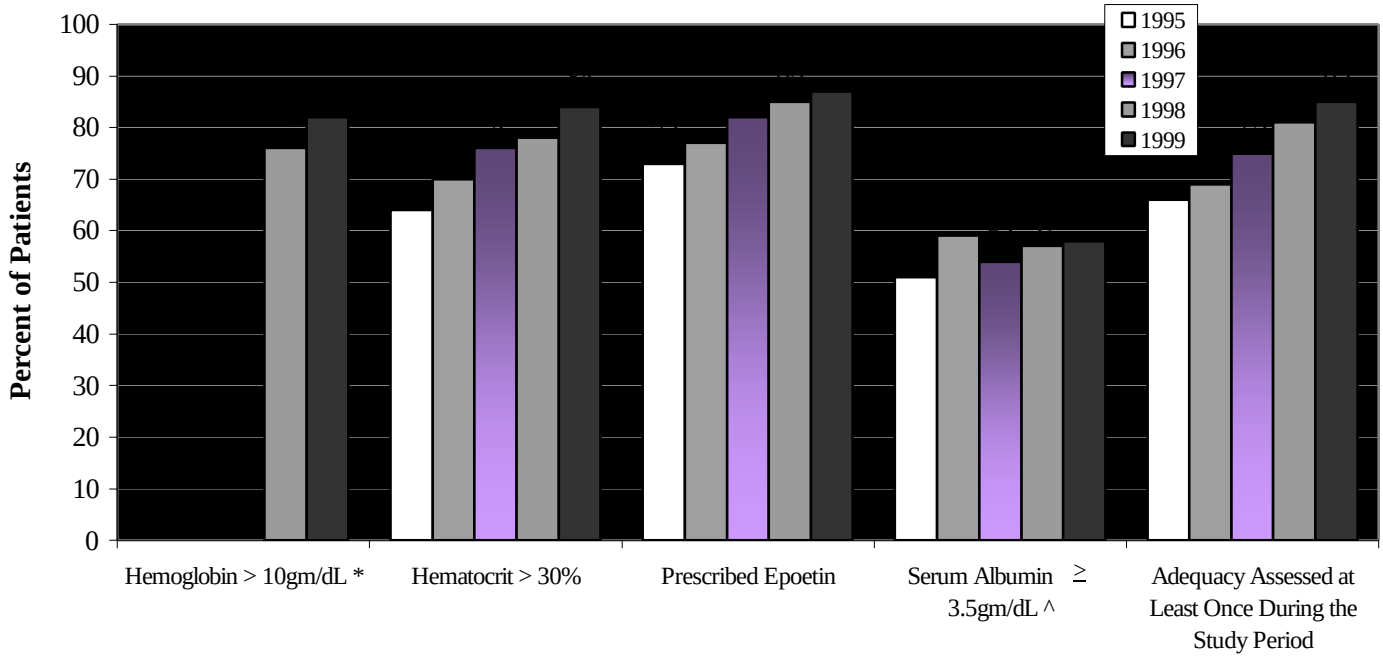
HIGHLIGHTS

from the 1999 ESRD Clinical Performance Measures Project

(formerly the Core Indicators Project)
for Peritoneal Dialysis Patients
Data from October 1998 – March 1999

Percent of adult (aged ≥ 18 yrs) peritoneal dialysis patients with selected indicators of care 1995-1999 study periods



Indicator of Care

* hemoglobin data were not collected 1995-1997
^ for bromcresol green (BCG) laboratory method only

A national assessment of clinical indicators for patients with End-Stage Renal Disease.

December 1999

1999 ESRD CLINICAL PERFORMANCE MEASURES PROJECT

The **End Stage Renal Disease (ESRD) Clinical Performance Measures (CPM) Project,** formally the ESRD Core Indicators Project**,** is a collaborative project between the Health Care Financing Administration (HCFA), the ESRD Networks (page 6), and ESRD dialysis facilities. This project provides an annual snapshot of clinical performance measures and core indicators that assess care surrounding dialysis. The measures used in the 1999 project were developed based on the National Kidney Foundation's (NKF) Dialysis Outcomes Quality Initiative (DOQI) Clinical Practice Guidelines. A list of the ESRD CPMs can be found on HCFA's website at www.hcfa.gov/quality/3m.htm.

This highlight report provides a comparison of results for a random sample of adult $\geq$ 18 years) peritoneal dialysis patients from October 1998-March 1999 (referred to here after as 1999), to results from November 1997-April 1998 (referred to here after as 1998), November 1996-April 1997 (referred to here after as 1997), November 1995-April 1996 (referred to here after as 1996), and November 1994-March 1995 (referred to here after as 1995).

Data for this project, which focus on a random sample of over 1,300 adult ($18 years), peritoneal dialysis patients in each study period, were abstracted by staff at more than 765 peritoneal dialysis facilities in the United States.

Clinical Performance Measures for the Areas of:

Anemia Management

Adequacy of Dialysis -as measured by weekly Kt/V $_{urea}$ and creatinine clearance

The peritoneal dialysis study was designed to be analyzed in aggregate to yield national estimates only. The study design does not allow for statistically stable estimates for each Network area. In addition to presenting highlights of findings, this document emphasizes that important opportunities exist to improve care for these patients.

Table 1: Characteristics of adult (aged $18 years) peritoneal patients, 1999 ESRD Clinical Performance Measures Project

Characteristic	Peritoneal Dialysis				
	1995	1996	1997	1998	1999
	n (%)	n (%)	n (%)	n (%)	n (%)
TOTAL IN SAMPLE	1202 (100)	1208 (100)	1219 (100)	1381 (100)	1533 (100)
GENDER					
Males	640 (53)	654 (54)	626 (51)	698 (51)	760 (50)
Females	562 (47)	551 (46)	593 (49)	679 (49)	772 (50)
RACE/ETHNICITY*					
White	814 (68)	775 (64)	795 (66)	838 (61)	928 (61)
Black	304 (25)	318 (26)	297 (25)	389 (28)	404 (26)
Asian/Pacific Islander	40 (3)	48 (4)	17 (1)	55 (4)	56 (4)
American Indian/Alaska Native	18 (2)	16 (1)	2 (0.2)	15 (1)	34 (2)
Other/Unknown	26 (2)	49 (4)	94 (8)	76 (6)	111 (7)
Hispanic			115 (9)	136 (10)	152 (10)
AGE GROUP					
18-44	352 (29)	336 (28)	332 (27)	384 (28)	402 (26)
45-64	481 (40)	500 (41)	551 (45)	589 (43)	687 (45)
65 +	369 (31)	372 (31)	336 (28)	403 (29)	444 (29)
DIAGNOSIS					
Diabetes mellitus	385 (32)	414 (34)	421 (34)	496 (36)	505 (33)
Hypertension	309 (26)	266 (22)	270 (22)	286 (21)	332 (22)
Glomerulonephritis	271 (23)	217 (18)	216 (18)	232 (17)	299 (20)
Other/Unknown	237 (20)	308 (26)	312 (26)	351 (26)	397 (26)

** Ethnicity information was not specifically obtained in the 1995 and 1996 study years.*

1999 ESRD CLINICAL PERFORMANCE MEASURES RESULTS
FOR PERITONEAL DIALYSIS PATIENTS

MANAGEMENT OF ANEMIA

Findings:

- The mean hemoglobin for peritoneal dialysis (PD) patients in 1999 was 11.4 gm/dL.
- The mean hematocrit for PD patients in 1999 was 34.5%; an increase from 33.8% in 1998 (Figure 1).
- There was a six percentage point increase in the percentage of peritoneal dialysis patients with mean hemoglobin > 10gm/dL from 76% in 1998 to 82% in 1999 (Figure 2).
- A greater percentage of black patients than white patients had mean hemoglobin < 9 gm/dL (defined as severe anemia) (Figure 3).

Figure 1: Improvement in hematocrit for adult peritoneal dialysis patients, 1995-1999. 1999 ESRD CPM Project

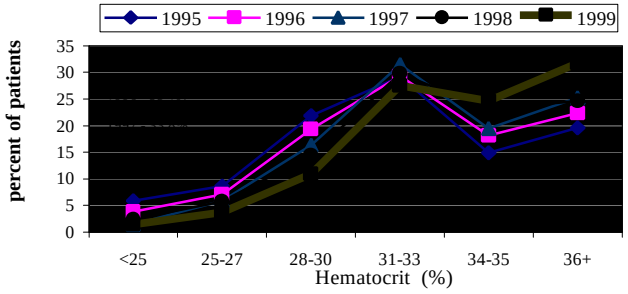
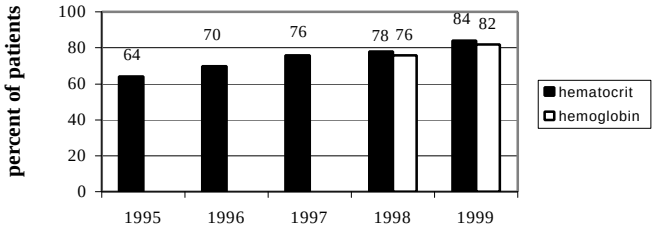


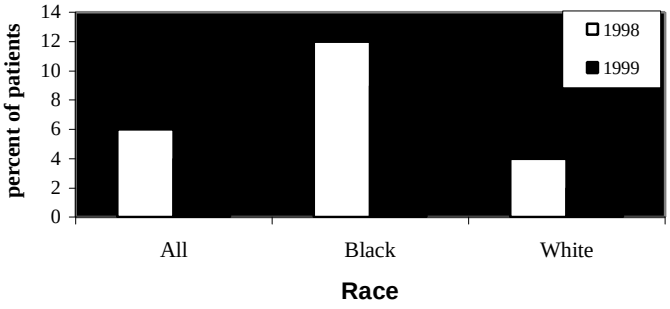
Figure 2: Percent of adult peritoneal dialysis patients with mean hematocrit > 30% and mean hemoglobin >10gm/dL. 1999 ESRD CPM Project



Finding for One 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 > 12gm/dL who were not prescribed Epoetin during the study period were excluded.)

Figure 3: Percent of adult peritoneal dialysis patients with mean hemoglobin < 9gm/dL by race. 1999 ESRD CPM Project



Opportunities for Improvement:

- 18% of peritoneal dialysis patients had mean hemoglobin < 10gm/dL in the 1999 study period. (Figure 2).
- 12% of white and 30% of black peritoneal dialysis patients had mean hemoglobin < 10gm/dL (Figure 4).
- 11% of white and 25% of black peritoneal dialysis patients had mean hematocrit < 31%.
- 48% of peritoneal dialysis patients prescribed Epoetin (43% of white and 56% of black patients) did not have a mean hemoglobin 11-12 gm/dL during the 1999 study period.
- 28% of peritoneal dialysis patients had a mean transferrin saturation < 20%.
- 26% of peritoneal dialysis patients had a mean serum ferritin concentration < 100 ng/mL.

Figure 4: Percent of adult peritoneal dialysis patients with hemoglobin >10gm/dL by race. 1999 ESRD CPM Project

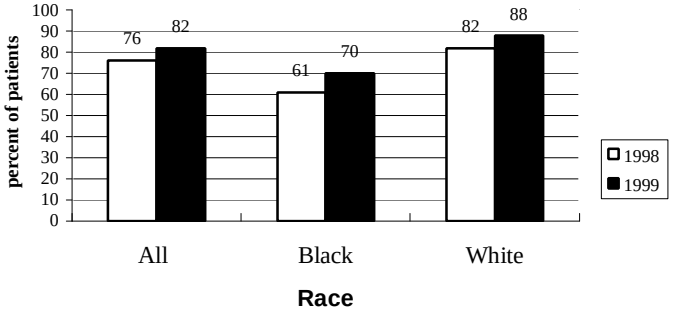
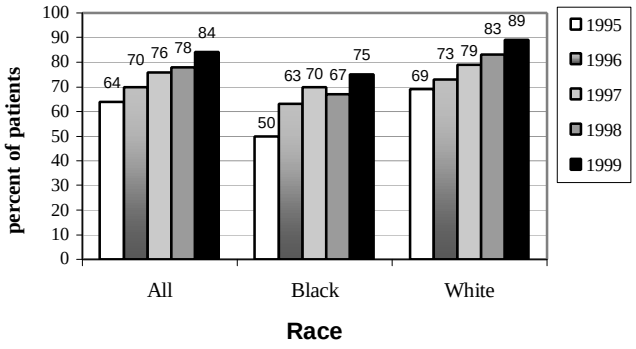


Figure 5: Percent of adult peritoneal dialysis patients with hematocrit >30% by race. 1999 ESRD CPM Project



NOTE
Two commonly used measures of adequacy for peritoneal dialysis are:
Cweekly Kt/V $_{urea}$ and
Cweekly creatinine clearance.
In order to calculate the former, one needs values for 24-hour dialysate outflow volume and urea nitrogen, 24 hour urine volume and urea nitrogen, and serum urea nitrogen, as well as the patient's height and weight. In order to calculate the latter, one needs all the preceding values (except urea values), plus the values for 24-hour dialysate outflow creatinine, 24-hour urine creatinine, and serum creatinine.

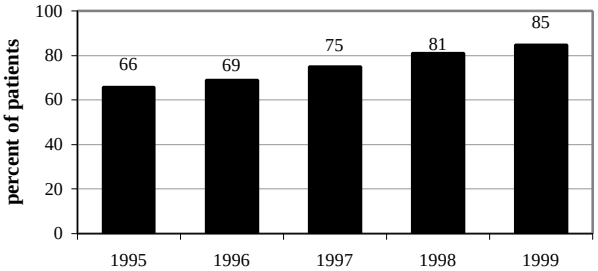
ADEQUACY OF DIALYSIS

Findings:

Tidal peritoneal dialysis patients (n=53) were excluded from these analyses.

- Using values that were abstracted from medical records of peritoneal dialysis patients, it was possible to calculate at least one of the adequacy measures (see note) for 1174 (79%) of the 1,480 patients during the 1999 study period.
- 306 (21%) of the medical records abstracted did not yield all the values needed to calculate an adequacy measure; however, 91 (30%) of these medical records had at least either one Kt/V $_{urea}$ value (86) or one weekly creatinine clearance value (81) recorded during the 1999 study period.
- We estimate that during the 1999 study period the adequacy of dialysis was assessed at least once for approximately 85% of adult peritoneal dialysis patients described in this study. This represents an improvement from data presented in the 1998 Peritoneal Dialysis Highlight Report (81%) (Figure 6).

Figure 6: Estimated percent of adult peritoneal dialysis patients with at least one adequacy assessment during Oct 1998-Mar 1999 compared to previous study periods. 1999 ESRD CPM Project



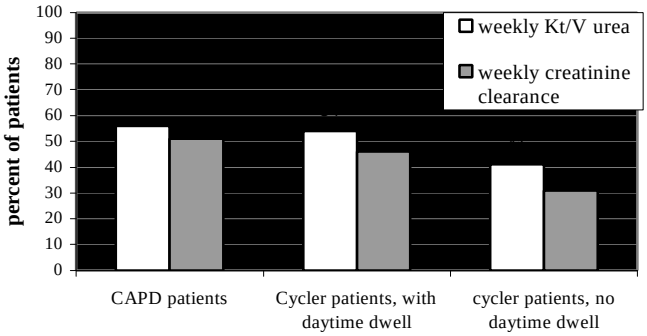
Finding for One of the Adequacy of Dialysis CPMs:

- 82% of adult peritoneal dialysis patients had total solute clearance for urea and creatinine measured and reported at least once during the six month study period.

Opportunities for Improvement:

- The adequacy of dialysis was not assessed during the 1999 study period for an estimated 15% of adult peritoneal dialysis patients.
- A substantial proportion of peritoneal dialysis patients do not meet DOQI guidelines* for dialysis adequacy measures. (Figure 7).

Figure 7: Percent of adult peritoneal dialysis patients meeting DOQI guidelines for adequacy measures. 1999 ESRD CPM Project



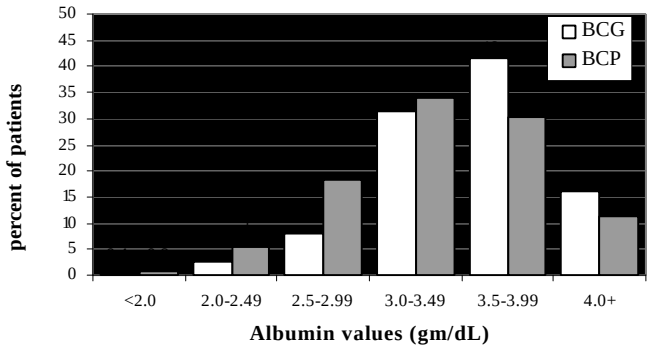
* NKF DOQI guidelines:
For CAPD patients: Kt/V $_{urea}$ $\geq$ 2.0; creatinine clearance $\geq$ 60 L/week 1.73 m^2. For cycler patients with daytime dwell: KtV $_{urea}$ $\geq$ 2.1; creatinine clearance $\geq$ 63 L/week/1.73 m^2. For nightime cycler patients (no daytime dwell): Kt/V $_{urea}$ $\geq$ 2.2; creatinine clearance $\geq$ 66 L/week/1.73 m^2.

SERUM ALBUMIN

Findings:

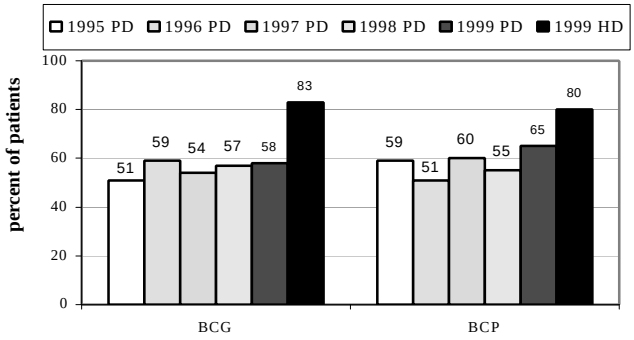
- Serum albumin values differ systematically with the laboratory method used; the bromcresol green (BCG) method yields higher values than the bromcresol purple (BCP) method (Figure 8).

Figure 8: Distribution of mean serum albumin values for adult peritoneal dialysis patients, by laboratory method 1999 ESRD CPM Project



- The mean serum albumin values for peritoneal dialysis patients (3.5 gm/dL by BCG and 3.3 gm/dL by BCP method) were lower than for hemodialysis patients (3.8 gm/dL by BCG and 3.6 gm/dL by BCP method) for 1999.
- The percent of patients with mean serum albumin values $ 3.5 gm/dL by BCG or $ 3.2 gm/dL by BCP method was lower for peritoneal dialysis than for hemodialysis patients (Figure 9).
- 18% of patients had a mean serum albumin value $ 4.0 gm/dL (BCG) or $ 3.7 gm/dL (BCP) during the 1999 study period.

Figure 9: Percent of adult dialysis patients with mean serum albumin values ≥3.5gm/dL (BCG) or ≥3.2gm/dL BCP) 1999 ESRD CPM Project



Opportunities for Improvement:

- 41% of adult peritoneal dialysis patients had mean serum albumin values < 3.5 gm/dL (BCG) or < 3.2 gm/dL (BCP) in the 1999 study period.
- 82% of adult peritoneal dialysis patients had mean serum albumin values < 4.0 gm/dL (BCG) or < 3.7 gm/dL (BCP) in the 1999 study period.

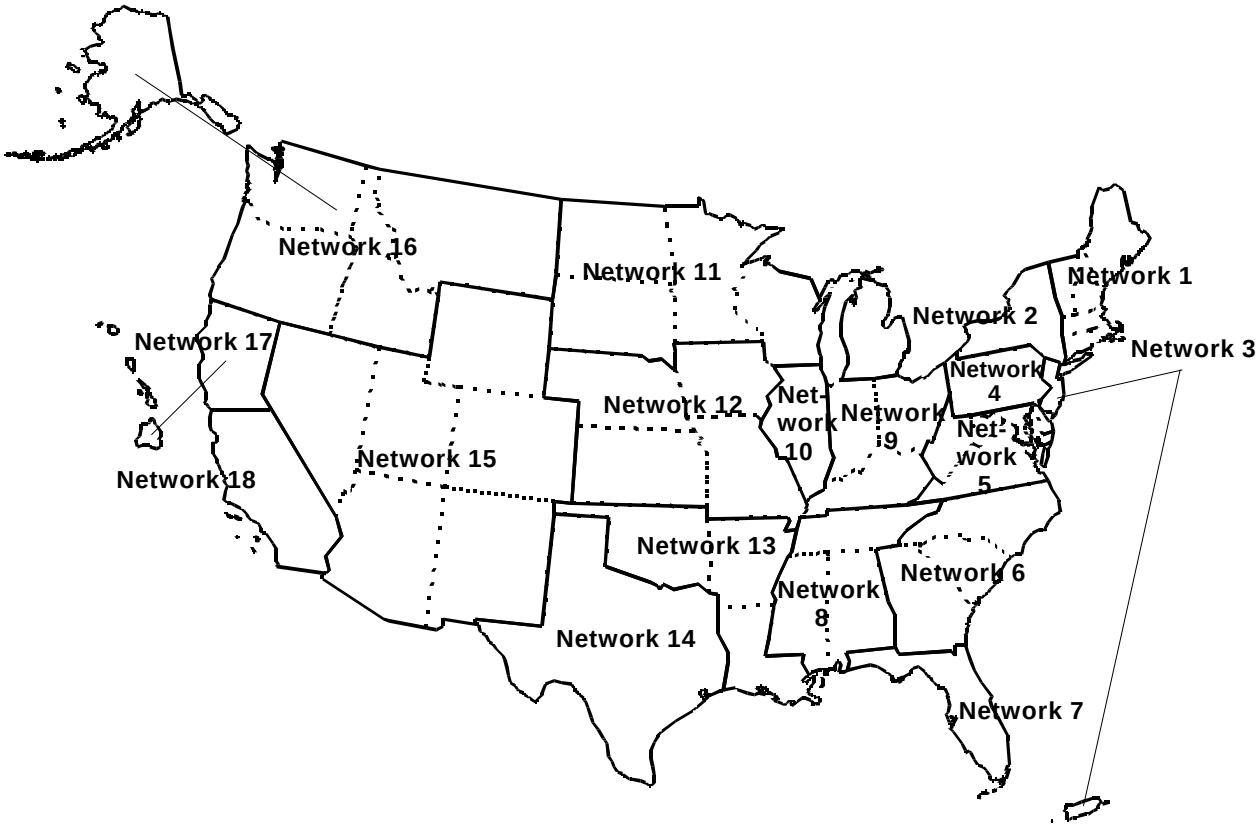
NEXT STEPS

Important opportunities exist to improve care for adult peritoneal dialysis patients in the U.S. The purpose of the ESRD Clinical Performance Measures Project is to provide comparison data that will stimulate improvement in care and to recognize that improvement. The ultimate goal for this project is to improve care for all renal dialysis patients.

Staff and Medical Review Board members of ESRD Networks are available to assist individual dialysis facilities to identify opportunities for improvement and to develop intervention activities.

In 2000, ESRD Networks, in collaboration with ESRD facilities, will once again assess the clinical outcome measures of the ESRD population using these CPMs and Core Indicators. If you have any questions about the information presented in this report please contact the ESRD Network office in your area (see page 6).

ESRD Networks



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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

Look for this report on the Internet at HCFA?s Web Site: www.hcfa.gov/quality/3h.htm

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- Staff at more than 765 dialysis facilities in the U.S. who abstracted the requested information from medical records; and
- The many other individuals in the renal community and HCFA who contributed to this work.

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