



REPORT FROM THE FOURTH INTERNATIONAL WORKSHOP ON CKDU

Country Working Groups

INTRODUCTION

The Fourth International Workshop on Chronic Kidney Disease of Non-Traditional Cause (CKDu) was held from February 14th to 16th, 2024 in Antigua Guatemala, Guatemala. This workshop was developed as a collaboration between the Consortium for the Epidemic of Nephropathy in Central America and Mexico (CENCAM), the Secretariat of the Council of Ministers of Health of Central America and the Dominican Republic (SE-COMISCA), the Latin American Society of Nephrology and Hypertension (SLANH), and the Spanish Agency for International Development Cooperation (AECID).

The workshop was held at the Spanish Cooperation Training Centre (AECID) in Antigua Guatemala. One hundred and twenty-three people from eighteen countries around the world participated in person, and forty-four additional people participated virtually. It was conducted in English and Spanish.

The overall objective of the workshop was to discuss the knowledge and scientific, medical, and humanitarian priorities surrounding the CKDu, while serving as the inaugural event for a broader initiative entitled “Implementation of the strategy for the prevention, mitigation and control of chronic kidney disease of non-traditional origin in Central America and the Dominican Republic.”

This initiative is a collaboration established by SE-COMISCA, CENCAM and SLANH with funding from AECID. It is tasked with developing and implementing an educational program throughout Central America and the Dominican Republic aimed at health care providers, public health officials and the general public to improve awareness of CKDu, help mitigate risk factors for the disease and reduce its overall morbidity and mortality.

This initiative is part of the broader “Strategy for the Prevention, Mitigation and Control of Chronic Kidney Disease of Non-Traditional Origin in Central America and the Dominican Republic, 2022-2025” developed by SE-COMISCA and presented in a specific format during the workshop.

The main activity during the first two days of the workshop were the thematic working groups.

- Analytical epidemiology
- Work that involves both government and public health systems and researchers.
- Work that involves both industry and researchers.
- Diagnosis and clinical management
- Surveillance and detection
- General discussion on causation of CKDu
- Heat exposure as a cause of CKDu

- Environmental exposures (heavy metals, pesticides, pathogens, silica, etc.) as a cause of CKDu
- Histopathology
- Basic science and “omics” approaches
- Qualitative methods and patient/community voices

During the third day of the workshop, representatives of the Ministries of Health of the Member States of SICA belonging to the Technical Commission on Chronicles and Cancer (CTCC) and the Adhoc Group on Chronic Kidney Disease joined the workshop, who did not participate in the first two days. These representatives heard a summary of the activities of the working groups and the recommendations presented by each thematic working group, along with a summary of PAHO recommendations for the prevention and care of CKDu presented by Dr. Ana Claudia Gastal Fassa.

Much of the rest of the third day of the workshop was devoted to additional activities of the working group, with workshop participants and representatives of the Ministries of Health of SICA Member States now divided into country-specific working groups. The groups were as follows:

- Belize and Dominican Republic
- Costa Rica
- El Salvador
- Guatemala
- Honduras
- Nicaragua
- Panama

Each group was asked to consider the following questions:

- What do you consider a priority to address in general?
- What is the key aspect that needs to be strengthened in my country?
- What content should an educational program for doctors/health workers include?
- What strategies do you imagine could be implemented in your country?
- How could an educational program for communities be implemented? What strategy do you imagine could be used?
- Who would be the key actors?
- What is the role of the following organizations in advancing each of the goals? SLANH / Clinics; CENCAM / Researchers; SALTRA; Others

The groups were allowed to answer as many or few of these questions as they wished and address different questions, they felt would be more relevant to their country.

EXECUTIVE SUMMARY:

In the discussions by country, a number of issues emerged that identify the gaps/needs and strengths that SICA/COMISCA member countries have to address the epidemic of chronic kidney disease of unknown cause in Central America:

1. Develop screening systems for early diagnosis and surveillance of CKDu/CKD.

- Existing surveillance programs in different countries should be used as infrastructure over which CKDu/CKD monitoring programs can be superimposed.
- It is important to establish a case definition that is used regionally. This case definition should include the definition of clinical case, suspected case, probable case, and confirmed case. This would also permit data across this screening system to be used for research.
- Surveillance systems should incorporate an occupational surveillance system to assess disease in both formal and informal workplaces.
- Systems should endeavor to include medical billing code extraction from medical records, when available.
 - It is important to establish a specific medical billing code for CKD when it does not exist.
- Establish a national database of kidney diseases for each country.
 - Consistent billing coding in medical records can be key to facilitating this process, and it is important to establish a specific CKDu billing code where it does not exist.
- Leverage and improve existing health systems for non-communicable diseases.

2. Establish a Renal Health System that includes care for CKDu /CKD

- Use media and social media as useful tools to implement educational programs aimed at the community and patients.

3. Establish and improve training programs in the care of CKDu /CKD.

- Programs should target both health workers and community members, with an initial focus on people in regions with high rates of CKDu.
- Programs should take advantage of existing training resources and the use of virtual platforms to facilitate the distribution of training programs.
- Training of health workers, including doctors, nurses, laboratory technicians, and statisticians. It should be conducted at different levels, for example, at the diploma, master's specialty and subspecialty levels. Such programs must be taught by a higher education institution.
- Training of community leaders in kidney health and active case search in the community is also valuable.

4. *Strengthen collaborative work among numerous government, industry, academic and international health partners (WHO, PAHO).*

- Ministries of Health/SE-COMISCA must lead the effort.
- Regional exchanges between ministries of health are crucial and should probably be mediated by SE-COMISCA.
- Socialization and exchange of information from their own experiences in data management and the use of data in public decision-making.

5. *Strengthen legislative efforts*

- The protection of workers in both the formal and informal sectors is vital to reduce the incidence of the disease .
- Political lobbying should be employed to generate new public policies with a focus on the prevention of CKDu in vulnerable populations

The rest of this document presents reports on working groups by country.

GUATEMALA

Hair Romero, Omar San Juan, María Isabel Pedroza, Randall Lou Meda, Dany Gómez, Eduardo Palacios, David Wegman, Becky Lucas, Thomas Boswell, Peter Rohloff, Werner González, Magda Hernández, Margarita Ramírez, Miriam de León, Juan Carlos Fernández, Yeimy Herrera, Berta Sam, Ingrid García, Gerardo Arroyo, Guzmán, Carolina Sáenz

Responses to questions:

1. What do you consider a priority to address in general?

- The integration of the different institutions involved in addressing this problem, led by the National Kidney Health Program with the participation of all the entities representing the Ministry of Public Health, the Guatemalan Social Security Institute, the Ministry of Labor, the Environment, the Faculty of Medicine, and the Guatemalan Nephrology Association.
- Under the National Renal Health Program, programs are implemented for early detection, prevention, progression delay, access to medicines and kidney replacement therapies, dialysis, and transplantation.
- Strengthen the data record to better understand the incidence and prevalence of CKD, general data, regions most affected, causation, type of coverage among other variables.
- The program should include the different actors actively involved in the field, namely administrators, health promoters, nursing team, primary care physician, specialists, chemist biologists, nutritionists, psychology and have a specific algorithm of action for each of these groups.

2. What is the key aspect that needs to be strengthened in my country?

- Strengthen data recording.
- Develop a Kidney Health System that integrates all the resources and actors involved in this task.
- Provide care services with minimum services:
 - Trained health staff.
 - Evaluation area equipped.
 - Clinical records of patients
 - Minimum laboratory for Hematology, Glycemia, HbA1c, Electrolytes (Na,K, Ca, P), Uric Acid, General Urine Exam, Cr/Prot in Random Urine.
- Administration of health centers and posts with the respective maintenance of equipment, training of human capital.

3. What content should an educational program for physicians/health care workers consider?

- Education on CKD in general, epidemiology, causes, risk factors, early detection, risk factors, diagnosis, treatment, and prognosis.
- The course could also be taught to medical students, chemist biologists, pharmacists, nutritionists, veterinarians, and others.

- Impact evaluation of said educational program.
- Incentive mechanisms: Continuing education credits.

4. What strategies do you imagine could be implemented in your country?

- Development of virtual courses and practical workshops to be taught on a regular basis.
- These workshops could be disseminated at the COMUDES level through the MSPAS and IGSS to reach out to community leaders.
- Training the medical team that is in direct contact with the patient as the first line of care.
- Alliances can be established with universities so that they can adopt within their curriculum CKD as an important subject so that it becomes visible to the future generation of doctors.

5. How could an educational program for communities be implemented? What strategy do you imagine could be used?

- Having as the governing body the National Program of Kidney Health should develop a general content program (basic) on CKD and CKDu to share it with the community starting with leaders, Community Councils for Urban and Rural Development (COCODE), teachers, religious leaders. For this purpose, different entities can collaborate such as: Technical Commission on Renal Health, Guatemalan Association of Nephrology and Multisectoral Commission for the Management of CKDu in Guatemala.
- Establish strategic alliances with the Ministries of Education, Health, the Guatemalan Social Security Institute, and the Ministry of Labor, as well as with the productive sector and civil society, to plan the dissemination of CKD and CKDU educational program.
- Establish strategic alliances with the Ministry of Finance and the Congress of the Republic of Guatemala, for the financial support of these programs.
- Promote regular regional exchange of experiences in community education programs.
- Relying on communication technologies (ICT's) And social networking

6. Who would be the key actors?

- Ministry of Public Health and Social Assistance MSPAS
- Pan American Health Organization PAHO/WHO
- Guatemalan Social Security Institute (IGSS)
- Guatemalan Association of Nephrology (AGN)
- Multisectoral Commission for the management of CKDu in Guatemala.
- Ministry of Labor and Social Security (MINTRAB)
- National Council of Occupational Health and Safety CONASSO
- Municipal mayors
- COCODES

- Guatemalan Social Security Institute (IGSS)
- Ministry of Agriculture, Livestock and Food
- Ministry of Energy and Mines (MEM)
- SLANH
- CENCAM
- COMISCA

7. What is the role of the following organizations in advancing each of the goals? SLANH on behalf of the clinicians, CENCAM to the researchers; SALTRA who monitor the health of the workers and others.

- Under the direction of the National Program of Renal Health of Guatemala, SLANH, CENCAM and SALTRA could intervene advising, guiding, and employing influences and relationships with other important actors such as COMISCA, PAHO, academic and civil society societies (patients, other medical specialties, social media).
 - Develop situational diagnosis.
 - Diagnosis of the diverse human capital in institutions.
 - Continuing education and training, using educational platforms, media, TV, community radio and social networks.
 - Community training program: Focus groups, youth, and community leaders. Use of social networks, media, local radio stations.
 - Development of educational materials adapted to our culture and needs aimed at the general population.
 - Course Workshop of CKDu aimed at the different actors both community, clinical, healthcare, sectors that participate in the diagnosis.

EL SALVADOR

*Mayra Patricia Erazo, María Andrea Chacón, Ramón García Trabanino,
Ricardo Leiva Merino, Zulma Cruz de Trujillo, Mayra Peraza, Enmanuel Jarquín.*

Responses to questions:

1. *What do you consider a priority to address in general?*

- Chronic kidney disease is already a priority for non-communicable diseases.
- It has gone from position 10 to 4.
- Mapping the areas of highest prevalence of CKDu in the country.

2. *What is the key aspect that needs to be strengthened in my country?*

- Work on prevention, mitigation and intersectoral approach to risk factors.
- Implement the Intersectoral Strategic Plan for the Comprehensive Approach of Chronic Kidney Disease (2024 – 2028).
- Promote the widespread use of the classification of CKDu within ICD 10, which in our country is classified as U50 per degree.
- To analyze the current state of national capacity for cross-sectoral surveillance of CKDu. Strengthen the national TRR registry.
- Implementation of the monitoring and prevention of thermal stress in the workplaces, in all activity branches that require it.
- Implementation of the National Survey of Non-Communicable Diseases 2024.
- Implementation of the Nominal Registry of CKD Patients
- Control and supervise the application of health legislation in the use of nephrotoxics.
- Strengthen the comprehensive health system to have a unique registration system that allows the follow-up of patients through the DUI.

3. *What content should be considered by an educational program for doctors/health workers?*

- Coordinate with MINEDUCYT to include in the undergraduate and postgraduate curriculum the importance of early detection of CKD and the identification of its risk factors.
- Update of knowledge related to CKD and its risk factors for health workers with continuous training (PAHO course)
- Coordinate with MINEDUCYT to include in the undergraduate and postgraduate curriculum the importance of early detection of CKD and the identification of its risk factors.
- Update of knowledge related to CKD and its risk factors for health workers with continuous training (PAHO course).

4. *What strategies do you imagine could be implemented in your country?*

- Create the kidney health program.
- Strengthening screening by risk factors.
- Implement the use of new technologies for early detection.
- Promote healthy lifestyles.

5. *How could an educational program for communities be implemented? What strategy do you imagine could be used?*

- Use ADESCOS, students of health careers, implement renal health fairs, including the basic and middle level of health education.

6. *Who would be the key actors?*

- MITRAB, ASA, MINSAL, ANDA, MARN, MAG, municipalities, National Integrated Health System, communications (Ministry of Internal Affairs)

7. *What is the role of the following organizations in advancing each of the goals? SLANH / Clinics; CENCAM / Researchers; SALTRA; Others*

- SLANH: Support in nephrological education for region 4, formation of nephrological resources, neuropathologists, contribute to surveillance (observatories of renal health programs).
- CENCAM: Disseminate the results of new knowledge acquired to the relevant bodies (health providers in member countries) to raise awareness and influence decision-making.
- SALTRA: Technical/academic advice for the identification and prevention of risk factors associated with CKD.

HONDURAS

Marco Pinel, Dilcia Saucedo, Jessica Diaz, Onán Paz,
Federico Moncada, Kristina Jakobsson, Iris Delgado

Answers to questions:

1. *What do you consider a priority to address in general?*

- Establish the lead role of SESAL
- Establish a working table between the National Autonomous University of Honduras (UNAH) and the Ministry of Health (SESAL)
- Development of the Chronic Non-communicable Diseases program within the framework of the Plan for the Strengthening of Primary Health Care (PHC) "Renewed" (Preventive Approach)
- Develop a national surveillance system and key records for CKDu (Report of cases of public and private level to SESAL)

2. *What is the key aspect that needs to be strengthened in my country?*

- Strengthen local health teams with the PHC strategy, as well as networking with the specialized level and comprehensive management with professionals of nutrition, mental health, etc.

3. *What content should an educational program for doctors/health workers be considered?*

- Individual risk factors so far associated with CKDu.
- Populations at risk
- Case definition and standardization of diagnostic and treatment criteria for CKD
- Approach to health promotion and disease prevention from the PHC
- Lessons learned from previously conducted research in the region.

4. *What strategies do you imagine could be implemented in your country?*

- Development of a train the trainer program aimed at health personnel (epidemiologists) in health regions involving government, academia, professional associations, international cooperation agencies, industry/employers, and workers. The main objective of the program is that the trained professional can replicate and facilitate the rest of the members of the health teams in each region of the country. On the other hand, insert the theme at the level of degree and postgraduate.
- This is through learning based on CAR methodology (collaborative, active and reflective) using ICT problem-based learning.

5. *How could an educational program for communities be implemented? What strategy do you imagine could be used?*

- Intersectoral Table with key actors (with a pilot project in two departments of the country: Choluteca and Valle)

- Development of a community network for control and monitoring
- Make use of available resources
- Photovoice: The voice of those affected by Mesoamerican nephropathy.
- Development of discussion forums, infographics, videos, collaborative whiteboards, master classes

6. Who would be the main key actors?

- Decision-makers: SESAL, SETRASS, Honduran Institute of Social Security (IHSS), Secretariat of Natural Resources (SERNA), UNAH, Association of Municipalities of Honduras (AMHON), Agency of Sanitary Regulation (ARSA) and National Congress
- Local health teams
- Representatives of workers (high-risk occupations) and their families
- Workers' organizations (trade unions)
- Employer representatives: Honduran Council of Private Enterprise (COHEP) and other organizations

7. What is the role of the following organizations in advancing each of the goals? SLANH / Clinics; CENCAM / Researchers; SALTRA; Others

- SLANH / Clinicians: Prevention protocols to prevent patients from progressing to more advanced stages.
- CENCAM / Researchers: Propose lines of research of common interest to the countries of the region.
- SALTRA: Strengthen capacities for occupational risk prevention for workers with risk factors for CKD.
- PAHO/WHO: Technical, logistical, and training support

NICARAGUA

Marvin González Quiroz (co-leader), Aurora Aragón, Samir Aguilar Parrales, Nelson García, Ana Claudia Gastal, Oriana Ramírez, Melissa de Santiago, Denis Chavarría, Selene Vences, Indiana López, Juan José Amador, Damaris López, Sandra Cortés, Jessica Leibler, Samantha Hall, Carmen Cajina

Answers to questions:

1. What do you consider a priority to address in general?

It is suggested to prioritize three areas:

1. Prevention

- Develop a disease prevention and mitigation plan at all levels of health care.
- Strengthen communities for the prevention and promotion of health in CKDu by conducting education campaigns to the general population, schools, workplaces, and universities emphasizing the risk factors that have been recognized as potential triggers of CKDu and providing prevention strategies through talks in schools, universities and written and television media, social networks, etc.

2. Early detection and surveillance

- Develop a national surveillance system for CKDu and CKD at the occupational level, and for public health that allows:
 - Establish community surveillance in the most affected areas by taking advantage of the community network of volunteer partners.
 - Strengthen the detection of cases in the workplace, both in the formal and informal sectors.
 - Socialize existing information: It is recognized that there are many important materials and advances, however, greater outreach to key actors and communities is required on:
 - Interventions (protection for workers at risk of heat stress)
 - Impact assessment of interventions to prevent heat stress
- Training health professionals in both types of surveillance should focus on training health professionals for adequate reporting and timely surveillance (using the existing system)

3. Training of health and community personnel: Strengthen the capacities of human resources that care for patients at primary and secondary levels.

- Health personnel: The need for training of nurses and doctors in nephrology is acknowledged. This training can be at the level of diplomas or specialties.
- Community members: Emphasize the importance of training community leaders in promoting and preventing non-communicable diseases with an emphasis on CKDu in affected communities and workplaces.

2. What is the key aspect that needs to be strengthened in my country?

It is considered very important to focus on:

1. Training for health and community personnel in CKD

- It is recognized that there are gaps in human resources trained in early detection and management of CKDu at different levels of health care.
- It is recommended to strengthen training programs in the specialty of nephrology in biopsies and kidney transplants.
- The need for nurse training in CKDu and the law of occupational hygiene and safety
- Strengthening the training of the network of community partners in:
 - Law 618: Occupational Health and Safety Act
 - Measures to prevent CKDu using the materials already existing in the country.
 - Reference for a possible case to the health unit

2. Reference and counter-reference systems

- Strengthen the referral and counter-referral system at different levels of health. Compatibility and use of existing systems between institutions.

3. Strengthening inter-institutional and intersectoral work

- It is recommended to strengthen the commission on Chronic Noncommunicable Diseases, coordinated by the Ministry of Health and develop a work plan aimed at the promotion and prevention of CKDu.
- Develop alliance between the productive sector and the different institutions that deal with the situation of CKDu in the country.

4. Supervision of compliance with law 618

- It is recommended to improve oversight in the formal sector where MITRAB has the greatest interference. The supervision must be inter-institutional and the following institutions that address the problem of CKDu must be involved:
 - Ministry of Labor
 - Nicaraguan Social Security Institute
 - Ministry of Health

3. What content should an educational program for doctors/health workers be considered?

- It should not be considered a single educational program, because the levels of training of health personnel are different, for example, they can be trained in the following programs:
- Diploma-level educational program for nursing staff in CKD should include at least:
 - Nephrology basics
 - Renal pathology
 - Diagnosis and referrals
 - Kidney patient care (this includes kidney replacement therapies)
 - Pharmacology in kidney disease

- Electrolyte balance
- Renal emergencies
- Nutrition in the kidney patient
- Kidney patient psychological care
- In nephrology subspecialty programs, the following modules should be ensured at least the following modules as mandatory:
 - Basics of nephrology
 - Renal pathology
 - Electrolyte balance
 - Clinical and imaging diagnosis
 - Renal biopsies
 - Care in the kidney patient
 - Peritoneal dialysis
 - Hemodialysis
 - Renal transplant
 - Pharmacology in kidney pathology
 - Renal emergencies
 - Nutrition in the kidney patient
 - Intensive care of the kidney patient
 - Systemic autoimmune diseases
- Short courses for community leaders/volunteer partners that include topics:
 - Definition chronic kidney disease
 - Social determinants of the disease
 - Risk factors
 - Prevention and promotion measures
 - Active case search in communities
 - Law 618- Law on Occupational Health and Safety
- Diploma in surveillance and early detection system
- Training health personnel in the use of surveillance system for early detection of CKDu is necessary. Personnel include nurses, epidemiologists, health care practitioners, and clinicians.
- There are established platforms for online education for health professionals. It is recommended to take advantage of these platforms.
- The Prevention and Management of Chronic Kidney Disease course for first level care teams. This is located on the OPS virtual platform.
- Critical Nephrology in Latin America, taught by SLANH.
- In these training programs, health and community personnel should be given priority to geographical areas of risk for CKDu.

4. *What strategies do you imagine could be implemented in your country?*

- Intersectoral coordination is key to advancing issues related to CKDu. It is important to develop a network of collaboration and information exchanges with the sectors:

- Public - Private
- Public – Academia
- Strengthening training programs in nephrology existing in the country.
- Take advantage of existing platforms and courses
 - It is recommended to take advantage of the PAHO platform/course and the SLANH course.
- It is recommended to take advantage of the existing structure of the Brigadiers and ColVol (Volunteer Partners) strategy led by the Ministry of Health.

5. *How could an educational program for communities be implemented? What strategy do you imagine could be used?*

- The Ministry of Health has experience in training community promoters and municipal technical schools could be coordinated to develop programs and train community members under the supervision of the Ministry of Health.

6. *Who would be the main key actors?*

- MINSA
- PAHO/WHO
- National Council of Universities
- Ministry of Education (MINED)
- Ministry of Labor (MITRAB)
- Productive sector
- Ministry of the Family
- Municipal Mayor's Office
- Nicaraguan Social Security Institute (INSS)
- Mining sector
- Ministry of Fisheries
- Trade union centers
- Organizations of renal patients
- SLANH
- CENCAM
- COMISCA

7. *What is the role of the following organizations in advancing each of the goals? SLANH / Clinics; CENCAM / Researchers; SALTRA; Others*

- The role of the institutions would be as companions and trainers in terms of CKDu as there is the SLANH who are experts in clinical nephrology.
- Meanwhile, CENCAM and SALTRA would be the ones who monitor and evaluate the implementation and functioning of educational programs and systems of surveillance and early detection of CKDu.

COSTA RICA

**Jennifer Crowe, Mónica Espinoza, Daylin Anchía Pastrán, Marta Avellán Boza, Miriam EUG. Brenes Cerdas, Manuel Cerdas Calderón, Andrea Corrales Vargas, Rolando Herrero Acosta, Thais Mayorga Acosta, Ana Leonor Rivera, Adriana Torres Moreno, Nicole Villegas González, Catherina (Ineke) Wesseling, Claudio Monge Hernández*

*The Costa Rican table did not have official participation from the Ministry of Health, however the technical contribution of MINSA through its participants was taken into account.

Answers to questions:

1. What do you consider a priority to address in general?

It is suggested to prioritize three areas:

1. Prevention

- Strengthening community training for prevention and health promotion in CKDu

2. Early detection

- Strengthen the detection of cases in the workplace, both in the formal and informal sectors.
- Socialization of already existing information: It is recognized that there are many important materials and advances, however, greater outreach to key actors and communities is required on:
 - Regulation
 - Training
 - Campaigns
 - Diagnostics and research in the country
 - Guides
 - Regulations

3. Monitoring:

- Strengthening of surveillance systems for CKD and CKDu. Diverse types of surveillance are important in CKDu, including:
 - Occupational surveillance
 - Evaluation of the impact of interventions to prevent heat stress (review the heat mappings carried out in the country and propose complementing or improving them, review of regulations used in the country for the assessment of thermal stress, training for people who will perform the sampling with the measurement equipment; multidisciplinary work with various professions to propose control and health monitoring of exposed workers).
 - Interventions (propose more comprehensive engineering control measures that go beyond what is proposed by the thermal stress regulations, personal protection for workers at risk of heat stress, shadow rest and hydration).
 - Surveillance for public health

- Active and passive surveillance of chronic kidney disease of non-traditional cause in areas declared as risk zones.
 - Possible focus on early age detection: Incorporate actions to monitor early morbidity and mortality in risk areas.
- Training of health professionals: For both types of surveillance (morbidity-mortality), the focus should be on training health professionals for adequate reporting and surveillance, which in turn will contribute to raising the quality of information within the existing system.
 - Training for reporting and reporting mortality from chronic kidney disease of non-traditional causes
 - Training of medical personnel in the proper completion of death certificates, including courses on ICD-10 updates. It is necessary to define the distinct roles and consider frequent situations, such as when death occurs in the home and no formal inquiry is done on intermediate or contributing causes of death by CKDu or other that allow us a more accurate diagnosis.
 - Training of personnel responsible for codifying, collecting, and processing multiple causes of death, classifying the cases recorded in the certificates and determining the main cause from them.
 - Training on multiple causes of death: Systematic review of the basic causes of death recorded through sampling, which include the review of clinical records, with the aim of reducing the underreporting of these causes. To improve the mortality record, epidemiological surveillance areas should:
 - Implement a capture program that allows the introduction of coding of all causes of death, in addition to the basic cause.
 - Codify all causes and select the basic cause of death according to the most current version of ICD–10.
 - Classify all causes that played a role in the chain of events that led to death, as direct cause (CD), intervening cause (CI), contributing cause (CC) and basic cause (CB).

2. *What is the key aspect that needs to be strengthened in my country?*

It is considered especially important to focus on:

- Training based on advances and materials already existing in CKDu.
- It is already known that there are many important materials and advances, however; greater outreach to key players and communities is required on:
 - Regulation
 - Training
 - Campaigns
 - Diagnosis and research in the country
 - Guides
 - Regulations

- Information systems
 - It is recommended to improve compatibility and use of existing systems between institutions.
- Monitoring compliance with occupational regulations
 - It is recommended to improve supervision in the formal and informal sector (identify the various supervisions carried out by each entity)
 - Oversight should be inter-agency and include at least:
 - The Ministry of Health
 - The Ministry of Labor (through the National Labor Inspector)
- Human Rights Approach:
 - It is suggested to consider the human rights approach in the strategies for addressing CKDu in Costa Rica. Identify actors and institutions that can suggest methodologies for this approach.
- Expand the Chronic Kidney Disease Program with special emphasis on its non-traditional form for all social insurance networks with sufficient financial and human resources. (Requires a prior viability study.)

3. *What contents should an educational program for physicians/health care workers consider?*

- In Costa Rica, it is important to consider the progress of recent years and the existing intersectoral actors and networks.
 - There are established platforms for online education for health professionals. It is recommended to take advantage of these platforms.
 - Collaborate with the academy, identify master programs for professionals taught by the Universities (particularly UNA and TEC) in order to promote professional updating in thermal stress assessment.
 - Collaborate with CENDEISS, PAHO and medical associations.
- It is suggested to gradually implement mandatory training for professionals.
 - You should start with geographic areas of risk for Mesoamerican nephropathy.
- The priority should be to improve training to ensure notification (and comprehensive approach) of both codes:
 - Code N18 (chronic kidney disease in its 5 stages)
 - Code U50 (non-traditional chronic kidney disease in its 5 stages) which are recorded in the individual digital health record.

4. *What strategies do you imagine could be implemented in your country?*

- In Costa Rica, intersectoral collaboration has been key to advancing issues related to the feasibility. It is considered important to continue building bridges between sectors, for example:
 - Private – Public
 - Public – Academic
- Take advantage of existing platforms and courses
- It is recommended to take advantage of the PAHO platform/course and the

SLANH course plays an important role.

- In Costa Rica, there are platforms with courses for continuing education that should be taken advantage of.
 - Of particular relevance, the Uñ platform is recommended ([https://uluned.ac.cr/lessons/que-es-la-enfermedad-renal-cronica/#:~:text=La%20enfermedad%20renal%20cr%C3%B3nica%20\(ERC,y%20la%20funci%C3%B3n%20renal.\)](https://uluned.ac.cr/lessons/que-es-la-enfermedad-renal-cronica/#:~:text=La%20enfermedad%20renal%20cr%C3%B3nica%20(ERC,y%20la%20funci%C3%B3n%20renal.)))
- There are very high-quality materials developed in Costa Rica that are underutilized, therefore, it is recommended to ensure the distribution of these materials.
- It is recommended to take advantage of the framework of the existing structure of the ColVol strategy (Volunteer Partners) led by the Ministry of Health.
 - Strategies should incorporate community leaders who can coordinate and lead efforts in each community voluntarily maintain and lead the kidney health strategy in each community.

5. How could an educational program for communities be implemented? What strategy do you imagine could be used?

- The proposed strategy must contain interactive aspects, simple and very graphic information since it is more accessible to visually assimilate instead of presenting information in large texts, use infographics, tales or stories, interactive games, flashy posters. Aimed at children, community institutions (Church, communal groups), industries, workers, and management, involving medical and health institutions, as well as universities.
- Identify the mass media (TV, social networks) that have greater coverage. Make campaigns that involve messages through cheerful songs, use of colors, which direct the message to the senses of people so that learning is instilled with neuro-linguistic programming).

6. Who would be the key actors?

- Ministry of Health (MS),
- Ministry of Labor (MT)
- Occupational Health Council (CSO)
- Other sectors (economy, agriculture)
- Climate Change
- International Organization for Migration (IOM)
- Private sector
- Academia (Universities specializing in occupational health, SALTRA, CENCAM), SALTRA, CENCAM)
- Ombudsman's Office
- Latin American Society of Nephrology and Hypertension (SLANH)
- Pan American Health Organization (PAHO)
- Instituto Nacional de Seguros (INS)
- Instituto Mixto de Ayuda Social (IMAS)

- Management of palliative care units
 - Local organizations in Costa Rica:
 - DINADECO- National Directorate for Community Development
 - ADI – Integral Development Associations
 - CCCI – Cantonal Commissions for Inter-institutional Coordination
 - Health Boards (Community-CCSS)
 - Trade unions
- Intersectoral commissions
- National Intersectoral Commission of Mesoamerican Nephropathy
- CRINM – Regional Inter-institutional Commission for Surveillance of CKDu (CIRE-VIS- CKDu) (active members of the Chorotega-Guanacaste and Upala region)
- Local Social Security Commission for the care of the CKD in Guanacaste.

PANAMA

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Answers to questions:

1. What do you consider a priority to address in general?

- Training (health personnel) of the primary health care network for early detection and prevention of CKDu
- Education to the community and sensitization to companies for the protection of health from risk factors for CKDu

2. What is the key aspect that needs to be strengthened in my country?

- Raising awareness of all sectors about CKD/ CKDu
- Strengthening research and the use of evidence for decision-making

3. How do we proceed with an educational program aimed at doctors/workers of health?

- Structure and implement content on CKD/ CKDu with specialists for all educational levels from undergraduate, postgraduate and health personnel in general starting with the national level, by health regions (Regional Teaching Unit) in a half-day term, face-to-face or synchronous virtual (hybrid)

4. What strategies do you imagine could be implemented in your country?

- Risk communication
- Social media marketing
- Strategic alliances with companies (social responsibility)
- Short survey on kidney health and risk

5. How could an educational program for communities be implemented? What strategy do you imagine could be used?

- Work with community leaders and local media in high-risk areas as a priority.
- Learning environment, problem-based learning, collaborative learning, using playful tools
 - e.g., Know your disease better, short survey on kidney health and risk.

6. Who would be the main key actors?

- Health personnel, community/community leaders, business, general civil society, academia, (teachers and researchers), decision makers in government

7. What is the role of the following organizations in advancing each of the goals? SLANH / Clinical; CENCAM / Researchers; SALTRA; Others

- SLANH/Clinical: Participation of nephrologists in training
- CENCAM/Researchers: Generate more evidence and local knowledge for decision-making.
- SALTRA: Translation of knowledge to actors that is required.

BELIZE AND DOMINICAN REPUBLIC

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Answers to questions

Because CKDu has not been identified significantly in Belize or the Dominican Republic, our group focused on the following two questions:

1. What is the current situation of CKDu in each country?

BELIZE	DOMINICAN REPUBLIC
<ul style="list-style-type: none">- Limited evidence of the presence of CKDu- Some of the most at-risk populations may be migrant workers, where surveillance and investigation can be more difficult.- CKD of traditional causes remains a major concern.- Nephrology attention is limited: There are no nephrologists	<ul style="list-style-type: none">- Limited evidence of the presence of CKDu- Some of the most at-risk populations may be migrant workers, where surveillance and investigation can be more difficult.- CKD of traditional causes remains a major concern.- There are nephrologists concentrated in urban places, but they are missing elsewhere

2. What are the priorities to follow?

Educational initiatives

- Despite the absence of clear evidence of CKDu, there is a strong interest in educational programs, as they can be beneficial for people with CKD of traditional causes.
- Virtual platforms can be useful, especially for medical workers.
- Community involvement is a priority, but more work is needed to find the best way to communicate.
- Finding different angles to reach at-risk populations, particularly migrant workers: Social security offices, occupational environments, others.
- Capacity building is also a priority, but more discussion is needed to determine the details.

Investigations

- There is still interest in further surveillance of CKDu.
- When developing research or partnerships between industry and researchers, it would be useful to also involve the Ministry of Health since the beginning of the process.
- SE-COMISCA is a good portal to involve the Health Ministry in this process.

