

Chronic Kidney Disease of Unknown Origin (CKDu)

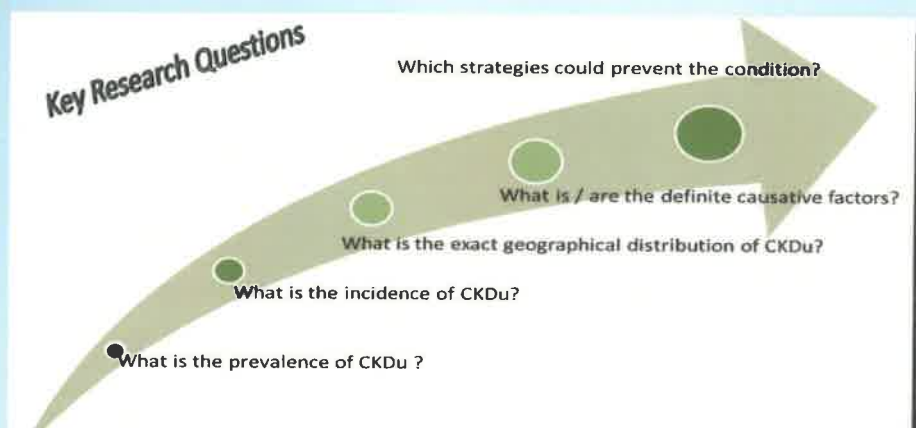
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National Research Programme for Chronic Kidney Disease of unknown origin (CKDu) in Sri Lanka

Chronic Kidney Disease (CKD) is an emerging health problem and is often combined with poor health outcomes and high economical cost on patient, family, community and health system. In recent years, a significant increase in CKD cases has been observed in some parts of the country especially in North Central, North Western, Uva and Eastern Provinces. For a significant proportion of CKD cases reported from these areas, aetiology of the disease remains a mystery. To resolve this public health issue, the Government of Sri Lanka requested the World Health Organization to coordinate a multisectoral, multidisciplinary research effort, which built upon on existing information. This coordinated series of research activities is designed to generate conclusive evidence within a specified time period to make prevention an option.



CKDu—Case Definition : Health Ministry Circular

A circular was issued by the Ministry of Health to all preventive and curative health institutions with regard to the definition of CKDu.

The aetiology of chronic kidney disease will be considered as "Uncertain or Unknown" only if all the criteria stated below are satisfied:

No past history of or current treatment for diabetes mellitus or chronic and/or severe hypertension, snake bite, urological disease of known aetiology or glomerulonephritis

Normal HbA1C (< 6.5%)

BP < 160/100 mm Hg untreated or < 140/90 mm Hg on up to two antihypertensive agents

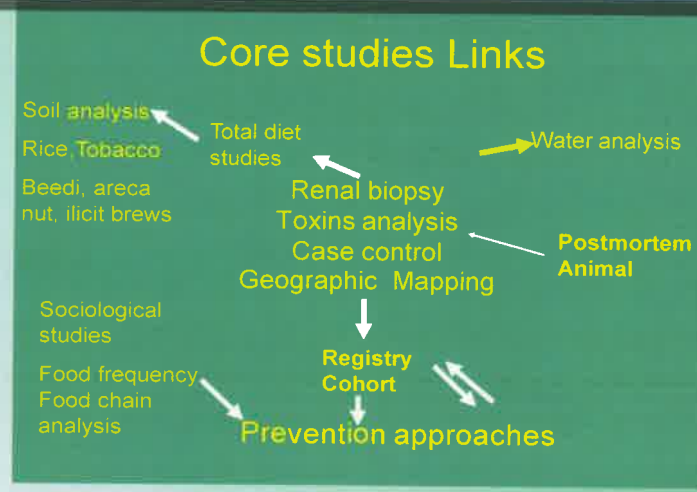
The staging of CKDu into Grades 1–4 will be based on the classification system recommended by the National Kidney Disease Outcomes Quality Initiative but modified for logistic and financial reasons.

CKDu Study Groups

The National Research Programme for CKDu consists of a series of coordinated studies, each of which will potentially contribute to elucidating key determinants of CKDu. However, due to limited resources it is not possible to carry out all the studies listed simultaneously. Hence, the studies were considered in order of priority as shown below and the first four studies have been commenced in the latter part of 2008.

- Systematic survey to identify low and high prevalence CKDu areas.
- Geographic mapping of cases and water sources and establish registry
- Preliminary studies to assist further prioritization; Pilot analytical study (post mortem), Retrospective study on histology, Pilot renal biopsy study (analytical and electron microscopy)
- Environmental studies: sub-sampling of all relevant local foods, water supplies, soil, etc for analyses of potential environmental toxins
- Comparison of high and low prevalence CKDu areas
- Case-control study
- Human renal biopsy analyses (electron microscopy and metal mapping)
- Human Post-mortem Studies
- Cohort study to commence with cases from the systematic survey
- Analytical studies on animal tissues

National CKDu Research Programme—Core Studies



National Coordination mechanism for CKDu

To ensure smooth functioning of the research programme, it is of vital importance to outline the functions and responsibilities of different stakeholders. In order to achieve this, three committees have been constituted at different levels namely the National Steering Committee, Management Committee and the Scientific Committee with clearly defined terms of reference. In addition to these committees, there is a panel of International Experts who has provided technical inputs into finalization of the research proposal. Further, this panel of experts will help to ensure quality and ethical standards of research together with peer reviewing of protocols, reports and publications.

National Steering Committee	Management Committee	Scientific Committee
<p>This is chaired by the secretary of the Ministry of Healthcare & Nutrition and consists of Secretaries from different ministries inclusive of DM, Agriculture, Education, Higher education, Environment, Indigenous Medicine, Science & Technology, Public Administration & Home Affairs & Social Services & Social Welfare. In addition Chief Epidemiologist and WHO, UNDP Country Representative will also be present. The main aim of this committee is to advice on policy, technical, legal, scientific & administrative issues related to CKDu</p>	<p>This is chaired by the DDG – PHS 1 and consists of the Regional Directors of Health Services of the affected areas, Heads of the Institutions under the different ministries like Central Environment Authority, Disaster Management Centre, National Science Foundation, Water supply & drainage Board, Registrar of pesticides. They are the implementers of the decisions taken at the National Steering committee and ensures multisectoral participation.</p>	<p>This is chaired by the chief epidemiologist and consists of group leaders of the different research groups including cohort study, Renal Biopsy study, Environmental study, Sociology & Diet study, Geographical mapping & Animal tissue study. This committee ensures execution of the studies at community level.</p>

Population Prevalence study

The main purpose of this cross-sectional study is identifying the prevalence of chronic kidney disease of unknown origin (CKDu) in selected areas of Sri Lanka. This study is currently being conducted in Anuradhapura, Polonnaruwa and Badulla Districts.

A total of 6698 subjects aged between 15 to 70 years (both inclusive) from 22 GN divisions were found to be eligible for the study according to the selection criteria. Representativeness of this study population was assured by strictly adhering to the scientifically sound methodology including sampling procedure. At the beginning of the study, all selected households were mapped using the global positioning

system (GPS).

The field assistants were able to interview 6132 subjects (92% of the eligible). Early morning urine samples for albumin creatinine ratio (ACR) were collected from 4941 subjects (74% of eligible). Those who found to be having urine ACR of equal or more than 30 mg/g were subjected to anthropometric measures, blood pressure measurement and biochemical investigations (serum creatinine and glycosylated hemoglobin).

All the field activities related to this research component have been completed with the support of District & Divisional Secretaries, MOHs and Grama Niladaris, and now we are in the process of identifying subjects with chronic kidney disease of un-

known aetiology (CKDu) according to the case definition agreed upon.

By identifying the prevalence of CKDu in different areas, this study will help to get an estimate of the diseases burden in the country. Further, the 'cases' identified from this study will be used for a case control study planned for this year and the serum specimens of the subjects currently stored at -70°C at the Epidemiology Unit cold room complex will also be subjected to further biochemical analysis (levels of cadmium, aluminium, lead, fluoride etc).

