

Chapter 2: Healthy People 2020

- In this chapter we examine data for ten Healthy People 2020 (HP2020) Objectives (nine for CKD and one for diabetes), spanning 19 total indicators. As in previous ADRs, we present data overall and stratified by race, sex, and age groups.
- In 2014, 12 of 19 indicators met HP2020 goals, with most of the remaining objectives continuing to show improvement.
- We present state-level comparison maps for HP2020 objectives CKD-10 (proportion of ESRD patients receiving care from a nephrologist at least 12 months before the start of renal replacement therapy) and CKD-13.1 (proportion of patients receiving a kidney transplant within three years of end-stage renal disease; Figures 2.1 and 2.2). More than 80% of states achieved the HP2020 target for CKD-10, while just over 20% achieved the target for CKD-13.1. For both these objectives there was significant geographic variation, with percentages varying between states by greater than 50% from the lowest to highest quintiles.
- For HP2020 objectives relating to vascular access, we present data from CROWNWeb examining HP2020 objectives CKD 11-1 (proportion of adult hemodialysis patients who use arteriovenous fistulas as the primary mode of vascular access) and CKD 11-2 (proportion of adult hemodialysis patients who use catheters as the only mode of vascular access; Tables 2.9 and 2.10). In 2014, we continued to observe an increasing trend in proportion of patients using arteriovenous fistulas, reaching 63.9% overall; notably, this trend was observed across nearly all subgroups.
- In 2014, we continued to observe a trend towards decreasing all-cause mortality among prevalent dialysis patients. The total death rate fell to 172.8 deaths per 1,000 patient years, a more than 25% decrease from 233.7 deaths per 1,000 patient years seen in 2001.

Introduction

For more than three decades, the Healthy People initiative has served as the nation’s agenda for health promotion and disease prevention. Coordinated by the United States (U.S.) Department of Health and Human Services, the initiative provides a vision and strategy for improving the health of all Americans by setting priorities, identifying baseline data and 10-year targets for specific objectives, monitoring outcomes, and evaluating progress. Since its inaugural iteration in 1980, in each decade the program has released updated plans that reflect emerging health priorities and that have helped to align health promotion resources, strategies, and research.

Healthy People 2020 (HP2020) was launched on December 2, 2010. It represents the fourth-generation plan, and encompasses more than 1,000 health

objectives organized into 42 different topic areas. Built on the success of the three previous initiatives, HP2020 seeks to achieve the following overarching goals:

- to assist all Americans in attaining high-quality, longer lives free of preventable disease, disability, injury, and premature death;
- to achieve health equity, eliminate disparities, and improve the health of all groups;
- to create social and physical environments that promote good health for all, and
- to promote quality of life, healthy development, and healthy behaviors across all life stages (HP2020, 2010).

One of the key priorities of the HP2020 initiative is to “reduce new cases of chronic kidney disease (CKD)

and its complications, disability, death, and economic costs.” The development of CKD and its progression to end-stage renal disease (ESRD) is a major source of diminished quality of life in the U.S., and is responsible for significant premature mortality. For patients with this condition, the HP2020 CKD objectives were designed to reduce the long-term burden of kidney disease, increase lifespan, improve quality of life, and to eliminate related health care disparities. To accomplish these goals the HP2020 program developed 14 objectives related to CKD, encompassing 24 total indicators with targets designed to evaluate the program’s success. Herein, we provide data for nine of these objectives, as well as information on urine albumin testing in non-CKD patients diagnosed with diabetes mellitus (DM). These nine objectives were measured through 19 total indicators.

Overall, encouraging trends were noted for nearly all nine objectives, with 11 out of 19 indicators meeting or exceeding their improvement targets. With respect to the provision of recommended care, indicators related to the proportion of patients with both DM and CKD receiving recommended medical evaluations have surpassed their targets and continue to improve. Nearly all indicators related to reductions in mortality among ESRD patients have exceeded their targets. However, the data also demonstrate that several indicators continued to fall short of their targets. The rates of new cases of ESRD (CKD Objective 8) and the rate of ESRD among patients with DM (CKD Objective 9.1) remained above target, although some subgroups have achieved the target. Of note, several transplant-related objectives remained short of their HP2020 goals, including transplant wait-listing of dialysis patients (CKD Objective 12), death rate among patients with a functioning kidney transplant (CKD Objective 14.4), and the proportion of patients receiving a kidney transplant within three years of ESRD (CKD Objective 13.1).

It is important to highlight that one of the four overarching goals of HP2020 is to eliminate health care disparities. While much of the data showed promising trends relevant to this goal, progress overall has not always translated into reduced differences across subgroups. To facilitate comparisons, data is presented overall and by racial, ethnic, sex, and age

subgroups. In many cases, while an objective may have been met by the overall population, one or more subgroups may have fallen well short. Primarily, however, trends were similar across different subgroups.

Below, the detailed findings and trends for each of the 10 objectives (with 19 total indicators) are presented separately. Additional information on the HP2020 program objectives can be found at www.healthypeople.gov.

Methods

This chapter uses multiple data sources including data from the Centers for Medicare & Medicaid Services (CMS), the Organ Procurement and Transplantation Network (OPTN), the Centers for Disease Control and Prevention (CDC), and the United States Census. Details of data sources are described in the Data Sources section of the ESRD Analytical Methods chapter.

See the Analytical Methods Used in the ESRD Volume section of the ESRD Analytical Methods chapter for an explanation of analytical methods used to generate the figures and tables in this chapter.

Recommended Care

In recent years, acute kidney injury (AKI) has become established as an important risk factor for the subsequent development, or worsening, of CKD. Unfortunately, the published literature suggests that the rate of post-AKI renal follow-up is quite low. This objective aims to promote improved renal follow-up within six months after an episode of AKI. Post-AKI follow-up allows for early identification of CKD

development, and provides an opportunity to institute renoprotective measures early in the course of evolving disease. Over the past decade, there has been a steady increase in the percentage of Medicare patients with AKI receiving follow-up renal evaluation. In 2014, 16.4% of patients aged 65 and older who were hospitalized for AKI had a follow-up renal evaluation during the next six months (see Table 2.1). This is the fourth consecutive year that the HP2020 goal of 12.2% has been achieved.

vol 2 Table 2.1 HP2020 CKD-3 Increase the proportion of hospital patients who incurred acute kidney injury who have follow-up renal evaluation in 6 months post discharge: Target 12.2%

	2001 (%)	2002 (%)	2003 (%)	2004 (%)	2005 (%)	2006 (%)	2007 (%)	2008 (%)	2009 (%)	2010 (%)	2011 (%)	2012 (%)	2013 (%)	2014 (%)
All	2.4	3.1	4.5	8.4	9.0	10.4	11.2	10.5	11.5	11.8	12.7	12.8	15.9	16.4
Race/Ethnicity														
American Indian or Alaska Native	0.0	0.0	2.9	16.7	4.8	13.2	12.0	15.2	6.9	11.0	16.7	9.5	9.2	11.0
Asian	3.8	2.0	4.6	8.1	12.3	19.1	15.0	11.5	16.4	15.5	16.1	14.7	22.6	26.5
Black/African American	2.9	2.5	4.0	7.9	9.8	9.0	11.1	10.2	12.2	11.3	12.0	13.2	15.6	17.0
White	2.3	3.2	4.5	8.3	8.8	10.5	11.1	10.4	11.2	11.8	12.5	12.5	15.6	15.9
Hispanic or Latino	1.4	6.6	7.1	12.9	12.2	10.3	11.9	15.7	13.2	13.0	17.1	16.0	23.1	22.5
Sex														
Male	2.8	3.5	4.6	8.8	9.9	11.2	12.6	11.9	12.5	12.8	13.9	13.9	17.4	17.6
Female	2.0	2.8	4.3	8.0	8.3	9.7	10.0	9.3	10.5	11.0	11.6	11.8	14.6	15.3
Age														
65-74	3.7	4.2	6.2	11.6	12.8	14.6	16.1	14.8	16.0	16.4	17.5	17.2	20.8	21.2
75-84	2.0	3.2	4.2	8.5	8.6	10.4	11.1	10.8	11.3	12.3	13.3	13.0	16.7	17.4
85+	0.8	1.1	2.2	3.1	4.4	5.1	5.1	5.0	6.4	6.0	6.3	6.9	8.8	8.6

Data Source: Special analyses, Medicare 5 percent sample. Medicare patients aged 65 & older with a hospitalized AKI event in a given year. Abbreviation: CKD, chronic kidney disease.

The proportion of patients receiving post-AKI renal evaluation decreased with older age. Among patients aged 65-74, 21.2% received follow-up evaluation. This declined to 17.4% in patients aged 75-84, and only 8.6% of those aged 85 and older received such care. In addition, men were more likely to receive follow-up renal evaluation as compared with women, and a slightly higher proportion of Blacks/African

Americans had post-AKI follow-up compared to Whites.

Over the past decade, there has been steady annual improvement in the proportion of patients with diagnosed DM who received an annual urine albumin measurement reaching 46.2% in 2014 and once again meeting the HP2020 target (see Table 2.2).

vol 2 Table 2.2 HP2020 D-12 Increase the proportion of persons with diagnosed diabetes who obtain an annual urinary microalbumin measurement: Target 37.0%

	2001 (%)	2002 (%)	2003 (%)	2004 (%)	2005 (%)	2006 (%)	2007 (%)	2008 (%)	2009 (%)	2010 (%)	2011 (%)	2012 (%)	2013 (%)	2014 (%)
All	15.3	18.1	21.2	25.5	28.5	31.0	33.3	35.3	36.9	38.6	40.5	42.3	44.9	46.2
Race/Ethnicity														
American Indian or Alaska Native	11.4	12.1	13.1	15.5	18.9	20.1	20.9	21.2	24.1	23.0	24.5	24.1	27.1	27.8
Asian	16.8	20.6	23.9	28.9	30.5	33.4	34.9	37.3	39.5	41.7	43.8	47.3	49.4	50.4
Black/African American	13.1	15.6	18.5	23.5	26.4	29.0	31.5	33.3	35.3	36.9	39.0	40.5	43.0	43.9
White	15.5	18.5	21.6	25.7	28.7	31.2	33.5	35.5	37.1	38.6	40.6	42.3	44.9	46.3
Hispanic or Latino	15.3	17.8	20.7	25.5	29.6	31.3	33.2	35.1	37.5	40.2	42.3	44.3	47.8	48.7
Sex														
Male	15.9	18.8	21.9	26.5	29.4	32.0	34.5	36.4	37.9	39.5	41.6	43.3	46.1	47.4
Female	14.8	17.6	20.7	24.7	27.8	30.2	32.4	34.4	36.2	37.7	39.6	41.5	44.0	45.2
Age														
65-74	18.2	21.2	24.7	29.4	32.6	35.1	37.7	39.9	41.8	43.3	45.3	47.2	49.6	50.7
75-84	13.7	16.7	19.6	23.8	26.8	29.6	31.8	33.7	35.3	37.1	39.1	41.0	44.4	45.8
85+	7.2	9.0	10.9	13.9	16.1	18.1	20.5	22.2	23.5	25.0	26.7	28.0	31.4	32.6

Data Source: Special analyses, Medicare 5 percent sample. Medicare patients with diabetes mellitus, aged 65 & older. Abbreviation: D, diabetes mellitus.

The trend of increasing urine albumin measurements was seen in all age groups, and in both men and women. However, the proportion of patients with DM who had urine albumin measurements declined with age, falling from 50.7% in the 65-74 age group to 32.6% in patients older than 85 years. Proportions were relatively similar when examined by race, with the exception of American Indians or Alaska Natives. While this group had a low rate of 27.8%, testing in this population may have been under-reported, as services rendered through the Indian Health Service (IHS) are not in claims reported to the Medicare system. This IHS reporting only affects data based on Medicare billing, however. Outcomes such as incidence rates, mortality rates and transplant rates are fully reported in the CROWNWEB system, thus, such differences between American Indians or Alaska Natives and the other racial groups will not be due to under reporting.

HP2020 CKD Objective 4.1 examines the proportion of patients with CKD who receive recommended medical testing, including for serum creatinine, urine albumin, and lipids. In the Medicare population aged 65 and older, 33.8% of CKD patients underwent serum creatinine, lipid, and urine albumin testing in 2014, surpassing the HP2020 goal of 28.3% for the fifth consecutive year.

As observed with other measures of recommended testing, the proportion of patients tested declined with rising age; testing occurred in 41.9%, 34.5%, and 19.0% of individuals in the 65-74, 75-84, and 85 years and older age groups. As compared to females, a higher proportion of males had recommended testing. When examining race and ethnicity, Asians had the highest proportion of recommended testing, followed by Hispanic or Latino patients. American Indians or Alaska Natives had the lowest proportion, although once again this may be related to lack of data capture from the IHS.

vol 2 Table 2.3 HP2020 CKD-4.1 Increase the proportion of persons with chronic kidney disease who receive medical evaluation with serum creatinine, lipids, and microalbuminuria: Target 28.3%

	2001 (%)	2002 (%)	2003 (%)	2004 (%)	2005 (%)	2006 (%)	2007 (%)	2008 (%)	2009 (%)	2010 (%)	2011 (%)	2012 (%)	2013 (%)	2014 (%)
All	7.3	9.1	10.6	19.8	22.1	23.4	25.7	26.7	28.1	29.0	30.2	31.1	33.0	33.8
Race/Ethnicity														
American Indian or Alaska Native	8.2	6.0	7.0	13.7	19.2	15.8	16.9	16.7	18.3	20.4	21.0	18.4	23.2	22.1
Asian	8.4	14.4	14.1	27.5	27.9	32.5	35.3	34.1	37.5	36.9	39.5	41.2	43.8	45.0
Black/African American	6.6	8.7	10.1	20.8	22.8	24.4	26.7	27.8	30.1	30.6	32.3	33.1	34.9	35.4
White	7.1	8.8	10.4	19.3	21.6	22.9	25.1	26.3	27.4	28.3	29.4	30.3	32.1	32.8
Hispanic or Latino	13.1	17.3	17.7	26.8	30.4	31.1	33.0	32.1	36.0	36.7	38.9	41.3	44.1	44.8
Sex														
Male	7.5	9.3	11.3	21.1	23.4	24.5	27.1	28.4	29.6	30.6	32.0	33.0	35.0	35.7
Female	7.0	8.9	10.0	18.6	20.9	22.4	24.3	25.2	26.7	27.6	28.6	29.5	31.3	31.9
Age														
65-74	10.3	12.6	14.2	26.1	29.2	31.4	33.9	35.1	36.7	37.7	38.9	39.9	41.4	41.9
75-84	6.2	8.0	9.8	18.5	20.8	22.6	24.9	26.2	27.7	28.9	30.3	31.2	33.6	34.5
85+	2.3	3.1	4.0	8.2	10.0	10.1	12.1	13.1	14.0	14.8	16.2	17.0	18.6	19.0

Data Source: Special analyses, Medicare 5 percent sample. Medicare patients aged 65 & older with CKD. Abbreviation: CKD, chronic kidney disease.

Patients with both CKD and type 1 or type 2 diabetes require comprehensive laboratory monitoring to assess for development of complications. The glycosylated hemoglobin (HgbA1c) test provides an assessment of blood glucose control over prolonged periods of time, while diabetic retinopathy can be detected through regular eye examinations. In the 2014 diabetic CKD population aged 65 and older, 29.9% of patients received serum creatinine, urine albumin, HgbA1c, and lipid testing, as well as an eye examination (see Table 2.4). This exceeded the HP2020 goal of 25.3% for the fifth consecutive year.

Similar to the percentages seen for HP2020 CKD Objective 4.1, the proportion of patients tested declined with rising age; testing occurred in 32.5%, 31.0%, and 20.7% of individuals in the 65-74, 75-84, and 85 years and older age groups. When examining race and ethnicity, American Indians or Alaska Natives had the lowest proportion, although once again this may be related to lack of data capture from the IHS.

vol 2 Table 2.4 HP2020 CKD-4.2 Increase the proportion of persons with type 1 or type 2 diabetes and chronic kidney disease who receive medical evaluation with serum creatinine, microalbuminuria, A1c, lipids, and eye examinations: Target 25.3%

	2001 (%)	2002 (%)	2003 (%)	2004 (%)	2005 (%)	2006 (%)	2007 (%)	2008 (%)	2009 (%)	2010 (%)	2011 (%)	2012 (%)	2013 (%)	2014 (%)
All	9.0	10.4	12.1	18.4	20.0	21.1	23.0	23.7	25.1	26.5	26.9	27.6	29.8	29.9
Race/Ethnicity														
American Indian or Alaska Native	7.3	3.1	5.7	5.6	15.8	12.5	10.2	10.9	10.9	15.1	14.2	11.2	16.4	17.0
Asian	8.3	12.4	12.8	25.0	21.8	26.1	26.7	25.3	27.1	29.5	30.8	32.4	36.9	34.3
Black/African American	6.7	7.2	9.9	16.3	17.9	18.8	19.7	21.1	22.4	23.8	25.1	25.3	27.1	26.7
White	9.4	11.0	12.5	18.6	20.3	21.4	23.4	24.2	25.6	27.0	27.1	27.9	29.9	30.2
Hispanic or Latino	10.4	11.8	11.8	20.4	20.3	19.8	22.1	21.7	24.6	24.0	26.5	25.2	29.7	29.7
Sex														
Male	9.3	10.6	12.4	18.8	20.3	21.4	23.5	23.7	25.6	26.7	27.3	27.8	30.2	30.3
Female	8.7	10.3	11.8	18.0	19.7	20.9	22.5	23.6	24.7	26.2	26.6	27.5	29.4	29.5
Age														
65-74	10.9	12.3	14.3	22.0	23.4	24.6	26.6	27.2	28.5	30.0	30.1	30.7	32.6	32.5
75-84	8.1	9.9	11.6	16.9	18.9	20.7	22.6	23.3	25.2	26.7	27.4	28.4	30.8	31.0
85+	4.0	4.2	4.9	9.5	11.5	11.3	13.0	14.2	15.5	16.6	17.7	18.3	20.4	20.7

Data Source: Special analyses, Medicare 5 percent sample. Medicare patients aged 65 & older with CKD & diabetes mellitus. Abbreviations: CKD, chronic kidney disease; A1c, glycosylated hemoglobin.

Incidence of End-stage Renal Disease

Since 2006, the rate of new cases of ESRD has been slowly declining, although at 358.2 new cases per million population (PMP) it still remains above the target rate of 344.3. As shown in Table 2.5, substantial variation in the incidence of ESRD across race and ethnicity remains a persistent challenge. Consistent with previous years, higher rates of incident ESRD were seen among Blacks (906.5 new cases per million) and Native Hawaiians/Pacific Islanders (2,512.1 new cases per million) as compared to Whites (288.2 new cases per million) and Asians (321.2 new cases per million). The most substantial decrease was observed among Blacks, where incidence decreased to 906.5 new cases per million from 932.3 new cases per million in 2013, although levels remain far in excess of the target.

It should be noted that the extraordinarily high rates among Native Hawaiians and Pacific Islanders may have been due in part to differential race reporting between the Census Bureau and the ESRD Medical Evidence Report forms (CMS 2728; ME) data collections. Although in the Census one-half of Native Hawaiians and Pacific Islanders self-identified as of multiple races, only 7% did so in the ME. The rate of incident ESRD among Hispanics (491.3 per million) was approximately 35% greater than among non-Hispanics (360.1 per million). This represents an approximately 10% narrowing of the gap from 2013.

Rates across the sexes remained fairly stable, with 453.9 new cases PMP among men and 279.6 cases per million among women, a gap of nearly 62%. This represents an overall gap increase as compared to 2001 levels, when males had a rate only 45% higher than females.

Kidney Failure Due to Diabetes

Overall there has been a decline in the rate of kidney failure due to diabetes (DM) over the past decade. However, the trend appears to have flattened over the past four years, and in 2014 the rate of 158.9 PMP remained above the HP2020 target of 150.6 .

The rates varied widely by race, and were markedly higher in Blacks as compared to Whites (391.6 versus 133.6 per million). However, it is notable that the rates in Blacks have decreased by 21.1% since 2005, compared to nearly unchanged rates in Whites. The extraordinarily high rates among Native Hawaiians and Pacific Islanders may have been due in part to differential race reporting between the Census Bureau and the ESRD Medical Evidence Report forms (CMS 2728; ME) data collections. In 2014, males continued to have a higher rate of diabetic kidney failure than did females, at 196.5 compared with 127.0 PMP. In recent years this difference has widened, as the rate in females has been decreasing while that of males has been relatively flat.

vol 2 Table 2.5 HP2020 CKD-8 Reduce the rate of new cases of end-stage renal disease (ESRD): Target 344.3 new cases per million population

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
All	387.7	388.4	388.7	388.2	390.9	398.6	390.9	386.5	389.4	381.7	365.5	359.4	359.6	358.2
Race														
American Indian or Alaska Native	709.2	671.9	623.2	634.1	608.9	526.5	540.1	544.4	528.5	489.1	457.8	465.1	413.2	405.4
Asian	319.4	312.8	305.3	282.7	337.4	355.7	357.9	355.8	365.3	354.7	346.9	337.3	333.8	321.2
Native Hawaiian or Pacific Islander~	3432.2	3551.6	3554.6	3762.6	2897.8	2848.4	2400.4	2205.3	2431.2	2608.0	2369.2	2548.4	2581.3	2512.1
Black/African American	1125.8	1133.1	1132.5	1094.2	1103.2	1114.0	1091.7	1073.2	1072.0	1032.0	991.8	947.5	932.3	906.5
White	292.1	293.2	293.9	298.8	302.2	312.0	306.7	304.1	307.5	304.2	291.0	287.0	288.0	288.2
Two or more races	.	.	.	.	.	145.8	147.8	158.6	145.1	140.9	114.2	13.3	.	2.3
Ethnicity														
Hispanic/Latino	642.4	651.1	653.6	629.3	608.3	610.0	593.0	588.6	584.7	577.9	566.2	531.3	522.9	491.3
Non-Hispanic	372.1	372.3	373.0	374.0	376.7	382.2	375.6	372.1	376.8	369.6	354.2	354.4	357.3	360.1
Non-Hispanic Black/African American	1141.9	1151.0	1149.2	1107.5	1118.5	1131.1	1110.7	1091.8	1091.8	1052.6	1012.2	970.5	957.5	934.4
Non-Hispanic White	268.6	267.5	267.4	273.4	275.4	281.1	275.6	271.9	275.1	270.7	256.9	256.1	257.4	260.4
Sex														
Male	463.5	469.7	469.3	477.0	483.1	493.9	486.5	483.6	488.5	480.4	463.5	469.7	469.3	477.0
Female	327.0	323.6	324.6	317.1	317.3	322.1	314.7	308.9	310.2	302.4	327.0	323.6	324.6	317.1
Age														
<18	11.5	11.9	12.0	12.6	12.5	11.5	12.3	12.3	12.0	11.6	11.7	11.6	11.4	10.8
0-4	8.8	7.8	9.3	10.8	9.9	8.9	10.9	10.2	10.8	11.1	11.1	11.2	11.2	10.7
5-11	7.5	8.9	7.6	8.0	7.8	6.6	7.0	7.8	7.2	7.2	6.9	7.5	7.7	7.1
12-17	18.3	18.7	19.5	19.5	19.9	19.3	19.6	19.2	18.5	17.1	17.6	16.6	15.9	15.3
18-44	112.3	111.7	110.9	112.3	117.0	120.8	119.3	118.6	122.2	118.7	115.1	113.7	114.8	118.9
18-24	43.6	41.7	41.7	39.8	42.3	43.4	42.9	41.4	40.5	39.7	39.5	36.0	37.1	34.4
25-44	136.4	136.2	135.1	137.7	143.1	147.9	146.1	145.7	150.8	146.3	141.6	140.9	142.0	148.5
45-64	614.8	604.9	606.5	599.8	599.5	611.1	597.0	592.3	592.1	574.7	555.7	556.0	555.1	552.6
45-54	389.0	387.7	390.0	387.7	385.2	402.3	389.8	386.1	388.4	373.1	371.7	368.8	380.9	382.8
55-64	840.7	822.1	823.0	811.8	813.7	819.9	804.2	798.5	795.9	776.3	739.7	743.2	729.2	722.4
65+	1582.9	1627.6	1618.0	1613.5	1629.4	1655.0	1622.0	1598.2	1608.1	1599.4	1519.5	1458.9	1456.9	1424.7
65-74	1437.7	1427.1	1408.5	1398.8	1383.9	1413.6	1378.3	1350.7	1357.9	1351.4	1269.0	1236.3	1241.6	1225.1
75-84	1760.4	1856.6	1848.4	1846.9	1891.6	1914.1	1877.1	1853.3	1864.2	1859.7	1785.7	1696.5	1694.5	1647.2
85+	1261.5	1342.2	1408.6	1427.1	1462.7	1478.9	1508.4	1522.4	1548.2	1477.0	1363.0	1309.6	1235.1	1196.2

Data Source: Special analyses, USRDS ESRD Database and CDC Bridged Race Intercensal Estimates Dataset, Incident ESRD patients. Rates adjusted for: overall, age/sex/race; rates by age adjusted for sex/race; rates by sex adjusted for age/race; rates by race/ethnicity adjusted for age/sex. Reference: 2012 patients. “.” Zero values in this cell. ~Estimate shown is imprecise due to small sample size and may be unstable over time. Abbreviations: CDC, Centers for Disease Control and Prevention; CKD, chronic kidney disease; ESRD, end-stage renal disease.

**vol 2 Table 2.6 HP2020 CKD-9.1 Reduce kidney failure (or end-stage renal disease, ESRD) due to diabetes:
Target 150.6 per million population**

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
All	177.8	174.9	174.2	174.0	173.8	177.3	171.4	168.7	169.3	166.7	159.7	157.6	158.8	158.9
Race														
American Indian or Alaska Native	526.0	494.3	469.6	478.2	430.0	367.7	379.6	390.0	382.6	347.6	321.3	322.6	298.6	288.6
Asian	151.6	142.3	139.8	128.8	159.6	177.2	173.0	180.1	180.4	172.3	173.1	169.9	172.1	168.4
Native Hawaiian or Pacific Islander~	2196.7	1990.6	2003.8	2301.3	1692.7	1740.0	1499.4	1330.4	1528.7	1643.2	1447.7	1518.4	1662.9	1607.
Black/African American	525.7	519.7	511.3	496.1	496.5	501.7	477.8	473.2	470.8	455.7	435.6	411.0	400.4	391.6
White	133.3	131.9	132.3	134.3	135.0	139.6	136.2	133.9	135.0	134.3	129.2	129.7	132.5	133.6
Two or more races	.	.	.	.	.	73.5	80.4	78.0	75.9	69.3	58.4	6.2	.	*
Ethnicity														
Hispanic/Latino	410.0	411.0	412.1	398.9	378.5	376.8	366.6	366.6	358.9	355.2	346.5	323.2	316.7	299.8
Non-Hispanic Non-Hispanic Black/African American	164.3	161.4	160.7	161.5	161.4	163.9	158.5	156.0	157.5	154.9	148.2	147.5	149.3	150.7
Non-Hispanic White	532.6	526.9	517.7	501.6	503.5	508.9	485.8	480.9	479.3	464.4	443.8	420.5	410.1	402.8
Non-Hispanic White	114.5	112.1	111.7	114.1	114.2	116.4	112.9	109.2	110.3	109.1	103.5	105.6	108.6	110.6
Sex														
Male	194.2	194.8	194.8	200.2	201.5	206.5	202.0	200.4	202.8	200.4	193.4	190.8	194.3	196.5
Female	163.8	158.1	156.9	152.1	150.5	152.6	145.7	142.2	141.3	138.3	131.3	129.3	128.7	127.0
Age														
<18	0.1	0.1	*	0.1	0.1	*	*	*	*	0.1	*	0.1	0.1	0.1
0-4	*	*	*	*	*	*	*	*	*	*	*	*	*	0.4
5-11	.	*	.	.	*	.	.	*	.	.	.	*	.	.
12-17	*	*	*	*	0.2	*	*	*	*	*	*	*	*	.
18-44	33.6	32.7	33.4	34.3	35.1	38.3	37.8	37.6	39.8	39.6	39.7	38.1	39.2	41.6
18-24	3.6	2.9	2.9	2.1	3.1	3.2	2.7	2.4	2.6	2.5	2.2	2.5	2.6	1.9
25-44	44.0	43.1	44.1	45.5	46.3	50.5	50.1	49.9	52.9	52.5	52.8	50.6	52.0	55.5
45-64	343.5	333.1	328.7	323.3	321.9	323.2	309.7	307.8	306.4	294.7	281.7	283.8	280.9	279.6
45-54	191.0	188.5	186.7	184.7	182.1	189.2	178.8	178.2	179.9	175.3	173.5	175.1	181.8	181.7
55-64	495.9	477.7	470.7	461.9	461.7	457.2	440.6	437.4	432.8	414.1	389.8	392.5	380.0	377.5
65+	679.8	690.3	684.3	691.3	694.0	706.5	690.9	673.5	672.8	678.9	647.0	616.0	627.4	619.8
65-74	749.1	736.2	729.1	723.1	711.2	725.3	697.4	677.2	674.3	668.2	631.7	612.1	620.0	609.6
75-84	650.9	683.8	676.0	694.0	713.4	722.3	716.8	699.5	699.6	719.4	691.2	646.6	664.3	658.8
85+	275.2	297.4	319.8	345.7	328.9	359.8	366.8	376.3	389.5	381.6	358.0	349.2	331.9	332.5

Data Source: Special analyses, USRDS ESRD Database and CDC Bridged Race Intercensal Estimates Dataset, Incident ESRD patients. Adjusted for age/sex/race; reference: 2012. "." Zero values in this cell. *Values for cells with 10 or fewer patients are suppressed. ~Estimate shown is imprecise due to small sample size and may be unstable over time. Abbreviations: CDC, Centers for Disease Control and Prevention; CKD, chronic kidney disease; ESRD, end-stage renal disease.

In 2014 the adjusted rate of kidney failure due to DM was 2,282 PMP (adjustment by age, sex, and race; see Table 2.7). While this represents the fifth consecutive year that the rate was below the HP2020 target of 2,380.5, it was notable that the overall rate had somewhat leveled off over the past several years. 2014 rates varied among races, and remained highest in Blacks with DM at 3,531 per million in 2014, compared to 2033 per million in their White counterparts. However, the rate in Blacks with diabetes has steadily improved—the 2014 rate represents a 21.1% overall decrease from 2007.

Nephrologist Care

At 35.0%, the proportion of CKD patients in 2014 receiving care from a nephrologist at least 12 months before the start of renal replacement therapy exceeded the HP2020 goal of 29.8%, and reflected an approximately 10% increase from the 25.7% seen in 2005 (Table 2.8). Percentages by ethnicity were lowest among Hispanics and Latinos, at 27.0%. Variations by race continued to be observed, with Whites (36.7%) and Asians (35.5%) having a greater proportion than Blacks (30.8%) and Native Hawaiians and Pacific Islanders (32.3%). While overall percentages have increased, the gap between lowest and highest has remained fairly consistent, increasing slightly from a 5.2% difference in 2005 to 5.9% in 2014. Even broader variation was observed by age, with the proportions ranging from 29.3% among those aged 18-44 to 42.7% among those under age 18. In contrast to the differences seen by race and age, percentages of pre-ESRD nephrologist care were similar by sex, at 34.7% among males and 35.3% among females.

vol 2 Table 2.7 HP2020 CKD-9.2 Reduce kidney failure (or end-stage renal disease, ESRD) due to diabetes among persons with diabetes: Target 2,380.5 per million population

	2007	2008	2009	2010	2011	2012	2013	2014
All	2616	2486	2401	2344	2271	2260	2289	2282
Race								
American Indian or Alaska Native	2559	2926	2931	2594	2246	2286	2029	1729
Asian	2067	2185	2207	2106	2070	2159	2303	2268
Native Hawaiian or Pacific Islander~	.	.	.	.	.	.	.	.
Black/African American	4476	4335	4242	3978	3820	3696	3569	3531
White	2276	2138	2047	2025	1971	1979	2029	2033
Two or more races	610	553	517	484	463	49	*	*
Ethnicity								
Hispanic/Latino	3313	3177	2960	2898	2900	2799	2786	2666
Non-Hispanic	2518	2391	2321	2261	2179	2172	2205	2210
Non-Hispanic Black/African American	4686	4528	4473	4191	4057	3901	3757	3738
Non-Hispanic White	2049	1899	1822	1799	1729	1759	1821	1841
Sex								
Male	2927	2744	2621	2541	2521	2534	2598	2594
Female	2327	2235	2177	2139	2019	1987	1983	1966
Age								
<18	*	*	30	35	*	38	42	66
0-4	.	.	.	.	.	.	.	.
5-11	*	.	.	.	.	*	.	*
12-17	*	*	*	*	*	*	*	*
18-44	1613	1531	1507	1461	1557	1511	1557	1700
18-24	341	268	285	290	334	294	285	214
25-44	1748	1677	1642	1578	1665	1646	1709	1885
45-64	2377	2257	2195	2134	2068	2111	2120	2122
45-54	2005	1846	1854	1864	1875	1883	1954	1953
55-64	2643	2571	2436	2308	2179	2252	2219	2219
65+	3101	2939	2800	2720	2574	2503	2551	2476
65-74	3186	2990	2894	2771	2619	2559	2616	2535
75-84	3351	3156	2934	2873	2799	2717	2848	2741
85+	1946	2073	1976	2073	1765	1696	1505	1502

Data Source: Special analyses, USRDS ESRD Database and CDC Bridged Race Intercensal Estimates Dataset, Incident ESRD patients. Adjusted for age/sex/race; Ref: 2012. National Health Interview Survey 2006–2015 used to estimate diabetes mellitus prevalence. “. ” Zero values in this cell; *Values for cells with 10 or fewer patients are suppressed. Abbreviations: CDC, Centers for Disease Control and Prevention; CKD, chronic kidney disease; ESRD, end-stage renal disease; Ref, reference.

vol 2 Table 2.8 HP2020 CKD-10 Increase the proportion of chronic kidney disease patients receiving care from a nephrologist at least 12 months before the start of renal replacement therapy: Target 29.8%

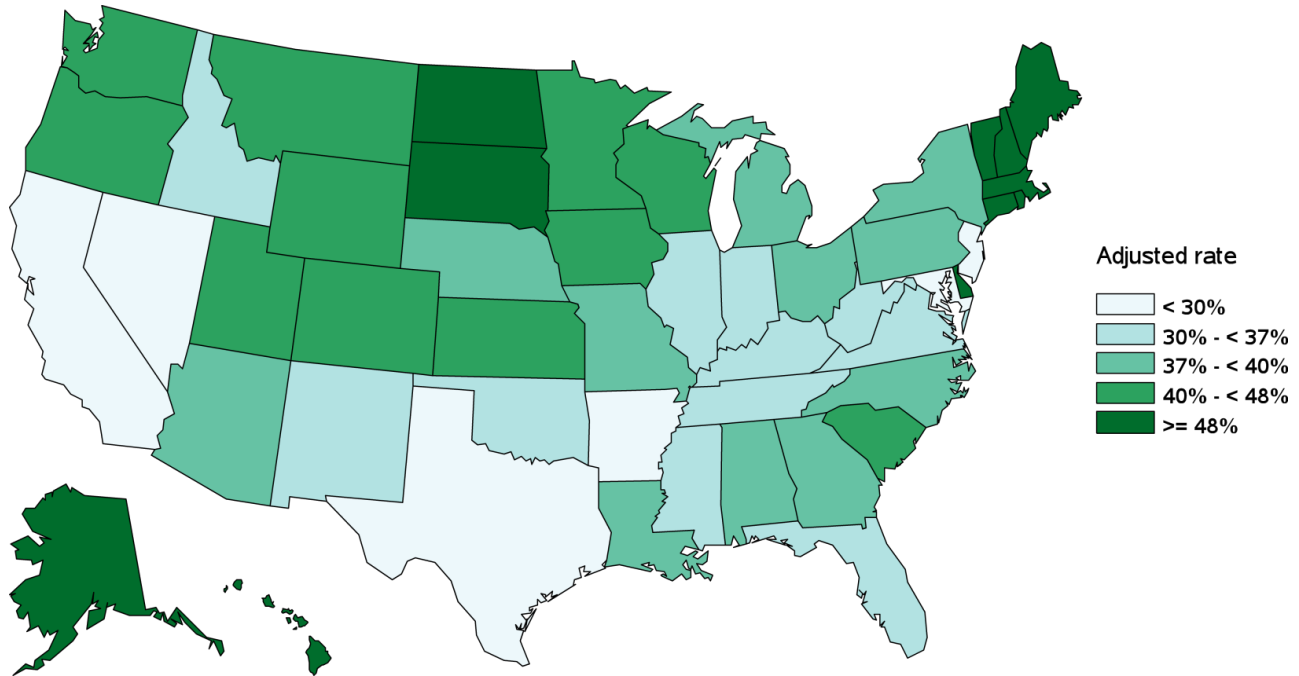
	2005 (%)	2006 (%)	2007 (%)	2008 (%)	2009 (%)	2010 (%)	2011 (%)	2012 (%)	2013 (%)	2014 (%)
All	25.7	26.4	27.3	28.6	28.6	29.5	31.0	33.1	34.2	35.0
Race										
American Indian or Alaska Native	25.2	27.3	26.0	27.9	26.8	23.8	27.6	30.4	30.2	30.4
Asian	25.8	23.9	26.5	27.5	29.1	29.7	31.4	31.8	35.4	35.5
Native Hawaiian or Pacific Islander	23.5	25.1	24.0	22.5	23.9	25.3	26.9	27.3	29.9	32.3
Black/African American	22.1	23.2	24.0	24.7	24.9	25.5	27.2	29.6	30.2	30.8
White	27.3	27.9	28.8	30.3	30.1	31.3	32.7	34.7	35.9	36.7
Two or more races	22.9	22.7	24.6	29.1	28.5	31.7	31.5	31.0	*	*
Ethnicity										
Hispanic/Latino	20.0	21.2	21.2	22.2	22.5	23.6	25.0	25.6	27.0	27.0
Non-Hispanic	26.6	27.2	28.2	29.6	29.5	30.5	32.1	34.4	35.4	36.3
Non-Hispanic Black/African American	22.1	23.2	24.0	24.7	25.0	25.6	27.2	29.7	30.3	30.9
Non-Hispanic White	28.8	29.4	30.5	32.2	32.0	33.2	34.7	37.0	38.2	39.2
Sex										
Male	26.1	26.5	27.3	28.3	28.3	29.6	30.7	33.1	34.1	34.7
Female	25.3	26.4	27.3	28.8	28.8	29.5	31.3	33.0	34.3	35.3
Age										
<18	39.6	35.6	34.6	39.0	38.8	36.5	44.1	40.8	46.5	42.7
0-4	24.0	20.6	25.0	25.9	22.7	22.3	25.4	27.8	28.3	24.7
5-11	49.5	47.9	40.9	51.2	47.6	47.1	59.1	51.7	57.9	52.4
12-17	41.6	36.3	36.2	39.4	41.5	38.1	46.3	42.1	49.6	47.1
18-44	23.2	22.9	23.5	24.3	23.9	24.2	25.6	27.8	27.6	29.3
18-24	24.2	23.0	24.5	23.9	24.4	25.2	27.2	26.5	27.2	30.1
25-44	23.1	22.9	23.4	24.4	23.8	24.1	25.4	27.9	27.6	29.3
45-64	25.7	26.1	26.6	27.3	27.4	27.9	29.4	31.1	32.1	32.3
45-54	24.0	24.9	25.5	25.2	25.8	26.2	28.4	29.5	30.6	31.2
55-64	26.8	26.9	27.4	28.6	28.4	29.0	30.1	32.1	33.1	33.0
65+	26.2	27.5	28.6	30.5	30.5	32.0	33.4	35.8	37.3	38.3
65-74	27.1	28.4	28.9	30.6	30.7	32.1	33.4	35.6	36.7	38.0
75-84	25.9	27.3	28.9	31.2	30.9	32.7	33.9	36.6	38.4	38.9
85+	22.9	24.1	26.7	27.5	28.3	29.7	31.5	33.9	36.3	37.8

Data Source: Special analyses, USRDS ESRD Database. Incident patients with a valid ESRD Medical Evidence CMS 2728 form; nephrologist care determined from Medical Evidence form. Abbreviations: CMS, Centers for Medicare and Medicaid Services; CKD, chronic kidney disease; ESRD, end-stage renal disease.

Substantial geographic variation was also observed in the proportion of chronic kidney disease patients receiving care from a nephrologist at least 12 months before the start of renal replacement therapy (Figure 2.1). While more than 80% of U.S. states met or exceeded the HP2020 target of 29.8% in 2014,

percentages varied by over 50% from the lowest quintile to the highest quintile. In general, the highest percentages of patients receiving this care were observed in the North Atlantic and Northern Plains regions, with the lowest occurring in the Mid-South and Southern Plains states.

vol 2 Figure 2.1 HP2020 CKD-10 Geographic distribution of the adjusted proportion of chronic kidney disease patients receiving care from a nephrologist at least 12 months before the start of renal replacement therapy, by state, in the U.S. population, 2014: Target 29.8%



Data Source: Special analyses, USRDS ESRD Database. Incident hemodialysis patients with a valid ESRD Medical Evidence CMS 2728 form; nephrologist care determined from Medical Evidence form. Adjusted for age, sex, and race. Abbreviations: CDC, Centers for Disease Control and Prevention; CKD, chronic kidney disease; ESRD, end-stage renal disease.

Vascular Access

In the 2015 ADR we introduced data from CROWNWeb, a dialysis data reporting system launched in 2012. Prior to the 2015 ADR, data regarding vascular access was derived from the ESRD Clinical Performance Measures (CPM) Project, which only collected this information through 2007. Vascular access is an important aspect of hemodialysis care, and arteriovenous (AV) fistulas are considered and are established as the primary access of choice. The HP2020 CKD Objective 11.1 examines the use of AV fistulas among prevalent hemodialysis patients (see Table 2.9).

In 2014, 63.9% of prevalent adult hemodialysis patients were using an AV fistula as their primary access, more than double the proportion reported in ESRD CPM data for 2000 (29.9%) and well above the last available ESRD CPM data from 2007 (49.6%; USRDS, 2012). This overall prevalence exceeded the previous HP2020 target of 50.6%, although comparisons should be made with caution as this target was derived from a different data source (ESRD CPM). Importantly, the trend of increasing AV fistula usage was observed across all race and ethnicity groups, in both males and females, and across all age groups. The only subgroup that fell just below the HP2020 target was that of patients aged 85 years and older, of whom 49.6% used AV fistulas as their primary access.

In comparison to AV fistulas, reliance on hemodialysis catheters as primary vascular access is associated with increased morbidity and mortality. HP2020 CKD objective 11.2 aims to reduce the proportion of hemodialysis patients that are dependent on catheters. Data for this objective was also obtained from CROWNWeb and thus interpretation of target achievement may be limited, as the former HP2020 target was derived from a different data source (ESRD CPM Project).

In 2014, 16.3% of prevalent adult hemodialysis patients were using catheters as the primary mode of access. This reversed the decrease seen between 2012 and 2013, and represents a 12.4% increase compared to 2013 (Table 2.10). However, this remains a significant improvement compared to the most recent data from the ESRD CPM Project which showed that 27.7% of hemodialysis patients were using a catheter in 2007. Consistent with the percentages seen for HP2020 CKD Objective 11.1, the only subgroup that did not meet the HP2020 target was that of patients aged 85 years and older, of whom 27.0% used catheters as their primary access.

vol 2 Table 2.9 HP2020 CKD-11.1: Increase the proportion of adult hemodialysis patients who use arteriovenous fistulas as the primary mode of vascular access: Previous data source target 50.6%

	2012	2013	2014
All	62.1	63.5	63.9
Race			
American Indian or Alaska Native	72.2	75.0	75.5
Asian	67.0	68.3	68.5
Native Hawaiian or Pacific Islander	65.4	68.4	68.7
Black/African American	57.4	58.7	59.1
White	64.4	65.9	66.2
Two or more races	69.8	69.8	71.0
Ethnicity			
Hispanic/Latino	67.8	68.7	69.0
Non-Hispanic	60.8	62.3	62.8
Non-Hispanic Black/African American	57.3	58.6	59.1
Non-Hispanic White	62.9	64.6	65.0
Sex			
Male	68.4	69.5	69.7
Female	54.0	55.8	56.4
Age			
18-44	66.0	66.8	67.2
18-24	65.2	67.0	68.1
25-44	66.1	66.8	67.1
45-64	64.0	65.4	65.8
45-54	65.7	66.9	67.5
55-64	62.7	64.3	64.6
65+	57.9	59.7	60.2
65-74	60.0	61.7	62.2
75-84	56.6	58.2	59.0
85+	46.9	49.5	49.6

Data Source: Special analyses, CROWNWeb. Prevalent hemodialysis patients with a valid ESRD Medical Evidence CMS 2728 form, vascular access type determined from CROWNWeb. Abbreviations: CMS, Centers for Medicare and Medicaid Services; CKD, chronic kidney disease; ESRD, end-stage renal disease.

vol 2 Table 2.10 HP2020 CKD-11.2: Reduce the proportion of adult hemodialysis patients who use catheters as the only mode of vascular access: Previous data source target 26.1%

	2012	2013	2014
All	15.1	14.5	16.3
Race			
American Indian or Alaska Native	12.3	11.4	12.6
Asian	13.1	12.7	13.5
Native Hawaiian or Pacific Islander	14.3	14.1	14.5
Black/African American	14.3	13.7	15.2
White	16.0	15.3	17.3
Two or more races	9.6	9.2	8.1
Ethnicity			
Hispanic/Latino	13.1	12.8	14.6
Non-Hispanic	15.6	14.9	16.6
Non-Hispanic Black/African American	14.3	13.6	15.2
Non-Hispanic White	17.3	16.4	18.5
Sex			
Male	13.2	12.8	14.5
Female	17.6	16.7	18.5
Age			
18-44	14.4	13.8	15.5
18-24	17.3	15.7	16.7
25-44	14.1	13.6	15.3
45-64	14.0	13.4	15.1
45-54	13.3	12.7	14.3
55-64	14.6	13.9	15.6
65+	16.8	16.2	18.0
65-74	15.2	14.6	16.8
75-84	17.6	16.9	18.3
85+	26.6	25.2	27.0

Data Source: Special analyses, CROWNWeb. Prevalent hemodialysis patients with a valid ESRD Medical Evidence CMS 2728 form, vascular access type determined from CROWNWeb. Abbreviations: CMS, Centers for Medicare and Medicaid Services; CKD, chronic kidney disease; ESRD, end-stage renal disease.

Transplantation

Programs such as HP2020 and the Fistula First Initiative continue to work to increase the use of fistulas, and to promote early placement prior to initiation of ESRD therapy. In 2014, 35.7% of incident hemodialysis patients had a maturing arteriovenous fistula or were using one as their primary vascular access. This represents a 4.0% decrease from 2013, but remains a 14.4% increase from 2005, above the HP2020 target of 34.5% (see Table 2.11). This marks the fourth consecutive year that the target for this objective was met.

In 2014, the proportions of arteriovenous fistula use or maturing fistula did not meet the HP2020 target among males (32.0%), Hispanics (33.0%), Native Hawaiian or Pacific Islanders (34.0%), and Blacks (34.3%). By age group, patients aged 65-74 had the highest proportion at 37.4%, compared to 27.3% in patients aged 18-24 and 32.4% in patients aged 25-44. The proportion was also below the HP2020 target among patients aged 85 or older (29.4%).

The proportion of ESRD patients younger than age 70 who were wait-listed or received a kidney transplant from a deceased donor within one year of initiating dialysis therapy slightly decreased between 2013 (17.5%) and 2014 (17.1%; Table 2.12). Across race categories, the target was only exceeded by Asians (30.8%) and non-Hispanic Whites (18.6%). Additionally, males (18.3%) were much closer to the target than females (15.6%). Groups furthest from the target included American Indians or Alaska Natives (9.0%), those aged 65-69 (11.7%), and Blacks (14.3%). Gaps between groups with the highest and lowest percentages have remained fairly stable, showing only minor decreases over time.

At 13.7%, the proportion of 2011 patients younger than age 70 who received a kidney transplant within three years of starting ESRD therapy remained well below the HP2020 target of 19.7% (see Table 2.13). This continues the slow but consistent decrease observed since 1998, when 20.0% of patients received a transplant within three years of initiating ESRD therapy.

Rates were lowest among American Indians and Alaska Natives (6.4%) and Blacks (7.2%) and were highest among Whites (16.8%) and Asians (17.0%). At 14.2%, males were slightly more likely to receive a transplant as compared to females at 12.9%. The percentage of patients receiving transplants decreased with age, from 74.2% in pediatric patients to 7.9% among those aged 65-69.

vol 2 Table 2.11 HP2020 CKD-11.3 Increase the proportion of adult hemodialysis patients who use arteriovenous fistulas or have a maturing fistula as the primary mode of vascular access at the start of renal replacement therapy: Target 34.5%

	2005 (%)	2006 (%)	2007 (%)	2008 (%)	2009 (%)	2010 (%)	2011 (%)	2012 (%)	2013 (%)	2014 (%)
All	31.2	32.0	31.7	31.2	32.3	33.8	35.1	36.6	37.2	35.7
Race										
American Indian or Alaska Native	36.3	39.0	37.7	41.2	41.5	41.1	40.4	40.7	42.5	40.2
Asian	35.9	37.6	35.1	35.9	35.5	37.3	37.0	37.9	41.4	38.3
Native Hawaiian or Pacific Islander	41.0	34.5	35.3	32.9	32.4	32.6	36.0	37.4	40.1	34.0
Black/African American	28.5	29.4	29.9	29.2	30.6	32.1	34.0	35.8	35.7	34.3
White	32.0	32.8	32.2	31.7	32.7	34.2	35.3	36.8	37.4	36.1
Two or more races	25.9	36.4	33.2	28.5	35.4	37.9	39.0	44.7	*	*
Ethnicity										
Hispanic/Latino	31.5	32.4	29.9	29.7	31.0	32.7	33.4	34.1	34.8	33.0
Non-Hispanic	31.2	32.0	32.0	31.5	32.5	34.0	35.4	37.0	37.6	36.2
Non-Hispanic Black/African American	28.4	29.3	29.8	29.2	30.6	32.0	33.9	35.8	35.7	34.3
Non-Hispanic White	32.1	32.9	32.8	32.3	33.2	34.8	36.0	37.6	38.3	37.1
Sex										
Male	35.0	35.2	34.9	33.9	34.9	36.3	37.8	39.0	32.7	32.0
Female	26.4	28.0	27.6	27.7	28.9	30.4	31.4	33.3	39.2	37.8
Age										
18-44	29.5	29.5	28.1	27.4	29.2	30.8	31.6	32.2	34.4	32.8
18-24	26.0	22.6	20.8	20.9	22.6	23.4	24.8	25.5	27.4	27.3
25-44	29.9	30.2	28.9	28.1	29.8	31.5	32.3	32.9	33.3	32.4
45-64	33.3	33.4	32.6	32.5	33.1	34.3	35.8	37.6	37.7	36.2
45-54	32.4	33.1	32.3	32.1	32.8	33.9	35.8	36.9	37.2	35.8
55-64	33.9	33.6	32.9	32.7	33.4	34.5	35.8	38.0	38.0	36.4
65+	30.0	31.6	31.8	31.1	32.4	34.1	35.2	36.7	37.7	36.1
65-74	31.8	33.6	34.1	33.0	34.3	35.9	37.0	38.8	39.2	37.4
75-84	29.5	30.7	30.7	30.9	32.0	33.9	35.0	36.1	37.8	36.3
85+	23.8	25.2	25.4	24.3	25.4	26.8	28.5	29.1	30.1	29.4

Data Source: Special analyses, USRDS ESRD Database. Incident hemodialysis patients aged 18 & older. Abbreviation: CKD, chronic kidney disease.

vol 2 Table 2.12 HP2020 CKD-12 Increase the proportion of dialysis patients waitlisted and/or receiving a kidney transplant from a deceased donor within 1 year of end-stage renal disease (ESRD) start (among patients under 70 years of age): Target 18.4% of dialysis patients

	2000 (%)	2001 (%)	2002 (%)	2003 (%)	2004 (%)	2005 (%)	2006 (%)	2007 (%)	2008 (%)	2009 (%)	2010 (%)	2011 (%)	2012 (%)	2013 (%)	2014 (%)
All	15.2	14.5	14.4	14.5	15.3	15.9	16.9	17.0	16.8	17.1	16.8	17.4	17.4	17.5	17.1
Race															
American Indian or Alaska Native	13.0	9.5	10.1	9.5	10.2	10.9	10.3	11.5	10.6	11.4	11.4	11.1	12.2	12.1	9.0
Asian	26.9	28.7	27.9	28.4	32.2	28.2	31.3	30.7	31.1	31.9	31.6	32.7	31.9	33.0	30.8
Native Hawaiian or Pacific Islander	17.6	17.2	18.5	19.6	18.1	16.3	15.0	14.7	14.1	14.8	15.0	14.5	16.5	18.1	15.4
Black/African American	11.1	10.5	10.6	10.5	11.6	12.0	13.1	13.3	13.2	13.8	13.8	14.4	14.7	14.7	14.3
White	17.0	16.2	16.1	16.3	16.7	17.6	18.5	18.5	18.2	18.2	17.7	18.3	18.3	18.3	18.1
Two or more races						14.2	19.4	13.7	23.4	23.9	22.9	18.0	*	*	*
Ethnicity															
Hispanic/Latino	12.9	12.6	13.1	13.7	14.4	15.9	17.7	17.8	17.6	18.1	17.4	18.4	17.7	17.7	16.4
Non-Hispanic	15.5	14.7	14.6	14.6	15.4	15.8	16.7	16.7	16.6	16.8	16.6	17.1	17.2	17.3	17.1
Non-Hispanic Black/African American	11.2	10.4	10.6	10.5	11.5	11.9	13.0	13.2	13.2	13.8	13.8	14.4	14.7	14.6	14.3
Non-Hispanic White	18.0	17.0	16.8	16.7	17.2	18.1	18.7	18.8	18.3	18.2	17.8	18.2	18.4	18.5	18.6
Sex															
Male	16.4	15.2	15.6	15.5	16.4	16.9	17.9	17.8	17.5	18.0	17.6	18.2	18.4	18.3	18.3
Female	13.4	13.3	12.6	12.9	13.6	14.3	15.3	15.7	15.7	15.7	15.7	16.2	16.2	16.6	15.6
Age															
<18	41.3	40.1	40.8	49.8	45.5	53.9	59.5	56.9	60.7	58.8	56.1	54.4	56.8	57.0	59.1
0-4	23.5	26.7	31.1	43.6	32.7	35.4	43.0	36.7	42.7	46.2	40.2	35.7	34.2	34.7	31.6
5-11	40.6	48.8	44.4	50.0	51.1	64.2	64.3	66.5	69.1	65.3	58.8	61.6	63.2	67.9	71.1
12-17	47.3	39.8	41.6	51.5	47.4	54.9	63.3	60.5	63.9	61.1	61.7	59.5	64.2	62.1	67.8
18-44	26.3	25.1	24.4	23.6	25.2	25.0	26.3	25.7	25.4	25.7	25.0	26.7	25.5	26.2	25.9
18-24	30.8	29.1	30.3	29.1	33.2	28.6	32.5	32.4	29.9	32.5	32.1	32.3	33.1	36.1	36.0
25-44	26.0	24.8	23.8	23.1	24.5	24.7	25.7	25.1	25.0	25.1	24.3	26.1	24.8	25.2	25.0
45-64	14.1	13.4	13.3	13.5	14.1	14.6	15.6	15.8	15.5	15.8	15.6	16.2	16.6	16.3	15.7
45-54	18.2	17.3	17.0	16.6	16.8	16.9	18.3	18.5	17.3	18.2	17.8	18.4	18.8	18.5	17.9
55-64	11.1	10.5	10.6	11.4	12.1	13.1	13.8	14.0	14.3	14.1	14.2	14.7	15.2	14.9	14.3
65+	5.0	5.3	6.0	6.2	7.5	8.0	9.0	9.3	9.9	10.9	10.9	10.7	10.8	11.7	11.7
65-69	5.0	5.3	6.0	6.2	7.5	8.0	9.0	9.3	9.9	10.9	10.9	10.7	10.8	11.7	11.7

Data Source: Special analyses, USRDS ESRD Database. Incident ESRD patients younger than age 70. Abbreviations: CKD, chronic kidney disease; ESRD, end-stage renal disease.

vol 2 Table 2.13 HP2020 CKD-13.1 Increase the proportion of patients receiving a kidney transplant within 3 years of end-stage renal disease (ESRD): Target 19.7%

	1998 (%)	1999 (%)	2000 (%)	2001 (%)	2002 (%)	2003 (%)	2004 (%)	2005 (%)	2006 (%)	2007 (%)	2008 (%)	2009 (%)	2010 (%)	2011 (%)
All	20.0	19.4	19.1	18.4	18.4	18.1	18.3	17.7	17.1	16.5	15.6	14.6	14.0	13.7
Race														
American Indian or Alaska Native	11.3	10.2	15.5	8.6	11.6	8.7	9.3	8.8	10.2	10.0	6.9	7.2	7.3	6.4
Asian	19.0	18.1	18.6	18.9	21.2	21.7	20.5	18.6	18.9	17.6	17.9	16.7	17.4	17.0
Native Hawaiian or Pacific Islander	12.1	12.9	8.3	12.7	12.4	11.8	12.6	9.9	9.7	10.5	10.9	8.4	7.4	8.0
Black/African American	9.8	9.5	9.8	8.8	9.6	9.2	10.0	9.6	9.0	9.0	8.6	7.7	7.6	7.2
White	26.2	25.2	24.6	23.8	23.3	22.9	22.7	22.1	21.4	20.6	19.3	18.1	17.1	16.8
Two or more races								16.4	16.4	14.4	17.6	17.3	15.0	17.4
Ethnicity														
Hispanic/Latino	16.5	14.8	15.2	14.6	14.5	14.7	14.9	15.0	14.7	13.9	12.8	11.8	11.3	11.4
Non-Hispanic Black/African American	9.7	9.4	9.8	8.8	9.5	9.2	9.9	9.5	8.9	8.9	8.6	7.7	7.6	7.2
Non-Hispanic White	28.3	27.8	26.9	26.3	25.9	25.3	25.0	24.4	23.7	23.0	21.7	20.4	19.4	19.0
Sex														
Male	22.0	21.1	20.5	19.8	20.0	19.7	19.6	19.1	18.5	17.4	16.2	15.2	14.4	14.2
Female	17.6	17.4	17.3	16.6	16.3	16.1	16.5	15.8	15.3	15.3	14.8	13.7	13.4	12.9
Age														
<18	72.1	74.3	71.8	71.9	73.2	77.4	75.5	76.2	78.0	78.4	76.5	77.9	73.8	74.2
0-4	73.2	80.3	74.3	73.8	76.6	80.5	77.5	74.0	77.5	75.5	68.8	76.0	70.1	68.6
5-11	77.1	76.2	73.2	80.9	78.3	81.7	82.9	81.9	82.1	87.1	85.6	83.1	79.3	85.2
12-17	69.2	71.7	70.6	66.9	69.6	74.7	71.7	74.7	76.8	76.2	75.8	76.8	73.0	72.2
18-44	33.6	32.6	31.3	30.2	29.9	28.8	29.2	27.7	26.6	25.2	23.8	22.4	21.7	21.3
18-24	44.3	42.6	43.6	42.4	39.9	42.1	41.8	40.3	37.1	35.1	33.1	33.9	34.0	30.2
25-44	32.4	31.5	30.0	28.8	28.7	27.3	27.9	26.2	25.4	24.1	22.7	21.2	20.4	20.2
45-64	16.3	15.7	15.9	15.3	15.1	15.0	15.1	14.9	14.5	14.0	13.2	12.3	11.8	11.5
45-54	21.0	20.1	20.2	19.5	18.4	18.4	18.5	17.5	17.1	16.9	15.5	14.8	13.8	13.3
55-64	12.5	12.1	12.4	11.9	12.5	12.4	12.6	13.1	12.6	12.0	11.6	10.6	10.5	10.3
65+	5.3	6.0	6.2	6.5	7.4	7.7	8.1	7.9	8.4	8.3	8.2	7.9	8.0	7.9
65-69	5.3	6.0	6.2	6.5	7.4	7.7	8.1	7.9	8.4	8.3	8.2	7.9	8.0	7.9

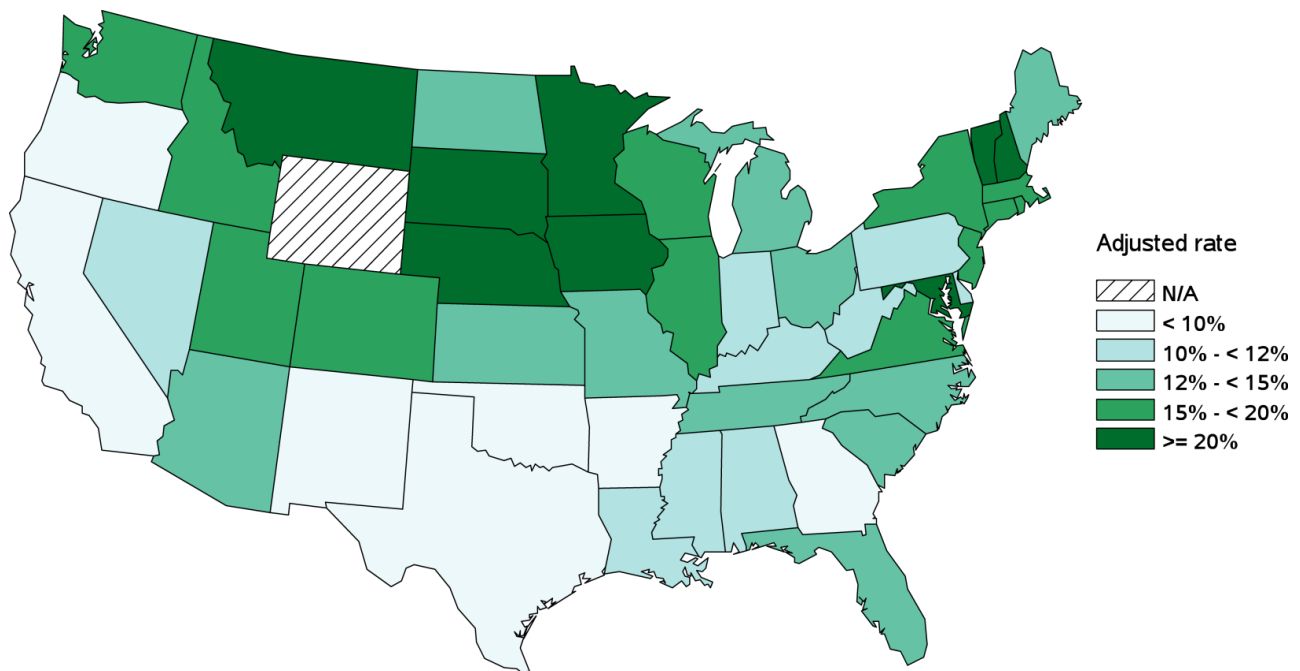
Data Source: Special analyses, USRDS ESRD Database. Incident ESRD patients younger than age 70. Abbreviations: CKD, chronic kidney disease; ESRD, end-stage renal disease.

Geographic variation in the proportion of patients receiving a kidney transplant within three years of ESRD was also observed (Figure 2.2). In 2011, just over 20% of U.S. states met or exceeded the HP2020 target of 19.7%; these were almost exclusively located in the North Atlantic and Northern Plains regions. States with the lowest percentages were generally observed throughout the South and in the West.

The percentage of patients receiving a preemptive transplant at the start of ESRD remained stable at

3.7% in 2014, consistent with the previous six years (see Table 2.14). Not surprisingly, preemptive transplants were most common in pediatric patients, reaching 31.6% among those aged five to 11. Proportions were slightly higher among females at 3.8%, as compared to males at 3.5%. Broad variation was observed by race, however, ranging from 1.0% among Blacks to 4.2% among Whites.

vol 2 Figure 2.2 HP2020 CKD-13.1 Geographic distribution of the adjusted proportion of patients receiving a kidney transplant within 3 years of end-stage renal disease (ESRD), by state, in the U.S. population, 2011: Target 19.7%



Data Source: Special analyses, USRDS ESRD Database. Incident ESRD patients younger than age 70. Adjusted for age, sex, and race. Alaska, Hawaii, and Wyoming are not reported due to small sample size. Abbreviation: CKD, chronic kidney disease.

vol 2 Table 2.14 HP2020 CKD-13.2 Increase the proportion of patients who receive a preemptive transplant at the start of end-stage renal disease (ESRD): No applicable target

	2001 (%)	2002 (%)	2003 (%)	2004 (%)	2005 (%)	2006 (%)	2007 (%)	2008 (%)	2009 (%)	2010 (%)	2011 (%)	2012 (%)	2013 (%)	2014 (%)
All	3.3	3.3	3.4	3.7	3.8	4.0	4.0	3.9	3.7	3.8	3.8	3.6	3.6	3.7
Race														
American Indian or Alaska Native	*	*	1.5	*	*	1.4	*	*	1.6	*	1.6	1.3	1.2	1.3
Asian	2.0	2.9	2.6	2.5	2.8	3.0	3.1	3.5	3.1	3.4	3.8	3.2	4.5	3.9
Native Hawaiian or Pacific Islander	*	*	*	*	*	1.5	1.9	2.7	1.9	1.2	*	*	*	1.2
Black/African American	0.6	0.7	0.7	0.8	0.9	1.0	1.1	1.1	1.1	1.2	1.2	1.0	1.1	1.0
White	4.2	4.2	4.1	4.6	4.9	5.1	5.2	5.0	4.7	4.7	4.8	4.5	4.3	4.2
Two or more races						*	*	*	*	*	*	*	*	*
Ethnicity														
Hispanic/Latino	1.4	1.4	1.5	1.8	1.9	2.3	2.1	2.1	2.1	2.2	2.3	2.2	2.2	2.0
Non-Hispanic	3.2	3.3	3.3	3.6	3.9	4.0	4.1	3.9	3.7	3.8	3.9	3.5	3.6	3.5
Non-Hispanic Black/African American	0.6	0.7	0.7	0.8	0.9	1.0	1.1	1.1	1.1	1.2	1.2	1.0	1.1	1.0
Non-Hispanic White	4.8	4.9	4.9	5.4	5.8	6.1	6.3	6.0	5.5	5.6	5.7	5.3	5.2	5.0
Sex														
Male	3.5	3.4	3.5	3.6	3.9	4.2	4.1	3.8	3.7	3.8	3.8	3.5	3.4	3.5
Female	3.1	3.2	3.2	3.7	3.8	3.9	3.8	4.0	3.7	3.8	3.8	3.7	3.9	3.8
Age														
<18	20.6	19.3	21.0	19.4	23.0	23.4	20.6	20.1	24.3	22.0	23.5	23.7	23.6	22.4
0-4	18.3	13.6	19.2	19.2	16.3	17.0	18.9	11.2	18.0	14.7	18.1	17.2	17.6	13.8
5-11	22.1	26.9	29.0	20.8	27.9	31.3	29.9	30.3	32.6	30.5	28.4	29.5	31.8	31.6
12-17	20.8	17.2	18.0	18.9	23.3	22.6	17.7	19.5	23.4	21.3	23.8	24.2	22.5	22.2
18-44	5.9	5.9	5.5	6.0	5.8	6.2	5.9	5.9	5.6	5.4	5.8	5.4	5.3	5.7
18-24	8.8	8.7	9.0	9.0	8.9	10.0	8.0	8.4	8.5	8.6	8.9	8.6	7.6	10.1
25-44	5.6	5.6	5.2	5.7	5.4	5.8	5.7	5.7	5.3	5.1	5.5	5.1	5.1	5.3
45-64	2.7	2.7	2.8	3.1	3.3	3.5	3.6	3.4	3.2	3.4	3.3	3.1	3.1	3.2
45-54	3.7	3.7	3.8	4.0	4.2	4.3	4.6	4.2	4.0	4.3	4.0	3.7	3.7	3.8
55-64	1.9	2.0	2.1	2.5	2.7	2.9	3.0	2.9	2.7	2.9	2.9	2.7	2.8	2.9
65+	0.8	0.9	1.2	1.3	1.6	2.0	1.8	2.0	1.9	2.1	2.3	2.2	2.4	2.2
65-69	0.8	0.9	1.2	1.3	1.6	2.0	1.8	2.0	1.9	2.1	2.3	2.2	2.4	2.2

Data Source: Special analyses, USRDS ESRD Database. Incident ESRD patients younger than age 70. *Values for cells with 10 or fewer patients are suppressed. Abbreviations: CKD, chronic kidney disease; ESRD, end-stage renal disease.

Mortality

As demonstrated in Table 2.15, the total death rate among prevalent patients on dialysis has fallen by more than 25%, from 233.7 deaths per 1,000 patient years in 2001 to 172.8 in 2014, exceeding the HP2020 target of 190.0 for the fifth consecutive year. Mortality was slightly lower among males at 171.0 deaths per 1,000 patient years, compared to females, at 175.0 deaths.

Since 2001, significant reductions in rates were observed across all age groups, with the largest reduction—approximately 25% fewer deaths—for patients younger than 18 years in 2014 (32.3 deaths per 1,000 patient years) compared with 2001 (43.1 deaths). Overall rates were highest among patients aged 65 and older, at 259.0 deaths per 1,000 patient years.

With respect to race, rates among Whites were highest and continue to exceed the target at 206.3 deaths per 1,000 patient years. Rates were lowest

among Native Hawaiians and Pacific Islanders (124.5 deaths per 1,000 patient years), Asians (124.9 deaths per 1,000), and Hispanics (126.6 per 1,000).

Since its peak in 2003 at 391.2 deaths per 1,000 patient years at risk, the rate of mortality among dialysis patients in the first three months after initiation has fallen by more than 22%, to 321.0 in 2014. For the third year in a row the rate was below the HP2020 target of 328.7 deaths (see Table 2.16). Whites remain the only racial group that exceeded the target rate at 376.7 deaths per 1,000. Rates were lowest among Native Hawaiians and Pacific Islanders (129.9 deaths per 1,000) and American Indians and Alaska Natives (148.0 deaths per 1,000), as well as among those with Hispanic or Latino ethnicity (179.4 deaths per 1,000). Males had lower rates than females, at 313.6 deaths per 1,000 patient years compared to 331.1 deaths per 1,000. Mortality rates were highest among those aged 85 years or older, at 860.6 deaths per 1,000 patient years.

vol 2 Table 2.15 HP2020 CKD-14.1 Reduce the total number of deaths for persons on dialysis: Target 190.0 deaths per 1,000 patient years

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
All	233.7	231.5	229.8	226.1	222.0	217.6	208.9	201.6	196.4	189.5	185.7	178.2	174.6	172.8
Race														
American Indian or Alaska Native	203.0	195.1	189.0	183.2	177.9	171.5	163.1	167.6	170.6	152.1	146.5	144.7	143.6	150.5
Asian Native	170.6	156.7	167.6	159.8	163.6	153.6	150.6	138.1	139.6	130.6	133.7	128.4	123.5	124.9
Hawaiian or Pacific Islander	162.8	178.2	168.3	165.2	151.5	160.6	160.6	146.9	153.0	148.6	135.6	133.7	119.0	124.5
Black/African American	185.4	181.9	182.0	181.3	176.7	171.1	164.5	158.0	153.5	145.9	141.2	136.2	133.9	132.2
White	277.3	276.2	272.9	266.9	262.9	258.5	247.5	239.4	232.6	226.5	223.1	213.6	209.2	206.3
Two or more races					156.2	163.9	145.9	151.1	146.9	136.2	129.4	121.5	122.3	138.4
Ethnicity														
Hispanic/Latino	176.3	173.4	172.6	167.7	165.2	158.2	147.8	141.9	141.1	133.0	131.5	131.6	127.0	126.6
Non-Hispanic Non-Hispanic Black/African American	237.2	237.7	237.9	235.4	231.5	228.1	220.1	212.9	207.1	200.6	196.6	188.0	184.7	182.6
Non-Hispanic White	185.9	182.2	182.2	181.4	176.9	171.5	164.9	158.3	154.0	146.3	141.5	135.9	133.8	132.3
	301.6	301.6	299.0	294.3	290.2	288.3	278.7	271.7	264.2	259.9	257.5	246.5	242.3	238.9
Sex														
Male	227.2	224.8	225.0	222.0	217.8	213.5	205.8	199.1	195.9	188.1	184.7	177.5	172.5	171.0
Female	240.9	239.1	235.4	230.8	226.9	222.5	212.7	204.7	197.1	191.2	186.8	179.1	177.2	175.0
Age														
<18	43.1	40.6	48.0	39.9	41.5	38.6	34.3	34.9	39.6	35.3	25.1	32.1	30.0	32.3
0-4	164.9	96.6	109.1	81.8	87.5	98.0	79.3	97.5	98.8	72.4	43.5	62.5	71.2	64.8
5-11	39.5	*	66.9	45.6	36.4	*	*	39.9	44.8	41.9	*	*	*	37.7
12-17	17.3	35.0	28.9	29.0	33.2	27.7	23.3	15.5	19.2	20.6	15.7	18.9	*	15.7
18-44	89.8	91.2	88.2	84.8	83.1	80.1	76.2	71.1	70.4	63.8	61.7	60.0	58.3	57.7
18-24	48.2	45.7	53.8	54.2	50.5	49.6	48.4	44.5	40.3	37.2	38.0	33.5	33.9	32.3
25-44	93.2	95.0	91.1	87.3	85.8	82.6	78.5	73.3	72.9	66.0	63.6	62.0	60.2	59.5
45-64	175.4	170.6	172.1	168.5	161.9	160.4	151.6	145.2	141.6	135.8	132.9	127.4	123.0	122.4
45-54	146.1	140.4	139.5	137.6	134.1	131.7	125.8	117.5	114.0	107.5	106.1	98.6	96.9	95.3
55-64	200.3	195.8	198.8	193.3	183.4	182.3	170.9	165.6	161.6	155.8	151.2	146.8	140.3	140.3
65+	351.1	347.8	341.8	337.3	334.6	326.6	316.2	306.9	297.6	288.4	282.6	269.6	264.1	259.0
65-74	289.3	285.8	279.7	274.2	270.3	258.8	248.6	243.0	237.6	228.3	222.3	213.1	210.7	207.6
75-84	407.1	398.6	389.8	385.9	381.4	375.0	361.5	350.0	336.4	326.8	320.7	304.6	298.3	292.4
85+	566.5	568.8	551.4	532.5	529.8	520.6	514.9	489.0	469.1	458.7	454.8	436.7	425.8	418.4

Data Source: Special analyses, USRDS ESRD Database. Period prevalent dialysis patients. *Values for cells with 10 or fewer patients are suppressed. Abbreviation: CKD, chronic kidney disease.

vol 2 Table 2.16 HP2020 CKD-14.2 Reduce the number of deaths in dialysis patients within the first 3 months of initiation of renal replacement therapy: Target 328.7 deaths per 1,000 patient years at risk

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
All	385.2	385.0	391.2	388.0	384.4	379.5	370.0	368.5	360.6	360.8	341.8	324.5	321.2	321.0
Race														
American Indian or Alaska Native	186.4	148.0	198.0	212.0	218.8	171.2	176.5	248.3	172.1	157.1	158.4	227.4	206.6	148.0
Asian	234.2	228.6	236.9	234.5	254.7	217.2	244.6	198.5	216.9	216.0	178.6	194.2	188.1	202.4
Native Hawaiian or Pacific Islander	212.5	184.0	186.0	181.9	177.6	216.9	171.4	156.3	198.1	160.7	181.1	115.8	156.7	129.9
Black/African American	277.7	269.5	283.2	278.1	279.7	271.5	256.5	258.4	250.4	247.0	230.6	213.2	222.7	225.4
White	452.9	458.5	461.2	455.7	447.0	444.2	436.7	435.4	427.3	429.1	410.3	388.9	378.7	376.7
Two or more races					316.6	285.4	276.7	290.2	204.8	265.7	256.0	*	*	*
Ethnicity														
Hispanic/Latino	253.3	233.7	248.7	232.6	248.1	222.6	222.7	214.5	205.5	207.9	205.9	196.4	187.0	179.4
Non-Hispanic Non-Hispanic Black/African American	402.1	405.8	410.5	409.0	402.4	400.6	391.6	390.3	383.0	384.6	364.5	344.4	342.9	342.5
Non-Hispanic White	278.6	269.4	283.6	279.2	279.4	271.3	258.3	258.9	250.9	247.8	232.0	211.8	223.0	226.5
	488.5	502.7	503.1	500.9	489.9	496.6	487.2	491.3	484.0	487.9	467.3	441.7	430.8	428.3
Sex														
Male	386.1	378.8	390.2	387.4	378.5	375.3	371.8	369.0	365.5	357.7	340.9	320.0	319.9	313.6
Female	384.3	392.2	392.4	388.8	391.7	384.8	367.8	367.7	354.2	364.7	343.1	330.6	323.1	331.1
Age														
<18	*	*	*	60.5	*	*	*	*	*	*	*	*	*	*
0-4	*	*	*	*	*	*	*	.	*	*	*	*	*	*
5-11	*	*	.	*	*	.	*	*	*	.	*	*	*	.
12-17	*	*	*	*	*	*	.	*	*	*	*	*	*	.
18-44	102.0	104.0	106.9	107.7	106.8	104.9	100.9	100.7	107.1	94.1	91.7	71.7	78.4	71.9
18-24	71.1	49.5	65.5	77.5	62.2	92.8	67.3	57.0	46.3	65.7	56.4	*	52.1	41.4
25-44	105.2	109.8	111.3	110.8	111.5	106.2	104.5	105.3	113.2	97.0	95.6	76.3	81.1	74.7
45-64	219.1	212.9	224.2	216.4	221.2	212.8	202.3	212.0	209.0	211.1	196.0	187.7	189.8	186.6
45-54	163.9	166.3	169.1	172.1	176.9	161.3	156.0	173.0	160.9	164.8	154.5	142.2	140.6	139.3
55-64	260.2	247.8	264.9	248.4	252.2	249.3	233.9	238.0	240.7	240.4	222.6	215.7	220.6	215.8
65+	595.4	594.9	601.0	601.8	593.7	592.2	585.3	573.4	558.5	555.8	533.4	511.1	497.6	500.6
65-74	449.2	448.7	434.0	441.4	438.0	425.7	420.0	422.9	413.3	407.6	386.8	377.9	371.4	372.3
75-84	698.0	694.6	703.7	699.7	679.3	687.5	678.9	641.0	634.2	646.2	616.7	589.1	571.5	592.1
85+	1056.1	995.2	1076.1	1027.6	1012.2	1020.9	991.4	1002.4	935.9	905.5	908.4	870.5	880.0	860.6

Data Source: Special analyses, USRDS ESRD Database. Incident dialysis patients, unadjusted. "." Zero values in this cell; *Values for cells with 10 or fewer patients are suppressed. Abbreviation: CKD, chronic kidney disease.

Since 2001, the overall rate of cardiovascular death among those on dialysis has fallen by approximately 44%. In 2014, for the fifth consecutive year, the HP2020 goal of 80.9 cardiovascular deaths per 1,000 patient years at risk was met, with a rate of 67.2 (see Table 2.17). Though both exceeded the target, rates were lower among females (65.6 deaths per 1,000) as compared with males (68.5 deaths). Rates were lowest among Blacks (53.4 deaths per 1,000) and Asians (55.0 deaths). Cardiovascular death continued to be highest among Whites, at 78.1 deaths per 1,000 patient years. Since 2001, large reductions in rates by age have been observed, with the largest reduction—approximately 47.8% fewer deaths—for patients older than 65 years in 2014 (94.6 deaths per 1,000 patient years), compared with 2001 (181.1 deaths per 1,000).

The total death rate for patients with a functioning transplant has slowly declined since 2001, although in 2014, at 32.2 deaths per 1,000 patient years at risk, it still remained slightly above the HP2020 target of 29.3 (Table 2.18). Consistent with previous trends, males experienced higher rates of 34.2 deaths per 1,000 patient years, as compared with females at 29.1 deaths per 1,000. Rates were lowest among Asians (21.0 per 1,000) and highest among Whites (33.7 per 1,000) and American Indians and Alaska Natives (33.3 per 1,000). Death rates for patients with functioning transplants were highest among those aged 65 and older, at 74.3 deaths per 1,000 patient years compared with those aged 45-64, at 24.5, and those aged 18-44, at 7.6.

**vol 2 Table 2.17 HP2020 CKD-14.3 Reduce the number of cardiovascular deaths for persons on dialysis:
Target 80.9 deaths per 1,000 patient years at risk**

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
All	119.5	116.0	113.4	108.6	102.2	96.2	90.7	86.0	83.3	80.4	77.2	74.7	71.8	67.2
Race														
American Indian or Alaska Native	103.4	93.1	89.5	85.4	77.0	73.2	68.8	61.2	69.2	62.9	58.5	57.1	56.7	58.4
Asian Native Hawaiian or Pacific Islander	96.4	86.5	93.0	83.0	84.6	70.6	69.0	66.1	67.2	60.9	62.4	58.7	56.7	55.0
Black/African American	102.2	110.6	103.4	90.6	77.9	88.8	80.5	72.5	80.3	79.5	67.0	66.5	62.7	59.2
White only	91.1	89.0	87.3	85.6	81.4	77.5	72.6	69.6	66.9	63.3	59.9	59.3	57.2	53.4
Two or more races	143.4	139.1	135.5	128.8	120.3	112.5	106.1	99.9	96.5	94.3	91.2	87.5	83.9	78.1
					71.2	73.3	66.8	70.2	64.5	68.1	59.7	52.2	50.6	60.1
Ethnicity														
Hispanic/Latino	94.6	90.3	86.4	83.2	80.7	73.2	67.6	65.1	65.4	62.0	60.2	59.8	58.7	57.9
Non-Hispanic Black/African American	120.7	118.6	117.2	112.7	105.8	100.3	95.0	89.9	86.8	84.1	80.7	77.9	74.7	69.3
Non-Hispanic White	91.3	89.0	87.5	85.6	81.3	77.6	72.7	69.7	67.0	63.4	60.0	59.2	57.2	53.5
	155.2	151.3	148.3	141.4	131.4	124.1	118.2	111.4	107.1	105.7	102.7	98.5	93.9	86.2
Sex														
Male	118.7	115.3	113.6	109.5	102.7	97.1	91.7	87.6	85.5	82.2	78.9	76.7	73.5	68.5
Female	120.4	116.8	113.2	107.5	101.5	95.1	89.6	84.0	80.5	78.2	75.1	72.2	69.7	65.6
Age														
<18	14.9	11.9	9.2	12.2	17.7	17.5	9.1	10.2	17.5	*	*	10.7	*	13.1
0-4	*	*	*	*	*	*	*	*	49.4	*	*	*	*	*
5-11	*	*	*	*	*	*	*	*	*	.	*	.	*	*
12-17	*	*	*	*	18.2	13.8	*	*	*	*	*	*	*	*
18-44	41.1	41.6	39.9	39.0	38.1	35.7	33.1	31.1	31.4	29.6	27.2	27.5	26.5	25.2
18-24	20.5	20.2	25.3	25.3	24.7	19.1	18.4	15.9	18.3	19.7	18.8	14.0	15.1	11.8
25-44	42.8	43.4	41.1	40.2	39.2	37.1	34.2	32.4	32.5	30.4	27.8	28.6	27.4	26.2
45-64	90.1	86.8	85.0	81.5	76.1	73.8	68.6	65.5	63.9	61.1	59.3	57.4	55.5	53.0
45-54	73.2	69.9	67.1	64.4	61.5	60.1	56.9	53.4	52.1	47.9	48.5	45.3	44.2	42.7
55-64	104.5	101.0	99.7	95.2	87.5	84.2	77.3	74.4	72.4	70.4	66.7	65.6	63.0	59.9
65+	181.1	174.9	170.1	162.2	152.5	141.4	134.6	127.0	121.7	118.0	113.0	108.2	103.1	94.6
65-74	151.3	145.0	140.1	134.4	125.4	115.8	109.3	105.2	102.1	97.4	93.8	90.3	87.1	80.4
75-84	208.6	199.0	193.4	183.5	173.3	158.7	152.6	140.9	132.9	131.4	125.0	118.2	113.7	104.5
85+	282.9	283.2	270.8	249.2	229.6	219.2	204.4	191.8	183.2	176.0	167.7	165.0	149.7	136.5

Data Source: Special analyses, USRDS ESRD Database. Period prevalent dialysis patients; unadjusted. *Values for cells with 10 or fewer patients are suppressed. Abbreviation: CKD, chronic kidney disease.

vol 2 Table 2.18 HP2020 CKD-14.4 Reduce the total number of deaths for persons with a functioning kidney transplant: Target 29.3 deaths per 1,000 patient years at risk

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
All	33.4	31.5	32.8	31.3	32.2	31.3	31.0	29.7	31.1	31.0	31.0	31.5	31.3	32.2
Race														
American Indian or Alaska Native	39.2	37.1	41.0	39.9	38.9	43.8	36.7	37.6	54.5	45.7	43.0	43.9	34.1	33.3
Asian	20.4	20.8	18.2	20.5	21.7	18.9	24.3	18.8	17.0	16.7	21.8	22.3	18.3	21.0
Native Hawaiian or Pacific Islander	*	24.8	*	19.1	24.4	15.8	13.0	16.8	24.8	16.6	17.9	20.0	25.5	22.9
Black/African American	37.4	35.3	36.5	33.2	34.5	33.7	30.0	30.7	30.1	30.1	30.3	30.2	30.2	30.2
White	33.2	31.4	32.9	31.6	32.3	31.6	32.0	30.2	32.1	32.2	31.9	32.5	32.5	33.7
Two or more races					23.1	20.5	15.2	23.0	22.4	22.4	23.6	25.9	31.3	25.0
Ethnicity														
Hispanic/Latino	24.1	22.6	21.6	20.8	24.5	24.9	21.5	22.5	22.8	23.0	22.3	22.5	24.3	23.0
Non-Hispanic	28.8	28.0	30.9	29.6	30.1	29.5	30.2	28.9	30.3	31.0	31.6	32.7	32.6	34.0
Non-Hispanic Black/African American	37.8	35.6	36.4	33.4	35.0	34.0	30.1	30.9	30.0	30.4	30.4	30.5	30.2	30.5
Non-Hispanic White	34.3	32.4	34.4	33.2	33.3	32.5	33.7	31.6	33.9	33.8	33.9	34.6	34.4	36.1
Sex														
Male	35.8	33.1	34.0	33.5	34.6	33.2	33.0	31.3	32.6	33.1	33.1	33.5	32.9	34.2
Female	29.7	29.3	31.2	28.1	28.6	28.7	28.0	27.4	28.9	27.8	28.0	28.5	29.0	29.1
Age														
<18	4.8	7.9	6.7	3.5	7.2	3.8	*	2.9	3.4	6.7	2.8	3.1	*	*
0-4	*	*	*	*	*	*	*	*	*	*	*	*	*	*
5-11	*	*	*	*	*	*	*	*	*	*	*	*	*	*
12-17	*	6.8	6.1	*	7.5	*	*	*	*	6.0	*	*	*	*
18-44	14.8	14.0	12.5	11.9	12.0	11.4	10.5	9.6	9.9	8.9	8.0	7.9	7.4	7.6
18-24	9.4	4.6	4.8	6.4	7.3	8.3	5.9	6.0	6.4	6.4	4.3	4.9	4.7	3.7
25-44	15.3	14.9	13.3	12.4	12.5	11.8	11.1	10.0	10.4	9.2	8.5	8.2	7.8	8.1
45-64	38.7	34.7	35.8	32.6	33.3	31.6	29.8	28.4	28.1	27.4	27.5	25.7	25.2	24.5
45-54	30.1	27.3	26.6	24.0	25.5	24.4	22.0	21.4	21.7	19.2	18.5	16.5	16.5	15.8
55-64	51.1	44.8	47.7	43.0	42.3	39.6	38.0	35.6	34.4	35.0	35.5	33.7	32.6	31.8
65+	90.4	85.7	89.9	86.2	83.1	79.1	79.5	72.4	75.8	74.5	72.8	75.7	72.7	74.3
65-74	84.8	80.1	81.5	78.0	76.2	69.8	70.7	63.1	65.8	64.6	61.9	63.7	60.5	62.6
75-84	134.4	127.5	148.4	136.8	122.0	129.0	121.2	115.7	119.9	113.5	114.7	118.7	116.5	113.2
85+	163.3	120.6	106.0	176.3	173.1	137.0	209.4	129.5	150.3	193.1	160.8	214.2	179.8	195.9

Data Source: Special analyses, USRDS ESRD Database. Period prevalent transplant patients, unadjusted. *Values for cells with 10 or fewer patients are suppressed. Abbreviation: CKD, chronic kidney disease.

Continuing to meet the HP2020 target of 4.5 deaths per 1,000 patients for the seventh year in a row, the rate of cardiovascular mortality among transplant patients has fallen by 55% since 2001, to the observed 2.5 deaths per 1,000 in 2014 (see Table 2.19). Rates were lowest among Asians at 1.3 deaths per 1,000, and

Hispanics or Latinos at 1.5 per 1,000. Blacks continued to have the highest rates among race categories, at 2.8 deaths per 1,000. Also consistent with prior trends, rates were lower among females (2.0 deaths per 1,000) compared with males (2.8 per 1,000), although both remained below the HP2020 target.

vol 2 Table 2.19 HP2020 CKD-14.5 Reduce the number of cardiovascular deaths in persons with a functioning kidney transplant: Target 4.5 deaths per 1,000 patient years at risk

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
All	5.6	5.1	5.2	5.6	5.5	5.2	5.1	4.1	4.2	4.3	3.5	3.3	3.0	2.5
Race														
American Indian or Alaska Native	*	9.3	*	*	*	*	*	*	*	*	*	*	6.4	*
Asian	*	3.6	*	2.6	2.4	3.6	3.7	*	*	1.8	2.1	2.2	1.4	1.3
Native Hawaiian or Pacific Islander	*	*	*	*	*	*	*	*	*	*	.	*	*	*
Black/African American	6.7	5.8	6.1	6.1	6.0	5.9	5.4	5.0	5.0	5.0	4.1	3.9	3.4	2.8
White	5.5	5.0	5.2	5.7	5.5	5.2	5.2	4.0	4.1	4.3	3.4	3.3	2.9	2.4
Two or more races					*	4.7	*	*	4.0	*	*	*	*	*
Ethnicity														
Hispanic/Latino	3.9	5.1	4.0	3.9	4.0	4.4	3.2	3.3	3.2	2.7	2.9	2.0	2.3	1.5
Non-Hispanic	5.4	4.9	5.4	5.3	5.4	5.1	5.2	4.1	4.3	4.6	3.6	3.6	3.2	2.7
Non-Hispanic Black/African American	6.9	5.8	6.0	6.1	6.1	6.0	5.5	5.0	5.0	4.9	4.1	4.0	3.4	2.9
Non-Hispanic White	5.7	4.9	5.4	6.0	5.7	5.3	5.5	4.2	4.3	4.6	3.5	3.5	3.0	2.6
Sex														
Male	6.2	5.5	5.5	6.2	5.9	5.6	5.8	4.6	4.2	4.8	3.9	3.4	3.3	2.8
Female	4.8	4.5	4.8	4.8	5.0	4.8	4.2	3.4	4.2	3.5	2.8	3.2	2.4	2.0
Age														
<18	*	*	*	.	*	*	*	*	.	*	.	*	.	*
0-4	*	.	.	.	.	.	*	.	.	*	.	.	.	.
5-11	*	.	*	.	.	.	.	.	.	.	.	.	.	.
12-17	*	*	*	.	*	*	*	*	.	*	.	*	.	*
18-44	2.5	2.5	2.3	2.3	2.2	2.0	2.0	1.7	1.4	1.4	1.0	1.1	1.2	0.7
18-24	*	*	*	*	*	*	*	*	*	*	*	*	*	*
25-44	2.6	2.7	2.5	2.5	2.3	2.1	2.1	1.8	1.5	1.5	1.0	1.2	1.3	0.8
45-64	6.8	5.7	5.8	6.1	5.8	5.7	5.2	4.2	4.0	4.1	3.3	2.8	2.6	2.1
45-54	6.4	4.3	4.6	5.1	4.5	4.3	4.4	3.2	3.2	2.8	2.2	2.0	1.9	1.3
55-64	7.4	7.7	7.4	7.3	7.3	7.2	6.0	5.2	4.7	5.2	4.4	3.6	3.2	2.8
65+	13.7	12.5	13.0	14.0	13.6	11.7	12.0	8.6	9.7	9.3	7.4	7.3	5.8	5.0
65-74	13.3	11.4	11.5	13.2	13.0	10.0	10.6	8.0	8.4	8.8	6.9	6.2	5.2	4.3
75-84	15.9	20.7	23.9	19.2	16.0	21.7	19.1	11.5	16.0	11.4	8.8	11.6	8.4	7.8
85+	*	*	.	*	*	.	*	*	*	*	*	*	*	*

Data Source: Special analyses, USRDS ESRD Database. Period prevalent transplant patients, unadjusted. "." Zero values in this cell; *Values for cells with 10 or fewer patients are suppressed. Abbreviation: CKD, chronic kidney disease.

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Notes