



Chronic Kidney Disease

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PROGRESS REVIEW



In the fourth session in the second series of assessments of *Healthy People 2010*, ADM John O. Agwunobi, Assistant Secretary for Health, chaired a focus area Progress Review on Chronic Kidney Disease (CKD). He was assisted by staff of the lead agency for this *Healthy People 2010* focus area, the National Institutes of Health (NIH), where programs relating to renal functioning and concerns are centered in the National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK). Also participating in the review were representatives from other U.S. Department of Health and Human Services (HHS) offices and agencies. In his introduction to Progress Review participants, ADM Agwunobi noted that the goal of this focus area is to reduce new cases of CKD as well as the complications that can ensue, including disability, death, and economic costs. *Healthy People 2010* objectives for CKD address the rate of new cases of renal failure, access to transplantation, improving dialysis procedures, early detection and counseling of persons with impaired renal function, and best practices for the treatment of individuals who have diabetes and proteinuria (the presence of protein in the urine).

The complete text for the Chronic Kidney Disease focus area of *Healthy People 2010* is available online at www.healthypeople.gov/document/html/volume1/04ckd.htm. More recent data used in the Progress Review for this focus area's objectives and their operational definitions can be accessed at wonder.cdc.gov/data2010. For comparison, the report on the first-round Progress Review (held on November 20, 2002) is archived at www.healthypeople.gov/data/2010prog/focus04/2002fa04.htm. The meeting agenda, tabulated data for all focus area objectives, charts, and other materials used in the Progress Review can be found at a companion site maintained by the National Center for Health Statistics (NCHS)/Centers for Disease Control and Prevention (CDC): www.cdc.gov/nchs/about/otheract/hpdata2010/focusareas/fa04-ckd2.htm.

Data Trends

NCHS Director Edward Sondik stated that the CKD focus area demonstrates the value of having a wide range of sources within HHS for data to support the *Healthy People 2010* objectives. The data sources for this focus area's objectives are the NIDDK-sponsored United States Renal Data System and the Centers for Medicare & Medicaid Services (CMS). Dr. Sondik gave an overview of the status of the objectives, followed by a more detailed examination of selected objectives that were highlighted during the Progress Review. Of the eight CKD objectives (one a composite of two

subobjectives), one met its target (Obj. 4-8a), three moved toward their targets (Objs. 4-2, 4-4, and 4-5), three moved away from their targets (Objs. 4-1, 4-6, and 4-7), and two have had baseline data only since 2000 (Objs. 4-3 and 4-8b), the inception of *Healthy People 2010*.

(Obj. 4-1): New cases of end-stage renal disease (ESRD), that is, irreversible kidney failure, increased from 308 cases per million population in 1997 (adjusted for age, gender, and race, where applicable) to 343 in 2003, then decreased to

339 per million in 2004. By racial and ethnic group, the rates per million in 2004 were 263 cases for whites, 341 for Asians/Pacific Islanders, 485 for Hispanics, 524 for American Indians/Alaska Natives, and 968 for blacks—a decrease from 1,010 cases in 2003. In 2004, the rate of new ESRD cases per million was 276 for females, compared with 422 for males. The 2010 target is 221 cases per million. In general terms, new cases of ESRD occurring at rates of more than 333 per million in 2003 were found most frequently in the following geographic areas: Louisiana westward to California through states abutting the U.S.-Mexico border; Ohio, West Virginia, and western Pennsylvania; portions of New Jersey; some counties in Georgia and South Carolina; and Hawaii. Areas with rates below 285 new cases per million in 2003 were concentrated, for the most part, in the Northwest and western Great Plains states, southern Florida, New England, and Alaska.

(Obj. 4-7): New cases of ESRD due to diabetes increased from 135 per million population (adjusted for age, gender, and race, where applicable) in 1997 to 149 per million in 2004. By racial and ethnic group, the new case rates per million in 2004 were 115 for whites, 166 for Asians/Pacific Islanders, 307 for Hispanics, 383 for American Indians/Alaska Natives (a marked improvement from 452 in 1997), and 422 for blacks. In 2004, the rate of new cases of ESRD due to diabetes was 129 per million for females, compared with 174 for males. The target is 90 per million.

(Obj. 4-4): The proportion of new hemodialysis patients using arteriovenous (AV) fistulas as the primary mode of vascular access increased from 26 percent in 1998 to 36 percent in 2003. The proportion of new

female hemodialysis patients using AV fistulas in 2003 was 27 percent, compared with 44 percent of new male hemodialysis patients. By racial and ethnic group, the 2003 percentages were as follows: non-Hispanic blacks, 28 percent; non-Hispanic whites, 38 percent; Hispanics, 45 percent; Asians/Pacific Islanders, 51 percent; and American Indians/Alaska Natives, 74 percent (compared with just 30 percent in 2000). The two latter groups exceeded the target of 50 percent.

(Obj. 4-8a): The proportion of persons with type 1 or type 2 diabetes and CKD who received recommended medical evaluation to reduce progression to chronic renal insufficiency increased from 34 percent in 2000 to 48 percent in 2004, surpassing the target of 36 percent. In 2004, four racial and ethnic groups for whom data were available also exceeded the target: blacks at 41 percent (compared with 26 percent in 2000), Hispanics at 44 percent (31 percent in 2000), Asians/Pacific Islanders at 47 percent (35 percent in 2000), and whites at 49 percent (35 percent in 2000). The proportion of American Indians/Alaska Natives with type 1 or type 2 diabetes and CKD who received the recommended evaluation increased from 17 percent in 2000 to 21 percent in 2004.

(Obj. 4-8b): In 2000, the only year of the decade for which data are available, 32 percent of persons with type 1 or type 2 diabetes and CKD received recommended medical treatment to reduce progression to chronic renal insufficiency. Limited data are available on the breakdown by racial and ethnic group. In 2000, 28 percent of blacks and 36 percent of whites with type 1 or type 2 diabetes and CKD received the recommended medical treatment. The target is 38 percent.

Key Challenges and Current Strategies

In presentations that followed the data overview, the principal themes were introduced by Griffin Rodgers, Acting Director of NIDDK; Andrew Narva, Director of the NIDDK National Kidney Disease Education Program (NKDEP); James Burdick, Director

of the Division of Transplantation/Health Resources and Services Administration (HRSA); and Gina Clemons, Director of the Fistula First Project/CMS. These agency representatives set the stage for discussions among Progress Review participants, identified a number of

barriers to achieving the objectives, and discussed activities under way to meet these challenges, including the following:

- Type 2 diabetes remains the major driving force behind the development of CKD and ESRD, accounting for about 45 percent of new ESRD cases. Over the past 5 years, several studies have shown that proteinuria, especially in patients with diabetes, predicts faster progression of kidney disease to end stage.
- The rate of ESRD due to high blood pressure rose 19 percent between 1993 and 2003.
- In 2003, nearly 537,000 people were on dialysis or had a functioning kidney transplant. Kidney failure now costs the U.S. healthcare system more than \$25 billion every year. The reason is that over 130,000 of those people already have a transplant. They do not currently need one nor do they need dialysis.
- The NKDEP is spearheading systemic change to improve the accuracy and standardization of testing methods, and automatic reporting of estimated glomerular filtration rates (GFRs), a superior measure of kidney function that increases early detection of kidney disease.
- The NKDEP recently completed promotion for the second year of the Family Reunion Initiative, which encourages African Americans to discuss the connection between diabetes, high blood pressure, and kidney disease at their family reunions. The *Family Reunion Health Guide* provides fact sheets on those three conditions and outlines sample approaches to facilitate communication and discussion.
- Other NKDEP activities include an outreach program to inform the public about hemodialysis and programs to help primary care providers and other health professionals better assess and treat CKD and better educate their patients.
- The decrease in the diabetic ESRD rate for American Indians/Alaska Natives may be due to an aggressive campaign conducted over the past 10 to 15 years to encourage use of angiotensin-converting enzyme inhibitors and angiotensin II receptor blockers in this population group. These drugs appear to slow, but not halt, the progression of renal dysfunction.
- Although ESRD beneficiaries make up less than 1 percent of the Medicare population, CMS's ESRD program represents about 7 percent of all Medicare outlays (about \$20 billion in 2006) and has a growth rate of about 10 percent per year.
- The AV fistula, that is, the surgical joining of a vein and an artery, is considered the best avenue for establishing access to a hemodialysis patient's circulatory system. Compared with grafts or catheters, AV fistulas last longer, need less rework or repairs, and are associated with lower rates of infection, hospitalization, and death.
- While the 2006 rate of AV fistula use by individuals on hemodialysis in the United States is estimated at about 43 percent, average levels of such use are much higher in Europe (70 percent) and Asia (80 percent).
- The CMS Fistula First Breakthrough Initiative was launched in March 2005 with the goal to have AV fistulas placed in at least half of all new hemodialysis patients and to have a minimum of two-thirds of all current patients who continue hemodialysis use the fistula. To achieve this goal, CMS works with other HHS agencies and a spectrum of non-Federal partners in a renal coalition—the Fistula First Coalition. If the goal were met, Medicare would save at least \$2 billion over 5 years.
- The proportion of patients with treated chronic kidney failure who receive a transplant within 3 years of registering on the transplant waiting list has moved away from the 2010 target, and

levels of registration on the list continue to be well below the target. The major obstacle to achieving both objectives is a severe shortage of organs for transplantation. This shortage is currently the most important issue regarding transplantation and has prompted HHS to establish an advisory group to explore all available means to address the problem.

- The goal of HRSA's Organ Transplantation Program is to increase the annual number of organs

transplanted until a level of 42,800 transplantations is reached in 2013. Efforts under way to achieve this goal include partnering with CDC in a cooperative agreement called Hollywood Health and Society that helps to educate Hollywood script writers so they can provide accurate information to the public about a number of health-related topics, including organ donation.

Approaches for Consideration

Participants in the review made the following suggestions for public health professionals and policymakers to consider as steps to enable further progress toward achievement of the objectives for CKD:

- Aim to arrive at a more precise definition of CKD and to better delineate and classify the stages of this disease.
- As part of a broad-based effort to reduce health disparities, increase research on physiological differences among population groups that might help to account for the apparently more rapid progression from impaired kidney function to ESRD in blacks, the racial group with the highest rate of ESRD.
- Encourage wider use of vein-mapping techniques to establish sites for optimum vascular access for placement of AV fistulas in CKD patients.
- In all programs to increase levels of organ donations, make greater use whenever feasible of videos and other graphic materials that are directed to particular racial and ethnic populations.
- Promote the adoption of a team approach by healthcare providers who treat CKD patients and counsel about hemodialysis and AV fistulas so that the varying perspectives of specialists, for example, nephrologists and vascular surgeons, could become harmonized and mutually reinforcing.

- Explore alternatives to estimated GFRs in the quest for more reliable indicators of kidney function.
- Seek more persuasive approaches for convincing people with compromised kidney function that treatment must begin early even though they may be asymptomatic.

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[Signed February 13, 2007]

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