





End-stage renal disease (ESRD) accounts for an increasing amount of the Medicare budget, and, using estimates of increasing Type 2 diabetes in the U.S., the USRDS, in its 2000 Annual Data Report, projected growth in the ESRD incident rate. Adjusted rates in 2003, however, fell slightly—for the first time since 1980. This may reflect either improved pre-ESRD treatment or better access to care

Lowering the rate of new ESRD cases has been a Healthy People goal since chronic kidney disease (CKD) was incorporated as a new focus area in 2000. A set of national health care objectives, HP2010 includes the goal of “reducing new cases of CKD and its complications, disability, death, and economic costs.” This chapter addresses the eight objectives that can be evaluated through data available to the USRDS. Data show that, while we are currently moving toward a reduction in new cases of ESRD, we remain far from the HP2010 goal, and have in fact lost ground in trying to meet other objectives.

A number of barriers block progress. Although growth in diabetic ESRD has slowed, for instance, and decreased slightly in 2003, projected growth of diabetes in the general population suggests a rise in the number of patients with diabetic ESRD may occur in the future. Diabetes prevention programs should continue to target all populations—particularly minorities and obese individuals.

Cardiovascular death rates continue to fall—from a high of 92.7 deaths per 1,000 patient years

in 1999 to 85.2 in 2003. This rate is far above the HP2010 target of 52, but the decline does continue, and may be explained by improved management of cardiovascular disease and of risk factors for ESRD. Because cardiovascular disease remains the leading cause of death in ESRD patients, it needs to remain a major focus of intervention in CKD patients.

The HP2010 objective for vascular access is that 50 percent of new hemodialysis patients use arteriovenous (AV) fistulas as their primary mode of vascular access. Data from the Clinical Performance Measures project shows that AV fistula use in new hemodialysis patients fell from 30.3 percent in 2001 to 28.8 percent in 2002. In 2004, CMS funded the Fistula First Initiative, which brings together dialysis providers, nephrologists, primary care physicians, vascular access surgeons, interventional radiologists/nephrologists, and others in a national initiative to reduce barriers for placement of AV fistulas in American hemodialysis patients. It is encouraging to note that, while the use of AV fistulas in incident hemodialysis patients has grown only slightly since 1998, use in prevalent hemodialysis patients has been steadily increasing, reaching 35.2 percent in 2003.

Influenza vaccination rates in ESRD patients reached 53 percent in 2003, still far from the goal of 90 percent. Many employers and providers, however, offer free or reduced cost vaccinations which are not tracked in the Medicare data. More patients age 17 and younger are vac-

**36 • incident rates & cardiovascular disease** incident rates · rates of cardiovascular mortality

**38 • fistula use & vaccinations** fistula use · influenza & pneumococcal pneumonia vaccinations

**40 • transplantation** dialysis patients on the transplant wait list · patients transplanted within three years of registration

**42 • diabetes & pre-ESRD diabetic care** incident rates of ESRD due to diabetes · diabetic preventive healthcare

**44 • achievement of HP2010 objectives, by ESRD network** incident rates · mortality rates · fistula use · vaccinations · transplantation · diabetes

**46 • summary**



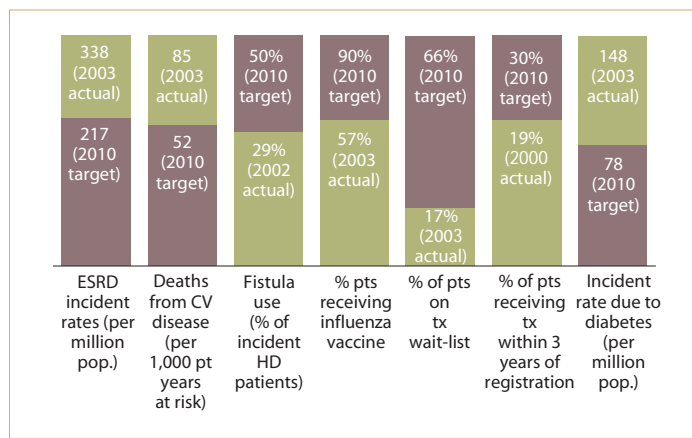
cinated, but the number reached only 25 percent in 2003, compared to 65 percent in those age 75 and older. Vaccinations for pneumococcal pneumonia were given to only 13 percent of ESRD patients overall in 2002–2003, and less than 7 percent of pediatric patients. Providers clearly need to create vaccination protocols.

Today's major challenge for kidney transplantation is the donor shortage. The number of transplants has grown, but the number of ESRD patients has risen at a greater rate. The percent of patients on the kidney transplant waiting list or who receive a transplant within one year of initiation inched up again in 2003, but at 17 percent still falls critically short of the HP2010 target of 66 percent. And the percent of patients transplanted within three years of initiation fell slightly between 1999 and 2000. Educational programs are needed to improve organ donation rates.

Prevention and optimal management of diabetes is the logical way to reduce cases of ESRD due to diabetes. Screening and evaluation tests recommended by the American Diabetes Association include 2–4 glycosylated hemoglobin tests per year, annual lipid and eye examinations, and microalbuminuria testing. Although the percent of pre-ESRD patients receiving each type of test grew between 1998 and 2003, only 8.2 percent

received all four tests in 2003, compared to 13.6 percent of general Medicare patients. Primary care physicians should be the main educational target for improvement in this area.

Kidney disease is common, costly, and preventable, and continues to be underdiagnosed and undertreated. It is our hope that data showing progress—and the lack of it—toward HP2010 goals will help increase awareness of issues related to this disease, and promote changes in the healthcare system. Progress will be made from several directions: widespread programs such as the NKF's Kidney Early Evaluation Program, which targets populations at high risk of CKD; continued efforts to bridge the CKD healthcare gap between nephrologists, primary care physicians, and specialists; guidelines (as set forth by NKF's Kidney Disease Outcomes and Quality Initiative); and efforts to encourage patient empowerment.



**hp.1 • Healthy People 2010 targets & levels achieved in 2003** for patient populations & analytical methods, see figure captions for the individual objectives on the following pages.

## CHAPTER HIGHLIGHTS

**Table hp.a/Figure hp.2** The adjusted ESRD incident rate fell slightly in 2003, to 338 per million population, but the rate remains far above the HP2010 target of 217 per million population. **Table hp.b/Figure hp.5** Cardiovascular mortality rates in prevalent ESRD patients have fallen since 1999. **Table hp.c** Use of arteriovenous fistulas in prevalent hemodialysis patients grew from 27.8 percent in 1998 to 35.2 percent in 2002. **Figure hp.8** Arteriovenous fistula use in incident hemodialysis patients fell between 2001 and 2002. **Figure hp.25** ESRD Networks 1 and 16 have the highest number of prevalent hemodialysis patients using arteriovenous fistulas.





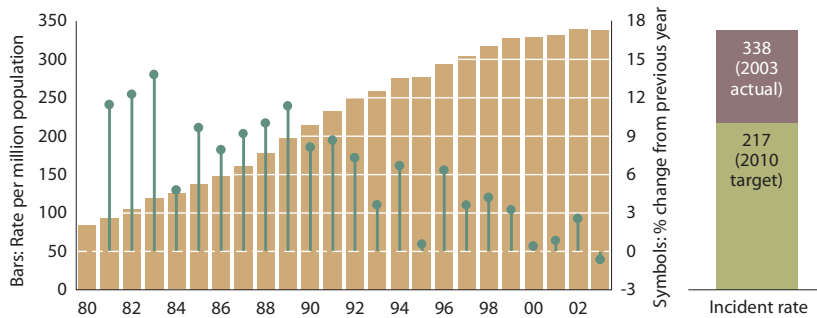
The 2000 U.S. Census allowed respondents to identify themselves by more than one race designation, which resulted in a higher number of self-designated Native Americans. This increased denominator explains the apparent fall in ESRD rates for Native Americans.

hp.a Adjusted ESRD incident rates (per million population) incident ESRD patients

	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	
All	120	125	137	148	162	178	198	214	232	249	258	275	277	294	305	318	328	329	332	340	338	
Am. Indian/Al. Native	274	267	273	328	363	419	446	471	494	561	548	554	582	582	592	634	637	600	550	542	504	
Asian/Pacific Islander	102	122	147	144	156	183	189	233	256	273	306	342	352	363	354	378	390	362	360	366	346	
Black/Af. American	361	371	407	433	482	542	611	649	716	771	803	859	868	906	929	972	969	961	975	1,000	996	
White	89	93	102	111	120	130	145	158	170	182	188	200	200	216	226	235	247	251	253	260	259	
Hispanic or Latino														465	456	480	496	503	492	504	496	
Not Hispanic or Latino														280	292	305	315	317	320	329	327	
Black or African American*																						
White*																						
Male	145	153	165	179	195	213	238	258	279	296	308	328	327	353	366	382	396	397	402	417	413	
Female	98	102	114	122	134	149	165	179	196	212	219	234	237	248	257	269	276	277	278	282	280	
0-19	11	12	12	13	13	13	13	15	14	14	14	14	14	14	14	13	15	14	14	14	14	
20-44	74	77	81	85	89	96	103	108	111	117	118	120	119	121	118	121	120	119	118	117	115	
45-64	242	257	280	293	324	360	393	424	459	489	511	546	549	567	582	605	613	605	613	607	606	
65-74	422	434	494	543	615	666	761	849	944	1,019	1,066	1,145	1,142	1,252	1,311	1,349	1,376	1,391	1,413	1,457	1,435	
75+	281	300	352	406	447	516	620	686	783	864	903	1,001	1,038	1,178	1,287	1,398	1,508	1,545	1,553	1,693	1,687	



hp.2 Adjusted ESRD incident rates incident ESRD patients



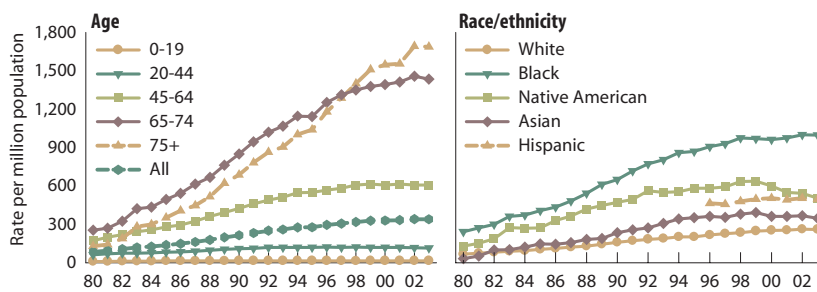
HP2010 OBJECTIVE 4.I: REDUCE THE RATE OF NEW CASES OF END-STAGE RENAL DISEASE

The adjusted ESRD incident rate fell slightly in 2003, but at 338 per million population it remains far from the HP2010 goal of 217 (Table hp.a and Figure hp.2). After rising steadily during the 1980s and early 1990s, rates have, however, become more stable, changing 2.5 percent or less in each year since 2000.

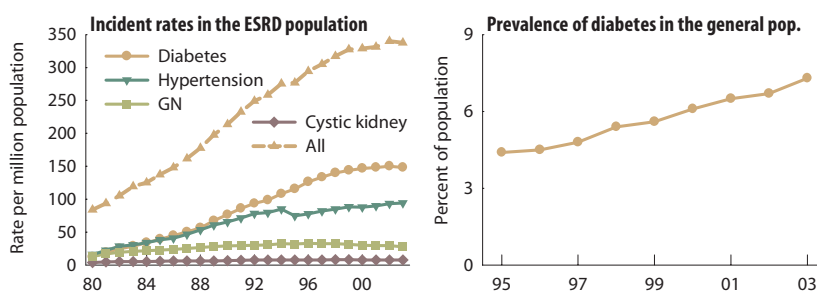
Since 1993 the overall incident rate has risen 31 percent; rates for the oldest patients, however, have grown 87 percent, while they have remained stable in the pediatric population, and have fallen slightly for those age 20-44 (Figure hp.3). By race, the incident rate for blacks in 2003 was 996 per million population, nearly four times higher than the rate for whites, and twice as high as the rate in the Native American population.

The incident rate of ESRD caused by diabetes has grown faster than the overall rate, rising 50 percent between 1993 and 2003, but in the past several years has begun to plateau (Figure hp.4). The rate of ESRD due to hypertension rose 19 percent in the same period, while for patients with glomerulonephritis the rate fell nearly 10 percent.

hp.3 Adjusted ESRD incident rates, by age & race/ethnicity incident ESRD patients



hp.4 Adjusted ESRD incident rates, by primary diagnosis, & diabetes in the general population incident ESRD patients



{Table hp.a} incident ESRD patients; rates by age adjusted for gender & race, rates by gender adjusted for age & race, & rates by race & ethnicity adjusted for age & gender. Rates for non-Hispanics are unadjusted. \*Census data are not available for non-Hispanic blacks & whites, so rates cannot be calculated. {Figure hp.2} incident ESRD patients; adjusted for age, gender, & race. {Figure hp.3} incident ESRD patients; rates by age adjusted for gender & race, rates by race & ethnicity adjusted for age & gender. {Figure hp.4} incident ESRD patients; rates adjusted for age, gender, & race. Data on the prevalence of diabetes in the general population obtained from the CDC's Behavioral Risk Factor Surveillance System, at [www.cdc.gov/brfss](http://www.cdc.gov/brfss). For Hispanic patients we present data beginning in 1996, the first full year after the April 1995 introduction of the revised Medical Evidence form, which contains more specific questions on race & ethnicity.



**hp.b Cardiovascular mortality rates in prevalent ESRD patients (deaths per 1,000 patient years at risk)** period prevalent ESRD patients

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
All	78.7	85.4	87.4	88.9	90.2	91.3	92.1	91.3	92.7	88.5	90.0	87.5	85.2
Am. Indian/Al. Native	72.2	77.6	78.0	74.0	76.5	83.8	79.2	70.1	77.1	77.3	74.4	76.6	72.7
Asian/Pacific Islander	48.3	54.2	52.3	65.5	71.0	78.4	76.3	73.2	78.7	72.4	72.3	68.5	69.6
Black/Af. American	66.1	70.8	72.3	76.1	77.9	77.4	78.5	78.4	80.7	77.1	79.1	77.1	75.8
White	86.4	94.3	97.1	97.1	98.0	99.7	100.4	99.6	100.3	95.8	97.2	94.5	91.7
Hispanic or Latino					75.0	78.3	78.9	78.3	74.2	76.2	73.9	71.1	
Not Hispanic or Latino					93.1	93.7	92.8	94.6	90.4	91.9	89.4	87.2	
Black or African American					77.6	78.4	78.6	80.8	77.1	79.2	77.0	76.0	
White					103.8	104.7	103.6	104.8	100.7	102.1	99.5	96.5	
Male	78.7	84.0	86.0	87.0	87.5	89.2	88.6	87.8	89.1	84.9	87.0	84.8	83.1
Female	78.7	87.0	89.1	91.0	93.3	93.9	96.3	95.5	97.1	92.9	93.7	90.8	87.7
0-19	6.1	7.2	7.9	8.2	6.3	5.5	6.3	5.6	8.5	6.4	8.5	5.5	5.8
20-44	21.9	24.1	23.7	23.9	25.8	24.7	24.8	23.5	22.7	22.2	22.9	23.4	22.5
45-64	66.0	70.9	71.0	70.9	70.8	71.4	69.8	67.0	68.1	63.6	63.9	61.2	59.4
65-74	142.0	150.4	149.1	151.2	148.5	147.4	147.0	143.8	143.4	135.5	135.5	129.3	123.4
75+	201.9	211.7	221.4	219.2	221.5	224.1	224.5	226.3	229.3	218.7	222.1	214.7	209.0

**HP2010 OBJECTIVE 4.2: REDUCE DEATHS FROM CARDIOVASCULAR DISEASE IN PERSONS WITH CHRONIC KIDNEY FAILURE**

Among prevalent ESRD patients, mortality due to cardiovascular disease fell 2.8 percent between 2001 and 2002, and 2.7 percent in the next year (Table hp.b and Figure hp.5). The current rate of 85 deaths per 1,000 patient years is, however, still far above the HP2010 goal of 52. By race/ethnicity, gender, and age, respectively, the highest rates are found in whites, females, and those age 75 and older.

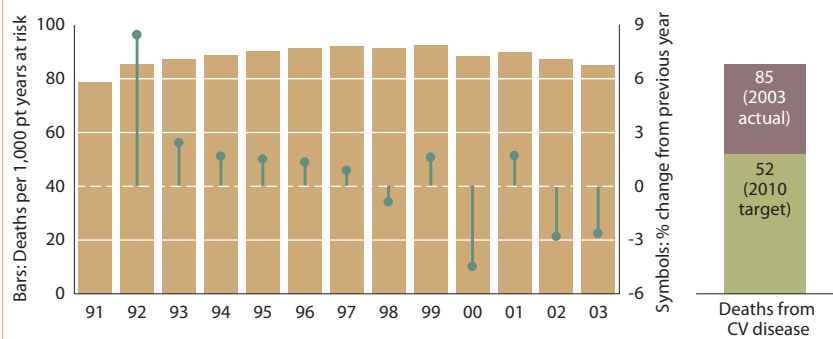
Since 1999, cardiovascular mortality rates have fallen more quickly than rates for all-cause mortality—8 percent overall, 9 percent for Hispanics, and nearly 12 percent for Asians (Figure hp.6).

Rates of death due to ASHD and AMI have fallen 25 and 21 percent, respectively, since 1991 (Figure hp.7). Mortality due to other cardiovascular events (including cerebrovascular accidents, intracranial bleeding, and ischemic brain damage), in contrast, have increased 24 percent, while deaths due to CHF have risen 3.2 percent.

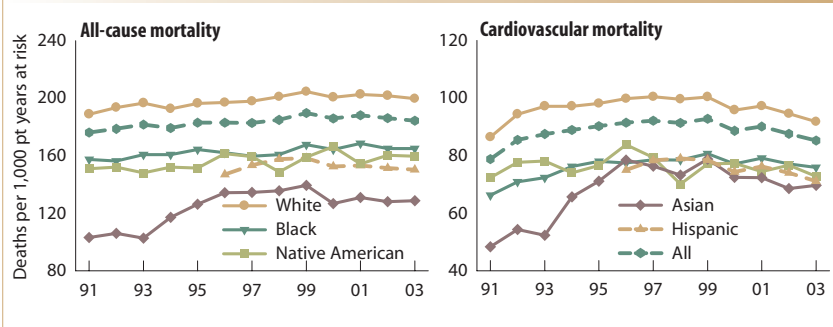
Between 1998 and 2003 the cardiovascular mortality rate fell 8 percent among women and 5 percent among men; women still, however, have a 5.5 percent higher rate of death. During this same period the rate decreased for every racial/ethnic group except Native Americans, in whom it rose nearly 4 percent. Rates among white patients are 21 percent greater than in blacks, and 32 percent greater than in Asians.

{Table hp.b & Figures hp.5-7} period prevalent ESRD patients; unadjusted. For Hispanic patients we present data beginning in 1996, the first full year after the April 1995 introduction of the revised Medical Evidence form, which contains more specific questions on race & ethnicity.

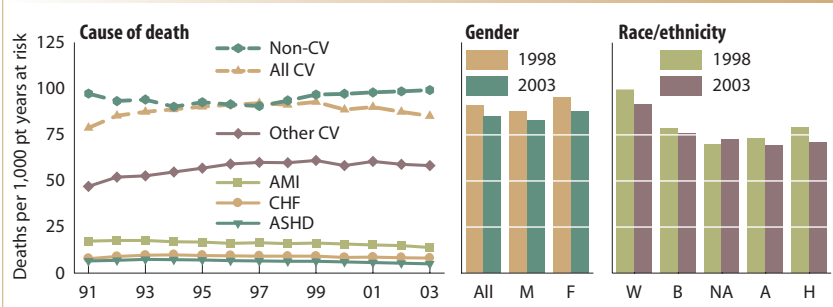
**hp.5 Cardiovascular mortality rates in prevalent ESRD patients** period prevalent ESRD patients



**hp.6 All-cause & cardiovascular mortality rates in prevalent ESRD patients, by race/ethnicity** period prevalent ESRD patients



**hp.7 Cardiovascular mortality rates in prevalent ESRD patients, by cause of death, gender, & race/ethnicity** period prevalent ESRD patients





**hp.c** Percent of prevalent hemodialysis patients using an arteriovenous fistula

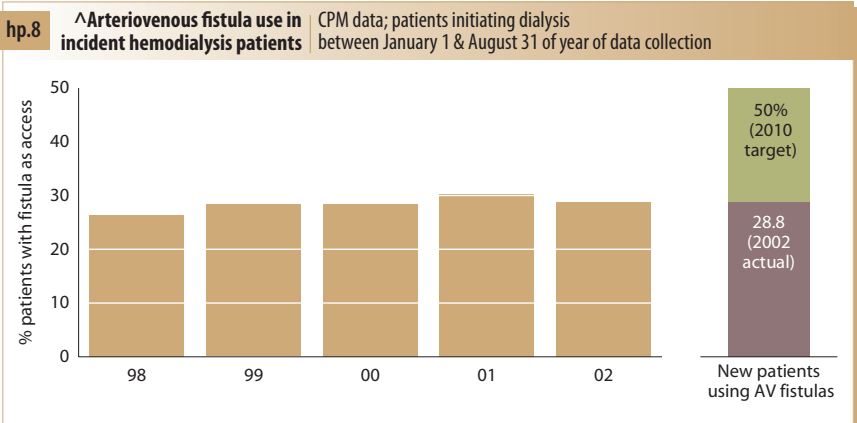
prevalent hemodialysis patients from 1999–2003 CPM data

	1998	1999	2000	2001	2002
All	27.8	29.1	31.1	33.1	35.2
Am. Indian or Alaskan Native	40.3	40.3	39.6	48.3	43.6
Asian or Pacific Islander	32.0	31.8	34.4	35.8	38.5
Black or African American	22.7	23.6	26.7	27.8	29.6
White	30.7	31.5	33.5	36.0	38.4
Hispanic or Latino	29.1	32.3	33.0	35.7	40.5
Not Hispanic or Latino	27.6	28.8	30.9	32.8	34.3
Black or African American	22.5	23.9	26.5	27.8	29.5
White	31.3	31.9	34.2	36.0	37.6
Male	36.9	38.1	41.1	43.5	45.3
Female	17.6	18.9	20.3	21.5	23.4
0-19	*	*	24.5	40.4	29.8
20-44	43.1	44.6	50.0	46.4	39.2
45-64	35.1	36.9	39.0	42.3	43.0
65-74	29.2	28.0	31.0	32.5	36.1
75+	21.5	24.7	26.8	29.4	29.7

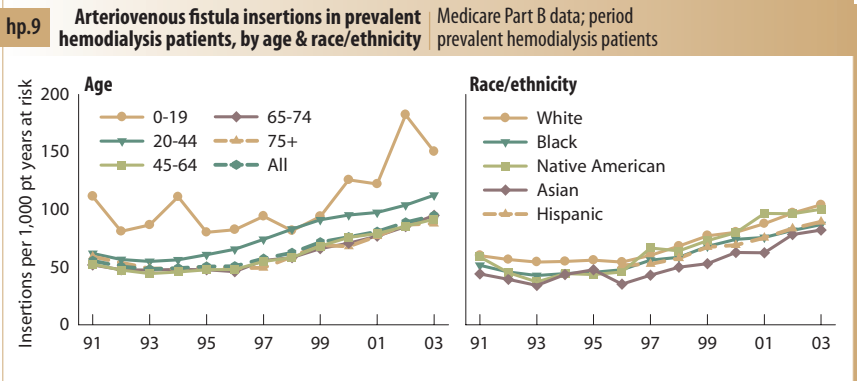
\*Values for cells with fewer than ten patients are suppressed.

**HP2010 OBJECTIVE 4.4:**  
**INCREASE THE PROPORTION OF NEW HEMODIALYSIS PATIENTS WHO USE ARTERIOVENOUS FISTULAS AS THEIR PRIMARY MODE OF VASCULAR ACCESS**

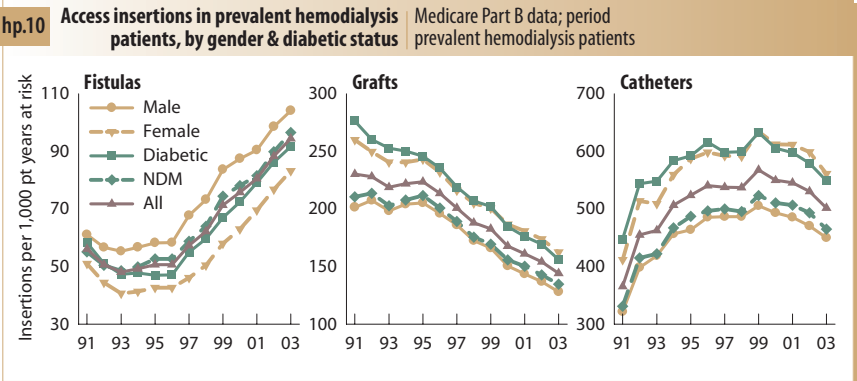
Both HP2010 and the National Kidney Foundation's Dialysis Outcomes Quality Initiative (K/DOQI) promote the arteriovenous fistula as the preferred access for hemodialysis patients, citing the fistula's lower complication rates, better flow, and lower associated morbidity. Only 35.2 percent of prevalent hemodialysis patients, however, were using a fistula at the time of the 2002 Clinical Performance Measures survey (released in 2003)—under the goal of 40 percent, though numbers have been increasing since 1998 (Table hp.c). By race, fistula use in 2002 ranged from 29.6 percent in black patients to 43.6 percent in Native Americans. Differences by gender are particularly dramatic, with 45.3 percent of males using a fistula, compared to only 23.4 percent of females.



Among incident patients in the CPM survey, however, the percent using a fistula declined between 2001 and 2002—from 30.3 to 28.8 (Figure hp.8)—a distance from the HP 2010 goal of one in two patients.



In the prevalent population AV fistula use is highest in pediatric patients and in the youngest adults (Figure hp.9). Overall insertions have increased 71 percent since 1991, to a rate of 95 per 1,000 patient years at risk. Rates by race/ethnicity continue to be greatest in white and Native American patients, and lowest among Asians.



Graft use has declined steadily since the early 1990s, while the use of catheters peaked in the middle of the decade and has since fallen (Figure hp.10). Fistula use varies little by diabetic status, but quite significantly by gender, with insertion rates in men 25 percent higher than those in women.

{Table hp.c} prevalent hemodialysis patients from 1999–2003 CPM data. Access represents the current access used at the time of data collection. Includes patients for whom an access type is known. {Figure hp.8} incident patients initiating dialysis between January 1 & August 31 of the year of data collection; 1999–2003 CPM data. Access represents the current access used as of the latest data collection for that year. Includes only patients for whom an access is known. ^See Appendix A for change in methodology. {Figures hp.9–10} period prevalent hemodialysis patients. Data from Part B claims. Some patients may have more than one access at a given point in time. ♦ For Hispanic patients we present data beginning in 1996, the first full year after the April 1995 introduction of the revised Medical Evidence form, which contains more specific questions on race & ethnicity.



**hp.d** Percent of prevalent ESRD patients receiving influenza & pneumococcal pneumonia vaccinations point prevalent ESRD patients

	Influenza vaccinations											Pneumococcal vaccinations, 02-03
	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	
All	23.3	34.5	38.7	41.9	43.6	43.5	46.7	43.9	46.3	53.6	56.7	13.6
Am. Indian or Alaska Native	14.8	28.3	36.0	35.8	34.1	38.9	38.7	35.4	35.5	48.5	51.2	12.2
Asian or Pacific Islander	17.9	27.3	33.6	36.5	40.0	39.8	42.9	38.7	45.6	52.7	58.0	11.0
Black or African American	18.7	30.1	34.3	37.9	39.4	38.5	41.9	40.2	41.7	48.9	52.5	13.0
White	26.4	37.7	41.7	44.7	46.6	47.1	50.2	47.0	49.6	56.8	59.4	14.3
Hispanic or Latino				39.4	40.9	40.6	44.3	38.1	43.6	51.8	54.9	13.1
Not Hispanic or Latino				42.1	43.9	43.9	47.0	44.7	46.7	53.9	57.0	13.7
Black or African American				37.9	39.5	38.5	42.0	40.4	41.7	48.9	52.6	13.0
White				45.6	47.6	48.3	51.3	48.7	50.9	57.9	60.4	14.5
Male	23.1	34.2	38.5	41.6	43.5	43.4	46.4	43.5	45.8	52.9	55.8	12.9
Female	23.6	34.9	39.0	42.1	43.7	43.7	47.0	44.4	47.0	54.5	57.9	14.4
0-17	11.0	14.2	13.5	14.0	16.7	16.1	14.4	14.2	16.8	21.0	26.3	6.6
18-39	16.6	24.0	26.8	29.3	30.5	29.9	32.6	29.7	31.6	38.2	42.0	10.8
40-64	21.8	32.3	36.0	39.3	40.8	40.4	43.3	40.5	42.6	49.8	53.2	13.1
65-74	28.1	41.7	46.4	49.3	51.0	51.3	54.3	51.2	53.6	60.7	63.3	15.4
75+	28.6	42.6	47.9	51.1	52.9	53.0	56.8	54.1	56.7	64.7	66.7	15.1

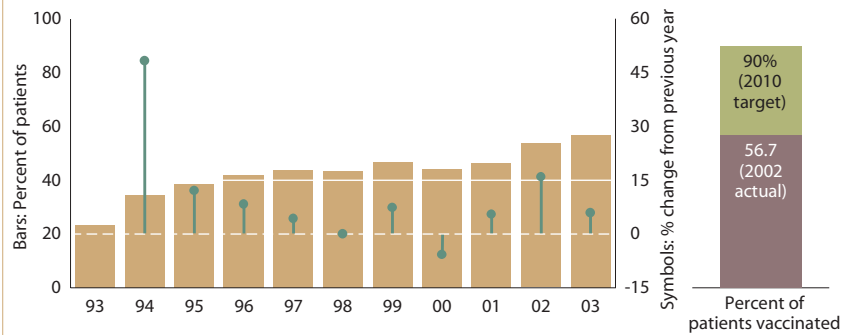
**HP2010 OBJECTIVE 14.29: INCREASE THE PROPORTION OF ADULTS VACCINATED ANNUALLY AGAINST INFLUENZA & EVER VACCINATED AGAINST PNEUMOCOCCAL DISEASE**

Rates of influenza vaccinations in the ESRD population are showing little progress toward the HP2010 goal of 90 percent (Table hp.d and Figure hp.11). Between 2002 and 2003, in fact, the vaccination rate increased only slightly, to just 56.7 percent. Rates do not vary widely by race, ethnicity, or gender; by age, however, barely one-quarter of pediatric patients are vaccinated, compared to 67 percent of those age 75 and older.

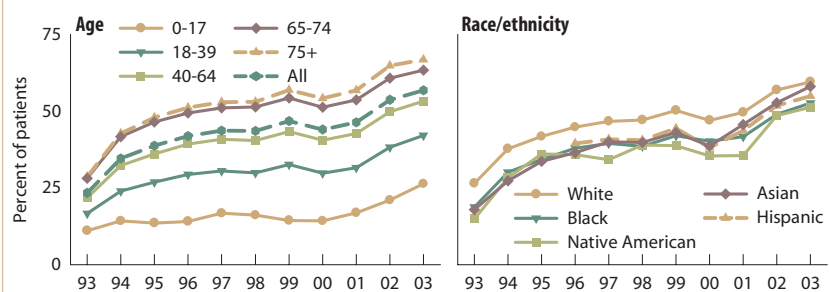
HP2010 recommends that 90 percent of adults receive a pneumococcal pneumonia vaccination during their lives. For 90 percent of ESRD patients to be vaccinated every six years, 30 percent must be vaccinated every two years. Between the 1998-1999 and 2002-2003 periods, rates of vaccinations for pneumococcal pneumonia increased only slightly, from 12.2 to 13.6 percent (Figure hp.13). Rates are again lowest in the pediatric populations, at less than 7 percent, and in patients age 75 and older reach just 15 percent. By race and ethnicity, vaccination rates are greatest in whites, and lowest in those of Asian descent.

{Table hp.d & Figures hp.11-12} influenza: ESRD patients initiating therapy at least 90 days before September 1 of each year & alive on December 31; vaccinations tracked between September 1 & December 31 of each year. Pneumococcal pneumonia vaccinations in Table hp.d: point prevalent patients, 2002, with 90-day rule, alive on December 31, 2003; vaccinations tracked in 2002 & 2003. {Figure hp.13} ESRD patients initiating therapy at least 90 days before the start of the period & alive on the period's last day; vaccinations tracked during entire period. {All figures} age calculated on the last day of the period; Medicare Parts A & B coverage during period. For Hispanic patients we present data beginning in 1996, the first full year after the April 1995 introduction of the revised Medical Evidence form, which contains more specific questions on race & ethnicity.

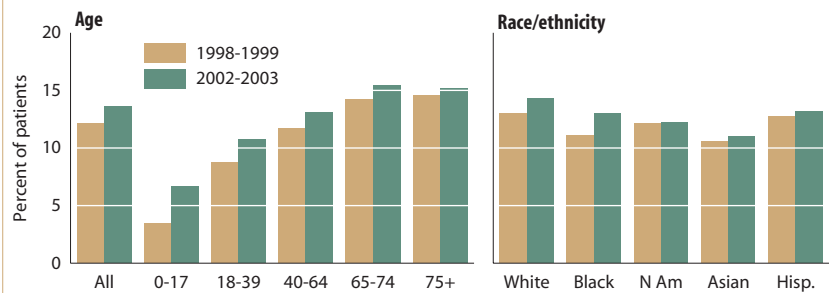
**hp.11** Prevalent ESRD patients receiving influenza vaccinations point prevalent ESRD patients



**hp.12** Prevalent ESRD patients receiving influenza vaccinations, by age & race/ethnicity point prevalent ESRD patients



**hp.13** Prevalent ESRD patients receiving pneumococcal pneumonia vaccinations, by age & race/ethnicity point prevalent ESRD patients

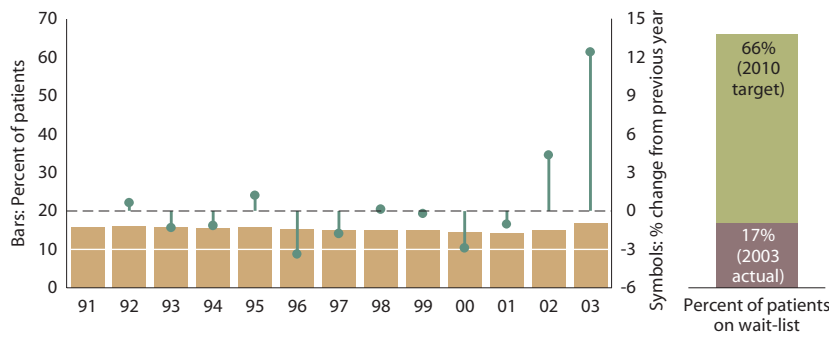




**hp.e** Percent of patients either wait-listed or receiving a deceased-donor kidney within one year of their ESRD initiation date & on the wait list as of December 31

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
All	15.9	16.0	15.7	15.6	15.7	15.2	14.9	14.9	14.9	14.5	14.3	14.9	16.8
Am. Indian or Alaskan Native	12.0	10.7	10.0	12.9	12.6	12.1	10.9	10.4	9.5	9.7	8.7	11.2	9.7
Asian or Pacific Islander	24.0	23.8	24.7	24.7	20.5	26.3	24.1	24.5	26.6	28.0	28.1	27.7	29.5
Black or African American	10.2	10.5	10.7	11.2	11.5	11.2	10.2	10.2	10.6	10.8	10.5	11.1	11.7
White	18.9	19.0	18.6	17.9	18.6	17.6	17.8	17.8	17.3	16.3	16.1	16.7	19.3
Hispanic or Latino						11.3	12.0	12.7	12.4	12.1	12.9	14.2	15.9
Not Hispanic or Latino						15.8	15.4	15.3	15.3	14.9	14.5	15.1	16.9
Black or African American						11.2	10.2	10.2	10.6	10.8	10.5	11.1	11.7
White						18.8	19.0	18.9	18.4	17.3	16.9	17.3	20.1
Male	17.9	17.9	17.9	17.5	17.8	17.0	16.7	16.4	16.4	15.8	15.2	16.2	18.2
Female	13.5	13.8	13.2	13.4	13.4	13.1	12.8	13.3	13.1	12.9	13.2	13.3	15.1
0-19	48.6	47.7	46.1	47.6	47.4	43.2	47.0	44.9	46.1	38.2	38.7	38.1	47.5
20-39	34.0	33.8	32.5	31.7	31.1	30.7	29.4	29.5	28.5	27.3	26.6	28.2	30.4
40-59	17.7	18.1	17.9	17.8	17.8	17.4	17.2	17.0	16.8	16.3	16.1	16.2	17.9
60-69	3.7	3.7	4.3	4.4	5.4	5.2	5.6	5.9	6.3	6.7	6.7	7.6	8.9

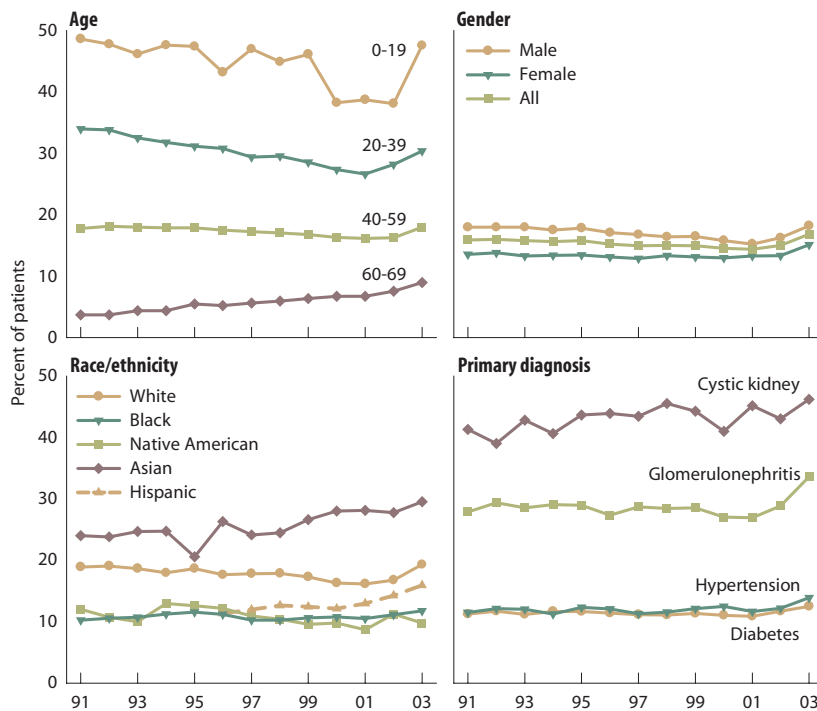
**hp.14** Patients wait-listed or receiving a deceased-donor kidney within one year of ESRD initiation & on the wait list as of December 31



**HP2010 OBJECTIVE 4.5: INCREASE THE PROPORTION OF DIALYSIS PATIENTS REGISTERED ON THE WAITING LIST FOR TRANSPLANT**

The percent of dialysis patients who are either wait-listed for a transplant or receive a deceased-donor transplant within a year of starting ESRD therapy fell between 1992 and 2001, from 16.0 to 14.3 (Table hp.e and Figure hp.14). In 2002, however, it grew to 14.9, and in 2003 it increased to 16.8—the largest increase so far. But despite this growth, the number of wait-listed patients remains far from the HP2010 goal of 66 percent of the dialysis population.

**hp.15** Patients wait-listed or receiving a deceased-donor kidney, by age, gender, race/ethnicity, & primary diagnosis & on the wait list as of December 31



Nearly one in two pediatric dialysis patients is on the transplant wait list or receives a deceased-donor kidney in the first year of ESRD therapy, compared to 30 percent of those age 20-39, 18 percent of those age 40-59, and only 9 percent of those age 60-69 (Figure hp.15). Eighteen percent of males are on the list or receive an early transplant, compared to 15 percent of females. By race/ethnicity, the listing/transplant rate is greatest in Asians, and lowest in Native Americans and blacks. And by primary diagnosis, patients whose ESRD is caused by cystic kidney disease are the most likely to be wait-listed or receive a transplant in the first year, and those with a primary diagnosis of hypertension or diabetes the least likely.

{Table hp.e & Figures hp.14-15} prevalent dialysis patients younger than 70 & registered on the transplant wait list on December 31 of the given year. —◆— For Hispanic patients we present data beginning in 1996, the first full year after the April 1995 introduction of the revised Medical Evidence form, which contains more specific questions on race & ethnicity.



**hp.f** Percent of incident dialysis patients receiving a transplant within three years of ESRD registration | ESRD patients younger than 70

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
All	24.3	23.9	22.7	21.5	21.3	20.2	20.0	19.7	19.2	19.0
Am. Indian or Alaskan Native	17.8	14.5	13.4	17.0	12.5	12.8	11.6	13.0	10.3	12.3
Asian or Pacific Islander	30.7	26.8	23.4	22.7	21.5	22.6	21.4	19.3	19.6	20.1
Black or African American	13.2	13.8	12.5	12.3	12.3	11.5	10.0	9.9	9.6	10.0
White	30.6	30.1	29.2	27.3	27.7	26.4	26.8	26.6	25.8	25.0
Hispanic or Latino						15.6	16.7	16.6	15.0	14.9
Not Hispanic or Latino						20.9	20.4	20.2	19.9	19.7
Black or African American						11.5	9.9	9.8	9.5	9.9
White						28.5	28.9	28.7	28.4	27.5
Male	27.6	27.0	25.9	23.9	23.9	22.7	21.9	21.7	20.9	20.6
Female	20.6	20.5	18.8	18.6	18.3	17.3	17.6	17.4	17.2	17.2
0-19	75.7	73.0	73.2	71.3	74.4	74.2	74.5	74.4	75.5	72.3
20-39	43.9	42.1	40.3	38.1	36.3	35.2	34.6	33.5	32.4	31.4
40-59	17.0	17.8	16.7	16.2	16.7	15.8	15.9	16.0	15.4	15.8
60-69	3.3	3.6	4.0	4.0	4.5	4.3	4.7	5.2	6.0	6.1

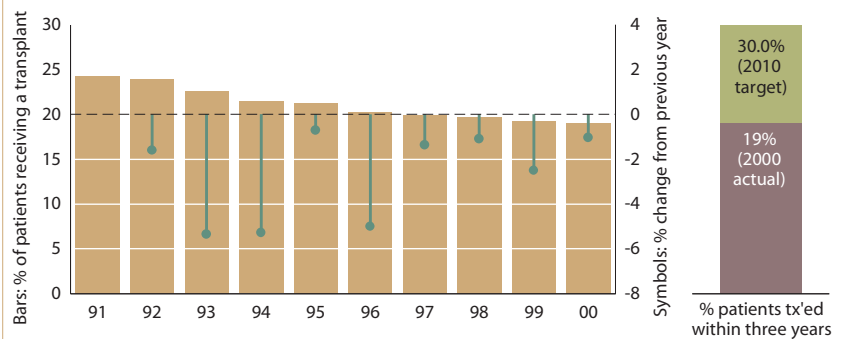
**HP2010 OBJECTIVE 4.6:**  
INCREASE THE PROPORTION OF PATIENTS WITH TREATED CHRONIC KIDNEY FAILURE WHO RECEIVE A TRANSPLANT WITHIN THREE YEARS OF ESRD REGISTRATION.

The percent of incident dialysis patients who receive a transplant within three years of registering on the transplant wait list continues to move farther away from the HP2010 goal of 30 percent, in 2000 falling to 19 percent (Table hp.f and Figure hp.16). In 1991, nearly one-quarter of listed patients were transplanted within three years.

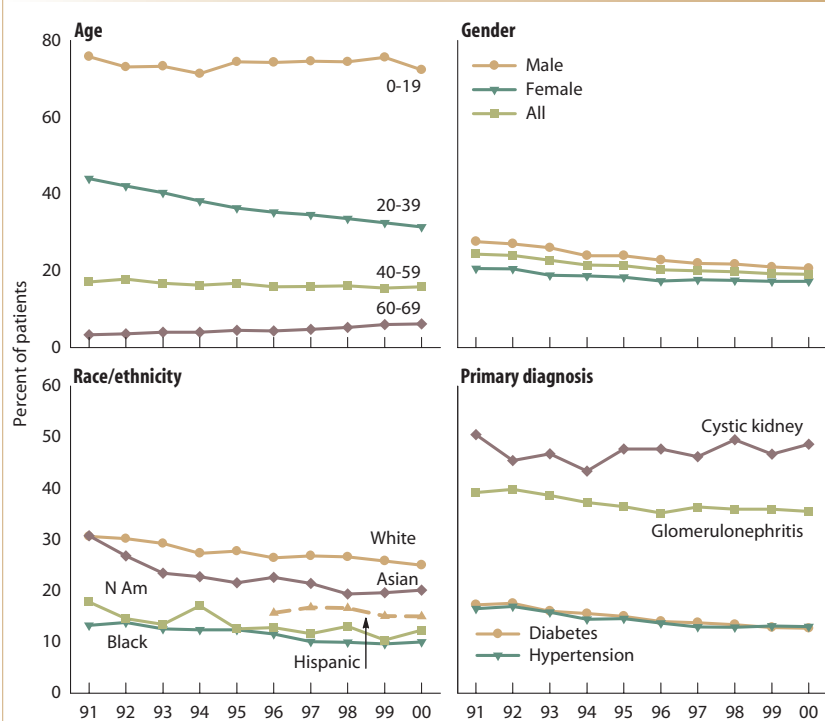
For most demographic groups and primary diagnoses, the percent of patients transplanted has fallen since the early 1990s (Figure hp.17). Not surprisingly, the percent varies widely by age; nearly three in four pediatric patients receive a transplant within three years, compared to 31 percent of patients age 20–39, 16 percent of those age 40–59, and only 6 percent of those age 60–69. Males are slightly more likely to be transplanted than females, though the gender difference has lessened since the early 1990s. By race and ethnicity, the percent transplanted is greatest for whites, followed by Asians—though Asian patients are the most likely to be placed on the wait list or receive an early transplant (see Figure hp.15). Patients whose ESRD is caused by diabetes or hypertension have the lowest rates of transplantation within three years of registering on the wait list.

{Table hp.f & Figures hp.16–17} patients certified as having ESRD in the given year; patients older than 69 or with prior transplants are excluded. Percents are estimated using the Kaplan-Meier methodology. Followup is censored at removal from the list, death, or the end of the three-year period. {Figure hp.16} target level estimated as 30 percent by the USRDS. For Hispanic patients we present data beginning in 1996, the first full year after the April 1995 introduction of the revised Medical Evidence form, which contains more specific questions on race & ethnicity.

**hp.16** Incident dialysis patients receiving a transplant within three years of registration | ESRD patients younger than 70



**hp.17** Dialysis patients receiving a transplant within three years, by age, gender, race/ethnicity, & diagnosis | ESRD patients younger than 70





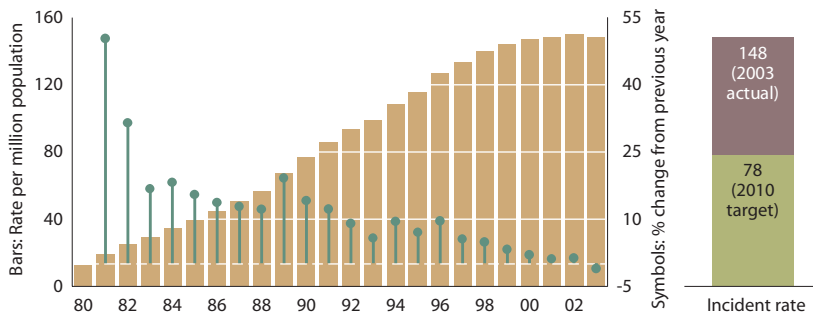
The 2000 U.S. Census allowed respondents to identify themselves by more than one race designation, which resulted in a higher number of self-designated Native Americans. This increased denominator explains the apparent fall in ESRD rates for Native Americans.

hp.g Adjusted incident rates of ESRD due to diabetes (rates per million population) | incident ESRD patients

	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	
All	29	34	39	45	50	56	67	77	86	93	99	108	116	127	133	140	144	147	148	150	148	
Am. Indian/Al. Native	150	163	175	209	241	291	307	315	359	393	402	394	435	429	448	470	474	444	408	397	375	
Asian/Pacific Islander	27	29	48	46	51	54	65	86	89	108	118	139	158	168	165	176	185	175	175	172	162	
Black/Af. American	81	97	114	128	148	165	199	231	261	282	301	326	358	394	409	435	425	422	436	445	435	
White	22	26	29	33	37	42	50	56	63	68	72	79	83	92	98	102	108	112	113	114	114	
Hispanic or Latino														282	290	299	312	320	310	315	312	
Not Hispanic or Latino														115	122	128	132	135	137	138	136	
Black or African American*																						
White*																						
Male	30	36	42	46	52	58	68	78	87	95	102	111	119	133	142	150	156	161	164	170	168	
Female	28	32	37	43	49	54	66	74	84	92	96	105	112	121	126	131	134	135	135	134	132	
0-19	0.1	0.2	0.2	0.3	0.2	0.2	0.3	0.3	0.2	0.2	0.3	0.2	0.1	0.2	0.2	0.1	0.2	0.2	0.1	0.2	0.1	
20-44	20	23	25	27	27	29	33	34	35	36	36	36	36	36	36	36	36	36	37	36	35	
45-64	74	87	100	111	129	146	171	197	218	235	249	273	289	310	320	335	337	334	338	331	325	
65-74	87	105	129	159	187	215	259	313	367	416	448	489	536	612	648	675	704	714	728	743	732	
75+	25	38	49	56	64	79	109	133	159	180	201	235	280	334	384	430	464	493	506	556	546	

42

hp.18 Adjusted incident rates of ESRD due to diabetes | incident ESRD patients



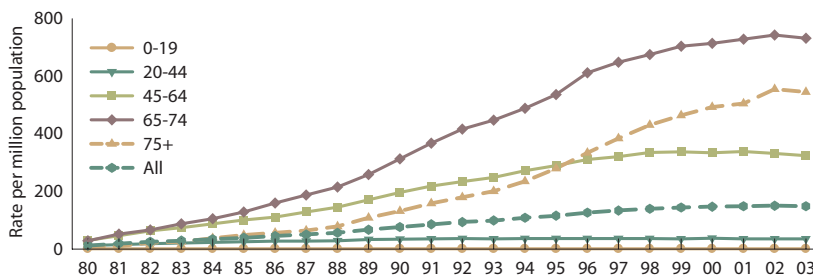
HP2010 OBJECTIVE 4.7: REDUCE KIDNEY FAILURE DUE TO DIABETES

Like the overall incident rates, rates of diabetic ESRD have stabilized since the late 1990s, and in 2003 fell slightly from the previous year (Table hp.g and Figure hp.19). But at 148 per million population, they are still nearly twice the HP2010 goal of 78. Further attention to blood pressure control and diabetic monitoring in the general population may help lower the rates.

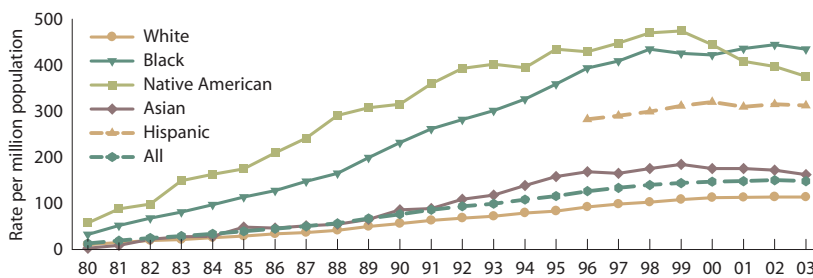
In slight contrast to the overall rates, rates of diabetic ESRD continue to be highest in patients age 65-74, reaching 732 per million population in 2003 (Figure hp.19). Since 1993, rates have grown 50 percent overall, but 171 percent in patients age 75 and older. In the 45-64 age group, in contrast, rates have begun to fall.

By race and ethnicity, rates of diabetic ESRD were, until 2000, highest in Native Americans (Figure hp.20). Data for 2000 and later years, however, incorporate population counts from the 2000 U.S. Census, which allowed people to identify themselves by more than one race. The greater number of people identifying themselves as Native American has contributed to a lower ESRD rate, which, since 2000, exhibits a real decline. Rates of diabetic ESRD are now highest in blacks, reaching 435 per million population in 2003. Rates for Asian patients, however, have begun to fall—12 percent since 1999.

hp.19 Adjusted incident rates of ESRD due to diabetes, by age | incident ESRD patients



hp.20 Adjusted incident rates of ESRD due to diabetes, by race/ethnicity | incident ESRD patients



{Table hp.g} incident ESRD patients; rates by age adjusted for gender & race, rates by gender adjusted for age & race, & rates by race & ethnicity adjusted for age & gender. Rates for non-Hispanics are unadjusted. \*Census data are not available for non-Hispanic blacks & whites, so rates cannot be calculated. {Figure hp.18} incident ESRD patients; adjusted for age, gender, & race. {Figure hp.19} incident ESRD patients; adjusted for gender & race. {Figure hp.20} incident ESRD patients; adjusted for age & gender. For Hispanic patients we present data beginning in 1996, the first full year after the April 1995 introduction of the revised Medical Evidence form, which contains more specific questions on race & ethnicity.



**hp.h** Percent of diabetic patients receiving preventive health tests, by test type general Medicare (GM) & pre-ESRD (PE) patients, age 67 and older at initiation

	1998 Eye exam		Lipids		HbA1c		Microalb.		All four tests		2003 Eye exam		Lipids		HbA1c		Microalb.		All four tests		
	GM	PE	GM	PE	GM	PE	GM	PE	GM	PE	GM	PE	GM	PE	GM	PE	GM	PE	GM	PE	
All	60.9	66.1	54.5	49.4	63.1	55.4	7.0	5.2	3.6	2.1	65.6	67.1	73.0	65.1	81.0	73.9	21.1	13.0	13.6	7.9	
Am. Indian/Al. Native	43.1	48.2	29.2	24.1	41.1	32.5	4.9	3.0	2.6	0.6	57.2	58.5	36.6	31.6	44.9	37.7	11.9	6.6	6.8	3.3	
Asian/Pacific Islander	57.8	62.4	66.0	62.4	63.8	53.8	7.9	5.4	4.4	2.9	61.8	64.0	79.5	75.4	79.0	76.2	23.7	15.1	15.0	9.3	
Black/Af. American	54.9	60.1	44.3	42.4	55.9	49.9	5.6	3.8	2.4	1.7	60.0	61.3	65.9	58.1	76.3	69.3	18.4	9.8	10.9	5.3	
White	62.0	69.2	55.5	50.6	64.7	59.2	7.2	5.0	3.8	2.2	66.6	69.8	73.8	66.8	82.2	76.7	21.5	13.1	14.0	8.5	
Hispanic or Latino	58.3	64.9	65.1	58.6	50.2	49.1	7.7	9.6	3.8	2.8	62.8	65.6	77.4	70.2	73.0	70.5	20.8	19.4	12.6	10.7	
Not Hispanic or Latino																					
Black or African American																					
White																					
Male	59.2	64.1	57.1	49.9	64.7	54.4	7.4	5.4	3.8	2.1	63.5	65.9	74.5	65.7	80.6	72.2	21.9	12.9	13.8	7.8	
Female	62.0	67.5	52.8	49.0	62.0	56.2	6.8	5.0	3.5	2.1	67.2	68.1	71.9	64.5	81.3	75.4	20.6	13.1	13.5	8.1	
0-19	data not collected																				
20-44	data not collected																				
45-64	data not collected																				
65-74	59.6	65.3	61.6	50.1	67.1	56.8	8.9	5.4	4.7	2.2	63.3	66.2	78.9	67.0	83.3	74.8	24.8	13.7	15.7	8.4	
75+	61.9	66.9	48.7	48.6	59.7	53.8	5.5	5.0	2.7	2.0	67.4	67.9	68.5	63.4	79.3	73.1	18.3	12.4	12.0	7.5	

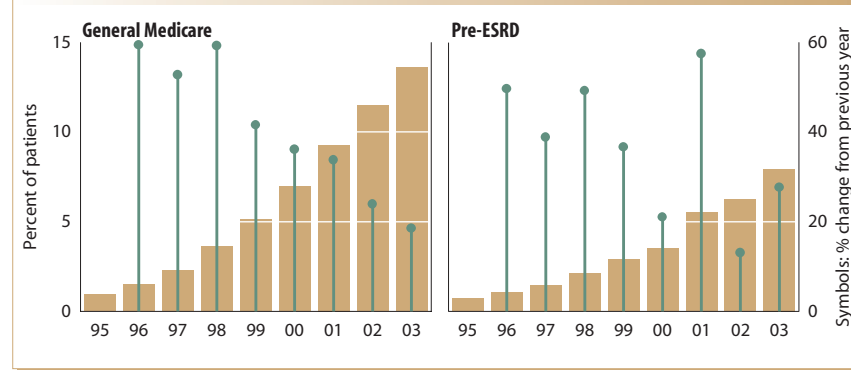
**HP2010 OBJECTIVE 4.0: INCREASE THE PROPORTION OF PERSONS WITH TYPE 1 OR TYPE 2 DIABETES & PROTEINURIA WHO RECEIVE RECOMMENDED MEDICAL THERAPY TO REDUCE PROGRESSION TO CHRONIC RENAL INSUFFICIENCY**

To examine progress toward this objective, we have this year added new data on microalbuminuria testing. The American Diabetes Association recommends 2-4 glycosylated hemoglobin tests per year, along with annual lipid, eye, and microalbuminuria testing. Testing rates have increased steadily since 1995, but in 2003 only 14 percent of general Medicare patients, and 8 percent of the pre-ESRD population, received all four preventive health tests (Table hp.h and Figure hp.21).

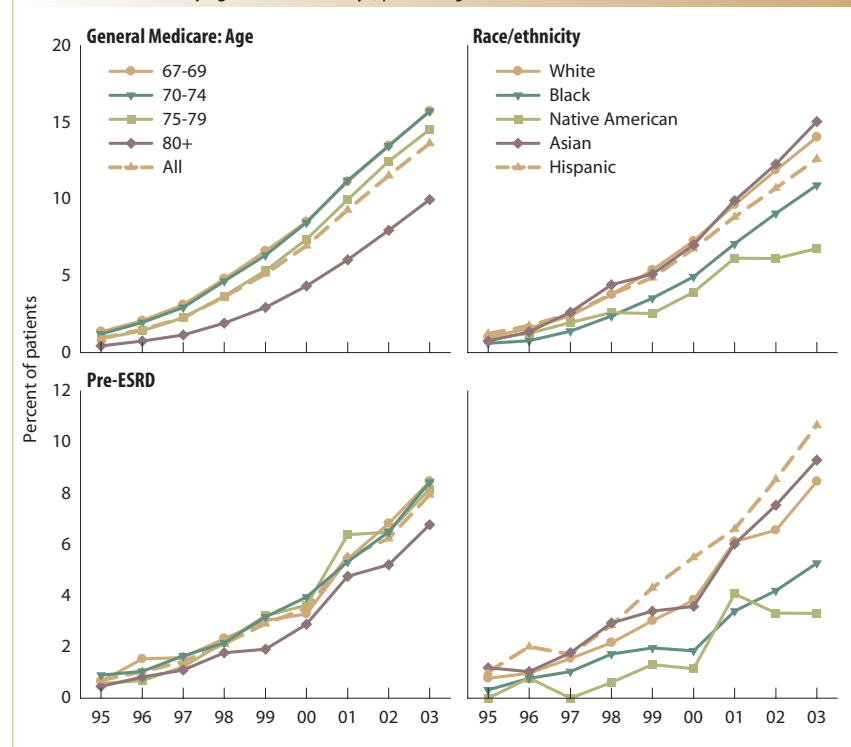
Patients age 80 and older remain the least likely to receive all four tests (Figure hp.22). By race/ethnicity, testing rates are lowest in black and Native American patients, in 2003 reaching only 11 and 7 percent, respectively, in the general Medicare population, and 5 and 3 percent in pre-ESRD patients. In the pre-ESRD population, rates for Hispanic patients are the highest of all racial/ethnic groups.

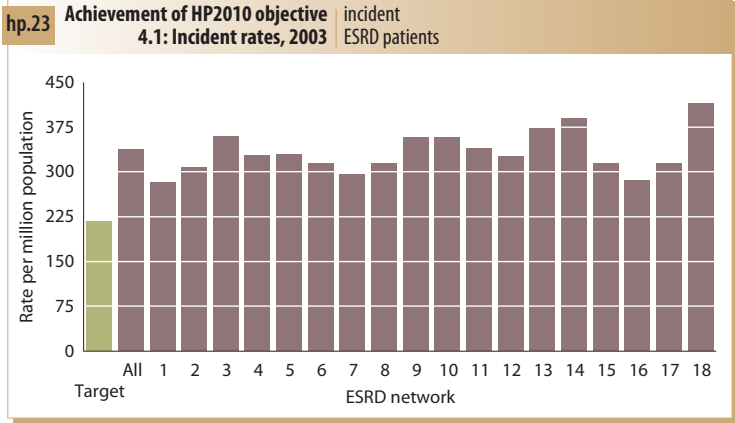
{Table hp.h & Figures hp.21-22} general Medicare: patients diagnosed with diabetes in each year, age 67 & older on December 31 of the diagnosis year, & continuously enrolled in Medicare during the diagnosis year & previous year. Patients enrolled in a managed care program or diagnosed with ESRD are excluded. Claims from diagnosis year & previous year searched for eye exam codes; claims from diagnosis year searched for lipid, HbA1c, & microalbuminuria testing codes. Age calculated on December 31 of the diagnosis year. Pre-ESRD: incident patients age 67 & older at initiation, & with diabetes one year prior to start of ESRD. Patients enrolled in a managed care program or with Medicare as secondary payer are excluded. Eye exams tracked two years prior to start of ESRD; lipid, HbA1c, & microalbuminuria testing tracked one year prior to start of ESRD. Age calculated at ESRD initiation. {Table hp.h & Figure hp.22} because of categorizations in the general Medicare database, racial & ethnic categories are mutually exclusive.

**hp.21** Percent of diabetic patients receiving all four preventive health tests general Medicare (GM) & pre-ESRD (PE) patients, age 67 and older at initiation



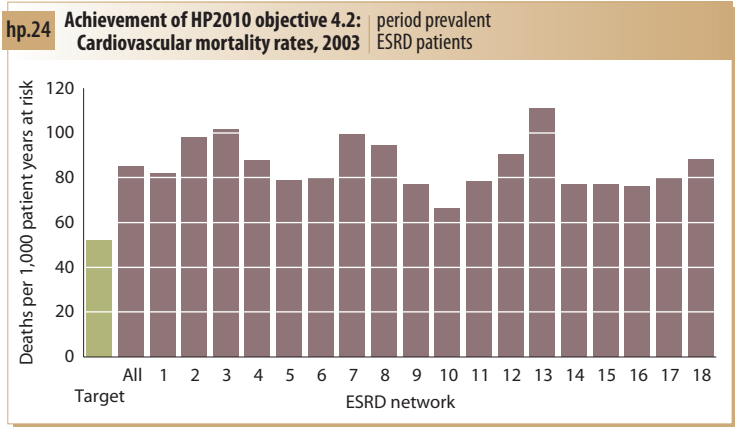
**hp.22** Diabetics receiving all four preventive health tests, by age & race/ethnicity general Medicare (GM) & pre-ESRD (PE) patients, age 67 and older at initiation





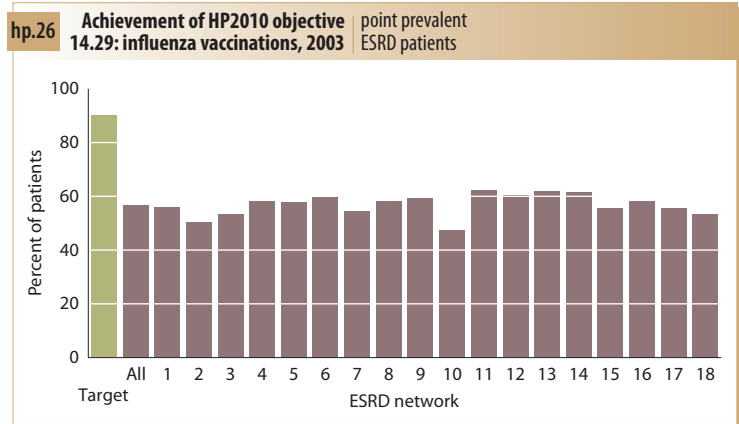
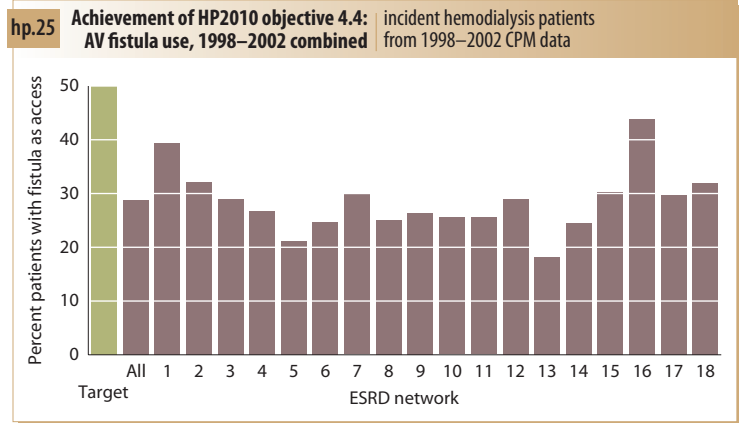
The Healthy People initiative seeks to lower the incident rate of ESRD to 217 per million population by 2010. Rates by network in 2003, however, show that this target is still far from being met (Figure hp.23). The lowest rates occur in Networks 1, 7, and 16, at 282–295 per million population. Rates in Networks 13 and 14, however, are 373 and 389, respectively, and in Network 18—southern California—the current rate of 415 exceeds the target by 91 percent.

Rates of mortality due to cardiovascular disease reach 111 deaths per 1,000 patient years in Network 13—more than twice the target level of 52 (Figure hp.24). They are lowest in Network 10, at 66, and are 80 or lower in Networks 5, 6, 9, 10, 11, 14, 15, 16, and 17.



Under the HP2010 objective, 50 percent of hemodialysis patients should be using an arteriovenous fistula. With fistula use at nearly 44 percent, Network 16—consisting of Alaska, Idaho, Montana, Oregon, and Washington—is currently closest to achieving this goal (Figure hp.25). Network 1 has a level of almost 40 percent. In Network 13 (Arkansas, Louisiana, Oklahoma), in contrast, fistulas are used by fewer than one in five hemodialysis patients.

The HP2010 target for influenza vaccinations is 90 percent. All ESRD networks, however, are quite far from realizing this goal (Figure hp.26). Vaccination rates range from a low of 47 percent in Network 10 to a high of 62 percent in Networks 11 and 13.



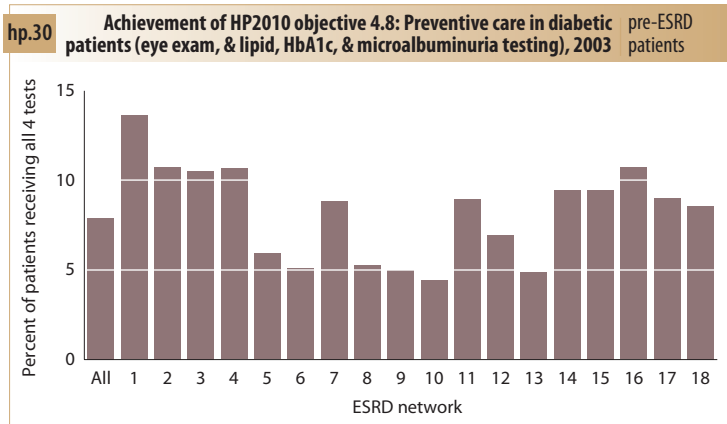
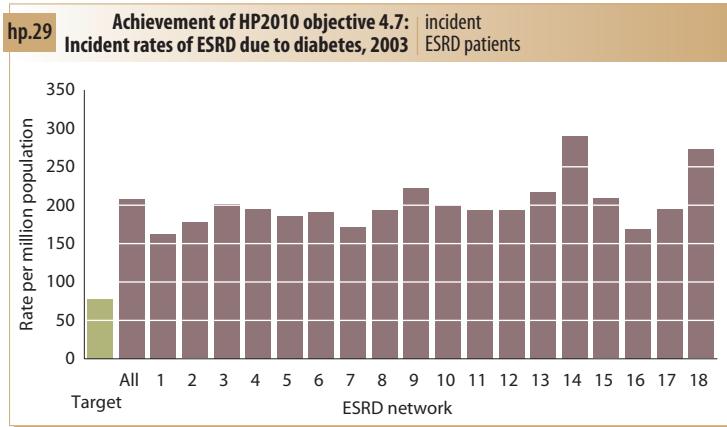
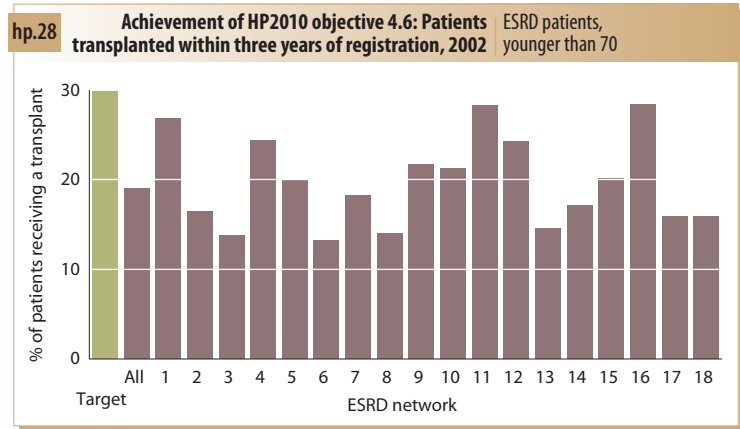
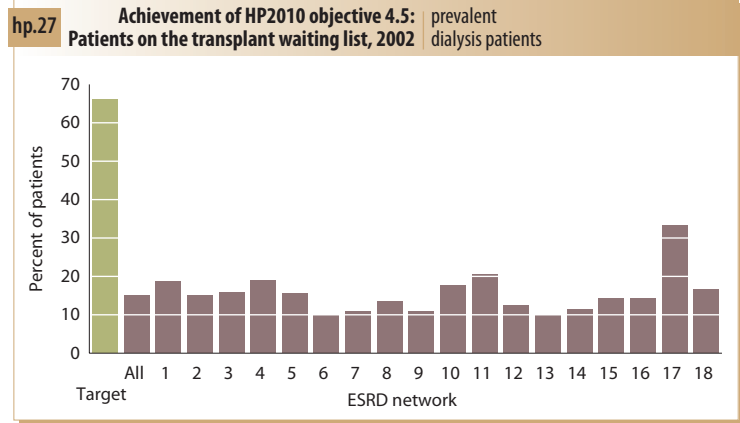


By 2010, another Healthy People objective is to have two of every three dialysis patients registered on the transplant wait list. In 2002, however, the percentage of patients either registered on the list or receiving a deceased donor kidney within one year of ESRD initiation was only 14.9 percent (Figure hp.27). Network 17—American Samoa, northern California, Guam, and Hawaii—comes closest to meeting the target, at 33 percent. In Networks 6 and 13, in contrast, not even one in ten patients is on the list or receives an early transplant.

For transplantation itself, the HP2010 objective is to have 30 percent of patients transplanted within three years of registration on the wait list. In 2002, the rate was 19 percent—ranging from less than 15 percent in Networks 3, 6, 8, and 15 to a high of 28 percent in Networks 11 and 16 (Figure hp.28).

In every network the incident rate of ESRD due to diabetes is 1.5–2.7 times greater than the HP2010 target of 78 per million population (Figure hp.29). The lowest rates, of 116–123, occur in Networks 1, 7, and 16, while the highest rates—208 and 195—occur in Networks 14 and 18, respectively.

The percent of pre-ESRD patients who receive all four diabetic preventive health tests—eye examination, lipid testing, glycosylated hemoglobin testing, and microalbuminuria testing—is greatest in Networks 1, 2, 3, and 4, which comprise the northeastern states down through Pennsylvania, and Network 16, which includes states in



the Northwest and Alaska (Figure hp.30). Testing rates are 6 percent or lower in Networks 5, 6, 8, 9, 10, and 13.

{Figure hp.23} incident ESRD patients, 2003; rates adjusted for age, gender, & race. {Figure hp.24} period prevalent ESRD patients, 2003; unadjusted. {Figure hp.25} incident patients, 1998–2002 combined; patients initiating hemodialysis between January 1 & August 31 of the year of data collection; 1999–2003 CPM data. Access represents the current access used as of the latest data collection for that year. Includes only patients for whom an access is known. {Figure hp.26} ESRD patients initiating therapy at least 90 days before September 1, 2003, & alive on December 31, 2003; vaccinations tracked between September 1 & December 31. {Figure hp.27} prevalent dialysis patients younger than 70 & registered on the transplant wait list on December 31, 2002. {Figure hp.28} patients certified as having ESRD, 2002; patients older than 69 or with prior transplants are excluded. Percents are estimated using the Kaplan-Meier methodology. Follow-up is censored at removal from the list, death, or the end of the three-year period. {Figure hp.29} incident ESRD patients, 2003; rates adjusted for age, gender, & race. {Figure hp.30} incident patients age 67 & older at initiation & with diabetes one year prior to start of ESRD, 2003. Patients enrolled in a managed care program or with Medicare as secondary payor are excluded. Eye exams tracked two years prior to start of ESRD; lipid, HbA1c, & microalbuminuria testing tracked one year prior to start of ESRD. Figure 2.39, in Chapter Two, contains a map of the ESRD networks; a list of network contacts can be found on page 230 of Appendix A.



**Table hp.a/Figure hp.2** The adjusted ESRD incident rate fell slightly in 2003, but it remains far above the HP2010 target of 217 cases per million population. **Figure hp.3** ESRD incident rates appear to be leveling off in all age groups and by primary diagnosis (with the possible exceptions of patients age 75 and older and those with ESRD caused by hypertension). **Figure hp.4** Based on the prevalence of diabetes in the general population and projections by the USRDS, the incident rate of ESRD due to diabetes is expected to rise.

**Figure hp.6** Cardiovascular mortality is falling at a greater rate than all-cause mortality. **Figure hp.7** Cardiovascular mortality rates are falling faster in women than in men.

**Table hp.c** AV fistula use in prevalent hemodialysis patients rose from 27.8 percent in 1998 to 35.2 percent in 2002. **Figure hp.8** No progress has been made in the percent of incident hemodialysis patients receiving an AV fistula. **Figures hp.9–10** AV fistula insertion rates have continued to rise in the prevalent hemodialysis population, particularly in younger and male patients, while insertion rates for grafts and catheters continue to fall in all groups.

**Table hp.d/Figure hp.11** Rates of influenza vaccinations increased slightly in 2003, and rates of pneumococcal vaccinations rose as well in 2002–2003. **Figures hp.12–13** Younger ESRD patients are much less likely to receive either influenza or pneumococcal vaccinations than older patients.

**incident rates****cardiovascular disease****fistula use****vaccinations**

**Table hp.e/Figure hp.14** The percent of dialysis patients either wait-listed or receiving a deceased-donor kidney transplant within one year of ESRD initiation rose in 2003, but at 17 percent is far from the HP2010 goal of 66 percent. **Table hp.f/Figure hp.16** The percent of incident dialysis patients receiving a transplant within three years of registration on the wait list, directly attributable to the rise in number of ESRD patients and to a stable donor pool. See Chapter Seven for more detailed information.

**Table hp.g/Figure hp.18** The adjusted incident rate of ESRD due to diabetes fell slightly in 2003; the rising prevalence of diabetes in the general population, however, is predicted to increase this rate in the future. **Figure hp.20** The rate of ESRD due to diabetes is now highest in blacks. **Table hp.h/Figure hp.21** The percent of pre-ESRD patients with diabetes who receive all four suggested preventive health tests (eye exam, and lipid, HbA<sub>1c</sub>, and microalbuminuria testing) was only 8 percent in 2003, compared to 14 percent of the general Medicare population.

**Figure hp.25** Rates of AV fistula use vary greatly between ESRD networks, with the highest use in Networks 1 and 16. **Figure hp.26** ESRD Network 11 achieved the highest rate of influenza vaccinations (62.3 percent) in 2003. **Figure hp.30** Network 1 achieved the highest rate (nearly 14 percent) of patients receiving all four diabetic preventive care tests.

**transplantation****diabetes & pre-ESRD diabetic care****achievement of HP2010 objectives, by ESRD network**