

DEPARTMENT OF HEALTH AND HUMAN SERVICES

**OFFICE OF  
INSPECTOR GENERAL**

**Clinical Performance Measures  
for Dialysis Facilities**

**Building on the Experiences  
of the Dialysis Corporations**



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**JANUARY 2002  
OEI-01-99-00052**

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# EXECUTIVE SUMMARY

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## PURPOSE AND BACKGROUND

To present lessons learned by the five largest dialysis corporations in using clinical performance measures to hold facilities accountable for the quality of care and to address the implications they have for the Centers for Medicare & Medicaid Services (CMS).

This is the main report in the series *Clinical Performance Measures for Dialysis Facilities*. The two supplemental reports are (1) *Practices of the Major Dialysis Corporations*, and (2) *Lessons Learned by the Major Dialysis Corporations and Implications for Medicare*.

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## LESSONS LEARNED BY THE CORPORATIONS

Below are the lessons the corporations told us they have learned in using performance data.

- ▶ Look to medical directors to exert sustained leadership.
- ▶ Secure the commitment of attending physicians.
- ▶ Collect a broad set of measures and revisit their relevance regularly.
- ▶ Establish minimum performance standards and goals for all facilities to aim towards.
- ▶ Apply strict definitions to performance measures and check their accuracy regularly.
- ▶ Disseminate timely, comparative feedback of performance data.
- ▶ Stress quality improvement projects at the facility level.
- ▶ Use performance data as a guide to possible performance problems.

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## OUR RECOMMENDATIONS TO MEDICARE

**Revise the Medicare Conditions for Coverage.** The revised Conditions should (1) require facility medical directors to exert leadership in quality improvement, and (2) require dialysis facilities to conduct their own quality improvement projects.

**Examine ways to foster the commitment of attending physicians to performance measures.** CMS should (1) conduct educational forums that emphasize the importance of performance measures, (2) examine the possibility of physician-specific report cards, and (3) focus greater attention on the responsibilities of physicians.

**Develop more effective intervention strategies for facilities.** CMS should foster greater collaboration between its two oversight agents, the End-Stage Renal Disease Networks and the States, and address the confidentiality and liability concerns that impede such integrated efforts.

**Work with the corporations to share experiences and minimize burdens on dialysis facilities.** Both CMS and the dialysis corporations have similar concerns about improving care. More sharing of experiences could be helpful to both parties, and, most importantly, to patients.

# COMMENTS

We received written comments on the draft report from the CMS, the Forum of End-Stage Renal Disease Networks, Renal Physicians Association, National Renal Administrators Association, and the five corporate dialysis providers that were the focus of our inquiry. Their comments were strongly supportive of the lessons we presented and of the thrust of the recommendations we made to CMS. We include the full text of the comments in appendix C of the second supplemental report, *Clinical Performance Measures for Dialysis Facilities: Lessons Learned by the Major Dialysis Corporations and Implications for Medicare* (OEI-01-99-00054). On the basis of the comments, we made a number of clarifications and technical changes. Below, we briefly summarize their comments and our responses to them.

**Medical Director Leadership.** CMS supported our recommendation that the Medicare Conditions for Coverage be revised to require medical directors to exert leadership in quality improvement. The dialysis corporations and the other commenters also underscored the importance of such leadership, but to varying degrees raised concerns about how it might be defined in the Medicare Conditions. They urged that leadership expectations be in accord with the real world in dialysis facilities. Their comments reinforce the importance of CMS clearly establishing the medical director's authority and responsibility to provide leadership if it expects performance measures to be instrumental in improving care in dialysis facilities. At the same time, the comments suggest the value of collaboration between the corporations and CMS in further defining the leadership role of medical directors.

CMS and other respondents supported our recommendation that medical directors be given authority to conduct or initiate peer review of attending physicians. But they were clearly wary of our recommendation that when patients are put at risk because of substandard medical care, the medical director should report the physician to an authoritative body, such as the facility's governing board, the End-Stage Renal Disease Network, or the State medical board. We suggest that this is a vital patient protection responsibility that must be part of the purview of the medical director and that CMS should address it as part of its efforts to foster quality dialysis care.

**Securing the Commitment of Attending Physicians to Performance Measures.** This is a vital matter having a significant bearing on the successful use of performance measures. CMS expressed its readiness to consider the measures we called for. Other respondents were supportive of convening educational forums. But some raised concerns with the use of physician-specific reports (which are already being used by at least one End-Stage Renal Disease Network and by two dialysis corporations) and with the establishment of more explicit Federal standards or requirements concerning the performance of attending physicians. We recognize that these are difficult issues, but suggest that they warrant careful examination as means of more fully engaging attending physicians in quality improvement efforts.

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# INTRODUCTION

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## PURPOSE

To present lessons learned by the five largest dialysis corporations in using clinical performance measures to hold facilities accountable for the quality of care and to address the implications these lessons have for the Centers for Medicare & Medicaid Services, formerly the Health Care Financing Administration.

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## BACKGROUND

In our report, *External Quality Review of Dialysis: A Call for Greater Accountability*, we urged the Centers for Medicare & Medicaid Services (CMS) to use facility-specific clinical performance measures as a key part of its oversight of dialysis facilities. Clinical performance measures are quantitative indicators, typically expressed as a percentage, that reflect the quality of care patients received. CMS concurred with the directions we suggested and presented a detailed action plan to strengthen its use of performance measures. Since then it has been active in carrying out this plan.

In this follow-up inquiry, we examine the practices of the five largest dialysis corporations in using clinical performance measures to hold their own facilities accountable for the quality of care. We regard such an inquiry as important because:

(1) these corporations account for about 70 percent of all dialysis patients in the United States, the vast majority of whom are Medicare beneficiaries, and represent over 2,000 facilities, (2) they have a substantial body of experience in using performance measures, and (3) they have gained know-how that can be helpful to CMS and others.<sup>1</sup>

This report is the main report in our series on *Clinical Performance Measures for Dialysis Facilities*. In addition to this report there are two supplemental reports. The first supplemental report, *Practices of the Major Dialysis Corporations* (OEI-01-99-00053), describes the processes the corporations have to collect and use performance measures. The second supplemental report, *Lessons Learned by the Major Dialysis Corporations and Implications for Medicare* (OEI-01-99-00054), presents 14 lessons the corporations have learned in using performance measures and presents our recommendations to CMS as it further develops its own system to use performance measures. All three reports are based on our review of corporate documents, interviews with corporate medical directors, and site visits to several dialysis facilities. The information contained in this report was self-reported by the dialysis corporations. We did not audit or validate the data the corporations collect from their facilities.

We conducted this study in accordance with the *Quality Standards for Inspections* issued by the President's Council on Integrity and Efficiency.

# CORPORATE PRACTICES

In the following section we present two summary tables that illustrate how the five dialysis corporations use clinical performance measures. The first table shows some of the clinical performance that the corporations collect. The second table, on the following page, shows how the corporations collect and use these measures.

**Table 1. Facility-Specific Clinical Performance Measures Collected by the Dialysis Corporations**

Performance Measure	Company #1	Company #2	Company #3	Company #4	Company #5	CMS
Urea reduction ratio	✓	✓	✓	✓	✓	✓
KT/V	✓	✓	✓	✓	✓	
Hematocrit	✓	✓	✓	✓	✓	✓
Hemoglobin	✓	✓	✓	✓	✓	✓
Iron indices (TSAT and Ferritin levels)	✓	✓	✓	✓	✓	
Parathyroid	✓	✓	✓	✓	✓	
Albumin	✓	✓	✓	✓	✓	✓*
Blood pressure	✓	✓	✓	✓		
Hospitalization rate	✓	✓	✓	✓	✓	✓
Missed treatments	✓	✓	✓	✓	✓	
Mortality rates	✓	✓	✓	✓	✓	✓
Peritonitis rates	✓	✓	✓	✓	✓	
Type of vascular access	✓	✓	✓	✓	✓	✓**
Clotting events with vascular access		✓			✓	
Transplantation rate		✓		✓		✓
Creatinine clearance	✓	✓			✓	

\* CMS collects this information when the patient is first diagnosed.  
 \*\* CMS obtains from the Center for Disease Control and Prevention  
 This chart does not represent all the measures that the corporations and CMS collect.

**Table 2. Comparison of the Dialysis Corporations' Practices in Collecting and Using Facility-Specific Clinical Performance Measures**

	<b>Company #1</b>	<b>Company #2</b>	<b>Company #3</b>	<b>Company #4</b>	<b>Company #5</b>	<b>CMS</b>
Years of experience in collecting facility-specific performance measures	10+	20+	10+	20+	5	10+
Percentage of patients within a facility for which measures are collected	100%	100%	100%	100%*	100%	All Medicare Patients
Data collected electronically from dialysis machine	no	no	yes	no	yes	no
Data submitted electronically from the facility	yes	yes	yes	yes	yes	no
Data collected electronically from labs	yes	no	yes	yes	no	no
Frequency of data collection	monthly	monthly	by treatment	monthly	monthly	varies
Frequency of dissemination of facility-specific performance reports	monthly	quarterly	monthly	quarterly	monthly	annually
Age of data by time it is disseminated	less than 4 weeks	1 day to 12 weeks	1-3 weeks	6-7 weeks	4 weeks	~3 years
Main format for facility-specific reports	intranet	intranet	intranet	intranet and mail	intranet and mail	internet and mail
Compares the facility to its region	yes	yes	yes	yes	yes	yes
Compares the facility to the past	yes	yes	yes	yes	yes	yes
Compares the facility to the company	yes	yes	yes	yes	yes	NA**
Compares the facility to the entire nation	yes	yes	yes	yes	yes	yes
Compares the facility to a minimum standard	yes	yes	yes	yes	yes	yes
Compensation for the facility medical directors is tied to performance measures	no	no	no	yes	yes	NA**
Facility-specific clinical performance measures are routinely publicly available	no	no	no	no	no	some
Provide physician-specific reports	yes	no	yes	no	yes***	no

\*except for patients in managed care plans, \*\*not applicable, \*\*\* only for facility medical directors

# LESSONS LEARNED BY THE CORPORATIONS

## Lesson 1. Look to medical directors to exert sustained leadership.

Corporations look to their medical directors to exert leadership in two key ways. One is to lead by example. Since the medical directors typically account for a majority of a facility's patients, such leadership by example is of no small consequence. The other dimension is to ensure sustained attention in the facility to the improvement opportunities that performance measures can offer. The corporations expect the medical directors to serve as the primary on-site agents to implement the corporate initiatives concerning the collection and use of measures.

The medical directors' contracts spell out their leadership responsibilities. These contracts include the responsibilities required by the Medicare regulations as well as outline additional responsibilities required by the corporations.<sup>2</sup> Among the contracts that we reviewed, we saw specifications that medical directors review their facilities' performance measures monthly, attend regular training or meetings concerning quality improvement, and address attending physicians who are not performing adequately. Two of the corporations even include in their contracts a provision indicating that a portion of the medical director's salary is contingent on how well their facilities fared on various clinical performance measures.

The corporate officials disagreed about how fully they are able to hold facility medical directors accountable for exerting leadership. Some stated that they had all the authority they needed through their contracts with facility medical directors. For them, it was simply having the will to enforce their contracts. Others drew attention to the limited leverage that the medical directors themselves have over the attending physicians who, unlike medical directors, do not have contractual obligations to the facility or the corporation and who often have patients at various facilities.<sup>3</sup> The Medicare Conditions

### The Role of the Facility Medical Directors and Attending Physicians

**Medical Directors.** The Medicare Conditions for Coverage require each facility to have a physician who serves as a medical director who is responsible for "planning, organizing, conducting, and directing the professional [end-stage renal disease] services." Corporations contract with local physicians to serve in this capacity. For facilities that are not part of a corporate chain, the facility owner and medical director can be the same person. In addition to their medical director duties, these physician directors have their own patients that can make up the majority of patients at a facility. It is not uncommon for a medical director to also be an attending physician at another facility regardless of the ownership.

**Attending Physicians.** Dialysis facilities allow local physicians to send their patients to them for treatment. Attending physicians may send patients to several facilities that may be owned by several different corporations or entities. The physicians are not contractors or employees of the facility or the corporation, and their privileges can be revoked if they do not adhere to the facility's policies.

for Coverage do not make explicit that medical directors have the authority to take action concerning patients attended to by other physicians.<sup>4</sup> Moreover, in competitive marketplaces, medical directors and attending physicians, if unhappy with a facility, can encourage their patients to move with them to another dialysis facility.

## **Lesson 2. Secure the commitment of attending physicians.**

For their own patients, the attending physicians determine the amount of dialysis, prescribe medications, and monitor the ongoing effects of dialysis treatment. In performing these roles, the attending physicians have a considerable influence on the quality of care provided at dialysis facilities and can influence how well particular facilities fare on performance measures.

Yet, corporate representatives indicate that these attending physicians are not necessarily drawn to facility-based performance measures. With their patients in a number of different facilities, they may find any one facility's measurements to be of little relevance to their own clinical performance. And, as busy professionals, they may find that they have little time to devote to quality improvement efforts for which they receive no additional compensation.

Still the corporations have devised ways to encourage attending physicians to participate in facility efforts to improve the quality of care being provided. One approach they use is to establish clear standards that attending physicians must meet in order to send their patients to the facility. Typically these standards are set forth in the facility's bylaws. Another approach is to provide opportunities for physicians to attend seminars or conferences addressing performance measures and quality improvement. Finally, to foster a stronger sense of individual physician accountability, two corporations provide physician-specific performance reports so that physicians can have data that are more relevant to their own practice.

## **Lesson 3. Collect a broad set of measures.**

Due to the complex nature of end-stage renal disease, it is important to monitor many different measures to obtain a better picture of the level of care. Each of the corporations collects at least 14 different clinical performance measures. The measures these corporations collect are familiar to most renal professionals and capture various clinical aspects of dialysis treatment. They include measures that evaluate adequacy of dialysis treatment, anemia management, nutritional level, vascular access, bone disease, and hypertension

## **Lesson 4. Revisit the relevance of the measures regularly.**

The measures the corporations collect have changed over time in order to keep pace with scientific advances. The corporations stated that if the measures were outdated (i.e., not clinically relevant), then physicians, nurses, and other renal professionals would be

unwilling to invest their time in collecting and reviewing them. The corporations rely on internal expert committees that make recommendations on which measures should be collected and how.

### **Lesson 5. Establish minimum performance standards.**

All the corporations have minimum standards. Corporate officials emphasized that setting clear expectations for facility performance is key to ensuring a minimum level of care across all facilities. Minimum standards typically have two components: a target value and the percent of patients within a facility that are expected to meet the target value. For example, one corporation established its target value for KT/V, a measure of the adequacy of dialysis treatment, at  $\geq 1.4$  and further established that 90 percent of the patients within a facility should meet that target. All the corporations determine their minimum standards using internal expert committees comprised of renal physicians that review the recent literature and practice standards.

### **Lesson 6. Develop performance goals.**

Corporate leaders emphasized the need for all facilities, even the top performers, to continually improve their performance. In order to prevent facilities from striving just to meet the minimum standards, three of the corporations established goals for each of their performance measures. One company established its goals by using the values achieved by the top 10 percent of its facilities. Another corporation stated that its goal is to have 100 percent of its patients meet the target values set for each measure.

### **Lesson 7. Apply strict definitions to performance measures.**

All the corporations indicated that it was important to make clear exactly what the measure represents, so that all facilities are collecting the same data, and to allow for meaningful comparisons across facilities. Standard definitions and processes need to be in place prior to collecting the data. Many of the clinical performance measures that are widely used as part of regular treatment can be collected and calculated in multiple ways. For example, some corporations exclude patients with certain terminal diseases in calculating mortality rates and some do not. With hospitalization, some count the length of stay, while others count the number of admissions. All of the corporations have carefully defined their performance measures so that within the corporation facility data are comparable.

### **Lesson 8. Check the accuracy on performance data regularly.**

The review process serves two main functions: it helps ensure the accuracy of the data and it helps to foster the integrity of the entire performance measure program among physicians and facility staff. If care givers perceive the data to lack integrity, they will likely ignore any reports generated from them. Accuracy reviews most often take place at a central level where all the data can be reviewed at once. All the corporations have full-

time data analysts or statisticians at the central level that regularly monitor the data provided by their facilities and some corporations have built in automatic data edits into their computer software programs.

### **Lesson 9. Minimize the data reporting burden.**

Nurses and technicians are busy caring for patients and have little time left over for other activities. To help reduce the workload, the corporations collect much of the facility-specific data electronically, using several different approaches. Some of the corporations have integrated their electronic data systems for quality management with their data systems for patient management that nurses and doctors rely upon to provide day-to-day patient care. Three corporations obtain the results of lab tests directly from the laboratory, thereby eliminating the need for the facility to enter or send the data to a central location for analysis.

### **Lesson 10. Present the performance data in ways that facilitate comparative assessment.**

All the corporations' facility-specific reports provide comparisons as a means to help gauge the level of quality at that facility. The reports compare a facility to its own past performance and to its peers at the regional and national levels. Corporate officials told us that comparisons are a big motivator for improvement. They show at-a-glance where a facility stands among its peers.

### **Lesson 11. Provide timely feedback of performance data to dialysis facilities.**

If the data are 2 years old, or even a year old, physicians may tend to view them as something that shows a long-term trend that is irrelevant to the care they are providing today. According to corporate leaders, the more recent the data, the more likely physicians and staff will take them seriously as a reflection of the care they are currently providing and make changes in their decision making process. Two of the corporations disseminate their facility-specific reports monthly and the remaining three disseminate their reports quarterly. By the time the facilities receive their own report, the data is often less than 3 months old, and in some cases just weeks old.

### **Lesson 12. Stress quality improvement projects at the facility level.**

The corporations expect individual dialysis facilities to take the lead in conducting quality improvement projects. They look to the facilities to identify problems and to develop and implement their own quality improvement projects. Facilities are in the best position to know where they need improvement. Furthermore, improvements can only occur if the individuals providing the care make changes in their processes. To foster this goal, all the corporations have developed training programs and materials for facility staff regarding the use of performance measures. These programs and materials help educate nurses and physicians about performance measures in general, how to interpret their

facilities' results, and how to develop a plan of action to improve. The companies conduct many of these training sessions in central locations and sometimes the corporations conduct specialized training for just one facility.

**Lesson 13. Use performance data as a guide to possible performance problems, not as definitive indicators.**

Corporations use performance measures cautiously, as signals of possible problems. Prior to intervening, the corporations seek to verify the concern. They may examine the results of recent patient satisfaction surveys, complaints, results of any State surveys, adverse event reports, and the current demographics of the patient population. Some corporations wait until a definite pattern appears over several months before they will intervene. Corporate representatives emphasized that performance measures used in isolation can lead to false conclusions on both sides. A facility that fails to meet minimum performance standards may in fact be providing high quality care. Similarly a facility that exceeds performance goals may be providing inadequate care.

**Lesson 14. Intervene with facilities having performance problems in ways likely to motivate change.**

The corporations begin their interventions with targeted training programs. Often the training occurs on site so that corporate officials can review first-hand the practices of the facility. Many of the corporate officials believed that training would not only help the facility fix its current problem, but also help address problems in the future. If training fails, the next level of response is peer review. Corporate officials indicated to us that physicians and nurses are more receptive to advice from their regional peers than from a person in an executive position. It was rare that they had to resort to punitive actions such as firing facility staff, terminating contracts with facility medical directors, or revoking attending physician privileges.

# RECOMMENDATIONS

Similar to the corporations, CMS has systems in place to collect and disseminate facility-specific performance measures and their national clinical performance measures have shown considerable improvement in the quality of care. The experiences of the corporations is of considerable relevance to CMS as it seeks to strengthen its own use of facility-specific performance measures. Drawing on the lessons the corporations have learned, we make several recommendations to CMS on how it can improve its efforts.

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## **Revise the Medicare Conditions for Coverage for dialysis facilities.**

### **Require facility medical directors to exert leadership in quality improvement.**

The current Conditions for Coverage (Medicare regulations for dialysis facilities) do not explicitly require the medical director to take the lead in quality improvement. The corporations have learned that, if performance measures are to be used effectively at the facility level, someone at the facility must take the lead to ensure that the nurses, attending physicians, and the technicians are all attuned to quality improvements. The medical director, who typically serves as a member of the facility's governing body, is in the best position to fulfill this leadership role. Without medical directors being fully committed to and engaged with quality improvement activities, important opportunities for enhancing patient care are likely to be missed.

CMS should also address in the Conditions what medical directors are expected to do when a quality problem is attributable to an attending physician who is not performing adequately. It should make clear that: (1) medical directors have the authority to conduct or initiate peer review and to address performance problems through directed education, and (2) for more serious situations, the medical director's responsibility to report a physician to an authoritative body, such as the End-Stage Renal Disease Network and/or the State Medical Board.<sup>5</sup>

### **Require dialysis facilities to conduct their own quality improvement projects.**

CMS can give added impetus to such facility-based efforts by enacting a Medicare requirement that facilities undertake quality improvement efforts.<sup>6</sup> The requirement need not stipulate the type of efforts, but should call upon the facilities to draw on performance measures, as well as other sources of information, to improve the quality of care provided. This expectation should apply even for facilities that have comparatively high performance scores. All facilities, it seems reasonable to assume, can do better. Such a mandate need not preclude national or regional quality improvement projects; but the corporate experience suggests that they should be of lesser significance than those that are facility specific.

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## **Examine ways to foster the commitment of attending physicians to performance measures.**

Our review suggests three ways CMS could foster the commitment of attending physicians. First, CMS, through its facility oversight agents, the End-Stage Renal Disease Networks, should provide educational forums for nephrologists that clearly convey the value of performance measures and their relevance to the everyday care of the patient. A second direction is to generate physician-specific report cards. One Network, as we noted in a prior report, has been doing this since 1997.<sup>7</sup> Similarly, two of the dialysis corporations provide physician-specific report cards so that physicians can see how their performance compares with their peers. A third direction is to more fully address the expectations of attending physicians to contribute to and be responsive to quality improvement efforts. CMS may want to consider revising the Conditions for Coverage to require facilities to have a credentialing process for attending physicians similar to the regulations in place for hospitals.<sup>8</sup>

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## **Develop more effective intervention strategies for dialysis facilities.**

CMS relies on two organizations, each with its own expertise and authorities, to oversee dialysis facilities: the End-Stage Renal Disease Networks and the State survey agencies.<sup>9</sup> The Networks have clinical expertise and the States have regulatory authority to enforce the Medicare Conditions for Coverage. CMS provides facility-specific data to each that can help them identify poorly performing facilities in need of intervention. Even though these entities complement one another, we found in our June 2000 report on dialysis facilities that the States and the Networks rarely communicate. This breakdown can lead to ineffective interventions and limits the available options to address poorly performing facilities.<sup>10</sup> In order for the States and the Networks to work together more effectively, CMS will first need to address issues around confidentiality and liability, which have inhibited collaboration in the past.

CMS may want to consider expanding the sanction options for dialysis facilities that fail to comply with the Conditions. Currently, Medicare has very few options, short of terminating the facility from the Medicare program, to sanction dialysis facilities. It may want to consider seeking the authority to deny Medicare payments to new admissions at facilities that fail to meet Medicare Conditions. A similar process is already in place for nursing homes.<sup>11</sup>

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## **Work with corporations to share experiences and minimize burden on dialysis facilities.**

CMS and its agents, the States and the Networks, have little interaction with the dialysis corporations. CMS' focus has been on the licensed facilities, not the parent corporations. Yet, the parent corporations, like CMS, are also engaged in the external quality oversight of dialysis facilities. From different vantage points, the two have many of the same

concerns. Our review suggests that it could be beneficial for both parties, and most importantly for the patients, for more collaboration and sharing to take place. CMS should consider sponsoring meetings and conferences for itself and the corporations to share information as well as find ways to share data and information on a routine basis. One concrete step that CMS should take is to share its facility-specific data reports directly with the relevant corporations.

## Glossary of Clinical Performance Measures

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**Albumin:** A measure of the level of proteins in the blood, used to monitor the level of nutrition.

**Anemia:** Inadequate red blood cells, a common concern among dialysis patients that can lead to extreme fatigue and other complications.

**Catheter:** A type of vascular access. A tube placed in a patient's blood vessel, primarily used for temporary access to the blood stream.

**Clotting events:** Arteriovenous fistulas, both native and synthetic, can become clotted with the patient's blood causing complications for the dialysis patient.

**Creatinine clearance:** A measure used to determine adequacy in peritoneal patients. Creatinine clearance measures the removal of the protein creatine from the body.

**Ferritin level:** A measure of the level of iron stored within the body.

**Hematocrit:** A measure of the ratio of red blood cells to the plasma volume. Used to monitor anemia.

**Hemoglobin:** A measure of the amount of a specific protein in red blood cells that carries oxygen. Used to monitor anemia.

**KT/V:** A function of the amount of urea removed multiplied by the time on dialysis, divided by the volume of urea distribution, or approximately the amount of water in the body. Used to monitor the adequacy of the dialysis treatment.

**Native arteriovenous (AV) fistula:** A type of vascular access. A patient's own artery and vein are surgically joined to allow arterial blood to flow through a vein, usually placed in the forearm and takes several weeks to mature.

**Parathyroid:** A hormone that regulates calcium and phosphorus and is used to monitor bone disease.

**Peritonitis:** An inflammation of the peritoneum, a membrane that lines the stomach, that can occur in individuals receiving peritoneal dialysis.

**Synthetic arteriovenous (AV) graft:** A type of vascular access. A synthetic blood vessel is used to surgically join the patient's artery and vein, usually placed in the forearm and takes several weeks to mature.

**Transferrin saturation (TSAT):** A measure of iron immediately available to produce red blood cells. Used to manage and monitor anemia in dialysis patients.

**Urea reduction ratio (URR):** A measure of the amount of urea removed during dialysis, as determined by pre- and post-dialysis blood urea nitrogen levels. Used to monitor the adequacy of dialysis treatment.

**Vascular access:** The point of direct access to the blood stream for hemodialysis. There are three types: catheter, native arteriovenous fistula, and synthetic arteriovenous graft.

## Endnotes

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1. Based on figures from, “The Ten Largest Renal Providers,” *Nephrology News and Issues*, Vol. 15 No. 8, July 2001 p. 30, and *The 2001 USRDS Annual Data Report Reference Tables*, The United States Renal Data System, Section J. Accessed via the Internet at [<http://www.usrds.org/reference.htm>].
2. 42 C.F.R. Sec. 405, Subpart U.
3. CMS (Medicare) pays attending nephrologists for routine dialysis care through a monthly capitation payment.
4. CMS made this clear in a 1998 letter to an ESRD Network: “Significantly, the end-stage renal disease regulations do not explicitly empower a physician-director with the authority to take independent action with respect to patients attended by other physicians.” Correspondence to Glenda Harbert, Executive Director of Network 14, from Kay Hall, Project Officer, Division of Clinical Standards and Quality, Health Care Financing Administration, on November 9, 1998.
5. The End-Stage Renal Disease Networks, established in 1976, are CMS’ main contractors for monitoring dialysis facilities. CMS relies on the 18 regional Networks to collect data from facilities, conduct annual quality improvement projects, and evaluate and resolve complaints. The main mission of the Networks as set out in the Statute is to ensure “effective and efficient administration of the benefits” provided under the end-stage renal disease program. Section 1881(c) of the Social Security Act.

6. The minimum standards for dialysis facilities issued by the Texas Department of Health include one calling for facilities to conduct their own internal quality improvement efforts.
7. Department of Health and Human Services, Office of Inspector General, *External Quality Review of Dialysis Facilities: Two Promising Approaches*, OEI-01-99-00051, June 2000.
8. 42 C.F.R. Sec. 482.22.
9. CMS contracts with the State survey agencies, typically within departments of public health, to conduct on-site Medicare certification surveys of facilities and to investigate complaints, both in accordance with Medicare Conditions for Coverage for dialysis facilities.
10. Department of Health and Human Services, Office of Inspector General, *External Quality Review of Dialysis Facilities: A Call for Greater Accountability*, OEI-01-99-00050, June 2000.
11. 42 C.F.R. Sec. 488.408 (d)(1)(i).