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# Dialysis facility characteristics and services

<u>Dialysis Facility Compare</u> provides the following information on dialysis facilities:

Scroll <b>O</b> and <b>O</b> on the table to view all data. Rotate screen for better viewing <b>C</b> .					
Facility name & address	Facility name & address, including street, city, state, and ZIP code.				
Whether the facility has shifts starting after 5:00pm	You may prefer to get dialysis in the evening if you have a daytime job or family duties.				
Number of hemodialysis treatment stations	The number of stations tells you how many people can get dialysis at the same time. A station contains the equipment needed to give one person a dialysis treatment.				
Types of dialysis offered	This is reported by the facility as In-Center <u>Hemodialysis</u> , <u>Peritoneal Dialysis</u> , and Home Hemodialysis Training. You can get additional information on the different types of dialysis from your doctor, the staff at the dialysis facility, or by visiting the <u>National Kidney and</u> <u>Urologic Diseases</u> website.				
Facility ownership type (for- profit or non-profit)	Whether a facility is for-profit or non-profit doesn't impact the level of care that a facility gives to the patients. For-profit means that the facility operates to make a profit from its health services. Non-profit means a facility isn't seeking profits from its health services.				

Name of organization or corporation that owns or manages the facility	If ownership changes, the facility's certification date and facility number may change, which can affect the availability of information relevant to you.			
Date the facility was certified (or recertified) by Medicare to give dialysis	The date that Medicare first certified (or recertified) that a facility met all of its requirements to give dialysis. This date may differ from the date the state licensed the facility. This date is also associated with the facility's current Medicare provider number. A facility may request to change its provider number if there is a change in ownership. You should contact the facility to find out how long it has been enrolled in Medicare. For detailed information on the Medicare certification process, go to the <u>State Operations Manual</u> .			

These data are updated quarterly. Check with the facility for the most current information.

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# Quality measures: hospitalizations and deaths

This section provides information on the data and methods for Dialysis Facility Compare quality measures related to hospitalizations and deaths.

# Scroll **G** and **O** on the table to view all data. Rotate screen for better viewing **C**.

Measure	Explanation
Standardized hospitalization ratio	This measure takes a facility's expected total number of hospital admissions and compares it to the actual total number of hospital admissions among its Medicare dialysis patients. The expected total number of hospital admissions depends on the patients' age, sex, duration of <u>end stage</u> <u>renal disease (ESRD)</u> , and comorbidities and body mass index at incidence. It also depends on whether or not diabetes was the cause of ESRD for the patients and if the patients were in a nursing home the previous year. The standardized hospitalization ratio (SHR) is the observed number of hospital admissions divided by the expected number of hospital admissions. If a facility wasn't open during this period, information isn't available. Facilities' hospital admission ratios are rated as Better than Expected, As Expected, or Worse than Expected.
	What patients are included
	This information is for all Medicare dialysis patients. Please note that the hospital admission ratio information presented here is limited to the hospital admission ratio information for people with Medicare who

	were getting dialysis during the time period indicated in the table. Therefore, depending on the number of people with Medicare at a particular facility, the data for all of the patients at that facility may be different from what is presented here. Contact the facility for their most current hospital admission ratio information, and their non-Medicare patients' hospital admission ratio information.
	Where the information comes from
	The data for this measure originated in the <u>CMS Statistical Analytical Files (Medicare</u> <u>claims)</u> and in the CMS/ESRD Networks integrated information system called Consolidated Renal Operations in a Web- enabled Network (CROWN) which includes CMS (REMIS) as well as ESRD Network (SIMS) data. The ratios are calculated each year by the University of Michigan's Kidney Epidemiology and Cost Center based on the information that facilities send Medicare monthly.
	Additional information
	For additional information on methodological issues, please see the University of Michigan Kidney Epidemiology and Cost Center <u>Guide</u> to the Dialysis Facility Compare Report (pdf (file type: portable document formate) 623kb (kilobyte))
Standardized mortality ratio	This measure takes a facility's expected patient death ratio and compares it to the actual patient death ratio. The expected death ratio is the ratio at which patients with certain demographic characteristics are expected to die in a facility. This depends on the patients' age, race, sex, diabetes, and years on dialysis and whether they had other health problems when they started dialysis. It also depends on patient characteristics like other diseases or conditions (comorbidities) and body size of the patients in the facility. Facilities with older patients or more patients with diabetes would have a higher expected patient death ratio. The actual death ratio is

the ratio at which patients in a facility died during the period indicated on the table. The standardized morality ratio (SMR) is the observed death ratio divided by the expected death ratio. If a facility wasn't open during this period, information isn't available. Facilities' death ratios are rated as Better than Expected, As Expected, or Worse than Expected.

#### What patients are included

This information is for all dialysis patients, both Medicare and non-Medicare. Please note that the death information presented here is limited to the death information for people with who were getting dialysis during the time period indicated in the table. Contact the facility for their most current information.

#### Where the information comes from

The data for this measure originated in the <u>CMS Statistical Analytical Files (Medicare</u> <u>claims</u>) and in the CMS/ESRD Networks integrated information system called Consolidated Renal Operations in a Webenabled Network (CROWN) which includes CMS (REMIS) as well as ESRD Network (SIMS) patient. The ratios are calculated each year by the University of Michigan's Kidney Epidemiology and Cost Center based on the information that facilities send Medicare monthly.

#### Additional information

For additional information on methodological issues, please see the University of Michigan Kidney Epidemiology and Cost Center <u>Guide</u> to the Dialysis Facility Compare Report (pdf (file type: portable document formate) 623kb (kilobyte))

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# Quality measures: best treatment practices

This section provides information on the data and methods for Dialysis Facility Compare quality measures related to best treatment practices in the following areas:

# ▼Anemia management

# Scroll **G** and **O** on the table to view all data. Rotate screen for better viewing **C**.

Measure	Explanation				
Percentage of Medicare dialysis patients who had an ESA-	These measures show the percentage of patients at a facility with an average <u>hemoglobin</u> greater than 12.0 g/dL. What patients are included				
treated hemoglobin greater than 12.0 g/dL	This <u>anemia</u> information only includes people with Medicare who get dialysis and who are given medications like Epogen® for anemia. Depending on the number of people with Medicare at a particular facility, the percentage for all the patients at that facility may be different from what appears here.				
	Please note that the anemia management information presented here is limited to the anemia management for people with Medicare who were getting dialysis during the time period indicated in the table. Therefore, depending on the number of people with Medicare at a particular facility, the data for all of the patients at that facility may be different from what is shown here. Contact the facility for their most current anemia management information and their non- Medicare patients' anemia management information.				

	Where the information comes from
	The information for this measure originated in the <u>CMS Statistical Analytical Files (Medicare</u> <u>claims)</u> . The rates are calculated each year by the University of Michigan's Kidney Epidemiology and Cost Center based on the information that facilities send to Medicare monthly.
	Additional information
	For additional information on methodological issues, please see the University of Michigan Kidney Epidemiology and Cost Center <u>Guide to</u> the Dialysis Facility Compare Report (pdf (file type: portable document formate) 623kb (kilobyte))
Standardized transfusion ratio	This facility-level measure is a ratio of the observed number of eligible red blood cell transfusion events occurring in patients dialyzing at a facility to the number of eligible transfusions that would be expected under a national norm, after accounting for the patient characteristics within each facility. The expected number of transfusions is the number of eligible red blood cell transfusion events that would be expected among patients at a facility during the reporting period, given the patient mix at the facility. The observed number of transfusions is the number of eligible red blood cell transfusions the patients who dialyze at the facility got during the reporting period. Eligible transfusions are those that don't have any claims pertaining to the exclusion comorbidities in at least last 1-year period. If a facility wasn't open during this period, information isn't available.
	What patients are included
	This information is for adult dialysis patients with Medicare. Please note that the transfusion information presented here is limited to the transfusion information for adult dialysis patients with Medicare who were getting dialysis during the time period indicated in the table. Contact the facility for their most current information.

The data for this measure originated in the CMS Statistical Analytical Files (Medicare claims) and in the CMS/ESRD Networks integrated information system called Consolidated Renal Operations in a Web-enabled Network (CROWN) which includes CMS (REMIS) as well as ESRD Network (SIMS) patient. The ratios are calculated each year by the University of Michigan's Kidney Epidemiology and Cost Center based on the information that facilities send Medicare monthly. Additional information For additional information on methodological issues, please see the University of Michigan Kidney Epidemiology and Cost Center Guide to the Dialysis Facility Compare Report (pdf (file type: portable document formate) 623kb (kilobyte)) ◀

# ▼Dialysis Adequacy

# Scroll **(c)** and **(c)** on the table to view all data. Rotate screen for better viewing **(C)**.

Measure	Explanation
Percentage of Medicare hemodialysis patients who had a Urea Reduction	<u>Urea</u> is a waste product found in blood. Healthy kidneys filter urea out of blood. When kidneys don't work well, urea can build up in the blood. Dialysis reduces the amount of urea in the blood.
Ratio (URR) greater than or equal to 65%	A blood test is done at the beginning and end of hemodialysis treatment to see how much urea is in the blood—this is known as the blood urea nitrogen (BUN) measurement. A urea reduction ratio (URR) is calculated to find out if dialysis was adequate. The BUN drawn before dialysis and the BUN drawn after dialysis are used to calculate the URR. The BUN taken after dialysis is subtracted from the BUN taken before dialysis and divided by the BUN taken before dialysis. This is multiplied by 100 to get the URR.
	BUN before dialvsis – BUN after dialvsis x 100

#### BUN before dialysis

This measure shows the percentage of the facility's hemodialysis patients that had the recommended URR of 65% or more based on the <u>National Kidney Foundation Dialysis</u> <u>Outcome Initiative (NKF-KDOQI)</u> guidelines.

#### What patients are included

This information is only for hemodialysis patients; information won't be available for a facility's <u>peritoneal dialysis</u> patients and no information is available for facilities that only provide peritoneal dialysis. Contact individual facilities for peritoneal dialysis adequacy information.

Please note that the adequacy information presented here is limited to the adequacy information for people with Medicare who were getting hemodialysis during the time period indicated in the table. Therefore, depending on the number of people with Medicare at a particular facility, the data for all of the patients at that facility may be different from what is presented here. Contact the facility for their most current adequacy information, their non-Medicare patients' adequacy information and adequacy information for patients who are on peritoneal dialysis.

#### Where the information comes from

This information is updated annually. The information for this measure originated in the <u>CMS Statistical Analytical Files (Medicare</u> <u>claims</u>). The rates are calculated by the University of Michigan's Kidney Epidemiology and Cost Center based on information that the facilities send to Medicare on an ongoing basis.

#### Additional information

For additional information on methodological issues, please see the University of Michigan Kidney Epidemiology and Cost Center <u>Guide to</u> the Dialysis Facility Compare Report (pdf (file type: portable document formate) 623kb (kilobyte))

Percentage of adult Medicare hemodialysis patients who had a Kt/V greater than or equal to 1.2

Percentage of adult Medicare peritoneal dialysis patients who had a Kt/V greater than or equal to 1.7

Percentage of pediatric Medicare hemodialysis patients who had a Kt/V greater than or equal to 1.2 These measures show the percentage of adult <u>hemodialysis</u> patient-months with Kt/V greater than or equal to 1.2, the percentage of adult <u>peritoneal dialysis</u> patient-months with Kt/V greater than or equal to 1.7, and the percentage of pediatric hemodialysis patient-months with Kt/V greater than or equal to 1.2.

Kt/V is calculated by multiplying the dialyzer clearance of <u>urea</u> by the dialysis time, and dividing by the patient's total body water volume.

(dialyzer clearance of urea) x (dialysis time) (patient's total body water)

#### What patients are included

This information is for Medicare dialysis patients. Please note that the adequacy information presented here is limited to the adequacy information for people with Medicare who were getting dialysis during the time period indicated in the table. Therefore, depending on the number of people with Medicare at a particular facility, the data for all of the patients at that facility may be different from what is presented here. Contact the facility for their most current adequacy information and their non-Medicare patients' adequacy information.

#### Where the information comes from

This information is updated annually. The information for this measure originated in the <u>CMS Statistical Analytical Files (Medicare</u> <u>claims</u>). The rates are calculated by the University of Michigan's Kidney Epidemiology and Cost Center based on information that the facilities send to Medicare on an ongoing basis.

#### Additional information

For additional information on methodological issues, please see the University of Michigan Kidney Epidemiology and Cost Center <u>Guide to</u> the Dialysis Facility Compare Report (pdf (file type: portable document formate) 623kb (kilobyte))



# Scroll **(c)** and **(c)** on the table to view all data. Rotate screen for better viewing **(C)**.

Measure	Explanation
Percentage of adult Medicare bemodialysis	This measure shows the percentage of <u>hemodialysis</u> patient-months at each facility with an <u>arteriovenous fistula</u> in use.
patients with	What patients are included
arteriovenous fistula	This information is only for adult hemodialysis patients with Medicare; information won't be available for a facility's <u>peritoneal dialysis</u> patients and no information will be available for facilities that only provide peritoneal dialysis. Please note that the <u>vascular access</u> information presented here is limited to the vascular access information for people with Medicare who were getting hemodialysis during the time period indicated in the table. Therefore, depending on the number of people with Medicare at a particular facility, the data for all of the patients at that facility may be different from what is presented here. Contact the facility for their most current vascular access information and their non-Medicare patients' vascular access information.
	Where the information comes from
	The data for this measure originated in the <u>CMS</u> <u>Statistical Analytical Files (Medicare claims)</u> . The rates are calculated each year by the University of Michigan's Kidney Epidemiology and Cost Center based on the information that facilities send to Medicare monthly.
	Additional information
	For additional information on methodological issues, please see the University of Michigan Kidney Epidemiology and Cost Center <u>Guide to</u> the Dialysis Facility Compare Report (pdf (file type: portable document formate) 623kb (kilobyte))

Percentage of The measure reports the percentage of adult hemodialysis patient-months at each facility with Medicare a vascular catheter reported as access type in use for all claims for at least 90 days. hemodialysis patients with What patients are included vascular catheter in This information is only for adult hemodialysis use for 90 patients with Medicare; information won't be available for a facility's peritoneal dialysis days or patients and no information will be available for longer facilities that only provide peritoneal dialysis. Please note that the vascular access information presented here is limited to the vascular access information for people with Medicare who were getting hemodialysis during the time period indicated in the table. Therefore, depending on the number of people with Medicare at a particular facility, the data for all of the patients at that facility may be different from what is presented here. Contact the facility for their most current vascular access information and their non-Medicare patients' vascular access information. Where the information comes from The data for this measure originated in the <u>CMS</u> Statistical Analytical Files (Medicare claims). The rates are calculated each year by the University of Michigan's Kidney Epidemiology and Cost Center based on the information that facilities send to Medicare monthly. Additional information For additional information on methodological issues, please see the University of Michigan Kidney Epidemiology and Cost Center Guide to the Dialysis Facility Compare Report (pdf (file type: portable document formate) 623kb (kilobyte))

# ▼Mineral and Bone Disorder

Scroll **(c)** and **(c)** on the table to view all data. Rotate screen for better viewing **(C)**.

This measure shows the percentage of adult patient-months with <u>calcium</u> greater than 10.2 mg/dL. What patients are included
What patients are included
This information is for all adult <u>hemodialysis</u> and <u>peritoneal dialysis</u> patients. Each month, patients are identified as having hypercalcemia if their average serum calcium level was greater than 10.2 mg/dL. This information is for all dialysis patients, both Medicare and non-Medicare. Please note that the calcium information presented here is limited to the calcium information for people who were getting dialysis during the time period indicated in the table.
Where the information comes from
This information is updated quarterly. The data for this measure originate in the <u>CROWNWeb</u> system . The rates are calculated by the University of Michigan's Kidney Epidemiology and Cost Center based on information that facilities send monthly.
Additional information
For additional information on methodological issues, please see the University of Michigan Kidney Epidemiology and Cost Center <u>Guide</u> to the Dialysis Facility Compare Report (pdf (file type: portable document formate) 623kb (kilobyte))

# **Quarterly Dialysis Facility Compare -- Preview for October 2014 Report**

## This Quarterly DFC Preview Report includes data specific to CCN(s): 999999

## **Purpose of the Report**

Enclosed is the *Quarterly Dialysis Facility Compare (QDFC) Preview Report* for your facility, based on data from the Centers for Medicare & Medicaid Services (CMS). This report provides you with advance notice of the updated quality measures for your facility that will be reported on the Dialysis Facility Compare (DFC) website (http://data.medicare.gov).

**Overview:** This report was created for all operating Medicare approved dialysis facilities according to information available on DFC as of May 2014. This report contains four tables that summarize the patient outcomes and treatment patterns for chronic dialysis patients. Unless otherwise specified, data refer to all dialysis patients combined (i.e., hemodialysis and peritoneal, adult and pediatric). All data included in the report will be available in the DFC downloadable databases at http://data.medicare.gov. The measures reported in the Quarterly DFC Preview table on page 2 will be reported on DFC in October 2014.

**What's New This Quarter:** As part of a continuing effort to improve the quality and relevance of this report, the following changes have been incorporated into the QDFC October 2014 report. A star rating of dialysis facilities will be implemented on the Dialysis Facility Compare website in October 2014. In preparation for this release, we have included the star rating for your facility in this report. The rating will be updated annually in each QDFC October report. Further description of the star rating methodology can be found in *Section VIII* of the *Guide to the Quarterly Dialysis Facility Compare Report*. Page 2 of this report shows the rating as it will appear on DFC in October 2014. Table 4 in this report shows how the rating was calculated.

## How to Submit Comments

**Between July 15, 2014 and August 15, 2014**, you may submit comments to CMS on the measures included in this report. Your comments will be shared with CMS but will **not** appear on the DFC website. Please visit the www.DialysisReports.org website, log on to view your report, and click on the **Comments & Inquiries** tab. If you have questions after the comment period is closed, please contact us directly at Support@DialysisReports.org or 1-877-665-1680.

**Sources of Patient Data:** This report is based primarily on Medicare claims, CROWNWeb and data collected for CMS. Patients were assigned to this facility using a combination of Medicare-paid dialysis claims, the Medical Evidence Form (Form CMS-2728), and data from the Standard Information Management System (SIMS).

#### Prepared by

The University of Michigan Kidney Epidemiology and Cost Center (UM-KECC) under contract with the Centers for Medicare & Medicaid Services

#### Quarterly Dialysis Facility Compare - Preview for October 2014 Report

DFC Dialysis Facility State: XX Network: 99 CCN: SAMPLE

**Quarterly Dialysis Facility Compare Preview:** The following table displays measures for this facility as they will appear on the DFC website. Please refer to Table 1 for more information on hospitalization, deaths, or transfusions, Table 2 for claims-based measures, Table 3 for Mineral and Bone Disorder measures reported in CROWNWeb and Table 4 for the star rating calculation. The star rating, Standardized Mortality, Hospitalization and Transfusion Ratios are updated annually; all other measures are updated quarterly. For a complete description of the methods used to calculate the statistics in this report, please see the *Guide to the Quarterly Dialysis Facility Compare Report*. The *Guide* is available on the DialysisReports website at www.DialysisReports.org.

Measure Name	This Facility
Overall Star Rating	★ ★ ★ ☆ ☆
Hospitalizations & Deaths tab	Average
Patient Survival (2010-2013, Table 1) Standardized Mortality Ratio (Lower Confidence Limit (2.5%), Upper Confidence Limit (97.5%)) Classification Category <sup>*1</sup> Hagnital Admissions (2013, Table 1)	1.16 (0.96, 1.38) As Expected
Standardized Hospitalization Ratio (Lower Confidence Limit (2.5%), Upper Confidence Limit (97.5%)) Classification Category <sup>*1</sup>	0.94 (0.62, 1.51) As Expected
Best Treatment Practices tab	
Anemia Management <sup>*2</sup>	
Percentage of Medicare dialysis patients who had an ESA-treated hemoglobin greater than 12.0 g/dL (January 2013-December 2013, Table 2)	0%
Patient Transfusions (2013, Table 1) Standardized Transfusion Ratio (Lower Confidence Limit (2.5%), Upper Confidence Limit (97.5%))	0.99 (0.58, 1.83)
Classification Category <sup>*1</sup>	As Expected
Dialysis Adequacy <sup>*2</sup> (January 2013-December 2013, Table 2)	
Percentage of Medicare hemodialysis patients who had a Urea Reduction Ratio (URR) greater than or equal to 65%	99%
Percentage of Adult Medicare hemodialysis patients who had a Kt/V greater than or equal to 1.2	91%
Percentage of Adult Medicare peritoneal dialysis patients who had a Kt/V greater than or equal to 1.7	86%
Percentage of Pediatric Medicare hemodialysis patients with Kt/V greater than or equal to 1.2	Not Available
Vascular Access <sup>*2</sup> (January 2013-December 2013, Table 2)	
Percentage of Adult Medicare hemodialysis patients with arteriovenous fistulae in place	53%
Percentage of Adult Medicare hemodialysis patients with vascular catheter in use for 90 days or longer	2%
Mineral and Bone Disorder <sup>*2</sup> (January 2013-December 2013, Table 3)	
Percentage of adult dialysis patients who had an average calcium over the past three months greater than 10.2 mg/dL (hypercalcemia)	5%

[\*1] If the measure is less than 1.00 and statistically significant (p<0.05), the classification is "Better than Expected". If the ratio is greater than 1.00 and statistically significant (p<0.05), the classification is "As Expected" on DFC. Please note that the SMR is not reported on DFC if it is based on fewer than 3 expected deaths. Similarly, the SHR and STrR are not reported if they are based on fewer than 5 or 10 patient years at risk, respectively.

[\*2] Percentages based on 10 or fewer patients will be reported as "Not Available" on DFC.

#### Quarterly Dialysis Facility Compare - Preview for October 2014 Report

DFC Dialysis Facility State: XX Network: 99 CCN: SAMPLE

#### TABLE 1: Mortality Summary for All Dialysis Patients (2010-13) and Hospitalization and Transfusion Summaries for Medicare Dialysis Patients (2013)<sup>\*1</sup>

The mortality summaries reported in the first third of the table include all prevalent dialysis patients treated at your facility between 2010 and 2013. The remainder of the table summarizes hospitalization admissions and transfusions among Medicare dialysis patients treated at your facility in 2013. State and national averages are included to allow for comparisons. These measures are adjusted to account for the characteristics of the patient mix at this facility such as age, sex, and diabetes as a cause of ESRD. Time at risk and deaths within 60 days after transfer out of this facility are attributed to this facility. Time at risk and admissions starting three days before transplantation are excluded from the hospitalization measures. Measures reported in this table are updated on DFC annually.

			Regional Averages	
	Measure Name	This Facility	State	U.S.
Standardized Mortality Ratio (SMR)		2010-2013	2010-2	.013
1a	Patients (n=number)*3	1024	65.9	93.7
1b	Deaths $(n)^{*3}$	123	8.7	11.5
1c	Expected deaths $(n)^{*3}$	106	8.2	11.5
1d	Standardized Mortality Ratio <sup>*4</sup>	1.16	1.05	1.00
	Lower Confidence Limit (2.5%)	0.96	n/a	n/a
	Upper Confidence Limit *5 (97.5%)	1.38	n/a	n/a
1e	P-value <sup>*6</sup>	0.114	n/a	n/a
Sta	ndardized Hospitalization Ratio (SHR): Admissions	2013	201	3
1f	Medicare Patients (n)	180	58.9	72.5
1g	Patient years (PY) at risk (n)	97	39.5	48.3
1h	Total admissions (n)	165	61.3	87.0
1i	Expected total admissions (n)	175	71.6	87.7
1j	Standardized Hospitalization Ratio (Admissions) <sup>*4</sup>	0.94	0.86	1.00
	Lower Confidence Limit (2.5%)	0.62	n/a	n/a
	Upper Confidence Limit <sup>*5</sup> (97.5%)	1.51	n/a	n/a
1k	P-value <sup>*6</sup>	0.879	n/a	n/a
Sta	ndardized Transfusion Ratio (STrR)	2013	201.	3
11	Adult Medicare Patients (n)	166	52.6	62.5
1m	Patient years (PY) at risk (n)	86	33.2	38.6
1n	Total transfusions (n)	36	13.2	16.7
10	Expected total transfusions (n)	36.2	14.3	16.9
1p	Standardized Transfusion Ratio <sup>*4</sup>	0.99	0.92	0.99
	Lower Confidence Limit (2.5%)	0.58	n/a	n/a
	Upper Confidence Limit <sup>*5</sup> (97.5%)	1.83	n/a	n/a
1q	P-value <sup>*6</sup>	0.990	n/a	n/a

n/a = not applicable [\*1] See *Guide*, *Section V*. [\*2] Values are shown for the average facility, annualized. [\*3] Sum of 4 years used for calculations; should not be compared to regional averages. [\*4] Calculated as a ratio of observed deaths (or admissions/transfusions) to expected deaths (or admissions/transfusions) (1b to 1c for deaths, 1h to 1i for admissions, 1n to 1o for transfusions); not shown if there are fewer than 3 expected deaths or fewer than 5 or 10 patient-years at risk for admissions or transfusions, respectively. [\*5] The confidence interval range represents uncertainty in the value of the SMR, SHR or STR due to random variation. [\*6] A p-value less than 0.05 indicates that the difference between the actual and expected mortality (or admissions/transfusions) is probably real and is not due to random chance alone, while a p-value greater than or equal to 0.05 indicates that the difference could plausibly be due to random chance.

#### Quarterly Dialysis Facility Compare - Preview for October 2014 Report

DFC Dialysis Facility State: XX Network: 99 CCN: SAMPLE

#### TABLE 2: Facility Hemoglobin, Adequacy, and Vascular Access for Medicare Dialysis Patients based on Medicare Dialysis Claims (January 1, 2013 - December 31, 2013)\*1

Anemia management, dialysis adequacy, and vascular access summaries are reported by quarter and for a one-year period. One-year state and national averages are included to allow for comparisons. The quarterly measures are provided in order to allow for you to evaluate facility time trends and will not appear on DFC. These measures are based on all Medicare dialysis claims reported under the CCN(s) included in this report and are updated on DFC quarterly in January, April, July, and October.

		This Facility Regional A					Averages *2	
		Q1	Q2	Q3	Q4	Jan 1, 2013	State	U.S.
	Measure Name	Jan'13Mar'13	Apr'13Jun'13	Jul'13Sep'13	Oct'13Dec'13	Dec 31, 2013	Jan 1, 2013	Dec 31, 2013
Her	noglobin <sup>*3</sup>							
2a	Eligible patients (n)	87	76	72	72	74	37.6	45.9
2b	Hemoglobin < 10g/dL (% of 2a)	25.3	27.6	18.1	20.8	10.8	11.1	12.3
2c	Hemoglobin > $12g/dL$ (% of 2a)	1.1	0.0	1.4	0.0	0.0	0.1	0.3
Ure	ea Reduction Ratio (URR) <sup>*4</sup>							
2d	Eligible Patients (n)	75	74	77	74	77	36.7	45.0
2e	URR >= 65% *4 (% of 2d)	94.7	95.9	96.1	97.3	98.7	98.5	98.7
Kt/	V <sup>*5*6</sup>							
2f	Eligible adult hemodialysis (HD) patients (n)	80	82	80	79	97	54.6	70.6
2g	Eligible adult HD patient-months *7 (n)	224	219	225	223	891	419.9	513.6
2h	Eligible patient-months with Kt/V missing, out of							
	range, not-performed, expired *8 (n)	8	11	9	9	37	35.0	44.7
2i	Adult HD: Kt/V >=1.2 (% of 2g)	91.1	90.9	91.1	90.1	90.8	89.8	89.8
2j	Eligible adult peritoneal dialysis (PD) patients (n)	36	1	0	0	37	6.2	6.2
2k	Eligible adult PD patient-months <sup>*7</sup> (n)	69	2	0	0	71	43.0	46.8
21	Eligible patient-months with Kt/V missing, out of							
	range, not-performed, expired *8 (n)	4	0	0	0	4	5.0	5.3
2m	Adult PD: Kt/V >=1.7 (% of 2k)	85.5	100	•		85.9	81.4	80.8
2n	Eligible HD pediatric patients (n)	0	0	0	0	0	0.1	0.1
20	Eligible HD pediatric patient-months <sup>*7</sup> (n)	0	0	0	0	0	0.3	0.6
2p	Eligible patient-months with Kt/V missing, out of							
	range, not-performed, expired <sup>*8</sup> (n)	0	0	0	0	0	0.1	0.1
2q	Pediatric HD: Kt/V >=1.2 (% of 2o)						72.9	80.3
Vas	scular Access *9							
2r	Eligible adult HD patients (n)	94	85	83	81	110	58.6	75.9
2s	Eligible adult HD patient-months*7 (n)	252	230	237	235	954	453.7	562.0
2t	Arteriovenous fistulae in place (% of 2s)	54.4	52.2	51.5	52.3	52.6	57.4	62.8
2u	Vascular catheter reported >90 days (% of 2s)	2.8	0.4	2.1	3.4	2.2	6.8	11.2

[\*1] See *Guide, Section VI.*[\*2] Values are shown for the average facility. Measure values will be missing if there are no eligible patients/patient-months.
[\*3] Among patients with at least 1 eligible claim/quarter and 4 eligible claims/year: eligible claims include ESA-treated dialysis patients with ESRD for 90+ days at this facility.
[\*4] Among patients with at least 1 eligible claim/quarter and 4 eligible claims/year: eligible claims include <4 dialysis sessions/week and patients with >= 183 ESRD days.
[\*5] Claims identified as having 2 or fewer, or 4/5 or more adul/pediatric, dialysis sessions per week, and Kt/V values reported as 8.88 indicating frequent dialysis, were excluded from the Kt/V calculations.
[\*6] Based on the value Code D5; Result of last Kt/V (K=dialyzer clearance of urea; t=dialysis time; V=patient's total body water).
[\*7] Patients may be counted up to 12 times per year.
[\*8] Included in denominator (2g, 2k, 2o).
[\*9] Based on modifiers V5 and V7 for catheter and fistula, respectively.

DFC Dialysis Facility State: XX Network: 99 CCN: SAMPLE

# **TABLE 3:** Facility Mineral and Bone Disorder for Adult Dialysis Patients based on CROWNWeb (January1, 2013 - December 31, 2013)\*1

Hypercalcemia and serum phosphorus concentrations are reported by quarter and for a one-year period. One-year state and national averages are included to allow for comparisons. The quarterly measures are provided in order to allow you to evaluate facility time trends and will not appear on DFC. The lab values for these measures are based on all reported mineral and bone disorder CROWNWeb data and are updated on DFC quarterly in January, April, July, and October.

		This Facility					Regional A	Regional Averages *2	
		Q1	Q2	Q3	Q4	Jan 1, 2013	State	U.S.	
	Measure Name	Jan'13Mar'13	Apr'13Jun'13	Jul'13Sep'13	Oct'13Dec'13	Dec 31, 2013	Jan 1, 2013	Dec 31, 2013	
Hy	percalcemia								
3a	Eligible patients (n)	173	112	106	111	200	64.0	82.1	
3b	Eligible patient-months (n)	432	308	284	312	1336	533.8	690.0	
3c	Average uncorrected serum calcium > 10.2 mg/dL	4.4	3.9	4.6	6.1	4.7	3.2	2.4	
Serum Phosphorus Concentrations									
3d	Eligible patients (n)	186	117	118	116	215	68.1	86.4	
3e	Eligible patient-months (n)	453	311	311	329	1404	560	721	
3f	Serum phosphorus categories (%, sums to 100%)								
	<3.5 mg/dL	8.8	13.8	10.6	10.3	10.7	10.4	10.6	
	3.5-4.5 mg/dL	30.2	28.3	31.2	25.8	29.0	27.3	28.4	
	4.6-5.5 mg/dL	28.7	26.4	28.0	30.4	28.4	32.0	31.5	
	5.6-7.0 mg/dL	21.2	23.2	18.6	24.3	21.8	19.3	19.2	
	>7.0 mg/dL	11.0	8.4	11.6	9.1	10.1	10.9	10.4	

[\*1] See Guide, Section VII. [\*2] Values are shown for the average facility. Measure values will be missing if there are no eligible patients/patient

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DFC Dialysis Facility State: XX Network: 99 CCN: SAMPLE

#### **TABLE 4: Facility Star Rating Calculation**<sup>\*1</sup>

The rating is based on the measures reported in the Quarterly DFC-Preview for October report and updated annually each October on DFC.

Calculation Definition	This Facility
Standardized Outcomes Domain	
4a <b>Standardized Outcomes Score</b> (average of 4c, 4e, and 4g) $^{*2}$	45.2
4b 2010-2013 Standardized Mortality Ratio (SMR) <sup>*3</sup>	1.16
4c Normalized rank: SMR <sup>*4</sup>	37.8
4d 2013 Standardized Hospitalization Ratio (Admissions) (SHR) <sup>*3</sup>	0.94
4e Normalized rank: SHR <sup>*4</sup>	51.2
4f 2013 Standardized Transfusion Ratio (STrR) *3	0.99
4g Normalized rank: STrR *4	46.8
Other Outcomes 1 Domain *5	2013
4h Other Outcomes 1 Score (average of 4j and 4l) $*^2$	57.0
4i Percentage of patients with arteriovenous fistulae in place (AVF)	53%
4j Normalized rank: AVF <sup>*4</sup>	31.1
4k Percentage of patients with vascular catheter reported >90 days	2%
41 Normalized rank: Catheter *4	82.9
Other Outcomes 2 Domain	2013
4m Other Outcomes 2 Score (average of 4r and 4t) <sup>*2</sup>	40.3
4n Adult HD: Percentage of patients with $Kt/V >= 1.2^{*6}$	91%
40 Adult PD: Percentage of patients with $Kt/V >= 1.7^{*6}$	86%
4p Pediatric HD: Percentage of patients with $Kt/V >= 1.2^{*6}$	Not Available
4q Overall: Percentage of patients with $Kt/V >=$ specified threshold *7	90%
4r Normalized rank: Kt/V *4	51.2
4s Percentage of patients with serum calcium > 10.2 mg/dL	5%
4t Normalized rank: Hypercalcemia *4	29.5
Final Score	
4u Final score (average of 4a, 4h, 4m) *8	47.5
4v Overall Star Rating *9	$\star \star \star \div \div$

[\*1] See *Guide, Section VIII.*[\*2] The Domain Score is between 0 and 100 and is the average of the normalized ranks for the measures within that domain. If there is at least one measure in the domain, all missing measures in that domain are imputed with the average rank of 50 to limit the non-missing measures from being too influential. *If* all measures in a domain are missing, then the domain score is not calculated.
[\*3] Calculated as a ratio of observed deaths (or admissions/transfusions) to expected deaths (or admissions/transfusions); not included in star rating calculation if there are fewer than 3 expected deaths or fewer than 5 or 10 patient-years at risk for admissions or transfusions, respectively.
[\*4] If a measure is Not Available, its normalized rank will be imputed with the average rank of 50 to limit the non-missing measures from being too influential in calculation of the domain score.
[\*5] Facilities that service only PD patients will no thave any measures in this domain since their patients do not have fistulas or catheters. For these facilities, this domain was not included in the star rating calculation.
[\*6] Percentages based on 10 or fewer patients are shown in this table but will be reported as "Not Available' on DFC.
[\*7] For improved ability to compare Kt/V in facilities with different types of patients in terms of modality or pediatric status, the adult and pediatric HD and adult PD Kt/V measurements were pooled into one measure. The percentage of patients that achieve Kt/V greater than the specified thresholds for each of the three respective patient types (adult PD patients, adult HD patients), was weighted based on the number of patient-months of data available. If the overall Kt/V percentage is based on 10 or fewer patients, then it is reported as "Not Available" in this table.
[\*8] Final Score is the average of the adomain score. If all measures in a given domain score is start, there is not final score and

# Guide to the Quarterly Dialysis Facility Compare – Preview for October 2014 Report:

Overview, Methodology, and Interpretation

July 2014

#### Guide to the Quarterly Dialysis Facility Compare- Preview for July 2014 Report: Overview, Methodology, and Interpretation

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## *I.* Purpose of this Guide and the Quarterly Dialysis Facility Compare Reports

This guide explains in detail the contents of the Quarterly Dialysis Facility Compare (QDFC) reports that were prepared for each dialysis facility under contract to the Centers for Medicare & Medicaid Services (CMS). Included here are the reports' objectives, discussions of methodological issues relevant to particular sections of each report and descriptions of each data summary.

These reports include information about directly actionable practice patterns such as dose of dialysis, vascular access, mineral metabolism, and anemia management, as well as patient outcomes (such as mortality, hospitalization, and transfusions) that can be used to inform and motivate reviews of practices. The information in the report facilitates comparisons of facility patient characteristics, treatment patterns, and outcomes to local and national averages. Such comparisons help evaluate patient outcomes and account for important differences in the patient mix - including age, sex, and patients' diabetic status - which in turn enhances each facility's understanding of the clinical experience relative to other facilities in the state, and nation.

The QDFC report provides facilities with advance notice of their new and updated quality measures that will be reported on the Dialysis Facility Compare (DFC) website, allowing dialysis patients to review and compare characteristics and quality information on dialysis facilities in the United States.

We welcome your participation and feedback concerning the clarity, utility, limitations, and accuracy of this report. You will find information on how to directly provide feedback to us at the University of Michigan Kidney Epidemiology and Cost Center (UM-KECC) in Section IV.

## II. Overview

The University of Michigan Kidney Epidemiology and Cost Center has produced the QDFC reports with funding from CMS. Each facility's report is available to the facility on the secure Dialysis Reports website (<u>www.DialysisReports.org</u>).

Each report provides summary data on each facility's dialysis patients for January 1-December 31, 2013, except for the mortality summaries, which are reported for the fouryear period, 2010-2013. We compiled these summaries using the UM-KECC End-Stage Renal Disease (ESRD) patient database, which is largely derived from the CMS Program Medical Management and Information System (PMMIS/REMIS), the Standard Information Management System (SIMS) database derived from the Consolidated Renal Operations in a Web-Enabled Network (CROWNWeb), Medicare dialysis and hospital

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payment records, CROWNWeb, the CMS Medical Evidence Form (Form CMS-2728), the Death Notification Form (Form CMS-2746), the Nursing Home Minimum Dataset, the DFC, and the Social Security Death Master File. The database is comprehensive for Medicare patients. Non-Medicare patients are included in all sources except for the Medicare payment records. SIMS provides tracking by dialysis provider and treatment modality for non-Medicare patients.

This quarter we provided reports for more than 6,000 Medicare-approved dialysis facilities in the United States. We did not create reports for transplant-only facilities or U.S. Department of Veterans Affairs (VA)-only facilities. The Standardized Ratios for Mortality, Hospitalization, and Transfusion (SMR, SHR, and STrR) were not calculated for facilities with very small numbers of patients. The SMR is not reported for facilities with fewer than 3 expected deaths, the SHR is not reported for facilities with fewer than 5 patient years at risk (or approximately 10 expected admissions), and the STrR is not reported for facilities with fewer than 10 patient years at risk (or approximately 4 expected transfusions). Statistics produced for such small facilities can be unstable and particularly subject to random variation, and thus difficult to interpret.

This guide discusses the meaning of the data summaries each report provides, and describes the methodology used to calculate each summary (Sections III-VIII). Sections III-VIII are organized according to the order of the summaries in the QDFC report, and may serve as references for their interpretation. Since in many cases, understanding a particular section's contents requires you to understand the issues presented in the previous section, we recommend that you review the sections in order.

The first page provides the purpose and overview of the report, and how to submit comments. Page 2 includes the DFC preview (formally reported on page 2 of the Dialysis Facility Report (DFR)) followed by four tables which contain detailed information for your facility as well as regional averages for comparison. Table 1 provides patient mortality, hospitalization, and transfusion summaries for 2010-2013, 2013, and 2013 respectively. Note that for the four-year mortality summaries, individual patients typically contribute data for more than one year. Table 2 reports patient practice patterns (hemoglobin, adequacy, and vascular access) for your facility for January 1- December 31, 2013 as well as for each quarter during the time period. Similar to Table 2, Table 3 reports hypercalcemia rates and serum phosphorous concentrations for your facility January 1– December 31, 2013 as well as for each quarter during the time period. Table 4 provides an incremental look at how the star rating was calculated from the DFC measures for your facility from January 1, 2010 – December 31, 2013.

Each row of a table in the report summarizes an item. Your facility has a column for each time period, and in most cases, two columns for the corresponding geographical summaries, including averages for your facility's state, and the entire nation. Whenever the statistic reported is a count (n), we calculated regional and national averages by taking

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the average count for all facilities in that area. When the statistic reported for a period included more than one year, we annualized regional and national values to make them comparable to a single-year period. When a statistic is a percent, rate, or ratio, we calculated state and national summaries by pooling together all individual patients in that area to obtain an estimate for that area as if it were one large facility. We do not report state summary data for dialysis facilities in states or U.S. territories with only one or two dialysis units. We do provide summaries for the nation for facilities in these states or territories.

# III. Assigning Patients to Facilities

This section describes the methods we used to assign patients to a facility in order to calculate the summaries appearing in the Preview Table and Table 1 related to the Standardized Mortality, Hospitalization, and Transfusion Ratios.

Because some patients receive dialysis treatment at more than one facility in a given year, we use standard methods based on assigning person-years to a facility, rather than on assigning a patient's entire follow-up to a facility. We developed conventions which define the group of patients assigned to a facility at any time during the particular year. This method is described below.

#### General Inclusion Criteria for Dialysis Patients

We only entered a patient's follow-up into the tabulations after that patient had received chronic renal replacement therapy for at least 90 days. This minimum 90-day period assures that most patients are eligible for Medicare insurance either as their primary or secondary insurer. It also excludes from analysis patients who died during the first 90 days of ESRD.

In order to exclude patients who only received temporary dialysis therapy, we assigned patients to a facility only after they had been on dialysis there for at least 60 days. This 60 day period is used both for patients starting renal replacement therapy for the first time and for those who returned to dialysis after a transplant. That is, deaths and survival during the first 60 days do not impact the SMR of that facility.

#### Identifying Patients Treated at Each Facility

For each patient, we identified the dialysis provider at each point in time using a combination of Medicare-paid dialysis claims, the Medical Evidence Form (Form CMS-2728), data from SIMS and CROWNWEB. Starting with day 91 of ESRD, we determined facility treatment histories for each patient, and then listed each patient with a facility only once the patient had been treated there for 60 days. When a patient transferred from a facility, the patient remained assigned to it in the database for 60 days. This continued tabulation of the time at risk for 60 days after transfer from a facility

attributes to a facility the sequelae of treatment there, even when a patient was transferred to another facility (such as a hospital-based facility) after his or her condition worsened.

In particular, we placed patients in their initial facility on day 91 of ESRD once that facility had treated them for at least 60 days. If on day 91 a facility had treated a patient for fewer than 60 days, we waited until the patient reached day 60 of treatment at that facility before placing him or her there. State summaries do not include patients who were not assigned to a facility; these patients are, however, included in the U.S. summaries.

Using SIMS data and paid dialysis claims to determine whether a patient has transferred to another facility, we attributed patient outcomes to the patient's original facility for 60 days after transfer out. On day 61 after transfer from a facility, we placed the patient in the new facility once the patient had been treated at the new facility for 60 days. When a patient was not treated in a single facility for a span of 60 days (for instance, if there were two switches within 60 days of each other), we did not attribute that patient to any facility.

Patients were removed from facilities upon receiving transplants. Patients who withdrew from dialysis or recovered renal function remained assigned to their treatment facility for 60 days after withdrawal or recovery. Additionally, patients for whom the only evidence of dialysis treatment is the existence of Medicare claims were considered lost to follow-up and removed from a facility's analysis one year following the last claim, if there was no earlier evidence of transfer, recovery, or death. In other words, if a period of one year passed with neither paid Medicare dialysis claims nor SIMS information to indicate that a patient was receiving dialysis treatment, we considered the patient lost to follow-up, and did not continue to include that patient in the analysis. If evidence of dialysis re-appeared, the patient was entered into analysis after 60 days of continuous therapy at a single facility. Finally, all SIMS records noting continuing dialysis were extended until the appearance of any evidence of recovery, transfer, or death. Periods of lost to follow-up were not created in these cases since the instructions for SIMS only require checking patient data for continued accuracy, but do not have a requirement for updating if there are not any changes.

## IV. Dialysis Facility Compare Preview

The measures included in this table will appear on the DFC website for this facility. Please refer to sections V-VIII for more information on these measures. Dialysis facilities may submit comments to CMS during the comment period and throughout the year to UM-KECC on the measures included in this report by logging on to the secure section of www.DialysisReports.org.

## V. Mortality Summary for All Dialysis Patients (2010-13), Hospitalization Summary for Medicare Dialysis Patients (2013), and Transfusion Summary for Adult Medicare Dialysis Patients (2013)

The first third of Table 1 (rows 1a-1e) provides information about patient mortality for all dialysis patients treated at your facility between 2010 and 2013. We also reported the averages in your state, and the nation for this combined four-year period. The remainder of Table 1 (rows 1f-1q) provides information about hospitalization admissions among all Medicare dialysis patients and transfusions among all adult Medicare dialysis patients treated at your facility in 2013, along with regional comparisons for 2013.

#### Mortality Summary for All Dialysis Patients (1a-1e)

In the first section of the table, we have calculated a relative mortality rate, or Standardized Mortality Ratio (SMR), for patients in your facility. The SMR compares the observed death rate in your facility to the death rate that was expected based on national death rates during that year for patients with the same characteristics as those in your facility (Wolfe, 1992). The SMR uses expected mortality calculated from a Cox model (SAS Institute Inc., 2000; Andersen, 1993; Collett, 1994), adjusting for calendar year, patient age, race, ethnicity, sex, diabetes, duration of ESRD, nursing home status, patient comorbidities at incidence, body mass index (BMI) at incidence, and population death rates.

The SMR accounts for many patient characteristics known to be associated with mortality, but cannot account for all factors that may explain differences in mortality between facilities. For example, since the SMR accounts for age and diabetes, an older average age or large percentage of diabetic patients at a facility would not elevate the SMR. Other factors, such as nutritional status, factors relating to the process of care, or comorbid conditions that developed after incidence, are not accounted for. Therefore, if the SMR statistic indicates potential differences in mortality for your facility compared to regional or national averages, please consider the role other important factors play within your facility. As with the hospitalization summaries which are described below, you will find the mortality summaries most informative if you use them as part of an integrated quality assurance process.

#### Patients (1a)

We based the mortality summaries in the first half of the table (rows 1a-1e) on the dialysis patients who received treatment in your facility according to the conventions described in Section III.

#### Deaths (1b)

We reported the number of deaths that occurred among dialysis patients during the four years. This count does not include deaths from street drugs or accidents unrelated to treatment. Deaths from these causes varied by facility, with certain facilities (in particular, urban facilities that treated large numbers of male and young patients) reporting large numbers of deaths from these causes and others reporting extremely low numbers (Turenne, 1996). Since these deaths are unlikely to have been due to treatment facility characteristics, we excluded them from the calculations.

#### Expected Deaths (1c)

We used a Cox model to calculate the expected deaths for each patient based on the characteristics of that patient, the amount of follow-up time (patient years at risk) for that patient during the year, and the calendar year (SAS Institute Inc., 2000; Andersen, 1993; Collett, 1994). We adjusted the Cox model for calendar year, age, race, ethnicity, sex, diabetes, years since start of ESRD, nursing home status, patient comorbidities at incidence, and patient BMI at incidence (BMI = weight(kg) / height<sup>2</sup>(m<sup>2</sup>)). In cases where the comorbidities or BMI were missing for a patient, we used the average values of the group of patients with similar characteristics (age, race, ethnicity, sex, and diabetes). We also controlled for age-adjusted population death rates by state and race, based on the U.S. population in 2008-2010 (National Center for Health Statistics, 2013). As with the deaths in 1b, we then summed these expected deaths in order to obtain the total number of deaths expected for each year at your facility, and we summed the annual values to yield the expected number of deaths over the four-year period for each facility.

#### Standardized Mortality Ratio (SMR) (1d)

The SMR equals the ratio of the actual number of deaths (1b) divided by the expected number of deaths (1c). The SMR estimates the relative death rate ratio for your facility, as compared to the national death rate in the same year. Qualitatively, the degree to which your facility's four-year SMR varies from 1.00 is the degree to which it exceeds (>1.00) or is under (<1.00) the 20109-2013 national death rates for patients with the same characteristics as those in your facility.

Detailed statistical methodology for the SMR is included in a separate document titled Technical Notes on the Standardized Mortality Ratio. This document and an accompanying Microsoft Excel spreadsheet are available on the Dialysis Reports website (www.DialysisReports.org) under the Methodology heading.

Quantitatively, if your facility's death rates equal the national death rates (in deaths per patient year or per year at risk) times a multiplicative constant, then the SMR estimates that multiplicative constant. If the multiplicative constant varies for different subgroups of patients, then the SMR estimates a weighted average of those constants according to your facility's patient mix. For example, an SMR=1.10 would indicate that your facility's death rates typically exceed national death rates by 10% (e.g., 22 deaths observed where

20 were expected, according to your facility's patient mix). Similarly, an SMR=0.95 would indicate that your facility's death rates are typically 5% below the national death rates (e.g., 19 versus 20 deaths). An SMR=1.00 would indicate that your facility's death rates equal the national death rates.

We calculated the regional and national summaries as the ratio of the total number of observed deaths among patients from each region to the number of expected deaths among patients from each region (1b/1c).

#### Why the national SMR may not be exactly equal to 1.00

The reported 2010-2013 SMR for the U.S. as a whole may not be precisely equal to 1.00. The SMR value for the U.S. given in the DFR does not include all U.S. dialysis facilities in its calculation. In particular, as discussed in the Overview, transplant-only, VA facilities, and non-Medicare facilities are not included in the geographic summaries.

#### Random variation

The SMR estimates the true ratio of death rates at your facility relative to the national death rates. An SMR value that differs from 1.00 indicates that your facility's death rates differ from the national death rates. However, the SMR's value varies from year to year above and below the true ratio, due to random variation. Thus, your facility's SMR could differ from 1.00 due to random variation rather than to a fundamental difference between your facility's death rates and the nation's. Both the p-value and the confidence interval, discussed below, will help you interpret your facility's SMR in the face of such random fluctuations. We based our calculations of both items on an assumed Poisson distribution for the number of deaths at your facility.

#### Confidence Interval (Range of Uncertainty) for SMR (1d)

The 95% confidence interval (or range of uncertainty) gives a range of plausible values for the true ratio of facility-to-national death rates, in light of the observed SMR. The upper and lower limits enclose the true ratio between them approximately 95% of the time. Statistically significant confidence intervals do not contain 1.00.

#### P-value for SMR (1e)

The p-value measures the statistical significance (or evidence) for testing the two-sided hypothesis that the true ratio of death rates for your facility versus the nation is different (higher or lower) from 1.00. The p-value is the probability that the SMR would, just by chance, deviate from 1.00 as much as does the observed SMR, and is sometimes naively interpreted as the probability that the true SMR equals 1.00. A smaller p-value tends to occur when the ratio differs more greatly from 1.00 and when one uses more patient data to calculate the SMR value. A p-value of less than 0.05 is usually taken as evidence that the ratio of death rates truly does differ from 1.00. For instance, a p-value of less than 0.05 would indicate that the difference between your facility's death rates and the nation's is unlikely to have arisen from random fluctuations alone. The smaller the p-value, the

more statistically significant the difference between national and individual facility death rates is. A small p-value helps rule out the possibility that an SMR's variance from 1.00 could have arisen by chance. However, a small p-value does not indicate the degree of importance of the difference between your facility's death rates and the nation's.

The SMR's actual quantitative value reflects the clinical importance of the difference between your facility's and the nation's death rates. An SMR that differs greatly from 1.00 is more important than an SMR in the range of 0.95 to 1.05.

#### **Hospitalization Summary for Medicare Dialysis Patients (1f-1k)**

Hospitalization rates are an important indicator of patient morbidity and quality of life. On average, dialysis patients are admitted to the hospital approximately twice a year and spend an average of 12 days in the hospital per year (USRDS, 2013). Measures of the frequency of hospitalization and diagnoses associated with hospitalization help efforts to control escalating medical costs, and play an important role in providing cost-effective health care. Hospitalization summaries for Medicare dialysis patients are reported in the second third of Table 1.

This report includes summaries of hospitalization rates among dialysis patients in the facility, along with regional and national hospitalization rates for comparison. However, the reasons for differences in hospitalization rates by facility are complex. The clinical decision associated with individual hospitalization events is not possible to ascertain with the available administrative data. Therefore, these facility data may be best characterized as an assessment of hospital resource utilization across facilities.

Hospitalization rates are more difficult to summarize than mortality rates. For example, a patient can be hospitalized more than once during a year. Further, hospitalization data are not always as complete as mortality data. Ideally, this section of the table includes only patients whose Medicare billing records include all hospitalizations for the period. To achieve this goal, we require that patients reach a certain level of Medicare-paid dialysis bills to be included in hospitalization statistics, or that patients have Medicare-paid inpatient claims during the period. For the purpose of analysis, each patient's follow-up time is broken into periods defined by time since dialysis initiation. For each patient, months within a given period are included if that month in the period is considered 'eligible'; a month is deemed eligible if it is within two months of a month having at least \$900 of Medicare-paid dialysis claims or at least one Medicare-paid inpatient claim. In setting this criterion, our aim is to achieve completeness of information on hospitalizations for all patients included in the years at risk.

Like the SMR, the SHR is intended to compare your facility's observed number of admissions to the number that would be expected if patients at your facility were instead subject to the 2013 national average admission rates. The expected national rates are

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calculated from Cox models (SAS Institute Inc., 2000; Andersen, 1993; Collett, 1994) which make adjustments for patient age, sex, diabetes, duration of ESRD, nursing home status, patient comorbidities at incidence, BMI at incidence, and calendar year.

#### Medicare Dialysis Patients (1f)

The number of Medicare dialysis patients included in the hospitalization summaries (1f) is generally smaller than the number of patients included in the mortality summaries (1a). We calculated hospitalization rates based only on periods in which dialysis patients had satisfied the Medicare payment criterion (described above).

#### Patient Years at Risk (1g)

The number of patient years at risk indicates the total amount of time we followed patients in this table's analyses. For all patients, time at risk began at the start of the facility treatment period (see Section III) and continued until the earliest occurrence of the following: three days prior to a transplant; date of death; end of facility treatment; or December 31 of the year. Since a facility may have treated a patient for multiple periods during the same year, patient years at risk includes time at risk for all periods of treatment at your facility.

#### Total Admissions (1h)

This is the total number of inpatient hospital admissions among the Medicare dialysis patients assigned to this facility. The total number of admissions includes multiple admissions (i.e., second, third, etc. hospitalizations for the same patient). If a patient was admitted near the end of one year and not discharged until the following calendar year (e.g., admitted on 12/28/2012 and discharged on 1/6/2013), the admission would count only in the second year (zero admissions in 2012 and one admission in 2013).

#### Expected Total Admissions (1i)

We calculated the expected number of hospital admissions among Medicare dialysis patients in a facility based on national rates for hospital admissions in the same year. The expected number of admissions is calculated from a Cox model, adjusting for patient age, sex, diabetes, duration of ESRD, nursing home status, patient comorbidities at incidence, BMI at incidence, and calendar year. Duration of ESRD is divided into six intervals with cut points at 6 months, 1 year, 2 years, 3 years, and 5 years and hospitalization rates are estimated separately within each interval. For each patient, the time at risk in each ESRD interval is multiplied by the (adjusted) national admissions rate for that interval, and a sum over the intervals gives the expected number of admissions for each patient. For each patient, the expected number is adjusted for the characteristics of that patient and summing over all patients gives the result reported in 1i.

#### Standardized Hospitalization Ratio (SHR) for Admissions (1j)

The SHR (admissions) is calculated by dividing the observed total admissions in 1h by the expected total admissions in 1i. As with the SMR, it enables a comparison of your

facility's experience to the national average. A value of less than 1.0 indicates that your facility's total number of admissions was less than expected, based on national rates; whereas a value of greater than 1.0 indicates that your facility had a rate of total admissions higher than the national average. Note that this measure is adjusted for the actual patient characteristics of age, sex, diabetes, duration of ESRD, nursing home status, comorbidities at incidence, and BMI in your facility. Additionally, the estimate is compared to the US hospitalization rates for the same year.

#### Confidence Interval (Range of Uncertainty) for SHR (1j)

The 95% confidence interval (or range of uncertainty) gives a range of plausible values for the true ratio of facility-to-national hospitalization rates, in light of the observed SHR. The upper and lower limits enclose the true ratio between them approximately 95% of the time. Statistically significant confidence intervals do not contain 1.00.

#### P-value for SHR (1k)

The p-value measures the statistical significance (or evidence) for testing the two-sided hypothesis that the true ratio of hospitalization rates for your facility versus the nation is different (higher or lower) from 1.00. The p-value is the probability that the SHR would, just by chance, deviate from 1.00 as much as does the observed SHR, and is sometimes naively interpreted as the probability that the true SHR equals 1.00. A smaller p-value tends to occur when the ratio differs more greatly from 1.00 and when one uses more patient data to calculate the SHR value. A p-value of less than 0.05 is usually taken as evidence that the ratio of hospitalization rates truly does differ from 1.00. For instance, a p-value of less than 0.05 would indicate that the difference between your facility's hospitalization rates and the nation's is unlikely to have arisen from random fluctuations alone. The smaller the p-value, the more statistically significant the difference between national and individual facility hospitalization rates is. A small p-value helps rule out the possibility that an SHR's variance from 1.00 could have arisen by chance. However, a small p-value does not indicate the degree of importance of the difference between your facility's hospitalization rates and the nation's.

The SHR's actual quantitative value reflects the clinical importance of the difference between your facility's and the nation's hospitalization rates. An SHR that differs greatly from 1.00 is more important than an SHR in the range of 0.95 to 1.05.

#### Transfusion Summary for Adult Medicare Dialysis Patients (11-1q)

Blood transfusion may be an indicator for underutilization of treatments to increase endogenous red blood cell production (e.g. erythropoiesis-stimulating agents (ESAs), iron). In addition, dialysis patients who are eligible for kidney transplant are at some risk of becoming sensitized to the donor pool through exposure to tissue antigens in blood products, thereby making transplant more difficult to accomplish. Blood transfusions also carry a small risk of transmitting blood borne infections and the development of a reaction to the transfusion. Using infusion centers or hospitals to transfuse patients is expensive, inconvenient, and could compromise future vascular access.

Monitoring the risk-adjusted transfusion rate at the dialysis facility level, relative to a national standard, allows for detection of differences in dialysis facility anemia treatment patterns. This is of particular importance due to recent FDA guidance regarding the use of ESAs and new economic incentives to minimize ESA use introduced by Medicare bundling payment for ESAs. In early 2012, a highly publicized United States Renal Data System (USRDS) study presented at the National Kidney Foundation (NKF) clinical meeting reported increased dialysis patient transfusion rates in 2011 compared to 2010. As providers use less ESAs in an effort to minimize the risks associated with aggressive anemia treatment it becomes more important to monitor for an over-use of blood transfusions to treat ESRD-related anemia. Transfusion summaries for Medicare dialysis patients are reported in the third section of Table 1.

This report includes summaries of the transfusion rates among adult Medicare dialysis patients in your facility, along with comparative state and national data. Because the intention behind the measure is to detect the possibility of underutilization of alternatives to transfusion, patients' time at risk and transfusion events are not included if they occur within one year of diagnoses contraindicating the use of ESAs. In particular, patients' time at risk is excluded beginning with a Medicare claim for hemolytic or aplastic anemia, solid organ cancer, lymphoma, carcinoma in situ, coagulation disorders, multiple myeloma, myelodysplastic syndrome and myelofibrosis, leukemia, head and neck cancer, other cancers (connective tissues, skin, and others), metastatic cancer, and sickle cell anemia. Once a patient is diagnosed with one of these comorbidities, a patient's time at risk is included only after a full year free of claims that list any diagnosis on the exclusions list.

Transfusion rates are similar to hospitalization rates in that patients can be transfused more than once during a year and transfusion data are not always as complete as mortality data. As with the hospitalization statistics, this section of the table should ideally include only patients whose Medicare billing records include all transfusions for the period. To achieve this goal, we apply the same rules as for hospitalization and require that patients reach a certain level of Medicare-paid dialysis bills to be included in transfusion statistics, or that patients have Medicare-paid inpatient claims during the period. For the purpose of analysis, each patient's follow-up time is broken into periods defined by time since dialysis initiation. For each patient, months within a given period are included if that month in the period is considered 'eligible'; a month is deemed eligible if it is within two months of a month having at least \$900 of Medicare-paid dialysis claims or at least one Medicare-paid inpatient claim. In setting this criterion, our aim is to achieve completeness of information on transfusions for all patients included in the years at risk.

Like the SMR and the SHR, the STrR is intended to compare your facility's observed number of transfusions to the number that would be expected if patients at your facility were instead subject to the 2012 national average transfusion rates. The expected national rates are calculated from Cox models (SAS Institute Inc., 2000; Andersen, 1993; Collett, 1994) which make adjustments for patient age, diabetes, duration of ESRD, nursing home status, patient comorbidities at incidence, BMI at incidence, and calendar year. We report the transfusion summaries for 2013 only.

#### Adult Medicare Dialysis Patients (11)

The number of adult Medicare dialysis patients included in the transfusion summaries (11) is generally smaller than the number of patients included in the mortality and hospitalization summaries (1a) and (1f) because of the exclusion criteria. See above.

#### Patient Years at Risk (1m)

The number of patient years at risk indicates the total amount of time patients were followed in this table's analyses. For all patients, time at risk began at the start of the facility treatment period (see Section III) and continued until the earliest occurrence of the following: a Medicare claim indicating a diagnosis on the exclusions list, three days prior to a kidney transplant, death, end of facility treatment, or December 31 of the year. Patients whose time at risk was terminated due to a comorbidity on the exclusions list will have future time at risk included beginning after a full year free of claims with diagnoses on the exclusions list. Since a facility may have treated a patient for multiple periods during the same year, patient years at risk includes time at risk for all periods of treatment at your facility.

#### Total Transfusion Events (1n)

This is the total number of transfusion events during eligible time-at-risk among the adult Medicare dialysis patients assigned to this facility. The total number of transfusion events includes multiple transfusions (i.e., second, third, etc. transfusions for the same patient).

Because of the way transfusion information is reported in claims, there are different rules for counting transfusion events depending on whether or not they occur in inpatient or (less commonly) in outpatient settings.

CMS allows the transfusion procedure to be billed only once per day per visit. For the STrR, unique "transfusion events" are counted for each transfusion procedure code listed on an inpatient claim. Additionally, one "transfusion event" is counted per inpatient claim if one or more transfusion-related revenue center or value code is present. The vast majority of inpatient claims we identify as having evidence of a transfusion do not include transfusion related procedure codes. Therefore, most inpatient transfusion events are identified based on revenue center or value codes. As noted above, we count a single transfusion event for the inpatient claim regardless of the number of transfusion revenue center and value codes reported on the claim, resulting in a very conservative estimate of

blood transfusions from inpatient claims. In all cases, the number of events counted is the same whether the claim indicates 1 unit of blood or multiple units of blood, again favoring a conservative estimate of number of transfusion events from inpatient claims.

Transfusion events are not common in outpatient settings, but similar rules apply. Multiple Healthcare Common Procedure Coding System (HCPCS) codes reported for the same Revenue Center Date are counted as a single transfusion event regardless of the number of units of blood recorded. In other words, 3 pints of blood reported with the same Revenue Center Date would be counted as a single transfusion event. A detailed list of procedure codes, value codes, and System HCPCS codes used to identify transfusion events is included in а separate document available at www.DialysisReports.org under the Methodology heading.

#### Expected Total Transfusion Events (10)

We calculated the expected number of transfusion events among Medicare dialysis patients in a facility based on national rates for transfusion events in the same year. The expected number of transfusion events is calculated from a Cox model, adjusting for patient age, diabetes, duration of ESRD, nursing home status, patient comorbidities at incidence, BMI at incidence, and calendar year. Duration of ESRD is divided into six intervals with cut points at 6 months, 1 year, 2 years, 3 years, and 5 years and transfusion rates are estimated separately within each interval. For each patient, the time at risk in each ESRD interval is multiplied by the adjusted national transfusions for each patient. For each patient, the expected number of transfusions for each patient. For each patient, the expected number is adjusted for the characteristics of that patient and summing over all patients gives the result reported in 10.

#### Standardized Transfusion Ratio (STrR) (1p)

The STrR is calculated by dividing the observed total admissions in 1n by the expected total admissions in 1o. As with the SMR and SHR, the STrR enables a comparison of your facility's experience to the national average. A value of less than 1.0 indicates that your facility's total number of transfusion events was less than expected, based on national rates; whereas a value of greater than 1.0 indicates that your facility had a rate of total transfusion events higher than the national average. Note that this measure is adjusted for the actual patient characteristics of age, diabetes, duration of ESRD, nursing home status, comorbidities at incidence, and BMI in your facility. Additionally, the estimate is compared to the US transfusion rates for the same year.

#### Confidence Interval (Range of Uncertainty) for STrR (1p)

The 95% confidence interval (or range of uncertainty) gives a range of plausible values for the true ratio of facility-to-national transfusion rates, in light of the observed STrR. The upper and lower limits enclose the true ratio between them approximately 95% of the time. Statistically significant confidence intervals do not contain 1.00.

#### P-value for STrR (1q)

The p-value measures the statistical significance (or evidence) for testing the two-sided hypothesis that the true ratio of transfusion rates for your facility versus the nation is different (higher or lower) from 1.00. The p-value is the probability that the STrR would, just by chance, deviate from 1.00 as much as does the observed STrR, and is sometimes naively interpreted as the probability that the true STrR equals 1.00. A smaller p-value tends to occur when the ratio differs more greatly from 1.00 and when one uses more patient data to calculate the STrR value. A p-value of less than 0.05 is usually taken as evidence that the ratio of transfusion rates truly differs from 1.00. For instance, a p-value of less than 0.05 would indicate that the difference between your facility's transfusion rates and the nation's is unlikely to have arisen from random fluctuations alone. The smaller the p-value, the more statistically significant the difference between national and individual facility transfusion rates is. A small p-value helps rule out the possibility that an STrR's variance from 1.00 could have arisen by chance. However, a small p-value does not indicate the degree of importance of the difference between your facility's transfusion rates transfusion rates and the nation's.

The STrR's actual quantitative value reflects the clinical importance of the difference between your facility's and the nation's transfusion rates. An STrR that differs greatly from 1.00 is more important than an STrR in the range of 0.95 to 1.05.

## VI. Facility Hemoglobin, Adequacy, and Vascular Access for Medicare Dialysis Patients based on Medicare Dialysis Claims, 1/01/2013-12/31/2013

Table 2 reports information on facility practice patterns. Each section of the table includes a slightly different group of patients. We restricted hemoglobin, Kt/V, and vascular access information to patients who have had ESRD for at least 90 days. Information on urea reduction ratio is restricted to patients who have had ESRD for at least 183 days. The weekly Kt/V information reported in rows 2f-2n is based on the value code D5: Result of last Kt/V (K-dialyzer clearance of urea; t-dialysis time; Vpatient's total body water). The inclusion criteria are described in more detail below. For the definition of the value code, occurrence code and V modifier codes, please see the list codes included separate document of diagnostic in a available at www.DialysisReports.org under the Methodology heading. The statistics are reported for each quarter January 1, 2013-December 31, 2013 and the entire year along with comparative regional and national data for the year. Note that State and U.S. averages may differ from values in the DFR due to the difference in number of facilities receiving a report and difference in time periods.

#### Hemoglobin (2a-2c)

We based the hemoglobin information reported in rows 2a to 2c on all Medicare dialysis claims submitted by your facility that indicated the use of an ESA, specifically, the use of

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epoetin alfa, darbepoetin alfa, or peginesatide (Omontys®). We calculated hemoglobin as hematocrit divided by three for claims that report hematocrit but not hemoglobin, rounding to the nearest tenth of a g/dL. We included neither patient claims starting before day 90 of ESRD nor claims with hemoglobin values less than 5 g/dL or greater than 20 g/dL. For each patient, the last claim reported for a month at a facility satisfying the above mentioned criteria was included in the summaries.

The rolling year summary in row 2a reports the number of patients for whom at least four claims fulfilling these criteria were submitted by your facility for the year. The quarterly summaries report the number of patients with at least one claim fulfilling these criteria. A patient treated at more than one facility during the year was included in the report for each.

For each patient in row 2a, we calculated the average hemoglobin reported on claims submitted by your facility. Rows 2b and 2c presents the percentage of patients from 2a with an average hemoglobin less than 10g/dl, and greater than 12 g/dl, respectively. In calculating the percent of patients that have an average hemoglobin greater than 12 we use a slightly different group of patients than the corresponding measure in the CMS ESRD Quality Incentive Program (QIP). The QIP calculations are restricted to adult patients.

#### Dialysis Adequacy: Urea Reduction Ratio (2d-2e)

We base the urea reduction ratio (URR) information reported in rows 2d-2e on all Medicare dialysis claims submitted by your facility, with the following four exclusions: (1) claims which started before day 183 of ESRD for a patient; (2) claims with missing URR category; (3) claims listing a patient's modality as peritoneal dialysis (PD); and (4) claims indicating the occurrence of frequent dialysis, defined as four or more sessions per week. A claim is determined to indicate frequent dialysis if the claim covered seven or fewer days and had four or more sessions, if the claim covered more than seven days and had a rate of four or more times per week, or if the patient was identified in SIMS as having dialyzed five or more times per week during the month of the claim start date. For each patient, the last claim reported for a month at a facility satisfying the above mentioned criteria was included in the summaries.

The rolling year summary in row 2d reports the number of patients for whom at least four claims fulfilling the above criteria had been submitted for your facility. The quarterly summaries report the number of patients with at least one claim fulfilling these criteria. A patient who had been treated at more than one facility during the year was included at both facilities in row 2d. We assigned each patient in 2d to the median URR. For patients treated at more than one facility during the year, we calculated separately the URR category for them for each facility based on the claims from each facility only. The NKF Kidney Disease Outcomes Quality Initiative (KDOQI) guidelines recommend that all patients with treatment times less than 5 hours have a URR of 65% or more (NKF-

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KDOQI, 2006). Row 2e reports the percentage of patients in row 2d with URR that meets KDOQI guidelines (i.e., 65% or more). In calculating the percent of patients that have a URR of 65% or more we use a slightly different group of patients than the corresponding measure in the QIP. The QIP calculations are restricted to adult patients obtaining incenter hemodialysis (HD).

#### Dialysis Adequacy: Kt/V (2f-2q)

This section of the table includes summaries of dialysis adequacy as reported in Medicare claims using value codes and occurrence codes collected beginning July 2010. A patient who had been treated at more than one facility during the month was included at both facilities in rows 2f-2q when the patient had a claim at each facility. A patient who had switched modalities during the month was included in both the HD and PD eligible patient counts.

#### Eligible adult hemodialysis (HD) patients and patient-months (2f-2h)

The number of patients who had at least one valid Medicare HD claim submitted by the facility in a month during the summary period is reported in row 2f. The last claim was selected when there were multiple claims reported in a month. The number of patient-months with at least one valid Medicare HD claim submitted by the facility during the summary period is reported in row 2g. A claim was defined as valid if it was from a HD patient who received dialysis greater than two and less than four times a week, did not indicate frequent dialysis using a reported Kt/V value of 8.88, had been on dialysis for at least 90 days, and was at least 18 years old.

The Kt/V value for a patient-month is characterized into five mutually exclusive categories: missing (no Kt/V reported); not performed (Kt/V reported as 9.99); expired (in-center HD with Kt/V reported from a previous claim, or home HD with Kt/V reported from more than four months prior); in range (Kt/V value between 0.5 and 2.5 and not expired); and out of range (Kt/V value less than 0.5 or greater than 2.5, and not missing or 9.99). Kt/V is defined as: K-dialyzer clearance of urea; t-dialysis time; V-patient's total body water. Patients with missing, not performed, expired or out of range Kt/V values are shown in row 2h and are included in the denominator.

#### *Adult HD: Kt/V* ≥1.2 (2*i*)

The percentage of all patient-months with in range claims greater than or equal to 1.2, for HD patients, is reported in 2i.

#### Eligible adult peritoneal dialysis (PD) patients and patient-months (2j-2l)

The number of patients who had at least one valid Medicare PD claim submitted by the facility in a month during the summary period is reported in row 2j. The last claim was

selected when there were multiple claims reported in a month. The number of patientmonths with at least one valid Medicare PD claim submitted by the facility during the summary period is reported in row 2k. A claim was defined as valid if it came from a PD patient who had been on dialysis for at least 90 days and was at least 18 years old.

The Kt/V value for a patient-month is characterized into five mutually exclusive categories; missing (no Kt/V reported); not performed (Kt/V reported as 9.99); expired (Kt/V reported from more than four months prior); in range (Kt/V value between 0.5 and 5.0 and not expired); and out of range (Kt/V value less than 0.5 or greater than 5.0, but not missing or 9.99). Kt/V is defined as: K-dialyzer clearance of urea; t-dialysis time; V-patient's total body water. Patients with missing, not performed, expired or out of range Kt/V values are shown in row 21 and are included in the denominator.

#### Adult PD: $Kt/V \ge 1.7 (2m)$

The percentage of all patient-months with in range claims greater than or equal to 1.7, for PD patients, is reported in 2m.

#### Eligible HD pediatric patients and patient-months (2n-2p)

The number of pediatric patients who had at least one valid Medicare HD claim submitted by the facility in a month during the summary period is reported in row 2n. The last claim was selected when there were multiple claims reported in a month. The number of pediatric patient-months with at least one valid Medicare HD claim submitted by the facility during the summary period is reported in row 2o. A claim was defined as valid if it was from an in center HD patient who received dialysis greater than two and less than five times a week, did not indicate frequent dialysis using a reported Kt/V value of 8.88, had been on dialysis for at least 90 days, and was younger than 18 years old.

The Kt/V value for a patient-month is characterized into five mutually exclusive categories: missing (no Kt/V reported); not performed (Kt/V reported as 9.99); expired (Kt/V reported from a previous claim); in range (Kt/V value between 0.5 and 2.5 and not expired); and out of range (Kt/V value less than 0.5 or greater than 2.5, and not missing or 9.99). Patients with missing, not performed, expired or out of range Kt/V values are shown in row 2p and are included in the denominator.

#### Pediatric HD: $Kt/V \ge 1.2$ (2q)

The percentage of all patient-months with in range claims greater than or equal to 1.2, for pediatric HD patients, is reported in 2q.

#### Hemodialysis Vascular Access Type (2r-2u)

This section of the table includes summaries of facility vascular access type as reported in Medicare claims using V-modifiers collected beginning July 2010.

#### Vascular Access: Eligible patients and patient-months (2r-2s)

The number of adult Medicare HD patients treated at the facility during at least one month during the quarter or year period is reported in 2r. The total number of months during which each adult patient is treated with HD at the facility are summed and reported in 2s. Modality and vascular access type are determined based on the last claim of the month from the facility for the patient reported. A patient-month is counted in the denominator if the last dialysis claim submitted for the patient by the facility that month was an adult HD claim. An individual patient may contribute up to 3 patient-months per quarter and up to 12 patient-months per year; a patient can be included in their first month of ESRD. If dialysis claims are submitted from more than one facility in a month for a patient, the patient is counted in each facility's denominator.

#### Arteriovenous fistulae in place (2t)

Row 2t reports the percentage of patient-months in 2s in which an arteriovenous fistula was reported as the access type in use for all claims. These data are reported using V-modifier "V7" in Medicare claims. Claims listing a catheter and a fistula are reported in the fistula summary. Claims listing both graft and fistula are not reported as either access type.

#### Vascular catheter reported >90 days (2u)

Row 2u reports the percentage of patient-months in 2s in which a vascular catheter was reported as the access type in use for all claims for at least three consecutive months. These data are reported using V-modifier "V5" in Medicare claims. Claims listing a catheter and a fistula are reported in the fistula summary.

# VII. Facility Mineral and Bone Disorder for All Dialysis Patients based in CROWNWeb, 01/01/2013 - 12/31/2013

Table 3 reports information on facility hypercalcemia rates and serum phosphorous concentration categories. For each patient, we identified the dialysis provider at each point in time using a combination of Medicare-paid dialysis claims, the Medical Evidence Form (Form CMS-2728), data from SIMS and CROWNWEB. Patients included in this table were on either hemodialysis or peritoneal dialysis as determined by these data sources. For the serum phosphorus categories, patients were additionally required to be treated in the facility thereby excluding home hemodialysis patients. Patients had to have been treated by the facility for at least the entire reporting month in order to be assigned to that facility for these measures. Uncorrected serum calcium and serum phosphorus values were obtained from CROWNWeb, where the last lab value for the current month for a patient was used. For the hypercalcemia measure, the denominator was restricted to patients that were at least 18 years of age two months prior to the start of the reporting month, had ESRD for at least 90 days prior to the reporting month, and had uncorrected serum calcium reported during the reporting month. For serum phosphorous, patients had

to be at least 18 years of age at the start of the reporting month and had to have serum phosphorus reported during the reporting month.

CROWNWeb began national data collection in May 2012. The statistics are reported for the entire period from January 1, 2013 to December 31, 2013 and quarterly, along with comparative state and national data for the twelve-month period.

Hypercalcemia is averaged from uncorrected serum calcium values over a rolling 3month period. The percentage for a given month uses the last reported uncorrected serum calcium value in that current month as well as the last reported values for the previous 2 months. An average of those uncorrected calcium values is calculated for the current month. For example, a rate calculated for January 2013 would also look back at values in December and November in 2012, and the average of those values would be reported for January 2013. If the last reported value for a given month is missing or out of range (acceptable range for calcium is 0.1 - 20 mg/dL), the patient is considered to have a missing value for that month. Quarterly and twelve-month hypercalcemia rates reflect the percentage of patient-months during that quarter or twelve-month period where the rolling 3-month uncorrected serum calcium average was greater than 10.2 mg/dL.

As opposed to hypercalcemia rates, serum phosphorous concentrations are calculated on a monthly basis, not a 3-month rolling average. The last reported value for each reporting month is used. If a patient has a value that is out of range (acceptable range for serum phosphorus is 0.1 - 20 mg/dL), the patient is considered to have a missing value for that month. The monthly and twelve-month percentages are the percentage of patient-months over that time period where the serum phosphorus value fell into the given category.

#### Eligible adult hypercalcemia patients and patient-months (3a-3b)

The number of adult patients (since two months prior) on dialysis and in the facility the entire reporting month is reported in row 3a. The number of patient-months is reported in row 3b. These patients also had ESRD for at least 90 days prior to the reporting month and had an uncorrected serum calcium value reported during the reporting month.

#### Hypercalcemia (Average Serum Calcium >10.2) (3c)

The percentage of all eligible patient-months (row 3b) with a 3-month rolling average serum calcium greater than 10.2 is reported in 3c. The acceptable range for calcium is 0.1 -20 mg/dL. Values outside of this range are considered missing.

#### Eligible adult phosphorous patients and patient-months (3d-3e)

The number of adult patients on dialysis and in the facility the entire reporting month is reported in row 3d. The number of patient-months is reported in row 3e. These patients also had a serum phosphorus value reported during the reporting month.

#### Serum Phosphorous Categories (3f)

The percentage of all eligible patient-months (row 3e) with in-range phosphorous values is reported by category in 3f. The acceptable range for phosphorous is 0.1 - 20 mg/dL. Values outside of this range are considered as missing.

## VIII. Facility Star Rating Calculation

Table 4 reports the overall star rating, ranging from one to five stars, associated with the facility. This rating allows users to compare dialysis facilities and is derived from a set of DFC Measures developed to rate quality of care at the facility level. Nine of the eleven Quality Measures (QMs) reported on the Medicare DFC website were used in the algorithm, while the URR and hemoglobin measures were not used in this rating system.

A straight forward way of constructing an overall rating would be to simply take an average of the QMs. However, this ignores the fact that some measures are correlated and measure similar qualities of the facility. A simple, un-weighted, average artificially treats the correlated QMs as more important in the rating. This limitation is addressed by grouping correlated QMs using an analytic method called factor analysis. By grouping QMs into different domains, final score is based on the underlying factors associated with each domain, thereby avoiding overweighting or giving undue importance to correlated measures. The three outcome measures for transfusions, mortality and hospitalization (STrR, SMR and SHR) formed the first domain which was named "Standardized Outcomes". The arteriovenous fistula and catheter measures formed the second domain which was named "Other Outcomes 1". The Kt/V and hypercalcemia QMs formed the third domain which was named "Other Outcomes 2". Together, these empirically derived groupings contain measures that are most correlated with one another.

Each of the nine QMs were standardized, or normalized, to align the measure scores in the same direction and on the same numerical scale. Each domain was then scored based on these normalized QMs. An average of the domain scores, with each domain given equal weight, determined the final score. Further details of this calculation are presented in the row descriptions below.

#### **Standardized Outcomes Domain**

#### Standardized Outcomes Score (4a)

The score for this domain is between 0 and 100 and was computed by averaging the normalized scores for measures within the Standardized Outcomes domain. Suppressed measures were treated as missing when calculating the domain score. If there was at least one non-missing measure in the domain, the missing measures in the domain were given the average rank of 50 to limit the non-missing measures from being too influential. If all measures within the domain were missing, then the domain did not receive a score.

#### Standardized Mortality Ratio (SMR) (4b)

The SMR equals the ratio of the actual number of deaths divided by the expected number of deaths, as compared to the national death rate in the same year. A lower ratio is better. Please see Section V of this guide for more information about the SMR. The time period used for the current star rating calculation is January 1, 2010 – December 31, 2013.

#### Normalized Rank: SMR (4c)

The distributions of the quality measures are noticeably different. As measure scores are compared across facilities, each measure within a facility was scored from 0 to 100 based on normalized ranks compared to all other facilities. If the measure was missing or suppressed, it was imputed with the average rank of 50. This method of imputation ensures that any one measure is not too influential in calculating the domain score.

#### Standardized Hospitalization Ratio (Admissions) (SHR) (4d)

The SHR (admissions) is calculated by dividing the observed total admissions by the expected total admissions. As with the SMR, it enables a comparison of your facility's experience to the national average. A lower ratio is better. Please see Section V of this guide for more information about the SHR. The time period used for the current star rating calculation is January 1, 2013 – December 31, 2013.

#### Normalized Rank: SHR (4e)

Please see "SMR normalized rank" above for description.

#### Standardized Transfusion Ratio (STrR) (4f)

The STrR is calculated by dividing the observed total admissions by the expected total admissions. As with the SMR and SHR, the STrR enables a comparison of your facility's experience to the national average. A lower ratio is better. Please see Section V of this guide for more information about the STrR. The time period used for the current star rating calculation is January 1, 2013 – December 31, 2013.

#### Normalized Rank: STrR (4g)

Please see "SMR normalized rank" above for description.

#### **Other Outcomes 1 Domain**

#### Other Outcomes 1 Score (4h)

Please see "Standardized Outcomes Score (4a)" above for description. Unique to this domain is the fact that facilities that service only peritoneal dialysis patients are not expected to have measures in this domain and, therefore, this domain is not included in the calculation of the star rating for these facilities.

#### Arteriovenous fistulae in place (4i)

Percentage of adult patients who received treatment through arteriovenous fistula (AVF) (higher better). The time period used for the current star rating calculation is January 1, 2013 – December 31, 2013.

#### Normalized Rank: AVF (4j)

Please see "SMR normalized rank" above for description.

#### Vascular catheter reported >90 days (4k)

Percentage of adult patients who had a catheter (tube) left in a vein longer than 90 days for their regular hemodialysis treatment (catheter > 90) (lower better). The time period used for the current star rating calculation is January 1, 2013 – December 31, 2013.

#### Normalized Rank: Catheter (41)

Please see "SMR normalized rank" above for description.

#### **Other Outcomes 2 Domain**

#### Other Outcomes 2 Score (4m)

Please see "Standardized Outcomes Score (4a)" above for description.

#### Adult HD: $Kt/V \ge 1.2$ (4n)

Percentage of adult hemodialysis patients who had enough wastes removed from their blood during dialysis: Kt/V greater than or equal to 1.2 (higher better). The time period used for the current star rating calculation is January 1, 2013 – December 31, 2013. Percentages based on 10 or fewer patients is shown in this table but will be reported as 'Not Available' on DFC.

#### *Adult PD: Kt/V* ≥1.7 (40)

Percentage of adult peritoneal dialysis patients who had enough wastes removed from their blood during dialysis: Kt/V greater than or equal to 1.7 (higher better). The time period used for the star rating calculation is January 1, 2013 – December 31, 2013. Percentages based on 10 or fewer patients is shown in this table but will be reported as 'Not Available' on DFC.

#### Pediatric HD: $Kt/V \ge 1.2$ (4p)

Percentage of pediatric hemodialysis patients who had enough wastes removed from their blood during dialysis: Kt/V greater than or equal to 1.2 (higher better). The time period used for the star rating calculation is January 1, 2013 – December 31, 2013. Percentages based on 10 or fewer patients is shown in this table but will be reported as 'Not Available' on DFC.

#### Overall Kt/V >= specified threshold (4q)

The Kt/V measurements were combined into one measure for calculation of the domain score. The percentage of patients that achieve Kt/V greater than the specified thresholds for each of the three patient types was weighted based on the number of patient-months of data available. The resulting combined measure (Overall Kt/V) represents the percentage of total dialysis patients who had enough wastes removed from their blood (Kt/V greater than or equal to specified threshold). If the overall Kt/V percentage is based on 10 or fewer patients, then it is reported as 'Not Available' in this table.

#### Normalized Rank: Overall Kt/V (4r)

Please see "SMR normalized rank" above for description.

#### Serum calcium > 10.2 mg/dL (4s)

Percentage of adult dialysis patients who had an average calcium over the past three months greater than 10.2 mg/dL (hypercalcemia) (lower better). The time period used for the current star rating calculation is January 1, 2013 – December 31, 2013.

#### Normalized Rank: Hypercalcemia (4t)

Please see "SMR normalized rank" above for description.

#### Final Score

#### Final score (4u)

A final score between 0 and 100 is developed by averaging the scores of the three domains: Standardized Outcomes, Other Outcomes 1, and Other Outcomes 2. Some facilities will be missing a final score if they are missing (or had suppressed) all measures in at least one domain or if they are new facilities. Facilities that only service peritoneal dialysis patients will not have measures in the Other Outcomes 1 domain but will still receive a final score based on the average of the other two domains, provided those domains are not also missing measures.

#### Overall Star Rating for each Facility (4v)

Finally to ensure acknowledgement of facilities that perform exceptionally well or poor, the facilities are assigned stars as follows based on the average of the domain scores:

- Facilities with top 10% final scores were given a 5-star rating.
- Facilities with the next 20% highest final scores were given a 4-star rating.
- Facilities within the middle 40% of final scores were given a 3-star rating.
- Facilities with the next 20% lowest final scores were given a 2-star rating.
- Facilities with bottom 10% final scores were given a 1-star rating.

Some facilities will be missing a star rating if they are missing (or had suppressed) all measures in at least one domain or if they are new facilities. Facilities that only service peritoneal dialysis patients will not have measures in the Other Outcomes 1 domain but

will still receive a star rating based on the average of the other two domains, provided those domains are not also missing measures. If a star rating is not provided, the table will say "Not Available" along with an explanation.

# **IV. Please Give Us Your Comments**

We welcome questions or comments about this report's content, or any suggestions you might have for future reports of this type. Improvements in the content of future reports will depend on feedback from the nephrology community. Comments can be submitted on <u>www.DialysisReports.org</u> July 15<sup>th</sup> - August 15<sup>th</sup>. If you have questions after the comment period is closed, please contact UM-KECC directly using the contact information provided below. Please note "Dialysis Facility Compare Reports – Preview for July 2014" as the topic of your correspondence, and include your contact information and facility's CMS certification number (CCN).

UM-KECC 1415 Washington Heights, Suite 3645A SPH I Ann Arbor, MI 48109-2029 (877) 665-1680 (phone) <u>Support@DialysisReports.org</u> (email pertaining to DFC) <u>www.DialysisReports.org</u>

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