical Care is listed on the Frankfurt Stock Exchange (FME, FME3) and the New York Stock Exchange (FMS, FMS/P).

As a vertically integrated company, we offer products and services to treat patients with End Stage Renal Disease regardless of therapy or location. Our commitment to our patients and our partners in the healthcare system is to achieve the highest possible standards of medical care.



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III. Background and Qualification

1. Fresenius Medical Care, in response to requests for submissions of interest by the Hong Kong Health Authority, has prepared this document to set out a proposal on the potential involvement and role of the private sector in the management of End Stage Renal Disease (ESRD) in Hong Kong.
2. This paper draws on the following existing documents:
 - a. 'Healthcare Reform Consultation Document' (March 2008) to outline the vision and overriding goals set by the Food and Health Bureau of the Hong Kong Special Administrative Region Government
 - b. 'Development and Financing of Hong Kong's Future Health Care' (June 2007), a Report on Preliminary Findings by the Bauhinia Foundation Research Centre, Health Care Study Group
 - c. 'Hemodialysis Services in Hong Kong' (March 2001), an approach paper by NephroCare Asia Pacific, a subsidiary of Fresenius Medical Care Asia Pacific Limited, that outlined a model approach for outsourcing Hemodialysis services by the Hospital Authority, in Hong Kong
3. The document's puts forward the key principles for a public private partnership (PPP) model for the management of ESRD in Hong Kong. Its intent is to build a basis for further analysis and discussion.
4. As key references, the following annexure documents are attached herewith:
 - a. Projections for End Stage Renal Disease and its Management in Hong Kong – by Fresenius Medical Care Asia Pacific Limited.
 - b. Merits and Principles of Public Private Partnership for the Management of Renal Replacement Therapy – The George Institute for International Health¹.
 - c. Case Study: Public Private Partnership Dialysis Models in Western Australia – The George Institute for International Health.
 - d. Outsourcing of Hemodialysis services in Hong Kong – submitted to the Hospital Authority in March 2001 by Fresenius Medical Care Asia Pacific Limited.

¹ We acknowledge the contribution of **The George Institute for International Health** in this submission.



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IV. Situation Analysis for Hong Kong²

1. Incidence of treated ESRD is expected to rise from current 147 pmp to approximately 170 pmp by year 2015.
2. Over a similar timeframe, treated prevalence is anticipated to rise from less than 1,000 pmp to in excess of 1,400 pmp with more than 10,000 patients dependent on renal replacement therapy (RRT). Unexplained loss to follow-up in current registry data suggests that the prevalence growth is significantly underestimated.
3. Population aging and age adjusted ESRD incidence exceeding 500 pmp for age greater than 60 will further drive prevalence growth in the coming years.
4. Where current dialysis modality preferences continue, the next decade will see a significant expansion of demand for in-centre hemodialysis and its consequent resources.
5. Providing for adequate numbers of specialist nurses for an expanded in-centre HD population is likely to prove challenging.
6. Further restraints on the option of renal transplantation in mainland China would greatly increase demand for dialysis resources in Hong Kong.
7. Greater utilization of home-based self-care hemodialysis may prove a more resource effective option for the future of ESRD treatment.

² Refer Annexure: Projections for End Stage Renal Disease and Its Management in Hong Kong.



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V. The Need for a Public Private Partnership (PPP) approach

1. The need for a review of the current system has been made apparent in the healthcare reform consultation document 'Your Health, Your Life'³. In the context of management of ESRD in Hong Kong, it is appropriate to review the existing system of care provision for ESRD for several reasons. Key among those are:
 - Increasing pressure on the current public healthcare system due to higher burden of disease, as evidenced by rising incidence and prevalence rates
 - Increasing burden of costs incurred at various stages of the management of progressive chronic kidney disease, resulting in increasing demands for subsidy provided by the government.
2. A PPP-based approach, in this context, becomes a credible option. However, it is imperative to match the goals for the management of ESRD in Hong Kong with the potential merits of the PPP approach.
3. In essence, the PPP approach seeks to combine resources and expertise available in the public and private domains to achieve a more efficient and cost effective provision of services. The general merits of the PPP approach can be summarized as follows:
 - a. Efficiency gains made through timely intervention at various stages of disease progression and its management. For example, efficiency gains could be well assessed through such measures as:
 - i. Reduced hospitalization events of ESRD patients
 - ii. Improved clinical outcomes on RRT as measured through pre-determined parameters
 - iii. Reduced waiting time for patients requiring dialysis services.
 - b. Continued excellence in service provision through pooling of resources and of expertise between private and public sectors at various points of care; e.g. primary care, out-patient consultation, referral to specialists and provision of clinically appropriate renal replacement therapy option. Measures could also be based on certain well defined parameters, such as:
 - i. Introduction of new(er) technology, products and services
 - ii. Best practice clinical and dialysis standards.
 - c. Cost effectiveness of service delivery, resulting in lower levels of subsidy, due to:
 - i. Treatment and management of more patients
 - ii. Improved management of RRT options for patients
 - iii. Reduced capital expenditure by the government.
4. The general merits summarized above need to be detailed, along with specific project design and scope of involvement of the private sector.

³ Published by the Food and Health Bureau, Hong Kong SAR Government, March 2008



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5. As an illustration, presented below is a summary of recently implemented changes in healthcare policy on provision of dialysis services in Portugal. This initiative was achieved with the involvement of a broad spectrum of relevant stakeholders in Portugal.
- a. **Key Principles** followed in development of the 'Pay for Performance in Dialysis Services' model in Portugal:
- **Broad and active participation of relevant stakeholders** such as Health Authorities, Portuguese Society of Nephrology, Patient Associations, Private Sector Trade Associations and Fresenius Medical Care, under the stewardship of an Executive Committee.
 - **Scope to cover different renal replacement therapy modalities** (i.e. Hemodialysis, Peritoneal Dialysis) **and the entire spectrum of disease state management** (i.e. pre-dialysis treatment, dialysis, hospitalization needs and other clinical needs).
 - **Alignment of financials** (payments, costs) **to metrics of quality** (in services provided), i.e. reimbursement to provider basis clinical quality delivered measured through established control systems.
- b. **Key Outcomes achieved** in the adopted model in Portugal were:
- Establishment of 'comprehensive value per patient' for pre-determined treatment period i.e. each week's treatment. In effect, introduction of a bundled rate for treatment of patients.
 - Definition of results and quality control parameters of dialysis services provided. In effect, reward for achieving process indicators.
 - Direct relationship between payment for treatment and fulfillment of pre-established therapeutic goals (pay-for-performance).
 - Establishment of audit, information, monitoring, follow-up and evaluation mechanisms.

Clinical parameters that form the basis for measuring treatment outcomes and commercial contract – Illustration only

Process Indicators Targets	Reference Value
1. Control of Anaemia	
• % of patients with Haemoglobin (average) ≥ 10 gr/dl and ≤ 13 gr/dl	$\geq 70\%$
• % of patients with Ferritin (average) ≥ 200 ng/ml and ≤ 800 ng/ml	$\geq 80\%$
2. Dialysis Dose	
• % of patients with 3 dialysis sessions per week	$> 90\%$
• % of patients with a total of hours of dialysis /per week ≥ 12 hours	$> 90\%$
• % of patients with eKT/of Urea ≥ 1.2 (patients with at least 3 dialysis sessions per week)	$> 75\%$



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VI. Key Principles of the PPP model

The following overriding principles need to be considered in designing the framework and the criteria for PPP model.

1. Value-for-money

a. Value in relation to treatment interventions

The PPP model needs to optimize cost, relative to treatment provided and to compare the all-in costs.

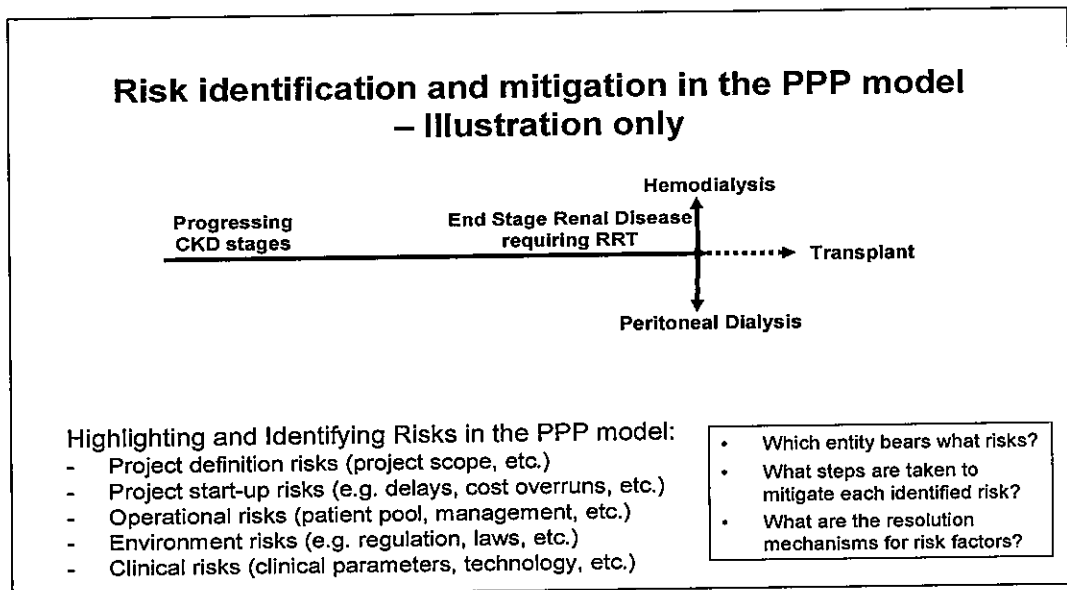
b. Commercial viability

A successful PPP model would balance commercial viability qualifications/hurdle rates of return for the private sector participant with the set objectives and targets.

2. Risk allocation between public and private sectors

a. Risks

Identification of risks involved in the delivery of various activities and the roles of each entity is essential to mitigate risks.



b. Who bears what Risk?

Along with risk identification, it is important to assign who is responsible for what risks.

3. Measurement through Outcomes

a. Criteria

Targets need to be clearly defined. These would include clinical measures for treatment provided, as well as non-clinical measures on say, management of facilities assigned for various services, disposal of waste, etc.



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- b. **Benchmarking**
It becomes critical to benchmark with set standards. Specifically with clinical parameters, it would be crucial to benchmark against outcomes/measures.
 - c. **Audit and Review**
A regular audit and review process allows for measures of compliance for both parties to the contract.
4. **Pay for Performance**
- a. **Payment structure**
A payment structure based on performance parameters ensures that interests of private and public sector are aligned with objectives and targets.
 - b. **Incentive payments and Penalties**
Incentives in the event of meeting benchmarks must be clearly laid out. Also, penalties in case of non-performance, and/or not meeting quantified clinical and non-clinical parameters must be spelt out.



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VII. Framework for development of the PPP model

An illustrative framework is provided below for consideration and discussions, the basis of which a PPP model may be developed.

**Framework for development of the PPP model for
Management of CKD and RRT in Hong Kong –
Illustration only**

Structure

- Scope and dimension
- Roles and Authority of different entities
- Contract finalization process
- Legal framework
- Use of existing infrastructure

Contract

- Contract time frame
- Best Practices adopted
- Technical specifications
- Management of services
- Financials

Implementation

- Contract management
- Standardized procurement practices
- Risk mitigation process
- Arbitration

The above outline puts forward internationally established guidelines that might be used to discuss further the roadmap for the ongoing management of ESRD in Hong Kong. This, along with well-established clinical standards of practice, such as the KDOQI guidelines, should be considered for further inclusion in the PPP model.

Fresenius Medical Care would welcome the opportunity to open dialogue regarding the establishment of a PPP model in Hong Kong and would be delighted to provide a more detailed proposal upon request.



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Appendix A

Projections for End-stage Kidney Disease and Its Management in Hong Kong

**Author: Dr H Feidhlim Woods, Senior VP Medical Affairs,
Fresenius Medical Care Asia Pacific**

Executive Summary

1. Incidence of treated ESRD is expected to rise from current 147 pmp to approximately 170 pmp by year 2015
2. Over similar timeframe treated prevalence anticipated to rise from less than 1,000 pmp to in excess of 1,400 pmp and more than 10,000 patients dependent on renal replacement therapy. Unexplained loss to follow-up in current registry data suggests that the prevalence growth is significantly underestimated
3. Population aging and age adjusted ESRD incidence exceeding 500 pmp for age greater than 60 will further drive prevalence growth in coming years
4. Where current dialysis modality preferences continue, the next decade will see a significant expansion of demand for in-centre hemodialysis and its consequent resources
5. Providing for adequate numbers of specialist nurses for an expanded in-centre HD population is likely to prove challenging
6. Further restraints on the option of renal transplantation in mainland China would greatly increase demand for dialysis resources in Hong Kong
7. Greater utilization of home-based self-care hemodialysis might prove a more resource effective option for the future of ESRD treatment

Introduction

As with other stakeholders in the management of ESRD, industry needs to carefully assess disease epidemiology and the outcomes of its treatment. For Fresenius Medical Care in Asia (hereafter The Company) this responsibility falls to the author. The analysis uses data available from the Hong Kong Renal Registry (Annual Report for 2007) presented by the Hong Kong Society of Nephrology and, as needed, internal data derived from The Company's marketing surveys.

In this analysis are examined past trends in treatment for ESRD by dialysis modalities and by renal transplantation and, using various modeling methods, anticipated trends in patient numbers over the next 10 to 15 years. Modified Markov modeling methods are used to examine various scenarios for future utilization of dialysis modalities and their likely impact upon some of the critical resources consumed in providing treatment for ESRD.

Current Status of ESRD Treatment in Hong Kong

The prevalence of treated ESRD according to treatment modality for 2007 and the past decade is shown in figure 1. In 2007, 7,097 patients were reported to be alive and receiving treatment for ESRD. In the past five years the number of prevalent ESRD patients has increased by 18.4%: 9% for peritoneal dialysis (PD); 19% for hemodialysis (HD) and 30% for renal transplants (TX). Almost unique to Hong Kong in treatment of ESRD, PD is the dominant modality accounting for more than 80% of all dialysis patients and over 50% of all treated ESRD.

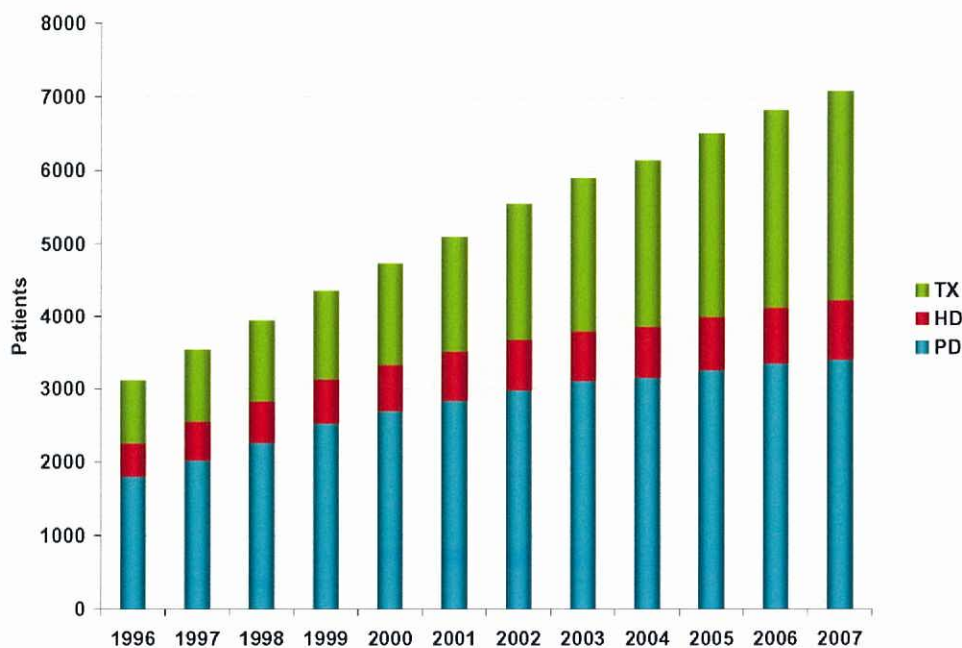


Figure 1 Prevalence of treated ESRD by modality of treatment

Incidence and Prevalence and Stock and Flow

The incidence of new cases of treated ESRD over recent years and the projected incidence to year 2015 is shown in figure 2 (incidence per million population: pmp) and figure 3 (actual patient numbers). The predicted numbers in these projections is based on a simple, unbiased polynomial trend based on the five years of actual data from 2003 through 2007. The projects suggest a rise in incidence to ~ 170 pmp and ~ 1,250 patients initiating ESRD treatment in year 2015.

Data for total prevalences for treated ESRD presented similarly are shown in figures 4 and 5. From a current prevalence of 1,025 ESRD patients pmp the projection suggests a rise to 1,412 by year 2015 when approximately 10,500 patients are expected to be receiving treatment for ESRD.

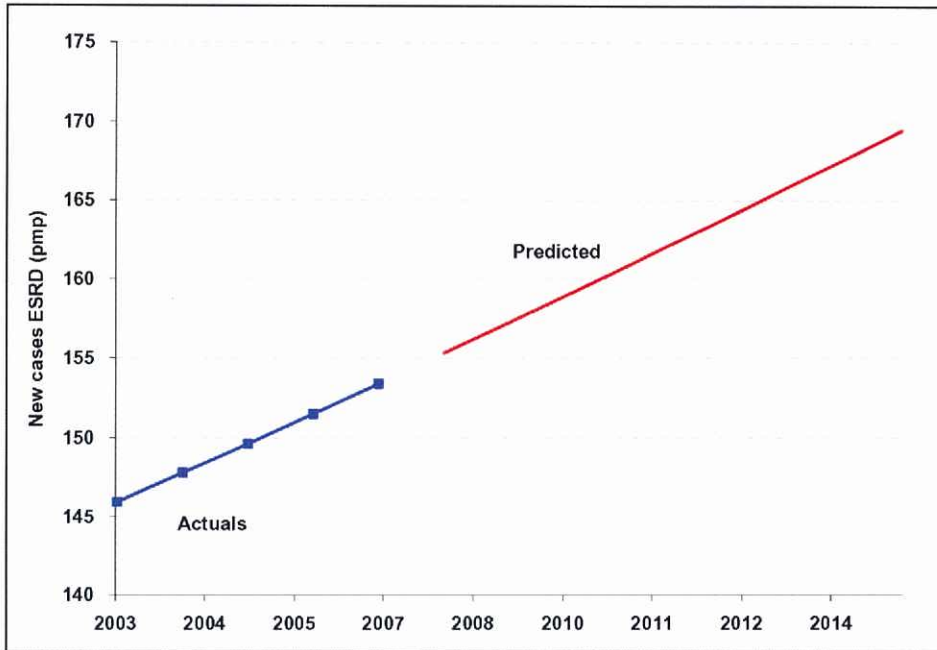


Figure 2 Incidence of treated ESRD pmp

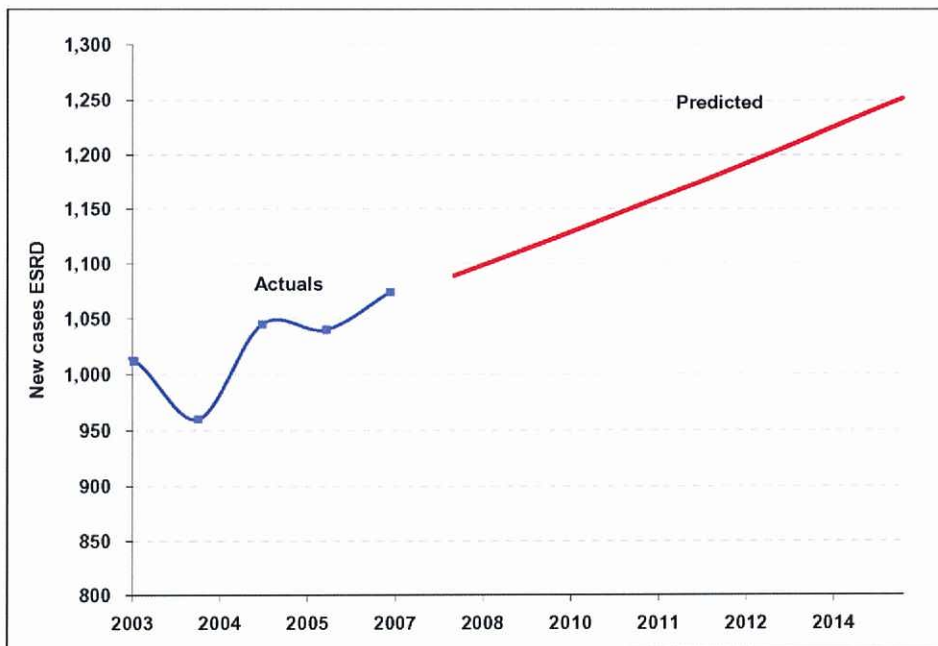


Figure 3 Incidence of treated ESRD patient number

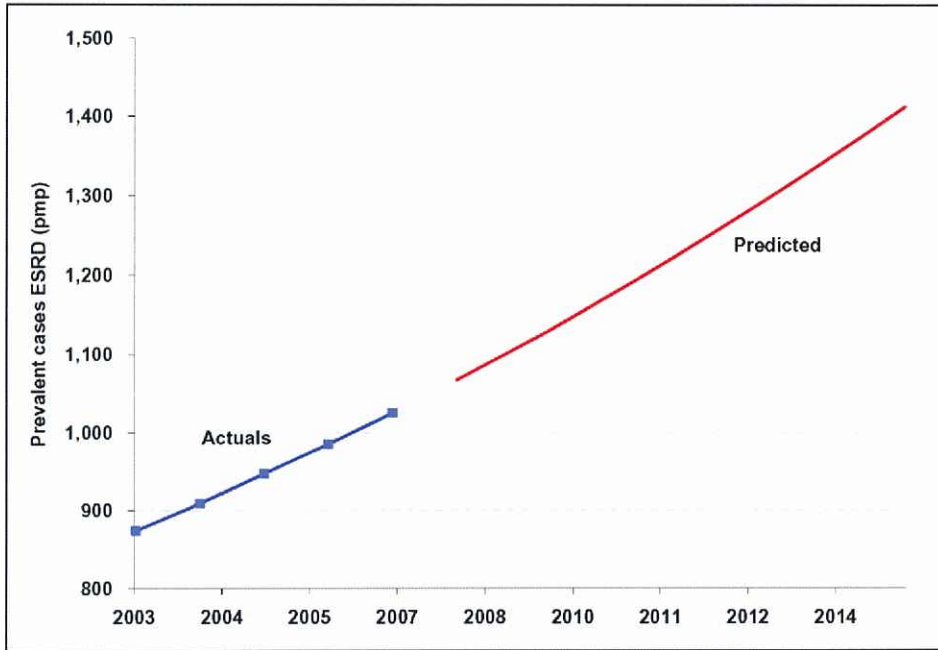


Figure 4 Prevalence of treated ESRD pmp

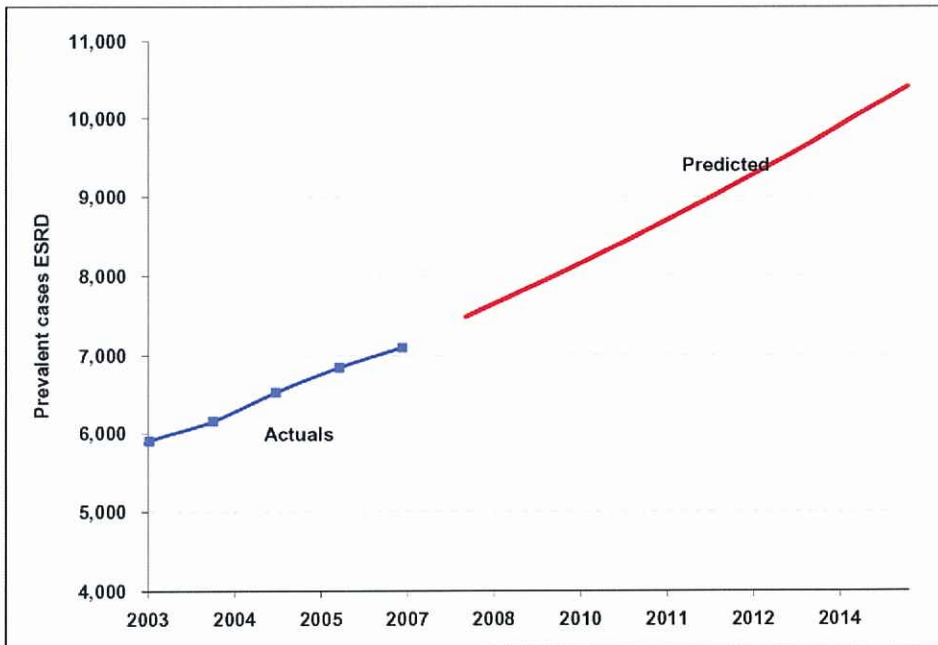


Figure 5 Prevalence of treated ESRD patient number

The stock and flow of the ESRD population over the past 5 years is shown in figure 6.

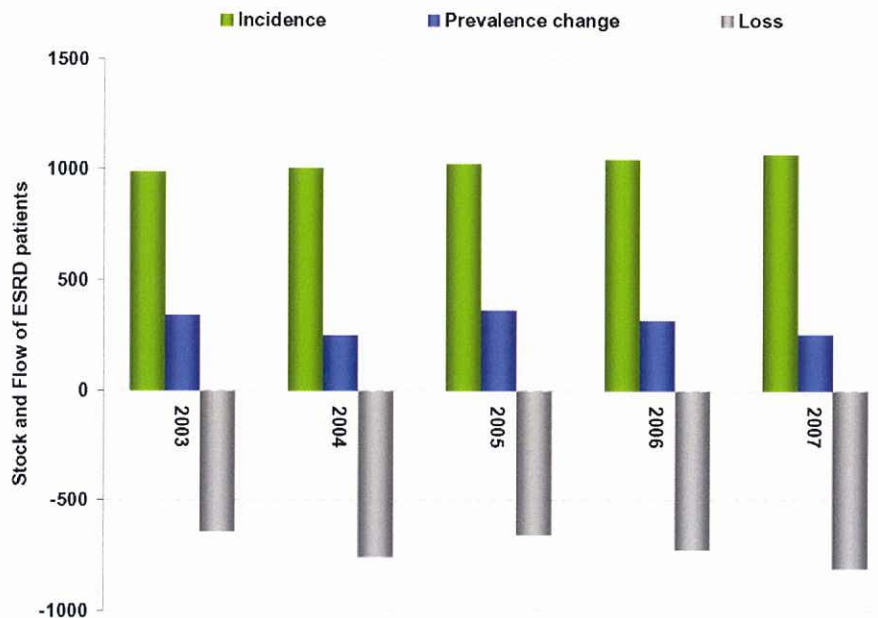


Figure 6 ESRD patient stock and flow 2003-2007

An anomaly in the Registry data

There is an anomaly in the data reported in the registry whereby patients are lost from the PD prevalence and are not accounted as deaths, transplants or as transfers to HD. In the past decade somewhere between 2,500 and 3,000 patients are unaccounted for in the registry. This represents a large loss-to-follow up from PD and would significantly impact either the modality technique survival or patient survival data reported by the Registry. This anomaly goes some way to explaining why the prevalence growth underestimates what would be expected calculated by the stock and flow data.

Patient demographics – age and diabetes mellitus

As is typical of ESRD treatment in all nations the proportions of more elderly patients and patients with type 2 diabetes mellitus is rising in Hong Kong as shown in figures 7 and 8. In figure 9 the incidence and prevalence pmp by age group is shown and illustrates the very high rates for persons 60 years and older. This age effect will become augmented as the overall age distribution pyramid for Hong Kong shifts upwards.

The trends for diabetic patients (figure 9) seems to be flattening somewhat in more recent years after steep rises through the 90s and early 2000's.

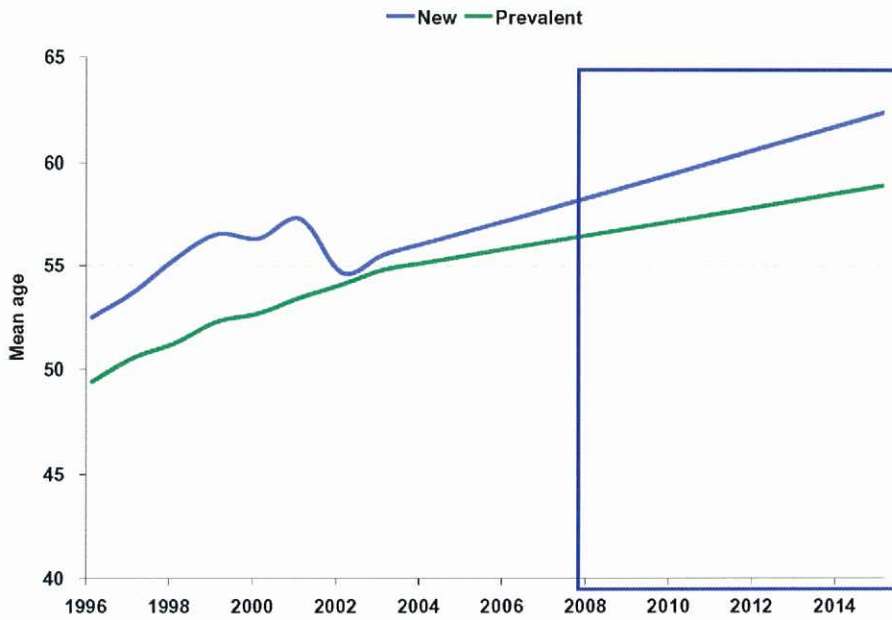


Figure 7 Rising age trend for incident and prevalent patients with projected trends to 2015

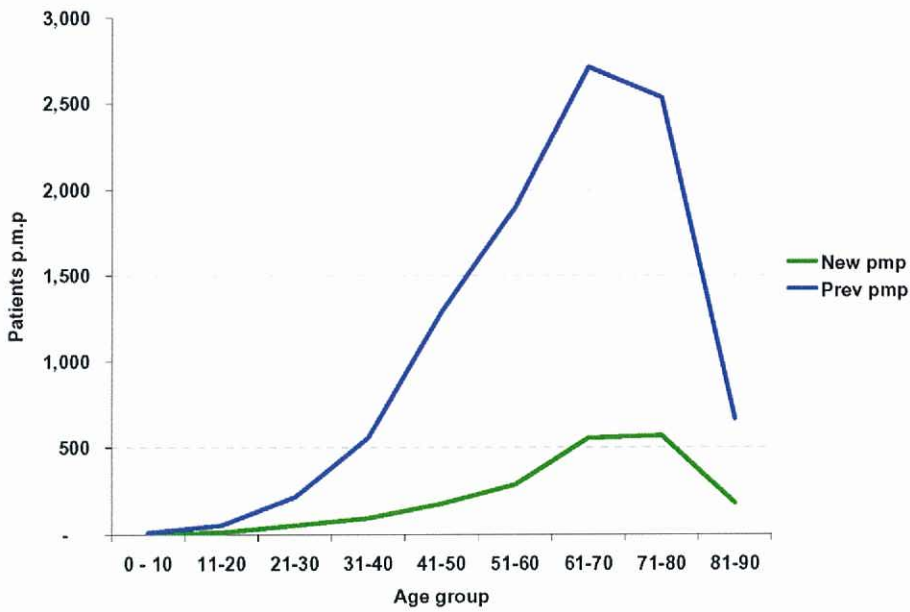


Figure 8 Distributions of pmp incidence and prevalence rates by age group

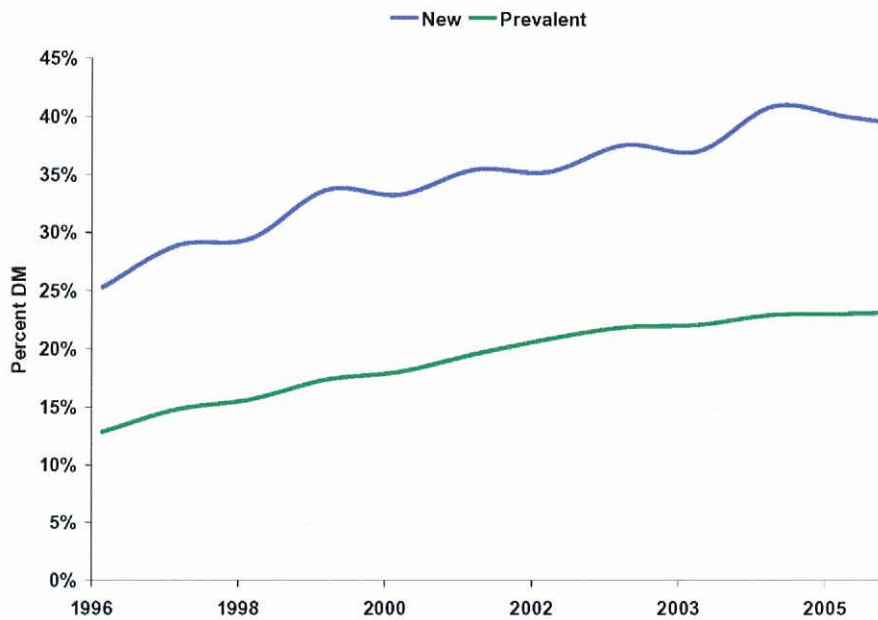


Figure 9 Rising rates for incident and prevalent diabetic patients as proportion of total

Outcomes – mortality rates and patient survival

The mortality rates reported in table 1 differ from those reported by the Registry because the calculation is based on the generally more acceptable method where number of deaths is divided by the mid-year prevalence (half the sum of one year's and the prior year's prevalence) whereas the Registry calculates the mortality as deaths divided by the end-period prevalence which overestimates the number of patients at risk.

Table 1 Deaths and annual gross mortality rates

		1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Deaths (number)	All	322	359	439	449	462	551	625	591	647	730
	PD	242	254	326	359	345	398	494	434	479	557
	HD	66	82	93	64	89	115	87	122	123	123
	TX	14	23	20	26	28	38	44	35	45	50
Gross mortality % calculated as deaths divided by mid-year prevalence	All	8.6%	8.6%	9.6%	9.1%	8.7%	9.6%	10.4%	9.3%	9.7%	10.5%
	PD	11.3%	10.6%	12.5%	13.0%	11.9%	13.1%	15.8%	13.5%	14.5%	16.5%
	HD	12.1%	14.1%	15.0%	9.7%	12.8%	16.4%	12.5%	16.9%	16.1%	15.2%
	TX	1.3%	2.0%	1.5%	1.7%	1.6%	1.9%	2.0%	1.5%	1.7%	1.8%

The average mortality rates for the past five years were 9.9% for all ESRD, 14.7% for PD, 15.4% for HD and 1.8% for transplant.

In the 2007 Registry report the Kaplan Meier estimates of probability of patient survival are reported for all ESRD and for HD separately. The KM estimates are not reported for PD. In figure 10 the KM plots are redrawn for All ESRD and for HD superimposed.

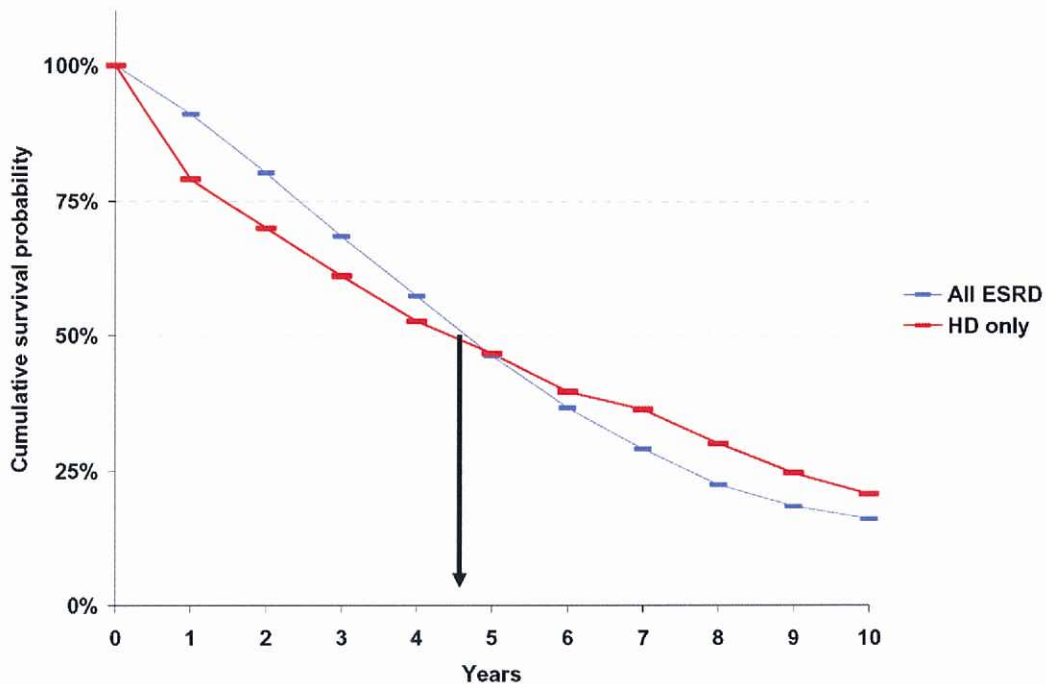


Figure 10 Redrawn KM plots for patient survival for all ESRD and for HD patients

The median survival is approximately 4.5 years, similar for all ESRD and HD. The mortality for transplant is very stable over time at < 2% (table 1) so that the crossing of the plot lines after 5 years must indicate that beyond five years the probability of survival for HD is somewhat superior to that for PD. Or, PD patients have a survival advantage during the first 3-4 years which is consistent with data from other registries.

Projections for Future of ESRD Treatment

Models based on prior data

I have already shown a number of projections for the incidence and prevalence of ESRD over the period to 2015. These are based on simple equation fitting to prior data using either exponential or polynomial curve fitting. In figure 10 the projected treatment modality distribution based on a continuing use of modalities as in the past is shown and

in figure 11 a pie distribution of modality use in year 2015 is described. Note that these projections do not account for the lost prevalence anomaly described in Addendum 1.

The projection estimates over 5,000 patients on PD, 1,200 on HD and some 4,000 alive with a renal transplant by year 2015. If the anomalous uncounted PD drop-out referred to above is considered another ~ 2,000 might be added to the in-centre HD numbers.

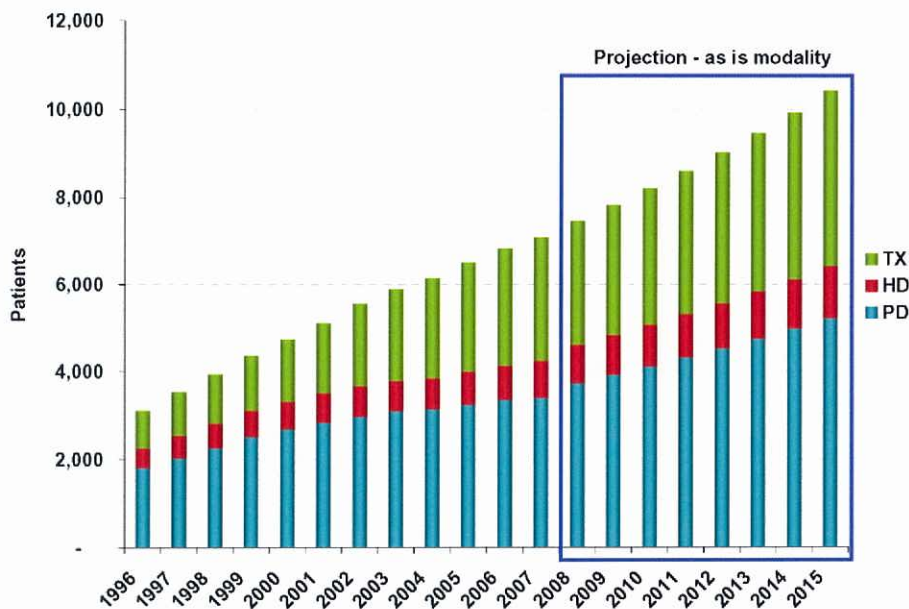
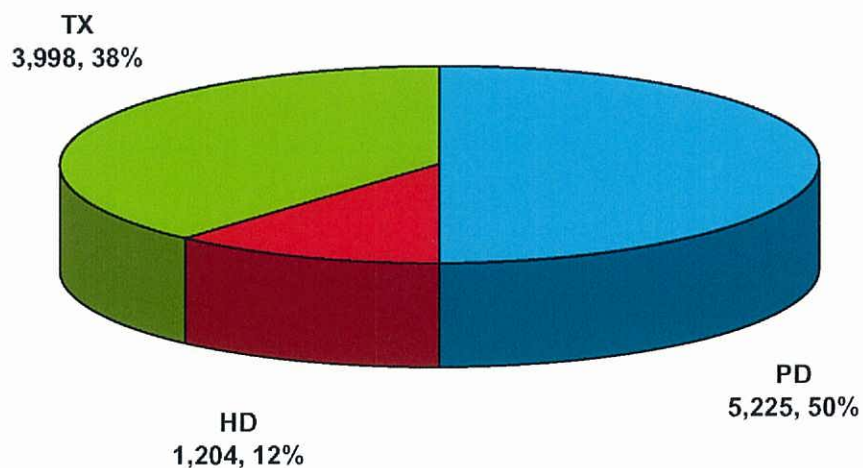


Figure 11 Projection for modality distribution to 2015



Modified Markov modeling

As an alternative method for projection modeling a modified Markov approach is employed below. Ideally, for a Markov it is required to have data that indicates the exact use of first treatment modality and the time dependent transitions between treatments and the mortality rates. The Renal Registry does not provide exact data on the allocation of incident patients to each modality nor the rates of transitions between modalities thereafter. Therefore, these have been estimated from interpretation of prior incident data and the prevalence trends for the modalities. The Markov models are zero-sum – i.e., there is no unaccounted loss-to-follow up.

The model assumes that 85% of incident patients start dialysis as PD and 13% start with centre (or satellite) HD. It also provides for 2% of incidence to be treated by preemptive renal transplantation. No new patients commence home HD but a small proportion of prevalent modalities are opted for home HD. The following annual transitions are calculated on mid-year prevalence: 10% convert from PD to HD; 3% of HD converts to PD; 3% of transplants convert to PD and 10% to HD. Mortality rates are the same as recent averages for each modality.

The predictions are shown in figure 12. Notable is the considerable growth of the numbers of patients dependent upon centre hemodialysis.

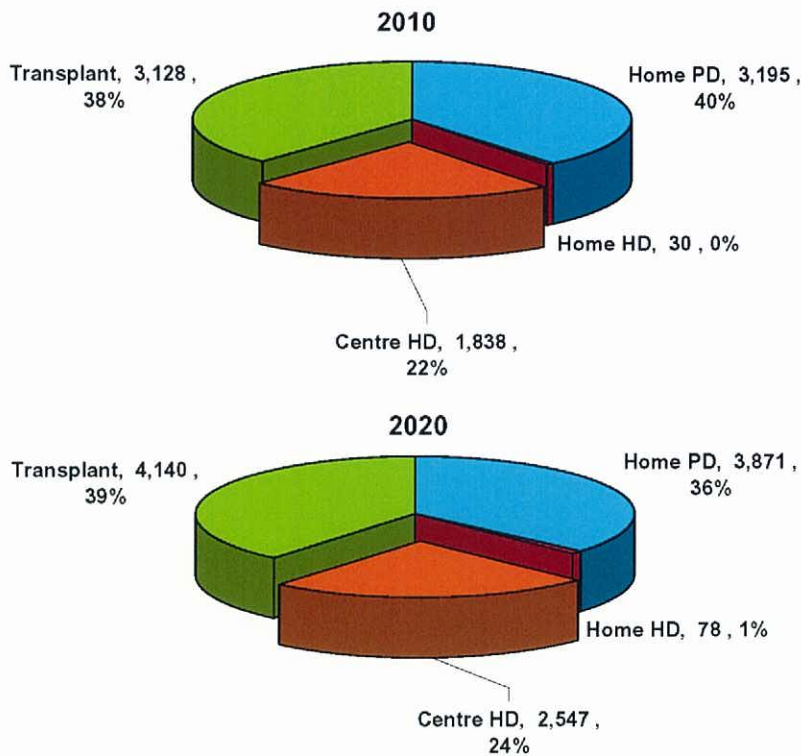
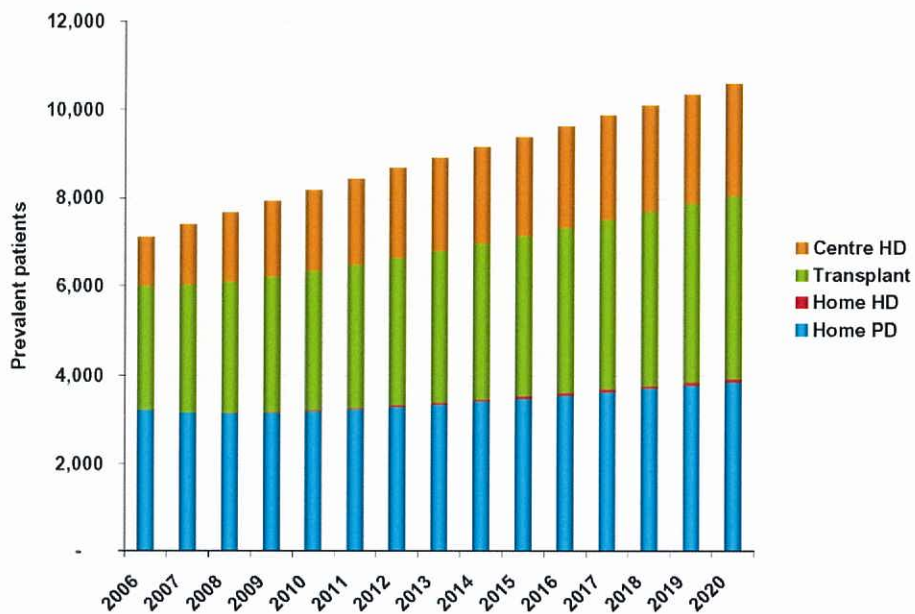


Figure 12 Modality prevalence growth trends based on Model 1 and the number and distribution of patients for years 2010 and 2020.

Conclusions

The current patterns of treatment of ESRD in Hong Kong are summarized and recent trends used to make projections for the future.

Despite a long history of the "*PD First*" approach to dialysis treatment in Hong Kong continuation of modality use as currently will result in a large increase in the need for resources for in-centre hemodialysis. Given that there may be future restrictions upon the option of renal transplantation in mainland China the trends shown here may underestimate dependence upon in-centre HD.

Although the models reported here are limited by lack of necessary data they suggest that in the next 10 to 15 years there will occur a challenging increased demand for resources for in-centre hemodialysis. Care and fund providers might choose to seek alternatives to current modality utilization, e.g., increasing utilization of home-based, self-care hemodialysis.



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Appendix B



MERITS AND PRINCIPLES OF PUBLIC PRIVATE PARTNERSHIP FOR THE MANAGEMENT OF RENAL REPLACEMENT THERAPY

Public Private Partnerships (PPP) for the management of Renal Replacement Therapy (RRT) represent a legitimate option for Governments experiencing escalating service demand. The PPP approach combines the resources and expertise available in the public and private sectors to achieve efficient and cost-effective service outputs and attain quality health outcomes for patients. Evidence from Western Australia (see attached case study) demonstrates some of the opportunities available under a PPP framework.

PPPs are worthy of consideration based on the following merits:

- **PUBLIC SECTOR SERVICE CAPACITY RELIEF** – PPPs enable the transfer of resource-intensive, daily, non-specialist RRT to industry experts. The majority of End Stage Kidney Disease (ESKD) treatments are non-tertiary and emphasise self-care. Private providers possess the equipment and consumables to support these patients and the clinical nursing, education and training expertise to ensure the sustainability of their therapy. Transferring non-specialist RRT management to the private sector alleviates public service demand and allows more effective use of specialist resources.
- **PROVEN COST EFFECTIVENESS** – Experience has shown that the private sector can operate ESKD services at a highly competitive price. In Western Australia, private sector providers are proving to be more cost-effective than some traditional public providers. Cost-effectiveness depends on the allocation of adequate patient numbers, maintenance of economies of scale and successful management of patient therapy choices. Public sector savings using PPPs for satellite dialysis in Western Australia have ranged from AUD\$1 to AUD\$2 million per year per unit.
- **NOT PRIVATISATION** – PPPs are not the same as privatised services. The public sector does not relinquish complete control to the private sector. Specific aspects of the partnership remain the responsibility of the public sector. This might include clinical autonomy, provision of nursing and facility management. Each PPP is unique and amenable to those items and issues that need, for political or strategic reasons, to remain in the realm of the public sector. Partnership is also present in management through the establishment of a collaborative forum to oversee operations and clinical outcomes.
- **QUALITY CLINICAL OUTCOMES** – Private RRT providers are capable of maintaining the same or bettering the clinical standards set by the public sector. Many private providers are directly involved in the development and propagation of clinical standards at an international level. In Western Australia, PPP operators have been able to demonstrate higher treatment compliance, lower hospital admission rates and greater self-care competencies among patients compared to some public operators. The public sector can prescribe the range of clinical indicators incorporated in the PPP contract.
- **SYSTEM EFFICIENCY GAINS** – Devolving the delivery of RRT and associated patient and carer education and training to the private sector and maintaining



clinical standards will improve system efficiencies across the health system. Where waiting times for therapy can be reduced, this will in turn reduce co-morbidities and costly hospital admissions associated with delay or late start to RRT. Private providers have much to gain by ensuring patients sustain renal adequacy and manage their co-morbidities and this has the potential to reduce overall ESKD hospitalisations.

- **CONTINUED EXCELLENCE** – PPPs offer an opportunity to introduce the latest technology, products and services to ESKD management. Private providers are business-excellence focused; with many operating according to national and international accreditation certificates. They are able to accommodate or adopt hospital-specific quality frameworks. Performance indicators within the contract can request evidence of and monitor continuous quality improvement activities.
- **EXPANDS DIALYSIS THERAPY OPTIONS** – Establishing a PPP for RRT creates an opportunity for Government to better support patients and their choices by moving services into the community and expanding the range of modalities and support systems available. The first Western Australian PPP was innovative because the service was established in a busy suburban shopping centre. The recent Western Australian state-wide tender for the Home Dialysis Program will increase the number of venues for education and training and strengthen patient support networks in an effort to improve self-care outcomes.
- **CAPITAL DEVELOPMENT** – If required a private provider could construct or modify a suitable venue for service delivery. Taking on this investment risk would be conditional on the life and value of the contract. An option for the transfer of ownership between the sectors is also feasible. Western Australia has been able to open five new satellite haemodialysis units since 2000 through PPPs. Public money that would have been used for these capital investments was freed up to invest in other areas of public policy priority.
- **OPPORTUNITY FOR PRIVATE INSURANCE USAGE** – There is scope within PPPs for increasing private health care election which may not be available or limited within the public system. This is potentially advantageous for patients, clinicians and both public and private sectors. Conditions for this allowance need to be detailed in the contract so that the public patient workload is not jeopardised. There is one satellite dialysis service in Queensland, Australia that splits the operating day according to public and private patient access.
- **INNOVATION** – PPPs for RRT create opportunities for innovation not necessarily available within the public sector due to budget constraints. There is scope to increase modality choice and patient self-care competencies, move services out of hospital campuses to provide home- or community-based care, improve patient support networks with the aim of stabilising therapy choice and test targeted interventions. Innovation can be considered a value-added component in any PPP offer.



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Appendix C



CASE STUDY

PUBLIC PRIVATE PARTNERSHIP DIALYSIS MODELS IN WESTERN AUSTRALIA

In 1998, dialysis services within the Western Australian health system were severely overcrowded. Treatment therapies were roughly split between haemodialysis and peritoneal dialysis and ESKD prevalence was 298 per million population and increasing. For a large majority of people with ESKD, haemodialysis was only accessible in high-cost, tertiary hospital centres. Case-mix methodology had quantified that tertiary dialysis was very expensive and clinicians and health administrators were questioning whether a high-care and high-cost setting was required for all patients.

Transferring capable patients to a self-care setting was considered the best way to alleviate the pressure experienced by the main tertiary hospitals. It was also thought that savings could be made through the establishment of lower-cost service options. However, the Government of the day did not have the surplus required for this innovation. The Western Australian Renal Dialysis Reference Group (RDRG); a program-focused collaboration between clinicians, administrators and financial officers; decided to explore collaborative solutions with the private sector.

The RDRG wanted to transfer the time-consuming daily operational responsibilities and risks associated with dialysing low-care patients to the private sector so that tertiary hospital resources could concentrate on acute cases. The agreed conditions were that:

- The public sector would retain clinical authority;
- Clinical management protocols would be consistent between the sectors;
- A forum for management collaboration would be established to ensure effective communication regarding patient management;
- The latest renal technology would be used to achieve cost-effectiveness and high-level quality outcomes;
- Satellites were to be located in community settings with the aim of de-hospitalising dialysis and reducing patient travel time;
- A patient self-care philosophy would prevail aimed at restoring health and normalising dialysis; and
- Data-linkage capacity and security safeguards would be put in place.

Before initiating the tendering process, the public sector determined a neutral benchmark price. The preferred private provider met this condition, was able to address all of the quality conditions and offered desirable value-added components. A seven-year contract was established based on a fixed price to be indexed annually according to the Consumer Price Index.

In 2000, the Midland Dialysis Centre was established, capable of caring for 40 patients. This Public Private Partnership (PPP) represented a leap in public health sector management thinking and quickly became a national demonstration model. The provider was able to demonstrate attainment of agreed clinical outcomes, increased compliance rates, enhanced self-care competencies and reduced acute care hospital admissions. The location of the service in a busy suburban shopping centre was also unique and extremely convenient for patients.



Some clinicians and patients were apprehensive about the change. Clinicians feared losing control over service provision and patients were concerned about leaving the perceived safety of the hospital and what would be expected of them in terms of self-care. Lengthy stakeholder forums were held and concerns discussed. Where appropriate, these concerns were reflected in the contract and resources were put in place to ease patient transition. In the end some of the greatest opponents of the model became strong advocates.

The success of the Midland Dialysis Centre led to a dramatic expansion in satellite services in Western Australia based on variations of same model. Since 2000, PPP models similar to the original Midland Centre have been established in additional metropolitan areas to alleviate demand. Following the reconfiguration of activity in nearby tertiary hospitals, it is estimated that AUD\$4 million per year will be saved from this initiative.

Western Australia has recently taken the model one step further with the successful appointment of a private provider to manage the State-wide Home Dialysis Program, inclusive of home haemodialysis and peritoneal dialysis. This has removed these responsibilities from tertiary hospitals and eliminated service duplication. It has created efficiencies through the development of a standardised program, protocols, competencies and economies of scale.

Under the Home Dialysis Program contract, the private provider manages several hundred home haemodialysis and peritoneal dialysis patients, some of whom reside in rural and remote locations throughout the State. The Western Australian Home Dialysis Program venture is unique to Australia and the global market. It is estimated that it will save the health system AUD\$2 million per year and increase the uptake and sustainability of home therapies. This PPP will lift the standard in outpatient RRT quality reporting and monitoring and produce crucial evidence of cost-effectiveness for the Western Australian Government.

The Western Australian Government has found dialysis PPPs to be effective in enabling service innovation in an environment of restricted capital funds and high demand. PPPs have been established without jeopardising patient health outcomes and have enabled improvements in the standard of quality reporting and monitoring. Significant cost savings were gained by moving a critical mass of patients out of high-cost tertiary centres into PPP satellites. From 2000 to 2005, the shift to PPP arrangements has enabled Western Australia to absorb 16% growth in demand without additional expenditure. Partnerships with competent private providers have enabled the health system to achieve the same or better clinical outcomes for patients at the same time as improving the ability of the public sector to focus its resources on those people requiring highest acuity care.



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The George Institute's mission is to improve the health of millions of people worldwide through providing the best research evidence to guide global health decisions and by engaging with decision makers to enact change. In May 2007 The George Institute officially opened The George Institute China in Beijing, where a team of health research professionals continue to address major health problems in China. The opening ceremony renewed a Memorandum of Understanding between the George Institute and Peking University Health Sciences Center to foster increased research in support of China's health priorities.

The Renal Division

The Renal Division generates high-quality evidence and strategies to prevent and treat kidney and related chronic diseases. It conducts very large-scale clinical trials and undertakes research for government and health sector partners addressing priorities in renal service planning. In 2007 the Division developed the Statewide Renal Health Services Plan 2008-2017 for the Queensland (Australia) Department of Health. The Division also recently completed two seminal reports for the Australian National Kidney Foundation (Kidney Health Australia) which provided rigorous estimates of the financial burden of kidney disease in Australia, explored more cost-effective ways of delivering dialysis and transplant services and assessed the costs and benefits of primary-care approaches to screening for and early intervention to prevent the progression of kidney disease.

Associate Professor Alan Cass
Director Renal Division
The George Institute for International Health
PO Box M201
Missenden Rd
NSW 2050
Australia
Email: acass@george.org.au
www.thegeorgeinstitute.org