

National Kidney Foundation's Kidney Early Evaluation Program (KEEP) Annual Data Report 2009: Executive Summary

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This year, 2010, the National Kidney Foundation's (NKF) Kidney Early Evaluation Program (KEEP) marks a decade of data collection as a part of its multicenter screening program for volunteer participants at risk of chronic kidney disease (CKD). During the years, KEEP has yielded important inferences regarding CKD epidemiologic characteristics and risk factors,^{1,2} and related comorbid conditions, including hypertension, metabolic syndrome, diabetes, bone and mineral disorder, anemia, and heart disease, have been characterized and reported.³⁻¹¹ This supplement to the *American Journal of Kidney Diseases* highlights 4 articles: (1) a 10th anniversary summary of KEEP milestones; (2) a comparison of CKD among elderly KEEP participants, the National Health and Nutrition and Examination Survey (NHANES), and Medicare recipients; (3) an examination of the cluster of obesity and metabolic syndrome in racial categories; and (4) a description of the impact of microalbuminuria on CKD identification.

MILESTONES

KEEP has evolved as the world's only continuous chronic disease screening program that is free of charge to volunteer participants with hypertension, diabetes, or a family history of diabetes, hypertension, or CKD. Achieving the 10-year mark is a testimony to the commitment of the NKF and its sponsors to improve the lives of people who have or are at risk of CKD by promoting education and awareness.

Major milestones include expanding baseline laboratory values, establishing a clinical call center to report abnormal laboratory results and

coordinate care, reporting results to primary care physicians, and developing a longitudinal follow-up process. The KEEP Data Coordinating Center has produced an annual data report, similar to the US Renal Data System Annual Data Report, since 2003. Added data systems to track repeated participants and search for mortality in the KEEP database represent the first steps toward outcomes reporting. Finally, KEEP has broadened into a global effort with the first sets of reports concerning CKD screening activities in Central America and the Pacific Rim.

In addition to the KEEP Annual Data Report, > 30 peer-reviewed articles using KEEP data have been published in journals spanning the fields of internal medicine, nephrology, cardiology, and endocrinology. The KEEP Publications Committee has announced plans to open access to the KEEP database to researchers across the country and allow requests for analysis and publications.¹²

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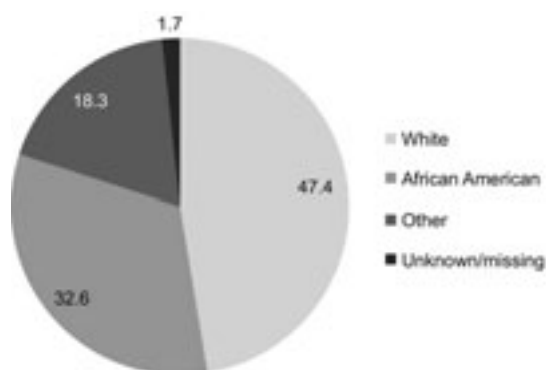


Figure 1. Major racial groups in the Kidney Early Evaluation Program (KEEP) database.

AGE AND CKD

Stevens et al¹³ explore CKD identified in volunteer KEEP screening participants compared with volunteer NHANES participants from the general population and a random sample of Medicare recipients. CKD is identified using the traditional measures, estimated glomerular filtration rate (eGFR) < 60 mL/min/1.73 m² or microalbuminuria, in KEEP and NHANES, and from *International Classification of Diseases, Ninth Edition, Clinical Modification (ICD-9-CM)* codes in Medicare. Restricting all 3 data sets to participants aged ≥ 65 years, CKD prevalence was $\sim 44\%$ in KEEP and NHANES, and the prevalence of CKD ICD-9-CM codes was 7% in Medicare. This report makes a strong case for our system of care to become much more responsive to the identification and coding of CKD as a medical problem in submitting claims to Medicare and probably to other health insurance providers. Approaches that rely on automated sources of data to identify CKD probably considerably under-report its presence.

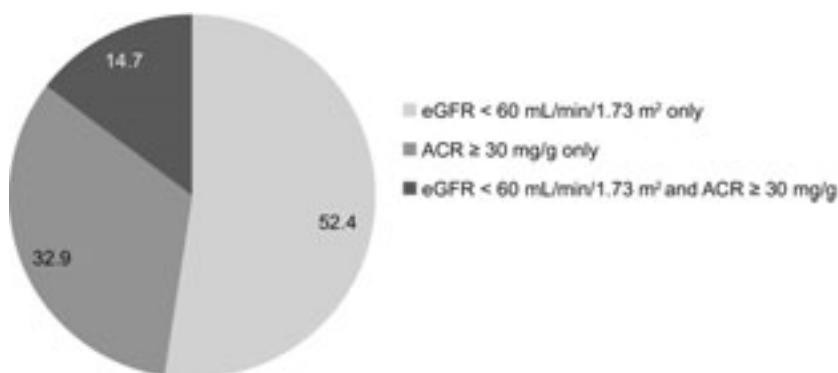


Figure 2. Overall prevalence in the Kidney Early Evaluation Program (KEEP) database of estimated glomerular filtration rate (eGFR) < 60 mL/min/1.72 m² only, albumin-creatinine ratio (ACR) ≥ 30 mg/g only, and both.

OBESITY AND METABOLIC SYNDROME

Although 85% of KEEP participants report having seen a physician in the past 12 months, 60% learn of a new condition of which they were previously unaware during the screening process. Often, the new condition is a component of metabolic syndrome, a widely appreciated precursor to type 2 diabetes mellitus, CKD, and cardiovascular disease. Thus, KEEP is actively working on creating awareness of adiposity and disease, an important concept because 20% of obese people are said to have never been informed by a health provider that excess body weight contributes to poor health. Bombback et al¹⁴ report that components of metabolic syndrome are more likely in obese white than obese African American KEEP participants and that CKD is more likely to be identified using eGFR in white participants and using microalbuminuria in African American participants. Overall, in KEEP, African Americans account for 32.6% of the population (Fig 1). In both racial groups, prevalences of CKD-related anemia and secondary hyperparathyroidism were high, implying that renal hormonal function is considerably impaired in obese people with CKD.

MARKERS OF KIDNEY DAMAGE AND FUNCTION

Since the inception of an accepted conceptual model of CKD identifying disease as decreased eGFR < 60 mL/min/1.73 m² or evidence of kidney damage using imaging or, more commonly, the presence of markers indicating vascular injury (ie, microalbuminuria), debate has focused on the discordance of these factors. Jolly et al¹⁵ examined KEEP participants with eGFR $\geq$

60 mL/min/1.73 m² and found microalbuminuria prevalences of 8% in whites, 11% in African Americans, 9% in Hispanics, 10% in Asians, and 15% in American Indians/Alaska Natives. Compared with whites, odds ratios (ORs) for microalbuminuria (and by definition CKD) were highest for American Indians/Alaska Natives (adjusted OR, 1.93; 95% confidence interval [CI], 1.70-2.20), then Asians (adjusted OR, 1.42; 95% CI, 1.26-1.61), African Americans (adjusted OR, 1.38; 95% CI, 1.29-1.47), and Hispanics (adjusted OR, 1.19; 95% CI, 1.08-1.31). These data further solidify recommendations to use both eGFR and spot albumin-creatinine ratio to identify CKD, especially in members of minority racial and ethnic groups. We note that only 14.7% of KEEP participants have both decreased eGFR < 60 mL/min/1.73 m² and microalbuminuria (spot urine albumin-creatinine ratio ≥ 30 mg/g; Fig 2).

THE BIGGER PICTURE

As the Annual Data Report statistics and accompanying articles are published, the NKF and the KEEP Steering Committee aim to focus on metrics of success regarding CKD, including increased awareness, improved risk factors, slowed progression, decreased complications (anemia and mineral and bone disorders), and ultimately decreased end-stage renal disease, cardiovascular events, and mortality. Advancement in the science of chronic disease screening and prevention raises long-term hope for new diagnostic and therapeutic targets, and with them, opportunities for early intervention to change the natural history of CKD as we know it.

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