The great questions of the time are not decided by speeches and majority decisions… but by iron and blood.

Otto von Bismarck,
*Speech to the Prussian Diet*
In the past several years a number of prominent organizations have advanced quality initiatives to improve ESRD patient outcomes. HCFA’s Core Indicator Project, incorporated into the Clinical Performance Measures (CPM) Project in 1999, includes data on a random sample of dialysis patients in each ESRD network. Providers collect data on dialysis adequacy, hematocrit level, nutritional status, blood pressure control, and vascular access measures. In addition, the National Kidney Foundation’s Dialysis Outcomes Quality Initiative (NKF-DOQI) publishes a set of clinical practice guidelines on hemodialysis and peritoneal dialysis adequacy, vascular access, and anemia management. Following the lead set by these organizations, this chapter presents clinical core indicator data from the USRDS database and from the 1999 HCFA CPM report.

The average delivered dialysis dose and urea reduction ratio of hemodialysis patients have increased moderately (figs 4.1–2), while the average weekly Kt/V and creatinine clearance for patients on CAPD have increased 16.2% and 14.5% (figs 4.3–4) since 1995. In 1998 the highest numbers of hemodialysis patients meeting the DOQI target URR of ≥65% lived in Texas, New Mexico, and the Rocky Mountain region (fig 4.5).

Hematocrit levels have improved for patients on both hemodialysis and peritoneal dialysis (fig 4.6). Only minimal racial differences are shown by graphs of the average erythropoietin dose and the percent of EPO-treated patients meeting the target hematocrit (figs 4.8–9). These data illustrate the steady improvements in the percent of patients—of all races—meeting the minimum DOQI target hematocrit. They show as well that peritoneal dialysis patients on EPO have lower hematocrits than patients on hemodialysis. This may be a result of variations in iron dosing, and of EPO resistance in peritoneal dialysis patients with peritonitis. Because peritoneal dialysis patients receive less I.V. iron than their counterparts on hemodialysis, the issue of inadequate iron replacement should be carefully evaluated.

The highest EPO doses are seen in the Midwest, south, and east, yet these regions also have lower average hematocrit levels (figs 4.10–11), a contrast which merits further investigation.

Insertion rates for central venous accesses are highest in the south and east, and are ten times greater overall than the rates for simple fistulas (figs 4.15–16). The Midwest has seen the highest increase in placement rates of central venous accesses, and the lowest increase in simple fistula use. Since publication of the DOQI guidelines, which suggest that simple fistulas are under-utilized in the U.S. compared to other countries, use of this type of access—while still low—has increased. It should be noted, however, that because simple fistulas require time to mature, central venous catheters are typically inserted as temporary accesses. A rise in simple fistula use may thus be accompanied by a rise in the use and duration of central venous catheters, which may predispose patients to infectious complications and subsequent EPO resistance.
Figure 4.2
Average urea reduction ratio
adult in-center hemodialysis patients

The percent change from the URR in 1994 (63.8%) is noted next to the green lines. Data are obtained from the 1999 HCFA Clinical Performance Measures project report, which is based on a national sample of adult dialysis patients regardless of insurance payor status, and are shown for October to December of each year (1999 data was not yet available).

Figure 4.3
Average weekly Kt/V
adult CAPD patients

The percent change from the average weekly Kt/V in 1995 (1.91) is noted next to the green lines. Data are obtained from the 1999 HCFA Clinical Performance Measures project report, which is based on a national sample of adult dialysis patients regardless of insurance payor status, and include the last two months of the previous year and the first four months of each year shown.

Figure 4.4
Average weekly creatinine clearance (liters per week per 1.73m²)
adult CAPD patients

The percent change from the average weekly creatinine clearance in 1995 (61.5 L/week/1.73m²) is noted next to the green lines. Data are obtained from the 1999 HCFA Clinical Performance Measures project report, which is based on a national sample of adult dialysis patients regardless of insurance payor status, and include the last two months of the previous year and the first four months of each year shown.
Figure 4.5
Percent of patients meeting the DOQI target urea reduction ratio of ≥65%
prenal hemodialysis patients, 1998, by HSA

This map is smoothed, and weighted by the number of pa-
tients in each HSA. URR data are obtained from Medicare Part A
dialysis unit claims using the “G” modifier attached to CPT code
90999, with revenue codes 821 or 825.

Figure 4.6
Average hematocrit by modality
prevalent patients with EPO
claims

The percent change from the av-
erage hematocrit in 1994 is noted next to the lines. Data are taken from Medicare Part A di-
alysis unit claims.

Figure 4.7
Percent of patients meeting the
minimum DOQI target
hematocrit of ≥33%
prenal dialysis patients with
EPO claims, 1998, by HSA

This map is smoothed, and weighted by the number of pa-
tients in each HSA. Data are taken from Medicare Part A dialysis
unit claims.
Figure 4.8
Average EPO dose per administration, by race prevalent dialysis patients with EPO claims

Hemodialysis patients generally receive EPO intravenously, three times per week, during dialysis treatments. Patients on peritoneal dialysis, in contrast, generally receive EPO subcutaneously, less frequently, and in larger doses.

Data are taken from Medicare Part A dialysis unit claims.

Figure 4.9
EPO-treated patients meeting the minimum DOQI target hematocrit of ≥33%, by race prevalent dialysis patients with EPO claims

Data are taken from Medicare Part A dialysis unit claims.
These maps are smoothed and weighted by the total number of hematocrit measures per year in each HSA. Data ranges are unique to each map in order to maintain maximum definition of geographic differences.

These maps are smoothed and weighted by the total number of EPO administrations per year in each HSA. Data ranges are unique to each map in order to maintain maximum definition of geographic differences.
Figure 4.12
Ratio of EPO dose to body weight (kg) incident dialysis patients with EPO claims & weight data (2728 form), 1995, by HSA
This map is smoothed, and weighted by the total number of EPO administrations per year in each HSA.

Figure 4.13
Ratio of EPO dose to body weight (kg) incident dialysis patients with EPO claims & weight data (2728 form), 1998, by HSA
This map is smoothed, and weighted by the total number of EPO administrations per year in each HSA.

Figure 4.14
Percent change in ratio of EPO dose to body weight (kg) incident dialysis patients with EPO claims & weight data (2728 form), 1995 to 1998, by HSA
This map is smoothed, and weighted by the total number of EPO administrations per year in each HSA.
Figure 4.15
Insertion rates for central venous accesses
per 1,000 patient years at risk, prevalent hemodialysis patients, by HSA
These maps are smoothed, and weighted by the total number of patients each year in each HSA. CPT codes (36489, 36491, 36533, 36800, and 36835) are obtained from Part B physician/supplier claims data.

Figure 4.16
Insertion rates for simple fistulas
per 1,000 patient years at risk, prevalent hemodialysis patients, by HSA
These maps are smoothed, and weighted by the total number of patients each year in each HSA. CPT codes (36819, 36821, and 36825) are obtained from Part B physician/supplier claims data.