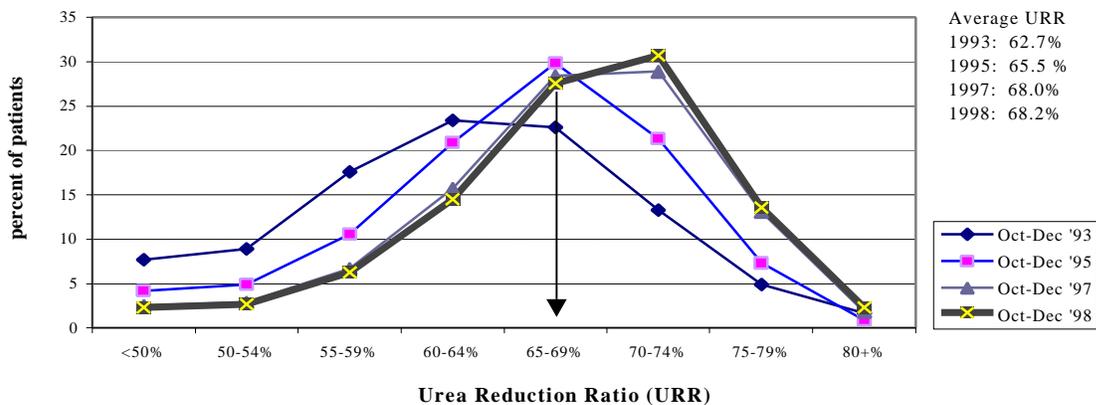


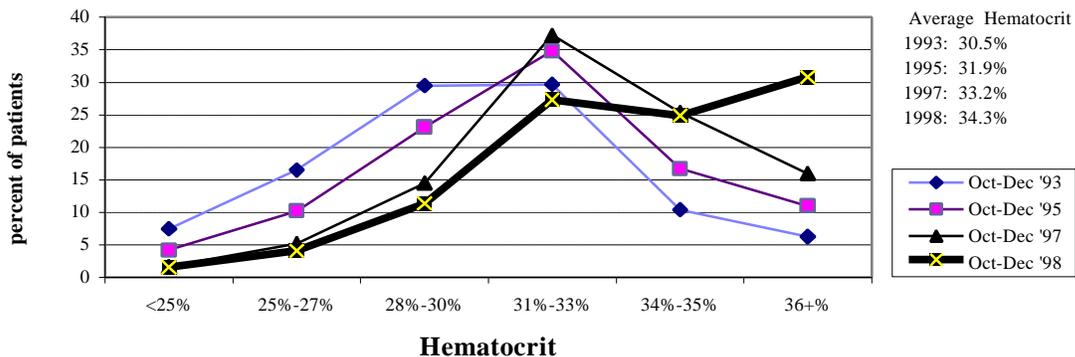
HIGHLIGHTS

from the 1999 ESRD Clinical Performance Measures Project
 (formerly the Core Indicators Project)
 for Hemodialysis Patients
 Data from October - December 1998

Distribution of URR Values



Distribution of Hematocrit Values



A national assessment of clinical indicators to support the efforts of health professionals to improve care for patients with End-Stage Renal Disease.



October 1999



1999 ESRD CLINICAL PERFORMANCE MEASURES PROJECT

The End-Stage Renal Disease (ESRD) Clinical Performance Measures (CPM) Project, formerly the ESRD Core Indicators Project, is a collaborative project between the Health Care Financing Administration (HCFA), the ESRD Networks (Figure 1), and ESRD dialysis facilities. This project provides an annual snapshot of clinical measures or core indicators that assess care surrounding dialysis. The measures (Figure 2) used in the 1999 project were developed based on the National Kidney Foundation's (NKF) Dialysis Outcomes Quality Initiative (DOQI) Clinical Practice Guidelines (CPGs). The CPMs developed from the NKF DOQI CPGs are the same as the past core indicators with the addition of measures for vascular access. A list of the ESRD CPMs can be found on HCFA's website at www.hcfa.gov/quality/3m.htm.

The Highlight Report provides the results of the CPMs from the last quarter of 1998 and compares these results to the core indicators from the last quarters of 1997, 1996, 1995, 1994 and 1993. Sixteen network areas participated in the first ESRD Core Indicators assessment (Oct-Dec 1993); all 18 network areas participated in subsequent years. A more complete report of the 1999 Project results will be distributed in the near future.

Data for this project, which focuses on a random sample of over 6,000 adult (aged ≥ 18 years), in-center hemodialysis (HD) patients in each year, were abstracted by staff at more than 2,000 dialysis facilities in the United States. In addition to presenting highlights of findings, this document emphasizes that important improvements in care can still be made.

Figure 1
ESRD Networks



Figure 2

**Clinical Performance Measures
for the Areas of:**

- Adequacy of Dialysis**
- Anemia Management**
- Vascular Access**

THE COVER STORY

The two charts on the cover page show the distribution of the urea reduction ratios (URRs) and hematocrit values of adult in-center HD patients for the last quarters of 1993-1998. The charts show that each year there was improvement in the percent of patients achieving a URR $\geq 65\%$ and a hematocrit $> 30\%$.

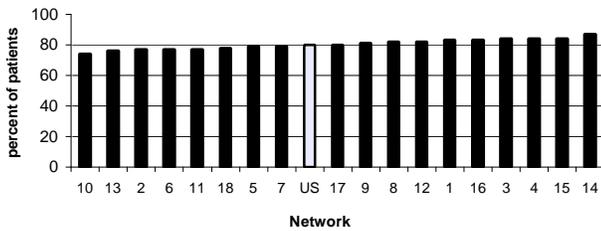
1999 ESRD CLINICAL PERFORMANCE MEASURES RESULTS DATA FROM LAST QUARTER 1998

ADEQUACY OF DIALYSIS

Findings:

- ◆ The average Kt/V increased from 1.39 in late 1997 to 1.40 in late 1998.
- ◆ The average URR increased from 68.0% in late 1997 to 68.2% in late 1998.
- ◆ Measures of dialysis adequacy varied among the ESRD network areas. In late 1998, the percent of patients who received hemodialysis with Kt/V \geq 1.2 ranged from 74% to 87% (Figure 3).

Figure 3: Percent of adult (aged \geq 18 yrs) in-center hemodialysis patients with mean Kt/V \geq 1.2, by Network, in Oct-Dec 1998, 1999 ESRD Clinical Performance Measures Project



Improvement:

- ◆ The percent of patients with a mean Kt/V \geq 1.2 and a mean URR \geq 65% increased significantly (Figures 4, 5 and cover).
- ◆ These percentage point increases from 1993-1998 mean that approximately 67,000 more HD patients in the U.S. were receiving dialysis with a URR \geq 65% in late 1998 than would have been receiving dialysis at this level in late 1993 (see cover).

Figure 4: Percent of adult (aged \geq 18 yrs) in-center hemodialysis patients with mean Kt/V \geq 1.2, by race, in Oct-Dec 1998 compared to previous study years, 1999 ESRD Clinical Performance Measures Project

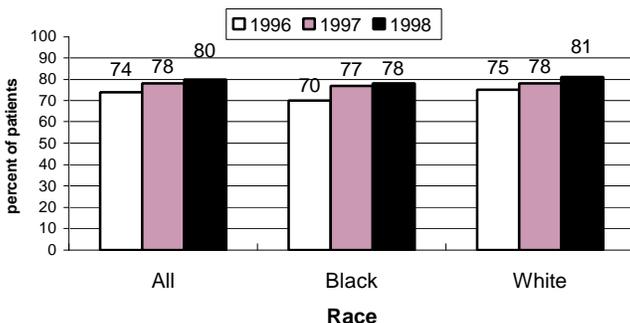
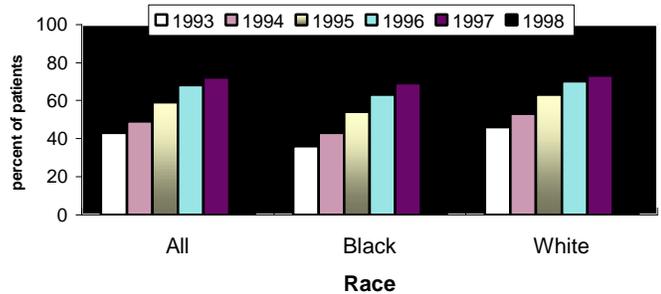


Figure 5: Percent of adult (aged \geq 18 yrs) in-center hemodialysis patients with mean URR \geq 65%, by race, in Oct-Dec 1998 compared to previous study years, 1999 ESRD Clinical Performance Measures Project



Findings For Some of the Adequacy of Dialysis CPMs:

- ◆ 87% of patients had monthly measurements of hemodialysis adequacy (either Kt/V or URR) during the study period.
- ◆ For the subset of patients with ESRD on April 1, 1998 or earlier, and prescribed in-center hemodialysis three times per week during the study period: 85% of patients had a delivered dialysis with Kt/V \geq 1.2 during the study period, and 79% of patients had a delivered dialysis with URR \geq 65% during this study period.

Opportunities for Improvement: Although there was a significant improvement in the percent of patients receiving adequate hemodialysis, (defined as a Kt/V \geq 1.2 or URR \geq 65%), further positive gains are needed for the 20% of patients whose mean Kt/V has been less than 1.2. This opportunity to improve care is even greater for black HD patients.

ANEMIA MANAGEMENT

Findings:

- ◆ The mean hemoglobin (hgb) increased from 10.7 gm/dL in late 1997 to 11.1 gm/dL in late 1998.
- ◆ 78% of patients had mean hemoglobin > 10gm/dL.
- ◆ The mean hematocrit (hct) increased from 33.2% in late 1997 to 34.3% in late 1998.
- ◆ 83% of patients had mean hematocrit > 30%.
- ◆ The percentage of patients with hemoglobin > 10 gm/dL varied among the Networks, ranging from 72% to 85% (Figure 6).
- ◆ 59% of patients had a mean hgb \leq 11 gm/dL over the study period.
- ◆ Of patients prescribed Epoetin, 89% received it by the intravenous route.
- ◆ The average serum ferritin concentration reported was 455 ng/mL.
- ◆ 78% of patients had a mean serum ferritin \leq 100 ng/mL.
- ◆ The average transferrin saturation was 28%.
- ◆ 66% of patients had a mean transferrin saturation \leq 20%.
- ◆ 72% of patients were prescribed iron therapy at least one of the study months. Within this group, 82% were prescribed iron intravenously, and 29% orally (groups not mutually exclusive).
- ◆ During this study period, 84% had monthly hemoglobin values recorded and 86% of patients had monthly hematocrit values recorded.
- ◆ 12% of patients were prescribed Epoetin by the subcutaneous route, ranging from 2-29% among Networks.

Improvement:

- ◆ The percent of patients with a mean hgb > 10gm/dL and mean hct > 30% increased significantly (Figures 7, 8 and cover).

Findings For Some of the Anemia Management CPMs:

- ◆ 52% of patients had a hemoglobin value 11-12 gm/dL (*patients with a mean hematocrit > 36% or a mean hemoglobin > 12 gm/dL who were not prescribed Epoetin during the study period were excluded*).
- ◆ 67% of patients either prescribed Epoetin or with at least one hemoglobin < 11gm/dL or at least one hematocrit < 33% had at least one documented transferrin saturation \leq 20% and at least one documented serum ferritin concentration \leq 100 ng/mL during the three month study period.

Figure 6: Percent of adult (aged \geq 18 yrs) in-center hemodialysis patients with mean hemoglobin > 10 gm/dL, by Network, in Oct-Dec 1998, 1999 ESRD Clinical Performance Measures Project

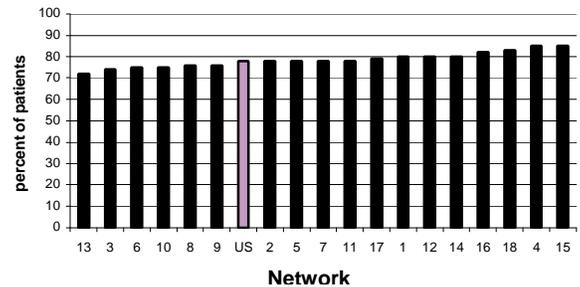


Figure 7: Percent of adult (aged \geq 18 yrs) in-center hemodialysis patients with mean hemoglobin >10gm/dL in Oct-Dec 1998 compared to Oct-Dec 1997, 1999 ESRD Clinical Performance Measures Project

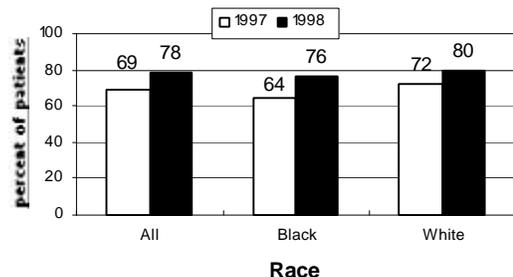
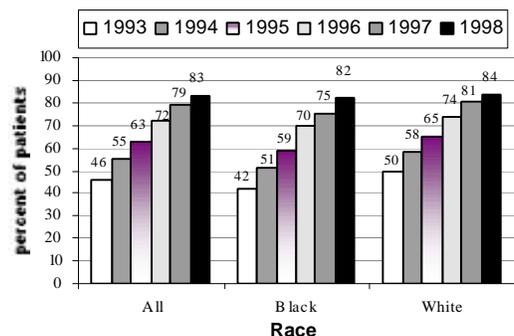


Figure 8: Percent of adult (aged \geq 18 yrs) in-center hemodialysis patients with mean hematocrit > 30%, by race, in Oct-Dec 1998 compared to previous study years, 1999 ESRD Clinical Performance Measures Project



Opportunities for Improvement: Although there was significant improvement in the percent of patients with mean hemoglobin > 10 gm/dL, 22% of patients still had mean hemoglobin values below this level. 48% of patients did not have mean hemoglobin values 11-12 gm/dL.

VASCULAR ACCESS

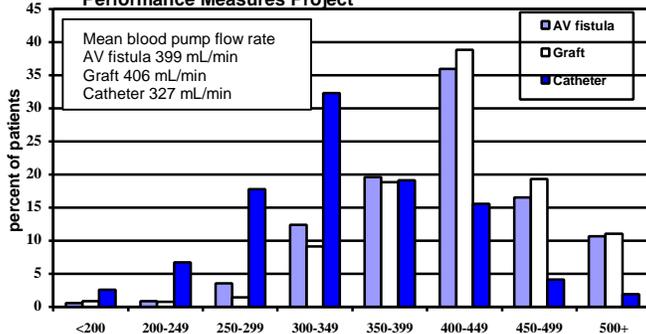
Measures describing types of vascular access for incident and prevalent in-center hemodialysis patients were collected for the first time during this data collection. Incident patients were defined as those patients who initiated their first maintenance course of hemodialysis on or between 1/1/98 and 8/31/98.

Blood pump flow rates 60 minutes into the dialysis session were reported for the first time this year. Mean blood pump flow rates were lower for catheter access than for fistula or graft access types (Figure 9).

Findings For Some of the Vascular Access CPMs:

- ◆ 26% of incident patients were dialyzed using an arterial venous fistula (AVF) during Oct-Dec 1998
- ◆ 26% of prevalent patients were dialyzed using an AVF during Oct-Dec 1998
- ◆ 14% of prevalent patients were dialyzed with a chronic catheter continuously for 90 days or longer during Oct-Dec 1998
- ◆ 37% of prevalent patients with an AV graft (synthetic or bovine) had their site routinely monitored for the presence of stenosis during Oct-Dec 1998.

Figure 9: Distribution of mean blood pump flow 60 minutes into dialysis session by access type for adult (aged >18 yrs) in-center hemodialysis patients during Oct-Dec 1998, 1999 ESRD Clinical Performance Measures Project



Note: Actual blood flows are usually much lower than blood pump flows. This is especially true with catheters where a 25-30% decrease difference exists at blood pump Qb greater than 300mL/minute.

SERUM ALBUMIN

Even though the CPMs in the area of nutrition were not developed, serum albumin levels were collected for the last quarter of 1998, as done in the past Core Indicators data collection efforts, so that we could continue to monitor this parameter.

Findings:

- ◆ The mean serum albumin value determined by the bromocresol green (BCG) laboratory method was 3.8 gm/dL.
- ◆ The mean serum albumin value determined by the bromocresol purple (BCP) laboratory method was 3.6 gm/dL.
- ◆ 82% of patients had mean serum albumin values \$ 3.5 gm/dL by BCG or \$ 3.2 gm/dL by BCP.
- ◆ The percent of patients in each Network area with a mean serum albumin value \$ 3.5 gm/dL by BCG or \$ 3.2 gm/dL by BCP ranged from 72% to 85%.
- ◆ 37% of patients had a mean serum albumin value \$ 4.0 gm/dL by BCG or \$ 3.7 gm/dL by BCP.
- ◆ The percent of patients in each Network area with a mean serum albumin value \$ 4.0 gm/dL by BCG or \$ 3.7 gm/dL by BCP ranged from 23% to 42%.

Although no consensus guidelines or CPMs have been established, the following targets are included: "adequate" serum albumin was defined as \$ 3.5 gm/dL (BCG method) or \$ 3.2 gm/dL (BCP method) and "optimal" serum albumin was defined as \$ 4.0gm/dL (BCG method) or \$ 3.7gm/dL (BCP methods).

Opportunities for Improvement: There was no clinically important change in the measure of serum albumin concentrations from 1993 to 1998.

Opportunities to improve adequacy of dialysis, hematocrit, serum albumin and aspects of vascular access care in HD patients remain.

NEXT STEPS

While important improvements occurred from 1993 to 1998, *opportunities to improve care further* for adult, in-center HD patients in the U.S. remain. The purpose of the ESRD Clinical Performance Measures Project (formerly the Core Indicators Project) is to recognize improvement in care to these patients and to support further progress. The ultimate goal for this project is to improve care for all renal dialysis patients.

To facilitate this goal, staff at each ESRD facility should:

- ◆ be familiar with the "Clinical practice guideline on adequacy of hemodialysis" developed by the Renal Physicians Association and the National Kidney Foundation Dialysis Outcomes Quality Initiative Guidelines (NKF-DOQI) for Hemodialysis Adequacy and the Treatment of Anemia of Chronic Renal Failure;
- ◆ be familiar with and use the steps in the "Roadmap for Improvement" described in *A Guide for Improving the Quality of Care of Dialysis Patients; the National Anemia Cooperative Project* (If you do not have a copy of this guide please contact your Network to obtain a copy);
- ◆ compare internal facility-specific outcome data on CPMs with Network and national outcomes to identify opportunities to improve care;
- ◆ contact Network staff and Medical Review Board members for assistance in identifying opportunities for improvement and the development of interventions to achieve improvement; and
- ◆ look for the complete report of the initial results of the 1999 ESRD Clinical Performance Measures Project which will be sent to all ESRD facilities.

In 2000, ESRD Networks, in collaboration with ESRD facilities, will once again assess clinical performance measures for adult, in-center HD patients in the U.S. If you have any questions about the information presented in this report please contact the ESRD Network office in your area.

Network #	Telephone #	Network #	Telephone #
1	(203) 387-9332	10	(317) 257-8265
2	(212) 289-4524	11	(651) 644-9877
3	(609) 395-5544	12	(816) 880-9990
4	(412) 647-3428	13	(405) 843-8688
5	(804) 794-3757	14	(972) 503-3215
6	(919) 788-8112	15	(303) 831-8818
7	(813) 251-8686	16	(206) 923-0714
8	(601) 936-9260	17	(415) 472-8590
9	(317) 257-8265	18	(323) 962-2020

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- ◆ Staff at more than 2,000 dialysis facilities in the U.S. who abstracted the requested information from medical records of more than 6,000 adult, in-center HD patients for each year, 1993, 1994, 1995, 1996, 1997 and 1998;
- ◆ Staff at PRO-West;
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Look for this report on the Internet HCFA's Web Site: www.hcfa.gov/quality/3h.htm or www.hcfa.gov/quality/qlty-3.htm.