Guide to the Dialysis Facility Reports for Fiscal Year 2016:

Overview, Methodology, and Interpretation

July 2015

Guide to the Dialysis Facility Reports for FY 2016 for Dialysis Patients: Overview, Methodology, and Interpretation

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I. Purpose of this Guide and the Dialysis Facility Reports

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

In the interest of stimulating quality improvement efforts and facilitating the quality improvement process, the Dialysis Facility Reports make information available to those of you involved in dialysis care and the assurance of its quality. This report allows you to compare the characteristics of a facility's patients, patterns of treatment, and patterns in transplantation, hospitalization, and mortality to local and national averages. Such comparisons help you to evaluate patient outcomes and to account for important differences in the patient mix — including age, sex, race, and patients' diabetic status — which in turn enhances each facility's understanding of the clinical experience relative to other facilities in the state, Network, and nation.

What's New in the DFR for FY 2016

As part of a continuing effort to improve the quality and relevance of this report for your facility, the following changes have been incorporated into the DFR for FY 2016. A new section reporting readmission summaries for each year along with regional comparison values have been added to Table 2. The CROWNWeb clinical data table (Table 14) has added information on the ultrafiltration ratio among hemodialysis patients.

II. Overview

The University of Michigan Kidney Epidemiology and Cost Center (UM-KECC) has produced the Dialysis Facility Reports for FY 2016 with funding from the Centers for Medicare & Medicaid Services (CMS). Each facility's report is distributed to the facility on the secure Dialysis Reports Web site (www.Dialysisdata.org) each July. Those state agencies responsible for certifying dialysis facilities also receive the reports.

Each report provides summary data on each facility's dialysis patients for the years 2011-2014. These summaries are compiled using the UM-KECC ESRD patient database, which is largely derived from the CMS Consolidated Renal Operations in a Web-enabled Network (CROWN), which includes Renal Management Information System (REMIS), and replaced the patient tracking functionality of the Standard Information Management System (SIMS) database (formally maintained by the 18 ESRD Networks), , the CMS Annual Facility Survey (Form CMS-2744), Medicare dialysis and hospital payment records, the CMS Medical Evidence Form (Form CMS-2728), transplant data from the Organ Procurement and Transplant Network (OPTN), the Death Notification Form (Form CMS-2746), the Nursing Home Minimum Dataset, the Quality Improvement Evaluation System (QIES) Workbench, which includes data from the Certification and Survey Provider Enhanced Report System (CASPER), the Dialysis Facility Compare (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. CROWNWeb provides tracking by dialysis provider and treatment modality for non-Medicare patients.

This year reports are provided for more than 6,000 Medicare-approved dialysis facilities in the United States. Reports were not created for transplant-only facilities or U.S. Department of Veterans Affairs (VA)--only facilities. In the mortality and transplantation tables, the standardized ratio is only calculated if there are at least 3 expected events for the time period. In addition, the standardized transplantation ratio is only reported for the four-year period since the expected number of transplants is less than 3 nationally. Similarly, the Standardized Hospitalization Ratios is calculated based on at least 5 patient years at risk. This corresponds to approximately 10 expected hospitalizations. Statistics produced for such a small group of patients can be unstable and particularly subject to random variation, and thus difficult to interpret.

This is the twentieth in this series of individualized reports. 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 UM-KECC in Section XXI.

This guide discusses the meaning of the data summaries each report provides, and describes the methodology used to calculate each summary. Sections III-XIX are organized according to the order of the summaries in the Dialysis Facility 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 Sections III- XIX in order.

The first page provides the purpose and overview of the report, what's new and how to submit comments. The following three pages include text and graphical highlights for the facility, followed by seventeen tables which contain detailed information for the facility. To provide more stable estimates of patient outcomes, we combined overall mortality (first half of Table 1), hospitalization information (Table 2), and transplant information (Table 3) over a four-year period, 2011-2014. Similarly, we combined first year mortality information (second half of Table 1) over a three-year period, 2011-2012. The separate estimates provided for each year account for changes over time in national mortality, hospitalization, and transplantation rates and allow you to evaluate facility time trends different from the average US trend. Note that for the three- and four-year summaries, individual patients typically contribute data for more than one year. Comorbidities from Medicare claims for 2011-2014, as well as regional averages for 2014, are reported in Table 11. Table 13 reports the Annual Facility Survey information for 2011-2014. Data from CROWNWeb (beginning May 2012) are reported in Table 14 Table 15 reports information about the last survey at this facility. Table 16 reports general information about the facility as of June, 2015. The remaining tables (4, 5, 6, 8, 9, 10 and 12) report

patient characteristics and practice patterns for the facility each year from 2011-2014, as well as regional averages for 2014 for comparison.

Each row of a table in the report summarizes an item. The facility has a column for each time period, and in most cases, three columns for the corresponding geographical summaries, including averages for the facility's state, it's ESRD Network, and the entire nation. Whenever the statistic reported was a count (*n*), we calculated regional and national averages by taking 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 was a percent, rate, or ratio, we calculated regional 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, with the exception of Annual Facility Survey data, which is public information. We do provide summaries for the geographic aggregate of the ESRD Network and 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 first half of Table 1 (for all dialysis patients), Tables 2-3 and 10-12. It is important to note that these patient assignment methods **do not** apply to the first year mortality statistics appearing in the second half of Table 1. Patient assignment for each of the remaining DFR tables, as well as the second half of Table 1, is described in the section specific to that table.

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 (see also Section XV)

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), and data from 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 and Network summaries do not include patients who were not assigned to a facility; these patients are, however, included in the U.S. summaries.

Using CROWNWeb 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 CROWNWeb 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 CROWNWeb 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 CROWNWeb only require checking patient data for continued accuracy, but do not have a requirement for updating if there are not any changes. Table 12 reports how we assigned patients to the facility. It also displays their status at year’s end (see Section XV).

IV. Mortality Summary for All Dialysis Patients (2011-2014) and New Dialysis Patients (2011-2013)

This report compares patient outcomes in the facility with national averages. The first half of Table 1 (rows 1a-1k) provides information about patient mortality for all dialysis patients treated at the facility. The second half of Table 1 (rows 1l-1u) provides information about mortality in the first year of dialysis for patients starting dialysis for the first time at the facility. For each section of the table, we have calculated a relative mortality rate, or Standardized Mortality Ratio (SMR), for patients in the facility. The SMR compares the observed death rate in the 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 the 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 the facility compared to regional or national averages, please consider the role other important factors play within the facility.** As with the hospitalization and transplantation summaries which are described below in Sections V and VI, you will find the mortality summaries most informative if you use them as part of an integrated quality assurance process.

In the first half of the table, we reported information on the mortality of all prevalent dialysis patients for each year between 2011 and 2014, and also summarized the statistic for the 2011-2014 period. We also reported the averages in the state, ESRD Network, and the nation for this combined four-year period. In the second half of Table 1, we report similar statistics comparing first year mortality for new dialysis patients in the facility with national averages. This section of the table allows the facility to see how all the patients who started at that facility fared in their first year of dialysis even if the facility is no longer treating some of these patients.

Major Differences between the Prevalent and First Year Mortality Calculations

The statistics reported in these two sections of the mortality table are very similar, but there are several notable differences.

Patient Placement

The prevalent mortality section includes patients based on the conventions described in Section III. Patients are included in the report for a particular facility while they are treated at that facility, entering the analysis for a facility only after having been treated

there for 60 days and leaving the analysis for a facility 60 days after transfer out of the facility.

In contrast, the first year mortality section places patients based on the facility that submitted the Medical Evidence Form (CMS-2728) for the patient. Patients are included in the analysis for a facility for the entire year of follow-up regardless of whether the patient is treated at that facility.

Beginning of Follow-up

In the prevalent mortality calculation, patients enter the analysis no earlier than day 90 of ESRD. In the first year mortality calculation, patients enter the analysis on the first day of ESRD.

Calendar Year Headings

In the prevalent mortality section, the calendar years correspond to the patient follow-up time. In other words, time at risk and deaths that occur during a particular year are included in the column for that year.

In the first year mortality section, the calendar years correspond to the year of the first treatment for that patient. Here, time at risk and deaths are included in the column corresponding to when that patient started dialysis rather than when the time at risk or death took place. Because we do not have a full year of follow-up for patients who started dialysis in the fourth year, only three years are included in the first year mortality section.

Patients (1a)

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

Patient Years at Risk (1b)

For each patient in row 1a, time at risk began at the start of the facility treatment period (see Section III) and continued until the earliest occurrence of the following: transplant; date of death; end of facility treatment period; or December 31 of the year. A patient may have been treated at one facility for multiple periods during the same year; patient years at risk include time at risk for all periods of treatment at a facility.

Deaths (1c)

We reported the number of deaths that occurred among dialysis patients during each year, as well as the total across the 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 (1d)

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^2 (m^2)). In cases where the BMI was missing for a patient, we used the average values of the group of patients with similar characteristics (age, race, ethnicity, sex, 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 1c, we then summed these expected deaths in order to obtain the total number of deaths expected for each year at the facility, and we summed the annual values to yield the expected number of deaths over the four-year period for each facility.

Categories of Death (1e-1g)

Row 1e reports the percentage of dialysis patient deaths (row 1c) for which the CMS ESRD Death Notification Form (Form-2746) indicated that the patient voluntarily discontinued renal replacement therapy prior to death. For the causes of death calculations in rows 1f and 1g, we considered all causes of death (primary and secondary) provided on the form. The percentage of deaths in 1c with a primary or secondary cause of death listed as infection and cardiac causes are reported in row 1f.

Row 1g reports the number of patients who, according to any of the primary or secondary causes of death listed on the Death Notification Form, died from accidents unrelated to dialysis treatment, or died from street drugs (see 1c). We did not include these dialysis-unrelated deaths in the total death count in row 1c or the SMR; therefore, differences in SMRs between dialysis facilities do not correspond to differences in the number of dialysis-unrelated deaths.

Information on category of death may help you interpret the SMR value for the facility. For example, a high rate of withdrawal will not increase the SMR substantially if the patients who withdraw have a short expected lifetime, though it will cause an increase if patients have a long expected remaining life. However, we would advise using caution when interpreting these percentages by category of death, since we did not adjust them for patient characteristics. Expressing this information as a simple percentage of the total number of deaths does not indicate whether the percentage of deaths in any particular category differs from the national average for similar patients.

Standardized Mortality Ratio (SMR) (1h)

The SMR equals the ratio of the actual number of deaths (1c) divided by the expected number of deaths (1d). The SMR estimates the relative death rate ratio for the facility, as compared to the national death rate in the same year. Qualitatively, the degree to which the facility's four-year SMR varies from 1.00 is the degree to which it exceeds (>1.00) or is under (<1.00) the 2010-2013 national death rates for patients with the same characteristics as those in the facility. Similarly, the degree to which the facility's yearly

SMR varies from 1.00 is the degree to which it differs from the national death rates that year for patients with the same characteristics as those in the facility.

As stated previously, we adjusted the SMR for age, race, ethnicity, sex, diabetes, duration of ESRD, nursing home status, comorbidities at incidence, BMI at incidence, and state and population death rates. Additionally, each year's estimate is compared to the US mortality rates for the same year. The SMR indicates whether patients treated in the facility had higher or lower mortality given the characteristics of patients treated at the facility. Because a different reference year is used for each year's estimate, the SMR will allow you to identify trends over time at the facility beyond the overall US trend over time. In other words, if the SMR for the facility decreases over the time period, this means that mortality at the facility has decreased more over that time period than the overall US average mortality decreased. If mortality at the facility decreased over the four year period at the same rate that overall US mortality decreased over this time period, the
SMR for the facility would be the same for each year.

Detailed statistical methodology for the SMR is included in a separate document titled *Technical Notes on the Standardized Mortality Ratio for the Dialysis Facility Reports*. This document and an accompanying Microsoft Excel spreadsheet are available on the Dialysis Reports website (www.dialysisdata.org) under the Methodology heading.
Quantitatively, if the 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 the facility's patient mix. For example, an SMR=1.10 would indicate that the facility's death rates typically exceed national death rates by 10% (e.g., 22 deaths observed where 20 were expected, according to the facility's patient mix). Similarly, an SMR=0.95 would indicate that the 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 the 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 (1c/1d).

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 Dialysis Facility Reports does not include all U.S. dialysis facilities in its calculation. In particular, as discussed in the Overview, transplant-only, VA-only, and non-Medicare facilities are not included in the geographic summaries.

Random variation
The SMR estimates the true ratio of death rates at the facility relative to the national death rates. An SMR value that differs from 1.00 indicates that the 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, the facility's SMR could differ from 1.00 due to random variation rather than to a fundamental difference between the facility's death rates and the nation's. Both the p-value and the confidence interval, discussed below, will help you interpret the 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 the facility.

P-value (1i)

The p-value measures the statistical significance (or evidence) for testing the two-sided hypothesis that the true ratio of death rates for the 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 the 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 the facility's death rates and the nation's.

The SMR's actual quantitative value reflects the clinical importance of the difference between the 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.

Confidence Interval for SMR (1j)

The 95% confidence interval 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.

Recommended Course of Action if SMR Is Elevated

In past years, Medical Directors have asked the UM-KECC what they should do if their SMR is elevated. Our general guidelines, which are not intended to be exhaustive, follow.

1) Does the SMR deviate from 1.00 by chance? If the facility has few patients, then random variation may explain the deviation. Evaluate the confidence interval and the p-value. Most likely, the true SMR lies between the confidence limits. If the p-value exceeds 0.05, or if the confidence interval includes 1.00, the SMR is not statistically significant at the 0.05 level, and random variation could plausibly explain its elevation. Please note that the p-value is based on an exact calculation, while the confidence interval is an approximation, accurate in most cases. In rare cases, these measures of statistical significance may differ, with one indicating a statistically significant result and

the other an insignificant one. Should this occur, use the p-value rather than the confidence interval.
2) Is the result consistent across the years? See if the values are consistent from year to year or if there is a consistent trend towards higher or lower values. If not, then the results may be less reliable than if the individual year estimates follow a pattern.
3) Examine input data. Table 10 gives some details about the patients assigned to the facility. The Network can provide you with a list of patients used in this report, which includes patient identifiers and death dates, if applicable. Consider whether the counts of patients by year are plausible over time, as well as for any one year. If this list contains substantial errors, we would like to know about them.
4) Consider other characteristics of the facility not adjusted for in the SMR. The SMR adjusts for calendar year, age, race, ethnicity, sex, diabetes, years of ESRD, nursing home status, comorbidities, BMI, and population death rates. The SMR could differ from 1.00 because patients differ with respect to other important factors not adjusted for (e.g., poor nutritional status).
5) A statistically significant SMR greater than 1.10 likely reflects truly elevated mortality. Therefore, you may best address such a finding by evaluating various treatment factors in the unit, as well as other patient characteristics.

SMR Percentiles for This Facility (1k)
This section reports the percentile rank of the facility's SMR relative to all other facilities in the state, Network, and nation. This percentile — reported for each year's SMR and for the four-year combined SMR — is the percentage of facilities with an SMR **lower** than the facility's. In other words, a high or low percentile indicates that the facility has a high or low SMR relative to other facilities in the state, Network, or nation.

Patients for First Year Mortality (1l)
Row 1l of this table gives the total number of forms for new dialysis patients submitted by the facility for the year. The first year mortality statistics reported in the second half of the table (1l-1s) are based on these patients. As described above, the patients represented in this part of the table were hemodialysis and peritoneal dialysis patients who **started dialysis** between January 1, 2011 and December 31, 2013. Please note that we placed the patients included here *not* according to the conventions described in Section III, but rather according to the provider that submitted their Medical Evidence Forms.

Patient Years at Risk for First Year Mortality (1m)
For new dialysis patients, time at risk began at first dialysis treatment and continued until the earliest occurrence of the following: transplant; date of death, or one year after the start of treatment. This is in contrast to the time at risk for the first half of the table which begins no earlier than day 90 of ESRD and ends if a patient transfers out of the facility. For the first year mortality statistics, all of a particular patient's time at risk is included in the report for their initial facility regardless of whether the patient was treated at that facility for the entire year. In addition, all of a patient's time at risk is included under the calendar year heading corresponding to the Medical Evidence Form even if some of that follow-up time occurs in the following year. In other words, the calendar year headings refer to the year the patients initiated treatment.

Deaths in First Year (1n)
We reported the number of deaths that occurred among new dialysis patients during their first year of dialysis, as well as the total across the years. As in the overall mortality section, this count does not include deaths from street drugs or deaths from accidents unrelated to treatment (see row 1c above for details).

Expected Deaths in First Year (1o)
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, year, nursing home status, patient comorbidities at incidence, and patient BMI at incidence (BMI = weight (kg)/ height^2 (m^2)). In cases where BMI was missing for a patient, we used the average values of the group of patients with similar characteristics (age, race, ethnicity, sex, 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, 2014). As with the deaths in 1r, we then summed these expected deaths in order to obtain the total number of deaths expected for each year at the facility, and we summed the annual values to yield the expected number of deaths over the three-year period for each facility.

New Patients: Categories of Death (1p, 1q)
Row 1p reports the percentage of dialysis patient deaths (row 1n) for which the CMS ESRD Death Notification Form (Form-2746) indicated that the patient voluntarily discontinued renal replacement therapy prior to death. For the causes of death calculations in rows 1q, we considered all causes of death (primary and secondary) provided on the form. The percentage of deaths in 1n with a primary or secondary cause of death listed as infection and cardiac causes are reported in row 1q.

First Year Standardized Mortality Ratio (SMR) (1r)
The SMR equals the ratio of the actual number of deaths (1n) divided by the expected number of deaths (1o). The SMR estimates the relative death rate ratio for the facility, as compared to the national death rate in the same year. Qualitatively, the degree to which the facility's four-year SMR varies from 1.00 is the degree to which it exceeds (>1.00) or is under (<1.00) the 2010-2011 national death rates for new dialysis patients with the same characteristics as those in the facility. Similarly, the degree to which the facility's yearly SMR varies from 1.00 is the degree to which it differs from the national death rates for patients with the same characteristics as those in the facility that year.

We used similar methods to calculate SMR for new dialysis patients and for all dialysis patients. We adjusted the SMR for age, race, ethnicity, sex, diabetes, nursing home status, comorbidities at incidence, BMI at incidence, and state and population death rates. Additionally, each year's estimate is compared to the US mortality rates for the same year. The SMR indicates whether patients treated in the facility had higher or lower mortality than expected given the characteristics of patients treated at the facility.

Because a different reference year is used for each year's estimate, the SMRs will allow you to identify trends over time at the facility beyond the overall US trend over time. In other words, if the SMR for the facility decreases over the time period, this means that mortality at the facility has decreased more over that time period than the overall US average mortality decreased. If mortality at the facility decreased over the three year period at the same rate that overall US mortality decreased over this time period, the SMR for the facility would be the same for each year.

Quantitatively, if the 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 the facility's patient mix. For example, an SMR=1.10 would indicate that the facility's death rates typically exceed national death rates by 10% (e.g., 22 deaths observed where 20 were expected, according to the facility's patient mix). Similarly, an SMR=0.95 would indicate that the 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 the 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 (1n/1o).

P-value (1s)

The p-value measures the statistical significance (or evidence) for testing the two-sided hypothesis that the true ratio of death rates for the 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 the 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 the facility's death rates and the nation's.

The SMR's actual quantitative value reflects the clinical importance of the difference between the 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.

Confidence Interval for First Year SMR (1t)

The 95% confidence interval gives a range of plausible values for the true ratio of facility-to-national first year 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.

First Year SMR Percentiles for This Facility (1u)
This section reports the percentile rank of the facility's first year SMR relative to all other facilities in the state, Network, and nation. This percentile — reported for each year's SMR and for the three-year combined SMR — is the percentage of facilities with an SMR **lower** than the facility's. In other words, a high or low percentile indicates that the facility has a high or low SMR relative to other facilities in the state, Network, or nation.

V. Hospitalization Summary for Medicare Dialysis Patients, 2011-2014

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 11 days in the hospital per year (USRDS, 2014). 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 Table 2.

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 are 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 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. Note that these criteria do not apply to the readmission statistics reported in this table.

Summaries of days hospitalized are reported in rows 2c through 2h, summaries of hospital admissions are reported in Rows 2i through 2s, and summaries of ED visits are

reported in Rows 2t through 2bb. These statistics include multiple admissions or ED visits per patient. For each facility, a *Standardized Hospitalization Ratio (Days),* a *Standardized Hospitalization Ratio (Admissions),* and a *Standardized Hospitalization Ratio (ED)* were calculated. Like the SMR, these statistics are intended to compare the facility's observed number of events (be it admissions, days hospitalized, or ED visits) to the number that would be expected if patients at the facility were instead subject to the 2011-2014 national average admission, days, and ED visit rates. The expected national rates are 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, body mass index (BMI) at incidence, and calendar year.

We report the hospitalization summaries for each year from 2011-2014 and for the entire four-year period. We also report the results for the average facility over the combined 2011-2014 period for hospitalization summaries at the regional and national levels.

Medicare Dialysis Patients (2a)
The number of Medicare dialysis patients included in the hospitalization summaries (2a) 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 (2b)
The number of patient years at risk indicates the total amount of time we followed patients in this table's analyses. We used the number of patient years at risk reported in 2b as the denominator in the calculation of the total days hospitalized statistics. Patients were at risk for spending another day in the hospital whether or not they were hospitalized at the time. 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 the facility.

Days Hospitalized Statistics

Total Days Hospitalized (2c)
This represents the total number of days that Medicare dialysis patients assigned to this facility spent as inpatients in the hospital. The total number of days 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 was not discharged until the following calendar year (e.g., admitted on 12/28/2013 and discharged on 1/6/2014), the number of days hospitalized are assigned appropriately to the two years (four days in 2013 and six days in 2014).

Expected Total Days Hospitalized (2d)

We calculated the expected number of hospitalized days among Medicare dialysis patients in a facility based on national rates for days hospitalized in the same year. The expected hospitalization frequency is calculated from a Cox model, adjusting for patient age, sex, diabetes, duration of ESRD, nursing home status, patient comorbidities at incidence, body mass index (BMI) at incidence, and calendar year of treatment. In cases where BMI was missing for a patient, we used the average values of the group of patients with similar characteristics (age, sex, diabetes). 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 interval is multiplied by the (adjusted) national hospitalization rate for that interval, and a sum over the intervals gives the expected number of days hospitalized 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 2d.

Standardized Hospitalization Ratio (SHR) for Days (2e)

The SHR (Days) is calculated by dividing the observed total days hospitalized in 2c by the expected total days hospitalized in 2d. As with the SMR, it enables a comparison of the facility's experience to the national average for the same year(s). A value of less than 1.0 indicates that the total number of days hospitalized in the facility was less than expected, based on national rates; whereas a value of greater than 1.0 indicates that the total number of days hospitalized in the facility was higher than the (adjusted) 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 the facility. Additionally, each year's estimate is compared to the US hospitalization rates for the same year. Because a different reference year is used for each year's estimate, the SHRs will allow you to identify trends over time at the facility beyond the overall US trend over time. In other words, if the SHR for the facility decreases over the time period, this means that hospitalization at the facility has decreased more over that time period than the overall US average hospitalization decreased. If hospitalization at the facility decreased over the four year period at the same rate that overall US hospitalization decreased over this time period, the SHR for the facility would be the same for each year.

P-value (2f)

The p-value measures the statistical significance (or evidence) for testing the two-sided hypothesis that the true ratio of hospitalization rates for the 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 the 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 the facility's hospitalization rates and the nation's.

The SHR's actual quantitative value reflects the clinical importance of the difference between the 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.

Confidence Interval for SHR (Days) (2g)
The 95% confidence interval 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.

SHR (Days) Percentiles for This Facility (2h)
This section reports the percentile rank of the facility's SHR (Days) relative to all other facilities in the state, Network, and nation. This percentile — reported for each year's SHR and for the four-year combined SHR — is the percentage of facilities with an SHR **lower** than the facility's. In other words, a high or low percentile indicates that the facility has a high or low SHR relative to other facilities in the state, Network, or nation.

Admission Statistics

Total Admissions (2i)
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 12/28/2013 and discharged on 1/6/2014), the admission would count only in the second year (zero admissions in 2013 and one admission in 2014).

Expected Total Admissions (2j)
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, body mass index (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 2j.

Standardized Hospitalization Ratio (SHR) for Admissions (2k)
The SHR (Admissions) is calculated by dividing the observed total admissions in 2i by the expected total admissions in 2j. As with the SMR, it enables a comparison of the facility's experience to the national average. A value of less than 1.0 indicates that the facility's total number of admissions was less than expected, based on national rates; whereas a value of greater than 1.0 indicates that the 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 the facility. Additionally, each year's estimate is compared to the US hospitalization rates for the same year. Because a different reference year is used for each year's estimate, the SHRs will allow you to identify trends over time at the facility beyond the overall US trend over time. In other words, if the SHR for the facility decreases over the time period, this means that hospitalization at the facility has decreased more over that time period than the overall US average hospitalization decreased. If hospitalization at the facility decreased over the four year period at the same rate that overall US hospitalization decreased over this time period, the SHR for the facility would be the same for each year.

P-value (2l)
The p-value measures the statistical significance (or evidence) for testing the two-sided hypothesis that the true ratio of hospitalization rates for the 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 the 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 the facility's hospitalization rates and the nation's.

The SHR's actual quantitative value reflects the clinical importance of the difference between the 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.

Confidence Interval for SHR (Admissions) (2m)
The 95% confidence interval 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.

SHR (Admissions) Percentiles for This Facility (2n)
This section reports the percentile rank of the facility's SHR (Admissions) relative to all other facilities in the state, Network, and nation. This percentile — reported for each year's SHR and for the four-year combined SHR — is the percentage of facilities with an SHR **lower** than the facility's. In other words, a high or low percentile indicates that the facility has a high or low SHR relative to other facilities in the state, Network, or nation.

Diagnoses Associated with Hospitalization (2o)
Row 2o reports the percentage of patients in 2a who had septicemia, acute myocardial infarction, congestive heart failure, cardiac arrhythmia, and cardiac arrest reported as one of the diagnoses on a hospital bill with a start date during a period of treatment at the facility. We first identified ICD-9 diagnosis codes associated with these diagnoses and then looked for these codes on the hospital bills (in any position on the list of diagnoses). Row 2o includes all bills, even if the patient did not leave the hospital in between bills. Note that a patient may appear in more than one of the categories.

One Day Admissions (2p)
We reported the percentage of total inpatient hospital admissions in 2i that lasted one day or less. One-day admissions included hospitalizations in which the patient was discharged either the same or the following day. We did not adjust this statistic for patient characteristics.

Average Length of Stay (2q)
As a measure of severity of hospitalizations, we reported the average duration (in days) of hospital admissions among Medicare dialysis patients assigned to this facility. We calculated this duration from Medicare payment records, which listed an admission and discharge date for each hospitalization. The average length of stay is not adjusted for patient characteristics.

Emergency Department (ED) Statistics

Total ED Visits (2r)
This is the total number of emergency department (ED) visits among the Medicare dialysis patients assigned to this facility. This includes both ED visits that result in inpatient admission and those that do not result in admission. The total number of ED visits includes multiple visits (i.e., second, third, etc. visits for the same patient). However, multiple visits within a single day are counted as a single visit, where ED visits resulting in an inpatient admission are included over visits that do not result in an inpatient admission.

Expected Total ED Visits (2s)
We calculated the expected number of ED visits among Medicare dialysis patients in a facility based on national rates for ED visits in the same year. The expected number of ED visits is calculated from a Cox model, adjusting for patient age, sex, diabetes, duration of ESRD, nursing home status, patient comorbidities at incidence, body mass index (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 ED visit rates are estimated separately within each interval. For each patient, the time at risk in each ESRD interval is multiplied by the (adjusted) national ED visit rate for that interval, and a sum over the intervals gives the expected number of ED visits 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 2s.

Standardized Hospitalization Ratio (SHR) for ED (2t)
The SHR (ED) is calculated by dividing the observed total ED visits in 2t by the expected total ED visits in 2s. As with the SMR, it enables a comparison of the facility's experience to the national average. A value of less than 1.0 indicates that the facility's total number of ED visits was less than expected, based on national rates; whereas a value of greater than 1.0 indicates that the facility had a rate of ED visits 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 the facility. Additionally, each year's estimate is compared to the US rates for the same year. Because a different reference year is used for each year's estimate, the SHRs will allow you to identify trends over time in the facility beyond the overall US trend over time. In other words, if the SHR for the facility decreases over the time period, this means that ED visits in the facility has decreased more over that time period than the overall US average ED visits decreased. If ED visits in the facility decreased over the four year period at the same rate that overall US ED visits decreased over this time period, the SHR for the facility would be the same for each year.

P-value (2u)
The p-value measures the statistical significance (or evidence) for testing the two-sided hypothesis that the true ratio of ED visit rates for the 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 ED visit rates truly does differ from 1.00. For instance, a p-value of less than 0.05 would indicate that the difference between the facility's ED visit 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 ED visit 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 the facility's ED visit rates and the nation's.

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

Confidence Interval for SHR (ED) (2v)
The 95% confidence interval gives a range of plausible values for the true ratio of facility-to-national ED visit 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.

SHR (ED) Percentiles for This Facility (2w)
This section reports the percentile rank of the facility's SHR (ED) relative to all other facilities in the state, Network, and nation. This percentile — reported for each year's SHR and for the four-year combined SHR — is the percentage of facilities with an SHR **lower** than the facility's. In other words, a high or low percentile indicates that the facility has a high or low SHR relative to other facilities in the state, Network, or nation.

Patients with ED visit (2x)
Row 2x reports the percentage of Medicare dialysis patients assigned to this facility over the four-year period from 2010-2013 that had at least one ED visit. If a patient had more than one ED visit during the year, they were counted only once in the numerator of this statistic.

ED Visits that Result in Hospitalization (2y)
Row 2y reports the percentage of ED visits in 2r that resulted in an inpatient admission.

Admissions that Originated in the ED (2z)
Row 2z reports the percentage of inpatient admissions that originated in the Emergency Department. If a patient had more than one ED visit resulting in an admission during an inpatient admission, we only counted one ED visit in the numerator of this statistic. For example, if a patient is discharged from the hospital but is readmitted within 1 day of discharge, we combine the two inpatient admissions and thus, only count the admissions as one hospitalization. Furthermore, if both of the inpatient admissions originated in the Emergency Department, we will count the admissions as one ED visit for this statistic (in all other ED visit statistics they are counted as two ED visits).

Readmission Statistics

Index discharges (2aa)
Index discharges are those hospitalizations that serve as starting points for identifying readmissions. This is the number of Medicare-covered hospital discharges occurring at acute-care hospitals in the calendar year for dialysis patients treated at your facility. Note that this does not include discharges from long-term care hospitals (LTCHs) or skilled nursing facilities (SNFs). An index discharge is attributed to the dialysis facility to which the patient is assigned as of his/her discharge date.

Total readmissions (2ab)
The number of readmissions for the facility is defined as the number of index discharges followed by an unplanned readmission within 30 days of discharge—in other words, the

number of index discharges for which the next admission was unplanned and occurred within 30 days of the index discharge. Like index discharges, those hospitalizations considered as potential readmissions are restricted to hospitalizations for inpatient care at acute care hospitals. Note that a hospitalization identified as a readmission may also be an index discharge.

Hospital admissions were classified as being planned or unplanned according to the algorithm developed for CMS' hospital-wide readmission measure (Horwitz et. al., 2012). A detailed description of this algorithm is available at www.dialysisdata.org.

The readmission is assigned to the index discharge dialysis facility regardless of the treatment facility at the time of readmission. In other words, if a patient is discharged from a hospital while assigned to Facility A, transfers to Facility B on her 15th day after hospital discharge, then is readmitted to the hospital on the 20th day after discharge while in Facility B, that readmission will be attributed to Facility A, not to Facility B.

Expected total readmissions (2ac)
We calculated the number of hospital readmissions that would be expected given the set of index discharges of dialysis patients in your facility based on national rates for hospital readmissions in the same year. The expected number of readmissions is calculated from a hierarchical logistic model, adjusted for the discharging hospital of the index hospitalization and for the patient characteristics of age, sex, diabetes, duration of ESRD at index hospital discharge, comorbidities in the year preceding the index hospital discharge, the presence of a high-risk diagnosis at index hospital discharge, length of stay of the index hospital discharge, and BMI at onset of ESRD. For each patient, the expected number is adjusted for the characteristics of that patient.

Standardized Readmission Ratio (SRR) (2ad)
We calculated the SRR by dividing the observed total readmissions in 2ab by the expected total readmissions in 2ac. As with the SMR and SHR, the SRR compares your facility's experience to what should be expected on the basis of the national norm. A value of less than 1.0 indicates that your facility's total number of readmissions is less than expected, based on national rates; whereas a value of greater than 1.0 indicates that your facility had a rate of total readmissions higher than would be expected given national rates. Note that this measure is adjusted for the discharging hospital of the index hospitalization and for the patient characteristics described above in section 2ac. In addition, the estimate is compared with the US readmission rates for the same year.

P-value for SRR (2ae)
The p-value measures the statistical significance of (or evidence regarding) the hypothesis that the true ratio of the readmission rates for your facility versus the nation is different (higher or lower) from 1.00. The p-value is the probability that the SRR would differ from 1.00 as much as does the observed SRR and is often used to assess evidence. A small p-value indicates that the observed SRR is not likely due to chance and occurs when the observed SRR differs markedly from 1.00. A p-value of less than 0.05 is often taken as evidence that the ratio of readmission 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 readmission rate and the nation's is unlikely to have arisen from random fluctuations alone. The smaller the p-value, the more statistically significant is the difference between national and individual facility readmission rates. A small p-value helps rule out the possibility that an SRR'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 readmission rate and the nation's.

The SRR's actual quantitative value reflects the clinical importance of the difference between your facility's and the nation's readmission rates. An SRR of 1.25, for example, indicates that your facility's readmission rate is 25% higher than the national average, which may well be judged to be clinically important. On the other hand, SRR values in the range of 0.95 to 1.05 would generally not be considered to be of clinical interest. With very large facilities, even relatively small differences in the SRR can lead to significant results, so both aspects (the actual value of the SRR and the p-value) are important.

Confidence Interval (Range of Uncertainty) for SRR (2af)
The 95% confidence interval (or range of uncertainty) gives a range of plausible values for the true ratio of facility-to-national readmission rates, in light of the observed SRR. The upper and lower limits enclose the true ratio between them approximately 95% of the time if this procedure is repeated on multiple samples. Statistically significant confidence intervals do not contain 1.00.

VI. Transplantation Summary for Dialysis Patients under Age 70, 2011-2014

The results of numerous studies have indicated that the recipients of renal transplants have better survival than comparable dialysis patients (Wolfe, 1999). Although the number of renal transplants has increased, it has not kept pace with the rising number of patients on transplant waiting lists. This report includes Standardized Transplantation Rates (STRs) for dialysis patients. We calculated the STR using the same methods as the SMR, described in more detail in Section IV. Adjustments for the STR differed from those for the SMR because the STR was adjusted for age only. Since we included patients in this table only once they reached day 91 of ESRD, we excluded patients who received a pre-emptive transplant or a transplant within the first three months of treatment. You will find these statistics useful in that they allow a facility to compare the rate of transplantation for the dialysis patients they treat, though these statistics should not be interpreted as including all transplants. The percentage of transplants in the U.S. that were not included because the transplant occurred less than 90 days after the start of ESRD, as well as those that were not included because the patients were not assigned to facilities at times of transplant are indicated in a footnote to the table.

Eligible Patients (3a)
Row 3a reports the number of dialysis patients under age 70. All transplantation statistics in this report refer only to those patients less than 70 years of age because transplants in

people aged 70 or greater occurred much less frequently than did transplants in younger patients.

Transplants (3b)
Row 3b reports the number of dialysis patients under the age of 70 in each facility who received a transplant.

Donor Type (3c)
Row 3c reports by year the number of patients who received transplants from a living and from a deceased donor. The sum is the number of transplants in row 3b, although it may be lower due to unknown donor type.

Eligible Patients (3d)
Row 3d reports the number of dialysis patients under age 70 from row 3a who had never received a kidney transplant before. The first transplant rates in the rest of the table are restricted to these patients. The number of dialysis patients included in this report's transplantation summaries (3d) was typically much smaller than the number of patients included in the mortality summaries (1a) for two reasons. First, all transplantation statistics in this report refer only to those patients less than 70 years of age. Second, we computed transplantation statistics only for patients who had never received a kidney transplant before.

Patient Years at Risk (3e)
We limited our calculations for 3e to patients under the age of 70 who had not previously received a transplant. For all patients, time at risk began at the start of the facility treatment period (see Section III) and continued until the earliest of the following occurrences: transplant, date of death, end of the facility treatment period, or December 31. A patient may have been treated at one facility for multiple periods during the same year; in such a case, the number of patient years at risk included time at risk for all periods of treatment at that facility.

Actual First Transplants (3f)
Row 3f reports the number of dialysis patients under the age of 70 in each facility who received a first transplant.

Expected First Transplants (3g)
We calculated the expected number of patients who had received transplants during the year in a manner similar to calculating the expected number of deaths, but with one important difference: We adjusted transplantation statistics for age only. We did not adjust transplantation statistics for sex, race, or diabetes because, generally speaking, these are inappropriate adjustments for access to transplantation. We used a Cox model to calculate the expected number of first transplants during the year for each patient based on the age 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., 1999; Andersen, 1993; Collett, 1994). Table 3 sums and reports the total number of patients expected to receive a first transplant from the facility, with corresponding regional and national averages.

Standardized Transplantation Ratio (3h)
The Standardized Transplantation Ratio (STR) is the ratio of the actual number (3f) of first transplants to the expected number (3g) of first transplants for the facility, given the age composition of the facility's patients. The STR is adjusted for patient age and calendar year only. In order to provide stable estimates, the STR is only reported for the combined four-year period when there are 3 or more expected transplants (note: the number of expected transplants in the Nation in 2014 is less than 3).

Interpret the STR as you would the SMR. An STR of 1.00 indicates that the observed number of transplants in the facility equals the estimated national rate, adjusted for age. An STR of less than 1.00 indicates that the facility's transplant rate is lower than the national average. An STR greater than 1.00 indicates that the facility's transplant rate exceeds the national average. The amount by which an STR lies above or below 1.00 corresponds to the percentage the facility's transplant rate is above or below the national average, respectively. For example, an STR of 0.90 would mean that the facility's rate of transplantation is 10% less than the estimated national rate (e.g., nine transplants where ten are expected). An STR exceeding 1.00 is desirable.

We calculated the STRs for the regional and national summaries as the ratio of the total observed number of first transplant summed across facilities to the total expected number of first transplants summed across facilities.

Random Variation
The STR tends to show more random variation than the SMR because numbers of transplants are much smaller than numbers of deaths. Small numbers of events contribute to instability, increasing the chances that an observed result owes to chance rather than to the true ratio of observed-to-expected transplants. This makes p-values and confidence intervals instrumental in interpreting the facility's STR. We calculated these statistics based on an assumed Poisson distribution of the observed number of patients transplanted.

P-value (3i)
We used the p-value to determine the statistical significance of the STR. The p-value measures the statistical significance (or evidence) for testing the two-sided hypothesis that the true ratio of transplantation rates for the facility versus the nation is different (higher or lower) from 1.00. The p-value indicates the probability that the result obtained owed to chance alone, with smaller values meaning chances are low that the STR differs from the national average merely because of random variation. Although a p-value of less than 0.05 usually indicates a result's statistical significance, you should also use the absolute magnitude of the STR's deviation from 1.00 to determine its clinical importance.

Confidence Intervals for STR (3j)
The 95% confidence interval gives a range of plausible values for the true ratio of facility-to-national first transplant rates, in light of the observed STR. 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.

STR Percentile for This Facility (3k)
This section reports the percentile rank of the facility's STR relative to all other facilities in the state, Network, and nation. We report these percentiles for each year's STR and for the four-year combined STR. The percentile indicates the percentage of facilities with an STR **lower** than the facility's STR. In other words, a high or low percentile number indicates that the facility has a high or low STR relative to other facilities in the state, Network, or nation. All facilities are included in the ranking, regardless of the number of expected transplants.

VII. Waitlist Summary for Dialysis Patients under Age 70 Treated as of December 31 of Each Year, 2011-2014

The results of numerous studies have indicated that the recipients of renal transplants have better survival than comparable dialysis patients (Wolfe, 1999). The first step in the transplant process is getting placed on the transplant waitlist. This information was obtained from Organ Procurement and Transplantation Network (OPTN) / Scientific Registry of Transplant Recipients (SRTR) data.

Eligible Patients on 12/31 (4a)
This table reports waitlist summary statistics for all dialysis patients under age 70 that were being treated on December 31 of each year in the facility. Row 4a reports the number of dialysis patients included in the waitlist summaries. All waitlist statistics in this profile refer only to those patients less than 70 years of age because transplants in people aged 70 or greater occur with much less frequency than do transplants in younger patients. This table gives a snapshot of the waitlist at four dates. The criteria for including patients in this table are different than those described in Section III for Tables 1, 2, and 3. For this table, we included patients at the facility they were in on December 31 of each year according to claims data or CROWNWeb. The 60-day transfer rule did not apply, and we included patients new to dialysis (the 90 day rule did not apply).

Patients on the Waitlist (4b)
Row 4b reports the percentage of patients in 4a who were on the kidney or kidney-pancreas transplant waitlist as of December 31, with the corresponding national percentage for 2014 reported for comparison.

P-value (4c)
We used a one-sided p-value to test the hypothesis that the true percentage of patients on the waitlist reported in row 4b is higher (or lower) than the U.S. value for that year.
The footnote for row 4c shows the percentage of patients on the waitlist in the U.S. for each year used in this comparison. The p-value indicates the probability that the difference between the percentage of patients on the waitlist in the facility and in the U.S. occurred due to chance. A low p-value means that the chances are low that the facility percentage was higher or lower than the national average merely because of random

variation. A p-value of less than 0.05 usually indicates a result's statistical significance. You should also use the absolute magnitude of the difference between the facility and national percentage of patients on the waitlist to determine its clinical importance.

Patient Characteristics (4d)
Row 4d reports the percentage of patients in row 4b by age, sex, race and ethnicity, cause of ESRD, previous transplant, and years of ESRD treatment. State, Network, and U.S. averages for 2014 are given for comparison.

VIII. Influenza Vaccination Summary for Medicare Dialysis Patients Treated on December 31st of Each Year, Flu Seasons 2011-2014

This table reports influenza vaccination summary statistics identified on Medicare claims for Medicare dialysis patients treated on December 31st of each year in the facility. Average values for 2013 or 2014 are also reported among patients in the state, Network, and the U.S. In an effort to emphasize the use of vaccine prior to the peak of flu season, we provide vaccination summaries from August 1st through December 31st each year as well as the overall vaccination summary for the full influenza vaccination season (August 1st through March 31st of the following year).

Like hospitalization and comorbidity, this table is limited to patients who are covered by Medicare. To achieve this goal, we use the Medicare criterion described above in Section V for the hospitalization statistics. Since it takes a month to accrue > $900 in claims, we have excluded patients who have been on dialysis less than 30 days. This table is then further restricted to patients being treated at the facility at the end of each year. The 60-day transfer rule does not apply, and we include incident patients who have been on dialysis for at least 30 days. Vaccinations that are billed to Medicare are counted whether these occurred at the facility or outside of the facility. Vaccinations not billed to Medicare are not captured.

Eligible Patients on 12/31 (5a)
Row 5a reports the number of Medicare dialysis patients included in the influenza vaccination summaries.

Patients Vaccinated between Aug. 1 and Dec. 31 (5b)
Row 5b reports the percentage of patients in 5a who had a Medicare claim for vaccination performed between August 1st and December 31st, with the corresponding national percentage for 2014 reported for comparison.

P-value for Patients Vaccinated between Aug. 1 and Dec. 31 (5c)
We used a one-sided p-value to test the hypothesis that the true percentage of patients vaccinated, reported in row 5b, is higher (or lower) than the U.S. value for that year. The footnote for row 5c shows the percentage of patients vaccinated in the U.S. for each year used in this comparison. The p-value indicates the probability that the difference between the percentages of patients vaccinated in the facility and in the U.S. occurred due to

chance. A low p-value means that the chances are low that the facility percentage was higher or lower than the national average merely because of random variation. A p-value of less than 0.05 usually indicates a statistically significant result. You should also use the absolute magnitude of the difference between the facility and national percentage of patients vaccinated to determine its clinical importance.

Patients Vaccinated between Aug. 1 and Mar. 31 of the following year (5d)
Row 5d reports the percentage of patients in 5a who had a Medicare claim for vaccination performed between August 1st and March 31st of the following year, with the corresponding national percentage for 2013 reported for comparison. A statistic does not exist for the most recent flu season (2014) because data is not yet available for January through March 2015.

P-value for Patients Vaccinated between Aug. 1 and Mar. 31 of the following year (5e)
We used a one-sided p-value to test the hypothesis that the true percentage of patients vaccinated, reported in row 5d, is higher (or lower) than the U.S. value for that year. The footnote for row 5e shows the percentage of patients vaccinated in the U.S. for each year used in this comparison.

Patient Characteristics (5f)
Row 5f reports the percentage of patients in row 5b by age, sex, race and ethnicity, and years of ESRD treatment. State, Network, and U.S. averages for 2014 are given for comparison.

IX. Facility Modality, Anemia Management, and Dialysis Adequacy, 2011-2014

Table 6 reports information on state practice patterns, and each section includes a slightly different group of patients. We restricted dialytic modality, hemoglobin, and Kt/V 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 inclusion criteria are described in more detail below.

Modality (6a-6d)
We based the reported dialytic modality information on all Medicare dialysis claims submitted by facilities in your state, excluding patient claims that started before day 90 of ESRD. Each patient treated during January 2011 through December 2014 in your state was classified each month as receiving hemodialysis (including home hemodialysis), CAPD/CCPD, or other dialysis. Patients were said to be receiving 'other dialysis' if they had claims for both hemodialysis and peritoneal dialysis in the same month. Rows 6a and 6b report the number of patients, and patient months, treated during the year. Row 6c reports the percentage of patient months covered by each of these therapeutic modalities.

Row 6d reports the percent of patient months over which the use of iron is indicated. This measure is reported separately for hemodialysis and CAPD/CCPD patient months. We

calculated this as a percent of the number of patient months represented by the corresponding modality percent in row 6c.

Anemia Management

Hemoglobin (6e-6k)

We based the hemoglobin information reported in rows 6e to 6k on all Medicare dialysis claims submitted by the facility that indicated the use of an erythropoiesis stimulating agent (ESA), specifically, the use of epoetin alfa or darbepoetin alfa. We calculated hemoglobin as hematocrit divided by three (and rounded to the tenth of a g/dL) for claims that report hematocrit but not hemoglobin. We included neither patient claims starting before day 90 of ESRD nor claims with hemoglobin values less than 5 or greater than 20. Row 6e reports the number of patients for whom at least four claims fulfilling these criteria were submitted by the facility for each year. A patient treated at more than one facility during the year was included in the report for each facility (as long as the patient had at least 4 claims from the facility). For each patient in row 6e, we calculated the average hemoglobin reported on claims submitted by the facility.

We summed the average hemoglobin values for the patients in 6e and then divided by the number of patients in 6e in order to obtain the facility average reported in 6f. Row 6g presents the percentage of patients from 6e in each of four hemoglobin categories: less than 10g/dl, between 10-<11 g/dl, between 11-12 g/dl, and greater than 12 g/dl.

In rows 6h to 6k, the number of hemodialysis (HD) and peritoneal dialysis (PD) patients are given along with the percent whose average hemoglobin was in each of the four categories discussed above. For these statistics, claims from the facility for each patient were further divided by the treatment modality for the claim. This means that patients who received both HD and PD treatment at the facility appear in both the HD (6h-6i) and PD (6j-6k) statistics. Patients who had at least 4 total claims from the facility appear in these rows, even when there were fewer than 4 claims for the particular modality.

Transfusion Summary for Adult Medicare Dialysis Patients (6l-6q)

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 6.

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 2014 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.

Adult Medicare Dialysis Patients (6l)
The number of adult Medicare dialysis patients included in the transfusion summaries (6l) is generally smaller than the number of patients included in the mortality and hospitalization summaries (Tables 1 and 2) because of the exclusion criteria.

Patient Years at Risk (6m)
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 (6n)
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 HCPCS codes used to identify transfusion

events is included in a separate document available at www.Dialysisdata.org under the Methodology heading.

Expected Total Transfusion Events (6o)
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 transfusion rate for that interval, and a sum over the intervals gives 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 6o.

Standardized Transfusion Ratio (STrR) (6p)
The STrR is calculated by dividing the observed total admissions in 6n by the expected total admissions in 6o. 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 (6p)
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 (6q)
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 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.

Dialysis Adequacy

Urea Reduction Ratio (6r-6s)

We base the urea reduction ratio (URR) information reported in rows 6r-6s on all Medicare dialysis claims submitted by the 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 sessions per week, or if the patient was identified in CROWNWeb as having dialyzed four or more times per week during the month of the claim start date.

Row 6r reports the number of patients for whom at least four claims fulfilling the above criteria had been submitted for the facility for each year. A patient who had been treated at more than one facility during the year was included at both facilities in row 6s when the patient had at least four claims with URR at each facility. We assigned each patient in 6s 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.

Row 6s reports the percentile rank of the facility's URR (percentage of patients who met KDOQI guides for URR) for each year, relative to all other facilities in the state, Network, and nation.

Kt/V (K-dialyzer clearance of urea; t-dialysis time; V-patient's total body water) (6t-6ac)

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. The statistics are reported January-December 2011-2014 along with comparative regional and national data. A patient who had switched modalities during the month was included in both the hemodialysis and peritoneal dialysis eligible patient, and patient-month counts. A patient who had been treated at more than one facility during the month was included at both facilities when the patient had a claim at each facility.

Adult hemodialysis (HD) Kt/V (6t-6x)

The number of adult patients who had at least one valid Medicare HD claim submitted by the facility during the summary period is reported in row 6t. The number of adult patient-months with a valid claim is reported in row 6u. Patients may account for up to 12 patient-months per year. 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, had been on dialysis for at least 90 days, and was at least 18 years old. A patient who had been treated at more than one facility during the month was included at both facilities in rows 6t and 6u when the patient had a claim at each facility. A patient-month is excluded if any claim reported during the month of the claim start date met any of the following criteria (i.e., indicated as frequent): (1) reported a Kt/V value of 8.88, (2) covered seven or fewer days and had four or more sessions, (3) covered more than seven days and had a rate of four or more sessions per week, or (4) the patient was identified in CROWNWeb as having dialyzed four or more times per week. The last valid claim with an in-range Kt/V value reported (if applicable) was selected when there were multiple claims reported in a month.

The Kt/V value for a patient-month is characterized into five mutually exclusive categories: (1) in range (Kt/V value between 0.5 and 2.5 and not expired); (2) out of range (Kt/V value less than 0.5 or greater than 2.5); (3) missing (no Kt/V reported); (4) not performed (Kt/V reported as 9.99); or (5) 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).

The average Kt/V for HD patients at the facility is reported in row 6v and is based only on patient-months with Kt/V values in range. The percentages of all patient-months with in range claims stratified by Kt/V categories, and other non-valid categories, for each month for the facility are shown in 6w. The percentage of all patient-months with in range claims greater than or equal to 1.2, for hemodialysis patients, is reported in 6x. Patients with missing, not performed, expired or out of range Kt/V values (6w) are included in the denominator and may result in a lower percentage than expected.

Adult Peritoneal Dialysis Kt/V (6y-6ac)

The number of adult patients who had at least one valid Medicare peritoneal dialysis claim submitted by the facility during the summary period is reported in row 6y. The number of adult patient-months with a valid claim is reported in row 6z. Patients may account for up to 12 patient-months per year. A claim was defined as valid if it came from a peritoneal dialysis patient who had been on dialysis for at least 90 days and was at least 18 years old. The last valid claim with an in-range Kt/V value reported (if applicable) was selected when there were multiple claims reported in a month.

The Kt/V value for a patient-month is characterized into five mutually exclusive categories; (1) in range (Kt/V value between 0.5 and 5.0 and not expired); (2) out of range (Kt/V value less than 0.5 or greater than 5.0); (3) missing (no Kt/V reported); (4) not performed (Kt/V reported as 9.99); or (5) expired (Kt/V reported from more than four months prior).

The average Kt/V for PD patients at the facility is reported in row 6aa and is based only on patient-months with Kt/V values in range. The percentages of all patient-months with in range claims stratified by Kt/V categories, and other non-valid categories, for each month for the facility are shown in 6ab. The percentage of all patient-months with in range claims greater than or equal to 1.7, for peritoneal dialysis patients, is reported in 6ac. Patients with missing, not performed, expired or out of range Kt/V values (6ab) are included in the denominator and may result in a lower percentage than expected.

X. Vascular Access Information, CROWNWeb (May 2012 – December 2014)

Table 7 reports vascular access data from the CROWNWeb, which collects monthly data on vascular access from dialysis facilities. We summarized these data, from May 2012 – December 2014, reporting yearly averages for each facility. We also report comparison values for 2014 for the state, network and U.S.

Prevalent Hemodialysis Patient Months (7a)
The monthly prevalent hemodialysis patient count at a facility includes all non-transient patients (home and in-center) who receive hemodialysis as of the last day of that calendar month. Incident patients (those who received ESRD treatment for the first time ever) are included in this count. Row 7a reports the number of prevalent hemodialysis patient months reported at the facility each year. The number of patient months over a time period is the sum of patients reported for the months covered by the time period. An individual patient may contribute up to 12 patient months per year.

Vascular Access Type in Use (7b)
Row 7b reports the type of vascular access in use during the last hemodialysis treatment of the calendar month, summarized for each year. This row reports the percentage of patient months in 7a in which the patient received dialysis through arteriovenous (AV) fistulae, grafts, catheters or other access types for the last treatment of the month. Patients who had an AV graft or a catheter in use with an AV fistula in place for *future* use are included in the AV graft or catheter category. Port access devices are included in the catheter category. A patient's vascular access is classified as *Other* if it was different from the above categories (e.g., lifeline). Patients are classified as having missing access types if the vascular access data were missing from the record.

Arteriovenous (AV) Fistulae Placed (7c)
Row 7c reports the average percentage of patient months in 7a in which an AV fistula was in place at the time of the last treatment of the month, regardless of whether the patient received hemodialysis treatment using this AV fistula.

Catheter Only ≥ 90 Days (7d)
Row 7d reports the average percentage of patient months in 7a in which a catheter was in use at the last treatment of the month; a catheter was the *only* means of vascular access (i.e., patient did not have an AV fistula or AV graft in place); and the catheter was in

place for at least 90 days prior to treatment. Again, port access devices are included in the catheter category.

Incident Hemodialysis Patients (7e)
Row 7e reports the total number of incident hemodialysis patients at the facility each year. The average number of incident patients during 2014 is reported for comparison for the state, network and U.S. Incident hemodialysis patients are non-transient hemodialysis patients (home and in-center) who received their first-ever ESRD treatment during the month for which the data was reported. These patients are a subset of prevalent patients.

Vascular Access Type in Use (7f)
Row 7f reports the first vascular access type recorded in CROWNWeb after first-ever ESRD treatment for the incident patients, summarized for each year. This row reports the percentage of incident hemodialysis patients in 7e who received dialysis through AV fistulae, AV grafts, catheters, or other access types. Patients who had an AV graft or a catheter in use with an AV fistula in place for *future* use are included in the *AV graft or catheter* category. Port access devices are included in the catheter category. A patient's vascular access is classified as *Other* if it was different from the above categories (e.g., lifeline). Patients are classified as having missing access types if the vascular access data were missing from the record.

Arteriovenous (AV) Fistulae Placed (7g)
Row 7g reports the percentage of incident patients in 7e with an AV fistula in place at the last treatment. Patients with an AV fistula in place are included in this row regardless of whether they received their hemodialysis treatments using the fistula.

XI. Dialysis Access Type and Access-Related Infection Summary for Medicare Dialysis Patients, 2011-2014

This table includes summaries of the vascular access types reported by V modifiers and dialysis access-related infection rates reported by ICD-9 codes among patients in the facility, along with comparative regional and national data.

Vascular Access
This section of the table includes summaries of facility vascular access type for adult patients as reported in Medicare claims using V modifiers collected beginning July 2010. The statistics are reported for full-year 2011-2014. 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 for a facility if the patient's modality was listed as hemodialysis on the last claim of the month. 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. For the regional calculations, the month will be included only once for that patient. Please note that the number of eligible patient-months for the statistics calculated in rows 8b-c are not necessarily the same as the numbers shown in row 8e because they are based on different criteria. Pediatric patient statistics for fistula and catheter use can be found in the pediatric table. In addition, State and U.S. averages

may differ from values in the DFC report due to the difference in number of facilities receiving a report.

Eligible hemodialysis patient-months (8a)
The number of adult Medicare patient-months with at least one valid claim submitted by the facility are summed and reported in 8a. An individual patient may contribute up to 12 patient-months per year and a patient can be included in their first month of ESRD. A claim was defined as valid if it came from a HD patient who was at least 18 years old.8a.

Hemodialysis Vascular Access Type (8b-c)
Row 8b shows the percentage of adult HD patients at each facility with vascular catheter, arteriovenous (AV) graft, AV fistula, or other access type. These data are reported using V modifiers V5-V7 in Medicare claims. Row 8c reports the percent of HD patients at the facility with a vascular catheter reported as access type in use for all claims for at least three consecutive months. Medicare claims listing multiple access types prior to 2012 are not included in the numerators of the vascular access type summaries. Starting in January 2012, claims listing a catheter and either a fistula or graft are reported in the fistula or graft summaries respectively. This is due to changes in vascular access reporting instructions on Medicare claims. Claims listing both graft and fistula are not reported as either access type.

Assignment of Patients to Facilities (Access-Related Infection section only)
Similar to the hospitalization and comorbidity tables, the determination of periods of Medicare coverage is based on periods in which the dialysis patient had satisfied the Medicare payment criterion. For each patient, a month is considered '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. For more information on the Medicare payment criterion, please see Section V.

Any patient treated with dialysis at a facility during a particular month is included in that facility's statistics so long as they also meet the Medicare criteria described above for that month. There is no exclusion of the first 90 days of treatment and patients treated at more than one facility in a particular month are included at both facilities that month. A patient can be included in both the hemodialysis and peritoneal dialysis sections of the table for a particular month if they received both types of treatment that month. For the regional calculations, the month will be included only once for that patient. Treatment modality is identified using a combination of Medicare-paid dialysis claims, the Medical Evidence Form (Form CMS-2728), transplant registration data from the OPTN, and data from the CROWNWeb. Starting with the first date of ESRD service, we determined treatment histories for each patient. Using the above data sources to determine whether a patient has transferred to another treatment modality, CROWNWeb is given precedence.

The ICD-9 codes for dialysis-access related infection reported on this table are 996.62 and 996.68 and are collected from inpatient, outpatient and physician supplier Medicare claims. For a definition of ICD-9 codes, please see the list of diagnostic codes included in a separate document available at www.Dialysisdata.org under the Methodology heading.

Hemodialysis (HD): Eligible HD patients and Eligible HD patient-months (8d-e)
The number of Medicare hemodialysis patients treated at the facility during at least one month during the year or four-year period is reported in row 8d. The total number of months during which each patient is treated with hemodialysis at the facility are summed and reported in row 8e. Please refer to section III above for additional detail regarding patient assignment.

HD infection rate per 100 patient-months (8f)
This statistic shows the rate of dialysis access-related infection in HD patients during each year. For each month included in row 8e, the patient is considered to have had an access-related infection during the month if there was a Medicare claim with ICD-9 code 996.62 during that month. The rate is calculated by summing the patient-months with an access-related infection and dividing by the number of eligible HD patient-months in row 8e. The number is then converted to a rate per 100 HD patient-months. Patients can only contribute one dialysis access-related infection to a facility during a month. If the patient is treated at two facilities with HD in a month with an infection, the infection is counted at both facilities. For the regional summaries, the infection will only be counted once in the region.

P-value (compared to U.S. value) (8g)
A one-sided p-value is used to test the hypothesis that the rate of HD patients with dialysis access-related infection per 100 HD patient-months, reported in row 8f, is higher (or lower) than the U.S. value for that year. A low p-value means that the chances are low that the facility rate was higher or lower than the national rate merely because of random variation. A p-value of less than 0.05 usually indicates a statistically significant result. You should also use the absolute magnitude of the difference between the facility and national rate of hemodialysis patients with dialysis access-related infection to determine its clinical importance.

Peritoneal Dialysis (PD): Eligible PD patients and Eligible PD patient-months (8h-i)
The number of Medicare PD patients treated at the facility during at least one month during the year or four-year period is reported in row 8h. The total number of months during which each patient is treated with PD at the facility are summed and reported in row 8i. The *Assignment of Patients to Facilities* section above provides additional detail.

PD catheter infection rate per 100 PD patient-months (8j)
This statistic shows the rate of PD catheter infection in peritoneal dialysis patients during each year. For each month included in row 8i, the patient is considered to have had a PD catheter infection if there was a Medicare claim with ICD-9 code 996.68 during that month. The rate is calculated by summing the patient-months with a PD catheter infection and dividing by the number of eligible PD patient-months in row 8i. The number is then converted to a rate per 100 PD patient-months. Patients can only contribute one dialysis access-related infection to a facility during a month. If the patient is treated at two facilities with PD in a month with an infection, the infection is counted at both facilities. For the regional summaries, the infection will only be counted once in the region.

P-value (compared to U.S. value) (8k)
We used a one-sided p-value to test the hypothesis that the rate of PD patients with peritoneal dialysis catheter infection per 100 PD patient-months, reported in row 8k, is higher (or lower) than the U.S. value for that year.

XII. Characteristics of New Dialysis Patients, 2011-2014 (Form CMS-2728)

Table 9 presents detailed data from the ESRD Medical Evidence Form (Form CMS-2728) on the characteristics of new patients in the facility by year. State, Network and national averages for 2014 are also shown for comparison. The patients represented in this table were hemodialysis and peritoneal dialysis patients who **started dialysis** between January 1, 2010 and December 31, 2014. Please note that we placed the patients included here *not* according to the conventions described in Section III, but rather according to the CMS certification number that appeared on their Medical Evidence Forms.

For each patient characteristic, we present the average value for the facility as well as state, Network, and U.S. averages. We excluded from the calculations values for individual patients which fell outside the ranges shown in brackets [] on this table because we considered them to be clinically implausible.

Patient Characteristics (9a-9m)
Row 9a of this table gives the total number of forms submitted by the facility for the year. Rows 9b-9m deal with the patients' demographic characteristics, including their age, sex, ethnicity, race, medical coverage, body mass index, primary cause of ESRD, employment, primary modality, and access type.

Average Lab Values Prior to Dialysis (9n-9q)
Rows 9n through 9q report lab values prior to the start of ESRD. We estimated the glomerular filtration rate (GFR) reported in row 9q using a formula developed by the Modification of Diet in Renal Disease (MDRD) Study (Levey et al, 1999) — a formula based on serum creatinine before first dialysis, age, race, and gender.

Nephrologist Care Prior to Start of ESRD Therapy (9r, 9s)
Row 9s reports the percentage of patients in 9a who had been under the care of a nephrologist prior to the start of ESRD therapy by categories of time (never, <6 months, 6-12 months, >12 months) and of patients with missing or unknown information about nephrologist care prior to the start of ESRD therapy.

Kidney Transplant Options (9t-9v)
Row 9t reports the percentage of patients in 9a who had been informed of transplant options. Row 9u gives the count of patients who were not informed of their transplant options. The reasons for not informing the patients reported in 9u of their transplant options (due to being medically unfit, unsuitable due to age, psychologically unfit, declining the information, or not yet being assessed) are reported in row 9v.

Comorbid Conditions (9w, 9x)
Row 9w reports the percentage of patients in the facility with each of the comorbid conditions (measured before the start of dialysis) listed. The 2005 changes in Form CMS-2728 have affected the cardiac and diabetes listings; note that 'Ischemic Heart Disease' and 'Myocardial Infarction' are included in *Atherosclerotic Heart Disease (ASHD)*, and 'Cardiac Arrest', 'Cardiac Dysrhythmia', and 'Pericarditis' are included in *Other Cardiac Disease*. Row 9x gives the average number of comorbid conditions reported per new patient in the facility, the state, the Network, and the nation.

XIII. Summaries for All Dialysis Patients Treated as of December 31 of Each Year, 2011-2014

Table 10 summarizes the characteristics of dialysis patients treated on December 31, 2011-2014 in the facility, with corresponding average values for 2014 among patients in the state, ESRD Network, and the U.S.

Patients Treated on 12/31 of Year (10a)
Row 10a reports the total number of dialysis patients treated in the facility on December 31 of each year according to the conventions described in Section III. We based the summaries of the patient characteristics in Table 10 on the patient population count in this row.

Age (10b, 10c)
We determined age as of December 31 for each patient for each year. We reported the average age and the percentage of patients in each of several age ranges.

Female (10d)
Row 10d reports the percentage of female patients.

Race (10e)
We established each patient's race using two sources of information: the Medical Evidence Form and CROWNWeb. We reported the percentage of patients in each of five race categories: Asian/Pacific Islander (includes Indian sub-continent), African American, Native American (includes Alaskan Native), White (includes Middle Eastern and Arabian), and a combined group for other/unknown/missing race. The 'other/unknown/missing race' category includes patients for whom none of the other race categories was indicated on any of the above sources.

Ethnicity (10f)
We obtained the ethnicity of patients from the CMS Medical Evidence Form, and supplemented it with the ESRD Clinical Performance Measures data sample when available. We reported the percentage of patients in the Hispanic and Non-Hispanic categories.

Primary Cause of ESRD (10g)
We ascertained each patient's cause of ESRD using two sources of information: the Medical Evidence Form and CROWNWeb. We reported the percentage of patients in each of five major cause groups: diabetes; hypertension; glomerulonephritis; other/unknown; and missing cause.

Duration of ESRD (10h, 10i)
We calculated the number of years since first renal replacement therapy for each patient treated in the facility on December 31 of each year. Row 10h reports the average number of years of prior ESRD therapy. Row 10i displays ranges of years since start of ESRD and the corresponding percentages of patients per range.

Nursing Facility Patients (10j)
We obtained the nursing facility history of patients from the Nursing Home Minimum Dataset. We reported the percentage of patients treated on December 31 of each year that were also treated at a nursing facility at any time during the year.

Modality (10k)
Row 10k reports the percent of patients on chronic dialysis treatment at the facility (%10a) receiving dialysis through the following modalities: In-center hemodialysis, Home hemodialysis, Continuous ambulatory peritoneal dialysis, Continuous cycling peritoneal dialysis and other. The 'Other' modality category includes other dialysis, uncertain modality, and patients not on dialysis but still temporarily assigned to the facility (discontinued dialysis, recovered renal function, and lost to follow-up.)

XIV. Comorbidities Reported on Medicare Claims for Medicare Dialysis Patients Treated as of December 31 of Each Year, 2011–2014

Table 11 reports comorbid conditions identified on Medicare claims for Medicare dialysis patients treated on December 31 of each year (2011-2014) in the facility, with corresponding average values for 2014 among patients in the state, network and U.S. Comorbidities are determined on the basis of each patient's Medicare claims for the period, including inpatient stays, outpatient visits and physician services. Claims from providers, such as laboratories, that report diagnosis codes when testing for the presence of a condition are excluded. A detailed list of ICD-9 diagnostic codes and HCPCS CPT codes used to identify comorbidities is included in a separate document available at www.Dialysisdata.org under the Methodology heading.

Like the hospitalization table, this table includes only patients who are covered by Medicare (so that Medicare billing records have complete information about the patient). To achieve this goal, we use the criterion described in Section V for the hospitalization statistics. Patient periods are included if each month in the period is within two months after the end of a month having either a) at least $900 of Medicare-paid dialysis claims or b) at least one Medicare-paid inpatient claim. This table is then further restricted to patients treated at the facility at the end of the year.

Patients Treated on 12/31 of Year (11a)
Row 11a reports the total number of Medicare dialysis patients treated in the facility on December 31 of each year, according to the conventions described in Section III, who also satisfy the criterion described above for assuring that Medicare claims data are complete for the patient. We based the summaries of the patient characteristics in Table 11 on the patient population count in this row.

Comorbid Conditions (11b)
Row 11b reports the percentage of patients in the facility with each of the comorbid conditions listed.

Average Number of Comorbid Conditions (11c)
Row 11c reports the average number of the comorbid conditions listed in 11b on Medicare claims for patients in the facility.

XV. How Patients Were Assigned to This Facility and End of Year Patient Status, 2011-2014

An important purpose of this report is to provide and seek feedback on the quality of these data. Much of this report relies on a reasonably accurate and complete description of the patients being treated in each facility at a particular point in time. We believe the overall results warrant a high level of confidence in the assignment of patients to providers. The UM-KECC will continue its efforts to measure and improve the quality of all data presented in this report through comparisons with other available data sources.

Number of Patients Placed in Facility (12a)
Row 12a gives the total number of patients who have been placed in the facility for the mortality summary according to the conventions described in Section III. This number is identical to 1a — the number of patients included in the mortality summaries.

Initial Patient Placement for the Year in This Facility (12b)
Patients entered the facility in one of three ways: as a continuing patient from the previous year; as new to dialysis this year at the facility; as a transfer into the facility during the year. Item 12b reports the percentage of patients who entered the facility each way. We considered a patient who initiated dialysis treatment at one facility and then transferred to another later that year as both new to dialysis at the first facility and transferred into the facility for the second. We considered patients returning to dialysis after transplant as a transfer into the facility.

Patient Status at End of Year (12c)
Row 12c reports the status at year's end for each patient who was placed in the facility. The categories include patients who were alive and receiving treatment in the facility, who were alive and receiving treatment in another facility, who received a transplant, who died and whose death was attributed to the facility, and who died and whose death was attributed to another facility, as well as all other patients. 'Other patients' includes those who recovered renal function, who discontinued dialysis, or who were lost to

follow-up. It also includes dialysis-unrelated deaths. For the purposes of this report's mortality calculations, we did not attribute dialysis-unrelated deaths to any facility.

XVI. Patient and Staff Counts from Annual Facility Survey (Form CMS 2744), 2011–2014

Table 13 reports patient counts according to the Annual Facility Survey (Form CMS-2744) as of May 31, 2015. Facilities self-report this information and submit the data to their respective Network. The table reports the number of patients who were treated in the facility from 2011–2014, and regional averages for 2014 are shown for comparison.

Patients Treated during the Year (13a–13d)
Row 13a reports the number of patients who were treated during each year. Rows 13b–13d report the percentage of these patients who were incident, transferred into the facility or transferred out of the facility during each year. These numbers include both outpatient and home dialysis patients.

Patients Treated as of 12/31 (13e–13h)
Row 13e reports the number of patients who were treated as of December 31 of each year. Row 13f reports patient modality counts. The percentage of patients aged 18-54 who are employed and/or are attending school (full or part-time) are reported in row 13g. Row 13h reports the percentage of patients who had Medicare coverage, had a Medicare application pending or were non-Medicare patients.

Staffing (13i, 13j)
Row 13i reports the total number of full- and part-time staff positions at the facility as of December 31 of the year. This includes positions that were opened but not filled on this date. Row 13j reports the number of positions in row 13i broken down by type of position. For the purposes of the Annual Facility Survey, a full-time position is defined as a position with at least 32 hours of employment a week, and a part-time position is defined as a position with less than 32 hours of employment a week. In this report, nurses include all staff holding a registered nurse, licensed practical nurse, vocational nurse or an advanced practice nurse degree.

XVII. CROWNWeb Clinical Data, May 2012 – December 2014

This table reports various facility information collected in CROWNWeb. CROWNWeb began national data collection in May 2012. Therefore, the statistics for 2012 do not cover the whole year. Average values for the most current year are also reported among patients in the state, Network, and U.S.

Eligible patients and patient-months (14a-14f)
The number of adult patients on dialysis for at least 90 days and in the facility for a whole calendar month is reported in row 14a. Rows 14c and 14e report the number of adult hemodialysis (HD) and peritoneal dialysis (PD) patients, respectively. If a patient switched modality during the year, that patient would be counted as both an HD and a PD

patient. The number of patient-months for all adult, adult HD, and adult PD patients is reported in rows 14b, 14d, and 14f, respectively. A patient must have been treated for a whole month at one facility in order to be counted for that facility.

Hemodialysis Adequacy (14g-14n)

The Kt/V value was assessed among HD adult patients in 14d who also dialyzed three times per week. The number of patients meeting these criteria is reported in 14g, and the number of patient-months is reported in 14h. The Kt/V value for a patient-month was characterized into three mutually exclusive categories: missing (no Kt/V reported), in range (Kt/V value between 0.5 and 2.5), and out of range (Kt/V value less than 0.5 or greater than 2.5). The average Kt/V for HD adult patients at the facility is reported in row 14i and is based only on patient-months in 14h with Kt/V values in range. The percentages of all patient-months with in range values stratified by Kt/V categories, and missing/out of range values, for each month for the facility are shown in 14j. The normalized protein catabolic rate (nPCR) value was assessed among all eligible HD patientmonths in 14d and was characterized into three mutually exclusive categories: missing (no nPCR reported), in range (nPCR value between 0 and 2.0), and out of range (nPCR value greater than 2.0). The average nPCR for HD adult patients at the facility is reported in 14k and is based only on eligible patient-months in 14d with in range values. Missing and out-of-range values are grouped together and reported in 14l as a percentage of eligible HD patient-months (14d). The ultrafiltration rate (UFR) was assessed among all eligible HD patients in 14d and was characterized into three mutually exclusive categories: missing (no UFR reported), in range (UFR between 0 and 20 ml/kg/hr), and out of range (UFR greater than 20 ml/kg/hr). The average UFR for HD adult patients is reported in 14m and is based only on eligible patient-months in 14d with in range values. The percentages of all patient-months with in range values stratified by UFR categories, and missing/out of range values, for each month for the facility are shown in 14n.

Peritoneal Dialysis Adequacy (14o-14r)

Peritoneal dialysis Kt/V values are only required in CROWNWeb every four months. Therefore, our analysis supplemented a missing PD Kt/V value with the most recent available value recorded up to 3 months prior. If all values in a 4-month look-back period were missing, then the PD Kt/V value was considered missing for that month. The Kt/V value for a patient-month was characterized into three mutually exclusive categories: missing (no Kt/V reported), in range (Kt/V value between 0.5 and 5.0), and out of range (Kt/V value less than 0.5 or greater than 5.0). The average Kt/V for PD adult patients at the facility is reported in row 14o and is based only on patient-months in 14f with Kt/V values in range. The percentages of all patient-months with in range values stratified by Kt/V categories, and missing/out of range values, for each month for the facility are shown in 14p. The nPCR value for a patient-month is similarly characterized into three mutually exclusive categories: missing (no nPCR reported), in range (nPCR value between 0 and 2.0), and out of range (nPCR value greater than 2.0). The average nPCR for adult PD patients is reported in 14q and is based only on patient-months in 14f with in range values. Missing and out-of-range values are grouped together and reported in 14r as a percentage of eligible PD patient-months (14f).

Anemia (14s-14u)
The average hemoglobin for HD and PD adult patients at the facility is reported in row 14s and is based only on patient-months in row 14b with values in range (between 5 g/dL and 20 g/dL). The percentages of all patient-months with in range values, , stratified by hemoglobin categories, and other non-valid categories, for each month for the facility are shown in 14t. The percentage of patient-months from row 14b for which a dialysis patient was prescribed an ESA is reported in 14u.

Iron (14v-14ac)
The average reticulocyte hemoglobin content (CHr) for HD and PD adult patients at the facility is reported in row 14v and is based only on patient-months in row 14b with values in range (1pg and 98pg). The percentages of all patient-months in row 14b with in range values, , stratified by CHr categories and other non-valid categories, for each month for the facility are shown in 14w. The average transferrin saturation (TSAT) value for HD and PD adult patients at the facility is reported in row 14x and is based only on patient-months in 14b with values in range (between 7 and 83). The percentages of all patient-months with in range values stratified by TSAT categories, and other non-valid categories, for each month for the facility are shown in 14y. The average ferritin for HD and PD adult patients at the facility is reported in row 14z and is based only on patient-months in 14b with values in range (between 7 and 83). The percentages of all patient-months with in range values stratified by ferritin categories, and other non-valid categories, for each month for the facility are shown in 14aa. The percentage of patient-months for which an adult HD or PD patient was prescribed intravenous iron is reported in 14ab while the percentage prescribed oral iron is shown in 14ac.

Mineral Metabolism (14ad-14ag)
The average phosphorus for HD and PD adult patients at the facility is reported in row 14ad and is based only on patient-months in row 14b with values in range (0.1 mg/dl to 20 mg/dl). The percentages of all patient-months with in range values stratified by phosphorus categories, and other non-valid categories, for each month for the facility are shown in 14ae. The average uncorrected calcium value for HD and PD adult patients at the facility is reported in row 14af and is based only on patient-months in row 14b with values in range (0.1 mg/dl to 20 mg/dl). The percentages of all patient-months with in range values stratified by uncorrected calcium categories, and other non-valid categories, for each month for the facility are shown in 14ag.

XVIII. Survey and Certification Activity

Table 15 reports this facility's latest survey and certification information under the updated ESRD Condition for Coverage (CfC) regulations. If this facility has not been surveyed since January 2009—if its last survey was conducted using the old ESRD regulations—this table contains no facility-level information. We obtain these data from the CMS Computing System as of June 2015.

Date and Type of Last Survey (15a, 15b)
Row 15a reports the date of the most recent survey, and row 15b reports the type of survey (initial, recertification or termination).

Compliance Condition after Last Survey (15c)
Row 15c reports the facility's compliance condition after the last survey. The facility either met requirements, did not meet requirements but had an acceptable plan of correction, or did not meet requirements.

Deficiencies Cited at Last Survey (15d, 15e)
Row 15d reports the total number of CfC deficiencies and the number of standard deficiencies cited during the last survey. Row 15d also includes state, network and national summaries of these deficiency counts.

Row 15e reports whether the facility was cited for a particular CfC and includes state, network and national percentages of surveys that included the particular CfC citation.

XIX. Facility Information, 2014

Table 16 reports the ownership type, organization name, initial Medicare certification date, number of stations, types of services provided by the facility, whether the facility provides shifts after 5pm and/or practices dialyzer reuse, the CMS certification number and the National Provider Identifier (NPI) associated with the facility. The NPI is based on data reported in CROWNWeb as of December 31, 2014 and is not being used for patient placement.. All other information reported in this table was based on data available in CROWNWeb as of June, 2015. Other CMS certification numbers from which data have been included in this report are also listed in this table.

XX. Selected Measures for Dialysis Patients under Age 18 (2011 - 2014)

Table 17 reports selected measures from the Dialysis Facility Report tables restricted to the pediatric population. This table compares the characteristics of the facility's pediatric patients, their patterns of treatment, and patterns in transplantation, hospitalization, and mortality to local and national averages. This table is created only for those facilities that treated at least five pediatric patients over the four year period. All pediatric patients, even those at facilities treating very few pediatric patients are include in the regional averages.

Since item numbers in this pediatric table correspond with the same item number in the parent table, please refer to parent section of this *DFR Guide* for more information on the pediatric measures described below. For example, 17.1a is the same measure as item 1a of Table 1 of the DFR, but restricted to pediatric patients only.

The pediatric mortality, hospitalization, and transplantation measures for the facility are shown for each year and as well as for the four-year period combined. The remaining

sections report patient characteristics and practice patterns for the facility each year from 2011-2014, as well as regional averages for 2014 for comparison.

Because pediatric patients make up a very small proportion of dialysis patients nationally, the average number of pediatric patients per facility is extremely low. These average counts are not useful for comparison with counts from facilities treating more pediatric patients, so the state, Network, and U.S. average counts have been suppressed from the table. The regional percentages shown for comparison are calculated based on all pediatric patients in the state, Network or U.S.

Note that for the HD Kt/V section (17.6p-17.6t), a claim was defined as valid if it was from a hemodialysis patient who received dialysis greater than two and less than five times a week, as opposed to less than four times for adults.

XXI. 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. Facility-specific comments may be submitted on the secure portion of www.Dialysisdata.org by authorized users only. General methodological questions may be submitted by anyone using the form available on the "Contact Us" tab on www.Dialysisdata.org.

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