
Promoting Quality of Care for ESRD Patients: The Role of the ESRD Networks

Jenna Krisher and Stephen Pastan

The 18 End Stage Renal Disease (ESRD) Networks were established by Congress to oversee the care of Medicare beneficiaries with ESRD, serving as HCFA's primary quality improvement (QI) agents. The Networks play a critical role in the ESRD surveillance system by collecting, analyzing and disseminating data from dialysis clinics regarding the occurrence of ESRD, and the processes of care and outcomes of ESRD patients. In addition, under the direction of volunteer Medical Review Boards, the Networks propose, design and implement regional QI activities targeting specific areas in the delivery of ESRD care, and provide technical assistance to foster QI at the facility level. In this article, we discuss the ESRD Network system and review the scope of QI activities through which the Networks accomplish their mission.

© 2001 by the National Kidney Foundation, Inc.

Index words: ESRD Networks, continuous quality improvement, information management systems.

Congress extended Medicare coverage in 1972 to individuals with permanent kidney failure, regardless of age. Regulation followed through the mid-1970s to establish the Medicare End Stage Renal Disease (ESRD) program including conditions for coverage and the establishment of ESRD Networks. The Health Care Financing Administration (HCFA) administers this program and Congress has charged HCFA with the assurance of the quality of care delivered through the program.^{1,2}

HCFA contracts with 2 groups to review and improve outcomes of care provided to ESRD patients. The state survey agencies perform a regulatory function for HCFA by monitoring and enforcing the standards of care established in the Medicare ESRD conditions of coverage. The ESRD Networks develop local and national projects to serve as HCFA's primary quality improvement (QI) agent. This article describes the ESRD Networks and reviews the scope of QI activities through which the Networks accomplish their mission.

From the Southeastern Kidney Council/ESRD Network 6, and the Department of Medicine, Renal Division, Emory University School of Medicine, Atlanta, GA.

The analyses on which this publication is based were performed under Contract Number 500-00-NW06 entitled End Stage Renal Disease Networks Organization for the States of Georgia, North Carolina and South Carolina, sponsored by the Health Care Financing Administration, Department of Health and Human Services. The content of this publication does not necessarily reflect the views or policies of the Department of Health and Human Services, nor does mention of trade names, commercial products, or organizations imply endorsement by the US Government. The authors assume full responsibility for the accuracy and completeness of the ideas presented. The article is a direct result of the Health Care Quality Improvement Program initiated by the Health Care Financing Administration, which has encouraged identification of quality improvement projects derived from analysis of patterns of care, and therefore required no special funding on the part of this contractor. Ideas and contributions to the author concerning experience in engaging with issues presented are welcomed.

Address correspondence to Stephen Pastan, MD, Emory School of Medicine, 1639 Pierce Dr WMB 338, Atlanta, GA 30322. E-mail: spastan@emory.edu

© 2001 by the National Kidney Foundation, Inc.

1073-4449/01/0802-0009\$35.00/0

doi:10.1053/jarr.2001.23987

ESRD Networks

The HCFA contracts with 18 ESRD Networks to design and administer quality improvement and quality assurance (QA) programs (Fig 1). The Networks are responsible for a broad range of responsibilities from data collection to resolution of patient conflicts. Some Network activities are direct QI projects; others contribute in a more general way to the overall goal of improving care for ESRD beneficiaries.

The structure and composition of the Networks places them in a unique position to lead QI activities. The Networks are nonprofit organizations, led by volunteer boards and committees of nephrology patients and professionals. HCFA outlines the broad expectations for the Networks and specifies certain projects and tasks in the ESRD Network Statement of Work (SOW). The geographic distribution of the 18 Networks allows each to design projects most appropriate for the population

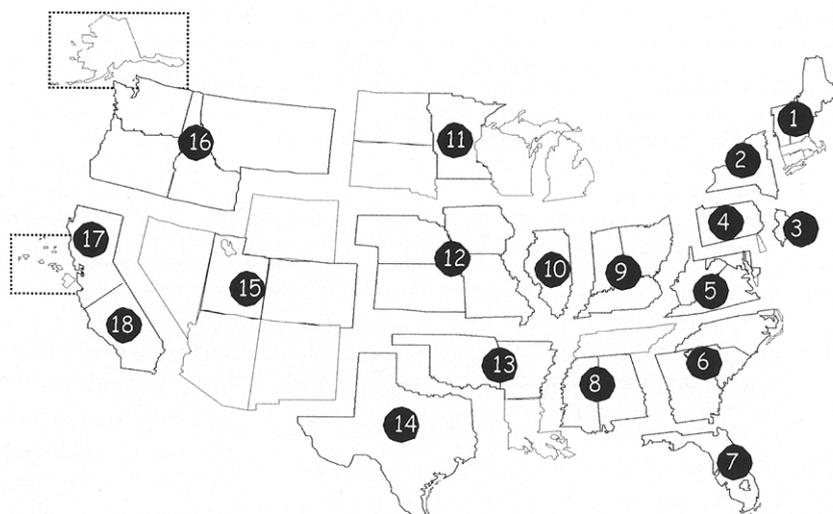


Figure 1. The geographic location of the ESRD Networks.

served. Some functions, such as the collection of data, are standardized across Networks through the contract. Others are regional, so Networks can adapt projects for the different areas by taking advantage of local resources and addressing concerns in the setting of a particular geographic or cultural environment. With limited resources, HCFA and the Networks must determine which projects can have the broadest impact on improving quality. Networks share these project ideas with one another so successful projects can be duplicated.

The Networks perform QI activities, developed and administered by HCFA in 1994 as the Health Care Quality Plan (HCQIP).³ HCQIP embraces continuous quality improvement (CQI) for the improvement of patient outcomes in the ESRD program. Implementing this program poses a challenge to HCFA and the Networks because one of the key principles of QI is that the health care providers themselves identify the opportunity for improvement, and implement improvement plans locally.

Network Quality Improvement Projects and Activities

The ESRD Network contract with HCFA requires completion of at least 1 Quality Improvement Project (QIP) per year. HCFA specifies the components of this formal project in the ESRD Network's statement of work.

The projects components include documentation of the opportunity to improve care; development and implementation of an intervention(s) that leads to improvement in care; measurement of impact and evaluation of the project, including the effectiveness of intervention strategies; dissemination of the project results to HCFA and to providers of ESRD services in the Network area; and identification of further opportunities to continually improve care. Within this framework, Network Medical Review Boards (MRBs), composed of nephrology patients and professionals from the Network area, select the specific process indicators and intervention strategies to best meet the Network needs.

In the past, Network MRBs identified subjects for quality improvement projects, which were subsequently approved by HCFA. Networks conducted 31 QIPs in 1999 addressing a variety of clinical subjects (see Table 1). Recently, HCFA has changed the QIP process, directing all Networks to focus on hemodialysis adequacy as the topic in 2000–2001, and to continue to address this area until at least 80% of adult patients in the Network achieve a delivered dose of dialysis that results in a urea reduction ratio (URR) of more than 65%. After this goal is met, a Network may select QIPs from other areas identified by HCFA, which are:

- Adequacy of peritoneal dialysis
- Anemia management

Table 1. QIPs Conducted by the 18 ESRD Networks in 1999

<i>Project Focus</i>	<i>Networks Conducting</i>
Adequacy of dialysis—hemodialysis	4, 5, 8, 11, 13, 17
Adequacy of dialysis—peritoneal dialysis	2, 5, 6, 8, 9/10, 15
Anemia	3, 11, 17
Vascular access	1, 3, 4, 7, 9/10, 11, 13, 14, 16, 18
Preventive health care (flu and hepatitis vaccination)	1, 4, 5, 6, 12, 14, 15, 18
Diabetes care (Network-defined area of care)	2

Data from the ESRD Network Program Annual Report Summary 1999 prepared by the Forum of ESRD Networks.⁴

- Vascular access
- Other standard measures/indicators to be identified by HCFA

This direction of Networks to perform specific QI projects selected by HCFA represents a reversal of the traditional QIP process, whereby projects are selected locally by participants in the delivery of care, such as members of Network MRBs or dialysis unit professional staff themselves. It remains to be determined whether overall quality of care and clinical outcomes will be improved or harmed by diverting Network resources away from QIPs identified at a Network level into centrally directed activities.

In addition to formal QIPs, Network MRBs review available data profiles and literature to design less-formal quality assessment and improvement activities; this allows the Networks to respond rapidly to address areas of concern identified within the Network area. Some of the subjects addressed in recent Network QI projects include reducing the high incidence of hemodialysis bacteremia, containing the spread of colonization with vancomycin-resistant *Enterococcus*, improving the rates of referral for renal transplantation, improving quality of life of ESRD patients, reducing the occurrence of renal osteodystrophy, improving influenza and hepatitis immunization rates, improving the care of predialysis patients, and improving the use of heparin anticoagulation.⁴

ESRD Surveillance System

ESRD is unique among the chronic diseases in the United States in that a comprehensive surveillance system has been established for this categoric disease.⁵ The ESRD surveillance system has 2 essential characteristics. First is

the systematic and ongoing collection, aggregation, analysis, and interpretation of data about the occurrence and outcomes of kidney disease in a defined population.^{3,6} Second, the resulting information is disseminated and used to improve the treatment and control of ESRD.⁷ The Networks are an integral part of this surveillance system, collecting and disseminating information about the occurrence, patterns, and outcomes of care of kidney failure.⁵

Data drives QI and Networks have over 20 years of experience as the prime collectors of ESRD data. the Omnibus Budget Reconciliation Act (OBRA) of 1989 amended Section 1881(c) of the Social Security Act provides liability protection for ESRD Networks and prohibition against disclosure of information. Section 1160 states that the Network

in carrying out its functions under a contract entered into under this part, shall not be a Federal agency for purposes of section 552 of title 5, United States Code [commonly referred to as the Freedom of Information Act]. Any data or information acquired by any such organization in the exercise of its duties and functions shall be held in confidence and shall not be disclosed to any person except 1) to the extent that may be necessary to carry out the purposes of this part, 2) in such cases and under such circumstances as the Secretary shall by regulations provide to assure adequate protection of the rights and interests of patients, health care practitioners, or providers of health care or 3) in accordance with subsection (b).

Subsection (b) describes reporting the Secretary might require.

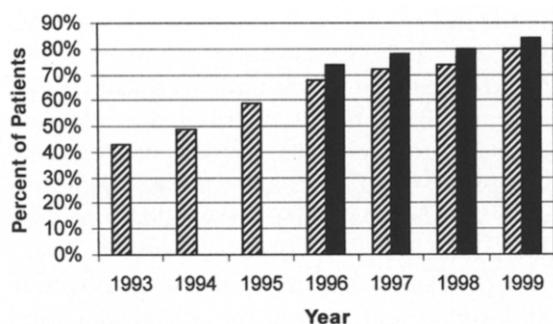


Figure 2. Percentage of US adult ESRD patients receiving adequate dialysis: trend from 1993–1999. Data from Supplemental Report #2.⁷ Hemodialysis Patients Receiving Adequate Dialysis ▨ URR > 65%; ■ Kt/V > 1.2.

This legislation allows Networks to collect patient-specific and facility-specific data in a protected quality improvement environment. Some of the descriptive and demographic data collected by Networks is copied to HCFA and is releasable in limited forms, according to HCFA policies. Data collected for QIPs, not copied to HCFA, are generally protected from release. Networks believe this contributes to the cooperation of facilities to submit data and ensures high accuracy of the data.

Electronic Data Exchange

The system is converting to paperless data collection. In 1999, all Networks converted to the Standard Information Management System (SIMS). This replaced the local systems the Networks had previously maintained and allows for standard definitions, processing, and reporting across Networks. HCFA and a sample of Networks are now testing the Vital Information System To Improve Outcomes in Nephrology (VISION), which will allow facilities to transmit their data electronically for inclusion into SIMS. This will greatly reduce the paperwork burden both at the facility level and Network level, will improve the quality and capacity of the data, and will form an important part of the CQI system.

Core Indicators/CPM Project

One of the key data collection projects for the Networks is the National Clinical Perform-

mance Measures (CPM) Project. Formerly known as the National Core Indicators Project, the collection and reporting of these data provides the backbone of many of the Network QI activities. It provides important feedback of outcomes measured at the national and the Network level (see Figs 2 and 3). Each year, Networks collect data on a random sample of 4% of adult (age ≥ 18 years) dialysis patients by requiring the patients' clinics to complete a survey. After the forms have been collected and the data collated, the Networks validate the data by reviewing the charts of 5% of the surveyed patients. The CPMs include the following quality indicators:

- Adequacy of dialysis
- Hemodialysis: URR and Kt/V
- Peritoneal dialysis: Kt/V and creatinine clearance
- Nutritional status
- Albumin
- Anemia management
- Hematocrit and hemoglobin
- Vascular access (hemodialysis only)

The CPM project provides national and Network-specific rates for quality indicators. Many Networks have chosen to collect clinical indicators on a larger sample to assess facility-specific outcomes measures. Methods used for this include collecting data on all patients from all facilities, sampling patients from all facilities, and collecting aggregate facility data.

Feedback Reports

Networks provide facilities with numerous feedback reports for incorporation into local

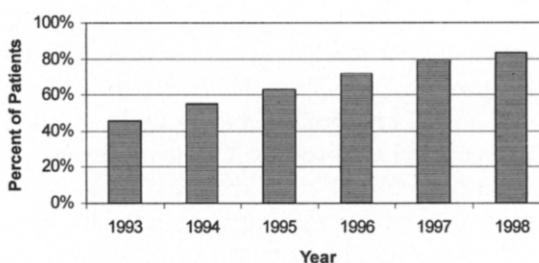


Figure 3. Percentage of US adult ESRD patients with hematocrits above 30%: trend from 1993–1998. Data from Supplemental Report #2.⁷

QI programs. These provide local and national data that facilities can compare with their outcomes, demographics, and treatment characteristics to others in the Network and nationwide. Each Network distributes the following reports:

- National CPMs
- Network Annual Report with aggregate data and reports of Network QI activities
- Center for Disease Control National Surveillance of Dialysis Associated Diseases Report
- Unit-specific reports of standardized mortality, morbidity, and other rates, produced by the University of Michigan

Networks may also fulfill specific data requests from facilities focusing on a particular area of care. Networks collecting a larger sample of clinical indicators data are able to produce and distribute facility-specific, and, in some cases, physician-specific, outcomes measure reports. Other locally developed, comparative reports include standardized mortality rates, self-care rates, transplant referral rates, and facility common practices.

Education and Technical Assistance To Providers and Patients

ESRD Networks are a vital resource to facilities, providing, in addition to comparative data feedback reports, educational materials and workshops or seminars. The Networks develop their own materials and serve as a clearinghouse for materials developed by others. These materials are distributed in hard copy, posted on Network web sites, and sent via e-mail and broadcast fax. Some of the materials and workshops are specific to CQI practices and principles, including the tools to be used, the concepts of change, and reporting of successful QI projects. Other materials are specific to clinical areas the facility has identified with room for improvement. In 1999, Networks offered numerous workshops on topics including the challenge of phosphorous control, iron management strategies, vascular access, and hypoalbuminemia.⁴ ESRD Net-

works also develop and serve as a clearinghouse for patient education materials, which facilities can use for the patient education part of the QIP. Materials distributed in 1999 included patient education videos on treatment compliance and on caring for vascular access and written materials on infection control, diet, nutrition, and other important areas.⁵ Network staffs are also available by phone to all facilities and patients for QI assistance and consultation.

Demonstrated Quality Improvement

From the point in time that HCFA and the ESRD Networks implemented the HCQIP, facilities have made dramatic improvements in the delivery of care.⁷ Figures 2 and 3 show the improvement in hemodialysis adequacy and in anemia since 1993, when core indicator data were first collected. In 1993, only 43% of patients had a URR of 65% or greater. By 1999, this had risen to 80%. Kt/V was added to the CPM measures in 1996, at which time 74% had a Kt/V of 1.2 or better. This rose to 84% in 1999. Anemia management has improved from 46% of patients with a mean hematocrit greater than 30% in 1993 to 83% in 1998.

Conclusion

Through the collection and dissemination of data, QIPs, and educational and technical assistance, ESRD Networks play a vital role in ensuring the quality of care delivered to ESRD patients.

References

1. Rettig RA, Levinsky NG: *Kidney Failure and the Federal Government*. Washington, DC, National Academy Press, 1991
2. Department of Health and Human Services Office of the Inspector General Report: *External Quality Review of Dialysis Facilities: A Call for Greater Accountability* (OEI-01-0050). June, 2000
3. McClellan WM, Helgeson SD, Frederick PR, et al: *Implementing the Health Care Quality Improvement Program in the Medicare ESRD Program: A new era of*

-
- quality improvement in ESRD. *Adv Ren Replace Ther* 2:90-94, 1995
4. Forum Clearinghouse of ESRD Networks. End Stage Renal Disease Network Program Annual Report Summary 1999. An Internal report produced under contract with the Health Care Financing Administration. Forum of ESRD Networks, Midlothian, Virginia, December 2000 (Also available: www.hcfa.gov)
 5. McClellan WM, Krisher JO: Collecting and using patient and treatment center data to improve care: Adequacy of hemodialysis and end-stage renal disease surveillance. *Kidney Int* 57:S7-S13, 2000
 6. Renal Data System: USRDS 2000 annual data report. Bethesda, MD, National Institute of Diabetes and Digestive and Kidney Diseases, 2000. (Available: www.usrds.org)
 7. Health Care Financing Administration. 1999 Annual Report, End Stage Renal Disease Clinical Performance Measures Project Supplemental Report #2: 1999 Opportunities to Improve Care for Adult ESRD Patients, Network Trends 1993-1999. Department of Health and Human Services, Health Care Financing Administration, Office of Clinical Standards and Quality, Baltimore, Maryland, December 1999