

# NEPHROLOGY IN MALAYSIA: THEN AND NOW

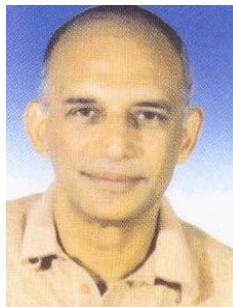
## Introduction

Nephrology as a separate clinical specialty developed in Malaysia only in the early 1970s. Before this time the general physicians took the burden of looking after patients with renal problems (as they did with all other medical conditions). Often there was only one physician in each state (the state physician) and he was kept busy with malaria, tuberculosis, typhoid and other infectious diseases. In the annual reports of the Federation of Malaya in the mid 1940s there was little mention of renal diseases apart from acute and chronic nephritis.

## The early pioneers



Dr. G. Sreenevasan



Dr. S. S. Gill



Dr. Florence Wang



Dr. Abu Bakar Suleiman

In 1964 the Ministry of Health purchased the first Haemodialysis machine, a Kolff haemodialysis machine, in the country at the request of Dr. G Sreenevasan (now Dato' Dr. G Sreenevasan) who had just returned from the U.K. after training in Urology. This machine was placed in Hospital Kuala Lumpur and used for the treatment of acute renal failure particularly due to urinary tract obstruction. Between 1964 and 1968, 85 haemodialysis treatments were performed. Patients with end stage renal failure (ESRF) at this time did not receive any definitive treatment. It was not until 1966 that an attempt was made to treat end stage renal failure on a more long-term basis. In that year the plight of a young man by the name of Harry Kydd caught the public's attention and a dialysis machine was bought through public donations and placed in

Assunta Hospital. He survived on chronic haemodialysis for a few months. Dr. S.S. Gill who looked after him had just returned from training in Haemodialysis and Nephrology at Seattle, USA under Professor Scribner. Dr Gill was the first to develop a private haemodialysis centre. He later became involved in the National Kidney Foundation and presently is its chairman.

In 1972 Dr. Florence Wang joined the University of Malaya as an Associate Professor in Medicine. She had received training in nephrology in the USA. However the policies and priorities of the Faculty of Medicine and the teaching Hospital then did not allow the development of any subspecialty. Dr. Florence Wang took a keen interest in many aspects of nephrology and was particularly known for her work in SLE nephritis.



Left: Newspaper reports on the appeal for help to purchase a Haemodialysis machine for Mr Harry Kydd.

Nephrology in Malaysia developed rapidly only from 1975 through the initiatives and efforts of the Ministry of Health. In 1974 the Ministry sent a young physician Dr. Abu Bakar bin Dato' Suleiman for training in Nephrology in Washington, USA and Melbourne, Australia. On his return in 1975, he headed the Nephrology unit at Hospital Kuala Lumpur (HKL). The unit was part of the Department of Urology which was headed by Dr. Hussein Awang who had just taken over from Dr. Sreenevasan following the latter's retirement. Dr. Hussein Awang (now Dato' Hussein Awang) and Dr. Abu Bakar Suleiman are cousins. The close working relationship between the urologists and the nephrologists in the Ministry of Health stemmed from this very beginning. It was facilitated in no small way by the physical structure of the Institute of Urology and Nephrology in which they share many common facilities, not the least important being a common tea room! This was indeed a great foresight by Dato' G Sreenevasan who was instrumental in planning the Institute of Urology and Nephrology at Hospital Kuala Lumpur. He proposed then that there should be recruitment and training of renal physicians (and indeed suggested that the Department should have at least three such physicians), a renal pathologist and a radiologist in addition to dialysis nurses and technicians. Much of what has been achieved to date in both fields came from the work of doctors in the Institute.

In 1976 the Nephrology unit was upgraded to a full department of the hospital and Dr. Abu Bakar Suleiman became its first head. He took on the job with zest and became the principal architect of the subsequent development of nephrology services in the country. For most of the time he worked alone until 1981 when others joined to train in nephrology or returned from overseas after completing their training. The very early ones included Dr Izham Cheong, Dr Zaki Morad and Dr Norella Kong. Dr Zaki Morad subsequently took over the job of head of the Department of Nephrology from Dr Abu Bakar Suleiman in 1987; while Dr Izham Cheong went on to establish the Nephrology unit in the Department of Medicine, National University of Malaysia. He was soon joined by Dr Norella Kong. Both later became Professors of Medicine in the University. In the University of Malaya, Professor Florence Wang was joined by Dr Chua Chin Teong who also became a Professor of Medicine later. Dr Abu Bakar Suleiman went on to assume the post of Director of Medical Services in the Ministry of Health and subsequently became its Director General. During his tenure he made a great impact on the delivery of healthcare in the country emphasizing the need for quality and ethical practice.

Paediatric Nephrology had its beginnings in University of Malaya in the 1970s where Professor Lam Khuan Leng took an interest in the specialty and provided renal biopsy services for the whole country. Dr Fabiola de Cruz became the second paediatrician to train in the field. In the Ministry of Health Paediatric Nephrology developed later when Dr. Indon Lajim returned in 1983 following training in UK. She was later joined by Dr Lim Yam Ngo who is the current head of Paediatric Nephrology services in the Ministry.

Renal pathology services were not readily available then and now. The late Professor K Prathap of the Department of Pathology, University of Malaya provided such service in the early years. Subsequently a number of pathologists took an interest in renal pathology and went for training. They include Dr Chong Siew Meng (who later left to work in Singapore), Dr. Looi Lai Meng, Dr Phang Koon Seng and Dr Cheah Phaik Leng.

## The long-term Haemodialysis treatment programme – the beginnings

The first long-term haemodialysis programme was initiated by Assunta Hospital with a machine donated by the public. In the Ministry of Health it was started by a Urologist. When Dr G Sreenevasan proposed the building of the Institute of Urology and Nephrology at hospital Kuala Lumpur, he also proposed the setting up of a haemodialysis unit that could dialyse six patients. The first haemodialysis unit was set-up in the old Ward 4 of Hospital Kuala Lumpur in 1969. The first patient to be taken in for long term Haemodialysis treatment, Mohamad Sabawi bin Mat Jidin, survived for more than three years. Few of the remaining eighteen patients taken in during the first year survived more than a few months. A two tank dialysis system was used and this



Old Ward  
Hospital Kuala Lumpur

*The first Haemodialysis unit with six beds was set up in the old ward 4 of Hospital Kuala Lumpur.*

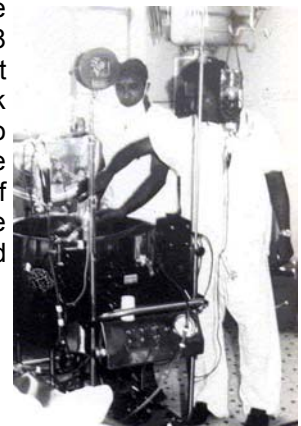


First four patients on chronic HD programme

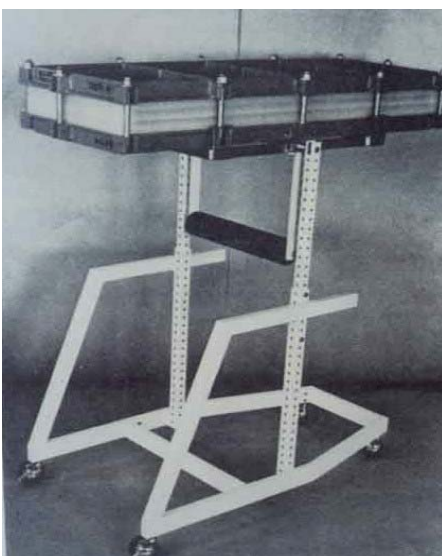
*Above: The first Haemodialysis unit in the Ministry of Health*

was replaced by the Biosystem multiple dialysis unit in October 1970. Two medical assistants Mr. Hanip Che Man and Mr. Tan Teck Khiam underwent training in the United States and were responsible for the operations and maintenance of the dialysis machines. The unit produced its own dialysate with the help of the Hospital Pharmacist Mr Lee Sze Peng at a cost of 50 cents per litre. The commercially available solution, which was imported, was \$2.88 per litre. The dialyser used after the first few years was the Kiil dialyser which took time to assemble. As there were no Nephrologists at that time the care of the medical problems of this pioneer batch of dialysis patients were undertaken by the general physicians. They included Dr K Sarvanathan, Dr Lloyd Thuraisingham and Dr Rahim Omar.

was replaced by the Biosystem multiple dialysis unit in October 1970. Two medical assistants Mr. Hanip Che Man and Mr. Tan Teck Khiam underwent training in the United States and were responsible for the operations and maintenance of the dialysis machines. The unit produced its own dialysate with the help of the Hospital Pharmacist Mr Lee Sze Peng at a cost of 50 cents per litre. The commercially available solution, which was imported, was \$2.88 per litre. The dialyser used after the first few years was the Kiil dialyser which took time to assemble. As there were no Nephrologists at that time the care of the medical problems of this pioneer batch of dialysis patients were undertaken by the



*Right: The first Haemodialysis machine in Malaysia*



*The Kiil Dialysis machine was the standard dialysis machine in the late 70's*

As often happens in any new venture fortuitous intervention sometimes plays an important role. Mr. G Sreenevasan received help from none other than the Prime Minister himself. The late Tunku Abdul Rahman had a close friend who had end stage renal failure and had to travel from Alor Star to Kuala Lumpur for dialysis. The Tunku wrote to the Minister of Health requesting the Urology unit to be set up. There was also an unknown British gentleman who donated to the Minister of Finance ( the late Tun Tan Siew Sin) a sum of four thousand pounds to set up the Urology and Dialysis unit.

In the early days vascular access was via a Scribner shunt. Two Teflon catheters, one in the artery and one in the vein were connected by a Silastic tube. The shunt frequently clotted and one of the major duties of the Medical officer on call was to de-clot the shunt. It was only in 1977 that Dr Prohoeman, another Urologist working with Mr. Sreenevasan started doing the Brescia-Cimino arteriovenous fistula which became the standard vascular access even to this day.



**Long-term Haemodialysis programme – the subsequent years.**

From the late 1960s to the beginning of the 1980s haemodialysis facilities was available only in Kuala Lumpur in both the private and public sectors. Patients requiring haemodialysis treatment especially those with acute renal failure had to be transported to Hospital Kuala Lumpur. Those few who were accepted for long-term haemodialysis treatment had to relocate themselves and their families to Kuala Lumpur.

As the haemodialysis facilities in HKL were limited, prioritisation was necessary and the department of Nephrology developed guidelines on the use of government haemodialysis facilities. Patients with acute renal failure received priority in the use of such facilities, followed by patients who were being prepared for renal transplantation. Patients who had their transplants done in Hospital Kuala Lumpur and whose grafts subsequently failed also received priority on the use of the haemodialysis facilities. Government servants and their dependants were also taken into the long-term dialysis programme.

The inconveniences that patients and their families had to suffer in order to receive long term haemodialysis treatment at Hospital Kuala Lumpur led Dr. Abu Bakar Suleiman to develop the Home Haemodialysis programme in 1979. Patients purchased their own haemodialysis machines and disposable and performed haemodialysis treatment in their own homes. They received three months of training on the procedure at Hospital Kuala Lumpur. These patients returned to the hospital at three monthly intervals for follow up. In between these clinic visits they were managed by the local physicians or General Practitioners if they had intercurrent medical problems. This programme was highly successful as it provided opportunities for patients who did not wish to relocate themselves to Kuala Lumpur to receive treatment. At its height there were more than 350 patients doing dialysis at home, which might even be as far away as Sabah or Sarawak. The very first patient on the Home Haemodialysis programme in 1979, a nurse, continued to do dialysis at her home in Sibul, Sarawak till her death in April 2000.



*At its height there were more than 350 Home Hemodialysis patients . Home HD was carried out in the most unlikely places. The above photograph showed a well used to supply water for Home HD*

Dr. K. K. K. K. I have had preliminary discussions with Bakti's Ex. Co. about financing regional centres of haemodialysis treatment and now have to have a slender more direct paper for presentation at a special meeting on 17/11/82. Therefore may I have a summary (tabular paper style) on subject, putting proposal first. I.e. what background about disease and various ways to lead to the end of directly &

In 1984 with the financial assistance of BAKTI (Association of Wives of Cabinet Ministers) which contributed \$800,000, the Department of Nephrology with the support of the Ministry started six haemodialysis units- one each in Hospital Alor Star, Hospital Penang, Hospital Ipoh, Hospital Johor Bahru, Hospital Lau King Howe, Sibul and Hospital Queen Elizabeth, Kota Kinabalu, Sabah.

Realising the crucial role played by nurses in Haemodialysis treatment Dr Abu Bakar started a post basic renal nursing course in 1984 in conjunction with the nursing division of the Ministry of Health. The course proved to be popular and to date has produced more than 1200 retrained nurses and medical assistants. Two nursing tutors who played important roles in developing and running the course were Mr. Pasupathy and Ms Chong Kwai Fong. The course was initially for three months but was extended to six months soon after starting.

In the early 1980s a number of very capable nurses and medical assistants played important roles in assisting Dr Abu Bakar in consolidating and expanding the long-term haemodialysis programme. They not only looked after the patients but supervised the home haemodialysis programme, managed the unit including the supplies of disposables and consumables and even did maintenance and repair works on the machines. They include Mr. Hanip Che Man, Mr. T Satkunasingam, Mr. Ngatiman Tular, Ms Mok Yoke Lan, Ms Choo Soke Har, Ms Lee Day Guat, Ms Jeyarani and Ms Samporanam. Most continued to work in the haemodialysis field till today, each accumulating

almost three decades of experience in haemodialysis nursing.

*The above letter from the secretary of BAKTI initiated a series of actions that culminated in the opening of six haemodialysis centres outside Kuala Lumpur in 1984*

When Dr Abu Bakar left for the Ministry of Health in 1987, Dr Zaki Morad took over the running of the Department and with it the responsibility of developing the service nationwide. Dr Zaki Morad expanded the Haemodialysis programme in a phased development. It began with developing dialysis units in the remaining general hospitals and later in large district hospitals like Hospital Muar, Taiping and Teluk Intan. Subsequently Haemodialysis units were built in all district hospitals. In the last ten years CAPD units were opened in similar fashion although they are currently limited to all general and large district hospitals. By the end of 2004 all of the 130 hospitals in the Ministry of Health will have a haemodialysis unit. Dr Zaki Morad introduced a number quality initiative efforts including a document on Standards and Quality in Haemodialysis which became the standard for Haemodialysis treatment in the Ministry. In 1996 he initiated the development of Practice Guidelines in Renal Replacement Therapy for the Ministry of Health. This guideline is now undergoing a revision.

He intensified the training programme for Nephrologists and structured it by introducing a syllabus, a log book, and more recently an exit evaluation where trainees are assessed by local and external examiners. When he was appointed the Director of Clinical Research Centre (CRC) of the Ministry of Health, he involved the nephrologists in research and it is no mere coincidence that the main research work of the CRC is nephrology centred.

The early period of rapid growth of Haemodialysis facilities and Nephrology services outside the Klang Valley was not matched by the number of available nephrologists. The burden of providing nephrology services countrywide fell on the Department of Nephrology Hospital Kuala Lumpur. Drs Abu Bakar and Zaki Morad and later joined S. Prasad Menon and Fan Kin Sing criss-crossed the country to run clinics, perform renal biopsies and conduct Continuing Medical Education for the doctors. They travelled by road to nearby state capitals or by air to more distant hospitals including those in Sabah and Sarawak; in one location in Sarawak they crossed a river in a ferry to reach the dialysis centre. Those were hectic but nonetheless most rewarding times.

Despite the rapid growth of Haemodialysis units in the Ministry, the demand for the treatment far exceeded the available facilities. In the late 1980s, Government departments purchased Haemodialysis machines and placed them in their premises for the use of staff that had ESRD.

As the county's economy improved, more and more patients with ESRD could afford haemodialysis treatment and this led to the rapid development of haemodialysis centres in the private sector. There are now an estimated 74 centres in the private hospitals and clinics, many of which are small sized units and located in the west coast of peninsular Malaysia particularly the Klang Valley.

A development unique to Malaysia is the establishment of the Non-governmental, not for profit dialysis centres. These centres provide haemodialysis treatment for those who are unable to afford the private haemodialysis treatment and were not accepted for the MOH Haemodialysis programme. These NGO Haemodialysis centres as they are known are of varied background. Many are started by service clubs such as Rotary or Lions while others are funded and run by Religious bodies. The largest group of NGO Haemodialysis centres is run by the National Kidney Foundation which started the very first of such centres in Jalan Hang Lekiu, Kuala Lumpur in 1993 with the assistance of the Ministry of Social Welfare. As of December 2003 there are 72 such centres. In 2001 the then Minister of Finance Tun Zaim Zainuddin announced in the budget speech that the government would provide subsidy to all these NGO Haemodialysis centres that provide treatment to deserving patients. These centres receive RM50 for each haemodialysis treatment they do on deserving patients and they are not allowed to charge these patients more than RM60. This gesture by the government helped boost the number of NGO dialysis centres as well as allow them to focus on providing quality treatment and not be distracted by the need to raise funds all the time. The government also subsidises the purchase of Haemodialysis machines and related hardware by these NGOs. The Ministry of Finance channelled this subsidy through the Ministry of Health, which appointed the National Kidney Foundation to manage the subsidy programme.

## Renal Transplantation

Dr. Hussein Awang performed the first renal transplantation in Malaysia on 15th December 1975. The patient, Mr. Martin Rinyeb from Sarawak continues to enjoy normal renal function today, twenty-eight years after the surgery. More than a thousand renal transplantation has been done until now and in the vast majority the kidneys were obtained from live related donors. Cadaveric transplantation although started early in 1976 did not take off until more recently.



*Mr Martin Rinyeb (right) became the first person to undergo a renal transplant surgery in Malaysia after he received a kidney from his brother Augustine*

The immunosuppression protocol evolved over the years from high dose steroids and Azathioprine to Steroids and Azathioprine with donor specific transfusion to the current one of triple immunosuppression consisting of Prednisolone, Mycophenolate mofetil and Cyclosporine/Tacrolimus. Cyclosporin was used routinely in all new patients receiving a kidney transplant from 1991 onwards. It was first used in 1988 in children and those adult recipients who were not able to receive donor specific blood transfusion.

Apart from Hospital Kuala Lumpur, the University Malaya Medical Centre, and Selayang Hospital do renal transplantation on a regular basis. A few private hospitals do renal transplantation occasionally. The demand for kidney transplantation is high and patients desirous of such surgery but did not have a live related donor had resorted to getting kidneys from live unrelated donors mainly from India or commercial cadaveric donors from China. Such forms of transplantation exceeded the number of live related kidney transplantation done locally. The lack of suitable live related donors led to the use of emotionally related donors. University of Malaya Medical Centre performed the first spousal transplantation in Malaysia. This form of transplantation is also now carried out in Hospital Kuala Lumpur and Hospital Selayang.

## Peritoneal dialysis

Peritoneal dialysis as a treatment for acute renal failure as well as a temporary treatment for ESRF was available in the country as early as the late 1960s. Dr. G Sreenevasan introduced the treatment in 1966 in patients with acute renal failure. With the development of permanent indwelling catheters, it became possible to do peritoneal dialysis on a long term basis and in 1978, Popovich, Moncrief and Nolph described a technique called Continuous Ambulatory Peritoneal Dialysis or CAPD for short. This was introduced in Hospital Kuala Lumpur in 1984 and increased the treatment options for ESRD patients. The system used then was from Travenol (which is now known as Baxter). University Hospital, Kuala Lumpur had offered the treatment earlier with a couple of patients in 1981. This treatment modality is now available in all major MOH and University hospitals but not in the private sector. The success of CAPD is very much dependant on capable nurses and in the Ministry of Health, two such nurses Rajakumari a/p Arunasalam and Tan Poh Choo were the pioneers who contributed greatly to the success of the programme. Tan Poh Choo continues to work in CAPD till today. In the early months they received considerable help from Ms Margaret Jones who worked with Baxter as a CAPD nurse specialist. The very first patient on CAPD was a policeman Encik Hussin Abdul Rahman who continued to work as a policeman while on treatment. He started on 28<sup>th</sup> May 1984 and died four years later from a cerebrovascular accident.



*The 10<sup>th</sup> Anniversary of the start of CAPD in the Ministry of Health was held in 1994. Seen above are the three nurses who initiated the program: Margaret Jones from Baxter, Tan Poh Choo and Rajeswari from the Dept of Nephrology of HKL. Also in the photograph are Dr Abu Bakar Suleiman, Dr Zaki Morad and Mr T.S. Singam*

## **General nephrology**

Haemodialysis and transplantation appear to be the most visible part of nephrology practice. Nonetheless over the years since the formal establishment of the Department of Nephrology, many advances have been made in the management of nephrological conditions including glomerulonephritis, pyelonephritis, and renal stone diseases. Renal biopsies were utilised frequently in the diagnosis of glomerular diseases since the early 1970s. At the beginning it was done only at General Hospital Kuala Lumpur and University Hospital Kuala Lumpur but subsequently the procedure could be done at many of the other hospitals where nephrologists are stationed. A few pathologists such as Professor Looi Lai Meng (University of Malaya), Dr. Chong Siew Meng (now in Singapore) and Dr. K.S. Phang (University Kebangsaan Malaysia) developed special interest in renal pathology and contributed greatly to the improved quality of diagnosis of glomerular diseases.

There are also others who contributed over the years to the improved diagnostic services for nephrological conditions with the introduction of radionuclear techniques which enabled better assessment of renal function; and interventional radiology which enabled some patients to have certain lesions corrected without open surgery.

## **Training of nephrologists**

The Department of Nephrology at Hospital Kuala Lumpur has as one of its main functions the training of nephrologists to meet the country's needs. Soon after organising the Department, Dr. Abu Bakar Suleiman started recruiting physicians to train in the field. To date more than fifty have been trained. Approximately half have left to join the private sector while the rest continue to serve in the Ministry. Training has also been more organised and structured now and as part of the training the trainees are sent for clinical attachment in centres of excellence overseas. Nephrology services were upgraded in a number of hospitals where trained nephrologists were posted. Apart from the Department of Nephrology, University Hospitals also had training programmes. The majority of the nephrologists in the country however were trained in Hospital Kuala Lumpur.

## **National Renal Registry**

In 1992 the Department of Nephrology initiated the establishment of the National Renal Registry. The Malaysian Society of Nephrology was invited to be a co-sponsor of the registry and contributed to its running and funding. The Registry which collects data on treated ESRD patients is highly successful and proved to be an invaluable source of information to healthcare planners, clinicians and also the industry. In 2002 the Society and the Department agreed to transfer the operations of the Registry to the Disease and Treatment Registry unit of the Clinical Research Center of the Ministry of Health. Two individuals played critical roles in the success of the registry; Dr Lim Teck Onn and Staff Nurse Lee day Guat. Dr Lim Teck Onn, a consultant nephrologist at the Department of Nephrology Hospital Kuala Lumpur took a Masters degree in Statistics and later moved to the Clinical Research Centre, Ministry of Health where he spearheaded its rapid development.

## **The Malaysian Society of Nephrology**

The Malaysian Society of Nephrology was started in 1984 by Dr Abu Bakar Suleiman who became its first President. The Secretary was Dr Zaki Morad. The first major task of the Society was organising the 6<sup>th</sup> Asian Colloquium in Nephrology in 1985, which it did with considerable success. Many eminent nephrologists from USA, Europe and Australia and Asia were invited as guest speakers. The Society organised annual scientific meetings, seminars and workshops on various aspects of nephrology and represented the profession in government organized meetings that looked into training of nephrologists, accreditation and credentialing as well as standards of care. In conjunction with the Department of Nephrology Hospital Kuala Lumpur it helped initiate the National Renal Registry and the Malaysian Organ Sharing System (MOSS).

## **The National Kidney Foundation**

The National Kidney Foundation was established in 1975 with the assistance of the Petaling Jaya Rotary club. Its main objectives are to increase awareness of kidney diseases amongst the Malaysian public, assist in the training of healthcare workers in the field of kidney diseases and promote research on kidney diseases in the country. Dr G Sreenevasan, Dr SS Gill, Dr Abu Bakar, Dr S Ganesan and Dr Hussein Awang were amongst the early members that guided the foundation in its early years. In 1993 the foundation, taking cognizance of the public demands for more haemodialysis treatment facilities decided to set up Haemodialysis centers to help the poor patients. It now has sixteen centers all over the country.

## **Conclusion**

Nephrology is still a developing specialty in this country. Although much progress has been made in the last twenty years, more needs to be done. More nephrologists need to be trained so that the level of care will continue to improve. The major challenge to present and future nephrologists in the country is the management of end stage renal diseases (ESRD). With improved socio-economic status and the general health standards, the incidence of certain diseases such as glomerulonephritis, pyelonephritis and obstructive uropathy which leads to ESRD can be expected to decline. However as shown by the experience in developed countries the incidence of ESRD continues to rise chiefly from the elderly and diabetics. The nephrology community must look at the most cost effective ways of treating ESRD. An even greater challenge is to stem the rise in chronic renal disease through various strategies that are now being shown to be effective.

Dr Zaki Morad  
Department of Nephrology  
Hospital Kuala Lumpur  
50586 Jalan Pahang  
Kuala Lumpur, Malaysia

## **References**

1. Zaki Morad. Medicine in Malaysia: Nephrology. Medical Journal of Malaysia, May 1995
2. TO Lim. First Report of the Malaysian Dialysis and Transplant Registry 1993
3. Malaysian Urological Association: Urology in Malaysia- The Biography of Malaysian Urological Association 1974-2002
4. Department of Nephrology, Hospital Kuala Lumpur, Bulletin, 1995: 25<sup>th</sup> Anniversary of Haemodialysis
5. Department of Nephrology, Hospital Kuala Lumpur, Bulletin, 1994: 10<sup>th</sup> Anniversary of CAPD
6. Department of Nephrology, Hospital Kuala Lumpur, Bulletin, 2000: 25<sup>th</sup> Anniversary of Renal Transplantation.