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KDIGO Controversies Conference on Early Identification & Intervention in CKD

- Breakout Group Questions -

Group 1: Early CKD Detection Measures

1. What are the strengths and weaknesses of currently available measures to identify and categorize CKD; values of discriminating risk; specificity; and costs?
2. Do we manage CKD differently across the age spectrum? Does the definition of CKD require an age-stratified definition?
3. What are the ideal CKD detection measures and the influence of demographic characteristics on; the relative value of creatinine only versus adding cystatin C, albuminuria/proteinuria, or a triple-marker strategy?
4. What criteria should be used to evaluate potential screening strategies: accuracy versus measured GFR; prediction of adverse outcomes; sensitivity versus specificity; stage classification?
5. What are the costs of commonly used kidney health measures, including creatinine, cystatin C, proteinuria, dipsticks and albuminuria?
6. What are the relative yields (utility) from testing proteinuria versus albuminuria; and are dipsticks adequate?
7. Is there a potential role for point-of-care (POC) testing, such as novel POCs for real-time GFR or creatinine measurements, or measures of urine albumin, in a public health CKD program?
8. Where should testing be conducted and how often should it be repeated in a CKD detection and intervention program? What new tests or biomarkers are being developed that might expand diagnosis beyond glomerular measures in

order to detect and monitor kidney tubule health?

9. Proposed research agenda related to this section.

Group 2: Populations to Screen and Identifying At-Risk Individuals

1. Should screening for occult CKD in an early detection program be directed to populations or targeted to high-risk individuals, using a specific combination of kidney measures?
2. What are the optimal settings (community based vs primary care practices) for capturing at risk individuals?
3. What is the difference between a surveillance program and a screening/detection intervention, and what can we learn from prior programs including the prevalence of CKD? Should education be a component of these programs?
4. Should the expected prevalence of CKD or the absolute risk of CKD complications and ESKD be used to drive an early detection intervention program?
 - a. If high-risk groups are to be identified using expected absolute risk of CKD complications and ESKD, should the absolute risk estimate be based on lifetime risk or within a finite interval of time (e.g., 10-yr risk), and which cut-offs (thresholds) should the risk estimates depend on? Should risks incorporate other laboratory measures?
5. How do early detection strategies apply at extremes of age, such as in pediatrics or among older adults?
6. How might we identify individuals that need re-screening after an initially negative screen?
7. Are there social, behavioural, occupational or environmental exposures that would warrant population screening rather than individual risk-based targeting?

8. Are there genetic or ancestral factors like *APOL1* that should be incorporated into screening strategies? Should there be a role for reflex family screening if ancestral factors, such as high-risk *APOL1* genotype, are present among screened individuals?
9. How should we be using AI and other emerging technologies to facilitate identification and surveillance of at-risk individuals?
10. Proposed research agenda related to this section.

Group 3: Optimal Interventions and Implementation after CKD Detection

1. What Interventions (e.g., lifestyles, diet, pharmaceuticals) should we adopt to prevent CKD onset and/or slow CKD progression and to prevent CVD and HF?
2. Beyond BP, glycemic and lipid control, what are other risk factors that we should be targeting? (e.g., metabolic acidosis, hyperuricemia, inflammation, anemia, etc.)
3. What additional risk factors/interventions should we consider among individuals with CKD and other comorbidities (e.g., ASCVD, heart failure, etc.)?
4. When, how, and how often to monitor preventive interventions among people at risk or with CKD?
5. How can we improve dissemination of guideline-based care via implementation or knowledge translation efforts?
6. What risk algorithms can we use to stratify risk levels among persons at risk for or with CKD?
7. How do patient perspectives and values affect decisions around detection efforts, such as the relative benefits from early awareness balanced with concerns of overdiagnosis, medication side effects, monitoring, and living with a disease label?

8. What is the role of patient education and CKD awareness programs to prevent CKD onset and progression, and to prevent CVD?
9. What is the role of self-management and new technologies (mobile apps) when detecting/managing CKD?
10. What does successful implementation of early detection/management of CKD programs look like, and what constitutes a proof of concept for such programs?
11. Proposed research agenda related to this section.

Group 4: Health System and Economic Factors: Mapping the Cascade of Care for Successful Implementation of Screening/Detection and Interventions

1. Are early CKD detection and monitoring strategies cost-effective, and how does this determination differ in developing vs developed countries, and what inputs/metrics drive the cost-effectiveness assessment?
2. What models of chronic disease detection and management could be applied to CKD detection and management, such as screening, treating or preventing CVD, diabetes, and HIV?
3. What are the barriers and facilitators of implementation of evidence-based, CKD detection strategies, including the role of primary care providers, integrated care teams, specialist engagement, and community partners?
4. What is the role of health systems in improving use of evidence-based treatments in CKD, and how can cost-effectiveness be projected and monitored?
5. What is the role of information technology and other innovations in improving early CKD detection, monitoring and clinical decision-making; how can technology be integrated; and how will cost-effectiveness be demonstrated?
6. What is the role of socioeconomic factors in early CKD detection and management, and what strategies and interventions can be used to bridge gaps across socioeconomic groups?



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7. What incentives could improve early CKD detection/management, such as financial and non-financial incentives and alternate payment models?
8. What are some successful implementation strategies that we can learn from other disciplines and how did they demonstrate their cost-effectiveness?
9. Proposed research agenda related to this section.