

# 2005 End Stage Renal Disease Clinical Performance Measures Reliability Report

**Submitted to:**

Diane Frankenfield, DrPH, Project Officer  
Division of Acute and Chronic Disease Management  
Quality Measurement and Health Assessment Group  
Centers for Medicare & Medicaid Services  
7500 Security Boulevard, S3-02-01  
Baltimore, MD 21244

**July 2006**

**Submitted by:**

URREA/KECC  
315 W. Huron, Suite 360  
Ann Arbor, MI 48103

This material was prepared by URREA/KECC, under a contract with the Centers for Medicare & Medicaid Services (CMS), an agency of the U.S. Department of Health and Human Services. The contents presented do not necessarily reflect CMS policy.

# Table of Contents

## 2005 ESRD CPM Reliability Report, Part I

Executive Summary .....	1
Introduction .....	4
Background .....	4
Project Methods.....	5
Results .....	7
Hemodialysis Data Elements .....	7
Peritoneal Dialysis Data Elements.....	8
Reliability from Year to Year.....	9
Conclusions .....	11

### Tables

Table 1: Calculation of data concurrence and Kappa Statistics.....	12
--	----

### Hemodialysis Data Elements

Table 2: Comparison of categorical data abstracted by dialysis facility staff to categorical data re-abstracted by ESRD Network staff for selected hemodialysis data elements.....	13
Table 3: Comparison of means for continuous data abstracted by dialysis facility staff to continuous data re-abstracted by ESRD Network staff for selected hemodialysis data elements (excluding data elements related to vascular access) .....	15
Table 4: Recorded weekly single-pooled Kt/V [Question20C] .....	19
Table 5: Method used to calculate the recorded single-pooled Kt/V [Question 20D].....	20
Table 6: Residual urine function used to calculate weekly Kt/V [Question 20E] .....	22
Table 7: Hemoglobin $\geq$ 9gm/dL [Question 18A].....	23
Table 8: Hemoglobin $\geq$ 11 gm/dL [Question 18A].....	24
Table 9: Serum ferritin concentration [Question 18C] .....	25

Table 10: Percent transferrin saturation [Question 18D] .....	26
Table 11: Epoetin prescription [Question 18B1a] .....	27
Table 12: Prescribed route of epoetin administration [Question 18B4a].....	28
Table 13: Serum albumin values ( $\geq 3.5/3.2$ gm/dL by BCG/BCP methods) [Question 19A and 19B] .....	29
Table 14: Laboratory method used to measure serum albumin in Table 13 [Question 19B].....	30
Table 15: The type of access used on the last hemodialysis session on or between October 1, 2004 and December 31, 2004 [Question 21] .....	31
Table 16: Reason for catheter or port access, if used for access between October 1, 2004 and December 31, 2004 [Question 21C1].....	32
Table 17: Catheter or port access used exclusively as access $\geq 90$ days between October 1, 2004 and December 31, 2004 [Question 21C2].....	33
Table 18: The presence of routine monitoring for stenosis when AV grafts or AV fistulae were used for access between October 1, 2004 and December 31, 2004 [Question 21B1].....	33
Table 19a-e: The routine stenosis monitoring method used between October 1, 2004 and December 31, 2004 when AV grafts or AV fistulae were used for access [Question 21B2].....	34
Table 20: The type of access used at the initiation of a maintenance course of hemodialysis, if between January 1, 2004 and August 31, 2004 [Question 22A] .....	36
Table 21: The type of access used 90 days after the date in Table 20 during the initiation of hemodialysis, if between January 1, 2004 and August 31, 2004 [Question 22B] .....	37
Table 22: Limb amputation(s) prior to December 31, 2004 [Question 15] .....	38
Table 23: Number of prescribed hemodialysis times per week [Question 20A] .....	39
Table 24: Ethnicity [Question 13].....	40
Table 25: Diabetes diagnosis [Question 16] .....	41
Table 26: Medication use for diabetes control [Question 17].....	42
Table 27: Insulin use for diabetes [Question 17] .....	43
Table 28: Agreement rate of data abstracted by dialysis facility staff to data re-abstracted by ESRD Network staff for selected hemodialysis data elements .....	44

## Peritoneal Dialysis Data Elements

Table 29: Comparison of categorical data abstracted by dialysis facility staff to categorical data re-abstracted by ESRD Network staff for selected peritoneal dialysis data elements .....	45
Table 30: Comparison of means for continuous data abstracted by dialysis facility staff to continuous data re-abstracted by ESRD Network staff for selected peritoneal dialysis data elements .....	46
Table 31: Total weekly $Kt/V_{urea}$ [Question 21D] .....	49
Table 32: Method by which V was calculated in the total weekly $Kt/V_{urea}$ [Question 21E]..	50
Table 33: Total weekly creatinine clearance [Question 21F] .....	51
Table 34: Creatinine clearance corrected for body surface area, using standard methods [Question 21G] .....	52
Table 35: Hemoglobin $\geq 9$ gm/dL [Question 18A].....	53
Table 36: Hemoglobin $\geq 11$ gm/dL [Question 18A].....	54
Table 37: Serum ferritin concentration [Question 18C] .....	55
Table 38: Percent transferrin saturation [Question 18D] .....	56
Table 39: Epoetin prescription [Question 18B1a] .....	57
Table 40: Prescribed route of epoetin administration [Question 18B4a].....	58
Table 41: Serum albumin values ( $\geq 3.5/3.2$ gm/dL by BCG/BCP methods) [Question 19A and 19B] .....	59
Table 42: Laboratory method used to measure serum albumin in Table 41 [Question 19B].....	60
Table 43: Number of CAPD peritoneal dialysis days per week [Question 22A1 & 24A1] .	61
Table 44: Total number of dialysis exchanges per 24 hours for CAPD patients [Question 22A3 & 24A3].....	62
Table 45: Total number of dialysis exchanges during the nighttime for cycler patients [Question 22B4b] .....	63
Table 46: Total number of dialysis exchanges during the daytime for cycler patients [Question 22B5b] .....	64
Table 47: Prescription changed [Question 22C2] .....	65

Table 48: Limb amputation(s) prior to March 31, 2005 [Question 15] .....	66
Table 49: Ethnicity [Question 13].....	67
Table 50: Diabetes diagnosis [Question 16] .....	68
Table 51: Medication use for diabetes control [Question 17].....	69
Table 52: Insulin use for diabetes [Question 17] .....	70
Table 53: Agreement rate of data abstracted by dialysis facility staff to data re-abstracted by ESRD Network staff for selected peritoneal dialysis data elements .....	71

## **2005 ESRD CPM Reliability Report, Part II**

Supplemental LDO Report .....	73
Table A: Percent Concurrence of Original (Electronic) and Revised LDO Data Compared to Network Abstracted Data by LDO for Hemodialysis Patients .....	75
Table B: Percent Concurrence of Original (Electronic) and Revised LDO Data Compared to Network Abstracted Data by LDO for Peritoneal Dialysis Patients.....	83

# 2005 End Stage Renal Disease Clinical Performance Measures Reliability Report Executive Summary

## Background

In 2006, University Renal Research and Education Association (URREA) was selected by the Centers for Medicare & Medicaid Services (CMS) to analyze the inter-rater reliability for the data collected for the End Stage Renal Disease Clinical Performance Measures (CPM) Project. Previously, Qualis Health produced this report. This project is a component of the Medicare End Stage Renal Disease (ESRD) Program, which was established in 1972 under the Social Security Act.

For the 2005 ESRD CPM Project, facilities that were not part of one of the five Large Dialysis Organizations (LDOs) submitted manually collected data from the medical records of national random samples of adult ( $\geq 18$  years) hemodialysis and peritoneal dialysis patients and the identified universe of in-center pediatric hemodialysis and peritoneal dialysis patients. The LDOs submitted some elements electronically from their corporate data repositories for the sampled patients in their facilities. For the remaining data elements not submitted electronically from their corporate data repositories, LDO-facility staff manually completed and submitted the information. The reliability sample was obtained by randomly selecting a sufficient number of patient records for each of the LDOs and for the group of non-LDO facilities to obtain stable estimates. Fifty (50) hemodialysis patient records were randomly selected from each of four of the LDOs and for the group of non-LDO facilities and 20 (all) hemodialysis patient records were chosen from National Nephrology Associates. For peritoneal dialysis patients, 30 patient records were selected from each group except NNA, which had only one patient record (all) selected. The ESRD Networks were asked to re-abstract the data for these patients from medical records.

Twelve pediatric hemodialysis patients and 41 pediatric peritoneal dialysis patients were chosen at random and are included in this report along with adult patients.

The facility-abstracted data and Network re-abstracted data were sent to URREA to analyze and assess the extent to which there was concurrence between the two data files—the inter-rater reliability. Additional analysis was done for this year's report comparing the reliability of the originally submitted (electronic) LDO data to the Network re-abstracted data and the revised (facility-updated) LDO data to the Network re-abstracted data. This analysis follows this report and is titled *ESRD CPM Reliability Report, Part II*.

## Project Methods

To analyze the inter-rater reliability of the ESRD CPM data, the software program SAS for Windows, version 9.1 was used to compute agreement rates, levels of concurrence, and kappa statistics. Agreement rates were conducted on continuous data, and kappa statistics and levels of concurrence jointly used to analyze categorical data.

Inter-rater reliability statistics were calculated for the following in-center hemodialysis and peritoneal dialysis categories: adequacy of dialysis data, anemia management, serum albumin, and other data elements including diabetes diagnosis, limb amputation, and ethnicity. In addition, for in-center hemodialysis, statistics on vascular access were calculated, and for peritoneal dialysis, statistics on dialysis prescription were calculated.

## Results

### Hemodialysis Data Elements

In comparing the data collection forms used by the facilities and Networks to abstract data for the hemodialysis data elements, matched forms were available for the 270 randomly selected medical records. An analysis of the categorical data abstracted by facilities and Networks for these CPMs showed almost perfect to substantial agreement for data elements relating to adequacy of dialysis, anemia management, serum albumin, and vascular access. Only moderate agreement was seen for prescribed dialysis times per week.

The inter-rater reliability analysis for each of the non-skip pattern tested data elements showed agreement that ranged from less than moderate to perfect as calculated by the kappa statistic (kappa range: 0.30 to 1.00), and the level of concurrence for non-missing values was acceptable ( $\geq 90\%$ ) for 39 out of 52 data elements (Tables 4-27). The agreement rates for facility data compared to Network data for selected hemodialysis data elements were acceptable ( $\geq 80\%$ ) for 15 out of 19 elements (Table 28).

### Peritoneal Dialysis Data Elements

For the peritoneal dialysis data elements, facility and Network record abstraction provided 151 matched data collection forms. A comparison of the categorical data abstracted for selected data elements showed that agreement ranged from low to almost perfect.

The inter-rater reliability analysis for each of the tested data elements showed agreement that ranged from below moderate to almost perfect as calculated by the kappa statistic (kappa range: -0.08 to 1.00), and the level of concurrence for non-missing values was acceptable ( $\geq 90\%$ ) for 40 out of 47 data elements (Tables 31-52). The agreement rates for facility data compared to Network data for selected peritoneal dialysis data elements were acceptable ( $\geq 80\%$ ) for 18 out of 29 acceptable (Table 53).

### Reliability from Year to Year

In 2005, the inter-rater reliability of a number of data elements improved over 2004. Significant improvement was observed for 31 data elements. An item's kappa statistic was considered to have improved significantly in 2005 if it had a  $\geq 0.1$  increase over 2004 and a shift upward in its categorical agreement rating. Likewise, an item's kappa statistic was considered to have declined significantly if it had a  $\geq 0.1$  decrease from the previous year and there was a shift downwards in its categorical agreement rating. In 2005, a decline was observed for 13 data elements.

Note that missing values in the facility abstracted data are most often confirmed as missing values by the Network re-abstracted data. However, missing values in the Network re-abstracted data are often non-missing in facility abstracted data. For example, Table 8 December shows eight missing values from the facility abstraction, all of which are confirmed missing by the Network but 17 additional values are missing from the Network re-abstraction that were available in the facility data. This is a consistent pattern in many of the tables reported here, indicating that the Network re-abstraction may be overlooking data that are available to the facilities.

## Conclusions

This report shows that overall there was a high rate of agreement between data abstraction conducted by dialysis facility staff and re-abstraction of records by ESRD Network staff. For data elements that had low inter-rater reliability, several possibilities may have accounted for the findings. Among them were lack of clear instructions, failure of abstractors to follow instructions, inaccurate data submitted electronically by corporate data repositories, inaccurate completion of the data collection forms, statistical factors related to sample size, and unbalanced marginals.

An identified limitation of this study was the relatively small sample of cases that could be re-abstracted with available resources. Also

important to note is that this study examined inter-rater reliability rather than validity.

## Introduction

In 2006, the Centers for Medicare & Medicaid Services (CMS) contracted with University Renal Research and Education Association (URREA), a not-for-profit organization established for the purpose of collecting information and conducting worldwide epidemiologic, clinical, and economic studies of kidney diseases and organ transplantation, to analyze the inter-rater reliability of the data collection associated with the Clinical Performance Measures (CPMs) Project for End Stage Renal Disease (ESRD). This report presents the results of the inter-rater reliability study.

## Background

In 1994, CMS collaborated with the ESRD Networks and the renal community to begin a new approach to assessing and improving health care provided to Medicare ESRD patients—the ESRD Health Care Quality Improvement Program (HCQIP). The key goal of the ESRD HCQIP is to increase, to the greatest extent possible, the number of ESRD patients who receive treatment consistent with current standards of care.

The first activity conducted as part of the ESRD HCQIP was to initiate the National/Network ESRD Core Indicators Project (CIP). The ESRD CIP was CMS's first nationwide population-based study designed to assess and identify opportunities to improve the care of patients with ESRD. This project established the first consistent clinical database for ESRD. The elements included in the database represent clinical measures thought to be indicative of key components of care surrounding dialysis. As such, the data points were considered “indicators” useful for triggering improvement activities.

In 1998, CMS responded to Section 4558(b) of the Balanced Budget Act (BBA) by initiating a project to develop ESRD CPMs based on the National Kidney Foundation's Disease Outcomes Quality Initiative (DOQI). CMS contracted with Qualis Health to develop CPMs

in each of the four topic areas addressed in the DOQI guidelines. Sixteen ESRD CPMs were developed: five for hemodialysis adequacy, three for peritoneal dialysis adequacy, four for anemia management, and four for vascular access. These initial CPMs were intended to assist dialysis facility staff, ESRD Networks, dialysis patients, and other stakeholders in conducting quality improvement initiatives and activities.

For information regarding the development of the CPMs, please see the article, “Developing Clinical Performance Measures Based on the Dialysis Outcomes Quality Initiative Clinical Practice Guidelines: Process, Outcomes, and Implications.”<sup>1</sup>

On March 1, 1999, the ESRD CIP was merged with the ESRD CPM Project and is now known as the ESRD CPM Project. The ESRD CPMs overlap considerably with the core indicators, although a number of new measures were introduced, such as measures for assessing vascular access. In 2001, CMS expanded its ESRD CPM data collection efforts to include in-center pediatric hemodialysis patients, and, in 2005, pediatric peritoneal dialysis patients. During the summer of 2005, the collection of clinical data for the ESRD CPM Project was conducted on a five percent national random sample of medical records for adult hemodialysis and peritoneal dialysis patients (age ≥ 18 years) and on the universe of medical records for in-center pediatric hemodialysis and peritoneal dialysis patients (age < 18 years). The adult hemodialysis sample was stratified by ESRD Network.

For the reliability sample, a random sample was selected to yield a sufficient number of records to obtain stable estimates for each LDO and for the group of non-LDO facilities. These records were re-abstracted by Network staff. The facility

---

<sup>1</sup> Sugarman JR, Frederick PR, Frankenfield DL, Owen WF Jr, McClellan WM. Developing clinical performance measures based on the Dialysis Outcomes Quality Initiative Clinical Practice Guidelines: process, outcomes, and implications. *Am J Kidney Dis.* 2003 Oct;42 (4):806-812.

data and Network re-abstracted data were sent to URREA to analyze and assess the extent to which there was concurrence between the two data files (inter-rater reliability).

## Project Methods

### Statistical Methods

The inter-rater reliability analysis was conducted using SAS for Windows version 9.1 to compute agreement rates, levels of concurrence, and kappa statistics.

Some continuous data (such as those shown in Tables 4 and 7) were re-coded as categorical data for the purpose of generating the kappa statistic. As a result, some facility-abstracted data and Network re-abstracted data may fall into the same category and thus achieve agreement, even though the values are not exactly the same. For example, Table 7 demonstrates a high level of concurrence for the data category of hemoglobin  $\geq 9$  gm/dL. As the category implies, specific hemoglobin values abstracted from the medical record are grouped together categorically with a cut-point of 9 mg/dL. Thus, a facility abstractor could have reported 11 gm/dL, while the Network re-abstractor could have reported 10 gm/dL, yet they achieve agreement because both values are placed in the same categorical field. (The designated cut-points for re-coding the categorical data were provided by CMS.)

### Agreement Rates

Agreement rates were calculated for continuous data that were not missing in both data sources. The agreement rate was obtained by dividing the number of exact matches between the facility abstracted and Network abstracted data by the total number of abstracted records. Although there is no criterion standard for acceptable levels of agreement, we considered an acceptable agreement rate to be  $\geq 80\%$ .

### Levels of Concurrence

Levels of concurrence for categorical data are calculated in the same manner as the agreement rates are calculated for continuous data.

Levels of concurrence are calculated as the proportion of cases for which responses from the facility and the Network resulted in the same classification of the measurement (for instance, as being present, missing, or having met the set criteria). The method of calculation is shown in Table 1. We considered an acceptable target for concurrence to be  $\geq 90\%$ , although, as with agreement rates, there is no general standard for acceptable levels.

Two levels of concurrence (LOC) statistics are calculated; one for missing vs. non-missing values and one for all non-missing values. The first LOC calculation assesses whether or not both sources agree that the value is present (or missing). The second LOC considers only the non-missing values and assesses whether or not the reported values from both sources are the same.

### Kappa Statistic

The kappa statistic is commonly used to assess concurrence of categorical ratings as determined by two raters. Although there is no “gold standard” for acceptable ranges for the kappa statistic, kappa values of 0.4 to 0.59 typically reflect moderate agreement; 0.6 to 0.79 substantial agreement; and 0.8 to 1.0 almost perfect agreement.<sup>2</sup>

As with concurrence, two kappa statistics are calculated, one for missing vs. non-missing values and one for non-missing values. The level of concurrence and kappa statistic were jointly used to analyze categorical data, because the kappa statistic alone can become unreliable when the incidence rate is low or when unbalanced marginal totals occur.<sup>3</sup>

### Data Collection

Two data collection forms were used in the 2005 ESRD CPM Project. One form was used to

---

<sup>2</sup> Landis JR, Koch GG. The measurement of observer agreement for categorical data. *Biometrics*. 1997;33:159-74.

<sup>3</sup> Feinstein AR, Cicchetti DV. High agreement but low kappa: I. The problems of two paradoxes. *J Clin Epidemiol*. 1990; 43:543-549.

abstract the records of adult and pediatric in-center hemodialysis patients; the other form was used to abstract the records of adult and pediatric peritoneal dialysis patients. Facility staff conducted the abstractions in the early summer of 2005, while Network staff conducted re-abstractions in the fall of 2005. Network staff either received medical records from the facilities or went to the facilities to re-abstract the data. Facility information was sent to the Networks where Network staff entered the data into SIMS. SAS data files were created by CMS's contractor, Computer Sciences Corporation (CSC) and forwarded to URREA for analysis.

The patient identification number was used to pair the facility data with the Network data.

### **Hemodialysis Sample and Data Elements**

A random 5% sample of adult in-center hemodialysis medical records and the universe of pediatric in-center hemodialysis medical records were abstracted from among all dialysis patients receiving care on December 31, 2004. Facility staff abstracted data from the medical records of these 8,885 adult and 781 pediatric patients during the fall of 2005, Network staff re-abstracted 270 of the hemodialysis medical records.<sup>4</sup>

The inter-rater reliability statistics for the facility and Network data were calculated for the following in-center hemodialysis data elements:

#### Adequacy of dialysis data

- Recorded single-pool Kt/V
- Method used to calculate the recorded Kt/V
- Residual urine function used to calculate Kt/V
- Number of prescribed dialysis times per week
- Pre- and post-dialysis BUN
- Pre- and post-dialysis weights

#### Anemia Management

- Pre-dialysis hemoglobin  $\geq 9$  gm/dL and  $\geq 11$  gm/dL

---

<sup>4</sup> The number of re-abstracted hemodialysis and peritoneal dialysis cases was minimized to decrease costs and impact on Network and facility staff.

- Serum ferritin concentration  $\geq 100$  ng/mL
- Transferrin saturation  $\geq 20\%$
- Epoetin prescription
- Epoetin prescribed dose
- Prescribed route of epoetin administration
- Total dose of IV iron administration
- Mean hemoglobin
- Mean transferrin saturation
- Mean serum ferritin concentration

#### Serum albumin

- Serum albumin values ( $\geq 3.5$  gm/dL or  $\geq 3.2$  gm/dL based on laboratory method used)
- Laboratory method used to measure serum albumin
- Mean serum albumin by BCG method

#### Vascular Access

- The type of access used on the last hemodialysis session on or between 10/1/2004 and 12/31/2004
- Reason for catheter or port access, if used for access between 10/1/2004 and 12/31/2004
- Use of catheter or port access  $\geq 90$  days, if used for access between 10/1/2004 and 12/31/2004
- Presence of routine monitoring for stenosis and the method used for monitoring for stenosis, when AV grafts or AV fistulas were used for access
- The type of access used at the initiation of a maintenance course of hemodialysis and 90 days later, if between January 1, 2004 and August 31, 2004

#### Other hemodialysis data elements

- Limb amputation
- Ethnicity
- Diabetes diagnosis
- Medication use for diabetes control
- Insulin use for diabetes

### **Peritoneal Dialysis Sample and Data Elements**

Facility staff abstracted data from the medical records of 5% of randomly selected adult

peritoneal dialysis patients (n = 1,432) and from the identified universe of pediatric peritoneal dialysis patients (n = 817) who received care from October 2004 through March 2005. Network staff re-abstracted 151 of the medical records originally abstracted by dialysis facility staff.

The inter-rater reliability statistics for the facility and Network data were calculated for the following adult peritoneal dialysis data elements:

#### Adequacy of dialysis data

- Weekly Kt/V<sub>urea</sub> from dialysate and urine
- Method used to calculate the V in the recorded Kt/V<sub>urea</sub>
- Weekly creatinine clearance
- Creatinine clearance corrected for body surface area
- Clinic visit weight
- Adequacy assessment weight
- 24 hour dialysate volume
- 24 hour dialysate urea nitrogen
- 24 hour dialysate creatinine
- 24 hour urine volume
- 24 hour urine urea nitrogen
- 24 hour urine creatinine
- Serum BUN
- Serum creatinine

#### Anemia Management

- Hemoglobin  $\geq 9$  gm/dL and  $\geq 11$  gm/dL
- Serum ferritin concentration  $\geq 100$  ng/mL
- Transferrin saturation  $\geq 20\%$
- Epoetin prescription
- Prescribed route of epoetin administration
- Epoetin prescribed dose
- IV iron administration dose
- Mean hemoglobin
- Mean transferrin saturation
- Mean serum ferritin concentration

#### Serum albumin

- Serum albumin values ( $\geq 3.5$  gm/dL or  $\geq 3.2$  gm/dL based on laboratory method used)

- Laboratory method used to measure serum albumin
- Mean serum albumin by BCG method

#### Dialysis Prescription

- Number of dialysis days per week for CAPD patients
- Total number of dialysis exchanges per 24 hours for CAPD patients
- Total number of dialysis exchanges during nighttime for cycler patients
- Total number of dialysis exchanges during daytime for cycler patients
- Prescription changed

#### Other adult peritoneal dialysis data elements

- Limb amputation
- Ethnicity
- Diabetes diagnosis
- Medication use for diabetes control
- Insulin use for diabetes

## Results

### **Hemodialysis Data Elements**

Matched data collection forms were available for 270 facility-abstracted and Network re-abstracted medical records.

Table 2 summarizes the comparison between facility and Network categorical data for selected hemodialysis indicators of care. Moderate to almost perfect agreement occurred for data elements relating to adequacy of dialysis, anemia management, serum albumin, and vascular access. Only moderate agreement was seen for prescribed dialysis times per week.

Table 3 shows the agreement rates for continuous facility and Network data for selected adult hemodialysis data elements (excluding those related to access). All of the selected hemodialysis data elements showed acceptable agreement between the two data sets except for Epo dose measures in October and November.

Tables 4 through 27 provide the inter-rater reliability analyses for each of the tested data

elements, including those related to access. When the recorded Kt/V  $\geq 1.2$  was used as a cutoff threshold for adequacy of dialysis, the kappa for missing vs. non-missing values ranged from 0.61 to 0.73 for October, November, and December. The kappa for non-missing values ranged from 0.91 to 1.0, indicating substantial agreement (Table 4). The data regarding the methods used to calculate the recorded Kt/V also indicated substantial agreement (the kappa for missing vs. non-missing values ranged from 0.61 to 0.74, the kappa for non-missing values ranged from 0.74 to 0.77) (Table 5). However, only moderate agreement was found between facility-abstracted data and Network re-abstracted data regarding whether or not residual urine function was used to calculate Kt/V (kappa range 0.40 – 0.44) (Table 6) and the lab method used to measure serum albumin (kappa range 0.44 – 0.49) (Table 14). The kappa statistic for non-missing values indicated moderate or nearly perfect agreement for all anemia management and serum albumin data elements (Tables 7 through 13).

Concurrence regarding the types of access used ranged from just below acceptable to acceptable (range was 85% to 92%) (Tables 15, 20, & 21). The kappa statistic for the type of access used on the last adult hemodialysis session (Table 15) showed near perfect agreement between facility-abstracted data and Network re-abstracted data (kappa 0.88). The kappa statistic for catheter or port access (Table 16), chronic catheter use (Table 17), type of access used at the initiation (Table 20), and type of access used 90 days after initiation (Table 21) reflect substantial agreement between abstractors, while the kappa statistic for presence of routine stenosis monitoring (Table 18) showed only moderate agreement.

Concurrence regarding the presence of an amputation (Table 22) was below statistically acceptable rates at 88%, and the kappa of 0.36 indicates below moderate agreement.

The kappa statistics for ethnicity (Table 24) was substantial at 0.77, and the level of concurrence was acceptable (94%). For the diabetes related data elements (Tables 25, and 27), there was

substantial agreement for kappa statistics at 0.87 and 0.79 and acceptable concurrence levels at 88%, and 92%, respectively. However, medications used for diabetes control (Table 26) had a kappa of only 0.30 and LOC of 58%.

Table 28 provides agreement rates for facility data to Network data for selected hemodialysis data elements. The agreement rates for these data elements were acceptable except for IV iron use.

### **Peritoneal Dialysis Data Elements**

Matched data collection forms were available for 151 facility-abstracted and Network re-abstracted medical records.

Table 29 summarizes the comparison between facility-abstracted and Network re-abstracted categorical data for selected peritoneal dialysis data elements. Almost perfect agreement occurred for data elements relating to adequacy of dialysis, anemia management and serum albumin (kappas ranging from 0.87 to 1.00).

Table 30 compares means for continuous facility data and Network data for selected peritoneal dialysis data elements. No difference was found between the data abstracted by facility and Network staff for the adequacy of dialysis, anemia management, and serum albumin data elements.

Tables 31 through 52 present the kappa statistic and the concurrence analysis for each of the tested data elements. The kappa statistic for both data sets ranged from less than moderate to perfect agreement (ranging from 0.37 to 1.00). Concurrence between the facility-abstracted data and the Network re-abstracted data on the presence of a particular value in the facility record were acceptable (ranging from 80% to 100%)

Table 53 shows agreement rates for facility-abstracted data compared to Network re-abstracted data for selected peritoneal dialysis data elements. The agreement rates for the recorded Kt/V<sub>urea</sub>, 24 hour dialysate urea nitrogen, 24 hour dialysate creatinine, 24 hour

urine volume, 24 hour urine creatinine, 24 hour urine urea nitrogen, serum creatinine and serum BUN were acceptable (ranging from 83% to 92%), whereas the agreement rates for IV iron dose, epoetin dose, adequacy assessment weight, and recorded creatinine clearance were below acceptable. The LOC for clinic visit weight was very low at 52%.

## **Reliability From Year To Year**

From 2004 to 2005, the inter-rater reliability for 31 data elements improved significantly over last year's results. An item's kappa statistic was considered to have improved significantly this year if it had a  $\geq 0.1$  increase from 2004 to 2005 and a shift upward in its categorical agreement rating. Table I-1 lists the data elements that improved from 2004 to 2005, as well as their associated kappa statistic and level of concurrence (LOC) for the corresponding year.

The inter-rater reliability for a few hemodialysis and peritoneal dialysis data elements declined from last year's results. A data element's kappa statistic was considered to have declined significantly this year if it had a  $\geq 0.1$  decline from 2004 to 2005 and a downward shift in its categorical agreement rating. Table I-2 lists the 13 data elements that declined from 2004 to 2005, as well as their associated kappa statistic and level of concurrence for the corresponding years.

**Table I-1: Data Elements with Improved Inter-rater Reliability\***

	Kappa		LOC	
	2004	2005	2004	2005
<b>Hemodialysis Data Elements</b>				
Recorded weekly single-pooled Kt/V (November)	0.88	1.00	98%	100%
Residual urine function used to calculate weekly Kt/V (October)	0.34	0.44	75%	76%
Residual urine function used to calculate weekly Kt/V (November)	0.31	0.41	76%	75%
Residual urine function used to calculate weekly Kt/V (December)	0.28	0.40	73%	75%
Hemoglobin $\geq$ 9gm/dL (November)	0.84	1.00	99%	100%
Type of access used on the last hemodialysis session on or between October 1, 2004 and December 31, 2004	0.62	0.88	91%	92%
Catheter or port access used exclusively as access $\geq$ 90 days between October 1, 2004 and December 31, 2004	0.37	0.57	78%	83%
The presence of routine monitoring for stenosis when AV grafts or AV fistulae were used for access days between October 1, 2004 and December 31, 2004	0.39	0.50	67%	73%
The routine stenosis monitoring method used between October 1, 2004 and December 31, 2004 when AV grafts or AV fistulae were used for access (Static Venous Pressure Method)	-0.08	0.91	97%	98%
The routine stenosis monitoring method used between October 1, 2004 and December 31, 2004 when AV grafts or AV fistulae were used for access (Dynamic Venous Pressure Method)	0.36	0.73	83%	87%
The routine stenosis monitoring method used between October 1, 2004 and December 31, 2004 when AV grafts or AV fistulae were used for access (Other Method)	0.08	0.79	85%	90%
Insulin use for diabetes	0.61	0.79	84%	92%
<b>Peritoneal Dialysis Data Elements</b>				
Total weekly Kt/V urea (1st recording)	0.88	0.98	95%	99%
Total weekly Kt/V urea (2nd recording)	0.83	1.00	93%	100%
Method by which V was calculated in the total weekly Kt/V urea (1st recording)	0.59	0.85	72%	90%
Method by which V was calculated in the total weekly Kt/V urea (2nd recording)	0.53	0.89	70%	93%
Total weekly Creatinine Clearance $\geq$ 60 (1st recording)	0.81	0.95	92%	97%
Total weekly Creatinine Clearance $\geq$ 60 (2nd recording)	0.84	0.94	94%	97%
Hemoglobin $\geq$ 9gm/dL (Oct/Nov)	-0.02	0.92	97%	99%
Hemoglobin $\geq$ 9gm/dL (Dec/Jan)	0.48	0.91	97%	99%
Hemoglobin $\geq$ 11gm/dL (Oct/Nov)	0.76	0.87	94%	94%
Serum ferritin concentration $\geq$ 100 (Dec)	0.82	1.00	94%	100%
Percent transferrin saturation $\geq$ 20 (Oct)	0.84	0.97	96%	99%
Percent transferrin saturation $\geq$ 20 (Dec)	0.74	1.00	94%	100%
Prescribed route of epoetin administration (Dec/Jan)	-0.04	0.52	98%	95%
Prescribed route of epoetin administration (Feb/Mar)	0.00	0.37	98%	95%
Serum albumin values ( $\geq$ 3.5/3.2 gm/dL by BCG/BCP methods) (Feb/Mar)	0.85	0.98	94%	99%
Laboratory method used to measure serum albumin (Oct/Nov)	0.66	0.88	98%	98%
Laboratory method used to measure serum albumin (Dec/Jan)	0.79	0.92	99%	99%
Laboratory method used to measure serum albumin (Feb/Mar)	0.48	0.93	97%	99%
Total number of dialysis exchanges during the nighttime for cycler patients (2nd recording)	0.57	0.79	70%	83%

\*Kappa and LOC statistics are shown for non-missing values.  
Some continuous values have been recoded as categorical, as indicated.

**Table I-2: Data Elements with Decreased Inter-rater Reliability\***

	Kappa		LOC	
	2004	2005	2004	2005
<b>Hemodialysis Data Elements</b>				
Epo prescription (Oct)	0.92	0.54	95%	94%
Epo prescription (Dec)	0.77	0.59	97%	93%
Prescribed route of epoetin administration (Oct)	0.84	0.59	98%	98%
Reason for catheter or port access, if used for access between October 1, 2004 and December 31, 2004	0.65	0.50	72%	58%
Limb amputation(s) prior to December 31, 2003	0.49	0.36	95%	88%
Number of prescribed hemodialysis times per week (Oct)	0.92	0.49	100%	98%
Number of prescribed hemodialysis times per week (Nov)	0.92	0.54	100%	98%
Number of prescribed hemodialysis times per week (Dec)	0.93	0.49	100%	98%
Medication use for diabetes control	0.59	0.30	79%	58%
<b>Peritoneal Dialysis Data Elements</b>				
Creatinine Clearance corrected for body surface area, using standard methods (2nd recording)	0.86	0.38	90%	95%
Hemoglobin >= 9gm/dL (Feb/Mar)	1.00	0.87	100%	98%
Prescribed route of epoetin administration (Oct/Nov)	0.86	0.66	98%	97%
Total number of dialysis exchanges during the nighttime for cycler patients (1st recording)	0.78	0.68	87%	83%

\*Kappa and LOC statistics are shown for non-missing values.

Some continuous values have been recoded as categorical, as indicated.

## Conclusions

Overall, a high rate of agreement existed between data abstraction conducted by dialysis facility staff and re-abstraction of records by Network staff. Users can have confidence that the quality of the 2005 ESRD CPM data related to dialysis adequacy, anemia management, and serum albumin are not adversely influenced by the fact that the data are self-reported by dialysis facilities.

Several factors may account for the low inter-rater reliability found for some data elements. Such possibilities include lack of clear instructions, failure of abstractors to follow instructions, inaccurate completion of the data collection forms, inaccurate data submitted electronically by corporate data repositories, statistical issues related to sample size, and unbalanced marginal totals (i.e., data elements related to rare events).

One limitation of this study is the relatively small number of cases that could be re-

abstracted with available resources. It is also important to note that this study examined inter-rater reliability rather than validity. For instance, if a record entry listed the pre-dialysis weight of a patient to be 75 kgs., both the facility abstractor and Network re-abstractor might have agreed on the pre-dialysis weight of the patient, yet the scale that was used to weigh the patient may have been inaccurate and in need of recalibration. A more comprehensive validation study would require access to operative reports or other data sources that were not available for this study. However, there is no reason to believe that most routinely collected laboratory data are not accurately reflected in dialysis patient records.

**TABLE 1: Calculation of data concurrence and Kappa Statistics**

Level of concurrence (LOC) is calculated 1) for missing vs. non-missing values and 2) among non-missing values.

Network Re-Abstracted Data

		<b>Missing</b>	<b>Non - Missing</b>	<b>Total</b>
Facility Abstracted Data	<b>Missing</b>	<b>a</b>	b	a+b
	<b>Non-Missing</b>	c	<b>d</b>	c+d
	<b>Total</b>	a+c	b+d	<b>Total</b>

$$\text{Level of concurrence missing vs. non-missing values} = \frac{a+d}{\text{Total}} \times 100$$

In the table above, concurrence is used to assess whether the two sources agree on whether or not the value is missing. All non-missing values are combined into a single group for each data source. Shaded cells represent concurrence, where both sources agree that the value is missing or present.

Network Re-Abstracted Data

		<b>Missing</b>	-	+	<b>Total</b>
Facility Abstracted Data	<b>Missing</b>	<b>a</b>	b	c	a + b + c
	-	d	<b>e</b>	f	d + e + f
	+	g	h	<b>i</b>	g + h + i
	<b>Total</b>	a + d + g	b + e + h	c + f + i	<b>Total</b>

$$\text{Level of concurrence for non-missing values} = \frac{e+i}{e+f+h+i} \times 100$$

In the table above, shaded cells a, e, and i represent concurrence—instances when both Network and facility staff reported the same value for a particular item. On the other hand, cells b, c, d, f, g, and h represent cases where there was not concurrence between the two sources of data on a value for a particular item.

Kappa is also calculated for missing vs. non-missing as well as among non-missing values. Kappa ranges from -1 to 1 where 1 is perfect agreement, 0 is exactly what would be expected by chance, and negative values indicate agreement less than chance.

Network Re-Abstracted Data

		<b>Missing</b>	<b>Non - Missing</b>	<b>Total</b>
Facility Abstracted Data	<b>Missing</b>	<b>a</b>	b	m1
	<b>Non-Missing</b>	c	<b>d</b>	m0
	<b>Total</b>	n1	n0	<b>n</b>

$$\text{Observed agreement} = p_o = (a+d)/n$$

$$\text{Expected agreement} = p_e = [(n1/n) * (m1/n)] + [(n0/n) * (m0/n)]$$

$$\text{Kappa} = \frac{p_o - p_e}{(1 - p_e)}$$

**HEMODIALYSIS**

**TABLE 2: Comparison of categorical data abstracted by dialysis facility staff to categorical data re-abstracted by ESRD Network staff for selected hemodialysis data elements**

Clinical Indicators	Data Abstracted by Facility Staff	Data Re-Abstracted by ESRD Network Staff	Kappa
<b>ADEQUACY OF DIALYSIS</b>			
<b>Weekly Kt/V</b>			
Kt/V $\geq$ 1.2 (October)	71%	64%	0.92
Kt/V $\geq$ 1.2 (November)	76%	66%	1.00
Kt/V $\geq$ 1.2 (December)	81%	71%	0.91
<b>Prescribed Dialysis Times Per Week</b>			
Prescribed dialysis < 3 times per week (October)	2%	0%	0.49
Prescribed dialysis < 3 times per week (November)	1%	0%	0.54
Prescribed dialysis < 3 times per week (December)	2%	0%	0.49
<b>ANEMIA MANAGEMENT</b>			
<b>Hemoglobin</b>			
Hemoglobin $\geq$ 9 gm/dL (October)	87%	83%	0.89
Hemoglobin $\geq$ 9 gm/dL (November)	90%	85%	1.00
Hemoglobin $\geq$ 9 gm/dL (December)	94%	87%	0.87
Hemoglobin $\geq$ 11 gm/dL (October)	69%	65%	0.91
Hemoglobin $\geq$ 11 gm/dL (November)	72%	67%	0.91
Hemoglobin $\geq$ 11 gm/dL (December)	73%	69%	0.96
<b>Serum Ferritin Concentration</b>			
Serum ferritin concentration $\geq$ 100 ng/mL (October)	45%	43%	0.90
Serum ferritin concentration $\geq$ 100 ng/mL (November)	47%	44%	1.00
Serum ferritin concentration $\geq$ 100 ng/mL (December)	49%	42%	0.94
<b>Transferrin Saturation</b>			
Transferrin saturation $\geq$ 20% (October)	52%	47%	0.94
Transferrin saturation $\geq$ 20% (November)	53%	46%	0.99
Transferrin saturation $\geq$ 20% (December)	55%	51%	1.00
<b>SERUM ALBUMIN</b>			
Serum albumin ( $\geq$ 3.5 gm/dL [BCG] or $\geq$ 3.2 gm/dL [BCP]) (October)	73%	69%	0.97
Serum albumin ( $\geq$ 3.5 gm/dL [BCG] or $\geq$ 3.2 gm/dL [BCP]) (November)	77%	71%	0.97
Serum albumin ( $\geq$ 3.5 gm/dL [BCG] or $\geq$ 3.2 gm/dL [BCP]) (December)	76%	71%	0.97

**HEMODIALYSIS**

**TABLE 2: (Continued)**

<b>Clinical Indicators</b>	<b>Data Abstracted by Facility Staff</b>	<b>Data Re-Abstracted by ESRD Network Staff</b>	<b>Kappa</b>
<b>VASCULAR ACCESS</b>			
<b>Type of access used on last adult hemodialysis session on or between October 1, 2004, and December 31, 2004</b>			
AV Fistula	34%	34%	0.88
Graft	32%	33%	0.88
Catheter	33%	31%	0.88
Port Access	1%	< 1%	0.88

BCG = bromcresol green

BCP = bromcresol purple

The number of matched facility and Network data collection forms was 270.

**HEMODIALYSIS**

**TABLE 3: Comparison of means for continuous data abstracted by dialysis facility staff to continuous data re-abstracted by ESRD Network staff for selected hemodialysis data elements (excluding data elements related to vascular access)**

Clinical Indicators	Data Abstracted by Facility Staff	Data Re-Abstracted by ESRD Network Staff	Agreement Rate %
<b>ADEQUACY OF DIALYSIS</b>			
<b>Recorded Kt/V (October)</b>			
Mean	1.65 (n = 210)	1.66 (n = 187)	88
Minimum – Maximum	0.76 - 4.35	0.76 – 4.35	
<b>Recorded Kt/V (November)</b>			
Mean	1.63 (n = 220)	1.63 (n = 193)	88
Minimum – Maximum	0.67 - 2.50	0.67 - 2.70	
<b>Recorded Kt/V (December)</b>			
Mean	1.66 (n = 235)	1.96 (n = 204)	86
Minimum – Maximum	0.66 – 4.27	0.66 - 63.00	
<b>Pre-Dialysis BUN (mg/dL) (October)</b>			
Mean	56.45 (n = 237)	55.89 (n = 222)	97
Minimum – Maximum	19.00 - 104.00	19.00 - 104.00	
<b>Pre-Dialysis BUN (mg/dL) (November)</b>			
Mean	54.48 (n = 246)	53.87 (n = 231)	98
Minimum – Maximum	20.00 - 112.00	18.00 - 112.00	
<b>Pre-Dialysis BUN (mg/dL) (December)</b>			
Mean	56.97 (n = 258)	56.83 (n = 237)	99
Minimum – Maximum	23.00 - 104.00	23.00 - 140.00	
<b>Post-Dialysis BUN (mg/dL) (October)</b>			
Mean	15.00 (n = 237)	14.64 (n = 222)	99
Minimum – Maximum	2.00 – 43.00	2.00 – 40.00	
<b>Post-Dialysis BUN (mg/dL) (November)</b>			
Mean	14.33 (n = 245)	14.13 (n = 231)	98
Minimum – Maximum	2.00 – 40.00	1.00 – 40.00	
<b>Post-Dialysis BUN (mg/dL) (December)</b>			
Mean	15.15 (n = 256)	15.27 (n = 237)	99
Minimum – Maximum	2.00 – 57.00	2.00 – 57.00	
<b>Pre-Dialysis Weights (lbs/kgs) (October)</b>			
Mean	81.65 (n = 229)	82.05 (n = 218)	88
Minimum – Maximum	11.50 - 271.60	35.20 - 271.60	
<b>Pre-Dialysis Weights (lbs/kgs) (November)</b>			
Mean	81.02 (n = 238)	80.67 (n = 228)	92
Minimum – Maximum	11.40 - 278.40	41.90 - 268.00	
<b>Pre-Dialysis Weights (lbs/kgs) (December)</b>			
Mean	81.45 (n = 249)	81.19 (n = 234)	92
Minimum – Maximum	11.40 - 274.80	30.40 - 274.80	

**HEMODIALYSIS**

**TABLE 3: (Continued)**

Clinical Indicators	Data Abstracted by Facility Staff	Data Re-Abstracted by ESRD Network Staff	Agreement Rate %
<b>ADEQUACY OF DIALYSIS (cont.)</b>			
<b>Post-Dialysis Weights (lbs/kgs) (October)</b>			
Mean	78.64 (n = 229)	79.04 (n = 218)	87
Minimum – Maximum	10.90 - 263.20	32.10 - 263.20	
<b>Post-Dialysis Weights (lbs/kgs) (November)</b>			
Mean	78.02 (n = 238)	77.62 (n = 228)	88
Minimum – Maximum	10.80 – 262.20	39.50 - 260.00	
<b>Post-Dialysis Weights (lbs/kgs) (December)</b>			
Mean	78.46 (n = 249)	78.19 (n = 234)	87
Minimum – Maximum	10.60 - 265.80	28.80 - 265.80	
<b>Scheduled Dialysis Times Per Week (October)</b>			
Mean	3.00 (n = 244)	3.02 (n = 230)	97
Minimum – Maximum	1.00 - 6.00	3.00 - 6.00	
<b>Scheduled Dialysis Times Per Week (November)</b>			
Mean	3.01 (n = 249)	3.02 (n = 236)	98
Minimum – Maximum	2.00 - 6.00	3.00 - 6.00	
<b>Scheduled Dialysis Times Per Week (December)</b>			
Mean	3.00 (n = 259)	3.02 (n = 245)	98
Minimum – Maximum	1.00 - 6.00	3.00 - 6.00	
<b>ANEMIA MANAGEMENT</b>			
<b>Hemoglobin (gm/dL) (October)</b>			
Mean	11.88 (n = 241)	21.54 (n = 228)	84
Minimum – Maximum	6.90 - 17.00	6.90 - 1115.00	
<b>Hemoglobin (gm/dL) (November)</b>			
Mean	11.91 (n = 248)	11.86 (n = 235)	83
Minimum – Maximum	7.70 - 19.00	7.70 - 17.20	
<b>Hemoglobin (gm/dL) (December)</b>			
Mean	11.80 (n = 262)	11.82 (n = 245)	87
Minimum – Maximum	7.30 – 16.80	8.10 - 16.80	
<b>Serum Ferritin Concentration (ng/mL) (October)</b>			
Mean	610.11 (n = 133)	591.85 (n = 127)	91
Minimum – Maximum	16.00 – 1,916.00	16.00 – 2,227.00	
<b>Serum Ferritin Concentration (ng/mL) (November)</b>			
Mean	599.34 (n = 134)	535.70 (n = 125)	93
Minimum – Maximum	23.00 – 6,770.00	23.00 – 1,628.00	
<b>Serum Ferritin Concentration (ng/mL) (December)</b>			
Mean	647.26 (n = 139)	647.59 (n = 123)	88
Minimum – Maximum	25.00 – 6,444.00	25.00 – 6,444.00	

**HEMODIALYSIS**

**TABLE 3: (Continued)**

Clinical Indicators	Data Abstracted by Facility Staff	Data Re-Abstracted by ESRD Network Staff	Agreement Rate %
<b>ANEMIA MANAGEMENT (cont).</b>			
<b>Transferrin Saturation (%) (October)</b>			
Mean	27.78 (n = 197)	28.11 (n = 179)	96
Minimum – Maximum	7.00 – 94.00	7.00 – 94.00	
<b>Transferrin Saturation (%) (November)</b>			
Mean	28.45 (n = 195)	27.953 (n = 177)	96
Minimum – Maximum	6.00 – 100.00	6.00 – 100.00	
<b>Transferrin Saturation (%) (December)</b>			
Mean	27.22 (n = 209)	27.59 (n = 191)	97
Minimum – Maximum	6.00 – 93.00	6.00 – 93.00	
<b>Epoetin Dose (units per treatment) (October)</b>			
Mean	7,406.30 (n = 217)	7,716.40 (n = 210)	82
Minimum – Maximum	0 – 58,400.00	0 – 58,400.00	
Mean	7,266.40 (n = 206)	7,759.50 (n = 202)	78
Minimum – Maximum	0 – 38,000.00	0 – 46,000.00	
Mean	7,180.90 (n = 203)	8,179.40 (n = 196)	80
Minimum – Maximum	0 – 38,000.00	0 – 57,500.00	
<b>Epoetin Dose (units per treatment) (November)</b>			
Mean	7,056.50 (n = 223)	7,538.00 (n = 213)	79
Minimum – Maximum	0 – 58,400.00	0 – 58,400.00	
Mean	6,829.50 (n = 207)	7,305.20 (n = 204)	79
Minimum – Maximum	0 – 40,000.00	0 – 40,000.00	
Mean	6,796.20 (n = 205)	7,264.40 (n = 201)	78
Minimum – Maximum	0 – 55,200.00	0 – 55,200.00	
<b>Epoetin Dose (units per treatment) (December)</b>			
Mean	7,477.40 (n = 231)	7,622.00 (n = 222)	83
Minimum – Maximum	0 – 58,400.00	0 – 58,400.00	
Mean	7,336.10 (n = 213)	7,525.90 (n = 214)	84
Minimum – Maximum	0 – 57,720.00	0 – 57,720.00	
Mean	7,193.40 (n = 213)	7,192.10 (n = 209)	84
Minimum – Maximum	0 – 44,400.00	0 – 44,400.00	

**HEMODIALYSIS**

**TABLE 3: (Continued)**

Clinical Indicators	Data Abstracted by Facility Staff	Data Re-Abstracted by ESRD Network Staff	Agreement Rate %
<b>ANEMIA MANAGEMENT (cont).</b>			
<b>IV Iron Dose (mg/month) (October)</b>			
Mean	310.09 (n = 132)	298.21 (n = 123)	68
Minimum – Maximum	0 – 1,300.00	0 – 1,250.00	
<b>IV Iron Dose (mg/month) (November)</b>			
Mean	324.04 (n = 135)	313.46 (n = 129)	64
Minimum – Maximum	0 – 1,500.00	0 – 1,300.00	
<b>IV Iron Dose (mg/month) (December)</b>			
Mean	300.88 (n = 148)	323.88 (n = 144)	67
Minimum – Maximum	0 – 1,300.00	0 – 1,875.00	
<b>SERUM ALBUMIN (gm/dL)</b>			
<b>Serum albumin by BCG method (October)</b>			
Mean	3.79 (n = 238)	3.78 (n = 225)	98
Minimum – Maximum	1.20 – 4.90	1.20 – 4.90	
Mean	3.82 (n = 248)	3.81 (n = 233)	98
Minimum – Maximum	1.30 – 4.70	1.30 – 4.70	
Mean	3.77 (n = 258)	3.77 (n = 240)	98
Minimum – Maximum	1.50 – 4.60	1.50 – 4.60	
<b>Serum albumin by BCG method (November)</b>			
Mean	3.79 (n = 220)	3.78 (n = 223)	98
Minimum – Maximum	1.20 – 4.90	1.20 – 4.90	
Mean	3.82 (n = 230)	3.82 (n = 231)	98
Minimum – Maximum	1.30 – 4.70	1.30 – 4.70	
Mean	3.77 (n = 236)	3.78 (n = 238)	98
Minimum – Maximum	1.50 – 4.60	1.50 – 4.60	
<b>Serum albumin by BCG method (December)</b>			
Mean	3.25 (n = 2)	3.25 (n = 2)	97
Minimum – Maximum	2.70 – 3.80	2.70 – 3.80	
Mean	3.05 (n = 2)	3.05 (n = 2)	97
Minimum – Maximum	2.40 – 3.70	2.40 – 3.70	
Mean	3.10 (n = 2)	3.10 (n = 2)	97
Minimum – Maximum	2.70 – 3.50	2.70 – 3.50	

BCG = bromcresol green

BCP = bromcresol purple This year we had few (6) records indicating BCP.

n = number of non-missing records in the sample; hence, the “n” may not be equal between the two samples

**HEMODIALYSIS: Adequacy of Dialysis**

**TABLE 4: Recorded weekly single-pooled Kt/V [Question 20C]**

October	Network Re-Abstracted Data			Total
	Missing	<1.2	>=1.2	
Facility Abstracted Data				
Missing	57	1	2	60
<1.2	5	12	1	18
>=1.2	21	1	170	192
<b>Total</b>	83	14	173	270

Kappa for Missing vs. Non-Missing Values = 0.73

Kappa for Non-Missing Values = 0.92

Level of Concurrence Missing vs. Non-Missing Values = 89%

Level of Concurrence for Non-Missing Values= 99%

November	Network Re-Abstracted Data			Total
	Missing	<1.2	>=1.2	
Facility Abstracted Data				
Missing	47	1	2	50
<1.2	2	14	0	16
>=1.2	28	0	176	204
<b>Total</b>	77	15	178	270

Kappa for Missing vs. Non-Missing Values = 0.66

Kappa for Non-Missing Values = 1.00

Level of Concurrence Missing vs. Non-Missing Values = 88%

Level of Concurrence for Non-Missing Values= 100%

December	Network Re-Abstracted Data			Total
	Missing	<1.2	>=1.2	
Facility Abstracted Data				
Missing	34	0	1	35
<1.2	2	11	2	15
>=1.2	30	0	190	220
<b>Total</b>	66	11	193	270

Kappa for Missing vs. Non-Missing Values = 0.61

Kappa for Non-Missing Values = 0.91

Level of Concurrence Missing vs. Non-Missing Values = 88%

Level of Concurrence for Non-Missing Values= 99%

**HEMODIALYSIS: Adequacy of Dialysis**

**TABLE 5: Method used to calculate the recorded weekly single-pooled Kt/V [Question 20D]**

October	Network Re-Abstracted Data						Total
	Missing	UKM	Daugirdas II	Equilibrated	Derived from URR	Other/Unknown	
<b>Facility Abstracted Data</b>							
Missing	58	0	1	1	0	1	61
UKM	6	40	1	1	1	5	54
Daugirdas II	11	3	53	2	0	5	74
Equilibrated	7	1	3	50	0	7	68
Derived from URR	1	0	3	0	5	0	9
Other/Unknown	0	2	1	0	0	1	4
<b>Total</b>	83	46	62	54	6	19	270

Kappa for Missing vs. Non-Missing Values = 0.74

Kappa for Non-Missing Values = 0.74

Level of Concurrence Missing vs. Non-Missing Values = 90%

Level of Concurrence for Non-Missing Values= 81%

November	Network Re-Abstracted Data						Total
	Missing	UKM	Daugirdas II	Equilibrated	Derived from URR	Other/Unknown	
<b>Facility Abstracted Data</b>							
Missing	48	0	0	1	0	2	51
UKM	9	45	2	0	1	3	60
Daugirdas II	15	3	54	2	0	3	77
Equilibrated	7	1	3	52	0	7	70
Derived from URR	0	0	3	0	5	0	8
Other/Unknown	0	2	1	0	0	1	4
<b>Total</b>	79	51	63	55	6	16	270

Kappa for Missing vs. Non-Missing Values = 0.66

Kappa for Non-Missing Values = 0.77

Level of Concurrence Missing vs. Non-Missing Values = 87%

Level of Concurrence for Non-Missing Values= 84%

**HEMODIALYSIS: Adequacy of Dialysis**

**TABLE 5: Method used to calculate the recorded weekly single-pooled Kt/V [Question 20D]**

December	Network Re-Abstracted Data						Total
	Missing	UKM	Daugirdas II	Equilibrated	Derived from URR	Other/Unknown	
<b>Facility Abstracted Data</b>							
<b>Missing</b>	35	0	0	0	0	1	36
<b>UKM</b>	12	41	2	0	1	5	61
<b>Daugirdas II</b>	15	3	55	3	1	3	80
<b>Equilibrated</b>	4	1	5	62	0	7	79
<b>Derived from URR</b>	0	0	3	0	5	0	8
<b>Other/Unknown</b>	1	2	1	0	0	2	6
<b>Total</b>	67	47	66	65	7	18	270

Kappa for Missing vs. Non-Missing Values = 0.61

Kappa for Non-Missing Values = 0.74

Level of Concurrence Missing vs. Non-Missing Values = 88%

Level of Concurrence for Non-Missing Values= 82%

**HEMODIALYSIS: Adequacy of Dialysis**

**TABLE 6: Residual urine function used to calculate weekly Kt/V [Question 20E]**

October	Network Re-Abstracted Data				Total
	Missing	Yes	No	Unknown	
<b>Facility Abstracted Data</b>					
Missing	61	0	3	0	64
Yes	2	11	1	6	20
No	17	1	116	29	163
Unknown	3	0	7	13	23
<b>Total</b>	83	12	127	48	270

Kappa for Missing vs. Non-Missing Values = 0.77

Kappa for Non-Missing Values = 0.44

Level of Concurrence Missing vs. Non-Missing Values = 91%

Level of Concurrence for Non-Missing Values= 76%

November	Network Re-Abstracted Data				Total
	Missing	Yes	No	Unknown	
<b>Facility Abstracted Data</b>					
Missing	51	0	3	0	54
Yes	2	10	1	5	18
No	21	0	117	34	172
Unknown	4	0	8	14	26
<b>Total</b>	78	10	129	53	270

Kappa for Missing vs. Non-Missing Values = 0.70

Kappa for Non-Missing Values = 0.41

Level of Concurrence Missing vs. Non-Missing Values = 89%

Level of Concurrence for Non-Missing Values= 75%

December	Network Re-Abstracted Data				Total
	Missing	Yes	No	Unknown	
<b>Facility Abstracted Data</b>					
Missing	38	0	1	0	39
Yes	4	9	1	6	20
No	23	0	130	37	190
Unknown	2	0	6	13	21
<b>Total</b>	67	9	138	56	270

Kappa for Missing vs. Non-Missing Values = 0.65

Kappa for Non-Missing Values = 0.40

Level of Concurrence Missing vs. Non-Missing Values = 89%

Level of Concurrence for Non-Missing Values= 75%

**HEMODIALYSIS: Anemia Management**

**TABLE 7: Hemoglobin  $\geq$  9gm/dL [Question 18A]**

October	Network Re-Abstracted Data			Total
	Missing	<9 gm/dL	$\geq$ 9 gm/dL	
<b>Facility Abstracted Data</b>				
Missing	27	0	2	29
<9 gm/dL	0	4	1	5
$\geq$ 9 gm/dL	15	0	221	236
<b>Total</b>	42	4	224	270

Kappa for Missing vs. Non-Missing Values = 0.73

Kappa for Non-Missing Values = 0.89

Level of Concurrence Missing vs. Non-Missing Values = 94%

Level of Concurrence for Non-Missing Values= 100%

November	Network Re-Abstracted Data			Total
	Missing	<9 gm/dL	$\geq$ 9 gm/dL	
<b>Facility Abstracted Data</b>				
Missing	21	0	1	22
<9 gm/dL	0	6	0	6
$\geq$ 9 gm/dL	14	0	228	242
<b>Total</b>	35	6	229	270

Kappa for Missing vs. Non-Missing Values = 0.71

Kappa for Non-Missing Values = 1.00

Level of Concurrence Missing vs. Non-Missing Values = 94%

Level of Concurrence for Non-Missing Values= 100%

December	Network Re-Abstracted Data			Total
	Missing	<9 gm/dL	$\geq$ 9 gm/dL	
<b>Facility Abstracted Data</b>				
Missing	8	0	0	8
<9 gm/dL	1	7	0	8
$\geq$ 9 gm/dL	16	2	236	254
<b>Total</b>	25	9	236	270

Kappa for Missing vs. Non-Missing Values = 0.46

Kappa for Non-Missing Values = 0.87

Level of Concurrence Missing vs. Non-Missing Values = 94%

Level of Concurrence for Non-Missing Values= 99%

**HEMODIALYSIS: Anemia Management**

**TABLE 8: Hemoglobin  $\geq 11$  gm/dL [Question 18A]**

October	Network Re-Abstracted Data			Total
	Missing	<11 gm/dL	$\geq 11$ gm/dL	
<b>Facility Abstracted Data</b>				
Missing	27	2	0	29
<11 gm/dL	6	46	3	55
$\geq 11$ gm/dL	9	4	173	186
<b>Total</b>	42	52	176	270

Kappa for Missing vs. Non-Missing Values = 0.73

Kappa for Non-Missing Values = 0.91

Level of Concurrence Missing vs. Non-Missing Values = 94%

Level of Concurrence for Non-Missing Values = 97%

November	Network Re-Abstracted Data			Total
	Missing	<11 gm/dL	$\geq 11$ gm/dL	
<b>Facility Abstracted Data</b>				
Missing	21	0	1	22
<11 gm/dL	1	49	3	53
$\geq 11$ gm/dL	13	4	178	195
<b>Total</b>	35	53	182	270

Kappa for Missing vs. Non-Missing Values = 0.71

Kappa for Non-Missing Values = 0.91

Level of Concurrence Missing vs. Non-Missing Values = 94%

Level of Concurrence for Non-Missing Values = 97%

December	Network Re-Abstracted Data			Total
	Missing	<11 gm/dL	$\geq 11$ gm/dL	
<b>Facility Abstracted Data</b>				
Missing	8	0	0	8
<11 gm/dL	5	58	2	65
$\geq 11$ gm/dL	12	2	183	197
<b>Total</b>	25	60	185	270

Kappa for Missing vs. Non-Missing Values = 0.46

Kappa for Non-Missing Values = 0.96

Level of Concurrence Missing vs. Non-Missing Values = 94%

Level of Concurrence for Non-Missing Values = 98%

**HEMODIALYSIS: Anemia Management**

**TABLE 9: Serum ferritin concentration  $\geq 100$  ng/dL [Question 18C]**

October	Network Re-Abstracted Data			Total
	Missing	<100 ng/mL	$\geq 100$ ng/mL	
<b>Facility Abstracted Data</b>				
Missing	132	1	4	137
<100 ng/mL	0	10	1	11
$\geq 100$ ng/mL	11	1	110	122
<b>Total</b>	143	12	115	270

Kappa for Missing vs. Non-Missing Values = 0.88

Kappa for Non-Missing Values = 0.90

Level of Concurrence Missing vs. Non-Missing Values = 94%

Level of Concurrence for Non-Missing Values= 98%

November	Network Re-Abstracted Data			Total
	Missing	<100 ng/mL	$\geq 100$ ng/mL	
<b>Facility Abstracted Data</b>				
Missing	136	0	0	136
<100 ng/mL	0	7	0	7
$\geq 100$ ng/mL	9	0	118	127
<b>Total</b>	145	7	118	270

Kappa for Missing vs. Non-Missing Values = 0.93

Kappa for Non-Missing Values = 1.00

Level of Concurrence Missing vs. Non-Missing Values = 97%

Level of Concurrence for Non-Missing Values= 100%

December	Network Re-Abstracted Data			Total
	Missing	<100 ng/mL	$\geq 100$ ng/mL	
<b>Facility Abstracted Data</b>				
Missing	128	0	3	131
<100 ng/mL	0	8	0	8
$\geq 100$ ng/mL	19	1	111	131
<b>Total</b>	147	9	114	270

Kappa for Missing vs. Non-Missing Values = 0.84

Kappa for Non-Missing Values = 0.94

Level of Concurrence Missing vs. Non-Missing Values = 92%

Level of Concurrence for Non-Missing Values= 99%

**HEMODIALYSIS: Anemia Management**

**TABLE 10: Percent transferrin saturation >= 20% [Question 18D]**

October	Network Re-Abstracted Data			Total
	Missing	<20%	>=20%	
<b>Facility Abstracted Data</b>				
Missing	67	3	3	73
<20%	7	48	2	57
>=20%	17	2	121	140
<b>Total</b>	91	53	126	270

Kappa for Missing vs. Non-Missing Values = 0.74

Kappa for Non-Missing Values = 0.94

Level of Concurrence Missing vs. Non-Missing Values = 89%

Level of Concurrence for Non-Missing Values= 98%

November	Network Re-Abstracted Data			Total
	Missing	<20%	>=20%	
<b>Facility Abstracted Data</b>				
Missing	73	0	2	75
<20%	1	51	0	52
>=20%	19	1	123	143
<b>Total</b>	93	52	125	270

Kappa for Missing vs. Non-Missing Values = 0.81

Kappa for Non-Missing Values = 0.99

Level of Concurrence Missing vs. Non-Missing Values = 92%

Level of Concurrence for Non-Missing Values= 99%

December	Network Re-Abstracted Data			Total
	Missing	<20%	>=20%	
<b>Facility Abstracted Data</b>				
Missing	54	1	6	61
<20%	8	53	0	61
>=20%	17	0	131	148
<b>Total</b>	79	54	137	270

Kappa for Missing vs. Non-Missing Values = 0.69

Kappa for Non-Missing Values = 1.00

Level of Concurrence Missing vs. Non-Missing Values = 88%

Level of Concurrence for Non-Missing Values= 100%

**HEMODIALYSIS: Anemia Management**

**TABLE 11: Epoetin prescription [Question 18B1a]**

October	Network Re-Abstracted Data				Total
	Missing	Yes	No	Unknown	
<b>Facility Abstracted Data</b>					
Missing	31	3	0	0	34
Yes	11	204	7	0	222
No	0	2	7	1	10
Unknown	0	3	0	1	4
<b>Total</b>	42	212	14	2	270

Kappa for Missing vs. Non-Missing Values = 0.79

Kappa for Non-Missing Values = 0.54

Level of Concurrence Missing vs. Non-Missing Values = 95%

Level of Concurrence for Non-Missing Values= 94%

November	Network Re-Abstracted Data				Total
	Missing	Yes	No	Unknown	
<b>Facility Abstracted Data</b>					
Missing	25	1	0	1	27
Yes	10	209	7	1	227
No	0	2	10	0	12
Unknown	0	3	0	1	4
<b>Total</b>	35	215	17	3	270

Kappa for Missing vs. Non-Missing Values = 0.78

Kappa for Non-Missing Values = 0.60

Level of Concurrence Missing vs. Non-Missing Values = 96%

Level of Concurrence for Non-Missing Values= 94%

December	Network Re-Abstracted Data				Total
	Missing	Yes	No	Unknown	
<b>Facility Abstracted Data</b>					
Missing	12	1	0	0	13
Yes	10	215	8	1	234
No	1	3	12	0	16
Unknown	2	4	0	1	7
<b>Total</b>	25	223	20	2	270

Kappa for Missing vs. Non-Missing Values = 0.61

Kappa for Non-Missing Values = 0.59

Level of Concurrence Missing vs. Non-Missing Values = 95%

Level of Concurrence for Non-Missing Values= 93%

**HEMODIALYSIS: Anemia Management**

**TABLE 12: Prescribed route of epoetin administration [Question 18B4a]**

October	Network Re-Abstracted Data				Total
	Missing	IV	Subcutaneous	Unknown	
<b>Facility Abstracted Data</b>					
<b>Missing</b>	39	7	0	0	46
<b>IV</b>	18	198	0	2	218
<b>Subcutaneous</b>	1	0	3	0	4
<b>Both</b>	0	2	0	0	2
<b>Total</b>	58	207	3	2	270

Kappa for Missing vs. Non-Missing Values = 0.69

Kappa for Non-Missing Values = 0.59

Level of Concurrence Missing vs. Non-Missing Values = 90%

Level of Concurrence for Non-Missing Values=98%

IV = intravenous

November	Network Re-Abstracted Data					Total
	Missing	IV	Subcutaneous	Both	Unknown	
<b>Facility Abstracted Data</b>						
<b>Missing</b>	36	5	0	0	0	41
<b>IV</b>	18	205	0	0	1	224
<b>Subcutaneous</b>	1	1	2	0	0	4
<b>Both</b>	0	0	0	1	0	1
<b>Total</b>	55	211	2	1	1	270

Kappa for Missing vs. Non-Missing Values = 0.70

Kappa for Non-Missing Values = 0.75

Level of Concurrence Missing vs. Non-Missing Values = 91%

Level of Concurrence for Non-Missing Values=99%

IV = intravenous

December	Network Re-Abstracted Data					Total
	Missing	IV	Subcutaneous	Both	Unknown	
<b>Facility Abstracted Data</b>						
<b>Missing</b>	27	7	0	0	0	34
<b>IV</b>	19	209	0	0	2	230
<b>Subcutaneous</b>	1	0	4	0	0	5
<b>Both</b>	0	0	0	1	0	1
<b>Total</b>	47	216	4	1	2	270

Kappa for Missing vs. Non-Missing Values = 0.61

Kappa for Non-Missing Values = 0.83

Level of Concurrence Missing vs. Non-Missing Values = 90%

Level of Concurrence for Non-Missing Values=99%

IV = intravenous

**HEMODIALYSIS: Serum Albumin**

**TABLE 13: Serum albumin values ( $\geq 3.5/3.2$  gm/dL by BCG/BCP methods) [Questions 19A and 19B]**

October	Network Re-Abstracted Data			Total
	Missing	<3.5/3.2	$\geq 3.5/3.2$	
Facility Abstracted Data				
Missing	29	1	2	32
<3.5/3.2 gm/dL	3	36	1	40
$\geq 3.5/3.2$ gm/dL	13	1	184	198
<b>Total</b>	45	38	187	270

Kappa for Missing vs. Non-Missing Values = 0.71

Kappa for Non-Missing Values = 0.97

Level of Concurrence Missing vs. Non-Missing Values = 93%

Level of Concurrence for Non-Missing Values= 99%

November	Network Re-Abstracted Data			Total
	Missing	<3.5/3.2	$\geq 3.5/3.2$	
Facility Abstracted Data				
Missing	21	1	0	22
<3.5/3.2 gm/dL	3	37	0	40
$\geq 3.5/3.2$ gm/dL	13	2	193	208
<b>Total</b>	37	40	193	270

Kappa for Missing vs. Non-Missing Values = 0.68

Kappa for Non-Missing Values = 0.97

Level of Concurrence Missing vs. Non-Missing Values = 94%

Level of Concurrence for Non-Missing Values= 99%

BCG = bromcresol green

BCP = bromcresol purple

December	Network Re-Abstracted Data			Total
	Missing	<3.5/3.2	$\geq 3.5/3.2$	
Facility Abstracted Data				
Missing	10	0	2	12
<3.5/3.2 gm/dL	3	48	2	53
$\geq 3.5/3.2$ gm/dL	17	0	188	205
<b>Total</b>	30	48	192	270

Kappa for Missing vs. Non-Missing Values = 0.44

Kappa for Non-Missing Values = 0.97

Level of Concurrence Missing vs. Non-Missing Values = 92%

Level of Concurrence for Non-Missing Values= 99%

BCG = bromcresol green

BCP = bromcresol purple

**HEMODIALYSIS: Serum Albumin**

**TABLE 14: Laboratory method used to measure serum albumin in Table 13 [Question 19B]**

October	Network Re-Abstracted Data			Total
	Missing	BCP	BCG	
<b>Facility Abstracted Data</b>				
<b>Missing</b>	29	0	3	32
<b>BCP</b>	0	2	5	7
<b>BCG</b>	16	0	215	231
<b>Total</b>	45	2	223	270

Kappa for Missing vs. Non-Missing Values = 0.71

Kappa for Non-Missing Values = 0.44

Level of Concurrence Missing vs. Non-Missing Values = 93%

Level of Concurrence for Non-Missing Values= 98%

November	Network Re-Abstracted Data			Total
	Missing	BCP	BCG	
<b>Facility Abstracted Data</b>				
<b>Missing</b>	21	0	1	22
<b>BCP</b>	0	2	4	6
<b>BCG</b>	16	0	226	242
<b>Total</b>	37	2	231	270

Kappa for Missing vs. Non-Missing Values = 0.68

Kappa for Non-Missing Values = 0.49

Level of Concurrence Missing vs. Non-Missing Values = 94%

Level of Concurrence for Non-Missing Values= 98%

BCG = bromcresol green

BCP = bromcresol purple

December	Network Re-Abstracted Data			Total
	Missing	BCP	BCG	
<b>Facility Abstracted Data</b>				
<b>Missing</b>	10	0	2	12
<b>BCP</b>	0	2	4	6
<b>BCG</b>	20	0	232	252
<b>Total</b>	30	2	238	270

Kappa for Missing vs. Non-Missing Values = 0.44

Kappa for Non-Missing Values = 0.49

Level of Concurrence Missing vs. Non-Missing Values = 92%

Level of Concurrence for Non-Missing Values= 98%

BCG = bromcresol green

BCP = bromcresol purple

**HEMODIALYSIS: Vascular Access**

**TABLE 15: The type of access used on the last hemodialysis session on or between October 1, 2004 and December 31, 2004 [Question 21A]**

	Network Re-Abstracted Data						Total
	Missing	AV Fistula	Graft	Catheter	Port Access	Unknown	
<b>Facility Abstracted Data</b>							
<b>Missing</b>	9	0	0	1	0	0	10
<b>AV Fistula</b>	3	79	4	1	0	0	87
<b>Graft</b>	5	3	74	2	0	1	85
<b>Catheter</b>	2	4	4	74	0	0	84
<b>Port Access</b>	0	0	0	1	2	0	3
<b>Unknown</b>	0	0	1	0	0	0	1
<b>Total</b>	19	86	83	79	2	1	270

Kappa for Missing vs. Non-Missing Values = 0.60

Kappa for Non-Missing Values = 0.88

Level of Concurrence Missing vs. Non-Missing Values = 96%

Level of Concurrence for Non-Missing Values= 92%

**HEMODIALYSIS: Vascular Access**

**TABLE 16: Reason for catheter or port access, if used for access between October 1, 2004 and December 31, 2004 [Question 21C1]**

	Network Re-Abstracted Data									Total
	Missing	Fistula maturing, not ready to cannulate	Graft maturing, not ready to cannulate	Temporary interruption of fistula due to clotting or revisions	Temporary interruption of graft due to clotting or revisions	All fistula or graft sites have been exhausted	No fistula or graft surgically created at this time	No fistula or graft surgically planned	Other	
<b>Facility Abstracted</b>										
Missing	180	0	1	0	0	0	1	0	1	183
Fistula maturing, not ready to cannulate	5	7	0	0	0	0	2	0	1	15
Graft maturing, not ready to cannulate	1	0	3	1	0	0	0	0	0	5
Temporary interruption of fistula due to clotting or revisions	0	1	0	1	0	0	0	0	0	2
Temporary interruption of graft due to clotting or revisions	1	0	1	0	2	0	2	0	0	6
All fistula or graft sites have been exhausted	0	0	0	0	1	6	0	2	1	10
No fistula or graft surgically created at this time	2	3	0	1	0	0	11	1	1	19
No fistula or graft surgically planned	1	1	0	0	0	0	7	12	1	22
Other	0	1	1	0	0	0	2	1	3	8
<b>Total</b>	190	13	6	3	3	6	25	16	8	270

Kappa for Missing vs. Non-Missing Values = 0.89

Kappa for Non-Missing Values = 0.50

Level of Concurrence Missing vs. Non-Missing Values = 95%

Level of Concurrence for Non-Missing Values= 58%

**HEMODIALYSIS: Vascular Access**

**TABLE 17: Catheter or port access used exclusively as access >=90 days between October 1, 2004 and December 31, 2004 [Question 21C2]**

	Network Re-Abstracted Data				Total
	Missing	Yes	No	Unknown	
<b>Facility Abstracted Data</b>					
<b>Missing</b>	179	4	0	0	183
<b>Yes</b>	7	51	3	1	62
<b>No</b>	1	5	11	0	17
<b>Unknown</b>	3	3	1	1	8
<b>Total</b>	190	63	15	2	270

Kappa for Missing vs. Non-Missing Values = 0.87

Kappa for Non-Missing Values = 0.57

Level of Concurrence Missing vs. Non-Missing Values = 94%

Level of Concurrence for Non-Missing Values= 83%

**TABLE 18: The presence of routine monitoring for stenosis when AV grafts or AV fistulae were used for access between October 1, 2004 and December 31, 2004 [Question 21B1]**

	Network Re-Abstracted Data				Total
	Missing	Yes	No	Unknown	
<b>Facility Abstracted Data</b>					
<b>Missing</b>	89	1	0	8	98
<b>Yes</b>	9	82	8	12	111
<b>No</b>	3	11	22	10	46
<b>Unknown</b>	0	2	1	12	15
<b>Total</b>	101	96	31	42	270

Kappa for Missing vs. Non-Missing Values = 0.83

Kappa for Non-Missing Values = 0.50

Level of Concurrence Missing vs. Non-Missing Values = 92%

Level of Concurrence for Non-Missing Values= 73%

**HEMODIALYSIS: Vascular Access**

**TABLE 19a-e: The routine stenosis monitoring method used between October 1, 2004 and December 31, 2004 when AV grafts or AV fistulae were used for access [Question 21B2]**

**19a: Color-Flow Doppler Method**

	Network Re-Abstracted Data			Total
	Missing	No	Yes	
<b>Facility Abstracted Data</b>				
<b>Missing</b>	0	14	0	14
<b>No</b>	27	78	2	107
<b>Yes</b>	2	2	0	4
<b>Total</b>	29	94	2	125

Only patients for whom at least one source indicated a 'yes' value on a previous item are included in this table. Kappa and LOC statistics for missing vs. non-missing values are not appropriate in this case because some missing values are valid. Kappa for Non-Missing Values = -0.02

Level of Concurrence for Non-Missing Values= 95%

**19b: Static Venous Pressure Method**

	Network Re-Abstracted Data			Total
	Missing	No	Yes	
<b>Facility Abstracted Data</b>				
<b>Missing</b>	0	8	6	14
<b>No</b>	28	67	0	95
<b>Yes</b>	1	2	13	16
<b>Total</b>	29	77	19	125

Only patients for whom at least one source indicated a 'yes' value on a previous item are included in this table. Kappa and LOC statistics for missing vs. non-missing values are not appropriate in this case because some missing values are valid. Kappa for Non-Missing Values = 0.91

Level of Concurrence for Non-Missing Values= 98%

**19c: Dynamic Venous Pressure Method**

	Network Re-Abstracted Data			Total
	Missing	No	Yes	
<b>Facility Abstracted Data</b>				
<b>Missing</b>	0	7	7	14
<b>No</b>	12	38	7	57
<b>Yes</b>	17	4	33	54
<b>Total</b>	29	49	47	125

Only patients for whom at least one source indicated a 'yes' value on a previous item are included in this table. Kappa and LOC statistics for missing vs. non-missing values are not appropriate in this case because some missing values are valid. Kappa for Non-Missing Values = 0.73

Level of Concurrence for Non-Missing Values= 87%

**HEMODIALYSIS: Vascular Access**

**TABLE 19a-e: The routine stenosis monitoring method used between October 1, 2004 and December 31, 2004 when AV grafts or AV fistulae were used for access [Question 21B2]**

**19d: Dilution Technique**

	Network Re-Abstracted Data			Total
	Missing	No	Yes	
<b>Facility Abstracted Data</b>				
<b>Missing</b>	0	14	0	14
<b>No</b>	26	72	1	99
<b>Yes</b>	3	5	4	12
<b>Total</b>	29	91	5	125

Only patients for whom at least one source indicated a ‘yes’ value on a previous item are included in this table. Kappa and LOC statistics for missing vs. non-missing values are not appropriate in this case because some missing values are valid. Kappa for Non-Missing Values = 0.53

Level of Concurrence for Non-Missing Values= 93%

**19e: Other Method**

	Network Re-Abstracted Data			Total
	Missing	No	Yes	
<b>Facility Abstracted Data</b>				
<b>Missing</b>	0	12	2	14
<b>No</b>	22	49	4	75
<b>Yes</b>	7	4	25	36
<b>Total</b>	29	65	31	125

Only patients for whom at least one source indicated a ‘yes’ value on a previous item are included in this table. Kappa and LOC statistics for missing vs. non-missing values are not appropriate in this case because some missing values are valid. Kappa for Non-Missing Values = 0.79

Level of Concurrence for Non-Missing Values= 90%

**HEMODIALYSIS: Vascular Access**

**TABLE 20: The type of access used at the initiation of a maintenance course of hemodialysis, if between January 1, 2004 and August 31, 2004 [Question 22A]**

	Network Re-Abstracted Data					Total
	Missing	AV Fistula	Graft	Catheter	Unknown	
<b>Facility Abstracted Data</b>						
<b>Missing</b>	217	1	0	4	1	223
<b>AV Fistula</b>	0	3	0	0	0	3
<b>Graft</b>	1	0	2	0	0	3
<b>Catheter</b>	11	0	2	25	1	39
<b>Unknown</b>	1	0	0	0	1	2
<b>Total</b>	230	4	4	29	3	270

Kappa for Missing vs. Non-Missing Values = 0.74

Kappa for Non-Missing Values = 0.77

Level of Concurrence Missing vs. Non-Missing Values = 93%

Level of Concurrence for Non-Missing Values= 91%

**HEMODIALYSIS: Vascular Access**

**TABLE 21: The type of access used 90 days after the date in Table 20 during the initiation of hemodialysis, if between January 1, 2004 and August 31, 2004 [Question 22B]**

	Network Re-Abstracted Data					Total
	Missing	AV Fistula	Graft	Catheter	Unknown	
<b>Facility Abstracted Data</b>						
<b>Missing</b>	217	1	0	4	1	223
<b>AV Fistula</b>	0	5	0	1	0	6
<b>Graft</b>	0	0	6	0	1	7
<b>Catheter</b>	12	0	1	18	2	33
<b>Unknown</b>	1	0	0	0	0	1
<b>Total</b>	230	6	7	23	4	270

Kappa for Missing vs. Non-Missing Values = 0.74

Kappa for Non-Missing Values = 0.75

Level of Concurrence Missing vs. Non-Missing Values = 93%

Level of Concurrence for Non-Missing Values= 85%

**HEMODIALYSIS: Other Data Elements**

**TABLE 22: Limb amputation(s) prior to December 31, 2003 [Question 15]**

	Network Re-Abstracted Data				Total
	Missing	Yes	No	Unknown	
<b>Facility Abstracted Data</b>					
<b>Missing</b>	8	0	1	0	9
<b>Yes</b>	3	10	4	0	17
<b>No</b>	8	5	209	18	240
<b>Unknown</b>	0	1	3	0	4
<b>Total</b>	19	16	217	18	270

Kappa for Missing vs. Non-Missing Values = 0.55

Kappa for Non-Missing Values = 0.36

Level of Concurrence Missing vs. Non-Missing Values = 96%

Level of Concurrence for Non-Missing Values= 88%

**HEMODIALYSIS: Other Data Elements**

**TABLE 23: Number of prescribed hemodialysis times per week [Question 20A]**

October	Network Re-Abstracted Data			Total
	Missing	= 3	> 3	
<b>Facility Abstracted Data</b>				
Missing	26	0	0	26
< 3	0	5	0	5
= 3	14	221	0	235
> 3	0	1	3	4
<b>Total</b>	40	227	3	270

Kappa for Missing vs. Non-Missing Values = 0.76

Kappa for Non-Missing Values = 0.49

Level of Concurrence Missing vs. Non-Missing Values = 95%

Level of Concurrence for Non-Missing Values= 98%

November	Network Re-Abstracted Data			Total
	Missing	= 3	> 3	
<b>Facility Abstracted Data</b>				
Missing	21	0	0	21
< 3	0	4	0	4
= 3	13	228	0	241
> 3	0	1	3	4
<b>Total</b>	34	233	3	270

Kappa for Missing vs. Non-Missing Values = 0.74

Kappa for Non-Missing Values = 0.54

Level of Concurrence Missing vs. Non-Missing Values = 95%

Level of Concurrence for Non-Missing Values= 98%

December	Network Re-Abstracted Data			Total
	Missing	= 3	> 3	
<b>Facility Abstracted Data</b>				
Missing	10	1	0	11
< 3	0	5	0	5
= 3	15	235	0	250
> 3	0	1	3	4
<b>Total</b>	25	242	3	270

Kappa for Missing vs. Non-Missing Values = 0.53

Kappa for Non-Missing Values = 0.49

Level of Concurrence Missing vs. Non-Missing Values = 94%

Level of Concurrence for Non-Missing Values= 98%

*HEMODIALYSIS: Other Data Elements*

**TABLE 24: Ethnicity [Question 13]**

	Network Re-Abstracted Data							Total
	Missing	Non-Hispanic	Hispanic, Mexican American	Hispanic, Puerto Rican	Hispanic, Cuban American	Hispanic, Other	Unknown	
<b>Facility Abstracted Data</b>								
Missing	8	1	0	0	0	0	0	9
Non-Hispanic	12	208	1	0	0	1	1	223
Hispanic, Mexican American	0	1	17	0	0	2	0	20
Hispanic, Puerto Rican	0	0	0	2	0	0	0	2
Hispanic, Cuban American	0	0	0	0	1	1	0	2
Hispanic, Other	0	0	4	0	0	6	0	10
Unknown	0	4	0	0	0	0	0	4
<b>Total</b>	20	214	22	2	1	10	1	270

Kappa for Missing vs. Non-Missing Values = 0.53

Kappa for Non-Missing Values = 0.77

Level of Concurrence Missing vs. Non-Missing Values = 95%

Level of Concurrence for Non-Missing Values = 94%

**HEMODIALYSIS: Other Data Elements**

**TABLE 25: Diabetes diagnosis [Question 16]**

	Network Re-Abstracted Data				Total
	Missing	Yes	No	Unknown	
<b>Facility Abstracted Data</b>					
<b>Missing</b>	5	0	1	0	6
<b>Yes</b>	4	107	6	1	118
<b>No</b>	10	6	126	2	144
<b>Unknown</b>	0	2	0	0	2
<b>Total</b>	19	115	133	3	270

Kappa for Missing vs. Non-Missing Values = 0.38

Kappa for Non-Missing Values = 0.87

Level of Concurrence Missing vs. Non-Missing Values = 94%

Level of Concurrence for Non-Missing Values= 93%

**HEMODIALYSIS: Other Data Elements**

**TABLE 26: Medication use for diabetes control\* [Question 17]**

	Network Re-Abstracted Data				Total
	Missing	Yes	No	Unknown	
<b>Facility Abstracted Data</b>					
<b>Missing</b>	1	8	2	1	12
<b>Yes</b>	4	39	3	5	51
<b>No</b>	3	3	4	3	13
<b>Unknown</b>	3	20	10	17	50
<b>Total</b>	11	70	19	26	126

Only patients for whom at least one source indicated a 'yes' value on a previous item are included in this table. Kappa and LOC statistics for missing vs. non-missing values are not appropriate in this case because some missing values are valid. Kappa for Non-Missing Values = 0.30

Level of Concurrence for Non-Missing Values= 58%

**HEMODIALYSIS: Other Data Elements**

**TABLE 27: Insulin use for diabetes\* [Question 17]**

	Network Re-Abstracted Data				Total
	Missing	Yes	No	Unknown	
<b>Facility Abstracted Data</b>					
<b>Missing</b>	0	23	7	1	31
<b>Yes</b>	6	28	1	0	35
<b>No</b>	5	1	8	0	14
<b>Unknown</b>	1	1	0	0	2
<b>Total</b>	12	53	16	1	82

Only patients for whom at least one source indicated a 'yes' value on a previous item are included in this table. Kappa and LOC statistics for missing vs. non-missing values are not appropriate in this case because some missing values are valid. Kappa for Non-Missing Values = 0.79

Level of Concurrence for Non-Missing Values= 92%

**HEMODIALYSIS****Table 28: Agreement rate of data abstracted by dialysis facility staff to data re-abstracted by ESRD Network staff for selected hemodialysis data elements**

<b>Data Element</b>	<b>Agreement rate</b>	<b>Number of cases agreed upon</b>	<b>Total number of non-missing cases</b>
Most recent date patient returned to adult hemodialysis [Question 11]	92%	76	83
Epoetin dose, October [Question 18B2]	82%	162	197
Epoetin dose, November [Question 18B2]	79%	149	188
Epoetin dose, December [Question 18B2]	84%	162	193
IV iron administration dose, October [Question 18G]	68%	78	114
IV iron administration dose, November [Question 18G]	64%	76	119
IV iron administration dose, December [Question 18G]	67%	90	135
Pre-dialysis BUN, October [Question 20F]	97%	212	219
Pre-dialysis BUN, November [Question 20F]	98%	225	230
Pre-dialysis BUN, December [Question 20F]	99%	234	236
Post-dialysis BUN, October [Question 20G]	99%	217	219
Post-dialysis BUN, November [Question 20G]	98%	224	229
Post-dialysis BUN, December [Question 20G]	99%	234	236
Pre-dialysis weight, October [Question 20H]	88%	187	212
Pre-dialysis weight, November [Question 20H]	92%	205	223
Pre-dialysis weight, December [Question 20H]	92%	213	231
Post-dialysis weight, October [Question 20H]	87%	184	212
Post-dialysis weight, November [Question 20H]	88%	196	223
Post-dialysis weight, December [Question 20H]	87%	201	231

**PERITONEAL DIALYSIS**

**TABLE 29: Comparison of categorical data abstracted by dialysis facility staff to categorical data re-abstracted by ESRD Network staff for selected peritoneal dialysis data elements**

Clinical Indicators	Data Abstracted by Facility Staff	Data Re-Abstracted by ESRD Network Staff	Kappa
<b>ADEQUACY OF DIALYSIS</b>			
<b>Weekly Kt/V<sub>urea</sub></b>			
Kt/V <sub>urea</sub> ≥ 2.0 (1st PD Adequacy Measurement)	55%	51%	0.98
Kt/V <sub>urea</sub> ≥ 2.0 (2nd PD Adequacy Measurement)	31%	31%	1.00
<b>Weekly Creatinine Clearance (L/wk)</b>			
Creatinine clearance ≥ 60 (1st PD Adequacy Meas.)	46%	44%	0.95
Creatinine clearance ≥ 60 (2nd PD Adequacy Meas.)	26%	26%	0.94
<b>ANEMIA MANAGEMENT</b>			
<b>Hemoglobin</b>			
Hemoglobin ≥ 9 gm/dL (October-November)	84%	83%	0.92
Hemoglobin ≥ 9 gm/dL (December-January)	89%	85%	0.91
Hemoglobin ≥ 9 gm/dL (February-March)	80%	77%	0.87
Hemoglobin ≥ 11 gm/dL (October-November)	61%	62%	0.87
Hemoglobin ≥ 11 gm/dL (December-January)	64%	58%	0.91
Hemoglobin ≥ 11 gm/dL (February-March)	66%	64%	0.91
<b>Serum Ferritin Concentration</b>			
Serum ferritin concentration ≥ 100 ng/mL (October-November)	60%	58%	1.00
Serum ferritin concentration ≥ 100 ng/mL (December-January)	60%	55%	0.96
Serum ferritin concentration ≥ 100 ng/mL (February-March)	36%	32%	1.00
<b>Transferrin Saturation</b>			
Transferrin saturation ≥ 20% (October-November)	64%	58%	0.97
Transferrin saturation ≥ 20% (December-January)	60%	52%	0.93
Transferrin saturation ≥ 20% (February-March)	44%	39%	1.00
<b>SERUM ALBUMIN</b>			
Serum albumin (October-November) (≥ 3.2 gm/dL BCP/ ≥ 3.5 gm/dL BCG)	55%	58%	0.95
Serum albumin (December-January) (≥ 3.2 gm/dL BCP/ ≥ 3.5 gm/dL BCG)	57%	54%	0.95
Serum albumin (February-March) (≥ 3.2 gm/dL BCP/ ≥ 3.5 gm/dL BCG)	58%	54%	0.98

BCG = bromcresol green

BCP = bromcresol purple

The number of matched facility and Network data collection forms was 151.

**PERITONEAL DIALYSIS**

**TABLE 30: Comparison of means for continuous data abstracted by dialysis facility staff to continuous data re-abstracted by ESRD Network staff for selected peritoneal dialysis data elements**

Clinical Indicators	Data Abstracted by Facility Staff	Data Re-Abstracted by ESRD Network Staff	Agreement Rate %
<b>ADEQUACY OF DIALYSIS</b>			
<b>Total weekly Kt/V<sub>urea</sub> (1st PD Adequacy Measurement)</b>			
Mean	2.44 (n = 116)	2.36 (n = 112)	86
Minimum – Maximum	0.68 – 9.81	0.56 – 5.49	
<b>Total weekly Kt/V<sub>urea</sub> (2nd PD Adequacy Measurement)</b>			
Mean	2.37 (n = 69)	2.36 (n = 70)	89
Minimum – Maximum	0.65 – 5.32	1.35 – 5.32	
<b>Total weekly Creatinine Clearance (L/wk) (1st PD Adequacy Measurement)</b>			
Mean	79.73 (n = 118)	78.54 (n = 117)	78
Minimum – Maximum	5.8 – 683.0	2.9 – 683.0	
<b>Total weekly Creatinine Clearance (L/wk) (2nd PD Adequacy Measurement)</b>			
Mean	72.98 (n = 74)	72.76 (n = 72)	70
Minimum – Maximum	2.5 - 324.9	5.9 - 324.9	
<b>ANEMIA MANAGEMENT</b>			
<b>Hemoglobin (gm/dL) (October-November)</b>			
Mean	11.98 (n = 135)	11.92 (n = 133)	86
Minimum – Maximum	0.4 - 39.3	6.3 - 19.8	
<b>Hemoglobin (gm/dL) (December-January)</b>			
Mean	12.20 (n = 140)	11.87 (n = 136)	90
Minimum – Maximum	6.8 - 43.2	6.2 - 16.4	
<b>Hemoglobin (gm/dL) (February-March)</b>			
Mean	12.16 (n = 129)	11.93 (n = 127)	92
Minimum – Maximum	7.8 - 23.1	6.3 - 18.0	
<b>Serum Ferritin Concentration (ng/mL) (October-November)</b>			
Mean	421.14 (n = 109)	440.88 (n = 107)	90
Minimum – Maximum	14 – 1,736	14 – 3,167	
<b>Serum Ferritin Concentration (ng/mL) (December-January)</b>			
Mean	419.15 (n = 109)	432.71 (n = 98)	86
Minimum – Maximum	24 – 1,759	30 – 1,759	
<b>Serum Ferritin Concentration (ng/mL) (February-March)</b>			
Mean	518.52 (n = 64)	504.59 (n = 58)	89
Minimum – Maximum	13 – 3,543	29 – 1,547	

**PERITONEAL DIALYSIS**

**TABLE 30: (Continued)**

<b>Clinical Indicators</b>	<b>Data Abstracted by Facility Staff</b>	<b>Data Re-Abstracted by ESRD Network Staff</b>	<b>Agreement Rate %</b>
<b>ANEMIA MANAGEMENT (cont.)</b>			
<b>Transferrin Saturation (%) (October-November)</b>			
Mean	28.76 (n = 119)	29.86 (n = 107)	94
Minimum – Maximum	7 - 69	7 - 89	
<b>Transferrin Saturation (%) (December-January)</b>			
Mean	29.36 (n = 120)	27.99 (n = 108)	91
Minimum – Maximum	8 - 94	8 - 69	
<b>Transferrin Saturation (%) (February-March)</b>			
Mean	31.35 (n = 93)	30.11 (n = 82)	94
Minimum – Maximum	7 - 94	10- 94	
<b>Epoetin Dose (units per week) (October-November)</b>			
Mean	43,944 (n = 107)	46,433 (n = 110)	63
Minimum – Maximum	600 – 400,000	0 – 300,000	
<b>Epoetin Dose (units per week) (December-January)</b>			
Mean	46,691 (n = 117)	48,116 (n = 118)	65
Minimum – Maximum	600 – 400,000	0 – 240,000	
<b>Epoetin Dose (units per week) (February-March)</b>			
Mean	49,677 (n = 111)	49,994 (n = 109)	61
Minimum – Maximum	800 – 286,380	0 – 240,000	
<b>IV Iron Dose (October-November)</b>			
Mean	470.48 (n = 25)	463.89 (n = 27)	71
Minimum – Maximum	0 – 1000	0 – 1000	
<b>IV Iron Dose (December-January)</b>			
Mean	360.19 (n = 16)*	379.63 (n = 19)*	67
Minimum – Maximum	50 - 1500	0 1000	
<b>IV Iron Dose (February-March)</b>			
Mean	321.67 (n = 15)*	269.44 (n = 18)*	69
Minimum – Maximum	0 - 1000	0 - 800	
<b>WEIGHTS (kgs)</b>			
<b>Clinic Weight</b>			
Mean	89.29 (n = 134)	91.89 (n = 140)	52
Minimum – Maximum	4.2 - 236.5	4.8 - 256.0	
<b>Adequacy Weight (1st PD Adequacy Measurement)</b>			
Mean	86.47 (n = 134)	85.36 (n = 120)	73
Minimum – Maximum	4.2 – 219.5	6.7 - 254.0	
<b>Adequacy Weight (2nd PD Adequacy Measurement)</b>			
Mean	91.41 (n = 74)	83.80 (n = 74)	72
Minimum – Maximum	6.6 - 213.8	6.6 - 249.0	

**PERITONEAL DIALYSIS**

**TABLE 30: (Continued)**

<b>Clinical Indicators</b>	<b>Data Abstracted by Facility Staff</b>	<b>Data Re-Abstracted by ESRD Network Staff</b>	<b>Agreement Rate %</b>
<b>SERUM ALBUMIN (gm/dL)</b>			
<b>Serum albumin by BCG method (October-November)</b>			
Mean	3.56 (n = 135)	3.61 (n = 74)	92
Minimum – Maximum	1.7 – 5.1	2.1 – 5.1	
Mean	3.61 (n = 139)	3.56 (n = 134)	88
Minimum – Maximum	1.8 – 5.0	1.2 – 4.8	
Mean	3.56 (n = 128)	3.55 (n = 135)	96
Minimum – Maximum	1.7 – 4.7	1.7 – 4.7	
<b>Serum albumin by BCG method (December-January)</b>			
Mean	3.63 (n = 120)	3.63 (n = 126)	92
Minimum – Maximum	2.1 – 5.1	2.1 – 5.1	
Mean	3.63 (n = 124)	3.57 (n = 129)	88
Minimum – Maximum	1.8 – 5.0	1.2 – 4.8	
Mean	3.55 (n = 112)	3.54 (n = 119)	96
Minimum – Maximum	1.7 – 4.7	1.7 – 4.7	
<b>Serum albumin by BCG method (February-March)</b>			
Mean	3.23 (n = 8)	3.23 (n = 8)	92
Minimum – Maximum	2.5 – 3.8	2.5 – 3.8	
Mean	3.35 (n = 6)	3.40 (n = 6)	88
Minimum – Maximum	2.8 – 4.4	2.8 – 4.4	
Mean	3.69 (n = 7)	3.69 (n = 7)	96
Minimum – Maximum	3.1 – 4.2	3.1 – 4.2	

\*Note: The low number of iron Rx documented.

BCG = bromocresol green

BCP = bromocresol purple. This year we had few (8) records indicating BCP.

n = number of non-missing records in the sample; hence, the “n” may not be equal between the two samples

**PERITONEAL DIALYSIS: Adequacy of Dialysis**  
**TABLE 31: Total weekly Kt/V urea [Question 21D & 23D]**

1st PD Adequacy Measurement	Network Re-Abstracted Data			Total
	Missing	<2.0	>=2.0	
Facility Abstracted Data				
Missing	32	2	1	35
<2.0	1	32	0	33
>=2.0	6	1	76	83
<b>Total</b>	39	35	77	151

Kappa for Missing vs. Non-Missing Values = 0.82

Kappa for Non-Missing Values = 0.98

Level of Concurrence Missing vs. Non-Missing Values = 93%

Level of Concurrence for Non-Missing Values= 99%

2nd PD Adequacy Measurement	Network Re-Abstracted Data			Total
	Missing	<2.0	>=2.0	
Facility Abstracted Data				
Missing	75	3	4	82
<2.0	2	20	0	22
>=2.0	4	0	43	47
<b>Total</b>	81	23	47	151

Kappa for Missing vs. Non-Missing Values = 0.83

Kappa for Non-Missing Values = 1.00

Level of Concurrence Missing vs. Non-Missing Values = 91%

Level of Concurrence for Non-Missing Values= 100%

**PERITONEAL DIALYSIS: Adequacy of Dialysis**

**TABLE 32: Method by which V was calculated in the total weekly Kt/V urea\* [Question 21E & 23E]**

1st PD Adequacy Measurement	Network Re-Abstracted Data					Total
	Missing	% Body Weight	Hume	Watson	Other	
Facility Abstracted Data						
Missing	33	0	0	1	1	35
% Body Weight	2	8	1	0	1	12
Hume	6	1	35	0	3	45
Watson	4	2	1	43	0	50
Other	0	0	1	0	8	9
<b>Total</b>	45	11	38	44	13	151

Kappa for Missing vs. Non-Missing Values = 0.76

Kappa for Non-Missing Values = 0.85

Level of Concurrence Missing vs. Non-Missing Values = 91%

Level of Concurrence for Non-Missing Values= 90%

2nd PD Adequacy Measurement	Network Re-Abstracted Data					Total
	Missing	% Body Weight	Hume	Watson	Other	
Facility Abstracted Data						
Missing	75	1	1	3	2	82
% Body Weight	2	3	1	0	0	6
Hume	6	0	23	0	0	29
Watson	3	2	1	24	0	30
Other	0	0	0	0	4	4
<b>Total</b>	86	6	26	27	6	151

Kappa for Missing vs. Non-Missing Values = 0.76

Kappa for Non-Missing Values = 0.89

Level of Concurrence Missing vs. Non-Missing Values = 88%

Level of Concurrence for Non-Missing Values= 93%

**PERITONEAL DIALYSIS: Adequacy of Dialysis**

**TABLE 33: Total weekly Creatinine Clearance [Question 21F & 23F]**

1st PD Adequacy Measurement	Network Re-Abstracted Data			Total
	Missing	<60 L/wk	>=60 L/wk	
Facility Abstracted Data				
Missing	30	2	1	33
<60 L/wk	2	46	1	49
>=60 L/wk	2	2	65	69
<b>Total</b>	34	50	67	151

Kappa for Missing vs. Non-Missing Values = 0.87

Kappa for Non-Missing Values = 0.95

Level of Concurrence Missing vs. Non-Missing Values = 95%

Level of Concurrence for Non-Missing Values=97%

2nd PD Adequacy Measurement	Network Re-Abstracted Data			Total
	Missing	<60 L/wk	>=60 L/wk	
Facility Abstracted Data				
Missing	72	3	2	77
<60 L/wk	2	30	2	34
>=60 L/wk	5	0	35	40
<b>Total</b>	79	33	39	151

Kappa for Missing vs. Non-Missing Values = 0.84

Kappa for Non-Missing Values = 0.94

Level of Concurrence Missing vs. Non-Missing Values = 92%

Level of Concurrence for Non-Missing Values=97%

**PERITONEAL DIALYSIS: Adequacy of Dialysis**

**TABLE 34: Creatinine Clearance corrected for body surface area, using standard methods [Question 21G & 23G]**

1st PD Adequacy Measurement	Network Re-Abstracted Data			Total
	Missing	Yes	Unknown	
Facility Abstracted Data				
Missing	30	2	1	33
Yes	3	108	0	111
No	0	1	0	1
Unknown	1	2	3	6
<b>Total</b>	34	113	4	151

Kappa for Missing vs. Non-Missing Values = 0.87

Kappa for Non-Missing Values = 0.66

Level of Concurrence Missing vs. Non-Missing Values = 95%

Level of Concurrence for Non-Missing Values= 97%

2nd PD Adequacy Measurement	Network Re-Abstracted Data			Total
	Missing	Yes	Unknown	
Facility Abstracted Data				
Missing	72	6	0	78
Yes	6	62	1	69
Unknown	1	2	1	4
<b>Total</b>	79	70	2	151

Kappa for Missing vs. Non-Missing Values = 0.83

Kappa for Non-Missing Values = 0.38

Level of Concurrence Missing vs. Non-Missing Values = 91%

Level of Concurrence for Non-Missing Values= 95%

**PERITONEAL DIALYSIS: Anemia Management**  
**TABLE 35: Hemoglobin  $\geq 9$  gm/dL [Question 18A]**

October-November	Network Re-Abstracted Data			Total
	Missing	<9 gm/dL	$\geq 9$ gm/dL	
Facility Abstracted Data				
Missing	10	1	5	16
<9 gm/dL	1	6	1	8
$\geq 9$ gm/dL	7	0	120	127
<b>Total</b>	18	7	126	151

Kappa for Missing vs. Non-Missing Values = 0.54

Kappa for Non-Missing Values = 0.92

Level of Concurrence Missing vs. Non-Missing Values = 91%

Level of Concurrence for Non-Missing Values= 99%

December-January	Network Re-Abstracted Data			Total
	Missing	<9 gm/dL	$\geq 9$ gm/dL	
Facility Abstracted Data				
Missing	6	1	4	11
<9 gm/dL	0	5	0	5
$\geq 9$ gm/dL	9	1	125	135
<b>Total</b>	15	7	129	151

Kappa for Missing vs. Non-Missing Values = 0.41

Kappa for Non-Missing Values = 0.91

Level of Concurrence Missing vs. Non-Missing Values = 91%

Level of Concurrence for Non-Missing Values= 99%

February-March	Network Re-Abstracted Data			Total
	Missing	<9 gm/dL	$\geq 9$ gm/dL	
Facility Abstracted Data				
Missing	15	1	6	22
<9 gm/dL	1	7	0	8
$\geq 9$ gm/dL	8	2	111	121
<b>Total</b>	24	10	117	151

Kappa for Missing vs. Non-Missing Values = 0.59

Kappa for Non-Missing Values = 0.87

Level of Concurrence Missing vs. Non-Missing Values = 89%

Level of Concurrence for Non-Missing Values= 98%

**PERITONEAL DIALYSIS: Anemia Management**  
**TABLE 36: Hemoglobin  $\geq 11$  gm/dL [Question 18A]**

October-November	Network Re-Abstracted Data			Total
	Missing	<11 gm/dL	$\geq 11$ gm/dL	
<b>Facility Abstracted Data</b>				
Missing	10	2	4	16
<11 gm/dL	5	34	4	43
$\geq 11$ gm/dL	3	3	86	92
<b>Total</b>	18	39	94	151

Kappa for Missing vs. Non-Missing Values = 0.54  
 Kappa for Non-Missing Values = 0.87

Level of Concurrence Missing vs. Non-Missing Values = 91%  
 Level of Concurrence for Non-Missing Values = 94%

December-January	Network Re-Abstracted Data			Total
	Missing	<11 gm/dL	$\geq 11$ gm/dL	
<b>Facility Abstracted Data</b>				
Missing	6	2	3	11
<11 gm/dL	2	41	0	43
$\geq 11$ gm/dL	7	5	85	97
<b>Total</b>	15	48	88	151

Kappa for Missing vs. Non-Missing Values = 0.41  
 Kappa for Non-Missing Values = 0.91

Level of Concurrence Missing vs. Non-Missing Values = 91%  
 Level of Concurrence for Non-Missing Values = 96%

February-March	Network Re-Abstracted Data			Total
	Missing	<11 gm/dL	$\geq 11$ gm/dL	
<b>Facility Abstracted Data</b>				
Missing	15	1	6	22
<11 gm/dL	2	27	1	30
$\geq 11$ gm/dL	7	3	89	99
<b>Total</b>	24	31	96	151

Kappa for Missing vs. Non-Missing Values = 0.59  
 Kappa for Non-Missing Values = 0.91

Level of Concurrence Missing vs. Non-Missing Values = 89%  
 Level of Concurrence for Non-Missing Values = 97%

**PERITONEAL DIALYSIS: Anemia Management**  
**TABLE 37: Serum ferritin concentration [Question 18C]**

October-November	Network Re-Abstracted Data			Total
	Missing	<100 ng/mL	>=100 ng/mL	
Facility Abstracted Data				
Missing	35	3	4	42
<100 ng/mL	2	17	0	19
>=100 ng/mL	7	0	83	90
<b>Total</b>	44	20	87	151

Kappa for Missing vs. Non-Missing Values = 0.74  
 Kappa for Non-Missing Values = 1.00

Level of Concurrence Missing vs. Non-Missing Values = 89%  
 Level of Concurrence for Non-Missing Values= 100%

December-January	Network Re-Abstracted Data			Total
	Missing	<100 ng/mL	>=100 ng/mL	
Facility Abstracted Data				
Missing	37	1	4	42
<100 ng/mL	3	14	1	18
>=100 ng/mL	13	0	78	91
<b>Total</b>	53	15	83	151

Kappa for Missing vs. Non-Missing Values = 0.68  
 Kappa for Non-Missing Values = 0.96

Level of Concurrence Missing vs. Non-Missing Values = 86%  
 Level of Concurrence for Non-Missing Values= 99%

February-March	Network Re-Abstracted Data			Total
	Missing	<100 ng/mL	>=100 ng/mL	
Facility Abstracted Data				
Missing	82	2	3	87
<100 ng/mL	3	7	0	10
>=100 ng/mL	8	0	46	54
<b>Total</b>	93	9	49	151

Kappa for Missing vs. Non-Missing Values = 0.78  
 Kappa for Non-Missing Values = 1.00

Level of Concurrence Missing vs. Non-Missing Values = 89%  
 Level of Concurrence for Non-Missing Values= 100%

**PERITONEAL DIALYSIS: Anemia Management**  
**TABLE 38: Percent transferrin saturation [Question 18D]**

October-November	Network Re-Abstracted Data			Total
	Missing	<20%	>=20%	
Facility Abstracted Data				
Missing	26	1	5	32
<20%	5	18	0	23
>=20%	13	1	82	96
<b>Total</b>	44	20	87	151

Kappa for Missing vs. Non-Missing Values = 0.58

Kappa for Non-Missing Values = 0.97

Level of Concurrence Missing vs. Non-Missing Values = 84%

Level of Concurrence for Non-Missing Values= 99%

December-January	Network Re-Abstracted Data			Total
	Missing	<20%	>=20%	
Facility Abstracted Data				
Missing	26	2	3	31
<20%	3	26	1	30
>=20%	14	2	74	90
<b>Total</b>	43	30	78	151

Kappa for Missing vs. Non-Missing Values = 0.61

Kappa for Non-Missing Values = 0.93

Level of Concurrence Missing vs. Non-Missing Values = 85%

Level of Concurrence for Non-Missing Values= 97%

February-March	Network Re-Abstracted Data			Total
	Missing	<20%	>=20%	
Facility Abstracted Data				
Missing	53	2	3	58
<20%	6	21	0	27
>=20%	10	0	56	66
<b>Total</b>	69	23	59	151

Kappa for Missing vs. Non-Missing Values = 0.72

Kappa for Non-Missing Values = 1.00

Level of Concurrence Missing vs. Non-Missing Values = 86%

Level of Concurrence for Non-Missing Values= 100%

**PERITONEAL DIALYSIS: Anemia Management**  
**TABLE 39: Epoetin prescription [Question 18B1a]**

October-November	Network Re-Abstracted Data				Total
	Missing	Yes	No	Unknown	
<b>Facility Abstracted Data</b>					
<b>Missing</b>	12	4	2	0	18
<b>Yes</b>	4	99	3	1	107
<b>No</b>	2	6	13	1	22
<b>Unknown</b>	0	1	0	3	4
<b>Total</b>	18	110	18	5	151

Kappa for Missing vs. Non-Missing Values = 0.62  
 Kappa for Non-Missing Values = 0.69

Level of Concurrence Missing vs. Non-Missing Values = 92%  
 Level of Concurrence for Non-Missing Values= 91%

December-January	Network Re-Abstracted Data				Total
	Missing	Yes	No	Unknown	
<b>Facility Abstracted Data</b>					
<b>Missing</b>	7	4	1	0	12
<b>Yes</b>	8	105	3	1	117
<b>No</b>	0	7	11	0	18
<b>Unknown</b>	0	2	1	1	4
<b>Total</b>	15	118	16	2	151

Kappa for Missing vs. Non-Missing Values = 0.47  
 Kappa for Non-Missing Values = 0.59

Level of Concurrence Missing vs. Non-Missing Values = 91%  
 Level of Concurrence for Non-Missing Values= 89%

February-March	Network Re-Abstracted Data				Total
	Missing	Yes	No	Unknown	
<b>Facility Abstracted Data</b>					
<b>Missing</b>	16	6	1	0	23
<b>Yes</b>	8	99	4	0	111
<b>No</b>	0	1	12	0	13
<b>Unknown</b>	0	3	0	1	4
<b>Total</b>	24	109	17	1	151

Kappa for Missing vs. Non-Missing Values = 0.62  
 Kappa for Non-Missing Values = 0.73

Level of Concurrence Missing vs. Non-Missing Values = 90%  
 Level of Concurrence for Non-Missing Values= 93%

**PERITONEAL DIALYSIS: Anemia Management**

**TABLE 40: Prescribed route of epoetin administration [Question 18B4a]**

October-November	Network Re-Abstracted Data				Total
	Missing	IV	Subcutaneous	Unknown	
Facility Abstracted Data					
Missing	33	0	11	0	44
IV	0	3	0	0	3
Subcutaneous	8	0	93	3	104
<b>Total</b>	41	3	104	3	151

Kappa for Missing vs. Non-Missing Values = 0.69

Kappa for Non-Missing Values = 0.66

Level of Concurrence Missing vs. Non-Missing Values = 87%

Level of Concurrence for Non-Missing Values=97%

December-January	Network Re-Abstracted Data				Total
	Missing	IV	Subcutaneous	Unknown	
Facility Abstracted Data					
Missing	21	0	12	1	34
IV	2	3	3	0	8
Subcutaneous	10	1	97	0	108
Unknown	0	0	1	0	1
<b>Total</b>	33	4	113	1	151

Kappa for Missing vs. Non-Missing Values = 0.52

Kappa for Non-Missing Values = 0.52

Level of Concurrence Missing vs. Non-Missing Values = 83%

Level of Concurrence for Non-Missing Values=95%

IV = intravenous

February-March	Network Re-Abstracted Data				Total
	Missing	IV	Subcutaneous	Unknown	
Facility Abstracted Data					
Missing	30	2	8	0	40
IV	1	2	3	0	6
Subcutaneous	11	1	91	2	105
<b>Total</b>	42	5	102	2	151

Kappa for Missing vs. Non-Missing Values = 0.63

Kappa for Non-Missing Values = 0.37

Level of Concurrence Missing vs. Non-Missing Values = 85%

Level of Concurrence for Non-Missing Values=94%

IV = intravenous

**PERITONEAL DIALYSIS: Serum Albumin**

**TABLE 41: Serum albumin values ( $\geq 3.5/3.2$  gm/dL by BCG/BCP methods) [Questions 19A and 19B]**

October-November	Network Re-Abstracted Data			Total
	Missing	<3.5/3.2 gm/dL	$\geq 3.5/3.2$ gm/dL	
Facility Abstracted Data				
Missing	10	2	4	16
<3.5/3.2 gm/dL	6	44	2	52
$\geq 3.5/3.2$ gm/dL	1	1	81	83
<b>Total</b>	17	47	87	151

Kappa for Missing vs. Non-Missing Values = 0.56

Kappa for Non-Missing Values = 0.95

Level of Concurrence Missing vs. Non-Missing Values = 91%

Level of Concurrence for Non-Missing Values= 98%

December-January	Network Re-Abstracted Data			Total
	Missing	<3.5/3.2 gm/dL	$\geq 3.5/3.2$ gm/dL	
Facility Abstracted Data				
Missing	7	3	2	12
<3.5/3.2 gm/dL	3	49	1	53
$\geq 3.5/3.2$ gm/dL	6	2	78	86
<b>Total</b>	16	54	81	151

Kappa for Missing vs. Non-Missing Values = 0.45

Kappa for Non-Missing Values = 0.95

Level of Concurrence Missing vs. Non-Missing Values = 91%

Level of Concurrence for Non-Missing Values= 98%

February-March	Network Re-Abstracted Data			Total
	Missing	<3.5/3.2 gm/dL	$\geq 3.5/3.2$ gm/dL	
Facility Abstracted Data				
Missing	16	5	2	23
<3.5/3.2 gm/dL	2	39	0	41
$\geq 3.5/3.2$ gm/dL	7	1	79	87
<b>Total</b>	25	45	81	151

Kappa for Missing vs. Non-Missing Values = 0.60

Kappa for Non-Missing Values = 0.98

Level of Concurrence Missing vs. Non-Missing Values = 89%

Level of Concurrence for Non-Missing Values= 99%

**PERITONEAL DIALYSIS: Serum Albumin**

**TABLE 42: Laboratory method used to measure serum albumin in Table 41 [Question 19B]**

October-November	Network Re-Abstracted Data			Total
	Missing	BCP	BCG	
Facility Abstracted Data				
Missing	10	0	6	16
BCP	0	8	2	10
BCG	7	0	118	125
<b>Total</b>	17	8	126	151

Kappa for Missing vs. Non-Missing Values = 0.98

Kappa for Non-Missing Values = 0.88

Level of Concurrence Missing vs. Non-Missing Values = 100%

Level of Concurrence for Non-Missing Values=98%

December-January	Network Re-Abstracted Data			Total
	Missing	BCP	BCG	
Facility Abstracted Data				
Missing	7	0	5	12
BCP	1	6	1	8
BCG	8	0	123	131
<b>Total</b>	16	6	129	151

Kappa for Missing vs. Non-Missing Values = 0.88

Kappa for Non-Missing Values = 0.92

Level of Concurrence Missing vs. Non-Missing Values = 100%

Level of Concurrence for Non-Missing Values=99%

February-March	Network Re-Abstracted Data			Total
	Missing	BCP	BCG	
Facility Abstracted Data				
Missing	16	0	7	23
BCP	1	7	1	9
BCG	8	0	111	119
<b>Total</b>	25	7	119	151

Kappa for Missing vs. Non-Missing Values = 0.92

Kappa for Non-Missing Values = 0.93

Level of Concurrence Missing vs. Non-Missing Values = 100%

Level of Concurrence for Non-Missing Values=99%

BCG = bromcresol green

BCP = bromcresol purple

**PERITONEAL DIALYSIS: Prescription**

**TABLE 43: Number of adult CAPD peritoneal dialysis days per week [Question 22A1 and 24A1]**

1st PD Adequacy Measurement	Network Re-Abstracted Data		Total
	Missing	7	
Facility Abstracted Data			
Missing	119	1	120
7	2	29	31
<b>Total</b>	121	30	151

Kappa for Missing vs. Non-Missing Values = 0.94

Kappa for Non-Missing Values = Not Applicable

Level of Concurrence Missing vs. Non-Missing Values = 98%

Level of Concurrence for Non-Missing Values= 100%

2nd PD Adequacy Measurement	Network Re-Abstracted Data		Total
	Missing	7	
Facility Abstracted Data			
Missing	129	2	131
7	5	15	20
<b>Total</b>	134	17	151

Kappa for Missing vs. Non-Missing Values = 0.78

Kappa for Non-Missing Values = Not Applicable

Level of Concurrence Missing vs. Non-Missing Values = 95%

Level of Concurrence for Non-Missing Values= 100%

**PERITONEAL DIALYSIS: Prescription**

**TABLE 44: Total number of dialysis exchanges per 24 hours for CAPD patients [Question 22A3 and 24A3]**

1st PD Adequacy Measurement	Network Re-Abstracted Data				Total
	Missing	3	4	5	
Facility Abstracted Data					
Missing	119	0	1	0	120
3	0	3	0	0	3
4	3	0	22	1	26
5	0	0	0	2	2
<b>Total</b>	122	3	23	3	151

Kappa for Missing vs. Non-Missing Values = 0.92

Kappa for Non-Missing Values = 0.89

Level of Concurrence Missing vs. Non-Missing Values = 97%

Level of Concurrence for Non-Missing Values= 96%

2nd PD Adequacy Measurement	Network Re-Abstracted Data				Total
	Missing	3	4	5	
Facility Abstracted Data					
Missing	129	0	2	0	131
3	0	2	0	0	2
4	5	0	11	1	17
5	0	0	0	1	1
<b>Total</b>	134	2	13	2	151

Kappa for Missing vs. Non-Missing Values = 0.78

Kappa for Non-Missing Values = 0.83

Level of Concurrence Missing vs. Non-Missing Values = 95%

Level of Concurrence for Non-Missing Values= 93%

**PERITONEAL DIALYSIS: Prescription**

**TABLE 45: Total number of dialysis exchanges during the nighttime forycler patients [Question 22B4b & 24B4b]**

	Network Re-Abstracted Data													Total
	Missing	2	3	4	5	6	7	8	9	10	11	12	14	
<b>Facility Abstracted Data</b>														
<b>Missing</b>	59	0	0	0	2	0	1	2	0	0	0	0	0	64
<b>3</b>	0	1	9	1	2	0	0	0	0	0	0	0	0	13
<b>4</b>	0	0	0	20	4	0	0	1	0	0	0	0	0	25
<b>5</b>	0	0	0	1	15	1	0	0	0	0	0	0	0	17
<b>6</b>	0	0	0	0	2	7	0	0	0	0	0	0	0	9
<b>7</b>	0	0	0	0	0	0	3	2	0	0	0	0	0	5
<b>8</b>	0	0	0	0	0	0	0	8	0	0	0	0	0	8
<b>9</b>	0	0	0	0	0	0	0	0	3	1	0	0	0	4
<b>10</b>	0	0	0	0	0	0	0	0	0	1	0	0	0	1
<b>11</b>	0	0	0	0	0	0	0	0	0	0	1	0	0	1
<b>12</b>	0	0	0	0	0	0	0	0	0	0	0	1	0	1
<b>13</b>	0	0	0	0	0	0	0	0	1	0	0	0	0	1
<b>14</b>	1	0	0	0	0	0	0	0	0	0	0	0	1	2
<b>Total</b>	60	1	9	22	25	8	4	13	4	2	1	1	1	151

Kappa for Missing vs. Non-Missing Values = 0.92

Kappa for Non-Missing Values = 0.76

Level of Concurrence Missing vs. Non-Missing Values = 96%

Level of Concurrence for Non-Missing Values= 80%

**PERITONEAL DIALYSIS: Prescription**

**TABLE 46: Total number of dialysis exchanges during the daytime for cyclor patients [Question 22B5b & 24B5b]**

1st PD Adequacy Measurement	Network Re-Abstracted Data						Total
	Missing	0	1	2	3	4	
Facility Abstracted Data							
Missing	59	0	4	1	0	0	64
0	0	11	1	0	0	0	12
1	2	3	32	2	0	0	39
2	0	0	8	24	1	0	33
3	0	0	0	1	1	0	2
4	0	0	0	0	0	1	1
<b>Total</b>	61	14	45	28	2	1	151

Kappa for Missing vs. Non-Missing Values = 0.90

Kappa for Non-Missing Values = 0.68

Level of Concurrence Missing vs. Non-Missing Values = 95%

Level of Concurrence for Non-Missing Values= 83%

2nd PD Adequacy Measurement	Network Re-Abstracted Data						Total
	Missing	0	1	2	3	4	
Facility Abstracted Data							
Missing	93	0	4	0	1	0	98
0	0	6	0	0	0	0	6
1	1	1	19	1	0	0	22
2	0	0	6	18	0	0	24
4	0	0	0	0	0	1	1
<b>Total</b>	94	7	29	19	1	1	151

Kappa for Missing vs. Non-Missing Values = 0.91

Kappa for Non-Missing Values = 0.71

Level of Concurrence Missing vs. Non-Missing Values = 96%

Level of Concurrence for Non-Missing Values= 84%

**PERITONEAL DIALYSIS: Prescription**

**TABLE 47: Prescription changed [Question 22C2 &24C2]**

1st PD Adequacy Measurement	Network Re-Abstracted Data				Total
	Missing	Yes	No	Unknown	
Facility Abstracted Data					
Missing	27	0	5	1	33
Yes	0	13	4	0	17
No	5	8	79	7	99
Unknown	0	0	2	0	2
<b>Total</b>	32	21	90	8	151

Kappa for Missing vs. Non-Missing Values = 0.78

Kappa for Non-Missing Values = 0.46

Level of Concurrence Missing vs. Non-Missing Values = 93%

Level of Concurrence for Non-Missing Values= 81%

2nd PD Adequacy Measurement	Network Re-Abstracted Data				Total
	Missing	Yes	No	Unknown	
Facility Abstracted Data					
Missing	70	0	6	2	78
Yes	1	7	4	0	12
No	6	3	46	4	59
Unknown	0	0	1	1	2
<b>Total</b>	77	10	57	7	151

Kappa for Missing vs. Non-Missing Values = 0.80

Kappa for Non-Missing Values = 0.48

Level of Concurrence Missing vs. Non-Missing Values = 90%

Level of Concurrence for Non-Missing Values= 82%

**PERITONEAL DIALYSIS: Other Data Elements**

**TABLE 48: Limb amputation(s) prior to March 31, 2005 [Question 15]**

	Network Re-Abstracted Data				Total
	Missing	Yes	No	Unknown	
<b>Facility Abstracted Data</b>					
<b>Missing</b>	4	0	1	0	5
<b>Yes</b>	0	5	1	1	7
<b>No</b>	4	5	125	4	138
<b>Unknown</b>	1	0	0	0	1
<b>Total</b>	9	10	127	5	151

Kappa for Missing vs. Non-Missing Values = 0.55

Kappa for Non-Missing Values = 0.47

Level of Concurrence Missing vs. Non-Missing Values = 96%

Level of Concurrence for Non-Missing Values= 92%

**PERITONEAL DIALYSIS: Other Data Elements**

**TABLE 49: Ethnicity [Question 13]**

	Network Re-Abstracted Data					Total
	Missing	Non-Hispanic	Hispanic, Mexican American	Hispanic, Puerto Rican	Hispanic, Other	
<b>Facility Abstracted Data</b>						
Missing	4	1	0	0	0	5
Non-Hispanic	5	124	1	0	0	130
Hispanic, Mexican American	0	1	5	0	1	7
Hispanic, Puerto Rican	0	0	0	5	0	5
Hispanic, Other	0	0	1	0	3	4
<b>Total</b>	9	126	7	5	4	151

Kappa for Missing vs. Non-Missing Values = 0.55

Kappa for Non-Missing Values = 0.86

Level of Concurrence Missing vs. Non-Missing Values = 96%

Level of Concurrence for Non-Missing Values= 97%

**PERITONEAL DIALYSIS: Other Data Elements**

**TABLE 50: Diabetes diagnosis [Question 16]**

	Network Re-Abstracted Data			Total
	Missing	Yes	No	
<b>Facility Abstracted Data</b>				
<b>Missing</b>	4	0	1	5
<b>Yes</b>	2	43	0	45
<b>No</b>	2	1	97	100
<b>Unknown</b>	0	0	1	1
<b>Total</b>	8	44	99	151

Kappa for Missing vs. Non-Missing Values = 0.60

Kappa for Non-Missing Values = 0.97

Level of Concurrence Missing vs. Non-Missing Values = 97%

Level of Concurrence for Non-Missing Values= 99%

**PERITONEAL DIALYSIS: Other Data Elements**

**TABLE 51: Medication use for diabetes control\* [Question 17]**

	Network Re-Abstracted Data				Total
	Missing	Yes	No	Unknown	
<b>Facility Abstracted Data</b>					
<b>Missing</b>	0	0	1	0	1
<b>Yes</b>	2	40	1	1	44
<b>No</b>	0	0	1	0	1
<b>Total</b>	2	40	3	1	46

Only patients for whom at least one source indicated a ‘yes’ value on a previous item are included in this table. Kappa and LOC statistics for missing vs. non-missing values are not appropriate in this case because some missing values are valid.

Kappa for Non-Missing Values = 0.49

Level of Concurrence for Non-Missing Values= 95%

**PERITONEAL DIALYSIS: Other Data Elements**  
**TABLE 52: Insulin use for diabetes\* [Question 17]**

	Network Re-Abstracted Data				Total
	Missing	Yes	No	Unknown	
<b>Facility Abstracted Data</b>					
<b>Yes</b>	3	32	0	0	35
<b>No</b>	1	2	5	0	8
<b>Unknown</b>	0	0	0	1	1
<b>Total</b>	4	34	5	1	44

Only patients for whom at least one source indicated a 'yes' value on a previous item are included in this table. Kappa and LOC statistics for missing vs. non-missing values are not appropriate in this case because some missing values are valid. Kappa for Non-Missing Values = 0.83

Level of Concurrence for Non-Missing Values= 95%

**PERITONEAL DIALYSIS**

**Table 53: Agreement rate of data abstracted by dialysis facility staff to data re-abstracted by ESRD Network staff for selected peritoneal dialysis data elements**

<b>Data Element</b>	<b>Agreement rate</b>	<b>Number of cases agreed upon</b>	<b>Total number of non-missing cases</b>
First clinic visit weight [Question 14b]	52%	68	130
Epoetin dose, October - November [Question 18B2]	63%	62	99
Epoetin dose, December - January [Question 18B2]	65%	68	105
Epoetin dose, February - March [Question 18B2]	61%	60	99
IV iron administration dose, October – November [Question 18G]	71%	15	21
IV iron administration dose, December – January [Question 18G]	67%	10	15
IV iron administration dose, February - March [Question 18G]	69%	9	13
Adequacy assessment weight, 1 <sup>st</sup> [Question 21C]	73%	83	114
Adequacy assessment weight, 2 <sup>nd</sup> [Question 23C]	72%	48	67
Recorded Kt/V <sub>urea</sub> , 1 <sup>st</sup> [Question 21D]	86%	94	109
Recorded Kt/V <sub>urea</sub> , 2 <sup>nd</sup> [Question 23D]	89%	56	63
Recorded creatinine clearance, 1 <sup>st</sup> [Question 21F]	78%	89	114
Recorded creatinine clearance, 2 <sup>nd</sup> [Question 23F]	70%	47	67
24 hour dialysate volume, 1 <sup>st</sup> [Question 21H]	85%	86	101
24 hour dialysate volume, 2 <sup>nd</sup> [Question 23H]	84%	48	57
24 hour dialysate urea nitrogen, 1 <sup>st</sup> [Question 21I]	93%	97	104
24 hour dialysate urea nitrogen, 2 <sup>nd</sup> [Question 23I]	92%	55	60
24 hour dialysate creatinine, 1 <sup>st</sup> [Question 21J]	92%	98	107
24 hour dialysate creatinine, 2 <sup>nd</sup> [Question 23J]	89%	54	61
24 hour urine volume, 1 <sup>st</sup> [Question 21K]	99%	66	67

**Table 53: (Continued)**

<b>Data Element</b>	<b>Agreement rate</b>	<b>Number of cases agreed upon</b>	<b>Total number of non-missing cases</b>
24 hour urine volume, 2 <sup>nd</sup> [Question 23K]	95%	36	38
24 hour urine urea nitrogen, 1 <sup>st</sup> [Question 21L]	89%	56	63
24 hour urine urea nitrogen, 2 <sup>nd</sup> [Question 23L]	86%	31	36
24 hour urine creatinine, 1 <sup>st</sup> [Question 21M]	88%	57	65
24 hour urine creatinine, 2 <sup>nd</sup> [Question 23M]	81%	30	37
Serum BUN, 1 <sup>st</sup> [Question 21N]	91%	102	112
Serum BUN, 2 <sup>nd</sup> [Question 23N]	97%	65	67
Serum creatinine, 1 <sup>st</sup> [Question 21O]	91%	102	112
Serum creatinine, 2 <sup>nd</sup> [Question 23O]	96%	64	67

# 2005 ESRD Clinical Performance Measures Reliability Report Part II – Supplemental LDO Report

## Objective

This supplement to the 2005 ESRD CPM Reliability Report includes analysis of data from five Large Dialysis Organizations (LDOs) to compare inter-rater reliability of original electronically submitted data to revised LDO and non-LDO data. The ESRD Network re-abstracted data were used as the “gold standard” to which these data were compared to assess the accuracy of electronically submitted data.

## Background

All participating non-LDO facilities submitted their data using the traditional manual ESRD CPM data collection forms. This year, the LDOs initially submitted some of their data electronically from their corporate data repositories, using QNet Exchange, to Computer Sciences Corporation (CSC), a contractor to CMS, and from there to the ESRD Network offices. These data are called “original LDO data”. The ESRD Networks were then directed by CMS to produce and distribute manual ESRD CPM forms pre-populated with each facility’s electronically submitted data elements to the respective LDO facility staff for completion. These data are the “revised LDO” or “facility-updated” data.

## Project Methods

The same statistical methods used to calculate levels of concurrence (LOC) for Part I were used for Part II of this report. LOC in Part II is the concurrence between Network re-abstracted data and each other data source individually. LOC is shown for non-LDO facility data compared to Network data as well as original and revised LDO data compared to Network data.

The sample of patients for this report was designed to include equal numbers of patients from each LDO to the extent possible. While data were re-abstracted for 270 patients, LDO data were only submitted for 202. Tables II-1 and II-2 on the following page show the number of patients for whom data were submitted from each LDO. The 68 patients with missing affiliation are presumed to belong in the non-LDO and possibly NNA categories. For the purpose of this report, patients were assigned to LDOs according to the data provided by the LDOs.

There were only five hemodialysis and two peritoneal dialysis records for NNA facilities in the reliability data; therefore, results for this LDO are not included in Tables A and B.

## Findings

Table A shows LOC for hemodialysis data elements by LDO. Most data elements show substantial agreement with Network data and improvement from the original to the revised data submissions. The table also shows that some LDOs did not submit some data elements or had zero agreement with Network data. One data element, color-flow doppler method for monitoring of stenosis, was only indicated for one LDO patient and did not match the corresponding Network re-abstracted data.

Table B shows LOC for peritoneal dialysis data elements by LDO. Similar to Table A, it shows patterns of data submission by LDO and generally high agreement with Network data. Agreement tends to improve in the revised data compared to the original data. Some missing data elements can be clearly seen as LDO specific issues. For example, one LDO did not provide any information regarding Epo use.

Another LDO did not provide any information regarding peritoneal dialysis prescription data (22A1-22C2 and 24A1-24C2).

Note that these statistics are calculated only for non-missing values. In cases where most of the values for a given data element were missing, the LOC may appear very high, indicating substantial agreement, but is based on very few records.

Also, because there may be more data available in the revised LDO data submission than in the original, it is possible for the LOC to be lower for the revised data than for the original data. The LOC for the revised data is based on a different number of records and does not necessarily indicate that that data are less reliable.

**Table II-1. Number of Hemodialysis Patients by Affiliation**

		Network and Facility Data						Total
		None	DCI	FMC	GAMBRO	NNA	RCG	
LDO Data	None	68	0	0	0	0	0	68
	DCI	0	49	0	0	0	0	49
	FMC	1	0	49	0	0	0	50
	GAMBRO	0	0	0	49	0	0	49
	NNA	0	0	0	0	5	0	5
	RCG	1	0	0	0	9	39	49
	Total	70	49	49	49	14	39	270

**Table II-2. Number of Peritoneal Dialysis Patients by Affiliation**

		Network and Facility Data					Total
		None	DCI	FMC	GAMBRO	RCG	
LDO Data	None	52	0	0	0	0	52
	DCI	0	26	0	0	0	26
	FMC	0	0	24	0	0	24
	GAMBRO	0	0	0	29	0	29
	NNA	0	0	0	0	2	2
	RCG	0	0	0	0	18	18
	Total	52	26	24	29	20	151

**Table A: Percent Concurrence of Original (Electronic) and Revised LDO Data Compared to Network Abstracted Data by LDO for Hemodialysis Patients**

Form No.	Data Element	Non-LDO	LDO							
			DCI		FMC		GAMBRO		RCG	
			original	revised	original	revised	original	revised	original	revised
11	Most recent date returned to hemodialysis following transplant failure, renewed kidney function, or switched modality	100	67	100	50	100	25	100	0	0
13	Patient Ethnicity	95	100	100	90	88	100	60	0	0
14	Patient Height	88	29	45	36	88	36	70	26	72
14	Height Units	97	50	59	62	94	56	85	36	85
15	Dose patient have limb/leg amputation(s)	88	92	100	0	0	89	94	0	0
16	Has the patient ever been diagnosed with diabetes	90	98	98	91	91	93	96	91	98
17	Was the patient taking medications to control diabetes	71	83	31	52	62	0	0	65	25
17	Is the patient using insulin	100	100	80	60	69	0	0	80	67
18A	Pre-dialysis monthly lab hgb (1=<9 2>=9) October	89	94	100	82	100	86	100	84	100
18A	Pre-dialysis monthly lab hgb (1=<9 2>=9) November	87	82	100	76	100	86	100	82	100
18A	Pre-dialysis monthly lab hgb (1=<9 2>=9) December	90	83	100	77	100	88	100	84	100
18A	Pre-dialysis monthly lab hgb (1=<11 2>=11) October	100	100	100	96	100	95	100	98	100
18A	Pre-dialysis monthly lab hgb (1=<11 2>=11) November	98	93	100	98	100	98	100	98	100
18A	Pre-dialysis monthly lab hgb (1=<11 2>=11) December	98	98	100	98	100	100	100	98	100
18B1a	Was there a prescription for EPO, October	98	93	100	100	100	88	91	80	83
18B1a	Was there a prescription for EPO, November	96	94	100	98	100	88	91	82	83
18B1a	Was there a prescription for EPO, December	96	100	100	100	100	84	85	87	77
18B2a	Prescribed EPO dose #1 Oct	91	78	100	85	90	71	81	85	81
18B2a	Prescribed EPO dose #2 Oct	90	81	97	88	87	64	80	79	87
18B2a	Prescribed EPO dose #3 Oct	88	82	100	93	87	62	82	86	92

**Table A: Percent Concurrence of Original (Electronic) and Revised LDO Data Compared to Network Abstracted Data by LDO for Hemodialysis Patients**

Form No.	Data Element	Non-LDO	LDO							
			DCI		FMC		GAMBRO		RCG	
			original	revised	original	revised	original	revised	original	revised
18B2a	Prescribed EPO dose #1 November	82	89	100	85	88	63	67	75	79
18B2a	Prescribed EPO dose #2 November	82	85	100	93	90	70	75	73	79
18B2a	Prescribed EPO dose #3 November	81	84	100	88	85	64	70	74	78
18B2a	Prescribed EPO dose #1 December	94	82	100	83	89	77	73	77	79
18B2a	Prescribed EPO dose #2 December	91	82	100	87	91	82	75	71	81
18B2a	Prescribed EPO dose #3 December	91	86	100	86	91	79	70	73	81
18B3a	How many times/wk was EPO prescribed, October	100	95	98	91	95	84	87	82	86
18B3a	How many times/wk was EPO prescribed, November	98	98	98	91	93	89	97	78	80
18B3a	How many times/wk was EPO prescribed, December	98	98	98	85	89	87	90	86	94
18B3a	EPO prescribed less than 1 time/wk, October	0	0	0	0	0	0	0	0	0
18B3a	EPO prescribed less than 1 time/wk, November	0	0	0	0	0	0	0	0	0
18B3a	EPO prescribed less than 1 time/wk, December	0	0	0	0	0	0	0	0	0
18B4a	Prescribed route of EPO administration, October	96	97	100	100	100	100	100	97	100
18B4a	Prescribed route of EPO administration, November	100	100	100	100	100	95	97	97	100
18B4a	Prescribed route of EPO administration, December	98	100	100	100	100	97	97	97	100
18B1b	Was there a prescription for Darbo, October	96	100	100	0	0	100	100	100	100
18B1b	Was there a prescription for Darbo, November	98	100	100	0	0	100	100	100	100
18B1b	Was there a prescription for Darbo, December	96	100	100	0	0	100	100	100	100
18B2b	Prescribed Darbo dose, October	100	0	0	0	0	0	0	0	0

**Table A: Percent Concurrence of Original (Electronic) and Revised LDO Data Compared to Network Abstracted Data by LDO for Hemodialysis Patients**

Form No.	Data Element	Non-LDO	LDO							
			DCI		FMC		GAMBRO		RCG	
			original	revised	original	revised	original	revised	original	revised
18B2b	Prescribed Darbo dose, November	50	0	0	0	0	0	0	0	0
18B2b	Prescribed Darbo dose, December	50	0	0	0	0	0	0	0	0
18B3b	How many times/month was Darbo prescribed, October	100	0	0	0	0	0	0	0	0
18B3b	How many times/month was Darbo prescribed, November	50	0	0	0	0	0	0	0	0
18B3b	How many times/month was Darbo prescribed, December	100	0	0	0	0	0	0	0	0
18B4b	Prescribed route of Darbo admin, October	0	0	0	0	0	0	0	0	0
18B4b	Prescribed route of Darbo admin, November	50	0	0	0	0	0	0	0	0
18B4b	Prescribed route of Darbo admin, December	50	0	0	0	0	0	0	0	0
18C	First serum ferritin concentration of the month, October	100	96	100	95	100	100	100	100	100
18C	First serum ferritin concentration of the month, November	100	100	100	100	100	100	100	100	100
18C	First serum ferritin concentration of the month, December	96	100	100	100	100	100	100	100	100
18D	First % transferrin (TSAT) saturation during the month, October	98	96	100	97	100	100	100	100	100
18D	First % transferrin (TSAT) saturation during the month, November	100	95	100	100	100	100	100	100	100
18D	First % transferrin (TSAT) saturation during the month, December	100	100	100	100	100	100	100	100	100
18E	Was iron prescribed during the month, October	83	77	100	94	100	71	71	91	98
18E	Was iron prescribed during the month, November	86	92	98	94	100	71	71	96	92

**Table A: Percent Concurrence of Original (Electronic) and Revised LDO Data Compared to Network Abstracted Data by LDO for Hemodialysis Patients**

Form No.	Data Element	Non-LDO	LDO							
			DCI		FMC		GAMBRO		RCG	
			original	revised	original	revised	original	revised	original	revised
18E	Was iron prescribed during the month, December	86	94	98	100	100	82	75	98	98
18F	Prescribed route of iron administration, October	100	100	100	96	96	73	73	86	100
18F	Prescribed route of iron administration, November	100	100	100	97	97	75	71	92	100
18F	Prescribed route of iron administration, December	92	97	100	97	97	71	73	91	100
18G	Total IV iron dose during the month, October	73	75	100	17	17	60	64	64	60
18G	Total IV iron dose during the month, November	60	61	100	4	4	48	54	50	43
18G	Total IV iron dose during the month, December	64	67	97	7	7	43	41	70	62
19A	1 <sup>st</sup> serum albumin of the month, October	100	98	100	98	100	100	100	100	100
19A	1 <sup>st</sup> serum albumin of the month, November	98	100	100	100	100	98	100	100	100
19A	1 <sup>st</sup> serum albumin of the month, December	98	100	100	100	100	98	100	100	100
19B	Lab method used for albumin result, October	92	98	100	100	100	100	100	100	100
19B	Lab method used for albumin result, November	93	100	100	100	100	100	100	100	100
19B	Lab method used for albumin result, December	93	100	100	100	100	100	100	100	100
20A	Prescribed dialysis sessions per week, October	100	98	100	91	96	98	98	96	100
20A	Prescribed dialysis sessions per week, November	100	98	100	93	96	98	98	96	100
20A	Prescribed dialysis sessions per week, December	100	98	100	90	95	98	98	95	100
20B	1 <sup>st</sup> recorded URR of the month, October	92	55	100	92	100	68	100	100	100
20B	1 <sup>st</sup> recorded URR of the month, November	88	51	100	95	100	66	100	98	100
20B	1 <sup>st</sup> recorded URR of the month, December	83	62	100	96	100	64	100	93	100

**Table A: Percent Concurrence of Original (Electronic) and Revised LDO Data Compared to Network Abstracted Data by LDO for Hemodialysis Patients**

Form No.	Data Element	Non-LDO	LDO							
			DCI		FMC		GAMBRO		RCG	
			original	revised	original	revised	original	revised	original	revised
20C	1 <sup>st</sup> recorded single-pool Kt/V of the month, October	98	98	100	100	100	100	100	100	100
20C	1 <sup>st</sup> recorded single-pool Kt/V of the month, November	100	100	100	100	100	100	100	100	100
20C	1 <sup>st</sup> recorded single-pool Kt/V of the month, December	100	98	100	100	100	100	100	97	100
20D	Method used to calculate Kt/V, October	73	83	100	86	100	90	100	55	67
20D	Method used to calculate Kt/V, November	75	84	100	91	100	92	100	50	65
20D	Method used to calculate Kt/V, December	70	83	100	87	100	90	98	59	71
20D	Description of other method used for Kt/V, October	100	0	0	0	0	0	0	0	0
20D	Description of other method used for Kt/V, November	100	0	0	0	0	0	0	0	0
20D	Description of other method used for Kt/V, December	100	0	0	0	0	0	0	0	0
20E	Was residual urine function used to calculate Kt/V, October	73	80	100	93	100	53	70	66	78
20E	Was residual urine function used to calculate Kt/V, November	71	77	100	88	100	56	73	64	77
20E	Was residual urine function used to calculate Kt/V, December	78	79	100	87	100	54	76	67	78
20F	1 <sup>st</sup> Pre-dialysis BUN of the month, October	96	100	100	95	100	98	100	98	100
20F	1 <sup>st</sup> Pre-dialysis BUN of the month, November	96	100	100	98	100	98	100	100	100
20F	1 <sup>st</sup> Pre-dialysis BUN of the month, December	98	100	100	100	100	100	100	100	100
20G	1 <sup>st</sup> Post-dialysis BUN of the month, October	98	100	100	98	100	98	100	100	100
20G	1 <sup>st</sup> Post-dialysis BUN of the month, November	96	100	100	98	100	98	100	100	100

**Table A: Percent Concurrence of Original (Electronic) and Revised LDO Data Compared to Network Abstracted Data by LDO for Hemodialysis Patients**

Form No.	Data Element	Non-LDO	LDO							
			DCI		FMC		GAMBRO		RCG	
			original	revised	original	revised	original	revised	original	revised
20G	1 <sup>st</sup> Post-dialysis BUN of the month, December	98	100	100	100	100	100	100	100	100
20H	Pre-dialysis weight at session when BUNs above drawn, October	84	88	100	87	98	3	3	97	100
20H	Pre-dialysis weight units, October	98	98	100	100	100	2	3	100	100
20H	Post-dialysis weight at session when BUNs above drawn, October	86	88	100	95	98	0	3	97	88
20H	Post-dialysis weight units, October	98	98	100	100	100	2	3	100	100
20H	Pre-dialysis weight at session when BUNs above drawn, November	88	91	100	95	100	3	3	100	98
20H	Pre-dialysis weight units, November	96	98	100	100	100	2	3	100	100
20H	Post-dialysis weight at session when BUNs above drawn, November	85	91	100	95	100	0	3	98	90
20H	Post-dialysis weight units, November	96	98	100	100	100	2	3	100	100
20H	Pre-dialysis weight at session when BUNs above drawn, December	90	94	100	89	100	5	5	95	100
20H	Pre-dialysis weight units, December	96	98	100	100	100	5	5	100	100
20H	Post-dialysis weight at session when BUNs above drawn, December	86	92	100	89	100	5	5	95	90
20H	Post-dialysis weight units, December	96	98	100	100	100	5	5	100	100
20I	Actual delivered Time on dialysis (minutes), October	66	84	100	92	100	70	90	67	95
20I	Actual delivered Time on dialysis (minutes), November	79	89	100	87	100	82	90	70	93

**Table A: Percent Concurrence of Original (Electronic) and Revised LDO Data Compared to Network Abstracted Data by LDO for Hemodialysis Patients**

Form No.	Data Element	Non-LDO	LDO							
			DCI		FMC		GAMBRO		RCG	
			original	revised	original	revised	original	revised	original	revised
20I	Actual delivered Time on dialysis (minutes), December	61	69	100	86	100	81	84	67	93
20J	Delivered blood pump flow rate (BFR) @ 60 minutes after start of dialysis session or average delivered BFR when BUNs above drawn, October	74	85	81	76	80	50	50	21	15
20J	Delivered blood pump flow rate (BFR) @ 60 minutes after start of dialysis session or average delivered BFR when BUNs above drawn, November	79	86	78	60	76	37	45	33	26
20J	Delivered blood pump flow rate (BFR) @ 60 minutes after start of dialysis session or average delivered BFR when BUNs above drawn, December	80	79	80	71	81	56	67	26	24
20J	Blood pump flow rate timed, October	70	73	69	56	83	38	34	16	38
20J	Blood pump flow rate timed, November	75	72	70	59	86	46	42	14	34
20J	Blood pump flow rate timed, December	70	70	73	60	89	44	41	12	33
20K	Dialyzer Code, October	96	85	100	0	0	78	95	84	100
20K	Dialyzer Code, November	92	81	98	0	0	76	96	84	100
20K	Dialyzer Code, December	92	77	98	0	0	74	96	86	98
21A	Type of access in use on the last hemodialysis session of study period	95	92	94	92	94	87	89	98	98
21B1	Was routine monitoring for stenosis performed	68	80	86	36	45	39	77	63	67
21B2	Method for monitoring stenosis: color flow doppler	0	0	0	0	0	0	0	0	0

**Table A: Percent Concurrence of Original (Electronic) and Revised LDO Data Compared to Network Abstracted Data by LDO for Hemodialysis Patients**

Form No.	Data Element	Non-LDO	LDO							
			DCI		FMC		GAMBRO		RCG	
			original	revised	original	revised	original	revised	original	revised
21B2	Method for monitoring stenosis: static venous pressure	100	100	100	0	0	0	0	0	0
21B2	Method for monitoring stenosis: dynamic venous pressure	100	100	100	100	100	100	100	0	0
21B2	Method for monitoring stenosis: dilution technique	100	100	100	0	0	0	0	0	0
21B2	Method for monitoring stenosis: Other	94	0	0	0	0	0	0	0	0
21B2	Description of other method for monitoring stenosis	37.5	0	0	0	0	0	0	0	0
21C1	Reason for having catheter or port access	67	15	23	0	0	0	0	10	9
21C1-7	Reason for catheter: Physician Preference	0	0	0	0	0	0	0	0	0
21C1-7	Reason for catheter: Patient preference	100	0	0	0	0	0	0	0	0
21C1-7	Reason for catheter: PVD	0	0	0	0	0	0	0	0	0
21C1-7	Reason for catheter: Patient too small	100	0	0	0	0	0	0	0	0
21C1-7	Reason for catheter: Tx scheduled	0	0	0	0	0	0	0	0	0
21C1-8	Description of catheter reason: other	0	0	0	0	0	0	0	0	0
21C2	Has catheter or port been used exclusively for past 90 days or longer	77	64	57	17	17	83	80	70	55
22	Patient started dialysis during January - August 2004	95	92	96	98	96	87	78	94	92
22A	Type of access in use at the initiation	100	75	100	67	100	0	100	50	50
22B	Type of access for this patient in use 90 days after initiation	88	50	60	50	100	0	0	100	100

**Table B: Percent Concurrence of Original (Electronic) and Revised LDO Data Compared to Network Abstracted Data by LDO for Peritoneal Dialysis Patients**

Form	Data Element	Non-LDO	LDO							
			DCI		FMC		GAMBRO		RCG	
			original	revised	original	revised	original	revised	original	revised
11	Most recent date patient returned to peritoneal dialysis following: transplant failure, an episode of regained kidney function, or switched modality.	100	22	100	100	100	9	100	0	0
13	Denotes ethnicity of the patient	94	100	100	88	88	0	0	0	0
14a	Patient's height	65	8	46	42	63	36	70	24	53
14a	Patient's height units	89	69	77	54	63	76	93	59	82
14b	Patient's weight at first clinic visit after Oct 1, 2004	58	31	28	13	29	4	0	7	14
14b	Unit of measure used for clinic weight	78	89	96	70	71	85	88	87	79
15	Did patient have limb amputation(s) prior to 03/31/2005	94	92	96	78	96	93	89	0	0
16	Has the patient ever been diagnosed with any type of diabetes	100	100	100	96	92	96	96	94	88
17	Was the patient taking medications to control the diabetes during the study period	90	100	100	73	90	0	0	100	100
17	Was the patient using insulin during the study period	100	75	100	88	89	0	0	89	90
18A	First laboratory hemoglobin during the two month time period (OCT-NOV 2004)	73	100	100	95	100	80	100	93	100
18A	First laboratory hemoglobin during the two month time period (DEC 2004 - JAN 2005)	87	92	100	91	100	93	100	93	100
18A	First laboratory hemoglobin during the two month time period (FEB-MAR 2005)	81	100	100	95	100	96	100	100	100
18B1a	Did the patient have a prescription for EPO at anytime during the 28 days before the Hgb in 18A was drawn? (OCT-NOV 2004)	88	100	92	0	0	84	80	93	88
18B1a	Did the patient have a prescription for EPO at anytime during the 28 days before the Hgb in 18A was drawn? (DEC 2004 - JAN 2005)	87	100	96	0	0	85	82	79	87

**Table B: Percent Concurrence of Original (Electronic) and Revised LDO Data Compared to Network Abstracted Data by LDO for Peritoneal Dialysis Patients**

Form	Data Element	Non-LDO	LDO							
			DCI		FMC		GAMBRO		RCG	
			original	revised	original	revised	original	revised	original	revised
18B1a	Did the patient have a prescription for EPO at anytime during the 28 days before the Hgb in 18A was drawn? (FEB-MAR 2005)	92	91	95	0	0	80	93	86	73
18B2a	What was the total prescribed EPO dose in effect prior to the 28 days before the Hgb in 18A was drawn? (OCT-NOV 2004)	58	52	43	0	0	37	28	64	67
18B2a	What was the total prescribed EPO dose in effect prior to the 28 days before the Hgb in 18A was drawn? (DEC 2004 - JAN 2005)	62	67	48	0	0	57	50	40	42
18B2a	What was the total prescribed EPO dose in effect prior to the 28 days before the Hgb in 18A was drawn? (FEB-MAR 2005)	67	50	35	0	0	42	39	56	50
18B3a	How many times per month was EPO prescribed (OCT-NOV 2004)	96	61	67	0	0	85	83	91	75
18B3a	How many times per month was EPO prescribed (DEC 2004 - JAN 2005)	93	67	70	0	0	82	82	80	67
18B3a	How many times per month was EPO prescribed (FEB-MAR 2005)	89	78	77	0	0	79	83	80	78
18B4a	Prescribed route of EPO administration (OCT-NOV 2004)	96	91	91	0	0	95	100	91	92
18B4a	Prescribed route of EPO administration (DEC 2004 - JAN 2005)	97	92	83	0	0	100	91	90	92
18B4a	Prescribed route of EPO administration (FEB-MAR 2005)	96	89	82	0	0	95	96	100	100
18B1b	Was there a prescription for Darbepoetin during the month immediately BEFORE the above HGB was drawn (OCT-NOV 2004)	60	0	0	0	0	0	0	0	0
18B1b	Was there a prescription for Darbepoetin during the month immediately BEFORE the above HGB was drawn (DEC 2004 - JAN 2005)	100	0	0	0	0	0	0	0	0

**Table B: Percent Concurrence of Original (Electronic) and Revised LDO Data Compared to Network Abstracted Data by LDO for Peritoneal Dialysis Patients**

Form	Data Element	Non-LDO	LDO							
			DCI		FMC		GAMBRO		RCG	
			original	revised	original	revised	original	revised	original	revised
18B1b	Was there a prescription for Darbepoetin during the month immediately BEFORE the above HGB was drawn (FEB-MAR 2005)	100	0	0	0	0	0	0	0	0
18B2b	Prescribed Darbepoetin dose in micrograms for the month immediately BEFORE the above HGB was drawn (OCT-NOV 2004)	60	0	0	0	0	0	0	0	0
18B2b	Prescribed Darbepoetin dose in micrograms for the month immediately BEFORE the above HGB was drawn (DEC 2004 - JAN 2005)	100	0	0	0	0	0	0	0	0
18B2b	Prescribed Darbepoetin dose in micrograms for the month immediately BEFORE the above HGB was drawn (FEB-MAR 2005)	100	0	0	0	0	0	0	0	0
18B3b	How many times per month was Darbepoetin prescribed (OCT-NOV 2004)	98	100	96	0	0	100	100	100	100
18B3b	How many times per month was Darbepoetin prescribed (DEC 2004 - JAN 2005)	97	100	96	0	0	96	100	100	100
18B3b	How many times per month was Darbepoetin prescribed (FEB-MAR 2005)	100	100	95	0	0	100	96	100	100
18B4b	Prescribed route of Darbepoetin administration (OCT-NOV 2004)	100	0	0	0	0	0	0	0	0
18B4b	Prescribed route of Darbepoetin administration (DEC 2004 - JAN 2005)	100	0	0	0	0	0	0	0	0
18B4b	Prescribed route of Darbepoetin administration (FEB-MAR 2005)	100	0	0	0	0	0	0	0	0
18C	First serum ferritin concentration during the two month time period (OCT-NOV 2004)	100	100	100	100	100	100	100	100	100
18C	First serum ferritin concentration during the two month time period (DEC 2004 - JAN 2005)	100	95	100	100	100	100	100	100	100

**Table B: Percent Concurrence of Original (Electronic) and Revised LDO Data Compared to Network Abstracted Data by LDO for Peritoneal Dialysis Patients**

Form	Data Element	Non-LDO	LDO							
			DCI		FMC		GAMBRO		RCG	
			original	revised	original	revised	original	revised	original	revised
18C	First serum ferritin concentration during the two month time period (FEB-MAR 2005)	100	100	100	100	100	100	100	100	100
18D	First % transferrin (iron) saturation during the two month time period (OCT-NOV 2004)	97	100	100	100	100	100	100	100	100
18D	First % transferrin (iron) saturation during the two month time period (DEC 2004 - JAN 2005)	100	94	100	95	100	100	100	92	100
18D	First % transferrin (iron) saturation during the two month time period (FEB-MAR 2005)	100	100	100	100	100	100	100	100	100
18E	Was iron prescribed at any time during the two month time period (OCT-NOV 2004)	79	85	81	0	0	62	54	75	94
18E	Was iron prescribed at any time during the two month time period (DEC 2004 - JAN 2005)	83	89	65	0	0	42	48	75	82
18E	Was iron prescribed at any time during the two month time period (FEB-MAR 2005)	87	89	62	0	0	50	56	75	77
18F	Prescribed route of iron administration (OCT-NOV 2004)	100	81	67	0	0	57	71	86	88
18F	Prescribed route of iron administration (DEC 2004 - JAN 2005)	96	88	73	0	0	83	88	75	75
18F	Prescribed route of iron administration ((FEB-MAR 2005)	96	77	91	0	0	75	89	80	75
18G	If the patient was prescribed IV iron, what was the total dose of IV iron administered during the two month time period (OCT-NOV 2004)	100	60	60	0	0	0	0	0	0
18G	If the patient was prescribed IV iron, what was the total dose of IV iron administered during the two month time period (DEC 2004 - JAN 2005)	100	0	0	0	0	50	50	100	100

**Table B: Percent Concurrence of Original (Electronic) and Revised LDO Data Compared to Network Abstracted Data by LDO for Peritoneal Dialysis Patients**

Form	Data Element	Non-LDO	LDO							
			DCI		FMC		GAMBRO		RCG	
			original	revised	original	revised	original	revised	original	revised
18G	If the patient was prescribed IV iron, what was the total dose of IV iron administered during the two month time period (FEB-MAR 2005)	75	0	67	0	0	100	100	50	50
19A	First serum albumin during the two month time period (OCT-NOV 2004)	93	100	100	100	100	100	100	100	100
19A	First serum albumin during the two month time period (OCT-NOV 2004)	95	96	100	100	100	100	100	100	100
19A	First serum albumin during the two month time period (OCT-NOV 2004)	97	100	100	100	100	100	100	100	100
19B	Lab method used for albumin result (OCT-NOV 2004)	95	100	100	100	100	100	100	100	100
19B	Lab method used for albumin result (DEC 2004 - JAN 2005)	97	100	100	100	100	100	100	100	100
19B	Lab method used for albumin result (FEB-MAR 2005)	97	100	100	100	100	100	100	100	100
20A	Was the patient on peritoneal dialysis at any time during this two month period (OCT-NOV 2004)	100	96	92	25	25	100	100	94	94
20A	Was the patient on peritoneal dialysis at any time during this two month period (DEC 2004 - JAN 2005)	100	100	96	4	4	100	100	100	100
20A	Was the patient on peritoneal dialysis at any time during this two month period (FEB-MAR 2005)	91	100	89	0	4	92	88	94	88
20B	Was patient on hemodialysis or did patient receive a transplant at any time during this period (OCT-NOV 2004)	92	96	96	100	96	96	96	94	88
20B	Was patient on hemodialysis or did patient receive a transplant at any time during this period (DEC 2004 - JAN 2005)	85	96	92	92	96	96	100	88	77

**Table B: Percent Concurrence of Original (Electronic) and Revised LDO Data Compared to Network Abstracted Data by LDO for Peritoneal Dialysis Patients**

Form	Data Element	Non-LDO	LDO							
			DCI		FMC		GAMBRO		RCG	
			original	revised	original	revised	original	revised	original	revised
20B	Was patient on hemodialysis or did patient receive a transplant at any time during this period (FEB-MAR 2005)	85	92	81	96	100	96	96	81	77
21	Was adequacy measurement done during OCT 2004 - MAR 2005 (Will be NO if measurement was not done)	96	81	81	96	96	93	93	75	77
21A	Date of first adequacy measurement between 10-1-2004 to 3-31-2005	91	95	94	80	86	80	83	89	90
21B	Patient's dialysis modality when adequacy measures were performed	100	100	100	100	100	100	100	89	90
21C	Patient's weight at time of adequacy measurement (abdomen empty)	68	79	83	30	45	50	48	0	0
21C	Unit of measure used for adequacy weight	79	95	94	75	75	100	96	89	90
21D	Weekly Kt/V urea (dialysate and urine clearance)	100	100	100	100	100	100	100	100	100
21E	Method by which V was calculated	87	68	78	63	68	67	72	89	90
21E	Other method to calculate V	0	0	0	0	0	0	0	0	0
21F	Weekly creatinine clearance (dialysate and urine clearance)	77	42	50	90	85	4	8	22	30
21G	Is this creatinine clearance corrected for body surface area, using standard methods	100	95	94	100	100	0	0	100	90
21H	24 hr dialysate volume (prescribed and ultrafiltration)	84	100	89	0	0	82	75	75	80
21I	24 hr dialysate urea nitrogen	94	88	100	79	69	72	56	100	100
21J	24 hr dialysate creatinine	91	94	94	71	72	79	80	78	90
21K	24 hr urine volume	100	100	100	86	85	83	84	100	100
21K	Indicator if 24 urine was not collected	100	100	100	100	100	0	0	100	100
21L	24 hr urine urea nitrogen	97	100	100	84	85	71	71	88	90
21M	24 hr urine creatinine	89	88	100	79	69	72	79	100	100
21N	Serum BUN at the time this adequacy assessment was done	97	94	100	71	76	78	78	78	80

**Table B: Percent Concurrence of Original (Electronic) and Revised LDO Data Compared to Network Abstracted Data by LDO for Peritoneal Dialysis Patients**

Form	Data Element	Non-LDO	LDO							
			DCI		FMC		GAMBRO		RCG	
			original	revised	original	revised	original	revised	original	revised
21O	Serum creatinine at the time this adequacy assessment was done	97	94	100	71	76	78	74	78	80
21P1	Most recent four hour dialysate/plasma creatinine ratio (D/PCr) from a peritoneal equilibration test (PET)	100	0	100	100	100	0	0	0	100
21P2	Date of most recent (D/PCr)	100	0	100	100	100	0	0	0	100
22A1	Number of dialysis days per week (prior prescription 1)	100	100	100	100	100	0	0	100	100
22A2	Total dialysate volume infused per 24 hrs (prior CAPD prescription 1)	75	75	75	60	60	0	0	0	0
22A3	Total number of exchanges per 24 hrs, including overnight exchange (prior CAPD prescription 1)	88	100	100	80	80	0	0	100	100
22B1	Number of dialysis days per week (prior CYCLER prescription 1)	100	100	100	100	100	0	0	100	100
22B2	Total dialysate volume infused per 24 hrs (prior CYCLER prescription 1)	77	67	57	75	69	0	0	0	0
22B3a	Total nighttime dialysis time (hours) (prior CYCLER prescription 1)	89	87	86	75	56	0	0	25	25
22B3a	Total nighttime dialysis time (minutes) (prior CYCLER prescription 1)	100	33	0	67	67	0	0	0	0
22B3b	Total daytime dialysis time (hours) (prior CYCLER prescription 1)	83	8	8	22	30	0	0	0	0
22B3b	Total daytime dialysis time (minutes) (prior CYCLER prescription 1)	100	0	0	33	20	0	0	0	0
22B3c	Total amount of time the patient is dry during 24 hours (hours) (prior CYCLER prescription 1)	100	33	50	71	67	0	0	0	0
22B3c	Total amount of time the patient is dry during 24 hours (minutes) (prior CYCLER prescription 1)	0	0	0	67	50	0	0	0	0
22B4a	Volume of a single nighttime exchange (prior CYCLER prescription 1)	96	87	79	88	81	0	0	50	25

**Table B: Percent Concurrence of Original (Electronic) and Revised LDO Data Compared to Network Abstracted Data by LDO for Peritoneal Dialysis Patients**

Form	Data Element	Non-LDO	LDO							
			DCI		FMC		GAMBRO		RCG	
			original	revised	original	revised	original	revised	original	revised
22B4b	Number of dialysis exchanges during the nighttime (prior CYCLER prescription 1)	85	73	64	63	75	0	0	25	25
22B5a	Volume of a single daytime exchange (prior CYCLER prescription 1)	88	85	75	60	71	0	0	100	67
22B5b	Number of dialysis exchanges during the daytime (prior CYCLER prescription 1)	83	77	75	50	50	0	0	33	0
22B6	Does the CYCLER prescription include TIDAL dialysis (prior CYCLER prescription 1)	100	93	100	100	100	0	0	100	100
22C1	Was the collection repeated (prior CYCLER prescription 1)	91	79	78	43	62	0	0	69	64
22C2	Was the prescription changed (prior CYCLER prescription 1)	85	74	72	29	33	0	0	46	50
23	Was SECOND adequacy measurement done during NOV 2004 - MAR 2005	94	91	84	86	77	74	79	77	71
23A	Date of second adequacy measurement between 11-1-2004 to 3-31-2005	86	83	82	83	82	24	25	75	80
23B	Patient's dialysis modality when adequacy measures were performed	100	100	100	100	100	0	0	100	100
23C	Patient's weight at time of adequacy measurement (abdomen empty)	67	83	73	36	50	20	20	0	0
23C	Unit of measure used for adequacy weight	76	100	100	73	70	100	88	67	80
23D	Weekly Kt/V urea (dialysate and urine clearance)	100	100	100	100	100	100	100	100	100
23E	Method by which V was calculated	89	75	78	80	73	67	73	100	100
23E	Other method to calculate V	0	0	0	0	0	0	0	0	0
23F	Weekly creatinine clearance	67	64	55	83	82	0	0	0	20
23G	Is this creatinine clearance corrected for (dialysate and urine clearance) body surface area, using standard methods	95	100	100	100	100	0	0	75	80
23H	24 hr dialysate volume (prescribed and ultrafiltration)	85	90	73	0	0	100	100	100	100

**Table B: Percent Concurrence of Original (Electronic) and Revised LDO Data Compared to Network Abstracted Data by LDO for Peritoneal Dialysis Patients**

Form	Data Element	Non-LDO	LDO							
			DCI		FMC		GAMBRO		RCG	
			original	revised	original	revised	original	revised	original	revised
23I	24 hr dialysate urea nitrogen	83	100	100	86	71	55	36	0	100
23J	24 hr dialysate creatinine	81	100	91	82	82	100	100	67	60
23K	24 hr urine volume	83	100	100	86	86	73	75	0	0
23K	Indicator if 24 urine was not collected	100	100	100	100	100	0	0	100	100
23L	24 hr urine urea nitrogen	90	90	91	82	82	67	100	67	60
23M	24 hr urine creatinine	83	80	100	71	71	73	58	0	50
23N	Serum BUN at the time this adequacy assessment was done	91	91	90	83	82	88	94	75	80
23O	Serum creatinine at the time this adequacy assessment was done	91	91	90	92	91	100	93	75	80
23P1	Most recent four hour dialysate/plasma creatinine ratio (D/PCr) from a peritoneal equilibration test (PET)	0	0	0	100	0	0	0	0	0
23P2	Date of most recent (D/PCr)	0	0	0	100	0	0	0	0	0
24A1	Number of dialysis days per week (prior prescription 2)	100	100	100	100	100	0	0	100	100
24A2	Total dialysate volume infused per 24 hrs (prior CAPD prescription 2)	67	67	33	0	0	0	0	0	0
24A3	Total number of exchanges per 24 hrs, including overnight exchange (prior CAPD prescription 2)	67	100	100	0	0	0	0	100	100
24B1	Number of dialysis days per week (prior CYCLER prescription 1)	100	100	100	100	100	0	0	100	100
24B2	Total dialysate volume infused per 24 hrs (prior CYCLER prescription 2)	72	44	38	73	50	0	0	0	0
24B3a	Total nighttime dialysis time (hours) (prior CYCLER prescription 2)	89	89	88	73	80	0	0	0	0
24B3a	Total nighttime dialysis time (minutes) (prior CYCLER prescription 2)	75	0	0	100	100	0	0	0	0
24B3b	Total daytime dialysis time (hours) (prior CYCLER prescription 2)	88	13	14	0	13	0	0	0	0
24B3b	Total daytime dialysis time (minutes) (prior CYCLER prescription 2)	75	0	0	17	17	0	0	0	0

**Table B: Percent Concurrence of Original (Electronic) and Revised LDO Data Compared to Network Abstracted Data by LDO for Peritoneal Dialysis Patients**

Form	Data Element	Non-LDO	LDO							
			DCI		FMC		GAMBRO		RCG	
			original	revised	original	revised	original	revised	original	revised
24B3c	Total amount of time the patient is dry during 24 hours (hours) (prior CYCLER prescription 2)	100	0	0	33	50	0	0	0	0
24B3c	Total amount of time the patient is dry during 24 hours (minutes) (prior CYCLER prescription 2)	0	0	0	100	100	0	0	0	0
24B4a	Volume of a single nighttime exchange (prior CYCLER prescription 2)	78	89	100	82	70	0	0	100	50
24B4b	Number of dialysis exchanges during the nighttime (prior CYCLER prescription 2)	83	56	63	64	90	0	0	50	50
24B5a	Volume of a single daytime exchange (prior CYCLER prescription 2)	82	63	71	50	60	0	0	100	50
24B5b	Number of dialysis exchanges during the daytime (prior CYCLER prescription 2)	77	88	100	29	25	0	0	50	0
24B6	Does the CYCLER prescription include TIDAL dialysis (prior CYCLER prescription 2)	89	100	100	91	100	0	0	100	100
24C1	Was the collection repeated (prior CYCLER prescription 2)	80	92	91	58	73	0	0	83	100
24C2	Was the prescription changed (prior CYCLER prescription 2)	85	92	82	25	46	0	0	33	57