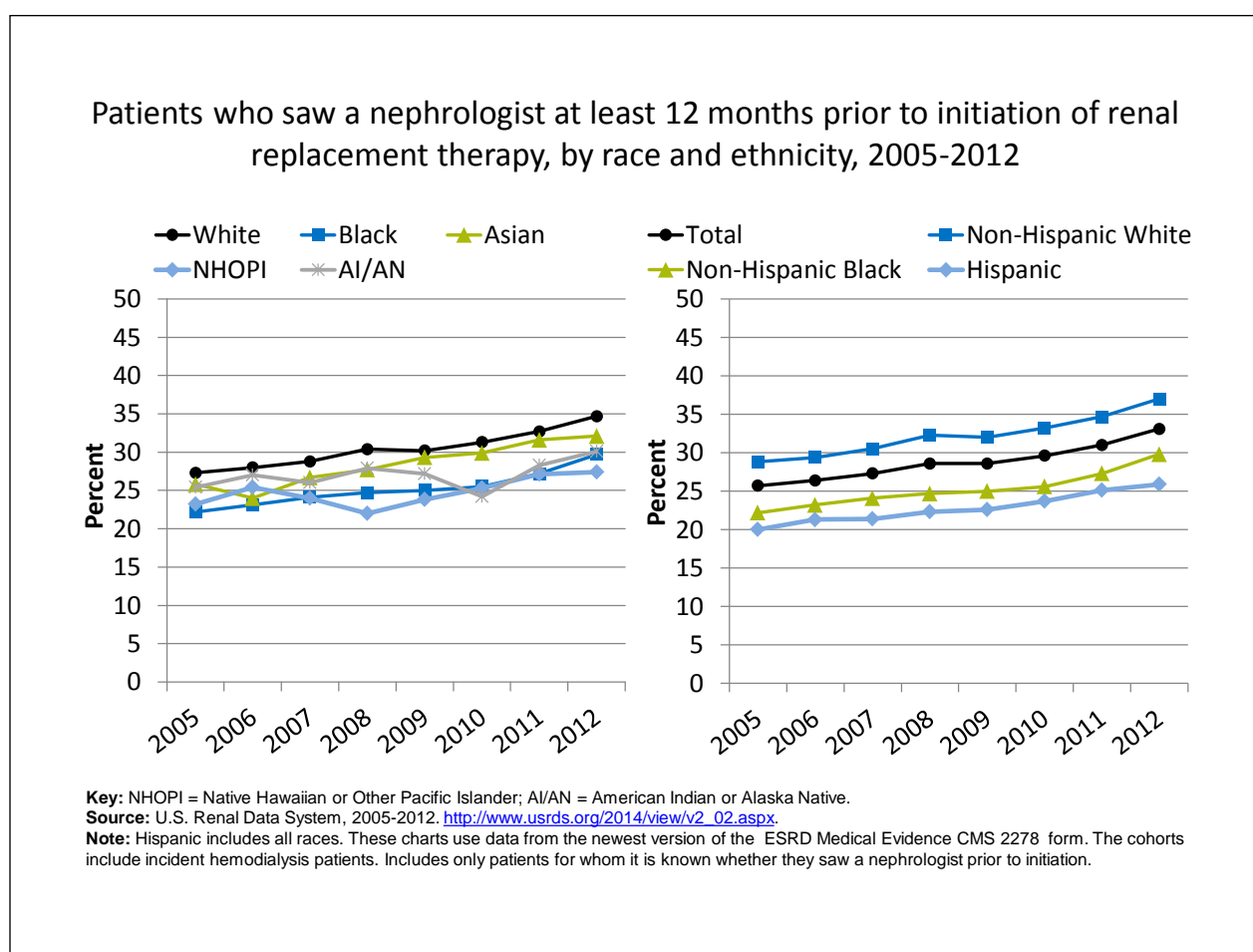


## Chronic Kidney Disease

### Measures of Effective Treatment of Chronic Kidney Disease

- Process:
  - Nephrology care before kidney failure
  - Registration for transplantation
- Outcome:
  - Hemodialysis death rate

### Nephrology Care Before Kidney Failure



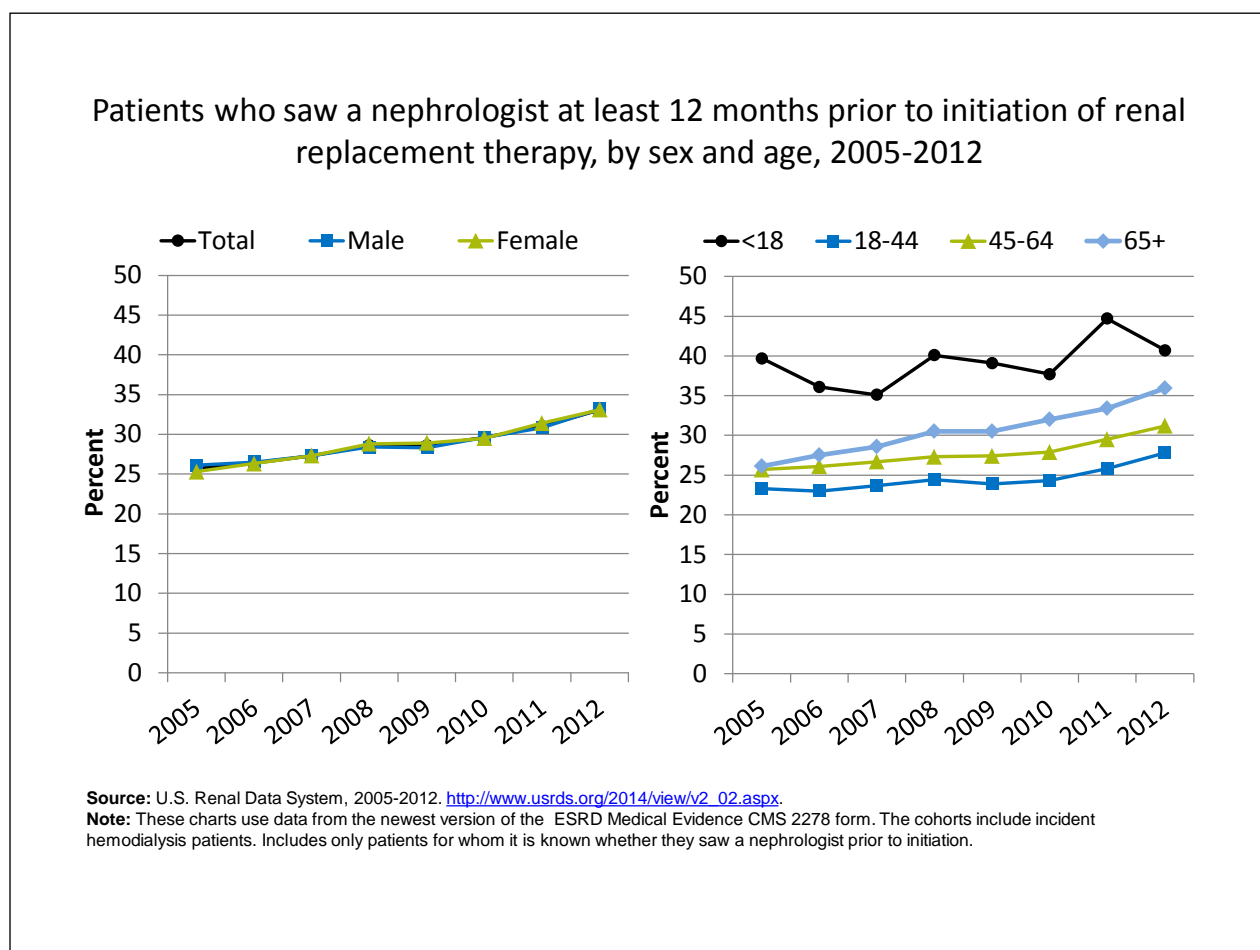
- **Importance:**

- Early referral to a nephrologist is important for patients with progressive chronic kidney disease who are approaching kidney failure.
- Patients who begin nephrology care more than a year before kidney failure are less likely to begin dialysis with a catheter, experience infections related to vascular access, or die during the months after dialysis initiation (USRDS, 2013a).

- **Groups With Disparities:**

- In all years, the percentage of new end stage renal disease (ESRD) patients who began nephrology care at least 12 months prior to initiation of renal replacement therapy was higher for non-Hispanic Whites than for Hispanics.
- From 2009 to 2012, the percentage of ESRD patients who began nephrology care at least 12 months prior to initiation of renal replacement therapy was higher for White and Asian patients than for Black, AI/AN, and NHOPI patients.

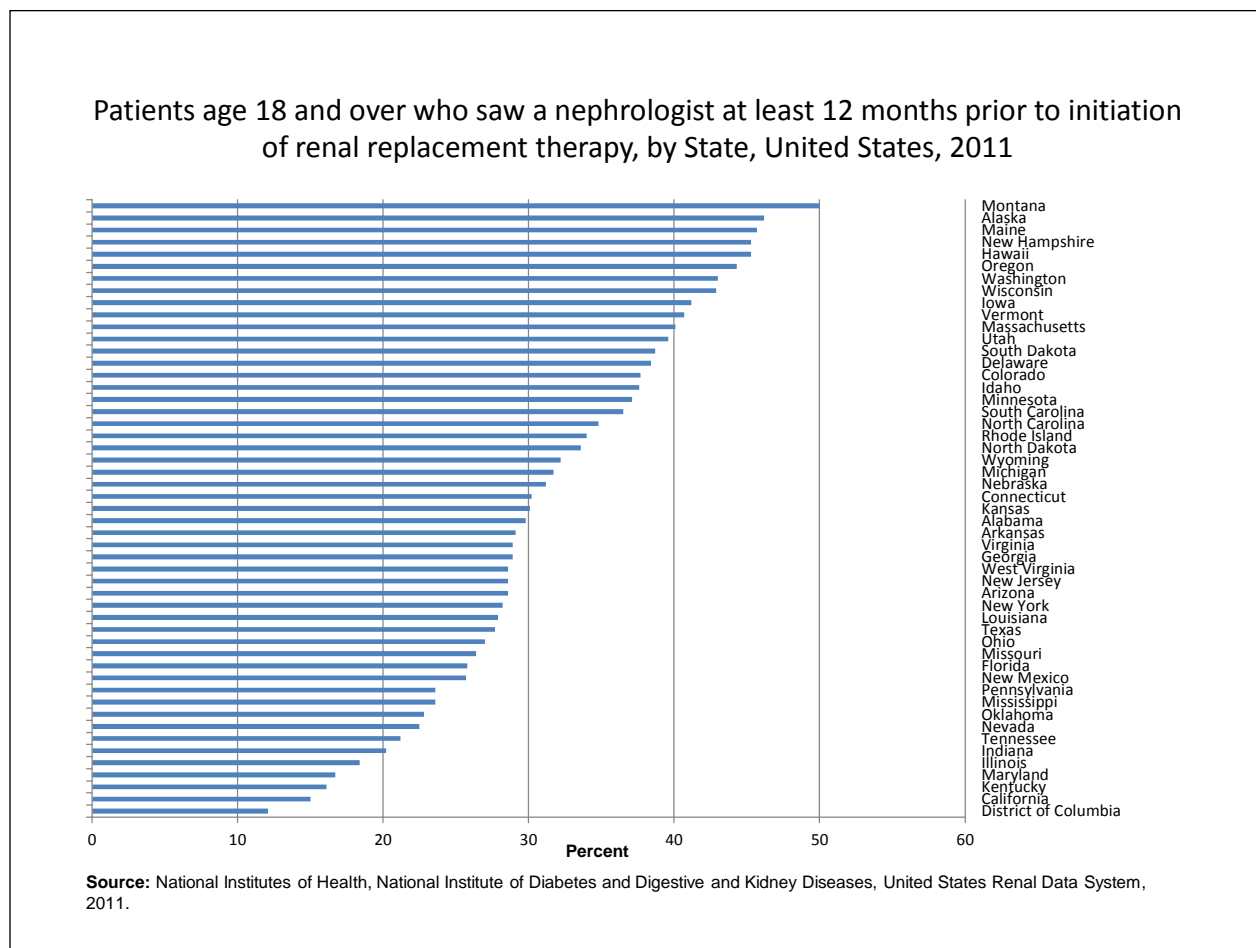
## Nephrology Care Before Kidney Failure



- **Groups With Disparities:**

- In 2012, at least 33% of both males and females began nephrology care at least 12 months prior to initiation of renal replacement therapy.
- In all years, the percentage of ESRD patients who began nephrology care at least 12 months prior to initiation of renal replacement therapy was higher for patients under age 18, ages 45-64, and age 65 and over than for patients ages 18-44.

## Nephrology Care Before Kidney Failure

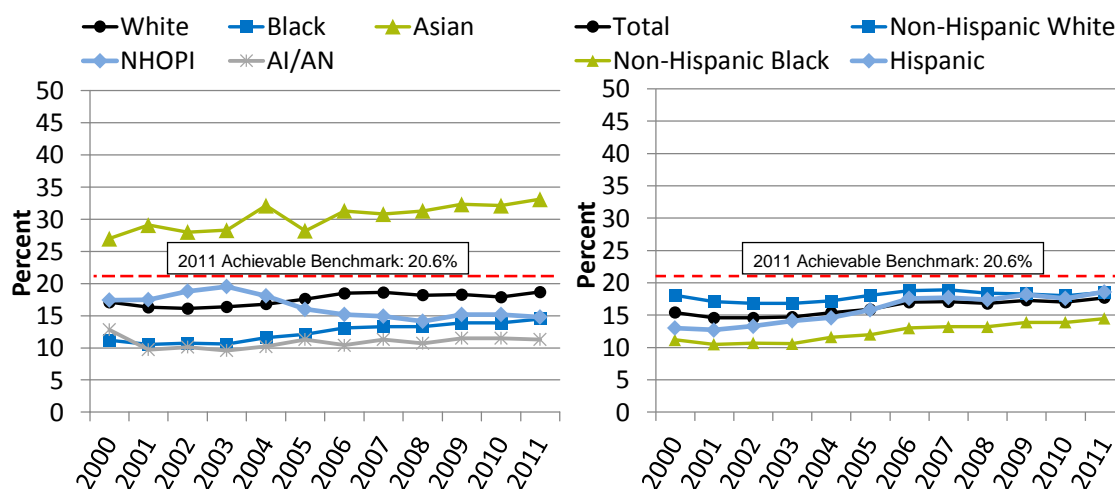


- **Geographic Variation:**

- The percentage of ESRD patients who began nephrology care at least 12 months prior to initiation of renal replacement therapy varies across U.S. States and the District of Columbia.
- The five jurisdictions with the lowest percentage of ESRD patients who began nephrology care at least 12 months prior to initiation of renal replacement therapy are the District of Columbia, California, Kentucky, Maryland, and Illinois.

## Registration for Transplantation

Dialysis patients under age 70 who were registered for transplantation within a year of ESRD initiation, by race and ethnicity, 2000-2011



Key: NHOPi = Native Hawaiian or Other Pacific Islander; AI/AN = American Indian or Alaska Native.

Source: U.S. Renal Data System, 2000-2011. [http://www.usrds.org/2014/view/v2\\_02.aspx](http://www.usrds.org/2014/view/v2_02.aspx)

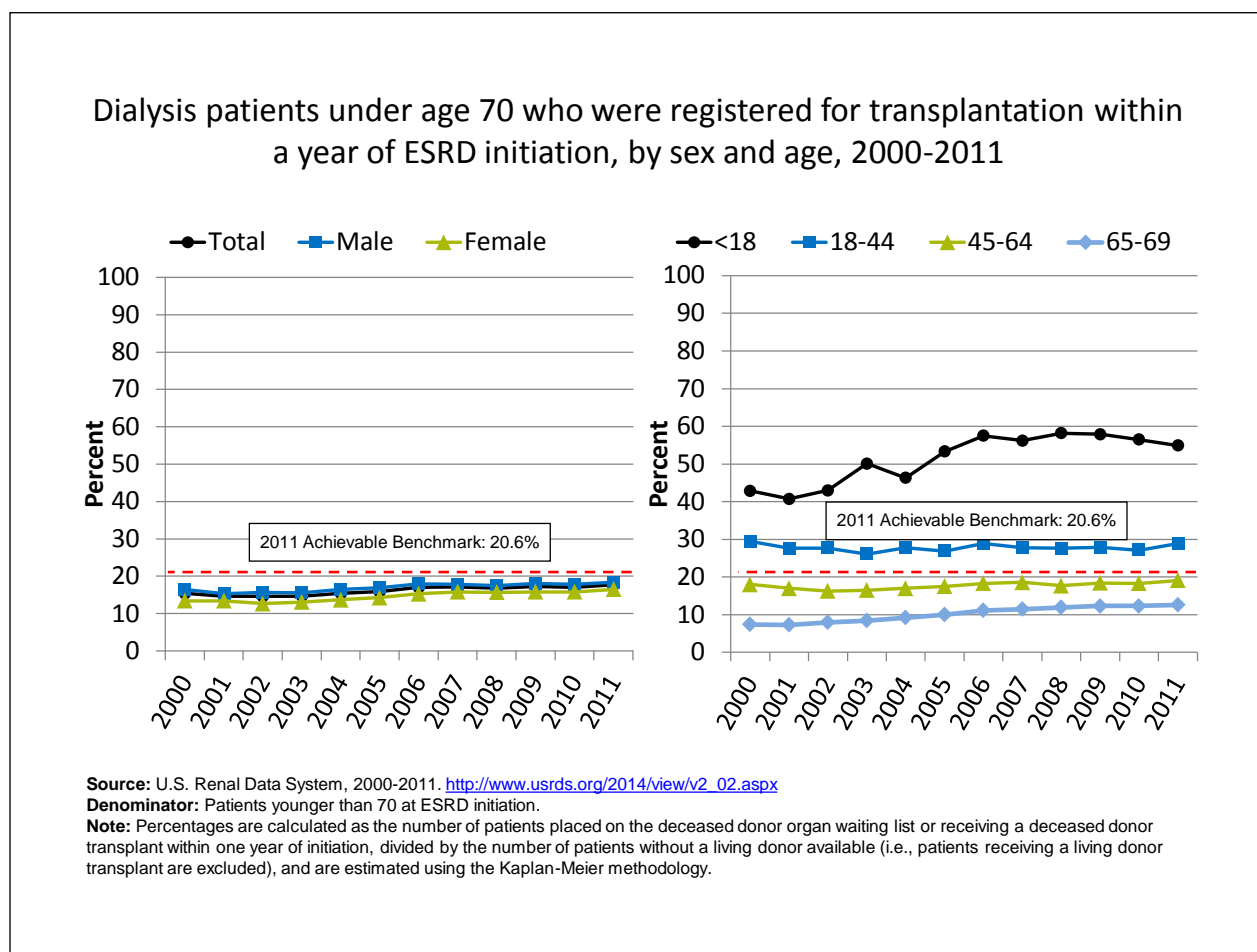
Note: Hispanic includes all races. The cohort includes patients from 2000-2011 who were younger than 70 at the initiation of ESRD. Percentages are calculated as the number of patients placed on the deceased donor organ waiting list or receiving a deceased donor transplant within 1 year of initiation, divided by the number of patients without a living donor available (i.e., patients receiving a living donor transplant are excluded), and are estimated using the Kaplan-Meier methodology.

- **Importance:** Kidney transplantation is a renal replacement therapy that replaces the failing kidney with a healthy donor kidney. ESRD patients who receive a kidney transplant have lower mortality and hospitalization rates than those on dialysis. First-year all-cause mortality rates in hemodialysis patients, for example, are nearly five times higher than rates among transplant patients (USRDS, 2013b).
- **Trends:** From 2000 to 2011, the total percentage of dialysis patients under age 70 who were registered for transplantation within 1 year of progressing to ESRD increased from 15.4% to 17.7%.
- **Groups With Disparities:**
  - From 2006 to 2011, Blacks, NHOPis, and AI/ANs were less likely than Whites to be registered for transplantation within 1 year of progressing to ESRD. However, Asians were more likely than Whites to be registered.
  - From 2000 to 2011, the percentage of dialysis patients registered for transplantation within 1 year of progressing to ESRD was lower for non-Hispanic Blacks than for non-Hispanic Whites and Hispanics.

- **Achievable Benchmark:**

- The 2011 top 5 State achievable benchmark for registration for transplantation within 1 year of progressing to ESRD was 20.6%. The top 5 States that contributed to the achievable benchmark are Colorado, Delaware, Minnesota, South Dakota, and Vermont.
- Asians have already surpassed the 2011 achievable benchmark.

## Registration for Transplantation



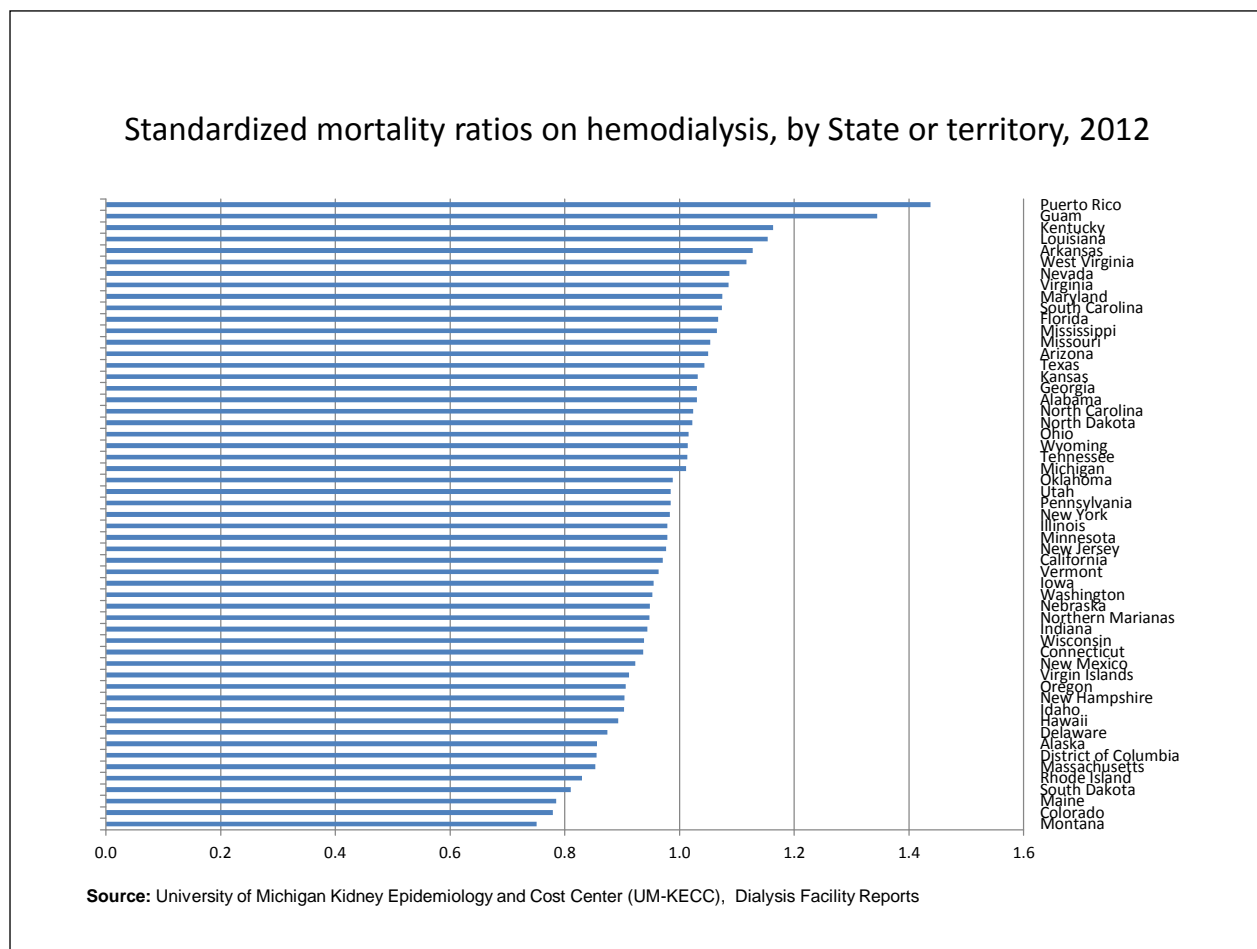
- **Groups With Disparities:**

- In all years, females were less likely than males to be registered for transplantation within 1 year of progressing to ESRD.
- In all years, patients under age 18 years and ages 18-44 years were more likely than patients ages 45-64 and 65 and over to be registered for transplantation within 1 year of progressing to ESRD.

- **Achievable Benchmark:**

- The 2011 top 5 State achievable benchmark for registration for transplantation within 1 year of progressing to ESRD was 20.6%. The top 5 States that contributed to the achievable benchmark are Colorado, Delaware, Minnesota, South Dakota, and Vermont.
- Patients ages 18 and under and 18-44 have already surpassed the 2011 achievable benchmark.

## Hemodialysis Death Rate



- **Importance:**

- Hemodialysis patient mortality varies across dialysis facilities and, correspondingly, across States.
- The standardized mortality ratio (SMR) is designed to summarize the observed death rate at a facility relative to the death rate that was expected based on national death rates during that year for patients with the same characteristics as those in a given facility.

- **Geographic Variation:**

- SMRs vary across U.S. States and territories, from a low in Montana to a high in Puerto Rico.
- Montana's SMR of 0.75 indicates facility death rates that are typically 25% below the national death rate.
- Puerto Rico's SMR of 1.44 indicates facility death rates that are 44% above the national death rate.

## References

U.S. Renal Data System. USRDS 2013 annual data report: atlas of chronic kidney disease and end-stage renal disease in the United States. Bethesda, MD: National Institutes of Health, National Institute of Diabetes and Digestive and Kidney Diseases; 2013a. Available at: <http://www.usrds.org/atlas.aspx>. Accessed July 8, 2015.

U.S. Renal Data System. USRDS 2013 annual data report reference tables. Bethesda, MD: National Institutes of Health, National Institute of Diabetes and Digestive and Kidney Diseases; 2013b. Available at <http://www.usrds.org/atlas13.aspx>. Accessed July 8, 2015.