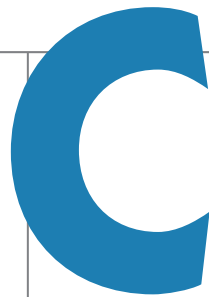


# 1

## Introduction

“I learned through the screening that I had diabetes and [high] cholesterol. I am now being treated by an endocrinologist. Thank you for providing this free service to our community.”

*KEEP participant: Screening date, August 2005*



Chronic kidney disease is receiving increased attention in the United States and around the world as the precursor to ESRD, a disease requiring treatment with dialysis or transplantation. The growing number of people entering ESRD therapy has placed increased demands on patients, families, and health care resources worldwide.

During the past three decades, with ESRD approved for Medicare coverage under Medicare entitlement, the U.S. has led the world in treated incident and prevalent rates. These rates are now being eclipsed, however, by those of other countries, particularly Japan and Taiwan. Taiwan now has the highest incident rates of ESRD in the world, with the United States second and Japan third. Prevalent rates of treated ESRD also show Japan to be first, followed by Taiwan and the U.S. These high rates of ESRD have placed increasing strain on health care budgets, as ESRD consumes an ever-increasing part of health care expenditures.

### The KEEP program

Ten years ago, the NKF created strategies for targeting populations at high risk of kidney disease. Preliminary studies during 1997–1999 for the subsequent KEEP were conducted on almost 900 individuals, and showed that targeted populations age 18 and older, with a history of diabetes or hypertension or with a family his-

tory of these two diseases or kidney disease, were highly likely to have evidence of kidney damage, microalbuminuria, and reduced kidney function.

In the latter part of 2000 the NKF officially launched the KEEP program and expanded its initial 21-city pilot program to a national effort through its local affiliates. Now in its sixth year, the nationwide KEEP program has seen over 80,000 individuals, evaluating their blood pressures, height, weight, body mass index (BMI), evidence of kidney damage (through testing of urine for albumin and blood for elevated serum creatinine levels), evidence of anemia, and family history of diabetes, hypertension, and cardiovascular disease. The program provides educational materials to patients and families, as well as to physicians. Consultation with a physician is also available at the end of the program, allowing participants to review their family history and the results of their evaluation. This large effort has now expanded to 48 NKF Affiliates across 49 states, and has received attention worldwide through publication of the National Kidney Foundation's KEEP Annual Data Report.

### Administrative structure & oversight

KEEP's organizational structure (right) has evolved along with the program itself. The program is governed by an External Advisory Committee, which receives significant input on program operations from the NKF Affiliates; there is also an Executive Committee chaired by Wendy Brown, MD, and Michael Klag, MD. The Executive Committee communicates monthly, discussing data coordinating center issues, ancillary studies, funding and sponsorship, affiliate support, new program development, and publications.

The KEEP Steering Committee works with the Data Coordinating Center and NKF Affiliates on analyses of the KEEP data and on the Annual Data Report. Committee members (see box on next page) have a broad range of expertise, and include experts in nephrology, hypertension and cardiovascular disease, cardiology, diabetes, and minority populations. Members include representatives from the CDC, the Indian Health Service and the NKF.

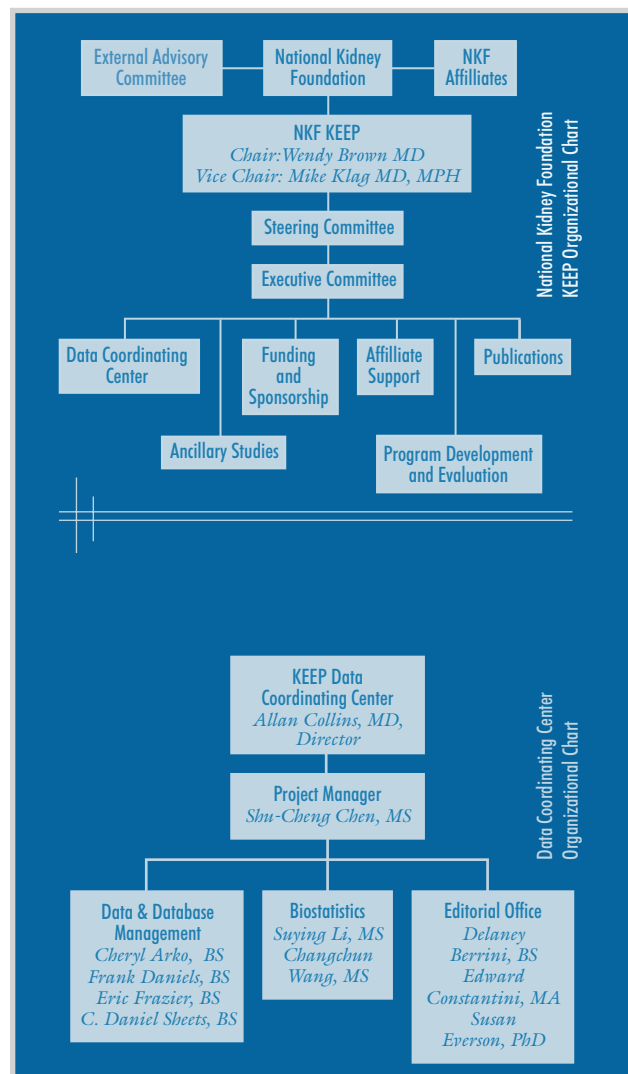
All KEEP data are submitted for entry to NKF's national office in New York; data are then sent to the KEEP Data Coordinating Center at the Minneapolis Medical Research Foundation in Minnesota, which is responsible for the KEEP Annual Data

Report. The data collection form for this reporting period was used through December 31, 2005.

### Content of the Annual Data Report

The size of the KEEP program allows this report to provide extensive descriptive characteristics of the population.

Participant information is organized by age, gender, race, and, where possible, geographic region; we also present data on participant education, insurance coverage, and access to physician care in Chapter 2.



This year in Chapter 3, we provide information on the prevalence of diabetes, hypertension and cardiovascular disease. Data on obesity, a known risk factor for cardiovascular disease and diabetes are presented as well, in addition to information on participant smoking history, evidence of kidney disease, family history as it relates to comorbidity, and finally information on medical interventions following the KEEP evaluation.

Chapter 4 provides information on diabetes and glycemic control in the KEEP population, as well as on hypertension and hypertension control. While over 25% of KEEP participants report having diabetes, 17.1% have evidence of diabetes based on blood sugar. And almost 70% of KEEP participants have evidence of hypertension—53% know they have the disease, and 52% discover it through an elevated blood pressure measured during participation in the program.

Chapter 5 presents a more complete evaluation of findings related to (CKD) in the KEEP and general populations. We pres-

ent information on CKD staging using the NKF classification of CKD which stipulates an eGFR (K/DOQI MDRD) of less than 60 ml/min/1.73 m<sup>2</sup> or an eGFR greater than or equal to 60 ml/min/1.73 m<sup>2</sup> and abnormal albumin/creatinine ratio (≥30 mg/g). We look as well at blood pressure control by CKD stage, and at diabetes, obesity, anemia, and multiple cardiovascular risk factors. The chapter also includes data on the prevalence of microalbuminuria and abnormal albumin/creatinine ratio by eGFR stage, in diabetic and hypertensive populations. New this year is information on preponderance of abnormal parathyroid hormone (PTH), calcium, and phosphorus levels in KEEP participants with eGFR less than 60, by diabetes, hypertension, and cardiovascular disease status—additional information on these markers is presented by eGFR level, CKD stage, BMI, and the presence of anemia.

In Chapter 6 we present data on the prevalence of anemia, using anemia guidelines by both the WHO and the NKF's K/DOQI. Diabetes is a significant risk factor for anemia and data show an increased risk in blacks—risk of anemia is five-times higher in blacks with diabetes in comparison to whites with no diabetes.

## Analytical methods & reference tables

The analytical methods used in each chapter are described in the appendix. Reference tables have been expanded this year, and include data on self-reported diabetes and hypertension, elevated blood sugar and blood pressure, blood pressure control, evidence of chronic kidney disease, body mass indices, microalbuminuria, abnormal albumin/creatinine ratio, hemoglobin level, cardiovascular disease, self-reported kidney disease or stones. These tables provide a more complete description of the number of individuals and their distribution in each of these categories, overall, by race/ethnicity, and by NKF affiliate.

## Acknowledgements

The KEEP program could not function without the extensive support of NKF volunteers across the United States who help each NKF Affiliate deliver this community service. The dedicated efforts of affiliate staff and the national office, providing support mechanisms to NKF Affiliates, are also extremely important.

Sponsors of the KEEP program are listed at the front of the Annual Data Report; they provide affiliates with the necessary

### KEEP Steering Committee

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FACP, FAHA: Chair  
*Meharry Medical College, Vanderbilt  
University Medical Center*

\*Michael J Klag, MD, MPH: Vice  
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*Johns Hopkins University*

\*Allan J. Collins, MD, FACP  
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*William Beaumont Hospital  
Health Center*

Jane McGill, MD  
*Washington University  
School of Medicine*

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Kidney Disease Program*

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*Charles R. Drew University*

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Center at San Antonio*

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*Brigham & Woman's Hospital*

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*Vice President Program Director*

Leslie Gracz-Weinstein, RN  
*Clinical Service Director, KEEP*

\* KEEP Executive Committee

materials to carry out the program, and help support laboratory requirements, administrative support, and data analysis.

We hope the information provided in this report will help demonstrate, in the United States and around the world, how a detection program can be used not only to identify populations with a high prevalence of a disease, but can also give additional insight into the quality of care and followup these individuals receive.

#### Abbreviations

|         |                                      |        |                                                                                                   |            |                                                                         |
|---------|--------------------------------------|--------|---------------------------------------------------------------------------------------------------|------------|-------------------------------------------------------------------------|
| Adjust  | adjustment                           | ESRD   | end-stage renal disease                                                                           | NKF        | National Kidney Foundation                                              |
| ACR     | albumin/creatinine ratio             | F      | female                                                                                            | NKF K/DOQI | National Kidney Foundation's Kidney Disease Outcomes Quality Initiative |
| Arrhyth | arrhythmia                           | FH     | family history                                                                                    | Non-DM     | non-diabetic                                                            |
| B       | black                                | HA     | heart attack                                                                                      | NSR        | non-self-reported                                                       |
| BS      | blood sugar                          | HF     | heart failure                                                                                     | OTC        | over the counter                                                        |
| BMI     | body mass index                      | Hgb    | hemoglobin                                                                                        | Oth        | other                                                                   |
| BP      | blood pressure                       | HTN    | hypertension                                                                                      | Pac Isl    | Pacific Islander                                                        |
| BPS     | by-pass surgery                      | JNC-7  | National Joint Committee on Prevention, Detection, Evaluation, & Treatment of High Blood Pressure | Partic     | participant                                                             |
| CKD     | chronic kidney disease               |        |                                                                                                   | PD         | peritoneal dialysis                                                     |
| Crt     | creatinine                           | KD     | kidney disease                                                                                    | PVD        | peripheral vascular disease                                             |
| CVD     | cardiovascular disease               | M      | male                                                                                              | SBP        | systolic blood pressure                                                 |
| DBP     | diastolic blood pressure             | KEEP   | Kidney Early Evaluation Program                                                                   | SR         | self-reported                                                           |
| DM      | diabetic or diabetes                 | MDRD   | Modification of Diet in Renal Disease                                                             | W          | white                                                                   |
| eGFR    | estimated glomerular filtration rate | Nat Am | Native American                                                                                   | WHO        | World Health Organization                                               |
| EBS     | elevated blood sugar                 | NHANES | National Health & Nutrition Examination Study                                                     |            |                                                                         |
| EI BP   | elevated blood pressure              |        |                                                                                                   |            |                                                                         |