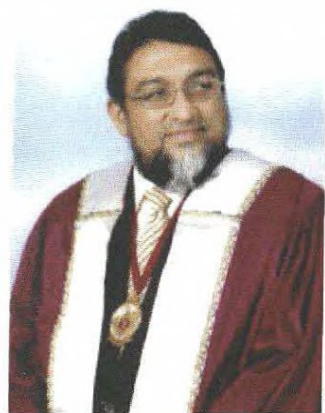


# PREFACE



We are grateful to the WHO Country Office for agreeing to our suggestion to collect and collate a CKDu Literature Repository (1998 – 2013) as a useful document to form a basis for scholarly communication and future research on the subject.

Our editorial assistants did a wonderful job of collecting painstakingly from busy researchers and getting the information together.

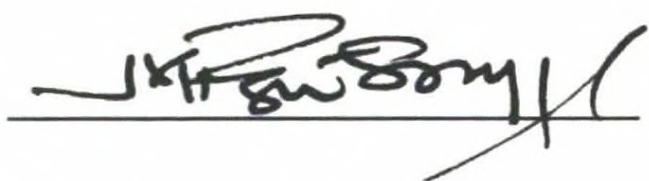
We had Editorial Consultant meetings at the onset and decided that editorial comments after each article can be criticisms as the research was in progress and the truth is not precisely known. Hence we decided to collect and publish the actuals as presented in the abstracts or given to us by the authors.

An additional CD of relevant international publications, slide presentations and newspaper articles some following investigative journalism is included.

The final WHO CKDu report has been presented to Ministry of Health and it has been decided to await its publication in a scientific peer reviewed journal. So it is not included in this publication.

I also wish to thank Ms. Dilhani Munasinghe of the PGIM Library for her contribution in creating the index for this book.

We are grateful to all these researchers and others who have helped to make this milestone publication possible and hope it will help ongoing interdisciplinary research on CKDu the benefit of which will accrue to the poor and helpless farmer population in the North Central Region of Sri Lanka.



**Vidyajyothi Professor M. H. Rezvi Sheriff**  
**MD FRCP FRCPE FRACP FCCP FNASSL FSLCGP FIMACGP**  
**Senior Professor of Medicine, University of Colombo**  
**Councilor – International Society of Nephrology**  
**01<sup>st</sup> of May 2013**

# MESSAGES

## MESSAGE FROM PROF. SHANTHI MENDIS , SENIOR ADVISER AT WORLD HEALTH ORGANIZATION



Epidemics of kidney disease are emerging in different parts of the world with features strongly implicating various environmental factors. Defining the aetiological role of these factors in kidney disease in any population requires painstaking research. Chronic Kidney Disease of uncertain (CKDu) aetiology which emerged in the North Central region of Sri Lanka about fifteen years ago also has features strongly suggestive of an environmental aetiology.

Recognizing the gravity of this condition, in 2008 the Ministry of Health, Sri Lanka requested the World Health Organization (WHO) for technical assistance to address it. As the Senior Adviser of the global program on chronic disease prevention and control, at that time, I was charged with the responsibility of developing a research initiative for this purpose, in liaison with the WHO Regional and Country Offices. Over a three year period, WHO developed a rigorous research proposal and supported the Ministry of health to launch a concerted and multi-pronged research project to describe the epidemic, define its aetiology, and institute preventive measures. The research was co-funded by the National Science Foundation of Sri Lanka and WHO.

Phase I of the research project which investigated the epidemiology and aetiology of the problem has been partly completed. Phase II which is a double blind clinical trial that is investigating the effectiveness of drugs to treat the condition is still ongoing. Government approval to submit the results of Phase I for publication was issued in late November 2012. I wish to pay tribute to all participants of the study, field workers, GramaSevakas and other administrative officers, scientists and medical researchers both local, national and international, who have contributed to this effort. Having served as a Professor of Medicine in the Department of Medicine, Faculty of Medicine, Peradeniya for many years, I am well aware of the difficulties in conducting medical research in Sri Lanka. WHO had to face many challenges

during the conduct of this research work and in this regard, I wish to specially thank the WHO country team for their diligence and scientific integrity.

Under the directive of His Excellency, Mahinda Rajapakse, the President of the Socialist Republic of Sri Lanka, the Honourable Minister of Health, Maithripala Sirisena has established a high-level interministerial committee to implement a set of WHO recommendations to address the problem. The government plan, to reduce exposure to environmental nephrotoxins which is already underway, consists of a set of public health measures including improved access to safe drinking water, quality control and appropriate use of fertilizers and other agrochemicals, regulation of hazardous waste disposal, tobacco control and promotion of the use of organic fertilizer.

The response of the Sri Lankan government and the Ministry of Health to this challenging health issue is laudable and provides a good example of the kind of scientific approach needed if there is to be progress in understanding the aetiology of chronic kidney disease, and in developing public health strategies to contain and reverse it.

**Professor Shanthi Mendis .**  
**MBBS DM FRCP FACC**  
**Senior Adviser and Director**  
**Department of Management of Noncommunicable Diseases**  
**World Health Organization**  
**Geneva**  
**Switzerland**

## MESSAGE FROM THE WHO COUNTRY REPRESENTATIVE



Chronic Kidney Disease (CKD) is a global public health problem. Morbidity data from many countries suggest a rising incidence and prevalence of CKD and, Sri Lanka is no exception to this trend. The aetiology of CKD varies between countries, but diabetes and hypertension are the leading causes. However, for a significant proportion of CKD cases reported in Sri Lanka, aetiology of the disease is unknown (CKDu).

To resolve this public health issue, the Government of Sri Lanka in collaboration with the World Health Organization has initiated a multisectoral and multidisciplinary research effort. This coordinated series of research activities is designed to generate evidence regarding the possible aetiology to make recommendations for prevention and control.

Establishing a literature repository on CKD especially CKDu was a long felt need. Since early 2000s, CKDu has caught the attention of many clinicians, epidemiologists, policy makers and researchers. Many of them have conducted studies ranging from case studies to population-based studies. In addition, Ministry of Health, regional health authorities, universities, NGOs and international organizations have conducted several meetings and seminars, and produced discussion papers and reports. Unfortunately, many of these documents remain as 'grey literature' and not accessible to those who are interested in this subject.

It is known that repositories facilitate a scholarly communication process. We hope the dissemination and wide use of this repository would further facilitate, engender and encourage the ongoing collaborative and interdisciplinary research on CKDu.

We take this opportunity to acknowledge the efforts of the CKDu Literature Repository Committee, and congratulate them on completion of this important task.

**Dr. Firdosi Rustom Mehta**  
**WHO Country Representative to Sri Lanka**

## MESSAGE FROM THE DIRECTOR GENERAL HEALTH SERVICES



It is with great pleasure that I write this message to congratulate the CKDu Literature Repository for their successful efforts in searching and putting together the wealth of information available on this subject in Sri Lanka.

CKD of unknown origin (CKDu) is an important public health problem for our country with a high disease burden in terms of premature mortality and morbidity, quality of life and socioeconomic cost. With regional clustering of cases and a higher prevalence among lower socioeconomic class, it has provoked much public interest and concern during the recent past.

With its increasing burden of CKDu, the need for closer scrutiny and better understanding of the disease is already identified as an urgent and immediate measure of its control. Availability of an information base that had collated all the available facts by a variety of sources will definitely be a great benefit for all the parties involved in the fight against CKDu. Therefore this publication will be a significant milestone in the history of the combat against CKDu in Sri Lanka.

As the chair of the CKDu Scientific Committee, I would like to express my gratitude to all the partners involved in the process and wish success for the future activities.

**Dr. P.G. Mahipala**  
**Chair, Scientific Committee - CKDu**  
**Additional Secretary (Medical Services)**  
**Ministry of Health, Sri Lanka**

**MESSAGE FROM PROF. SIRIMALI FERNANDO, CHAIRPERSON,  
NATIONAL SCIENCE FOUNDATION**



Sri Lankan health and research systems continue to be baffled for more than a decade by the Chronic Kidney Disease of uncertain origin [CKDu] that has emerged in several areas in North Central, Uva and Eastern Provinces of Sri Lanka.

More than 6000 people are currently undergoing treatment. The need for kidney dialysis services has increased as a result of CKDu and in 2005 about 4.6% of the health budget (350 million rupees) had been spent on management of patients with kidney disease. Current trends predict a large increase over the next decade. This is a medical problem with a considerable socio-economic impact not only on the affected people and their families but on the entire nation. It has now become a multifaceted problem demanding multi-disciplinary and multi-sectoral research and solutions.

Until a few years ago we have been addressing this problem in a somewhat ad hoc way within our separate research compartments. Several possible causative determinants, water borne and otherwise, including cadmium, fluorides, aluminium, herbal preparations and snake bites have been suggested through these research efforts. Recognizing that more of such piece-meal research projects are less likely to be effective in providing solutions to this public health problem, the World Health Organization and the National Science Foundation joined hands with the Ministry of Health to coordinate and support a national multi-disciplinary research programme on CKDu. I take this opportunity to thank Hon. Prof. Tissa Vitarana then Minister of Science and Technology for obtaining the approval of the Cabinet to release Rs. 70 million (inclusive of the programme management cost of the WHO) from the consolidated fund and Prof. Lalani Rajapakse (the NSF honorary consultant to the Project) and the staff of the National Science Foundation for their unstinted cooperation. I am certain that this programme has generated a wealth of knowledge and information.

In order to determine the cause and develop appropriate management and preventive strategies, it is imperative that the epidemiological, social, environmental, clinical and laboratory analytical studies be linked and the data subjected to a comprehensive analysis through a well coordinated effort. In this backdrop, I am pleased to note that a CKDu Literature Repository is to be established. It will no doubt assist in the better management of the CKDu data that have been generated over the past years which would facilitate evidence based decision making to address the issues related to CKDu. I wish it all success.

**Prof. Srimali Fernando,  
Chairperson,  
NATIONAL SCIENCE FOUNDATION**

**CKDu LITERATURE  
REPOSITORY**

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