

INTERMEDIATE OUTCOMES FOR ADULT ASIAN IN-CENTER HEMODIALYSIS PATIENTS IN THE U.S.: RESULTS FROM THE 2001 END STAGE RENAL DISEASE (ESRD) CLINICAL PERFORMANCE MEASURES PROJECT

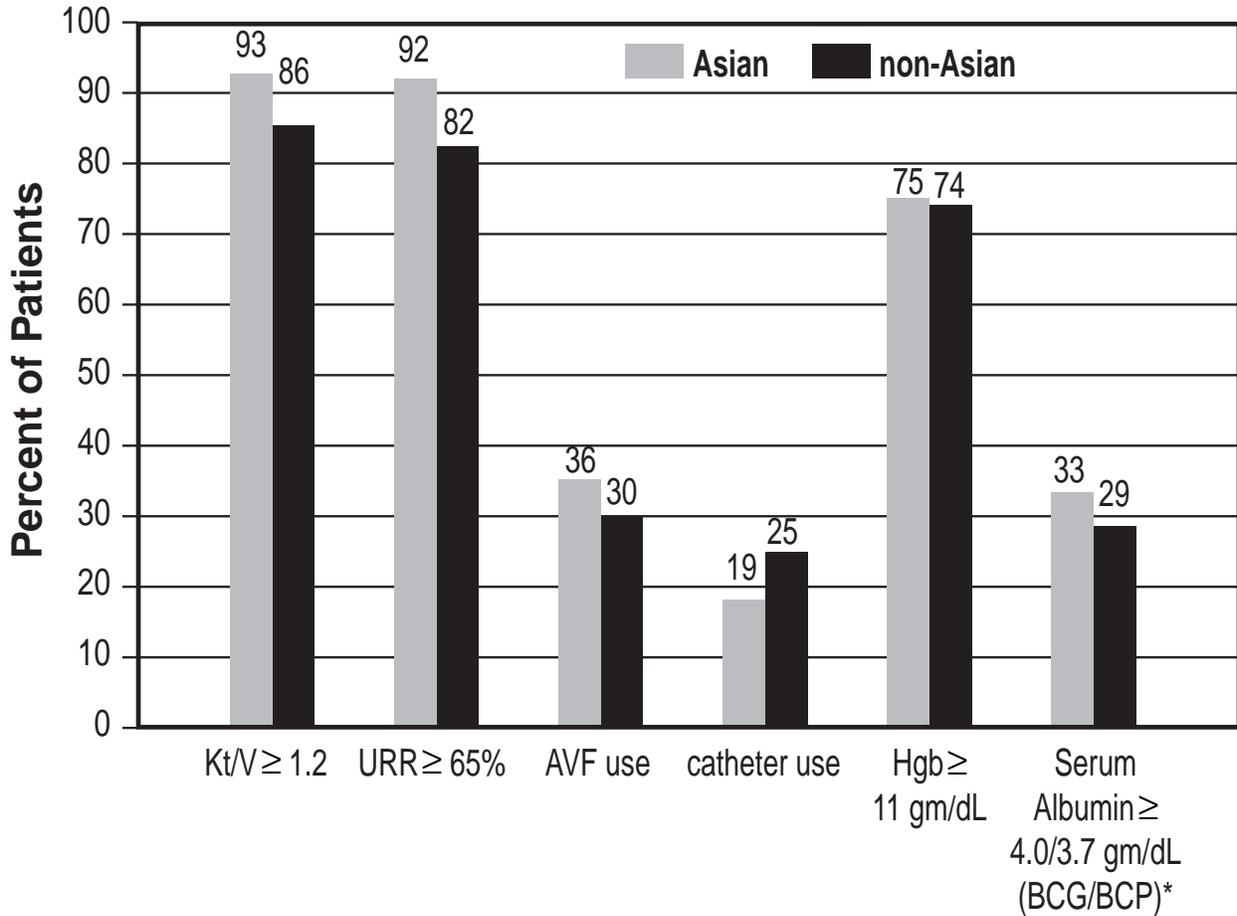
Supplemental Report #1

2001 ESRD Clinical Performance Measures Project

The Centers for Medicare & Medicaid Services

December 2001

Intermediate Outcomes for Asian and non-Asian Adult In-Center Hemodialysis Patients in the U.S., October-December 2000.



* BCG/BCP = bromocresol green/bromocresol purple laboratory methods



INTRODUCTION

The purpose of the ESRD Clinical Performance (CPM) Project is to assist providers of ESRD services in the assessment of care provided to ESRD patients and to stimulate improvement in that care. Annually, a national random sample of adult (aged ≥ 18 years) in-center hemodialysis (HD) patients is selected for inclusion in this Project. For the first time, this Project's 2001 data collection effort over-sampled the adult Asian in-center HD population to obtain clinical information on these patients.

METHODS

The Samples

In March 2001, a listing of adult in-center HD patients who were alive and dialyzing on December 31, 2000 was obtained from the 18 ESRD Network organizations. From this universe of patients, a national random sample, stratified by Network, was drawn. After this random sample was drawn, an additional number of adult Asian in-center HD patients was drawn so that a total of 500 adult Asian patients were sampled for this special analysis.

There are two sets of analyses reported in this Supplemental Report: 1) results are presented for the patients in the Asian sample for analysis; and 2) the Asian in-center HD patients are compared to the non-Asian in-center HD patients who were selected for inclusion in the 2001 data collection.

Data Collection

During May 2001, a three-page data collection form was sent to each facility that had one or more patients selected for inclusion in the study. Clinical information in the patients' medical records was abstracted for each patient who was receiving in-center HD during the months of October, November, and December 2000. Patient characteristic information collected included: gender, age, race, Hispanic ethnicity, years on dialysis, and primary cause of ESRD. The parameters of care examined included adequacy of dialysis, vascular access information, management of anemia, and assessment of serum albumin.

Clinical information used to assess the quality of care provided to these patients included the following: patient height and weight, pre- and post-dialysis blood urea nitrogen (BUN) values, dialysis session length to calculate Kt/V values, dialyzer K_Uf values, reported urea reduction ratios (URRs) and reported Kt/V values, type of vascular access, blood pump flow rates, monitoring of the access site for stenosis, hemoglobin (Hgb) values, prescribed Epoetin dose and route of administration, iron use and route of administration, transferrin saturation values, serum ferritin concentrations, serum albumin values and the laboratory method used to determine these values (bromocresol green [BCG] and bromocresol purple [BCP] methods).

Completed forms were returned to the appropriate Network office where data were reviewed and entered into a computerized database (Visual FoxPro). The data were forwarded to CMS for analysis.

Data Analysis

For this Report, a patient had to meet the following criteria to remain in the sample for analysis: a data collection form with at least one monthly hemoglobin value, at least one paired pre- and post-dialysis BUN value, and at least one serum albumin value reported over the three month study period. This case definition was identical to the one that has been used over the course of the ESRD CPM Project. All available reported monthly values were utilized in calculating mean (\pm SD) and median values. Kt/V values were calculated according to the Daugirdas II formula.¹

Associations of clinical data with patient characteristics were tested by Chi square, hierarchical ANOVA, and two-tailed Student's t-test analyses, with a p-value < 0.05 considered to be significant. Results are presented for the Asian sample by gender; comparisons of the results for Asian and non-Asian patients are presented separately. Analyses for this Report were completed utilizing Epi Info v.6.04a² and SPSS for Windows, v. 8.0.³

RESULTS

The Sample for Analysis

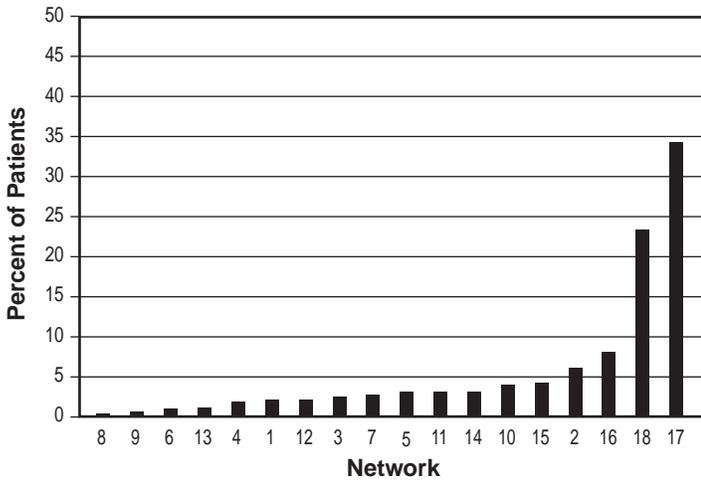
245 patients identified by their Networks as Asian were selected in the national random adult in-center HD sample. An additional 255 Asian patients were randomly selected to yield 500 Asian patients for the Asian sample. 8,853 patients (including the 245 Asian patients) were selected for the national in-center HD sample. 8,416/8,853 (95%) of these patients met the case definition for inclusion in the sample for analysis. 232/8,416 of these patients were identified as Asian.

197/255 (77%) of the over-sampled Asian patients met the case definition, yielding 429 Asian patients for the final sample for analysis. There were 8,184 non-Asian adult in-center HD patients in the final sample for analysis. Selected characteristics of the patients in the sample for analysis are shown in Table 1. Asian patients were significantly older than non-Asian patients (63.2 years vs. 61.3 years, $p < 0.05$).

Asian Patients

The distribution of Asian patients in the Asian sample is shown in Figure 1. The majority of Asian patients were receiving their dialysis care in California, the Pacific Northwest, and New York (Networks 17, 18, 16, and 2)

Figure 1: Distribution of Asian patients in the Asian sample, by Network. October-December 2000. 2001 ESRD CPM Project.



Adequacy of Dialysis

The mean calculated Kt/V value for Asian patients was 1.62 (± 0.30); 93% of patients achieved a mean calculated Kt/V ≥ 1.2 . The mean calculated URR was 73.7% ($\pm 7.0\%$); 92% of patients achieved a mean calculated URR $\geq 65\%$.

Results for all Asian patients and by gender are displayed in Table 2. Women achieved a higher mean calculated Kt/V compared to men (1.71 vs. 1.53, $p < 0.001$) and a higher mean calculated URR (75.8% vs. 71.4%, $p < 0.001$). A higher percent of women compared to men achieved a mean calculated Kt/V ≥ 1.2 (96% vs. 90%, $p < 0.01$) and a mean calculated URR $\geq 65\%$ (96% vs. 88%, $p < 0.01$). Patients with diabetes mellitus (DM) as the cause of ESRD had a lower mean calculated Kt/V value compared to patients with other causes combined (1.58 vs. 1.66, $p < 0.01$), as did patients dialyzing for less than six months compared to patients dialyzing six months or longer (1.43 vs. 1.65, $p < 0.001$).

No significant differences in mean calculated Kt/V were noted by age group. Similar results were obtained for dialysis adequacy as measured by calculated URR.

The mean dialysis session length was longer for men compared to women (209 vs. 191 minutes, $p < 0.001$) (Table 2). 69% of men were dialyzed with a hi-flux dialyzer (KUf ≥ 20 mL/mmHg/hr) compared to 72% of women ($p < 0.01$).

The mean blood pump blood flow was greater for men compared to women (382 vs. 362 mL/minute, $p < 0.01$). Mean blood pump flows were significantly higher for patients dialyzed with an AV fistula (AVF) compared to patients dialyzed with an AV graft or catheter (386 mL/minute vs. 382 and 319 mL/minute, respectively, $p < 0.001$).

Table 1: Selected patient characteristics, October-December 2000. 2001 ESRD CPM Project.

Characteristic	Asian n (%)	non-Asian n (%)
TOTAL	429 (100)	8184 (100)
Gender		
Male	209 (49)	4257 (52)
Female	220 (51)	3919 (48)
Ethnicity		
Hispanic	11 (3)***	1082 (13)
Non-Hispanic	404 (94)	6707 (82)
Age (years)		
Mean (\pm SD)	63.2 (± 15.6)*	61.3 (± 15.2)
Median	66.1	62.9
18-44	61 (14)*	1297 (16)
45-54	63 (15)	1429 (18)
55-64	78 (18)	1734 (21)
65-74	117 (27)	2013 (25)
75+	110 (26)	1711 (21)
Post-dialysis body weight (kg)		
Mean (\pm SD)	59.0 (± 13.4)***	75.1 (± 19.8)
Median	57.2	72.2
Height (cms)		
Mean (\pm SD)	160.0 (± 9.4)***	167.6 (± 11.3)
Median	160.0	167.6
Primary Cause of ESRD		
Diabetes mellitus	175 (41)	3399 (42)
Hypertension	121 (28)	2088 (26)
Glomerulonephritis	47 (11)	944 (12)
Other/Unknown	86 (20)	1753 (21)
Duration of Dialysis (years)		
Mean (\pm SD)	3.5 (± 3.8)	3.5 (± 3.8)
Median	2.1	2.2
< 0.5	43 (10)	977 (12)
0.5-0.9	60 (14)	1113 (14)
1.0-1.9	92 (22)	1673 (21)
2.0+	231 (54)	4316 (53)

Note: Percentages may not add up to 100% due to rounding.

Subtotals may not add up to 429 (Asian) or 8184 (non-Asian) due to missing data.

Significant difference between racial groups: * $p < 0.05$; *** $p < 0.001$.

Table 2: Selected Clinical Measures of Interest for the Asian Patient Sample, by Gender, October-December 2000. 2001 ESRD CPM Project.

Clinical Measure ^a	ALL	Men	Women	Clinical Measure ^a	ALL	Men	Women
Adequacy of Dialysis				Epoetin dose (units/kg)			
Calculated Kt/V				IV			
Mean (± SD)	1.62 (±0.30)	1.53*** (± 0.28)	1.71 (± 0.30)	Mean (± SD)	89.3 (± 75.8)	80.1* (± 65.5)	97.5 (± 83.2)
Median	1.62	1.56	1.68	Median	69.1	57.5	81.0
Mean Kt/V ≥ 1.2	93%	90% **	96%	SC			
Calculated URR				Mean (± SD)			
Mean (± SD)	73.7% (± 7.0%)	71.4%*** (± 7.4%)	75.8% (± 5.8%)	84.3 (± 66.8)	75.9 (± 56.3)	98.1 (± 81.1)	
Median	74.5%	72.3%	76.1%	Median	67.0	54.2	88.2
Mean URR ≥ 65%	92%	88% **	96%	Transferrin Saturation (%)			
Dialysis session length (minutes)				Mean (± SD)			
Mean (± SD)	199.5 (± 29.4)	208.5*** (± 30.7)	190.9 (± 25.3)	30.3 (± 12.8)	30.3 (± 12.4)	30.4 (± 13.1)	
Median	195	210	182.5	Median	28.0	28.0	27.0
Dialyzed with a hi-flux dialyzer (KUf ≥ 20 mL/mmHg/hr)				Mean transferrin saturation ≥ 20%			
	71%	69% **	72%	83%	84%	82%	
Blood pump flow rate (mL/minute)				Serum ferritin concentration (ng/mL)			
Mean (± SD)	371.9 (± 61.6)	382.3** (± 63.5)	361.9 (± 58.1)	Mean (± SD)	594 (± 426)	586 (± 426)	602 (± 427)
Median	383.3	400	353.3	Median	529	500	552
Vascular Access				Mean serum ferritin ≥ 100 ng/mL			
Type of access				92%	93%	91%	
AV Fistula (all patients)	36%	41% *	31%	Patients prescribed iron			
AV Fistula (incident patients ^b)	33%	41%	— [^]	61%	60%	62%	
AV graft	45%	45%	46%	Within this group:			
Catheter	19%	14% *	24%	prescribed IV	89%	89%	90%
Catheter in use ≥ 90 days	13%	9% *	17%	prescribed PO	18%	21% *	14%
Anemia Management				Serum Albumin			
Hemoglobin (gm/dL)				BCG^d			
Mean (± SD)	11.7 (± 1.1)	11.8** (±1.1)	11.5 (±1.10)	Mean (± SD)	3.82 (± 0.38)	3.81 (± 0.37)	3.82 (± 0.38)
Median	11.7	11.8	11.6	Median	3.87	3.84	3.87
Mean Hgb ≥ 11 gm/dL	75%	80%*	71%	BCP^e			
Mean Hgb 11.0-12.0 gm/dL ^c	38%	38%	38%	Mean (± SD)	3.43 (± 0.45)	3.40 (± 0.41)	3.47 (± 0.51)
Mean Hgb 11.0-12.9 gm/dL	66%	68%	64%	Median	3.53	3.47	3.53
Mean Hgb < 9 gm/dL	1.4%	1%	1.8%	Mean serum albumin ≥ 4.0/3.7 gm/dL (BCG/BCP)			
Mean Hgb < 10 gm/dL	7%	6%	7%	33%	31%	34%	
Patients prescribed Epoetin				Mean serum albumin ≥ 3.5/3.2 gm/dL (BCG/BCP)			
99%	99%	99%	82%	83%	82%		
Within this group:							
prescribed IV	89%	87%	92%				
prescribed SC	11%	14% *	8%				

[^] Value suppressed because n ≤ 10.

^a Continuous variables are displayed as the mean (± SD) and median values; categorical variables displayed as percent of available values.

^b An incident patient defined as initiating in-center HD on or between January 1, 2000 and August 31, 2000.

^c Among patients prescribed Epoetin

^d BCG = bromcresol green laboratory method

^e BCP = bromcresol purple laboratory method

Significant differences between groups noted by: * p < 0.05; ** p < 0.01; *** p < 0.001.

Vascular Access

36% of all Asian patients were dialyzed with an AV fistula (AVF) on their last hemodialysis session during the study period, 45% with an AV graft, and 19% with a catheter (Table 2). 33% of incident Asian patients were dialyzed with an AVF.

A lower percent of women compared to men were dialyzed with an AVF (31% vs. 41%, $p < 0.05$) and a higher percent of women compared to men were dialyzed with a catheter (24% vs. 14%, $p < 0.05$). Reasons for catheter placement included: no AVF or graft surgically created (28% of patients) AVF or graft was maturing, not ready to cannulate (28%), temporary interruption of AVF or graft due to clotting or revisions (12%), all fistula or graft sites had been exhausted (11%), peripheral vascular disease (7%), renal transplantation scheduled (4%), patient size too small for AVF or graft placement (1%), and "other" reasons (7%).

Overall, 13% of Asian patients in the sample for analysis were dialyzed with a catheter continuously for 90 days or longer.

49% (168/346) of Asian patients dialyzed with either an AVF or an AV graft had their access routinely monitored for stenosis. Within this subset of patients, 70% had their access monitored with dynamic venous pressure, 16% with the Dilution Technique, 14% with static venous pressure, 8% with Color Flow Doppler, and 16% had "Other" types of monitoring (groups not mutually exclusive).

Anemia Management

The mean (\pm SD) hemoglobin for Asian patients in the sample for analysis was 11.7 gm/dL (\pm 1.1 gm/dL) (Table 2). The mean hemoglobin was higher for men compared to women (11.8 gm/dL vs. 11.5 gm/dL, $p < 0.01$); no significant differences in mean hemoglobin by age, or cause of ESRD were noted.

Patients dialyzed less than six months had a lower mean hemoglobin compared to patients dialyzed six months or longer (10.5 gm/dL vs. 11.8 gm/dL, $p < 0.001$). 75% of patients had a mean hemoglobin \geq 11 gm/dL. Only 26% of patients dialyzed less than six months had a mean hemoglobin \geq 11 gm/dL compared to 81% of patients dialyzed six months or longer ($p < 0.001$). 80% of men compared to 71% of women ($p < 0.05$) had a mean hemoglobin \geq 11 gm/dL. 1.4% of patients had a mean hemoglobin $<$ 9 gm/dL; 7% of patients had a mean hemoglobin $<$ 10 gm/dL.

38% of patients who were prescribed Epoetin had a mean hemoglobin within the National Kidney Foundation-Dialysis Outcomes Quality Initiative (NKF-DOQI) recommended target range⁴ of 11.0-12.0 gm/dL.

99% of Asian patients were prescribed Epoetin at least once during the three-month study period; 89% by the intravenous (IV) route and 11% by the subcutaneous (SC) route (groups

not mutually exclusive). The mean (\pm SD) Epoetin dose by the IV route was 89.3 units/kg (\pm 75.8 units/kg), by the SC route, 84.3 units/kg (\pm 66.8 units/kg).

Women had significantly lower mean hemoglobin values compared to men despite significantly higher mean prescribed Epoetin doses (97.5 units/kg IV vs. 80.1 units/kg IV, respectively, $p < 0.05$). The mean hemoglobin did not vary significantly by route of Epoetin administration: 11.6 gm/dL for patients prescribed IV Epoetin vs. 11.9 gm/dL for patients prescribed SC Epoetin ($p = 0.178$).

The mean (\pm SD) transferrin saturation value for Asian patients was 30.3% (\pm 12.8%). Patients with DM as the primary cause of ESRD compared to other causes combined had lower mean transferrin saturation values (28.1% vs. 31.9%, $p < 0.01$) as did patients dialyzed less than six months compared to patients dialyzed six months or longer (23.1% vs. 31.2%, $p < 0.001$). 83% of patients had a mean transferrin saturation \geq 20%. Only 61% ($n=25$) of patients dialyzed less than six months achieved this threshold compared to 85% of patients dialyzed six months or more ($p < 0.001$).

The mean (\pm SD) serum ferritin concentration for Asian patients was 594 ng/mL (\pm 426 ng/mL). Patients dialyzed less than six months had significantly lower mean serum ferritin concentrations compared to patients dialyzed six months or more (269 ng/mL vs. 631 ng/mL, $p < 0.001$). 92% of patients had a mean serum ferritin concentration \geq 100 ng/mL. Only 78% ($n=31$) of patients dialyzed less than six months had a mean serum ferritin concentration meeting this threshold compared to 93% of patients dialyzed six months or more ($p < 0.001$).

61% of Asian patients were prescribed iron by either the IV or the oral route at least once during the three-month study period. Within this subset, 89% of patients were prescribed iron by the IV route and 18% by the oral route (groups not mutually exclusive). The mean hemoglobin did not vary significantly by whether or not the patient was prescribed IV iron: 11.7 gm/dL for patients prescribed IV iron at least once during the study period and 11.6 gm/dL for those patients not prescribed IV iron during the study period ($p=0.703$).

Serum Albumin

The mean (\pm SD) serum albumin for Asian patients with values determined by the BCG laboratory method ($n=353$) was 3.82 gm/dL (\pm 0.38 gm/dL); by the BCP laboratory method ($n=73$) was 3.43 gm/dL (\pm 0.45 gm/dL). 33% of patients had a mean serum albumin \geq 4.0/3.7 gm/dL (BCG/BCP); 82% of patients had a mean serum albumin \geq 3.5/3.2 gm/dL. A higher percent of patients 18 to 44 years old had a mean serum albumin \geq 4.0/3.7 gm/dL (BCG/BCP) compared to older patients (47% vs. 30%, $p < 0.05$). A lower percent of patients with DM as the primary cause of ESRD had a mean serum albumin meeting this threshold compared to patients with other causes combined (26% vs. 38%, $p < 0.05$).

Table 3: Selected Clinical Measures of Interest Comparing sampled Asian Patients to Non-Asian Patients, October-December 2000. 2001 ESRD CPM Project.

Clinical Measure ^a	Asian	Non-Asian	Clinical Measure ^a	Asian	Non-Asian
Adequacy of Dialysis			Epoetin dose (units/kg)		
Calculated Kt/V			IV		
Mean (± SD)	1.62 (±0.30)***	1.49 (± 0.29)	Mean (± SD)	89.3 (± 75.8) *	81.8 (± 70.6)
Median	1.62	1.49	Median	69.1	62.5
Mean Kt/V ≥ 1.2	93%***	86%	SC		
Calculated URR			Mean (± SD)		
Mean (± SD)	73.7% (± 7.0%)***	70.6% (± 7.2)	Mean (± SD)	84.3 (± 66.8) *	66.4 (± 51.3)
Median	74.5%	71.4%	Median	67.0	52.0
Mean URR ≥ 65%	92%***	82%	Transferrin Saturation (%)		
Dialysis session length (minutes)			Mean (± SD)		
Mean (± SD)	199.5 (± 29.4)***	215.9 (± 30.0)	Mean (± SD)	30.3 (± 12.8)**	28.4 (± 12.9)
Median	195	211	Median	28.0	26.0
Dialyzed with a hi-flux dialyzer (KUf ≥ 20 mL/mmHg/hr)	71%	71%	Mean transferrin saturation ≥ 20%		
Blood pump flow rate (mL/minute)			83% **		
Mean (± SD)	371.9 (± 61.6)***	393.3 (± 69.4)	Serum ferritin concentration (ng/mL)		
Median	383	400	Mean (± SD)	594 (± 426)***	523 (± 391)
Vascular Access			Median	529	451
Type of access**			Mean serum ferritin ≥ 100 ng/mL		
AV Fistula (all patients)	36%*	30%	92%		
AV Fistula (incident patients ^b)	33%	27%	Patients with relative iron deficiency ^d		
AV graft	45%	45%	2% *		
Catheter	19%**	25%	Patients prescribed iron		
Anemia Management			Within this group:		
Hemoglobin (gm/dL)			prescribed IV		
Mean (± SD)	11.7 (± 1.1)	11.6 (± 1.2)	prescribed PO		
Median	11.7	11.7	89% *		
Mean Hgb ≥ 11 gm/dL	75%	74%	18%		
Mean Hgb 11.0-12.0 gm/dL ^c	38%	38%	Serum Albumin		
Mean Hgb 11.0-12.9 gm/dL	66%	63%	BCG ^e		
Mean Hgb < 9 gm/dL	1.4%	2.3%	Mean (± SD)		
Mean Hgb < 10 gm/dL	7%	9%	Mean (± SD)		
Patients prescribed Epoetin			Mean (± SD)		
Within this group:			3.82 (± 0.38)**		
prescribed IV	89%**	95%	Median		
prescribed SC	11%	11%	3.87		
			3.75 (± 0.39)		
			BCP ^f		
			Mean (± SD)		
			3.43 (± 0.45)		
			Median		
			3.53		
			3.52 (± 0.45)		
			Mean serum albumin ≥ 4.0/3.7 gm/dL (BCG/BCP)		
			33%		
			29%		
			Mean serum albumin ≥ 3.5/3.2 gm/dL (BCG/BCP)		
			82%		
			80%		

^a Continuous variables are displayed as the mean (± SD) and median values; categorical variables displayed as percent of available values.

^b An incident patient defined as initiating in-center HD on or between January 1, 2000 and August 31, 2000.

^c Among patients prescribed Epoetin

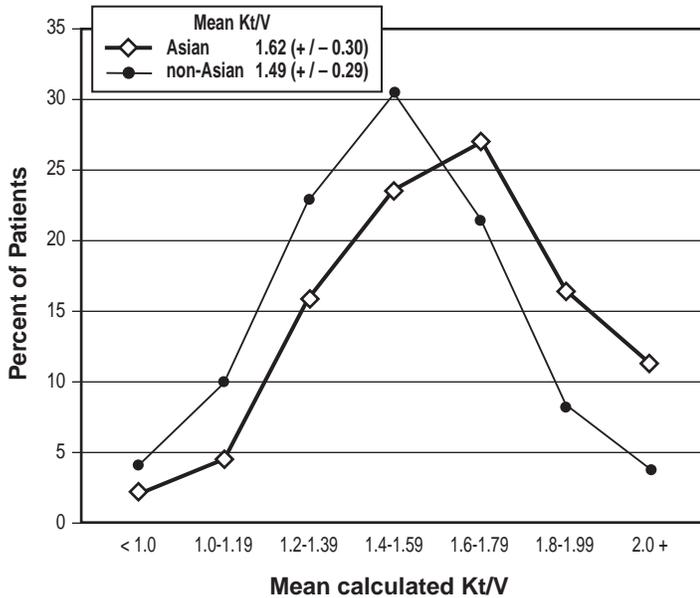
^d Relative iron deficiency is defined for this report as a mean transferrin saturation < 20% and a mean serum ferritin concentration < 100 ng/mL.

^e BCG = bromcresol green laboratory method

^f BCP = bromcresol purple laboratory method

Significant differences between groups noted by: * p < 0.05; ** p < 0.01; *** p < 0.001.

Figure 2: Distribution of mean calculated Kt/V values, Asian patients compared to non-Asian patients, October-December 2000. 2001 ESRD CPM Project.



Asian Patients Compared to Non-Asian Patients in the Sample

Adequacy of Dialysis

The mean calculated Kt/V value for the three-month study period was significantly higher for Asian patients compared to non-Asian patients (1.62 vs. 1.49, $p < 0.001$) (Figure 2). 93% of Asian patients had a mean calculated Kt/V ≥ 1.2 compared to 86% of non-Asian patients ($p < 0.001$) (Table 3).

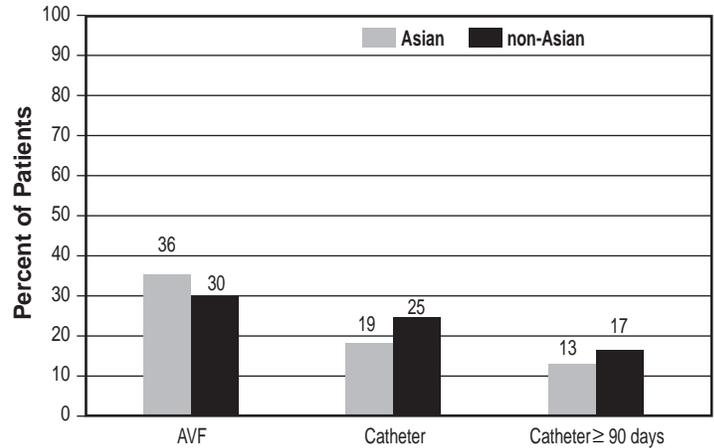
Dialysis adequacy as measured by calculated URR was also significantly higher for Asian patients compared to non-Asian patients (73.7% vs. 70.6%, $p < 0.001$). 92% of Asian patients had a mean calculated URR $\geq 65\%$ compared to 82% of non-Asian patients ($p < 0.001$). The mean post-dialysis weight for Asian patients was significantly lower than for non-Asian patients (59.0 kg vs. 75.1 kg, $p < 0.001$). Dialysis session length was significantly shorter for Asian patients compared to non-Asian patients (200 minutes vs. 216 minutes, $p < 0.001$). There was no significant difference in the percent of patients dialyzed with a hi-flux dialyzer between groups.

Vascular Access

36% of Asian patients had an AVF as their vascular access on the last hemodialysis session during the study period compared to 30% of non-Asian patients ($p < 0.05$) (Figure 3, Table 3). 19% of Asian patients were dialyzed with a catheter, compared to 25% of non-Asian patients ($p < 0.01$). 13% of Asian and 17% of non-Asian patients were dialyzed with a catheter for 90 days or longer during the study period.

49% of Asian patients and 47% of non-Asian patients dialyzed with either an AVF or an AV graft had their access

Figure 3: Vascular Access type, Asian patients compared to non-Asian patients, October-December 2000. 2001 ESRD CPM Project.



routinely monitored for stenosis. The distribution of types of monitoring was similar for both groups of patients.

Anemia Management

There were no significant differences between groups in the mean hemoglobin or in the distribution of hemoglobin values for the three-month study period (Figure 4). The mean hemoglobin for Asian patients was 11.7 gm/dL (± 1.1 gm/dL), for non-Asian patients, 11.6 gm/dL (± 1.2 gm/dL). There were no significant differences between groups in achieving different thresholds of mean hemoglobin values examined (Table 3).

99% of Asian patients and 95% of non-Asian patients were prescribed Epoetin at least once during the three-month study period ($p < 0.01$). Both groups of patients were prescribed

Figure 4: Distribution of mean hemoglobin values for Asian patients and non-Asian patients, October-December 2000. 2001 ESRD CPM Project.

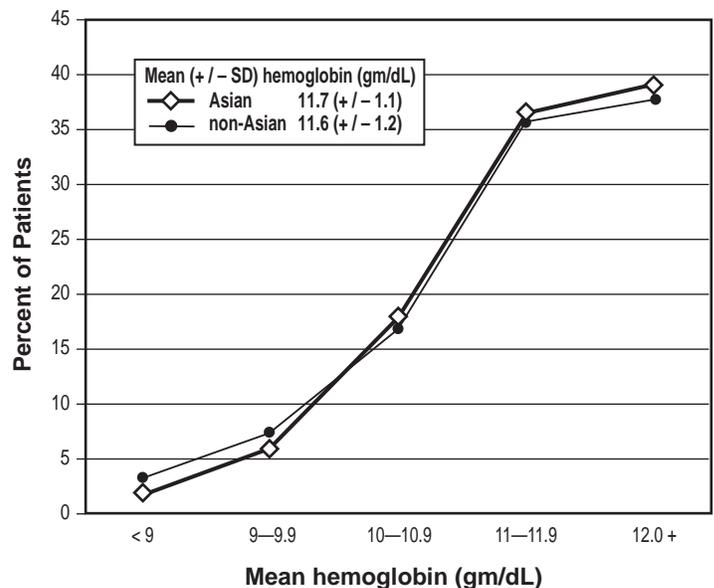
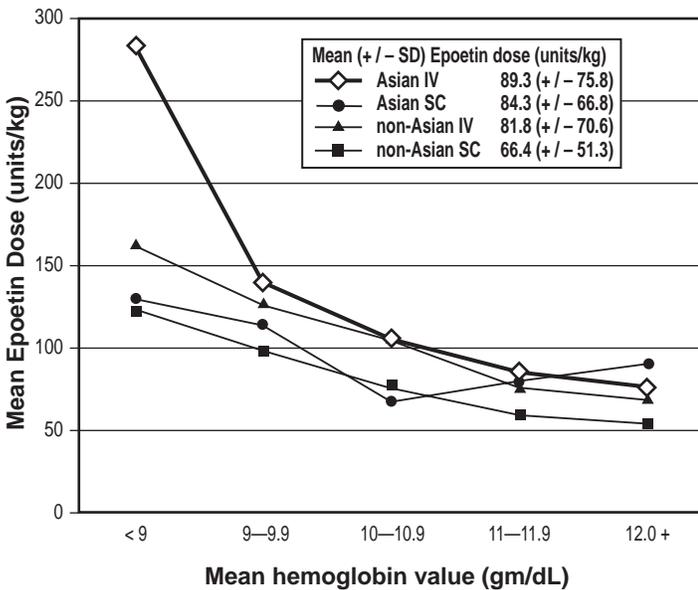


Figure 5: Mean prescribed Epoetin doses (units/kg) by hemoglobin category and route of administration for Asian patients and non-Asian patients, October-December 2000. 2001 ESRD CPM Project.



Epoetin predominantly by the IV route, with 11% of patients in both groups prescribed Epoetin by the SC route (Table 3). The mean dose of IV Epoetin was higher for Asian patients compared to non-Asian patients (89.3 units/kg vs. 81.8 units/kg, respectively, $p < 0.05$). A similar trend was noted for Epoetin prescribed SC, with mean doses of 84.3 units/kg and 66.4 units/kg for Asian and non-Asian patients, respectively, $p < 0.05$. SC Epoetin doses were generally lower than IV doses across hemoglobin categories for both racial groups (Figure 5).

Asian patients had a higher mean transferrin saturation value compared to non-Asian patients (30.3% vs. 28.4%, $p < 0.01$); 83% of Asian patients had a mean transferrin saturation $\geq 20\%$ compared to 77% of non-Asian patients ($p < 0.01$). A similar pattern was noted for mean serum ferritin concentration (594 ng/mL vs. 523 ng/mL for Asian and non-Asian patients, respectively, $p < 0.001$). 92% of Asian patients had a mean serum ferritin concentration ≥ 100 ng/mL compared to 89% of non-Asian patients. Two percent of Asian patients compared to 5% of non-Asian patients had both a mean transferrin saturation $< 20\%$ and a mean serum ferritin concentration < 100 ng/mL ($p < 0.05$).

61% of Asian patients were prescribed iron by either the IV or oral route at least once during the study period compared to 69% of non-Asian patients ($p < 0.001$). 55% of Asian patients were prescribed IV iron at least once during the study period, compared to 64% of non-Asian patients ($p < 0.001$).

Serum Albumin

33% of Asian patients had a mean serum albumin $\geq 4.0/3.7$ gm/dL (BCG/BCP) compared to 29% of non-Asian patients (Table 3). 82% of Asian patients had a mean serum albumin $\geq 3.5/3.2$ gm/dL (BCG/BCP) compared to 80% of non-Asian patients.

KEY OBSERVATIONS

Asian Patients

- Women had higher mean Kt/V and mean URR values and a larger proportion of women met NKF-DOQI⁵ adequacy thresholds compared to men.
- A higher percent of men compared to women were dialyzed with an AVF.
- Women had lower mean hemoglobin values compared to men despite higher mean prescribed Epoetin doses.
- Only one-third of Asian patients had a mean serum albumin $\geq 4.0/3.7$ gm/dL (BCG/BCP).

Asian Patients compared to non-Asian patients

- Asian patients experienced equivalent or better intermediate clinical outcomes for dialysis adequacy, vascular access, anemia management and serum albumin compared to non-Asian patients.
- Dialysis adequacy goals were more easily achieved for Asian patients due to smaller body size.
- Asian patients were older yet had higher mean serum albumin values.
- Asian patients were smaller in size yet this group had a higher percent of patients dialyzed with an AVF.

NEXT STEPS

- Further analysis will be conducted to more fully understand the differences noted between groups.

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