

## Executive Summary: Kidney Early Evaluation Program (KEEP) 2007 Annual Data Report

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**T**he National Kidney Foundation Kidney Early Evaluation Program (KEEP) is in its eighth year of operation. More than 100,000 people have been screened for kidney disease in the United States, and screening data have been collected. Annual Data Reports were previously published and have served as a compendium of information for interested readers, but were not user-friendly for busy nephrologists. To make the data more accessible, for the current issue, the KEEP Executive Committee developed thematic articles that describe and present KEEP data in the context of known associated cardiovascular risk factors, including diabetes and hypertension. This supplement includes the most recent data (August 2000 to December 31, 2006) supplied by the KEEP Data Coordinating Center, and the reports were written from the perspective of the respective authors. All articles were peer reviewed by the KEEP Executive Committee and by outside reviewers for the *American Journal of Kidney Diseases*.

The first 7 articles represent a distillation of data. They focus on key topics agreed upon by the KEEP Steering Committee as the most important issues to highlight from the database. They cover major cardiovascular risk factors associated with kidney disease and kidney disease itself as a cardiovascular risk factor, highlighting issues in the community in which this screening study is ongoing. KEEP data are complementary to the nationally representative National Health and Nutrition Examination Survey (NHANES) 1999-2004 data in looking specifically for awareness of kidney disease in the community and for the presence of cardiovascular risk factors associated with various stages of kidney disease, and

the data sets are compared on several dimensions.

The eighth article analyzes efforts to follow up the KEEP cohort after the initial health screening program to determine whether participant health care access related to the findings from the program improved. Articles 9 and 10 address issues related to laboratory measurement and survey questionnaire form design. The Reference Tables present basic and informative participant- and affiliate-level data included for easy reference.

The article by Jurkovitz et al on program design and population characteristics evaluates trends in KEEP enrollment over time and notes that the number of KEEP participants grew exponentially over time. Most participants were aged 46 to 60 years, the population included twice as many women as men, and minorities were well represented. Whaley-Connell et al examined the KEEP and NHANES databases for prevalence of chronic kidney disease (CKD) and found a greater prevalence in KEEP screening data than in NHANES data. They note that although different methods were used to screen participants, the 2 cohorts overall displayed similar clinical risk

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factors for patients with CKD. These authors also evaluated the relationship between diabetes and CKD in KEEP and NHANES and noted that the prevalence of diabetes was greater in KEEP, but this may be caused by selection bias. Overall, the 2 databases show similar increased risk for CKD in patients with diabetes.

Rao et al examined the prevalence of hypertension in KEEP and NHANES in the context of CKD. Although the distribution of hypertension was similar between databases, the prevalence of cardiovascular risk factors was greater in KEEP than NHANES. The proportion of African Americans was also 3-fold greater in KEEP. McCullough et al examined the prevalence of cardiovascular risk in KEEP and NHANES, again focusing on risk factors. They found that CKD is an independent predictor of myocardial infarction, stroke, and death in KEEP and NHANES participants. Heightened concerns regarding risks in KEEP volunteers yielded a greater cardiovascular disease prevalence in KEEP, associated with increased short-term mortality. McFarlane et al evaluated the prevalence of anemia in KEEP and NHANES and found it to be twice as common in KEEP than in a similar demographic NHANES sample. African Americans had 3 times the odds of having anemia as whites.

Vassalotti et al examined trends in calcium, phosphorus, and parathyroid hormone (PTH) values in KEEP compared with previous findings in NHANES 1999-2004. They found that patients with CKD stage 3 had significantly greater se-

rum phosphorus and PTH and lower serum calcium levels. Obesity and African American race were associated with increased PTH levels independently of estimated glomerular filtration rate (eGFR). Except for PTH levels, similar trends were noted in NHANES. In looking at follow-up, Collins et al found that of KEEP participants who returned their follow-up forms, 71% indicated that they saw their physicians after attending a KEEP event, and those with lower eGFR and higher urine albumin values were more likely to visit physicians than those without evidence of CKD.

Stevens and Stoycheff present data on creatinine calibration among the KEEP sites and note that calibration of KEEP creatinine measurements had a greater impact on the current than the previous laboratory used. The calibration process has worked to reduce overestimation of eGFR at the high range and reduce misclassification bias. Calderón et al applied cognitive design principles to the KEEP follow-up questionnaire and found problems with the document that may account for poor responsiveness to certain questions. They note that to ensure ease of use by populations with limited literacy skills, poor health literacy, and limited survey literacy, survey researchers must apply cognitive design principles to survey development to improve participation and response rates.

We hope that this collection of articles describing KEEP data will be informative and useful for researchers and clinicians alike.