Dear Region Director:

This report is designed to provide a comparative summary of treatment patterns and patient outcomes for End Stage Renal Disease (ESRD) patients in this region, as compared to all patients in the United States. The statistics reported here include dialysis patients treated during 2014-2017 in the chronic dialysis facilities in this region and are based primarily on Medicare claims and data collected for CMS. Selected statistics from this profile are summarized below and region-to-region comparisons of key statistics are provided in the *Charts and Tables of Key Statistics by Region*.

We hope this profile is of interest to you and is helpful in your survey efforts. We welcome your feedback on ways to improve future profiles. For a complete description of the methods and data reported here please see the *Guide to the Region Profiles for FY 2019*. The Guide is available on the Dialysis Data website at www.DialysisData.org.

What's New This Year

As part of a continuing effort to improve the quality and relevance of this report for your region, the following changes have been incorporated into the Region Profile for FY 2019: The Standardized Hospitalization Ratio (SHR) measures for days hospitalized and admissions were replaced by the new NQF-endorsed measures, which adjust for several prevalent comorbidities identified through Medicare claims. Hypercalcemia now includes patients with a missing three-month calcium average in both the numerator and denominator.

Facility Highlights

Patient Characteristics: On December 31st, 2017, 17% of patients for this region were treated in a nursing home during the year, compared to 15% nationally. See **Table 1** for detailed summaries of all patients treated during 2014-2017 in this region.

Form CMS-2728 collected data from 11,259 incident patients in this region in 2017. **Table 2** describes certain important characteristics of these patients at the time of their first outpatient dialysis session, including patients' demographics, medical coverage, primary cause of ESRD, modality, pre-treatment nephrological care, transplant options, and vascular access type. In 2017, the average age of patients in this region was 64 years, compared to the national average of 64 years. 91% of incident patients in this region were informed of their transplant options, compared to 88% nationally. Also in 2017, 16% of incident patients in this region were not under the care of a nephrologist prior to ESRD therapy, compared to 20% nationally.

Mortality: There were 8,049 deaths among the patients treated in this region during 2017, while 8,242 would be expected based on their age, race, ethnicity, sex, diabetes status, duration of ESRD, nursing home status, BMI at incidence, comorbidities at incidence, as well as state population death rates. The Standardized Mortality Ratio (SMR) of observed to expected deaths is 0.98, which is 2% lower than expected. Of the deaths in this region in 2017, 23% were preceded by withdrawal from dialysis, compared to the national average of 25%. See **Table 3** of this profile for more detailed mortality statistics during 2014-2017 in this region.

First Year Mortality: There were 2,232 deaths among the incident patients treated in this region during 2016, while 2,209 would be expected based on their age, race, ethnicity, sex, diabetes status, nursing home status, BMI at incidence, comorbidities at incidence, as well as state population death rates. The First Year Standardized Mortality Ratio (SMR) of observed to expected deaths is 1.01, which is 1% higher than expected. Of the deaths among incident patients in this region in 2016, 26% were preceded by withdrawal from dialysis, compared to the national average of 27%. See **Table 3** of this profile for more detailed first year mortality statistics during 2014-2016 in this region.

Hospitalization: The Standardized Hospitalization Ratio (SHR) of observed to expected hospital admissions for patients in this region during 2017 is 0.97, indicating that these patients had 3% fewer admissions than expected based on characteristics of patients treated in this region. The Standardized Readmission Ratio (SRR) of observed to expected hospital readmissions in this region during 2017 is 1.05, indicating that these patients had 5% more readmissions than expected. See **Table 4** of this profile for additional hospitalization statistics during 2014-2017 in this region.

Transplantation: 1,443 patients under age 70 in this region during 2017 received their first transplant, while 1,173 would be expected based on the age of these patients. The Standardized Transplantation Ratio (STR) of observed to expected number of patients transplanted for this region is 1.23, which is 23% higher than expected. See **Table 5** of this profile for additional transplantation statistics during 2014-2017 in this region.

Kidney Transplant Waitlist: On December 31, 2017, 22% of the dialysis patients under age 70 being treated in this region were on the kidney transplant waitlist compared to 20% nationally. This difference is statistically significant ($p < 0.05$) and is unlikely to be due to random chance. See **Table 6** of this profile for more information about patients on the kidney transplant waitlist in this region during 2014-2017.

Influenza Vaccination: On December 31, 2017, 72.8% of the Medicare dialysis patients treated in this region were vaccinated against influenza between August 1 and December 31, 2017, compared to 72.1% nationally. This difference is statistically significant ($p<0.05$) and is unlikely to be due to random chance. See **Table 7** of this profile for more information about vaccinated patients during 2014-2017 in this region.

Anemia Management: In 2017, 18.5% of ESA-treated hemodialysis patients (with at least 4 eligible Medicare dialysis claims) in this region had an average hemoglobin value below 10 g/dL, compared to 16.8% nationally. Also in 2017, 28.7% of ESA-treated peritoneal dialysis patients (with at least 4 eligible Medicare dialysis claims) in this region had an average hemoglobin value below 10 g/dL, compared to 26.2% nationally. See **Table 8** of this profile for additional anemia management statistics in this region during 2014-2017.

Dialysis Adequacy: Of the eligible hemodialysis patient-months in this region in 2017, 96.3% had a Kt/V >=1.2, compared to 96.2% nationally. Of the eligible peritoneal dialysis patient-months in this region in 2017, 91.0% had a Kt/V >=1.7, compared to 90.6% nationally. See **Table 9** of this profile for more information on dialysis during 2014-2017 in this region.

Mineral Metabolism: In 2017, 11.7% of eligible patient-months in this region had a serum phosphorus value >7.0 mg/dL, compared to 12.6% nationally. Also in 2017, 1.2% of eligible patient-months in this region had a calcium uncorrected value >10.2 mg/dL, compared to 1.3% nationally. See **Table 10** of this profile for more mineral metabolism summaries in this region during 2014-2017.

Vascular Access: In 2017, 62.3% of the prevalent and 17.5% of the incident hemodialysis patients in this region had an arteriovenous (AV) fistula in place. Nationally, 63.8% of the prevalent patients and 17.1% of the incident patients had a fistula in place. Of the prevalent patients receiving hemodialysis treatment in this region, 11.4% had a catheter which had been in place for more than 90 days as their only vascular access, compared to 10.7% nationally. See **Table 11** of this profile for additional information about vascular access in this region during 2014-2017.

TABLE 1: Summaries for All Dialysis Patients Treated as of December 31st of each Year[*1] , 2014-2017

	Measure Name	This Region				United States
		2014	2015	2016	2017	2017
1a	Patients treated on 12/31 of year (n)	42,346	43,273	44,328	45,059	469,909
1b	Average age (years)	62.2	62.3	62.5	62.7	62.1
1c	Age (% of 1a; sums to 100%)					
	< 18	0.2	0.2	0.2	0.2	0.2
	18-64	53.2	52.8	52.2	51.6	53.1
	65+	46.6	47.0	47.6	48.3	46.7
1d	Female (% of 1a)	43.5	43.4	43.1	43.0	43.0
1e	Race (% of 1a; sums to 100%)[*2]					
	African American	49.0	48.9	48.3	47.5	34.8
	Asian/Pacific Islander	2.6	2.7	2.8	3.0	6.0
	Native American	0.0	0.1	0.1	0.1	1.2
	White	48.2	48.3	48.6	49.2	57.6
	Other/Unknown/Missing	0.1	0.1	0.2	0.2	0.4
1f	Ethnicity (% of 1a; sums to 100%)					
	Hispanic	4.6	4.7	4.9	5.1	18.5
	Non-Hispanic	95.1	95.0	94.8	94.5	81.2
	Unknown	0.3	0.3	0.3	0.4	0.3
1g	Cause of ESRD (% of 1a; sums to 100%)					
	Diabetes	40.2	40.6	41.2	41.2	46.1
	Hypertension	32.4	32.6	32.5	32.8	29.7
	Glomerulonephritis	11.5	11.2	10.9	10.6	10.5
	Other/Unknown	14.7	14.3	14.0	13.9	12.9
	Missing	1.2	1.3	1.4	1.4	0.9
1h	Average duration of ESRD (years)	4.9	4.9	4.9	5.0	5.0
1i	Years since start of ESRD (% of 1a; sums to 100%)					
	<1	16.5	16.1	16.0	15.8	15.6
	1-2	17.3	17.5	17.3	17.2	17.0
	2-3	13.3	13.7	14.0	14.0	13.9
	3-6	26.2	25.6	25.6	25.8	26.2
	6+	26.6	27.0	27.0	27.2	27.2
1j	Nursing facility patients[*3] (% of 1a)	16.5	17.3	17.5	17.2	15.0
1k	Modality (% of 1a; sums to 100%)					
	In-center hemodialysis	88.6	88.3	88.1	88.0	87.6
	Home hemodialysis	1.9	1.9	2.0	2.2	1.8
	Continuous ambulatory peritoneal dialysis	1.8	1.8	1.7	1.5	1.4
	Continuous cycling peritoneal dialysis	7.4	7.6	7.8	7.9	8.8
	Other modality[*4]	0.4	0.5	0.4	0.4	0.4

n/a = not applicable.

[*1] See *Guide, Section IV.*

[*2] 'Asian' includes Indian sub-continent. 'Native American' includes Alaskan Native. 'White' includes Middle Eastern and Arabian.

[*3] Includes patients who were treated at a nursing facility at any time during the year. The source of nursing facility history of patients is the Nursing Home Minimum Dataset.

[*4] Other modality includes other dialysis, uncertain modality, and patients not on dialysis but still temporarily assigned to the facility (discontinued dialysis, recovered renal function, and lost to follow up).

TABLE 2: Characteristics of New Dialysis Patients (Form CMS-2728) [*1] , 2014-2017

	Measure Name	This Region 2014	2015	2016	2017	United States 2017
	Patient Characteristics					
2a	Total number of patients with forms (n)	11,433	11,321	11,441	11,259	116,234
2b	Age (average years [0-95]) [*2]	63.9	64.1	64.1	64.1	63.7
2c	Female (% of 2a)	42.4	42.8	42.9	43.4	42.3
2d	Race [*3] (% of 2a; sums to 100%)					
	African American	36.9	36.0	34.3	34.7	26.1
	Asian/Pacific Islander	2.8	2.8	2.9	3.1	5.6
	Native American	0.0	0.1	0.1	0.1	0.9
	White	60.2	61.0	62.6	61.9	67.0
	Other/Unknown/Missing	0.1	0.1	0.1	0.2	0.3
2e	Hispanic (% of 2a)	3.5	3.7	4.0	4.0	15.0
2f	Primary cause of ESRD (% of 2a; sums to 100%)					
	Diabetes	43.9	45.3	46.2	45.7	49.0
	Hypertension	32.6	32.2	31.7	32.1	30.1
	Glomerulonephritis	7.5	7.3	6.9	7.3	7.0
	Other/Missing	16.0	15.2	15.3	14.9	14.0
2g	Medical Coverage [*4] (% of 2a; sums to 100%)					
	Employer group only	13.7	14.0	14.2	14.3	12.3
	Medicare only	32.4	34.7	35.2	35.7	33.8
	Medicaid only	11.4	10.2	11.3	11.3	12.8
	Medicare and Medicaid only	10.7	10.9	10.3	10.3	12.8
	Medicare and Other	21.7	21.2	19.4	19.0	16.8
	Other/Unknown	6.4	6.1	6.9	6.8	7.4
	None	3.7	2.9	2.7	2.6	4.1
2h	Body Mass Index [*5] (Median; Weight/Height^2)					
	Male	28.0	28.2	28.3	28.3	28.1
	Female	29.4	29.4	29.4	29.7	29.2
2i	Employment [*6]					
	Six months prior to ESRD treatment	32.1	32.8	34.0	36.6	34.4
	At first ESRD treatment	24.5	25.6	25.5	28.9	25.0
2j	Primary Modality (% of 2a; sums to 100%)					
	Hemodialysis	90.9	91.0	90.6	90.3	89.4
	CAPD/CCPD	9.1	9.0	9.4	9.7	10.6
	Other/Unknown/Missing	0.0	0.0	0.0	0.0	0.0
2k	Number of incident hemodialysis patients (n)	10,390	10,297	10,366	10,166	103,905
2l	Access used at first outpatient dialysis (% of 2k; sums to 100%)					
	Arteriovenous fistula	16.5	17.3	17.6	17.4	16.6
	Arteriovenous graft	3.1	3.2	3.5	3.9	3.1
	Catheter	80.1	79.3	78.7	78.5	80.1
	Other/Unknown/Missing	0.3	0.2	0.2	0.2	0.2
2m	Arteriovenous fistulae placed (% of 2k) [*7]	33.0	32.3	31.8	31.3	32.2
	Average Lab Values Prior to Dialysis [*2]					
2n	Hemoglobin (g/dL [3-18])	9.4	9.3	9.3	9.3	9.3
2o	Serum Albumin (g/dL [0.8-6.0])	3.1	3.2	3.2	3.2	3.2
2p	Serum Creatinine (mg/dL [0-33])	6.4	6.5	6.4	6.4	6.4
2q	GFR (ml/min [0-30])	11.0	10.8	10.9	10.8	10.7

(continued)

TABLE 2 (continued): Characteristics of New Dialysis Patients (Form CMS-2728) [*1] , 2014-2017

	Measure Name	This Region				United States
		2014	2015	2016	2017	2017
	Care Prior to ESRD Therapy					
2r	Received ESA prior to ESRD (% of 2a)	14.7	14.4	13.4	13.4	13.6
2s	Pre-ESRD nephrologist care (% of 2a; sums to 100%)					
	No	23.9	20.5	18.3	16.4	19.7
	Yes, <6 months	13.7	13.7	14.0	15.0	14.5
	Yes, 6-12 months	20.0	19.6	20.3	20.6	20.0
	Yes, >12 months	29.4	31.0	31.9	33.6	31.5
	Unknown	12.9	15.2	15.5	14.5	14.3
2t	Informed of transplant options (% of 2a)	86.2	88.3	89.1	90.8	88.3
2u	Patients not informed of transplant options (n)	1,570	1,319	1,248	1,040	13,585
2v	Reason not informed (% of 2u; may not sum to 100%) [*8]					
	Medically unfit	30.3	32.4	30.4	28.1	33.6
	Unsuitable due to age	21.2	21.2	21.6	25.7	25.2
	Psychologically unfit	2.9	2.1	2.3	1.9	2.8
	Patient declined information	2.4	2.4	2.3	2.7	2.1
	Patient has not been assessed	47.1	44.1	41.9	46.6	40.3
	Comorbid Conditions					
2w	Pre-existing Comorbidity (% yes of 2a)					
	Congestive heart failure	28.7	28.3	28.1	28.6	28.8
	Atherosclerotic heart disease [*9]	13.8	12.9	13.3	12.2	13.4
	Other cardiac disorder [*9]	20.1	20.6	20.3	21.4	20.1
	CVD, CVA, TIA	8.2	8.4	8.7	8.6	8.6
	Peripheral vascular disease	9.2	8.9	9.0	8.7	9.6
	History of hypertension	86.0	86.3	86.7	87.3	88.2
	Diabetes [*9]	59.7	60.8	61.9	62.2	64.1
	Diabetes on insulin	39.7	40.1	41.6	42.6	43.1
	COPD	9.9	9.9	10.5	9.9	9.4
	Current smoker	5.8	6.4	7.1	7.1	6.5
	Cancer	7.3	7.5	7.6	7.3	7.0
	Alcohol dependence	1.4	1.1	1.4	1.6	1.6
	Drug dependence	1.1	1.0	1.3	1.3	1.3
	Inability to ambulate	6.4	6.7	6.2	6.8	7.3
	Inability to transfer	3.4	3.8	3.4	3.3	3.9
2x	Average number of comorbid conditions	3.0	3.0	3.1	3.1	3.1

n/a= not applicable.
[*1] See *Guide, Section V.*
[*2] For continuous variables, all summaries are computed based only on responses in range indicated in brackets for the variable.
[*3] 'Asian' includes Indian sub-continent. 'Native American' includes Alaskan Native. 'White' includes Middle Eastern and Arabian.
[*4] 'Medicare and Other' excludes patients with Medicare and Medicaid only. 'Other/Unknown' includes patients with unknown status and patients receiving medical benefits under other health insurance plans or plans that are not covered in the categories above.
[*5] The median BMI is computed for adult patients at least 20 years old with height, weight, and BMI values in acceptable ranges. Acceptable range for height, weight, and BMI are 122-208cm, 32-318 kg and 10-55 respectively.
[*6] Full-time, part-time, or student (% of 18-60 year olds).
[*7] Includes all patients with AV fistulae, regardless of whether they recieved their hemodialysis treatments using their fistulae.
[*8] Values may not sum to exactly 100% because of patients for which multiple reasons are selected, or no reason is selected.
[*9] 'Atherosclerotic heart disease' includes ischemic heart disease (coronary artery disease) and myocardial infarction. 'Other cardiac disorder' includes cardiac arrest, cardiac dysrhythmia, and pericarditis. 'Diabetes' includes patients with diabetes as the primary cause of ESRD.

TABLE 3: Mortality Summary for All Dialysis Patients (2014-2017) & New Dialysis Patients (2014-2016) [*1]

	Measure Name	This Region				United States
		2014	2015	2016	2017	
	All Dialysis Patients					
3a	Patients (n=number)	57,712	60,003	61,585	62,787	n/a
3b	Patient years (PY) at risk (n)	41,583	42,757	43,981	44,690	n/a
3c	Deaths (n)	7,278	7,916	7,993	8,049	85,444
3d	Expected deaths (n)	7,495	7,821	8,029	8,242	85,807
3e	Withdrawal from dialysis prior to death (% of 3c)	23.2	23.9	24.7	23.3	25.0
3f	Deaths due to infections (% of 3c)	10.2	9.7	9.1	9.2	10.5
3g	Deaths due to cardiac causes (% of 3c)	40.2	40.6	39.2	42.5	45.5
3h	Deaths due to liver disease (% of 3c)	1.5	1.3	1.3	1.3	1.5
3i	Dialysis unrelated deaths [*2] (n; excluded from SMR)	59	49	41	54	565
3j	Standardized Mortality Ratio (SMR; 3c /3d)	0.97	1.01	1.00	0.98	1.00
3k	P-value [*3]	.	.	.	.	n/a
	New Dialysis Patients			**2016**		
3l	Patients (n=number)	11,433	11,321	11,441		n/a
3m	Patient years (PY) at risk (n)	9,932	9,865	10,021		n/a
3n	Deaths (n)	2,364	2,286	2,232		22,388
3o	Expected deaths (n)	2,360	2,250	2,209		22,355
3p	Withdrawal from dialysis prior to death (% of 3n)	25.9	25.6	26.4		27.2
3q	Deaths due to infections (% of 3n)	9.6	9.0	7.4		9.4
3r	Deaths due to cardiac causes (% of 3n)	37.6	35.1	36.5		40.3
3s	Deaths due to liver disease (% of 3n)	2.0	1.7	2.4		2.6
3t	Standardized Mortality Ratio (SMR; 3n /3o)	1.00	1.02	1.01		1.00
3u	P-value [*3]	.	.	.		n/a

 n/a = not applicable.
[*1] See *Guide, Section VI.*
[*2] Defined as deaths due to street drugs and accidents unrelated to treatment.
[*3] Ratios within the range 0.95 to 1.05 will not have a p-value. A p-value >=0.05 indicates that the ratio is >1.05 or <0.95 plausibly due to random chance.
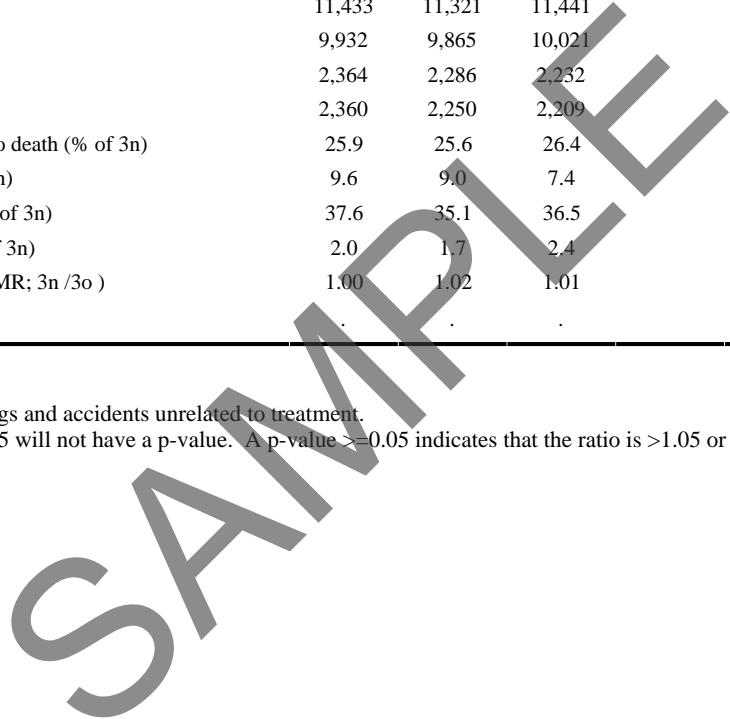
TABLE 4: Hospitalization Summary for Medicare Dialysis Patients [*1] , 2014-2017

| | Measure Name | This Region | | | | United States |
		2014	2015	2016	2017	2017
	Medicare Dialysis Patients					
4a	Medicare dialysis patients (n)	45,595	46,691	47,772	48,260	n/a
4b	Patient years (PY) at risk (n)	30,597	30,938	31,480	31,473	n/a
	Days Hospitalized Statistics					
4c	Total days hospitalized (n)	405,277	409,442	432,369	425,013	4,408,307
4d	Expected days hospitalized (n)	415,697	425,507	440,556	445,265	4,417,419
4e	Standardized Hospitalization Ratio for Days (4c/4d)	0.97	0.96	0.98	0.95	1.00
4f	P-value [*2]	.	.	.	.	n/a
	Admission Statistics					
4g	Total admissions (n)	57,125	57,262	58,527	58,771	601,379
4h	Expected total admissions (n)	55,773	56,550	58,915	60,307	601,523
4i	Standardized Hospitalization Ratio for Admissions (4g/4h)	1.02	1.01	0.99	0.97	1.00
4j	P-value [*2]	.	.	.	.	n/a
4k	Patients with septicemia (% of 4a)	12.2	12.3	12.1	12.3	11.3
4l	One day admissions (% of 4g)	11.1	10.5	10.1	10.0	9.8
4m	Average length of stay (days per admission)	7.1	7.1	7.4	7.2	7.3
	Emergency Department (ED) Statistics					
4n	Total ED visits (n)	97,525	100,548	103,180	103,314	1,052,363
4o	Expected total ED visits (n)	93,355	96,200	100,260	101,708	1,052,465
4p	Standardized Hospitalization Ratio for ED (4n/4o)	1.04	1.05	1.03	1.02	1.00
4q	P-value [*2]	.	.	.	.	n/a
4r	Patients with ED visit (% of 4a)	66.6	67.1	66.9	67.3	61.9
4s	ED visits that result in hospitalization (% of 4p)	49.3	48.0	47.9	48.1	47.3
4t	Admissions that originate in the ED (% of 4g)	84.1	84.3	84.5	84.6	82.7
	Readmission Statistics					
4u	Index discharges (n)	54,834	54,807	56,384	55,955	555,110
4v	Total readmissions (n)	15,285	15,227	15,501	15,290	149,044
4w	Expected total readmissions (n)	14,092	14,305	14,767	14,603	143,056
4x	Standardized Readmission Ratio (SRR: 4v/4w)	1.08	1.06	1.05	1.05	1.04

n/a = not applicable.
[*1] See *Guide, Section VII.*
[*2] Ratios within the range 0.95 to 1.05 will not have a p-value. A p-value >=0.05 indicates that the ratio is >1.05 or <0.95 plausibly due to random chance.

TABLE 5: Transplantation Summary for Dialysis Patients under Age 70[*1] , 2014-2017

	Measure Name	This Region				United States
		2014	2015	2016	2017	2017
5a	Eligible patients (n)	38,719	40,206	41,440	41,811	n/a
5b	Transplants (n)	1,347	1,575	1,567	1,682	n/a
	Patients who have not Previously Received a Transplant					
5c	Eligible patients (n)	34,829	36,313	37,512	37,890	n/a
5d	Patient years (PY) at risk (n)	25,180	26,030	26,938	27,123	n/a
5e	Actual 1st transplants [*2] (n)	1,187	1,317	1,318	1,443	13,363
5f	Expected 1st transplants (n)	995	1,054	1,127	1,173	13,441
5g	Standardized Transplantation Ratio (STR; 5e/5f)	1.19	1.25	1.17	1.23	0.99
5h	P-value [*3]	<0.01	<0.01	<0.01	<0.01	n/a

TABLE 6: Waitlist Summary for Dialysis Patients under Age 70 Treated as of December 31st of Each Year[*1] , 2014-2017

	Measure Name	This Region				United States
		2014	2015	2016	2017	2017
6a	Eligible patients on 12/31 (n)	30,199	30,951	31,535	31,432	n/a
6b	Patients on the waitlist (% of 6a)	27.1	24.8	23.6	22.4	20.1
6c	P-value [*4] (compared to U.S. value)	<0.01	<0.01	<0.01	<0.01	n/a
6d	Patients on the waitlist by subgroup (%) [*5]					
	Age < 40	42.1	36.8	34.9	32.8	29.5
	Age 40-69	25.1	23.3	22.3	21.2	19.0
	Male	27.7	25.6	24.7	23.3	21.3
	Female	26.2	23.7	22.0	21.0	18.6
	African American	27.4	24.8	23.4	22.0	18.7
	Asian/Pacific Islander	43.4	42.0	37.8	35.4	30.8
	Native American	33.3	21.1	29.2	33.3	13.4
	White, Hispanic	28.8	26.2	26.1	25.0	22.6
	White, Non-Hispanic	25.4	23.5	22.6	21.6	19.0
	Other/Unknown race	33.3	33.3	37.3	29.6	22.1
	Diabetes	22.2	20.1	19.6	18.3	16.1
	Non-diabetes	30.3	28.0	26.4	25.2	23.6
	Previous kidney transplant	46.9	43.5	39.6	37.3	34.4
	No previous kidney transplant	24.9	22.8	21.9	20.8	18.9
	<2 years since start of ESRD	21.1	18.9	17.9	17.9	14.2
	2-4 years since start of ESRD	31.2	29.9	29.7	27.5	24.9
	5+ years since start of ESRD	29.7	26.5	24.2	22.4	21.9

n/a = not applicable.

[*1] See *Guide Section VIII (Transplantation) and Section IX (Waitlist)*.

[*2] Among first transplants that occurred after the start of dialysis from 2014-2017, 3.9% of transplants in the U.S. were not included because the transplant occurred less than 90 days after the start of ESRD and 0.9% were not included because the patient was not assigned to a facility at time of transplant.

[*3] Ratios within the range 0.95 to 1.05 will not have a p-value. A p-value greater than or equal to 0.05 indicates that the standardized ratio is greater than 1.05 or less than 0.95 plausibly due to random chance.

[*4] This region waitlist percentage is compared to the U.S. value for that year: 24.0% (2014), 22.6% (2015), 21.3% (2016), 20.1% (2017). A p-value greater than or equal to 0.05 indicates that the difference between the percent of patients waitlisted in the region and in the nation is plausibly due to random chance.

[*5] A missing value indicates that there were no eligible patients in the subgroup.

TABLE 7: Influenza Vaccination Summary for Medicare Dialysis Patients Treated on December 31st of Each Year [*1] , Flu Seasons August 2014-December 2017

	Measure Name	This Region				United States
		2014	2015	2016	2017	
						2017
7a	Eligible patients on 12/31 (n)	31,922	32,136	32,537	32,266	n/a
7b	Patients vaccinated between Aug. 1 and Dec. 31 (% of 7a)	75.0	73.5	68.8	72.8	72.1
7c	P-value [*2] (for 7b compared to U.S. value) [*3]	<0.01	0.201	0.316	<0.01	n/a
						2016
7d	Patients vaccinated between Aug. 1 and Mar. 31 of following year (% of 7a)	75.5	73.9	69.4		69.6
7e	P-value [*2] (for 7d compared to U.S. value) [*4]	<0.01	0.272	0.337		n/a
7f	Patients vaccinated between Aug. 1 and Dec. 31 by subgroup [*5]					2017
	Age < 18	55.3	50.0	54.2	35.3	55.8
	Age 18-39	72.4	71.5	64.5	68.5	68.6
	Age 40-64	75.2	73.5	68.0	73.1	72.6
	Age 65-74	74.6	72.9	69.2	72.7	71.8
	Age 75+	76.1	74.6	70.6	73.6	72.7
	Male	75.1	73.5	68.9	72.5	72.0
	Female	75.0	73.4	68.6	73.3	72.2
	African American	74.6	72.5	66.8	71.6	69.9
	Asian/Pacific Islander	83.5	83.1	78.7	81.2	75.4
	Native American	70.6	81.0	57.7	43.8	79.6
	White	75.1	74.0	70.2	73.6	73.0
	Other/unknown race	71.9	57.9	65.2	71.2	68.6
	Hispanic	78.5	77.0	71.6	75.6	72.6
	< 1 year since start of ESRD	62.6	60.4	57.6	61.3	58.8
	1-2 years since start of ESRD	73.9	72.2	67.3	71.0	70.6
	3+ years since start of ESRD	78.9	77.4	72.3	76.6	76.2

n/a = not applicable

[*1] Based on patients with Medicare as primary insurer; see *Guide, Section X*.

[*2] A p-value greater than or equal to 0.05 indicates that the difference between percent of patients vaccinated at the region and national percentage is plausibly due to random chance.

[*3] Compared to the U.S. value for that year and time period (08/01-12/31): 73.9% (2014), 73.2% (2015), 68.9% (2016), 72.1% (2017).

[*4] Compared to the U.S. value for that year and time period (08/01-03/31): 74.4% (2014), 73.8% (2015), 69.6% (2016).

[*5] A missing value indicates that there were no eligible patients in the subgroup.

TABLE 8: Anemia Management Summaries for Adult Dialysis Patients [*1] , 2014-2017

	Measure Name	This Region 2014	2015	2016	2017	United States 2017
	Hemoglobin and ESA-CROWNWeb					
8a	Eligible patients (n) [*2]	50,515	52,231	53,451	54,540	557,445
8b	Eligible patient-months (n) [*3]	480,525	492,875	505,865	514,619	5,360,104
8c	Average hemoglobin [*4] (g/dL) (average of 8b)	10.7	10.7	10.7	10.8	10.8
8d	Hemoglobin categories (% of 8b; sums to 100%)					
	<10 g/dL	20.7	21.8	22.5	21.8	20.7
	10-<11 g/dL	34.8	33.7	34.1	33.9	33.8
	11-12 g/dL	25.7	27.1	28.1	29.3	29.8
	>12 g/dL	10.1	11.0	11.5	12.5	13.3
	Missing/Out of range	8.7	6.5	3.8	2.6	2.4
8e	ESA prescribed (% of 8b)	63.8	70.4	74.6	74.2	72.5
	Standardized Transfusion Ratio (STrR)					
8f	Adult Medicare patients (n)	38,768	39,139	39,842	40,273	n/a
8g	Patient years (PY) at risk (n)	24,035	23,589	23,824	23,980	n/a
8h	Total transfusions (n)	10,779	9,965	10,146	9,826	n/a
8i	Expected total transfusions (n)	10,391	9,656	9,440	9,101	n/a
8j	Standardized Transfusion Ratio [*5]	1.04	1.03	1.07	1.08	1.01
8k	P-value [*6]	.	.	0.094	0.059	n/a
	Hemoglobin-Medicare Claims [*7]					
8l	Eligible hemodialysis (HD) patients (n)	26,300	26,504	26,272	25,819	n/a
8m	Hemoglobin categories among HD pts (% of 8l; sums to 100%)					
	< 10 g/dL	15.6	17.8	19.1	18.5	16.8
	10-<11 g/dL	70.7	67.0	65.4	64.6	63.9
	11-12 g/dL	13.6	15.1	15.4	16.8	19.0
	> 12 g/dL	0.2	0.2	0.2	0.2	0.3
8n	Eligible peritoneal dialysis (PD) patients (n)	2,011	2,087	2,049	2,025	n/a
8o	Hemoglobin categories among PD pts (% of 8n; sums to 100%)					
	< 10 g/dL	26.2	26.4	29.6	28.7	26.2
	10-<11 g/dL	58.9	58.3	55.9	55.2	56.7
	11-12 g/dL	14.4	14.7	13.9	15.5	16.5
	> 12 g/dL	0.5	0.5	0.5	0.6	0.6

n/a = not applicable.

[*1] See *Guide, Section XI.* Transfusion and claims-based summaries include adult Medicare Dialysis Patients only.

[*2] Includes those who switch between HD and PD during the month and patients for whom modality is unknown.

[*3] Patients may be counted up to 12 times per year.

[*4] Based on in-range values; see *Guide* for range values.

[*5] Calculated as a ratio of observed transfusions to expected transfusions (8h to 8i); not shown if there are fewer that 10 patient-years at risk for transfusions.

[*6] Ratios within the range 0.95 to 1.05 will not have a p-value. A p-value greater than or equal to 0.05 indicates that the standardized ratio is greater than 1.05 or less than 0.95 plausibly due to random chance.

[*7] Among ESA-treated dialysis patient with ESRD for 90+ days and 4 or more claims at this facility.

TABLE 9: Dialysis Adequacy Summaries for All Dialysis Patients [*1] , 2014-2017

	Measure Name	This Region 2014	2015	2016	2017	United States 2017
	Adult Hemodialysis (HD) Adequacy					
9a	Eligible HD patients (n)	46,344	47,820	48,919	49,873	n/a
9b	Eligible HD patient-months (n) [*2]	437,153	446,754	458,161	465,649	n/a
9c	Average serum albumin (g/dL) (average of 9b)	3.9	3.8	3.7	3.7	3.8
9d	Serum albumin categories (% of 9b; sums to 100%)					
	< 3.0 g/dL	2.8	3.1	3.9	3.9	3.6
	3.0-<3.5 g/dL	9.7	10.9	14.5	14.8	14.3
	3.5-<4.0 g/dL	35.7	40.4	47.4	48.4	48.0
	>=4.0 g/dL	33.7	38.8	29.7	29.8	31.1
	Missing	18.2	6.7	4.6	3.1	2.9
9e	Ultrafiltration rate average [*3] (ml/kg/hr) (average of 9b)	8.2	7.8	7.6	7.5	7.8
9f	Ultrafiltration rate categories (% of 9b; sums to 100%)					
	<=13 (ml/kg/hr)	51.9	52.7	82.1	84.2	83.0
	>13 (ml/kg/hr)	7.6	6.4	8.8	8.2	9.4
	Missing/Out of range	40.5	40.9	9.1	7.6	7.6
9g	Eligible HD Kt/V patients (n) [*4]	42,808	44,124	45,792	47,129	n/a
9h	Eligible HD Kt/V patient-months (n) [*2 *4]	392,633	404,693	422,461	433,889	n/a
9i	Average Kt/V (average of 9h) [*3 *4]	1.6	1.6	1.6	1.6	1.6
9j	Kt/V categories (% of 9h; sums to 100%) [*4]					
	<1.2	2.3	3.5	2.2	2.0	2.1
	1.2-<1.8	66.7	70.4	73.6	74.8	72.0
	>=1.8	23.8	22.0	21.6	21.6	24.2
	Missing/Out of range	7.2	4.1	2.5	1.7	1.7
	Adult Peritoneal Dialysis (PD) Adequacy					
9k	Eligible PD patients (n)	5,188	5,493	5,642	5,763	63,702
9l	Eligible PD patient-months (n) [*2]	42,395	45,086	46,728	47,929	535,190
9m	Average Weekly Kt/V (average of 9l) [*3 *4]	2.3	2.3	2.3	2.3	2.2
9n	Weekly Kt/V categories (% of 9l; sums to 100%) [*4]					
	<1.7	5.7	7.6	5.6	5.1	5.2
	1.7-<2.5	56.9	59.4	62.7	65.7	66.2
	>=2.5	23.5	24.6	26.3	25.3	24.4
	Missing/Out of range	13.9	8.3	5.4	3.8	4.2
9o	Average serum albumin (g/dL) (average of 9l)	3.5	3.5	3.5	3.5	3.5
9p	Serum Albumin Categories (% of 9l; sums to 100%)					
	< 3.0 g/dL	8.4	9.6	12.2	12.1	11.4
	3.0-<3.5 g/dL	22.1	25.4	31.5	31.9	31.3
	3.5-<4.0 g/dL	33.2	38.2	38.1	39.6	40.7
	>=4.0 g/dL	14.5	17.3	12.2	12.8	13.1
	Missing	21.8	9.6	5.9	3.6	3.5

(continued)

TABLE 9 (continued): Dialysis Adequacy Summaries for All Dialysis Patients [*1] , 2014-2017

| | Measure Name | This Region | | | | United States |
		2014	2015	2016	2017	2017
	Pediatric Kt/V [*4]					
9q	Eligible Pediatric HD patients (n)	59	56	67	66	n/a
9r	Eligible Pediatric HD patient-months (n) [*2]	425	382	421	412	n/a
9s	Average Kt/V (average of 9r) [*3]	1.7	1.5	1.6	1.6	1.7
9t	Kt/V categories (% of 9r; sums to 100%)					
	<1.2	1.9	5.0	4.0	3.6	2.8
	1.2-<1.8	43.8	68.1	72.7	67.7	59.8
	>= 1.8	22.6	13.6	13.3	20.9	33.5
	Missing/Out of Range	31.8	13.4	10.0	7.8	3.9
9u	Eligible Pediatric PD Patients (n)	81	84	82	72	n/a
9v	Eligible Pediatric PD patient-months (n) [*2]	587	609	586	516	n/a
9w	Average Weekly Kt/V (average of 9v) [*3]	2.4	2.4	2.3	2.3	2.4
9x	Weekly Kt/V categories (% of 9v; sums to 100%)					
	<1.7	14.8	17.7	27.3	19.4	15.5
	1.7-<2.5	25.9	30.4	29.7	42.2	42.0
	>=2.5	23.3	22.0	22.2	31.0	27.5
	Missing/Out of Range	35.9	29.9	20.8	7.4	14.9

n/a = not applicable.

[*1] See *Guide, Section XII.* Unless otherwise noted, all summaries are based on data reported in CROWNWeb and the patient must be on HD (or PD) for the entire reporting month to be included in patient counts and summaries.

[*2] Patients may be counted up to 12 times per year.

[*3] Based on in-range values; see *Guide* for range values.

[*4] Kt/V summaries are supplemented with Medicare claims if missing in CROWNWeb. HD Kt/V summaries are restricted to patients who dialyze thrice weekly. See section of Guide titled *Determiantion of Thrice Weekly Dialysis* for more information. The most recent value over a 4-month (adult) or 6-month (pediatric) period is selected for PD Kt/V.

TABLE 10: Mineral Metabolism Summaries for All Adult Dialysis Patients[*1] , 2014-2017

	Measure Name	This Region				United States
		2014	2015	2016	2017	2017
10a	Eligible adult patients (n) [*2]	50,515	52,231	53,451	54,540	557,445
10b	Eligible adult patient-months (n) [*2] [*3]	480,525	492,875	505,865	514,619	5,360,104
10c	Average Phosphorous [*4] (mg/dL) (average of 10b [*5])	5.1	5.2	5.2	5.2	5.3
10d	Phosphorous categories (% of 10b [*5]; sums to 100%)					
	<3.5 mg/dL	9.2	9.2	9.2	9.3	8.6
	3.5-<4.5 mg/dL	25.2	25.0	25.7	25.7	25.0
	4.6-5.5 mg/dL	28.1	27.6	29.6	30.2	30.0
	5.6-7.0 mg/dL	17.8	20.0	19.8	19.9	20.8
	>7.0 mg/dL	9.6	10.9	11.4	11.7	12.6
	Missing/Out of range	9.9	7.3	4.3	3.1	3.0
10e	Average Calcium Uncorrected [*4] (mg/dL) (average of 10b)	9.0	9.0	8.9	8.9	8.9
10f	Calcium Uncorrected categories (% of 10b; sums to 100%)					
	<8.4 mg/dL	14.8	16.6	17.7	17.1	16.9
	8.4-10.2 mg/dL	73.0	74.4	76.4	78.9	79.0
	>10.2 mg/dL	2.8	2.1	1.4	1.2	1.3
	Missing/Out of range	9.5	6.8	4.5	2.9	2.8
10g	Average uncorrected calcium > 10.2 mg/dL (average of 10b [*4] [*6])	8.8	6.2	3.1	2.1	2.1

n/a = not applicable.
[*1] See *Guide, Section XIII.* Summaries are based on data reported in CROWNWeb and the patient must be assigned to the facility the entire month to be included.
[*2] Includes patients on ESRD more than 90 days who switch between HD and PD during the month and patients for whom modality is unknown.
[*3] Patients may be counted up to 12 times per year.
[*4] Based on in-range values; see Guide for range values.
[*5] Eligible patients included in the phosphours summaries differ slightly from what is reported in 10b since it includes patient-months within the first 90 days of ESRD.
[*6] Hypercalcemia is avearaged from uncorrected serum or plasma calcium values over a rolling 3-month period.

TABLE 11: Vascular Access Information for all Adult Dialysis Patients and Access-Releated Infection Summaries for all Medicare Patients [*1] **, 2014-2017**

Measure Name	This Region				United States
	2014	2015	2016	2017	2017
Vascular Access					
11a Prevalent adult hemodialysis (HD) patients	49,926	51,433	52,357	53,265	n/a
11b Prevalent adult hemodialysis patient months [*2]	463,280	473,416	484,457	492,029	n/a
11c Vascular access type in use (% of 11b; sums to 100%)					
Arteriovenous fistula	57.0	58.5	60.3	61.0	62.6
Arteriovenous graft	17.2	17.3	17.8	18.2	17.7
Catheter	17.2	17.5	18.0	18.1	17.3
Other/Missing	8.6	6.6	3.9	2.7	2.4
11d Arteriovenous fistulae placed [*3] (% of 11b)	59.1	59.9	61.6	62.3	63.8
11e Catheter only >= 90 days [*4] (% of 11b)	10.0	10.8	11.2	11.4	10.7
Vascular Access at First Treatment					
11f Incident adult hemodialysis patients (n)	10,783	10,765	10,583	10,411	n/a
11g Vascular access type in use (% of 11f; sums to 100%)					
Arteriovenous fistula	17.9	16.7	16.6	15.9	15.6
Arteriovenous graft	4.2	3.7	3.9	4.5	3.5
Catheter	71.7	74.8	78.0	75.1	76.3
Other/Missing	6.1	4.8	1.4	4.6	4.6
11h Arteriovenous fistulae placed [*3] (% of 11f)	21.3	19.1	18.5	17.5	17.1
Infection: Peritoneal dialysis (PD)					
11i Eligible PD patients (n)	4,406	4,557	4,696	4,722	n/a
11j Eligible PD patient-months [*2]	31,875	32,964	33,361	33,740	n/a
11k PD catheter infection rate per 100 PD patient-months [*5]	2.9	2.8	2.9	2.8	2.9
11l P-value [*6] of 11k (compared to U.S. value [*7])	0.322	0.040	0.286	0.148	n/a

n/a = not applicable

[*1] See *Guide, Section XIV*. Vascular Access type is based on data reported in CROWNWeb. For the prevalent summaries (rows 11a-11e), the patient must be assigned to the facility for the entire calendar month to be included. The PD infection summaries are based on Medicare Dialysis claims.

[*2] Patients may be counted up to 12 times per year.

[*3] Includes all patients with fistulae, regardless of whether or not they received their hemodialysis treatments using their fistulae.

[*4] Catheter was used for treatment and has been in place for 90 days or more prior to treatment. Patient does not have a fistula or graft in place. Catheter is only access. Port access devices are reported as catheters for this project.

[*5] The ICD-9 PD catheter infection code for PD patients is 996.68 which is effective thru 9/30/2015 and the ICD-10 PD catheter infection code for PD patients is T8571XA which is effective beginning 10/1/2015.

[*6] A p-value greater than or equal to 0.05 indicates the differences between the percent of patients with infection at the facility and national percentage is plausibly due to random change.

[*7] Compared to U.S. value for that year: 2.85 (2014), 2.94 (2015), 2.88 (2016), and 2.87 (2017).

TABLE 12: Comorbidities Reported on Medicare Claims for Medicare Dialysis Patients Treated as of December 31st of Each Year [*1] , 2014-2017

	Measure Name	This Region				United States
		2014	2015	2016	2017	2017
12a	Medicare dialysis patients on 12/31(n)	32,929	33,084	33,661	33,810	n/a
12b	Comorbidity (% yes of 12a)					
	Infections					
	AIDS/HIV positive	2.5	2.6	2.6	2.4	1.7
	Dialysis access-related	12.4	10.0	9.7	9.2	9.2
	Hepatitis B	2.3	2.4	2.3	2.0	1.6
	Hepatitis other	7.9	9.5	9.3	8.9	5.7
	Metastatic	4.0	4.1	3.8	3.3	3.0
	Pneumonia	6.0	5.9	7.5	9.5	8.4
	Tuberculosis	0.3	0.4	0.3	0.3	0.5
	Other	34.4	34.9	35.9	36.0	35.6
	Cardiovascular					
	Cardiac arrest	1.7	1.6	1.7	1.8	1.9
	Cardiac dysrhythmia	40.6	41.2	39.5	40.3	36.9
	Cerebrovascular disease	27.4	27.6	26.3	26.4	24.4
	Congestive heart failure	53.9	54.2	54.5	55.5	52.9
	Ischemic heart disease	49.5	50.5	50.9	51.1	49.4
	Myocardial infarction	9.5	10.1	10.5	11.1	10.2
	Peripheral vascular disease [*2]	44.5	46.6	46.7	46.5	44.2
	Other					
	Alcohol dependence	3.2	3.4	3.1	2.9	2.9
	Anemia	7.6	9.7	10.7	10.1	9.4
	Cancer	12.4	13.0	12.7	12.8	11.1
	Chronic obstructive pulmonary disease	33.5	33.9	34.1	34.1	32.2
	Diabetes	63.1	65.0	65.0	65.6	67.9
	Drug dependence	2.4	2.9	3.3	3.5	3.6
	Gastrointestinal tract bleeding	3.3	3.8	5.1	4.9	4.5
	Hyperparathyroidism	89.7	89.8	88.3	87.6	85.6
12c	Average number of comorbid conditions	5.1	5.2	5.2	5.3	5.0

n/a = not applicable.
[*1] Based on patients with Medicare as primary insurer on 12/31 each year; See *Guide, Section XV.*
[*2] Peripheral vascular disease includes venous, arterial and nonspecific peripheral vascular diseases.