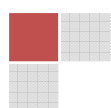


2009



FISTULA FIRST BREAKTHROUGH INITIATIVE ANNUAL REPORT

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Preface

STATEMENT BY CLINICAL CONSULTANT

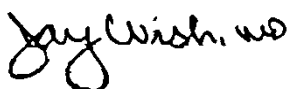
Jay Wish, MD

The Fistula First Breakthrough Initiative (FFBI) is proud to present this Annual Report of its achievements for 2009. This has been an extremely productive year for the FFBI, with activities and products that have engaged and energized the stakeholder community, laying the foundation for a cooperative effort to accelerate the increase in the prevalent arterio-venous fistula (AV fistula) rate to the national goal of 66%.

An analysis of the work done by the National Vascular Access Improvement Initiative (NVAII) and FFBI prior to 2009 recognized that many of their concepts, methods and recommendations for improving AVF rates are sound, but required updating with new evidence and more widespread stakeholder input to improve their traction. Accordingly, the FFBI undertook a complete, ground-up reevaluation of the barriers to AV fistula placement with a root cause analysis, convened a broadly based technical expert panel of subject matter experts and, ultimately, developed an exciting strategic plan. This strategic plan has refocused the targets and audience for FFBI activities to maximally leverage the role of multiple stakeholders, including nephrologists, hospital systems, patients and other practitioners. The original FFBI Change Concepts have been amended to reflect this more inclusive stakeholder group and the committee structure of the FFBI has been reorganized to increase the dialogue and communication among stakeholders as tactics for the implementation of the strategies are developed. The FFBI website has been completely redesigned to make it more powerful and user-friendly to stakeholders.

The FFBI recognizes the changing landscape of ESRD quality oversight and payment, and is working to coordinate its efforts with the implementation of the new Conditions for Coverage (CfC), the CROWNWeb data collection system, and the payment for performance methodologies being developed by Medicare. The Networks, which have responsibility for engaging the providers to develop quality improvement programs to increase AV fistula prevalence, have been ongoing partners in this process. Newer partners include the 11 QIOs which are participating in a sub-national project to increase AV fistula placement among patients with chronic kidney disease (CKD) who are not yet on dialysis. It is expected that lessons learned from the Network and QIO projects will be incorporated into best practice models that can be disseminated through the FFBI communication channels. The FFBI has recognized that its credibility and the success of its efforts depend upon how the campaign is framed and how and to whom it is delivered. The FFBI has been fortunate to recruit a large number of individuals who have high respect and visibility in the renal community to serve as members of its working committees and to deliver the FFBI messages to all stakeholder groups. There is a new emphasis on data mining to provide the evidence needed to support the FFBI recommendations by delivering presentations at national meetings and articles in peer-reviewed journals.

In summary, the FFBI has matured in 2009 into a structured, collaborative enterprise with great promise to engage the community with evidence and accelerate the movement of the AV fistula prevalence rate towards the 66% goal. It is anticipated that this momentum will be carried into 2010 as the committees continue their work on tactical recommendations and the data collection and reporting infrastructure is refined to support more targeted improvement activities.



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ACHIEVEMENTS

Improvement Rate

- The FFBI resulted in improvement in the prevalent AV fistula rate over and above the underlying secular trend established in the years prior to the start of the FFBI.
- The current contractor was successful in revitalizing the FFBI, as demonstrated by an increase in the prevalent AV fistula rate during this contract cycle that exceeded the rate of improvement in the prior months. From June 2008 – February 2009 the rate of improvement was 1.7% and from March 2009 – November 2009 the rate of improvement increased to 2.3%.

Strategic Plan

- Convened a Root Cause Analysis (RCA) team to identify underlying barriers that prevent AV fistula placement and use, and a Technical Expert Panel (TEP) to identify solutions to the root causes.
- Proposed seven (7) new strategies and two (2) policy recommendations to move the project forward and sustain improvement.
- Plan includes a detailed operational plan which outlines tasks and activities that need to be accomplished under each strategy.
- Reorganized FFBI Coalition and workgroups, assigned various operational tasks

Tools and Resources

- Developed two (2) new Change Concepts: Modify Hospital Systems and Patient Self-Management.
- Promoted and provided Relative Value Unit (RVU) marketing piece.
- Launched redesigned website, with average 5,100 visits per month.
- Provided bruit audio clips for patient and healthcare provider education.
- Developed draft protocols for monitoring vascular access, monitoring newly placed AV fistulas for maturation, and monitoring patients with central venous catheters (CVC).

Technical Assistance

- Recommended improvements to SIMS Reports.
- Prepared Network Goal Tracking Spreadsheet.
- Presented two (2) ASN Renal Week Abstracts.
- Conducted and analyzed Network Environmental Scan.
- Provided FFBI Data and 2728 Data for FFBI website.
- Recommended improvements to CROWNWeb.
- Responded to 65 inquires from the FFBI website.
- Conducted nine (9) QID Learning Sessions.

INTRODUCTION

Background

The Fistula First Breakthrough Initiative (FFBI) was formally announced in March 2005 as an extension of the National Vascular Access Improvement Initiative (NVAII). NVAII was a project undertaken by the ESRD Network organizations to improve arterio-venous fistula (AV

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fistula) rates recognizing that AV fistulas are the “gold standard” for hemodialysis access based on their superior patency, low complication and procedure rates, and lower cost to the healthcare system. The primary goal of this continuous quality improvement (CQI) project was to reach or exceed the National Kidney Foundation’s Kidney Disease Outcomes Quality Initiative (K-DOQI) practice guidelines of 50% AV fistulas in incident patients and 40% in prevalent patients. With the assistance of the Institute of Healthcare Improvement (IHI) and the identification and development of 11 Change Concepts, the national prevalence rate of 40% AV fistulas was achieved by August 2005.

In recognition of this achievement and to remain consistent with the K-DOQI guidelines which were increased to greater than 65% for prevalent hemodialysis patients, Centers for Medicare & Medicaid Services (CMS) set a national goal of 66% AV fistula rate for prevalent hemodialysis patients in the US to be achieved by June 2009. CMS assigned specific Network achievement goals based on a formula to reduce the quality deficit by 20% in the 2006-2009 Network contracts. The 20% quality deficit is applied to each year and is adjusted to reflect a floor of one (1) percent and a ceiling of four (4) percent. The quality deficit is defined as the difference between the Networks’ baseline percentage from the previous year and the overall CMS program goal of 66%.

The early foundation blocks of FFBI were “spread theory” and the formation of the FFBI Coalition. The concept of spread became the basis for achieving the goal and utilizing the Change Concepts as the underpinnings for activities on the regional level, the ESRD Networks became a critical part of the infrastructure set up to assure success. In addition to the 18 Network organizations other representatives from the renal community and various stakeholders were invited to participate and lend their expertise. FFBI Coalition activities were managed through a variety of workgroups who developed, assembled and distributed tools and resources for using the Change Concepts. Between July 2006 and June 2009 the national AV fistula rate increased 27% (from 43.2% to 53.0%).

In February 2009, the FFBI contract was awarded to the Mid-Atlantic Renal Coalition (MARC) who was charged with:

- Conducting a thorough analysis of the current process for AV fistula placement;
- Assessing the current weaknesses and barriers of AV fistula placement;
- Examining the patient, physician, dialysis facility and other healthcare entities that impact AV fistula placement; and
- Developing and implementing a strategic plan to move the AV fistula rate to 66%.

The overarching purpose of the FFBI contract is to “assist all 18 ESRD Networks in building upon the vascular access quality improvement activities of the ESRD Network Statement of Work (SOW) to advance the development, implementation, monitoring, and marketing of the FFBI.” The ultimate goal of the FFBI is to reach a prevalent AV fistula rate of 66% nationally.

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This report summarizes the activities conducted under this contract.

Purpose

The overall objectives of the FFBI are to improve the quality of life and survival rates of patients receiving hemodialysis by optimizing vascular access selection. Studies have shown that a patient's dialysis "dose" or clearance correlates to overall survival, and that each 0.1 decrease in clearance (Kt/V) correlates to increased hospitalization and Medicare expenditures (Sehgal AR, Dor A, Tsai AC. Morbidity and cost implications of inadequate hemodialysis. *American Journal of Kidney Diseases*. 2001;37:1223-1231.). The most vulnerable component of dialysis delivery is the functionality of a patient's vascular access. AV fistulas are also associated with lower rates of infection, hospitalization, and death when compared to other types of vascular access (i.e., AV grafts and CVCs). Thus, optimizing and preserving a patient's vascular access directly benefits patients, and conserves vital Medicare resources.

Leadership and Administration

The Fistula First Breakthrough Initiative leadership team consists of:

- Mary Teresa Casey, RD, LD, CMS Government Task Leader
- Edwin Huff, PhD, CMS Project Officer
- Nancy Armistead, MPA, Executive Director MARC
- Val Riley, RN, BS, Project Director
- Brandy Vinson, Project Coordinator
- Janet Lynch, PhD, Project Biostatistician

Clinical leadership and vision are provided by:

- Jay Wish, MD, Nephrology Consultant
- Michael Lilly, MD, Surgical Consultant

National Strategic Planning

One of the primary goals of, and a challenge faced by the FFBI, is implementation of sustainable system changes that support increased AV fistula placement and use. In the first phase of the FFBI, a clear and shared vision was articulated through the wide distribution and marketing of the evidence-based guidelines setting forth advantages of AV fistulas. A collaborative structure for the spread of ideas, fostered partnerships and tools and resources (Change Concepts) were developed and implemented, allowing ESRD Networks and others to build knowledge, skills and processes. CMS believed that the next phase of the FFBI required a re-examination of the current status and development of a strategic plan to move the project forward in a sustainable manner.

Root Cause Analysis

A Root Cause Analysis (RCA) team was convened to identify current reasons for placement of an access other than an AV fistula. MARC retained Robert J. Latino, CEO of Reliability Center, Inc. to lead the RCA. To ensure consideration of the various factors and clinical settings, a core team of experts from a variety of backgrounds convened for an intensive two (2)

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day work session at the headquarters of Institute for Healthcare Improvement, in Cambridge, Massachusetts. The core team included:

- Linda Duval, BSN, RN, Network Quality Improvement Director (QID)
- Chester Fox, MD, Primary Care Physician
- Jerry Jackson, MD, Nephrologist
- Valerie Riley, RN, BS, FFBI Project Director
- Lawrence Spergel, MD, FACS, Vascular Access Surgeon

The team was assisted in the process by:

- Nancy Armistead, MPA, Executive Director Network 5
- Janet Lynch, PhD CPHQ, Deputy Director Network 5 and FFBI Biostatistician
- Jefferson Rowland, M.Sc., COTR, CMS FFBI Project Officer
- Rebecca Morse Steinfield, Consultant, Institute for Healthcare Improvement

To perform the Failure Modes and Effects Analysis (FMEA), the RCA team defined a loss as “any event or condition affecting the placement of an access other than an AV fistula.” As a result, the team identified four (4) opportunity points at which there is a high probability of engaging the patient in decision-making related to vascular access. These opportunity points, or modes, include:

- Determining appropriateness of patients for AV fistula;
- Vessel preservation;
- Follow-up to monitor development of AV fistula; and
- Secondary procedure for AV fistula revision.

Following the FMEA, the RCA team drilled down into opportunity areas to identify root causes affecting the placement of an AV fistula. The result was a logic tree that exceeded 250 branches, with 139 of them deemed root causes. A complete report (Fistula First Breakthrough Initiative Root Cause Analysis, August 31, 2009) was delivered to CMS and is available on the FFBI website

(<http://www.fistulafirst.org/AboutFistulaFirst/PresentationsReports.aspx>)

Technical Expert Panel

A Technical Expert Panel (TEP) was convened and charged with assessing the findings of the RCA team and making strategic recommendations that would be developed into an operational plan to increase the AV fistula utilization rate to 66% in prevalent hemodialysis patients for ESRD Networks and to assist Quality Improvement Organizations (QIOs) in reducing the gap between the statewide baseline AV fistula rate and 66% for incident hemodialysis patients.

The TEP consisted of 19 renal community professionals of varied backgrounds and perspectives who are Subject Matter Experts (SME) and were led by an expert facilitator, William

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McClellan, MD, MPH. Members of the TEP are included in Appendix A.

Working in groups and discussing the 139 causes for failure to place an AV fistula, the TEP members identified and prioritized 17 strategies. Since a number of these represented duplication and some were multi-dimensional, seven (7) strategies and two (2) policy recommendations were developed.

The TEP identified the priority areas during the meeting, but were also provided an additional opportunity to review the TEP recommendations draft report via email. Communication among the TEP allowed for group discussion and consensus. They were asked to re-evaluate their priorities based on the report and upon further reflection; most of the TEP members modified their priority list.

The FFBI Technical Expert Panel Recommendations Report (September 15, 2009) is included on the FFBI website.

(<http://www.fistulafirst.org/AboutFistulaFirst/PresentationsReports.aspx>)

Strategic Plan

Building upon the RCA and TEP recommendations report, a strategic plan (August 31, 2009) was developed which outlined seven (7) strategies and two (2) policy recommendations. The complete report is available on the FFBI website

(<http://www.fistulafirst.org/AboutFistulaFirst/PresentationsReports.aspx>)

The identified strategies are summarized below:

Nephrologist as Leader

The nephrologist is the leader of the healthcare team and has responsibility for assuring that patients are prepared for dialysis that prescriptions are appropriate, and that quality outcomes are achieved. Strategy 1 (Encourage and support nephrologists to take a leadership role and be accountable for vascular access management in all hemodialysis patients) calls for greater collaboration with the American Society of Nephrology (ASN) as the primary provider of nephrology continuing education. It also supports expansion of nephrology fellowship training programs to include skills such as leadership training and quality improvement. Accountability is promoted in this strategy through the development and use of nephrology profiles of care.

Leveraging Partnerships

The CMS goal of 66% AV fistula utilization in prevalent hemodialysis patients and reduction in the quality deficit for incidence AV fistulas cannot be achieved exclusively by one organization. This goal can only be achieved by building upon existing relationships throughout the renal and QIOs communities as well as identifying and engaging new and existing partners, each of whom brings a variety of expertise, resources, and motivation to the effort. Strategy 2 (Partner to improve AV fistula placement and utilization rates) advances public awareness campaigns (such as GFR 30-20-10 and “Save Your Veins”), promotes the identification and use of educational

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resources from a variety of organizations, and supports an effective and dynamic website for sharing resources. The strategy also recognizes several key partners (such as National Kidney Disease Education Program (NKDEP) and the Society for Vascular Surgery (SVS)) to disseminate specific messages to target audiences.

Hospital Systems

Hospitals are integral new partners to the FFBI. They represent an immense opportunity to affect the incident and prevalent AV fistula utilization rates for the newly diagnosed chronic kidney disease (CKD) patient, the CKD Stage 5 patient who presents for emergent hemodialysis therapy, and the patient who progresses rapidly to CKD Stages 4 - 5 while being treated for another condition. Strategy 3 (Modify hospital systems to promote AV fistula placement) calls for development of a new Change Concept addressing identification of CKD while hospitalized, discharge planning that promotes AV fistula placement, appropriate referral of patients identified in the hospital setting, and vessel preservation. It builds upon relationships between hospitals and QIOs and dovetails with CMS's emphasis on patient safety, care transitions to reduce re-hospitalizations, and surgical site infection prevention, and recognizes vascular catheter-associated infection as a CMS-identified hospital-acquired infection.

Patient Self-Management

Managing chronic illness is time-consuming and complex, but the use of self-management support programs is expected to reduce health costs and improve outcomes. Strategy 4 (Promote patient self-management throughout the stages of CKD) acknowledges the patient-practitioner partnership as a new chronic disease paradigm. This partnership involves collaborative care and self-management education and is another strategy that lends itself to the development of a new Change Concept. While traditional patient education offers information and technical skills, self-management education teaches problem-solving skills. Network Patient Advisory Committees (PACs) can serve as partners in this strategy.

Addressing Access Problems

Several of the challenges encountered in the FFBI efforts around the country have been with AV fistulas that fail to mature, revision of failing AV fistulas, and conversion of a CVC to an AV fistula. Various protocols exist or are being developed to address these issues. Strategy 5 (Promote fast-track protocols for rapid identification and referral of vascular access problems, which include failure to mature, revision of the failing AV fistula, and placement of an AV fistula) recommends development and deployment of protocols to rapidly address these problems.

Practitioner Training and Credentialing

Many specialties care for CKD patients, including primary care providers, vascular access surgeons, nephrologists, interventionalists, nurses, and dialysis technicians. To provide patients with the best care possible, practitioners need to be well educated on the standards, guidelines, policies, and procedures associated with their particular domain of care. They should have the

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appropriate credentials and attend appropriate continuing education programs to keep their skills current. Practitioners must then incorporate new knowledge and new skills into their practice. Strategy 6 (Promote training, experience, and credentialing of healthcare professionals in the area of hemodialysis vascular access management) identifies the training needed for these practitioners, specifically vascular access surgeons who perform procedures and dialysis technicians who provide care during each hemodialysis session.

FFBI Change Concepts

The current FFBI Change Concepts were developed and implemented in 2003, and the steady increase in the national AV fistula prevalence rate is attributed to the implementation of these Change Concepts. Each of the 18 ESRD Networks has employed the Change Concepts to develop, evaluate, and redesign quality improvement projects addressing the identified challenges in their specific geographic region. Many of the Change Concepts have worked well, but some need refinement to make them more robust. Strategy 7 (Expand and endorse the current Change Concepts for education and promotion throughout the renal, surgical, and interventional communities) recommends changes to 10 of the 11 concepts and the creation of two (2) new change concepts: Modify Hospital Systems and Patient Self-Management.

In addition to the seven (7) strategies, two (2) policy recommendations were made.

Pay-for-performance

To promote safe, efficient, effective, patient-centered, timely, and equitable vascular access care for individuals with CKD Stage 5, it is recommended that financial performance incentives be utilized.

Assure Data Flow

Accurate data, reliably collected, available in a timely fashion, and analyzed in meaningful ways, serve in understanding challenges, setting goals and tracking progress. Data play a central and enabling role in improving the prevalent AV fistula rate and support each of the preceding strategies.

As part of the strategic plan, a detailed operational plan was developed which outlines tasks and activities that need to be accomplished under each strategy. These various tasks have been assigned to FFBI Coalition members or to one (1) of five (5) workgroups. Progress of the strategic plan implementation can be tracked using the Strategic Plan Tracker available on the FFBI website.

(<http://www.fistulafirst.org/LinkClick.aspx?fileticket=f5mwZdeic5E%3d&tabid=85>)

The operational plan recognizes the ambitious nature of the strategic plan and many of the tasks extend through 2011 and require the development of new partnerships and support from CMS.

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Implications of CROWNWeb

CROWNWeb is a web-based software application that allows dialysis facilities to submit patient-specific data to support quality improvement and performance assessment. The application is designed to collect patient records, clinical performance measures and facility data. During 2009, the CROWNWeb contractor initiated Phase II, which involved implementation of CROWNWeb by a small number of volunteer Large Dialysis Organization (LDO) and independent facilities in each Network. At the same time, the majority of facilities nationwide continued to use the traditional means of submitting data to the Networks for input into SIMS.

The FFBI's responsibilities during this period were to provide communication support to the ESRD Networks and to assist CMS in identifying and solving problems related to AV fistula data. Further, the FFBI was responsible for serving as subject matter expert to the Quality Infrastructure Support contractor and its subcontractors (e.g. UM-KECC) as they developed the business and functional requirements for the new FFBI dashboard, using CROWNWeb data.

Several activities were performed in completion of the above responsibilities. These fall into two (2) general groupings:

1. Technical support for further development of the vascular access data collection and reporting components of CROWNWeb.
2. Technical support related to use of the current FFBI data collection system prior to implementation of CROWNWeb by all facilities.

With respect to the first grouping, the FFBI:

- Performed an environmental scan of Networks to clarify their use of the SIMS facility-specific Crystal Reports for purposes of gathering recommendations for improvements when similar reports are made available through CROWNWeb; and
- Analyzed CROWNWeb's current ability to support FFBI and made recommendations for improvements to CMS and the Quality Infrastructure Support contractor and its subcontractor UM-KECC.

An example of a Crystal Report is provided as Appendix B.

The Environmental Scan was completed in June 2009, with a 100% response rate from Networks (17 responses, one of which was a consolidated response from Networks 9/10). Results were shared with CMS and the Requirements, Communication and Training (RCT) contractor.

In response to the Environmental Scan, about 75% of Networks reported that they distribute the SIMS facility-specific Crystal Reports to their facilities and about 50% reported making other uses of the reports (e.g., monthly monitoring and follow-up with facilities participating in the

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Network vascular access projects; internal trending and reporting to Medical Review Board, etc). Some of the components of the Crystal Reports that Network's reported finding useful are:

- Availability of multiple months of facility-specific prevalent AVF, AVG, and catheter rates in table (12 out of 13 respondents) and graph (10 out of 13 respondents) format;
- Availability of multiple months of facility-specific prevalent AVF rates, compared with Network and U.S. averages for the same time periods in table (12 out of 13 respondents) and graph (9 out of 13 respondents) format;
- Availability of multiple months of facility-specific fistula use and placement rates in incident patients presented in a table format (10 out of 13 respondents); and
- Availability of multiple months of measures of the Percent of Facilities Reporting their vascular access rates for prevalent patients at the Network and National level in table format (8 out of 13 respondents).

However, Networks were also critical of some aspects of the reports and had recommendations for improvements when similar reports are incorporated into CROWNWeb. Recommendations included incorporation of the current 66% goal into tables and graphs, rather than the outdated goal of 40%; ability to easily customize tables and graphs; report "catheter only" greater than 90 days, rather than total catheters; and ready access to data to produce additional reports based upon local needs. See Appendix C, responses to questions 4 and 5, for full lists of criticisms and recommendations.

In October 2009, the FFBI completed and submitted an analysis of CROWNWeb's ability to support the FFBI. The FFBI made recommendations to incorporate and define data elements needed to support the FFBI, these data elements include:

- *Current Access Type;*
- *Date Access Type Changed;*
- *AV Fistula Usable Date;*
- *AV Fistula Creation Date; and*
- *Physical Examination of Access Performed for AVF/AVG.*

The FFBI recommended that the *Current Access Type* data field be entered by the user for dialysis on the reported dialysis session date rather than being pre-populated. The descriptions for the data elements *Date Access Type Changed* and *AV Fistula Usable Date* need to be clarified. The FFBI recommended allowing dates prior to date in *Regular Chronic Dialysis Began* field for the data element *AV Fistula Creation Date*. It was also recommended for CROWNWeb to collect surveillance data for both AVGs and AVFs, consistent with the CPM data collection instrument, this will allow creation of an AVF surveillance measure that can be used in quality improvement related to detecting and responding to clotting in AV fistulas.

Recommendations were made to construct the full range of needed vascular access measures.

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Data elements need to be added or modified to allow calculation of CVCs ≥ 90 days and CVCs < 90 days and to provide an algorithm for calculating these measures with CROWNWeb data. It is recommended to include data elements for four (4) of the five (5) National Quality Forum (NQF) endorsed vascular access measures:

- Minimizing use of catheters;
- Vascular Access – Physician;
- Vascular Access – Physician (b); and
- Decision making by surgeon to maximize placement of AVF.

Data collection through CROWNWeb must be complete and accurate. The FFBI suggests developing a process for Networks to work with dialysis facilities to assure complete reporting of data. Discrepancies should be investigated and addressed. Edits should be put in place to prohibit inaccurate entries. Overall it would be beneficial to adopt an audit validation process similar to that in place for Reporting Hospital Quality Data for Annual Report Update (RHQDAPU); this will be valuable should CMS, in the future, wish to use CROWNWeb data in conjunction with pay-for-performance programs.

Additional recommendations were made to improve preparing reports in CROWNWeb. Currently the reports in CROWNWeb emulate the SIMS provider feedback reports in terms of measures and comparisons and include incident measures which are an improvement over the SIMS reports. However, fully emulating the current SIMS reports in CROWNWeb by including the ability to trend data over time in report and graph format would be beneficial to the Networks. Because the report “ESRD Fistula First Measures Summary” is not a public report it was recommended not to suppress facility values because the n is less than 11. Instead, caution facilities about the use of percentages based on small n. These reports will only be seen by the facility generating the report and, consequently, the values need not be hidden from them. The FFBI recommends expanding the “ESRD Fistula First Measures Summary” to include other measures used routinely by the Networks to facilitate quality improvement. At a minimum, expand measures to include CVC ≥ 90 days in the report. The FFBI recommended that CROWNWeb provide the capability to generate vascular access reports from the collection of Form 2728 data. The measures include:

- Percent of patients seeing a nephrologist prior to start of dialysis;
- Length of time a nephrologist was seen prior to start;
- Access used (or maturing if access was not an AVF) on first outpatient dialysis.

Having the capability to generate a report that draws from both Form 2728 and vascular access data to look at incident and prevalent AV fistula, AV graft and CVC rates in relation to percentages of time patients were under the care of a nephrologist in various categories would be valuable. The FFBI recommended to CROWNWeb to expand the current components of the Dashboard to include AVG, CVC with AVF, CVC with AVG, CVC < 90 days, CVC > 90 days,

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and Total CVC. The FFBI can assist with making improvements to the Dashboard.

The FFBI offered additional considerations to CROWNWeb. It was recommended to expand the list of ineligible facilities to include at a minimum the following:

- Nursing home facilities (exclusive);
- Rehabilitation Centers (exclusive);
- Prison and correctional units; and
- Transplant centers.

In addition the FFBI recommends that historical SIMS data files be preserved. Patient-level data in a format suitable for population data analysis should be available to the Networks.

The second grouping of activities was completed in support of the current FFBI data collection system. In this regard, the FFBI:

- Collected and distributed examples of Network-designed feedback reports to support local FFBI quality improvement and spread good ideas; and
- Facilitated distribution of the *Fistula First File Validation Error Network Trouble Shooting Guide* by the Network Information Technology Services (NWITS) contractor to assist the Networks as they perform data quality assurance prior to publication of the FFBI Dashboard.

In conjunction with the Network Environmental scan completed in June 2009, Networks were asked to provide examples of their locally designed feedback reports. All Networks agreed to do so and to share with their colleagues. A compilation of reports was produced, placed on flash drives and distributed to all Networks. A summarization of the types of reports Networks described using is found in Appendix D. Networks produce reports to aid their quality improvement efforts using both the CMS vascular access database and Form 2728 data. The latter is used to examine pre-dialysis nephrology care.

Finally, issues with data accuracy prompted the FFBI to examine the availability of tools to assist the Networks in performance of data quality assurance. Currently data to support the FFBI are collected from all eligible facilities in one of two ways. Independent dialysis facilities use a Fistula First data collection tool, in electronic workbook format, to log all patients receiving hemodialysis in their facility and the type of vascular access that was used for each patient's last hemodialysis treatment of the calendar month. The data collection tool calculates the totals for each category of vascular access and displays the information on a Facility Summary spreadsheet in the electronic workbook. The Facility Summary sheet is submitted to the ESRD Network. Network staff enters the summary data into the CMS vascular access database, a centralized database containing facility-level monthly counts of both prevalent and incident HD patient vascular access type counts. Large dialysis organizations (LDOs)

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electronically submit the same summary data for their facilities directly into the CMS vascular access database. Monthly, following data uploads, the NWITS contractor produces a Fistula First Data Load Report intended to be used by the LDOs and Networks for review and investigation of errors. Upon recognition that most Networks were unaware of the availability of instructions for performing quality assurance in the form of a Troubleshooting Guide, the Guide was distributed to all.

Implications of the Conditions for Coverage

The new ESRD Conditions for Coverage (CfC), which became effective October 14, 2008, include provisions specific to the placement of the optimal vascular access for each patient. For example, dialysis facilities are required to evaluate each hemodialysis patient's access type, and develop a plan of care to ensure appropriate access type and monitoring. Facilities must also include a vascular access component in their data driven Quality Assessment and Performance Improvement (QAPI) programs. To be responsive to dialysis facilities' new information needs, the FFBI Strategic Plan includes recommendations to *Assure the Flow of Data*.

Many of the activities related to assuring data availability that are included in the Operational component of the Strategic Plan involve CROWNWeb. Recommendations for refinement of CROWNWeb to assure the availability of accurate data, reliably collected and validated, available in a timely fashion, and analyzed in meaningful ways were described above and in Appendix D. However, other actions were also taken in the past year to assure data availability in advance of full implementation of CROWNWeb. Previously unavailable data, analytic reports, and graphs were prepared and added to a new FFBI website page (<http://www.fistulafirst.org/AboutFistulaFirst/FFBIData.aspx>). These include:

1. Graphs of prevalent AV fistula use rates for each Network and the nation from the initiation of the FFBI in July 2003 through September 2009.
2. Excel spreadsheets with monthly counts, by Network, of incident and prevalent patients with an *AVF Used* for dialysis, *Graft used-no fistula present*, *Graft used-fistula present*, *Cath/Port used-only access*, *Catheter/Port used with AVF present*, and *Catheter/Port used with AVG present* (period January 2008 – August 2009).
3. Excel spreadsheets with 2008 Network and state-level incident patient vascular access rates at the start of chronic dialysis and rates of prior nephrology care, calculated from the CMS Form 2728.

Each of the above are used by the Networks to understand performance, benchmark performance to best-in-class Networks, seek information from high performers, and encourage quality improvement among Network dialysis facilities. For example, the graphs display similar prevalent AV fistula improvement trends among the Networks. All Networks continue to improve with Network 16, the highest performing Network, experiencing a leveling-off of improvement as it approaches the FFBI goal for 66% of prevalent patients to dialyze with the use of an AV fistula.

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Although prevalent AV fistula rates for all Networks have been available through the FFBI Dashboard, no comparative information about the utilization of AV grafts and CVCs has previously been accessible to the Network community, which has requested it. Posting of excel spreadsheets with AV fistula, AV graft and CVC counts by Network for 2008 forward responds to the demand for this type of information among Networks and other FFBI partners.

Finally, Excel spreadsheets showing patient vascular access rates at the start of chronic dialysis demonstrate that only 13.7% of patients nationally begin chronic dialysis with an AV fistula, with a range of 10.0% to 23.0% across Networks. Another 15.6% (Network range, 10.4% to 21.6%) have an AV fistula maturing at start. This is true despite the fact that nationally 54.3% (Network range, 70.0% to 41.3%) of patients are reported to be under the care of a nephrologist for varying lengths of time prior to start. These results suggest a significant opportunity for quality improvement.

Communication Strategies

The Fistula First brand is well-established and recognized in the renal community. The message has remained consistent throughout the history of the FFBI, AV fistulas are the “gold standard” for hemodialysis access and early placement is important. The FFBI Marketing Plan identifies additional key messages that are audience specific and aim to engage new stakeholders. Messages include:

Renal Healthcare Professionals

- AV fistulas are the gold standard vascular access, improved adequacy, fewer hospitalizations, fewer infections, lower mortality risk;
- History of FFBI; and
- Best Practices, Change Concepts, seven (7) FFBI Strategies.

Non-Renal Healthcare Professionals

- Vessel preservation;
- Early referral;
- Vascular access planning; and
- 30-20-10 Campaign.

Patients and Families

- AV fistulas are the gold standard vascular access, improved adequacy, fewer hospitalizations, fewer infections, lower mortality risk;
- Self-management; and
- 30-20-10 Campaign.

The FFBI relied on a social marketing model that employs the application of traditional marketing techniques to a social issue. The focus is on behavior and is centered on a target audience having a primary role in the process. The message of the FFBI is the scientifically based premise that an AV fistula is the superior vascular access (“gold standard”) for at least 66% of prevalent hemodialysis patients. The organizations and individuals who promote this message are acquainted with the science behind the message and have assisted with the

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development of tools and resources, which assist the healthcare system in achieving acceptable AV fistula rates.

Press releases have proven to be an efficient medium for publicizing FFBI accomplishments and messages. For example in May the FFBI notified the renal community of the 2009 Relative Value Unit (RVU) adjustments making the payment for AV fistulas equivalent to that of AV grafts. The distribution for FFBI press releases includes the FFBI Coalition, ESRD Networks, CKD QIOs, and CMS, as well as media outlets associated with the renal community. A complete list of FFBI press releases is available in Appendix E.

Networks and CKD QIOs work collaboratively with community stakeholders providing a system for distributing the FFBI message in an effort to achieve FFBI goals. These organizations deliver the FFBI messages through websites, newsletters, and presentations at professional association meetings. For example, the Prevention QIO Support Center (QIOSC) distributes a quarterly newsletter to its partners that includes a Fistula First article, ESRD Networks are implementing “Fistula Awareness Week” to promote AV fistula use in dialysis facilities, and there were FFBI presentations at the American Nephrology Nurses Association (ANNA) and the ASN national meetings.

Community Collaboration

The CMS goal of 66% AV fistula utilization in prevalent hemodialysis patients cannot be achieved exclusively by one (1) organization. This goal can only be achieved by building upon existing relationships throughout the renal and CKD QIOs communities as well as identifying and engaging new and existing partners, each of whom brings a variety of expertise, resources, and motivation to the effort.

As a member of the FFBI Coalition, the Medical Education Institute (MEI) is seeking funding to provide point of care education and motivation to improve patient vascular access choices. The FFBI will provide content expertise and serve as reviewer for this important initiative. The project calls for the development of a library of short (3-5 minutes) multimedia movies in English and Spanish which can be downloaded from the MEI website or available in DVD format. These will help patients learn to self-manage, learn about vascular access options, understand the risks associated with different choices, and find the motivation to overcome needle fears, accept responsibility for access care and even try self cannulation.

The National Kidney Disease Education Program (NKDEP), another member of the FFBI Coalition, is working in collaboration with the FFBI to develop a series of fistula related videos that will demonstrate how physicians should address patient’s vascular access concerns. These will include concerns about referral to a surgeon, deciding on the type of vascular access, post surgery issues, and what to expect at the start of dialysis.

The Prevention QIOSC supports 11 QIOs that are working to improve patient care and reduce costly complications from CKD. Their goal is to reduce the gap between the statewide baseline

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AV fistula rate and 66% for incident hemodialysis beneficiaries. The FFBI serves as a communications liaison to the Prevention QIOSC, which broadens the FFBI scope to reach primary care providers, hospitals and patients with CKD who have not yet reached CKD Stage 5.

ESRD Network QIDs are engaged in productive and mutually rewarding QID Learning Sessions on a monthly basis. These learning sessions capitalize on both their insights and ability to disseminate information regionally and locally and provide an opportunity for sharing best practices. Topics include Internal Quality Improvement Projects (IQIPs), the FMC Catheter Reduction Collaborative, the DaVita Patient Pathway Program, the FFBI Root Cause Analysis, the Technical Expert Panel recommendations, etc. The CKD QIOs are often invited to participate in these calls to encourage partnerships between the ESRD Networks and the CKD QIOs.

The FFBI collaborates with community members who have an interest in or responsibility for providing and/or assuring the quality of care provided to CKD patients. These collaborations are helpful in moving the project forward.

National Expert and Educational Role

Since its inception, the FFBI has served as the national expert on vascular access for hemodialysis for the renal community and has provided a clearinghouse for best demonstrated practices. Dr. Jay Wish from University Hospitals Case Medical Center in Cleveland and Dr. Michael Lilly from the University of Maryland joined the FFBI as clinical consultants. Adding a nephrology consultant brought value to the initiative as much of the work requires nephrology leadership. These clinical consultants provide expertise to all five (5) workgroups of the FFBI Coalition.

The renal community including Networks and CKD QIOs rely on the FFBI to provide guidance on complex issues. Since March 2009, the FFBI has replied to 65 request received through the website seeking FFBI advice. These request are answered by FFBI experts, and sometimes turned into manuscripts. For example one Network requested a FFBI response to using a risk algorithm for vascular access, FFBI is preparing a thorough response to include a literature search and data analysis. The FFBI clinical consultants were presenters during a webinar hosted by a CKD QIO on Powerful CKD Management: Promoting Best Practice in Maximizing Outcomes for Fistulas, and provided content expertise for a webinar hosted by a Network on CKD and Fistulas: Surgical Approach to Dialysis Access. As mentioned in previous sections MEI requested that FFBI serve as content experts during the development of patient educational videos. The Networks and CKD QIOs submitted a list of billing and coding questions to FFBI for answers, clarification was provided with help from experts at CMS. The CKD QIOs have been examining the 2728 forms to assess patients who start dialysis with AV fistulas and for whom nephrology care has been received prior to initiation. The FFBI has assisted in the understanding of the completion and submission of this form.

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The FFBI has provided a common framework in the form of Change Concepts for professionals in the field of hemodialysis. The FFBI Change Concepts have worked well and have been the catalyst for increasing the AV fistula rates in the US. Each of the 18 Networks has employed the Change Concepts to develop, evaluate, and redesign quality improvement projects to address the identified challenges in their specific geographic region. In April 2009, the FFBI Coalition met and discussed those Change Concepts that are deemed most successful and those that are thought to be less successful. This information was shared with the TEP and was factored into their discussion of Strategy #7 (FFBI Change Concepts). After the development of the Strategic Plan, FFBI developed two new Change Concepts that lead to modifying hospital systems to detect CKD and promote AV fistula planning and placement and supporting patient efforts to live the best possible quality of life through self-management. The current Change Concepts are presented in Appendix F.

Change Concept #12, modify hospital systems to detect CKD and promote AV fistula planning and placement encourages hospitals to develop a comprehensive plan for early identification (patients with eGFR <30 - 44 (CKD Stage 3B)) of patients with kidney disease to allow for interdepartmental coordination for protective measures, programs to prevent nephrotoxicity or other causes of further kidney damage, to allow for vessel preservation, patient and family support, and vascular access planning and/or placement.

Change Concept #13, supports patient efforts to live the best possible quality of life through self-management. It encourages patients to achieve optimum treatment outcomes and health status through collaborative knowledge-building related to CKD progression and treatment, and through effective application of self-management interventions, such as self-monitoring and decision-making. This Change Concept also stresses the importance of health care clinicians utilizing techniques and strategies for the education of those who participate in vascular access education and management that are designed to encourage, enhance, and support patient self-management. This includes motivational interviewing, health coaching, and other patient empowerment strategies and techniques.

Website

www.fistulafirst.org

The FFBI website is a central location for the dissemination of FFBI information to the renal community at large. A total review was completed of the FFBI website which resulted in a complete redesign. The redesigned FFBI website which went live in October of 2009, meets 508 compliance standards and QualityNet web architecture standards. The redesign provides a fresh, user-friendly look and feel and is easy to navigate, attractive and accessible to all visitors, including people with visual or other disabilities.

The redesign includes a new CKD page with resources for primary care providers, as well as an extensive bibliography of articles to help increase AV fistula rates and an archives section that will help keep featured items current. The site also features a growing community of links to a number of related websites. The Best-Demonstrated Practices section provides an area for others to submit successes experienced in reaching AV fistula goals.

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The FFBI, for the first time, has been able to provide data for the renal community on the FFBI website. The FFBI Data page includes a 2728 Dashboard (2008) and graphs of prevalent AV fistula rates by Network and state. There is also a monthly count, by Network, of incident and prevalent hemodialysis patients with AV fistula used, AV graft used (no AV fistula present), AV graph used (with AV fistula present), Cath/Port only, Cath/Port with AV fistula and Cath/Port with AV graph. These data cover the time period January 2008, through August 2009, and will be updated monthly.

The FFBI is committed to maintaining this website to reflect FFBI findings, strategies, and activities.

Clearinghouse for Best Practices

As discussed in previous sections, the QID Learning Sessions provide an opportunity to share best-demonstrated practices, innovative ideas that have been implemented and have demonstrated quantitative evidence of success and can be deployed by others. One of the challenges faced by Networks has been the identification and promotion of opinion leaders. The FFBI provided Networks with an interview guide to assist in gathering innovative practices from opinion leaders and high performers and a suggested style for writing newsletters and articles. The interview guide includes questions on barriers, motivation for the change, tools used for improvement, and measurements for improvement. As Networks continue to identify best-demonstrated practices they are made available on the FFBI website for implementation by the renal community.

FFBI Coalition and Workgroups

One of the hallmarks of the FFBI has been the collaboration of diverse groups to achieve a similar aim. The FFBI Coalition includes over 60 associations that have contributed to the project's success. These associations are listed on the Fistula First website.

There are five (5) workgroups that are working to implement the Strategic Plan. These include:

Clinical Practice

This group is co-chaired by Clifford Sales, MD and Rebecca Schmidt, DO and is charged with promotion of positive clinical practice patterns through peer-to-peer contact, education and training. The group has developed clinical protocols that address Assessment of the Newly Placed AV fistula for Maturation, Routine Monitoring of Existing Vascular Access and the Management (and conversion) of Patients with CVCs. These protocols are undergoing review and will be presented to the community in early Spring 2010.

Health Policy

The Health Policy Workgroup is co-chaired by Kline Bolton, MD and Sean Roddy, MD has a mission to champion for the creation and maintenance of an appropriate access for patients with CKD and ESRD. This workgroup is developing a business case for pay-for-performance and exploring a partnership between the LDOs, RPA and FFBI to promote a cost savings program

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with State Medicaid programs that would encourage early placement of AV fistulas over CVCs.

Community Education

Andrew Narva, MD and Joseph Vassalotti, MD co-chair the Community Education Workgroup. The group's mission is to provide educational tools for people with progressive CKD and the clinicians who assist them to promote early identification, management and appropriate preparation prior to initiation of Renal Replacement Therapy. A partnership with NIDDK has developed and a video is being produced to help nephrologist have discussions with patients who are reluctant to convert CVCs to AV fistulas. This video will be moderated by William Jennings, MD.

Data

The Data Committee is chaired by William McClellan, MD. The group's mission is to support a data driven approach to accomplishment of the FFBI goal through activities that promote the collection of accurate, valid, reliable and timely data that is analyzed in meaningful ways. This group has made recommendations to improve data collection, calculation of standardized measures, and preparation of reports through CROWNWeb; supported the analysis and posting of FFBI vascular access and Form 2728 data in table and graph formats to the FFBI website; and participated in the development of abstracts and manuscripts to further the FFBI message.

Website

The Website Workgroup is chaired by Lynda Ball, RN. The workgroup's charge is to assure a dynamic, resource rich, 508 compliant website that meets the needs of the provider community and the beneficiaries. A completely new website was developed and became operational in October 2009.

National Meetings

FFBI goals can only be achieved by disseminating information through the renal community. FFBI recommendations, guidelines, and educational materials were presented at meetings, enhancing the spread effect to promote this information at local levels. For example over 350 renal professionals were provided copies of the Executive Summary from the FFBI Strategic Plan during the Controversies in Dialysis Access meeting and the new Change Concepts were announced at the QualityNet meeting.

FFBI educational sessions were well-planned and facilitated; during 2009 the FFBI received 99 evaluations from attendees. Eighty four attendees rated the educational sessions a four (4) or five (5) on overall satisfaction with the session, or 85%.

National association meetings provide an opportunity for FFBI to reach large audiences. As a FFBI Coalition member, Kim Deaver, RN, provided a presentation on vascular access assessment and management during the ANNA national meeting in Lake Buena Vista, Florida. Drs. Lawrence Spergel and Jay Wish presented two (2) FFBI abstracts during the ASN's Renal Week in San Diego, California (see below). The abstracts demonstrated that FFBI data supports

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the feasibility of the 66% target in US hemodialysis facilities and not at the expense of increased use of CVCs among hemodialysis patients.

The FFBI will continue to anticipate their role in integrating its goals and participating in the planning of national association meetings.

ATTRIBUTION

During 2009, the FFBI, through staff activities and the Data Committee, analyzed data to: (1) describe the spread strategy in use by Networks to improve AV fistula rates, (2) describe the impact of the FFBI throughout the life of the project and during the past year, (3) attribute the impact of the FFBI to the Networks and (4) explore the feasibility of achieving the 66% prevalent AV fistula target set by CMS. Findings suggest the following,

1. During the most recent year, ESRD Networks employed a multi-pronged spread strategy to improve the prevalent AV fistula rate, including conducting vascular access quality improvement projects and performing other interventional activities. The latter included, but was not limited to, targeting selected facilities for intervention, conducting workshops and training, distributing educational materials and providing data feedback to providers.
2. There was an average annual improvement of 3.4% in prevalent AV fistula rates associated with the FFBI over time (December 2003 to November 2009). This represents an improvement of 1.9% over and above the underlying secular trend of 1.5% annual improvement established in the years prior to the start of the FFBI.
3. The current contractor was successful in revitalizing the FFBI, as demonstrated by an increase in the prevalent AV fistula rate during the months of this contract cycle available for analysis (2.3%, March 2009 – November 2009) that exceeded the rate of improvement in the prior months (1.7%, June 2008 – February 2009).
4. Because the FFBI is the only national initiative focused on improving AV fistulas, it is appropriate to attribute the majority of the 3.4% improvement (1.9% over and above the secular trend of 1.5%) to the FFBI. Furthermore, because the Networks are the engines for improvement within the FFBI, this improvement can be attributed to the Networks. During the most recent period (December 2008 – November 2009), an estimated 4,900 patients received an AV fistula due to the quality improvement interventions of Networks.
5. The 66% prevalent AV fistula goal is achievable, as demonstrated by benchmark facilities in all Networks.

Spread Strategy

As described in the FFBI Strategic Plan (found at <http://www.fistulafirst.org>), spread refers to the diffusion, through adaptation, of better ideas throughout the social system. Since the inception of the FFBI, the dissemination of ideas has occurred via communication through a social system of partners in the renal community that incorporates, among others, dialysis facilities, nephrologists, vascular access surgeons, and interventional radiologists. The spread plan to move the AV fistula rate to the CMS goal of 66% includes utilizing the existing social

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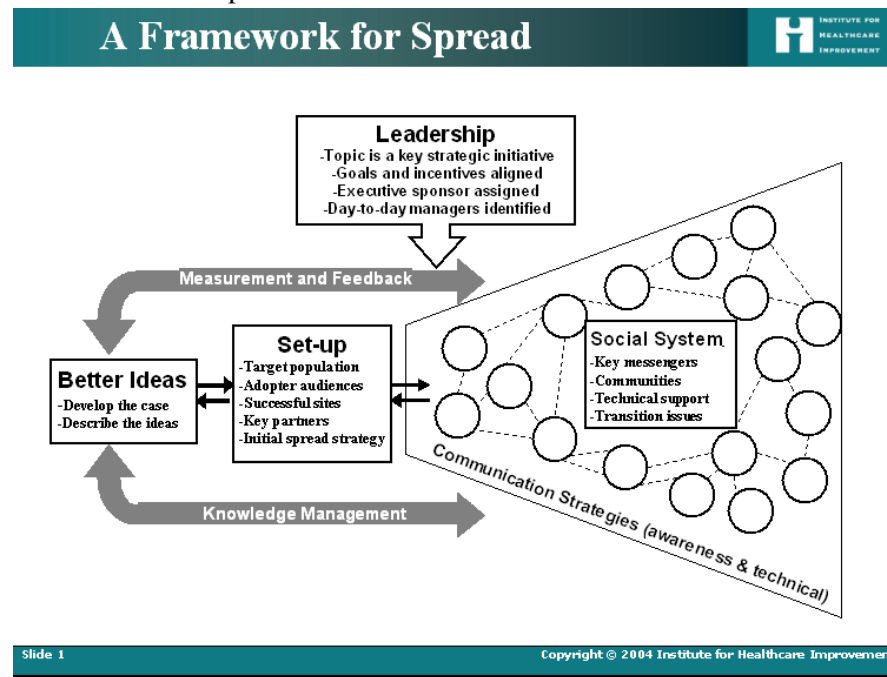
system, maintaining an organization infrastructure, promoting better ideas and best-demonstrated practices, and deploying a communication strategy.

This is readily viewed through the Framework for Spread developed by IHI, which was involved in early development of the FFBI. The Framework is shown in Figure 1. According to IHI, “The framework is not meant to be prescriptive or considered as a specific set of interventions. Instead, it is meant to suggest some general areas, based on theory and experience, to consider as a large spread project is undertaken.”

(See <http://www.ihi.org/IHI/Topics/Improvement/SpreadingChanges/Changes/>.) There are three (3) distinct but overlapping phases:

1. Planning and set-up
2. Spread within the target population
3. Continuous monitoring and feedback on the spread process

Figure 1: A Framework for Spread



Source: Massoud MR, Nielsen GA, Nolan K, Schall MW, Sevin C, Institute for Healthcare Improvement

In the FFBI, better ideas are conveyed by the Networks in the form of the original 11 Change Concepts and two (2) additional Changes Concepts newly added during 2009/2010. (See Appendix F) The FFBI Strategic Plan provides for Set-up at the national level, while each individual Network produces a plan within its Quality Improvement Work Plan (QIWP) to address meeting the FFBI goal in its region. Under *Task 1a Vascular Access (Fistula First) Quality Improvement Project* of the QIWP, each Network performs additional regional set-up

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including identifying its target population, key partners and spread strategy. Additional spread activities in the form of vascular access quality improvement projects are often performed by Networks in satisfaction of some of the remaining sub-tasks (1b – 1d) under Task 1. Through awareness building and technical support, the Networks respond to the unique circumstances found in each of their regions to promote the FFBI Change Concepts, spread system changes, and improve AV fistula rates. The FFBI Dashboard (<http://www.esrdncc.org/index/fistula-first>) and newly available data on the Fistula First website (<http://www.fistulafirst.org/AboutFistulaFirst/FFBIData.aspx>) allow continuous monitoring and feedback on the success of the Networks in improving AV fistula rates.

The Networks' quarterly progress reports provide an accounting of the implementation of spread strategies. FFBI staff reviewed these progress reports for *Task 1 Network Quality Improvement Program* covering the time period July 1, 2008 through June 30, 2009. A data abstraction tool was designed and used to extract information about quality improvement projects and other activities performed under *Task 1a*, as well as record vascular access quality improvement projects performed under Tasks 1b – 1d of the CMS Contract. Following abstraction, the information was shared with the Executive Directors (EDs) of each Network for their review and approval. Several EDs reported performing additional activities that were not reflected in the portion of the quarterly progress report to which FFBI staff had access. With this in mind, Networks were offered an opportunity to “self report” these additional activities. For example, many Network EDs self reported CKD Coalition efforts, which they included in the Quarterly Report under Task 2. Networks also described reporting the Distribution of Educational Materials under Clearinghouse activities in Task 2.

A full summary of extracted as well as self-reported activities is included in Appendix G. Accompanying the summary is a list of definitions for each of the interventions. While this is a complete summarization of activities performed during the designated time period, it should not be considered a complete compendium of interventions employed by any given Network over the full multi-year CMS contract. Some activities (such as generation of 2728 profiles), which are not shown as performed by a given Network during the period under study, may have been conducted by the Network in a prior reporting period. Together, the identified activities (quality improvement projects and other activities) represent the Networks' approach to spread.

Reviewing the results across all Networks, it can be seen that in this most recent year, many (13) Networks conducted more than one (1) FFBI quality improvement project (average 2.8) with some Network projects involving all facilities and others involving a limited number of facilities. There were 16 additional vascular access related projects conducted under Task 1b (Clinical Performance Measures); six (6) projects conducted under Task 1c (Network-Specific QIPs) and nine (9) projects conducted under Task 1d (Facility-Specific QAPIs). These included catheter reduction projects (17); stenosis monitoring and/or surveillance (6); QAPI AVF development (2); and other (6).

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All Networks targeted selected facilities for intervention, conducted workshops and training, and distributed educational materials. Provider feedback reports prepared from the FFBI data were heavily used as an intervention (17 and 1 self reported). Nine (8 and 1 self reported) Networks distributed provider profiling reports generated from Form 2728 (i.e., reports related to vascular access and nephrology care prior to initiation of chronic dialysis).

Networks also had several additional mechanisms for improving quality beyond projects, training and feedback reports. As described in the quarterly progress report, these included:

- Collecting and reviewing facility quality assessment and performance improvement plans (11);
- Conducting group conference calls in a collaborative manner to discuss a project (7 and 1 self reported);
- Establishing facility level goals beyond the Network's CMS goal (8 and 2 self reported);
- Incorporating a formal facility specific recognition program into the QIP (6 and 7 self reported);
- Using Newsletter articles as part of the QI intervention (8 and 3 self reported);
- Conducting facility site visits as part of their invention (12);
- Participating in a CKD coalition (usually in partnership with the QIO CKD contractors (10 and 3 self reported) ; and
- Performing activities related to direct patient education (3 and 2 self reported). In addition, most Networks indicated that they distributed materials promoting AVFs to patients.

Impact Analysis

From 1995 through 2002, the Centers for Disease Control and Prevention (CDC) performed annual surveillance over selected patient care practices, including vascular access, in US chronic hemodialysis facilities. Starting in 2003, similar vascular access data have been collected monthly as a function of the FFBI. Using CDC reported vascular access rates during the month of December for the years preceding the FFBI, augmented with similar rates calculated using FFBI data collected in December of the years 2003 through 2008 and November 2009 (the most recent period for which data were available at preparation of this report) and supplied by the Network Information Technology Systems contractor, it is possible to examine the impact of the FFBI. Figure 2 displays the results.

As shown, there was an increasing trend in the use of AV fistulas prior to implementation of the FFBI. This was accompanied by a decline in the use of AV grafts, but was also accompanied by a rise in the use of CVCs. The FFBI was successful in increasing the AV fistula use rate over the underlying secular trend while reversing the growth in total CVC use. Specifically, the national average annual increase in the prevalent AV fistula rate more than doubled in the years 2003 through 2009 over the period 1995 to 2002, 3.4% compared to 1.5%. Furthermore, improvements were made by all Networks, with at least one, Network 16, closely approaching the target of 66% in November 2009. See Figure 3 for US and Network improvement over the years 2003 to 2009 and Figure 4 for Network improvement over the most recent period,

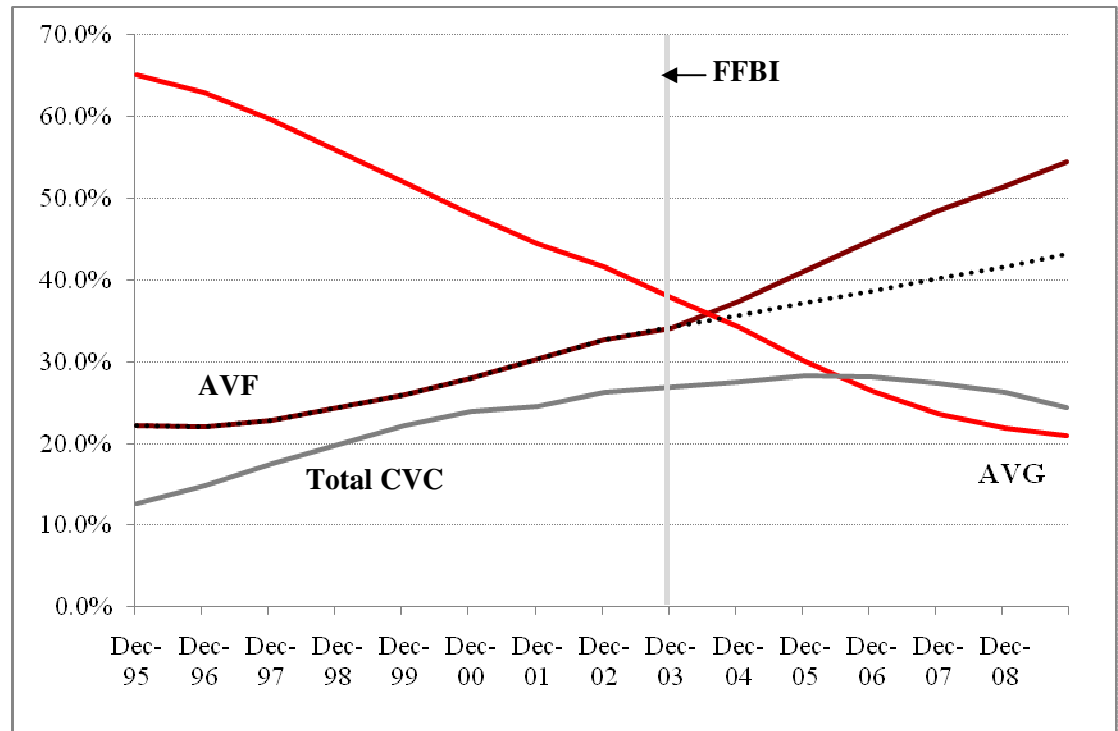
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December 2008 to November 2009.

Most importantly with respect to catheter utilization is the chronic (≥ 90 days) catheter use rate. Figure 5 displays the same national AV fistula and AV graft use trends in comparison to chronic catheter utilization. As shown, chronic catheter use declined over the course of the FFBI and is approaching the K-DOQI Guideline for fewer than 10% of patients to dialyze with a CVC for 90 days or more.

In the US, 81.8% of new start hemodialysis patients began outpatient dialysis with a CVC in 2008. (Data available at <http://www.fistulafirst.org/AboutFistulaFirst/FFBIData.aspx>.) Given the high incident CVC rate and declining prevalent chronic CVC use rate, it is apparent that dialysis patient care teams are successfully converting CVCs to permanent accesses.

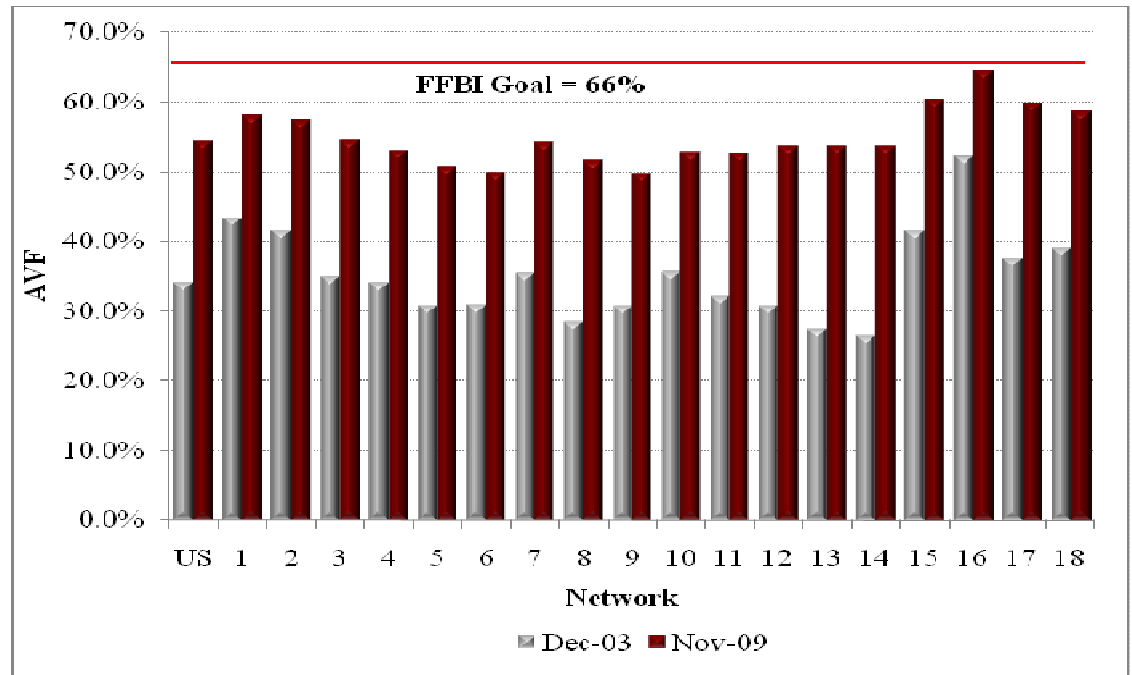
Figure 2: US Trends in AVF, AVG and Total CVC Use, December 1995 through November 2009



Source: For pre-FFBI rates, Finelli L, Miller JT, Tokars JJ, Alter MJ, Arduino MJ. National surveillance of Dialysis-Associated Diseases in the United States, 2002. *Seminars in Dialysis*. 2005;18(1): 52 – 61. Data Source for FFBI period, CMS Vascular Access Data Base

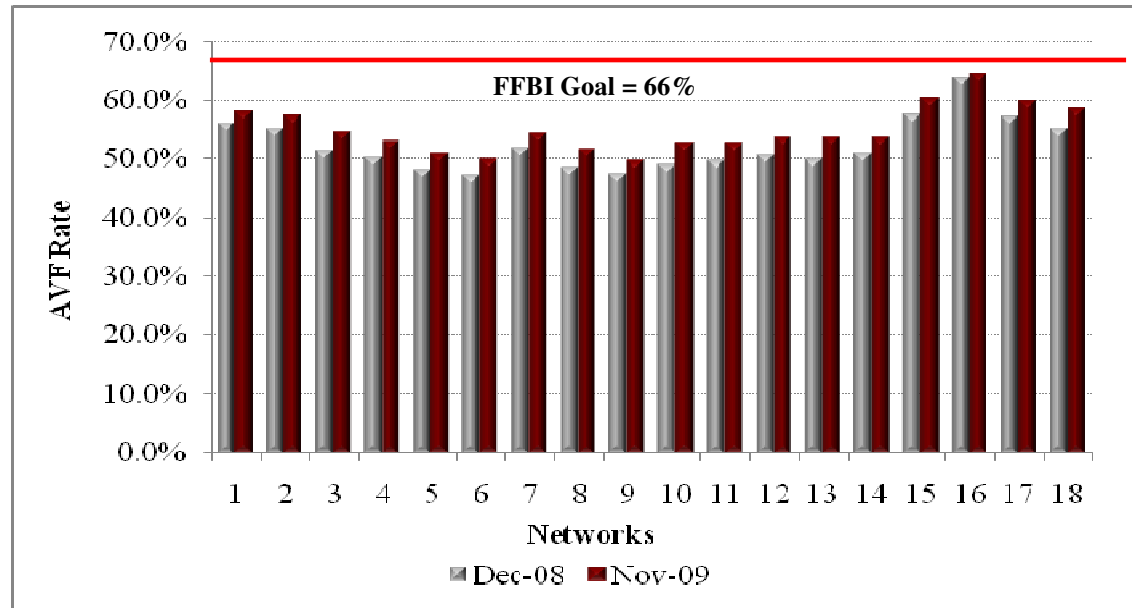
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Figure 3: US and Network Prevalent AVF Use Rates, December 2003 and November 2009, Shown in Comparison to the FFBI Goal of 66%



Data Source: CMS Vascular Access Data Base

Figure 4: Network Prevalent AVF Use Rates, December 2008 and November 2009, shown in comparison to the FFBI Goal of 66%

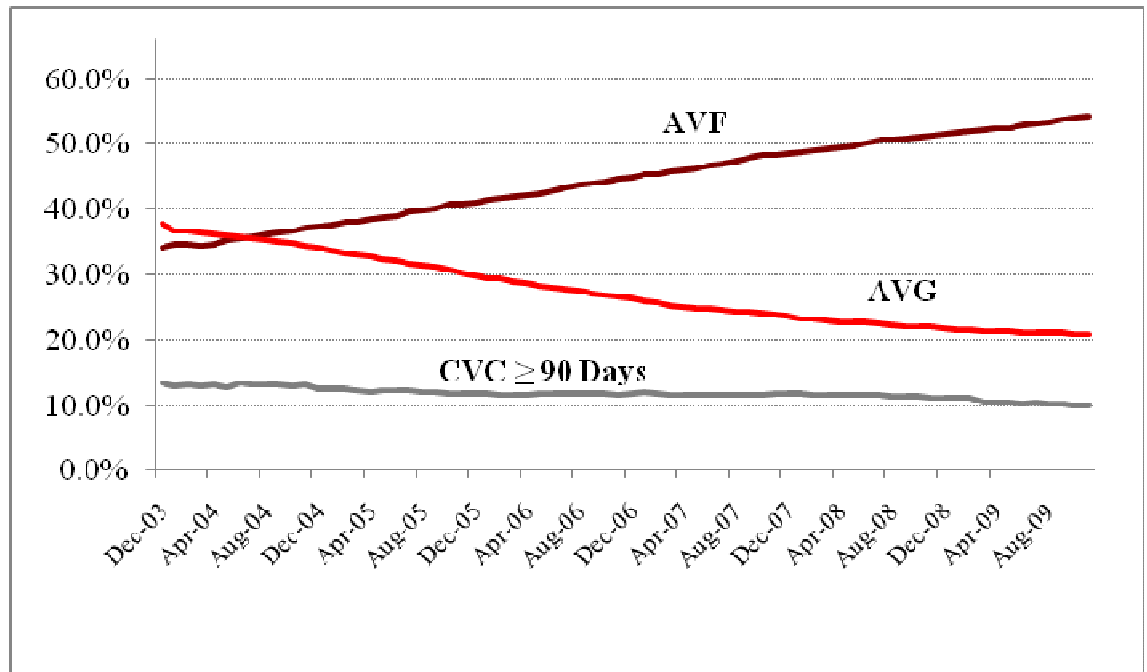


Data Source: CMS Vascular Access Data Base

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During 2009, CMS and the current FFBI contractor succeeded in revitalizing the FFBI, as described throughout this report. Concomitantly, the contract period was associated with a higher rate of improvement in prevalent AV fistula use than in the months immediately preceding it. For example, from March 2009 to November 2009, the national AV fistula use rate improved from 52.2% to 54.5%, or 2.3%. (See FFBI Dashboard.) This was in contrast to the rate of improvement during the prior period from June 2008 to February 2009. During this time period, the national rate increased only 1.7%, from 50.3% to 52.0%.

Figure 5: US Trends in AVF, AVG and Chronic (≥ 90 Days) CVC Use, December 2003 through November 2009



Data Source: CMS Vascular Access Data Base

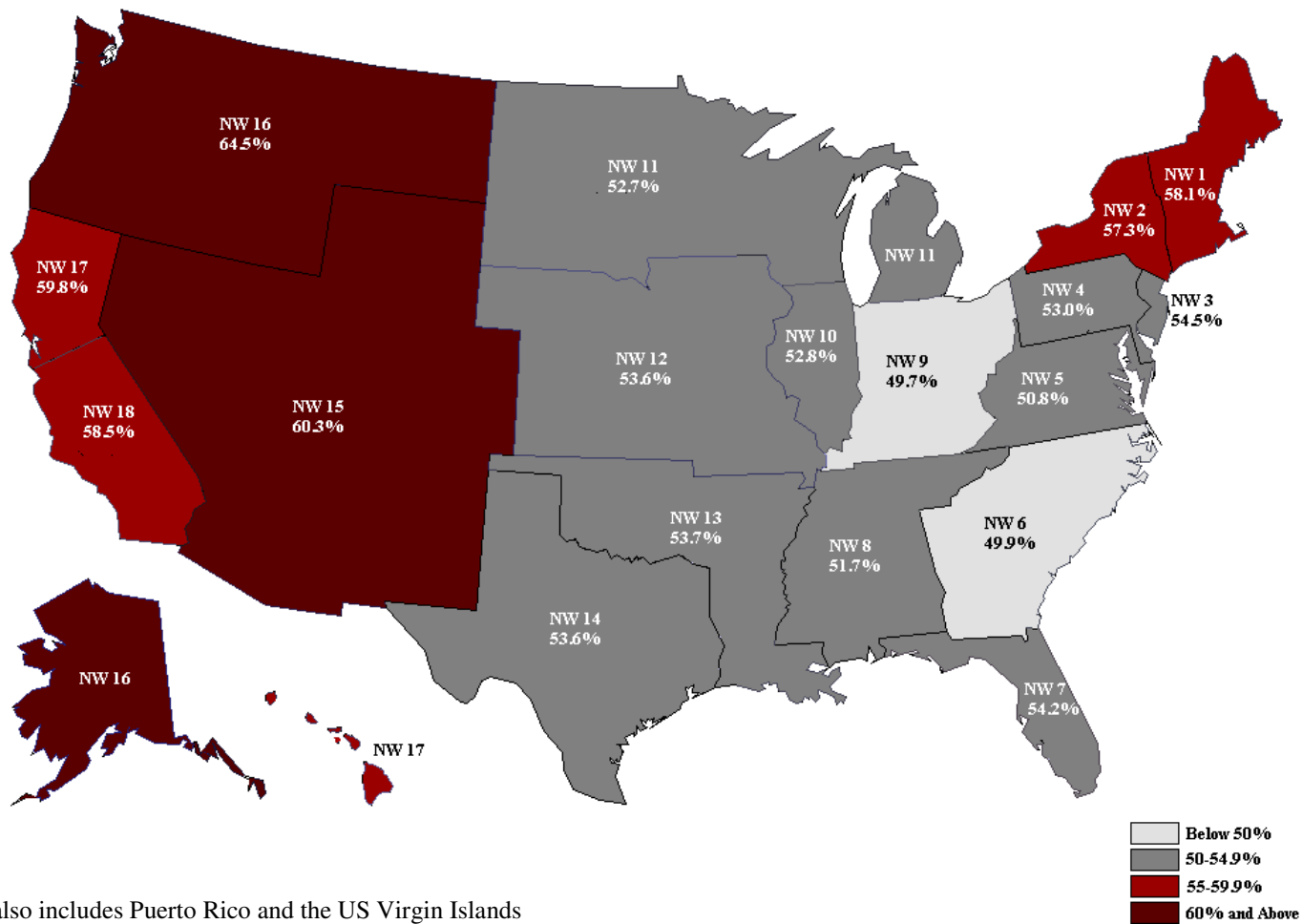
Despite the impressive gains observed over time, varying opportunities for improvement exist across the Networks. The map in Figure 6 shows that, in November 2009, higher AV fistula rates were achieved in the western and northeastern regions of the US. The remainder of the country had prevalent AV fistula rates between 49.7% and 54.5%. There is also indication of practice patterns which may be favoring AV grafts. This can be seen most clearly by examining vascular access rates in Networks 6, 8, and 14. As shown in Figure 7, these Networks had chronic CVC rates meeting the K-DOQI Guideline for fewer than 10% of patients to use a CVC for 90 days or more. At the same time, as shown in Figure 8, Networks 6, 8 and 14 had AV graft rates that were the highest in the nation, about twice that of Network 16, which had the highest AV fistula and lowest AV graft rates. Nationally, the prevalent AV graft rate, which had been declining, has begun to flatten at around 20%. (This is displayed in Figure 5.) There appears to be a need in Networks with higher AV graft rates to examine surgical patterns and stress (Consistent with Strategy #6) training for vascular surgeons in the techniques of AV

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fistula placement, including those that are more difficult to perform. Surgical education and experience, combined with a good physical assessment and vessel mapping will increase the number of patients deemed appropriate for AV fistulas.

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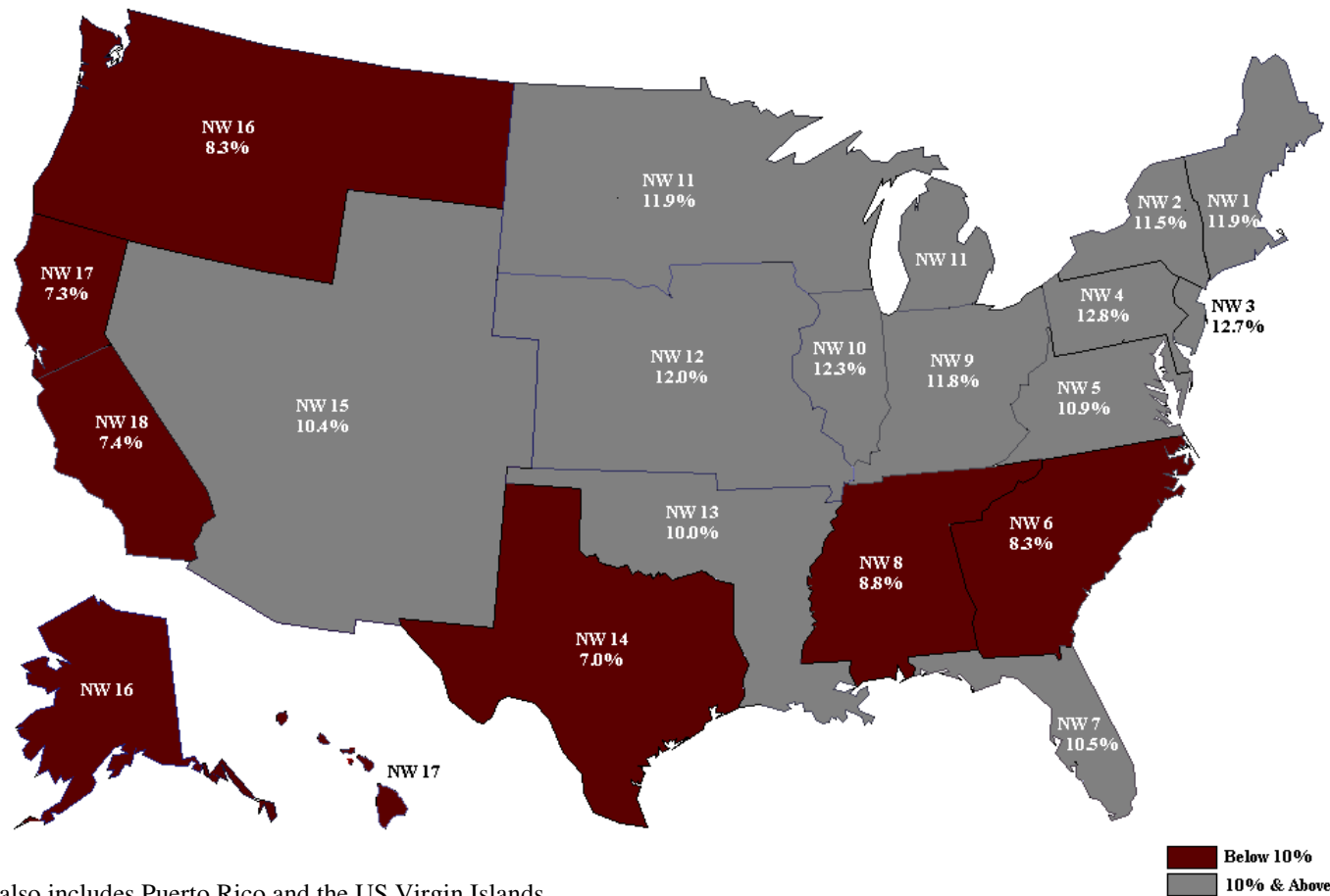
Figure 6: Network Prevalent AV Fistula Rates, November 2009



Network 3 also includes Puerto Rico and the US Virgin Islands
Network 17 also includes AS, Guam, HI and the Mariana Islands
Data Source: CMS Vascular Access Data Base

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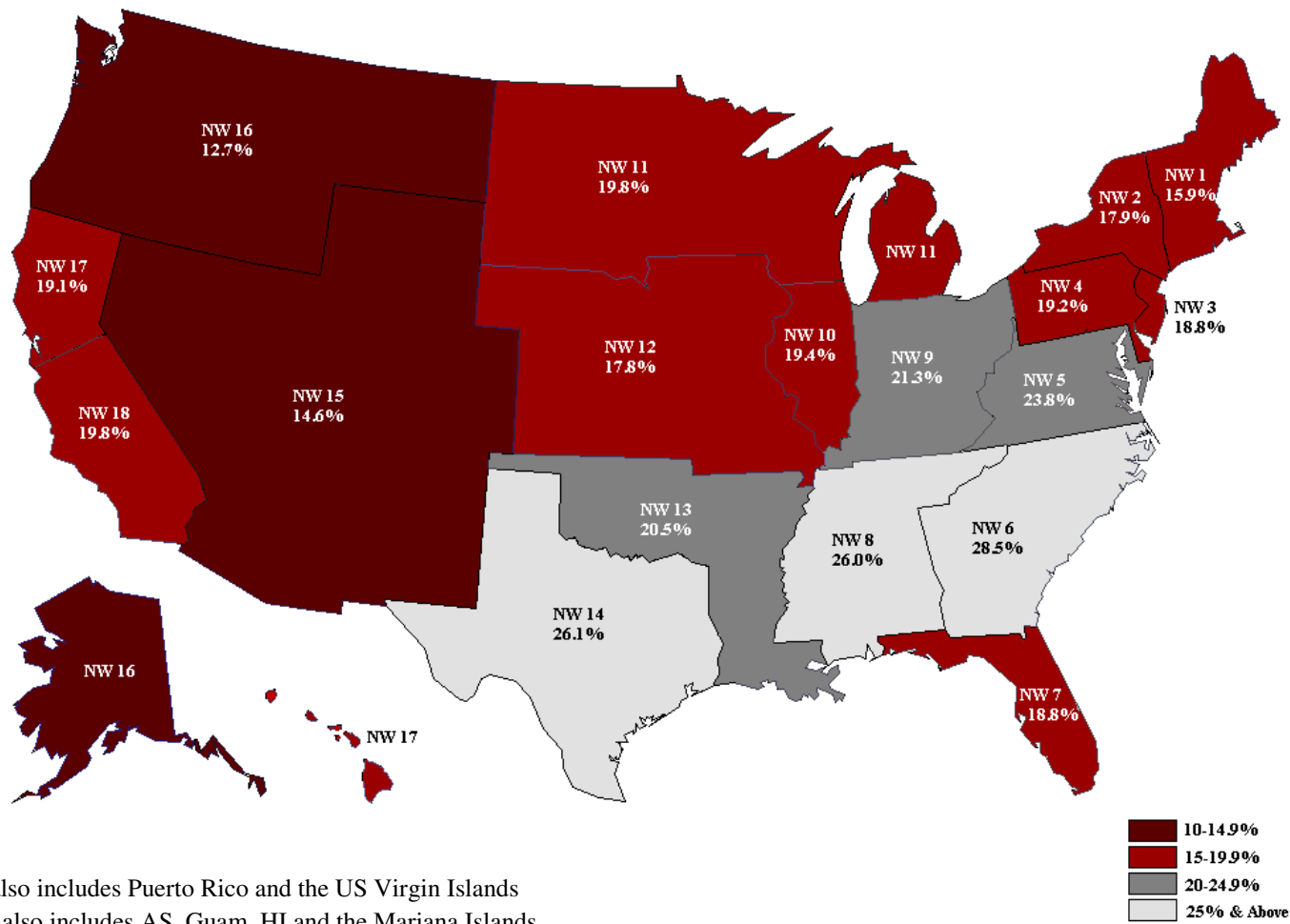
Figure 7: Network Prevalent Chronic (≥ 90 Days) CVC Rates, November 2009



Network 3 also includes Puerto Rico and the US Virgin Islands
Network 17 also includes AS, Guam, HI and the Mariana Islands
Data Source: CMS Vascular Access Data Base

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Figure 8: Network Prevalent AV Graft Rates, November 2009



Network 3 also includes Puerto Rico and the US Virgin Islands
Network 17 also includes AS, Guam, HI and the Mariana Islands
Data Source: CMS Vascular Access Data Base

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While it is still too early to declare victory, Figure 7 offers evidence of reduced dependence on chronic CVCs for hemodialysis. In November 2009, six out of eighteen Networks had chronic CVC use rates meeting the K-DOQI Guideline. Too, variability across Networks existed in a fairly narrow range between 7.0% and 12.8%.

Attribution

Because the FFBI is the only national initiative focused on improving the AV fistula use rate, it is appropriate to attribute the majority of improvement to the FFBI. Furthermore, because the Networks are the engines for improvement within the FFBI, this improvement can be attributed to the Networks as the entity that provides education and technical assistance, as well as convenes other stakeholders to promote improvement in the prevalent AV fistula use rate.

Based on the underlying secular **annual** improvement trend of 1.5%, as noted previously, the estimated Network contribution to improvement during the most recent **11 month** period (December 2008 – November, 2009) was about 52.6% of the observed improvement:

$$(2.9\% - (1.5\% \times 11/12)) \div 2.9\% = .526$$

As shown in Table 1 below, this translates to 5,371 patients whose lives were improved by Network quality improvement in this one clinical area, alone. For example, patients who dialyze with an AVF benefit from fewer infections, hospitalizations and problems with clotting; better blood flow for better treatment; lower mortality; and better quality of life.

Table 1: Estimated Number of Patients Who Received an AV Fistula Due to ESRD Network Activities: December 2008 – November 2009

December 2008 Prevalent AVF Rate ¹	November 2009 Prevalent AVF Rate ¹	Rate Difference	November 2009 Prevalent Denominator ²	Patients Impacted (352,087*.029)	Estimated Patients Impacted by Networks' FFBI Work (10,211*.526)
51.6%	54.5%	2.9%	352,087	10,211	5,371

¹FFBI Dashboard

²CMS Vascular Access Database as Delivered to the FFBI contractor by the Network Information Technology Services contractor

Feasibility of the 66% AV Fistula Goal

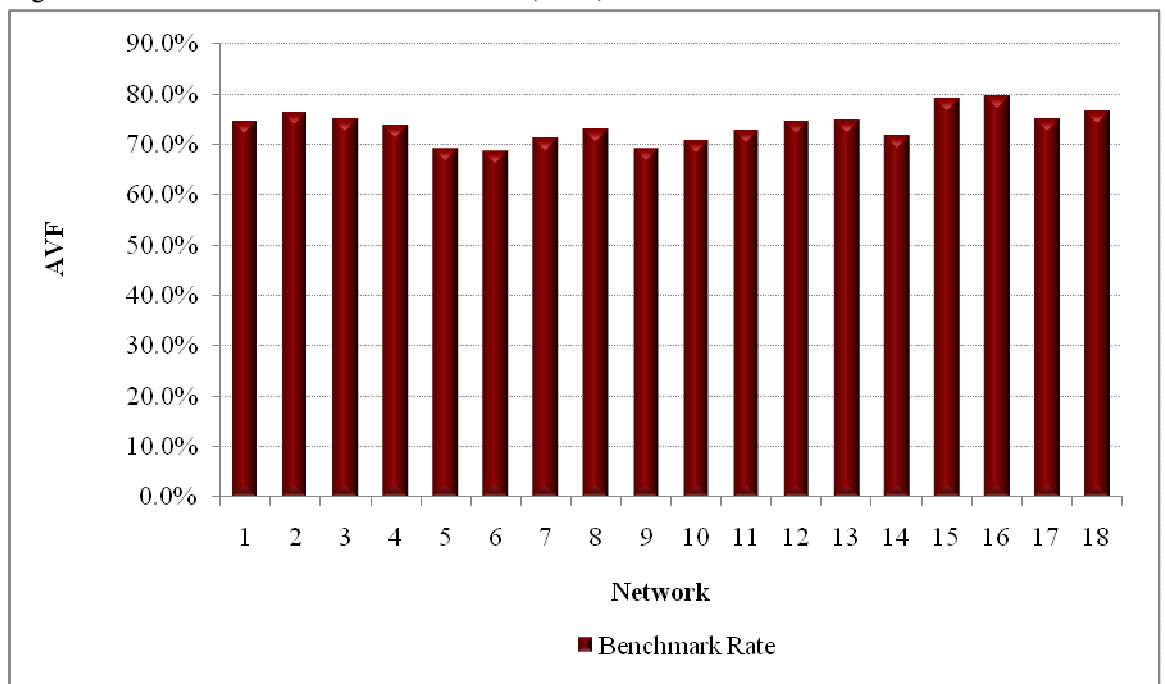
Using FFBI data, two (2) abstracts, addressing the feasibility and consequences of the FFBI, were prepared and presented as posters at the American Society of Nephrology Renal Week 2009 meeting held September 2009. Links to both abstracts are posted at <http://www.fistulafirst.org>. Feasibility was addressed by asking, *Is the CMS Fistula First Target of 66% for Prevalent Arteriovenous Fistula (AVF) Feasible?* Through data analysis, the authors demonstrate that, although there was variability across Networks, between January 2007 and March 2009, in excess of 25% of dialysis facilities nationally reached the target of 66% at least once. The second

Fistula First Annual Report

abstract asked, *Has Fistula First Caused an Increase in Catheter Prevalence?* This was shown not to be the case. In fact, prevalent CVC rates in all categories analyzed (Total CVC, CVC in use < 90 days, and CVC in use $\geq$ 90 days) declined significantly during the study period between January 2007 and March 2009. The latter findings are consistent with the trends described above and depicted in Figures 2 and 5.

Another way of examining the feasibility of achieving the 66% prevalent AV fistula goal is to calculate the Achievable Benchmark of Care™ (ABC) for each Network. The ABC methodology was developed by researchers at the University of Alabama and is explained in detail in Appendix H. Essentially, the methodology produces a benchmark that represents the average performance already achieved by the top performers. As applied to AV fistula rates in dialysis facilities, the ABC™ is the average performance of the top performing facilities caring for 10% of patients in each Network and is shown in Figure 9 using November 2009 data. Without exception, the average performance of the top performers in every Network exceeds the 66% goal. This means that every Network has successful facilities whose performance may inspire others and whose practices can be identified, shared and, potentially adapted by other facilities.

Figure 9: Achievable Benchmark of Care™ (ABC) for each Network, November 2009



Data Source: CMS Vascular Access Data Base

Fistula First Annual Report

ACRONYMS

ANNA	American Nephrology Nurses Association
ASN	American Society of Nephrology
AV	Arterio-venous
AVF	Arterio-venous Fistula
AVG	Arterio-venous Graft
CDC	Centers for Disease Control and Prevention
CfC	Conditions for Coverage
CKD	Chronic Kidney Disease
CMS	Centers for Medicare & Medicaid Services
CVC	Central Venous Catheter
ESRD	End Stage Renal Disease
FFBI	Fistula First Breakthrough Initiative
FMEA	Failure Modes and Effects Analysis
IHI	Institute for Healthcare Improvement
IQIP	Internal Quality Improvement Project
KDOQI	Kidney Disease Outcomes Quality Initiative
LDO	Large Dialysis Organization
MEI	Medical Education Institute
NKDEP	National Kidney Disease Education Program
NQF	National Quality Forum
NVAII	National Vascular Access Improvement Initiative
NWITS	Network Information Technology System
QAPI	Quality Assessment and Performance Improvement
QID	Quality Improvement Director
QIO	Quality Improvement Organization
RCA	Root Cause Analysis
RVU	Relative Value Units
SD	Standard Deviation
SIMS	Standard Information Management System
SME	Subject Matter Experts
SOW	Statement of Work
SVS	Society for Vascular Surgery
TEP	Technical Expert Panel
UM-KECC	University of Michigan Kidney Economic and Cost Center

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Appendix A

Technical Expert Panel

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Appendix B

Sample Crystal Report

Fistula Use and Placement Rates in Incident Patients Cumulative 12 Month Rolling Average

Provider Number: XXXXXX Print Date: 5/7/2009
Facility Name: ABC DIALYSIS
Network: 5
LDO Affiliation: Independent

Month/Year	n	F	G	GF	C	CF	CG	O
Jan-08	3	0	0	0	3	0	0	0
Feb-08	2	0	0	0	2	0	0	0
Mar-08	7	1	0	0	5	1	0	0
Apr-08	2	0	0	0	2	0	0	0
May-08	0	0	0	0	0	0	0	0
Jun-08	0	0	0	0	0	0	0	0
YTD	14	1	0	0	12	1	0	0
YTD%		7.1	0.0	0.0	85.7	7.1	0.0	0.0

AVF Placed YTD% 14.3

Note: Placed = Used + Placed

n = Number of known "first time ever" outpatients starting dialysis that month (incident patients)

F = Number of incident patients that used an AVF during last hemodialysis treatment (regardless of other accesses present)

G = Number of incident patients that used an AV Graft during last hemodialysis treatment with no AVF present (regardless if Cath or Port present)

GF = Number of incident patients that used an AV Graft during last hemodialysis treatment that had an AVF present (regardless if Cath or Port present)

C = Number of incident patients that used a Catheter or Port during last hemodialysis treatment (no other accesses present)

CF = Number of incident patients that used a Catheter or Port during last hemodialysis treatment - with an AVF present

CG = Number of incident patients that used a Catheter or Port during last hemodialysis treatment - with only a graft present

O = Other access used

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Vascular Accesses used in Prevalent Patients

Provider Number: XXXXXX

Print Date: 5/7/2009

Facility Name: ABC DIALYSIS

Network: 5

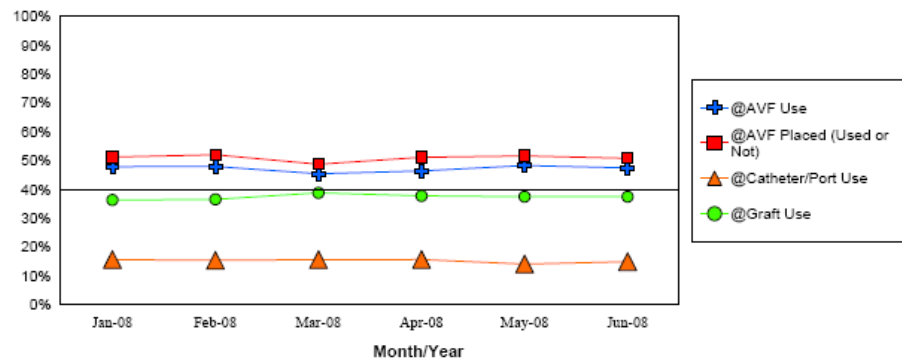
LDO Affiliation: Independent

Month/ Year	%AVF(#)	%Graft(#)	%Catheter/ Port*(#)	%AVF Placed (Used or Not)**(#)	Other /Missing(#)	Number of Patients Reported
Jan-08	47.9% (58)	36.4% (44)	15.7% (19)	51.2% (62)	0.0% (0)	121
Feb-08	48.0% (59)	36.6% (45)	15.4% (19)	52.0% (64)	0.0% (0)	123
Mar-08	45.5% (55)	38.8% (47)	15.7% (19)	48.8% (59)	0.0% (0)	121
Apr-08	46.5% (59)	37.8% (48)	15.7% (20)	51.2% (65)	0.0% (0)	127
May-08	48.3% (58)	37.5% (45)	14.2% (17)	51.7% (62)	0.0% (0)	120
Jun-08	47.5% (57)	37.5% (45)	15.0% (18)	50.8% (61)	0.0% (0)	120

A highlighted value in the %AVF column represents a value greater than or equal to 40%.

* - The Catheter/Port percentages include Catheter with a Graft.

** - The AVF Placed (Used or Not) percentages include AVF, Graft with AVF, and Catheter/Port with AVF.



The solid line at 40% represents the K-DOQI guideline for % AVF in prevalent (current) patients.

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Fistula Rate Comparison, Prevalent Patients: Facility, Network, US

Provider Number: XXXXXX

Print Date: 5/7/2009

Facility Name: ABC DIALYSIS

Network: 5

LDO Affiliation: Independent

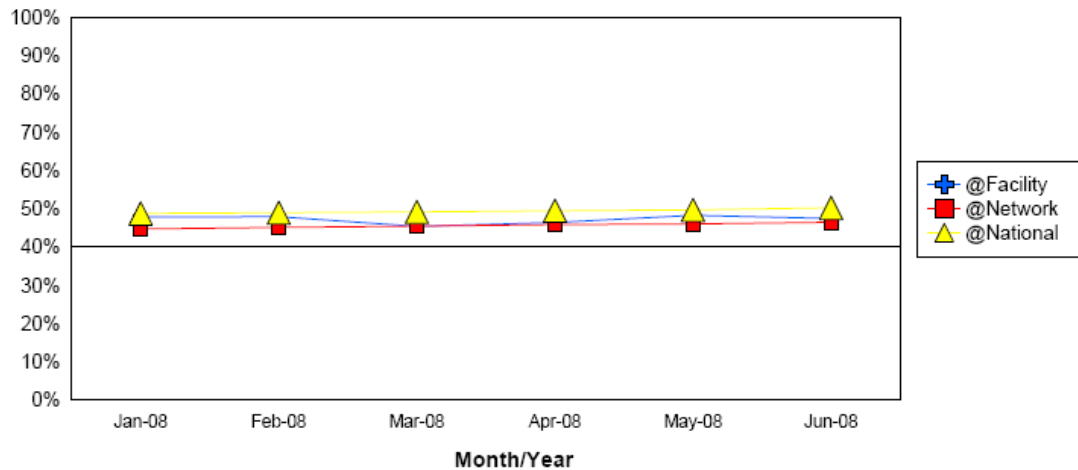
AVF Rates, Prevalent Patients

Month/ Year	Facility (#)	Network (#)	National (#)	Number of Facility Patients	Percent of Facilities Reporting	
					Network	National
Jan-08	47.9% (58)	44.8% (8,193)	48.8% (158,727)	121	102.3%	99.9%
Feb-08	48.0% (59)	45.2% (8,273)	49.0% (159,991)	123	101.9%	99.8%
Mar-08	45.5% (55)	45.5% (8,332)	49.2% (161,292)	121	101.9%	99.9%
Apr-08	46.5% (59)	45.9% (8,503)	49.5% (163,265)	127	101.9%	100.3%
May-08	48.3% (58)	46.1% (8,560)	49.7% (164,629)	120	101.9%	100.1%
Jun-08	47.5% (57)	46.5% (8,596)	50.3% (165,830)	120	102.2%	100.3%

A highlighted value in the Facility column represents a value greater than or equal to 40%.

AVF Prevalence Rates: Facility, Network, National, and K-DOQI

(Network and National rates are based on reporting facilities)



The solid line at 40% represents the K-DOQI guideline for % AVF in prevalent (current) patients.

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Appendix C

Network Environmental Scan

June 2009

NW Data Feedback Scan

1. Survey completed by:		
	Response Percent	Response Count
Network:	100.0%	17
Staff member responding for Network:	100.0%	17
Email address of responding staff member:	100.0%	17
answered question		17
skipped question		0

2. 1. Does your Network distribute the facility-specific Crystal Reports from SIMS to providers?		
	Response Percent	Response Count
Yes - routinely	76.5%	13
Yes - on occasion	0.0%	0
No	23.5%	4
answered question		17
skipped question		0

3. 2. Do you use the facility-specific Crystal Reports from SIMS in some way other than distribution to providers?		
	Response Percent	Response Count
No	47.1%	8
Yes	52.9%	9
If Yes, please describe		9
answered question		17
skipped question		0

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4. 3. What does your Network staff find USEFUL about the SIMS Crystal Reports (check all that apply)?		
	Response Percent	Response Count
Availability of multiple months of facility-specific fistula use and placement rates in incident patients presented in a table format	61.5%	8
Availability of multiple months of facility-specific prevalent AVF, AVG, and catheter rates in table format	92.3%	12
Availability of multiple months of facility-specific prevalent AVF, AVG, and catheter rates in graph format	76.9%	10
Availability of multiple months of facility-specific prevalent AVF rates, compared with Network and U.S. averages for the same time periods in table format	92.3%	12
Availability of multiple months of facility-specific prevalent AVF rates, compared with Network and U.S. averages for the same time periods in graph format	69.2%	9
Availability of multiple months of measures of the Percent of Facilities Reporting their vascular access rates for prevalent patients at the Network and National level in table format	61.5%	8
Page layouts that make the report easy to read	38.5%	5
Fonts (e.g. type face and size) that make the report easy to read	46.2%	6
Ease of understanding of the report	38.5%	5
Graphics	38.5%	5
Use of color	30.8%	4
Other (explain):		5
answered question		13
skipped question		4

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5. 4. What does your Network staff find INADEQUATE about the SIMS Crystal Reports?

	Response Count
	14
<i>answered question</i>	14
<i>skipped question</i>	3

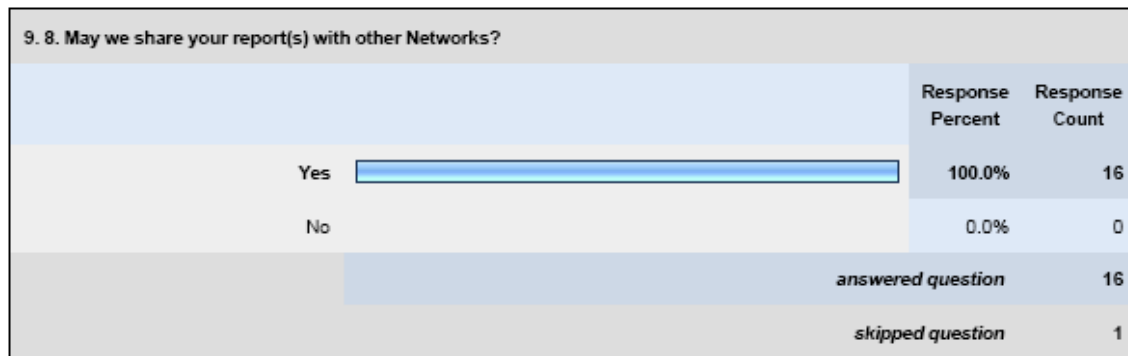
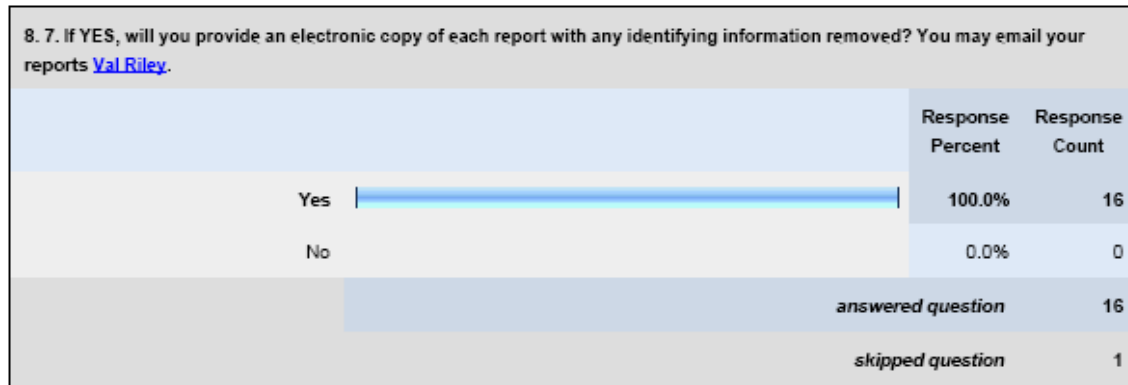
6. 5. If reports similar to the SIMS Crystal Reports are incorporated into CROWNWeb, what improvements would your Network like to see made to the reports? You need not mention the need to update the K-DOQI AVF guideline. We are aware that the report contains an outdated goal in text and graphs. (If you have not used the SIMS Crystal Reports, an example was attached to the email inviting you to respond to this environmental scan.)

	Response Count
	16
<i>answered question</i>	16
<i>skipped question</i>	1

7. 6. Separate from the SIMS Crystal Reports, does your Network produce its own provider-specific vascular access feedback reports from the Fistula First data or other sources (e.g. Form 2728)? (These may include, for example, reports that are dialysis facility-specific or nephrologist-specific.)

	Response Percent	Response Count
Yes 	94.1%	16
No 	5.9%	1
<i>answered question</i>		17
<i>skipped question</i>		0

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Question 2: If Yes

Number	If Yes, please describe
1	Internal Network use
2	Review of National AVF rates; facility specific review
3	monthly monitoring and follow-up with facilities participating in the vascular access Network-driven projects
4	Data exception report function is utilized
5	QI activities
6	For internal trending and to report to MRB
7	to track low performers-will run report more frequently & send to nurse manager
8	MRB and BOD meetings
9	We report Quality issues to the NYS DOH based upon this data

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Question 3: Other

Number	Other (explain):
1	Access to live data at anytime
2	We do not use the SIMS reports
3	being able to modify these reports to create several custom made reports so the custom made reports have same parameters as the SIMS reports
4	Having standard reports
5	Percent of Other/Missing accesses reported by facility

Question 4: Response

Number	Response Text
1	Incident - confusing/poor column identification. Vas. Access Prev: Stuck in old criteria of 40%. Headings don't match data we collect in VA database. FF comparison, don't need to know number of facilities reporting data, using old criteria, poor colors on graph and graphs don't work well.
2	Need more breakdown of catheter rates - <90, >90; State data; LDO vs Independent data
3	wrong KDOQI goal displayed, charts do not display data effectively, no incident data trending by percentages, no national AVG and catheter data, no ability to edit reports, no ability to choose fields to view on reports, no ability to change chart design or format, no ability to show comparisons of Network and national AVG or catheter rates against facility, no ability to show all catheter trends (i.e. >90 days, < 90 days, AVF mature, etc.)
4	The graphs would be easier to read in the "stacked-bar" graph format
5	they report the total % of catheters without separating them into "< 90 days" and "> 90 days" categories
6	We customize our reports to include change concepts, goals and movement towards attaining the goals
7	Nothing inadequate, just easier to tweak reports internally generated based on need
8	1. Missing data on catheters only 2. AVF used not defined if it is 2 needles 3. The data on the reports (% over 100?) seems inaccurate
9	reports based on 2728 forms, reports that cross check data in sims and vascular access software Nephrologist specific reports
10	LDO internal reports do not match the SIMS reports, Doesn't use each category of AV Access,

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11	We've (NW 16) had good results from graphs which compare a facility's access rates to those at the other facilities in their region. While we've never actually done a head-to-head comparison of peer-comparison (PC) AVF graphs to Network-comparison (NC) AVF graphs, we believe the peer-comparison graphs present a more obvious course of action to a facility than do several straight lines on an otherwise empty graph. (Note: we have done a head-to-head between PC albumin graphs and NC albumin graphs, and we found no difference there; but our PC AVF graphs continue to give us consistently useful results.)
12	1. Graphics are not captivating to facility audiences. 2. Font is small and difficult to read
13	Not visually appealing, too wordy
14	It would be nice if there was more customization available

Question 5: Response

Number	Response Text
1	1. Use of current guidelines/criteria. 2. AVG rates as well as CVS & AVF. Comparative: NW-State-National levels. Bar charts are nice. Graphs - better colors - yellow doesn't print well. 4. Facility level reports with graphs - facility-NW-stat-national.
2	See above(#4),
3	Ability to format charts to display data more effectively; Facility specific incident reports, with YTD percentages compared against Network and national; Reports that compare facilities against Network and national for both AVG and catheters; Ability to edit reports, especially chart formatting; Ability to choose fields that will be displayed on reports; Potential to display all catheter trends by facility (i.e. >90 days, < 90 days, AVF mature, etc.)
4	Ability to search for and print report for an individual provider easily
5	Would like to be able to generate run charts/ control charts and chose the data points we want to see i.e., run charts only for Network and look at only AVF use in incident patients. By state would be most useful. Do a true 12-mth rolling average for incident accesses, don't start over again each January. Keep at least 6 mth of back data on the reports (esp. in January). Data is always suspect when its more than 100%! All Networks should count accesses for the same cohort of patients.
6	same as above
7	I would hope that the data could be used by talented data managers to create our own reports
8	See prior answer. More dinamic graphs

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9	since crownweb has vascular access data by patient, many reports mentioned above can be incorporated. Also note that id we do not have two tier access in CROWNweb, it is important that many reports that Networks have created have to be included. We need reports by MD, reports by Surgeon patency failure rate by provider template for incident caths, prevalent caths > 90 day caths by patient specific info
10	The ease to customize date ranges (by month, quarter, 6 mos or a year) for trending
11	Ability to produce report by one provider, Ability to produce tables by facility characteristics (state, county, size)
12	I'm not sure how you'd go about automating PC graphs, and we've also found that we get better results when we tailor our cover letter to the individual facility's historical performance, so I believe there's a limit to the value of automation, when compared to the value of individual attention and specificity.
13	MORE COLOR
14	1. Report "catheter only" greater than 90 days, rather than all catheters (less than 90 days, greater than 90 days, with or without access maturing, etc.) 2. Build in a gap analysis based on the CMS expected rate of improvement in prevalent AVF rate.
15	Add a report showing a number of fistulas needed to reach a certain percentage, more comparatives-like areas and facility sizes
16	It would be nice if reports could be run in ways other than by provider, i.e. by county

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Appendix D

Summary of Network Provider Feedback Reports Submitted in Accompaniment to Network Environmental Scan*

Data Provided in Feedback Reports	NW1	NW2	NW3	NW4	NW5	NW6	NW7	NW8	NW9/10
Data Source: CMS Vascular Access Database									
Facility prevalent AVF, AVG, and/or CVC rates	✓	✓	✓		✓	✓	✓	✓	✓
Facility incident AVF, AVG, and/or CVC rates								✓	✓
Trended AVF, AVG, and/or CVC rates		✓	✓			✓		✓	✓
Facility comparison to other providers on AVF, AVG, and/or CVC rates	✓								✓
Facility comparison to top performers/ state/Network/US on AVF, AVG, and/or CVC rates		✓			✓		✓	✓	✓
LDO/non-LDO comparison on AVF, AVG, and/or CVC rates	✓		✓						
Regional/state comparison on AVF, AVG, and/or CVC rates	✓				✓				
Geographic Mapping	✓			✓	✓			✓	
Modified SIMS report									

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Fistula First facility goal update		✓	✓		✓	✓	✓		✓
Data Source: 2728 Forms									
Nephrologist Reports - initial access; pre-dialysis nephrology care	✓	✓							
Facility Reports - initial access; pre-dialysis nephrology care	✓								
Data Provided in Feedback Reports	NW11	NW12	NW13	NW14	NW15	NW16	NW17	NW18	
Data Source: CMS Vascular Access Database									
Facility prevalent AVF, AVG, and/or CVC rates	✓	✓	✓	✓	✓	✓	✓	✓	
Facility incident AVF, AVG, and/or CVC rates			✓			✓		✓	
Trended AVF, AVG, and/or CVC rates	✓		✓	✓	✓	✓	✓	✓	
Facility comparison to other providers on AVF, AVG, and/or CVC rates			✓		✓	✓			
Facility comparison to state/Network/US/top performers on AVF, AVG, and/or CVC rates	✓	✓	✓		✓	✓	✓	✓	
LDO/non-LDO comparison on AVF, AVG, and/or CVC rates			✓					✓	
Region/State/Network comparison on			✓		✓	✓	✓	✓	

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AVF, AVG, and/or CVC rates								
Geographic Mapping			✓		✓	✓		
Modified SIMS report								
Fistula First facility goal update	✓	✓	✓	✓	✓	✓	✓	✓
Data Source: 2728 Forms								
Nephrologist Reports – initial access; pre-dialysis nephrology care	✓			✓				
Facility Reports – initial access; pre-dialysis nephrology care								

* 75% of Networks also distribute SIMS provider feedback reports

Appendices

Appendix E

2009 FFBI Press Releases

- Bruit Audio Clips Available for Patient and Staff Education January 29, 2010 - Midlothian, VA
- FFBI Develops Two New Change Concepts December 28, 2009 - Midlothian, VA
- CMS Fistula First Target of 66% for Prevalent AV Fistulas is Feasible and NOT at the Expense of Increased use of CVCs November 12, 2009 - Midlothian, VA
- FFBI Session Open to the Renal Community November 4, 2009 - Midlothian, VA
- FFBI Provides Road Map to Reach CMS Goal of 66% October 7, 2009 - Midlothian, VA
- Fistula First Breakthrough Initiative Launches Redesigned Website October 1, 2009 - Midlothian, VA
- Fistula First Breakthrough Initiative Recruits New Clinical Consultants July 27, 2009 - Midlothian, VA
- The Fistula First Breakthrough Initiative Wants You to Know: Level Payment Field for AVF & AVG May 20, 2009 - Midlothian, VA
- Mid-Atlantic Renal Coalition is Awarded Fistula First Breakthrough Initiative Contract March 25, 2009 - Midlothian, VA

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Appendix F

Fistula First Change Package

Clinical and organizational recommendations based on best practices for increasing AV fistula use and improving hemodialysis patient outcome

1 Routine CQI review of vascular access

- Designate staff member in dialysis facility responsible for vascular access CQI (RN if feasible but can be any renal care professional). Incorporate vascular access into facility-based CQI process.
- Assemble multi-disciplinary vascular access CQI team in facility or hospital.
 - Minimally: Medical Director and VA CQI Coordinator.
 - Ideally: Representatives of all disciplines, including access surgeons and interventionalists.
- Investigate and track all non-AVF access placements and AVF failures.

2 Timely referral to nephrologist

- Primary care physicians utilize pre-ESRD/CKD referral criteria to ensure timely referral of patients to nephrologists, ideally prior to Stage 4 CKD.
 - Establish meaningful criteria for PCPs who may not perform GFR or creatinine clearance testing (i.e. serum creatinine criteria, conversion formula for GFR)
- Nephrologist documents AVF plan for all patients expected to require renal replacement therapy, regardless of RRT being considered.
- Designated nephrology staff person educates patient and family on benefits of AVF and to protect vessels, when possible using bracelet as reminder.

3 Early referral to surgeon for “AVF only” evaluation and timely placement

- Nephrologist/skilled nurse performs appropriate evaluation and physical exam prior to surgery referral.
- Nephrologist refers for vessel mapping where feasible, ideally prior to surgery referral.
- Nephrologist refers patients to surgeons for “AVF only” evaluation, no later than Stage 4 CKD (GFR<30). Surgery scheduled with sufficient lead-time for AVF maturation.
- Nephrologist defines AVF expectations to surgeon, including vessel mapping.
- If pre-ESRD placement of AVF does not occur, nephrologist ensures that patient receives AVF evaluation and placement (if feasible) at the time of initial hospitalization for temporary access (e.g. catheter).

4 Surgeon selection based on best outcomes, willingness, and ability to provide access services

- Nephrologists communicate expectations to surgeons regarding AVF placement and training in current AVF surgical techniques, based on K/DOQI Guidelines and best practices.
- Nephrologists refer to surgeons willing and able to meet AVF expectations based on K/DOQI and best practices.
- Surgeons are continuously evaluated on frequency, quality, and patency of access placements. Data collection and outcomes tracking ideally initiated and reported at the dialysis center as part of ongoing CQI process, and can be aggregated at the Network level.

5 Full range of appropriate surgical approaches to AVF evaluation and placement

- Surgeons utilize current techniques for AVF placement including vein transpositions.
- Surgeons ensure mapping is performed for any patient candidate not deemed suitable for AVF based solely on physical exam.

6 Secondary AVF placement in patients with AV grafts

- Nephrologists evaluate every AV graft patient for possible secondary AV fistula, including mapping as indicated, and document plan in patient’s record.
- Dialysis facility staff and/or rounding nephrologists examine outflow vein of all forearm graft patients (“sleeves up”) during dialysis treatments (minimum frequency=monthly) to identify patients who may have suitable upper outflow vein for elective secondary AVF conversion in upper arm. Inform nephrologist and surgeon of need to evaluate identified outflow vein for AVF conversion.
- Nephrologist refers to surgeon for evaluation/placement of secondary AVF before failure of AVG.

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7 AVF placement in patients with catheters where indicated

- Regardless of prior access (e.g. AV graft), nephrologists and surgeons evaluate all catheter patients as soon as possible for AVF, including mapping as indicated.
- Facility implements protocol to track all catheter patients for early removal of catheter.
- Nephrologists make every effort not to admit patients to clinic with “catheter only”

8 Cannulation training for AV fistulas

- Facility identifies and uses best cannulators and best teaching tools (e.g., videos) to teach AVF cannulation to all appropriate dialysis staff.
- Dialysis staff uses specific protocol for initial dialysis treatments with new AVFs and assigns the most skilled staff to such patients.
- Facility offers option of self-cannulation to patients who are interested and able.

9 Monitoring and maintenance to ensure adequate access function

- Nephrologists and surgeons conduct post-operative physical evaluation of AVFs in 4 weeks to detect early signs of failure and refer for diagnostic study and remedial intervention as indicated.
- Facilities adopt standard procedures for monitoring, surveillance, and timely referral for the failing AVF.
- Nephrologists, interventional radiologists, and surgeons adopt standard criteria, and a plan for each patient, to determine the appropriate extent of intervention on an existing access before evaluating and mapping for an AVF.

10 Education for care givers and patients

- Routine facility staff in-servicing and education program in vascular access.
- Continuing education for all caregivers to include periodic in-services by nephrologists, surgeons, and interventionalists.
- Facilities educate patients to improve quality of care and outcomes (e.g., prepping puncture sites, applying proper pressure at needle sites without clamps, AVF brochures, etc.).

11 Outcomes feedback to guide practice

- Networks work with dialysis providers to provide specific outcomes feedback to all decision-makers, including incident and prevalent rates of AVF, AVG, and catheter use.
- Review data monthly or quarterly in facility staff meetings. Discuss and evaluate data trended over time for incident and prevalent rates of AVF, AVG, and catheter use. Track and disseminate all vascular access-related outcomes.

12 Modify hospital systems to detect CKD and promote AV fistula planning and placement

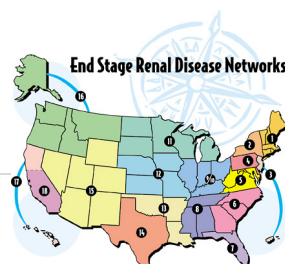
- Hospitals develop a comprehensive plan for early identification¹ of patients with kidney disease to allow for interdepartmental coordination for protective measures programs to prevent nephrotoxicity or other causes of further kidney damage, to allow for vessel preservation, for patient and family support, and vascular access planning and/or placement.

¹ Patients with eGFR <30 - 44 (CKD Stage 3B)

13 Support patient efforts to live the best possible quality of life through self-management

- Patient achieves optimum treatment outcomes and health status through collaborative knowledge-building related to CKD progression and treatment and through effective application of self-management interventions, such as self-monitoring and decision-making.
- Health care clinicians utilize techniques and strategies for the education of those who participate in vascular access education and management that are designed to encourage, enhance, and support patient self-management. This includes motivational interviewing, health coaching, and other patient empowerment strategies and techniques.

For further information, contact your ESRD Network. A complete listing of ESRD Networks can be found at: <http://www.esrdnetworks.org/>. *Fistula First* is an initiative of the Centers for Medicare and Medicaid Services and the Department of Health and Human Services. Project assistance provided by the Institute for Healthcare Improvement.



Appendices

Appendix G

Summary Task 1a Vascular Access (Fistula First) Quality Improvement Projects

NW	March 2009 AVF Rate	Stretch Goal Y/N	# 1a QIP	Focus	# Fac	Targeting	Workshops /Training	Reviewing QAPI	Distribution of Educational Materials	Conference Calls	Facility Goal Setting	Recognition Program
1	56.4	N	1	3 level approach to improve/maintain AVF rate >50% at provider level	154	X	X	X	X	X	X	X
2	55.5	N	1	Increase AVF rates in all facilities	43	X	X	X	X		X	
3	52	Y	2	Increase AVF rates 1. Site visits as needed	52	X	X		X		O	
				2. hosp site visits in 1 NJ county	7							
4	51.1	Y	2	1. Increase prevalent AVF rates in all providers	229	X	X	X	X			X
				2. Decrease # providers w/ rates < 30%	14							
5	48.6	Y	3	1. Increase AVF in providers	267	X	X		X	X	X	X
				2. Target Providers w/ QI Technical Assist (2 projects)	16							
				3. Oversight of low performers	14							

Appendices

NW	Newsletter Articles	Site Visits	Participation in CKD Coalition	2728 Profiles	Feedback Reports	Patient Education	Task 1b	Task 1c	Task 1d
1	x	X	X	X	X	O	Anemia	Catheter Reduction	1. High composite score for 4 clinical process measures assoc with SMR 2. Patient Safety 3. QAPI Support
2	X	X	X	X	X	X	1. Catheter Reduction 2. Phosphorous	Flu Vaccination	Med Reconciliation
3		X		O	O		1. Phosphorous 2. Hemoglobin	Catheter Reduction	1. Compliance w/ AAMI 2. QAPI development - AVF
4	X	X	X		X		Stenosis monitoring	Bone Disease/Phosphorus	Catheter Reduction
5	X			X	X		1. Hemo Adequacy 2. Stenosis Surveillance	Flu Vaccination	1. Catheter Reduction 2. IV antimicrobials administration

Appendices

NW	March 2009 AVF Rate	Stretch Goal Y/N	# 1a QIP	Focus	# Fac	Targeting	Workshops /Training	Reviewing QAPI	Distribution of Educational Materials	Conference Calls	Facility Goal Setting	Recognition Program
6	47.7	Y	8	1. Increase AVF		X	X	X	X	X	X	O
				2. Focused Review	28							
				3. SC Target								
				4. Technician Workshop								
				5. Feedback Reports								
				6. F Data Validation	9							
				7. AVG Target	92							
				8. Goal Setting								
7	52.1	Y	2	1. Statewide Spread		X	X	X	X	X	X	X
				2. Focus Group	32							
8	49.5	Y	2	1. VA QIP - Network		X	X	X	X			X
				2. Facility Collaborative	16							
9/10	47.9 49.8	Y	4	1. Program Management	18 (9+9)	X	X	X	X		X	O
				2. Physician Learning Sessions	22 (15+7)							
				3. Fistula Surveillance	24 (19+5)							
				4. VA Intervention	167 (118+49)							

Appendices

NW	Newsletter Articles	Site Visits	Participation in CKD Coalition	2728 Profiles	Feedback Reports	Patient Education	Task 1b	Task 1c	Task 1d
6	O		X		X	O	1. Catheter Reduction 2. Stenosis Monitoring	1. Immunization 2. Educational Calendar 3. Complaint and Grievance Coding	1. Anemia 2. Adequacy
7	X	X	X		X		Catheter Reduction	1. Data Validation 2. Voc Rehab 3. Hemo Adequacy 4. Increase Use of On-line CEU 5. Distributing ed materials and/or workshops (VA monitoring, anemia, bone metabolism)	1. Facility Monitoring Plan 2. Converting AVG to AVF
8	X	X	X		X		Catheter Reduction	Nursing Home Communication	1. Anemia Focused Review 2. Mortality Focused Review 3. VA QAPI
9/10		X	O	X	X		1. Hemo Adequacy 2. Anemia Management	Anemia Management	Catheter Reduction

Appendices

NW	March 2009 AVF Rate	Stretch Goal Y/N	# 1a QIP	Focus	# Fac	Targeting	Workshops/Training	Reviewing QAPI	Distribution of Educational Materials	Conference Calls	Facility Goal Setting	Recognition Program
11	50.6	Y	1	Increasing AVF Prevalence	380	X	X	X	X		X	
12	51.2	N	1	Decreasing AVG Usage	19	X	X		X			O
13	50.3	Y	1	Increasing AVF Prevalence	9	X	X		X	X		
14	51.5	Y	3	1. Collaborative Ed Programs (neph and surgeons)	14	X	X	X	X	X	O	O
				2. Increasing Surgical Referral prior to initiation	486							
				3. Conversion of AVGs	6							
15	58.4	Y	6	1. General	All	X	X		X	X		X
				2. Technical Assistance/Education	--							
				3. Focused AZ & NV	4 & 8							
				4. CKD Collaboration								
				5. Reducing CVC								
				6. Increasing Stenosis Monitoring								
16	63.9	Y	3	1. Technical Workshop	142	X	X		X	O		O
				2. Buttonhole Complications	19							
				3. Peer Comparison Reports	49							

Appendices

NW	Newsletter Articles	Site Visits	Participation in CKD Coalition	2728 Profiles	Feedback Reports	Patient Education	Task 1b	Task 1c	Task 1d
11		X	O		X	X	1. Anemia Management 2. Catheter Reduction	AVF Placed vs Used	QAPI Plan Improvement
12	O	X	X		X		Catheter Reduction	1. Anemia Management 2. Hemo Adequacy 3. Mineral Metabolism	1. Missing access types 2. Catheter Reduction 3. Septicemia
13				X	X		Catheter Reduction	AVF Incident Pts - 2728 profiling	Basic QI Steps
14	O		X	X	X		Anemia Management	Phosphorous Outcomes	1. Improving CQI processes 2. Improving Processes that Impact Clinical Indicators
15	X	X	X	X	X	X	1. Catheter Reduction 2. Stenosis Monitoring	1. Immunization 2. Increasing Home Therapies	Lab Data Collection
16			X		X		Catheter Reduction	Albumin	1. Albumin - RCA 2. SMR 3. Adequacy

Appendices

NW	March 2009 AVF Rate	Stretch Goal Y/N	# 1a QIP	Focus	# Fac	Targeting	Workshops/Training	Reviewing QAPI	Distribution of Educational Materials	Conference Calls	Facility Goal Setting	Recognition Program
17	57.3	Y	3	1. Increase AVF Rates	7	X	X	X	X			O
				2. Fac Specific VA QIP	7							
				3. Increase Buttonhole								
18	55.7	Y	2	1. AVG Conversion	20	X	X		X			
				2. AVF Maturation	13							

NW	Newsletter Articles	Site Visits	Participation in CKD Coalition	2728 Profiles	Feedback Reports	Patient Education	Task 1b	Task 1c	Task 1d
17	X	X			X		1. Stenosis Monitoring 2. Catheter Reduction	1. Increase DPC/TB 2. Patient Safety 3. Immunization	1. Pac Is Terr Outcomes 2. Pac Is Terr Transplant Eval
18					X		1. Catheter Reduction 2. Clinical Indicators	Stenosis Monitoring	SMR

X = Documented in Task 1 of the QPR

O = Network reported that this activity was in another section of their QPR

Appendices

Task 1 – Quarterly Progress Reports July 2008 – June 2009 Definitions

Column Heading	Description
NW	Network Number
3/1/2009 AVF Rate	Source: FF Dashboard
Stretch Goal	Indicates whether the Network had a stretch goal that exceeded the CMS contract goal.
#1a QIP	Lists the number of QIPs the Network worked on under Task 1a. There may be multiple approaches for each project.
Focus	Title or description of the QIP(s) for Task 1a.
# Fac	Indicates the number of facilities (if appropriate) participating in each project. This information was not always readily identified.
Targeting	Indicates whether the Network had an identified targeting strategy for selecting facilities.
Workshops/Training	Indicates whether the Network conducted workshops or training as a specific intervention to the identified QIP(s).
Reviewing QAPI	Indicates whether the Network specifically collected and reviewed facility level QAPIs as part of the intervention. Requesting facilities to complete a PIP or conduct a QIP may not be included.
Distribution of Educational Materials	Indicates whether the Network specifically distributed educational materials as part of intervention to the QIPs.
Conference Calls	Indicates whether the Network conducted conference calls with groups of providers as part of an intervention. Was not indicated if the Network simply indicated they maintained telephonic communication with individual providers.
Facility Goal Setting	Indicates whether the Network assigned goals for the facilities in the QIPs (or if they assigned goals for all of their facilities as part of their overall strategy).
Recognition Program	Indicates whether the Network had a specific recognition program as part of their intervention. Would not be a indication of whether a Network has a network-wide recognition program for high performers unless this was an identified QIP.
Newsletters Articles	If newsletter articles were a discussed strategy for QIPs, this would be indicated.
Site Visits	Indicates whether site visits to the targeted units were part of the Network's intervention. Site visits for other activities (such as investigation of complaints or grievances is not considered).
Participating in CKD Coalition	If the Network participated in a CKD Coalition (usually with the CKD QIO contractors) as part of their intervention, this would be indicated.
2728 Profiles	Indicates if the Network analyzed and generated 2728 profiles for providers as part of their QIP intervention.
Feedback Reports	Indicates if the Network provided feedback reports as part of the QIP intervention to all or some of their facilities.
Patient Education	Indicates that the Network specifically provided patient education on some aspect of their QIP (not just patient education on the advantages of AVF).
Task 1b	Lists the topics and/or titles of all Task 1b projects.
Task 1c	Lists the topics and/or titles of all Task 1c projects.
Task 1d	Lists the topics and/or titles of all Task 1d projects.

Appendix H

The ABC Methodology

Achievable Benchmark of Care™

Application to End Stage Renal
Disease Networks and Dialysis
Facilities

Objectives

At the conclusion of this session, you will:

- Understand the Achievable Benchmark of Care™
- Know how to calculate the Achievable Benchmark of Care™ for your Network
- Understand some of the uses for the Achievable Benchmark of Care™

What is a Benchmark?

“Something that serves as a standard by which others may be measured or judged”

<http://www.merriam-webster.com/dictionary/benchmark>

How are Benchmarks Set?

Qualitatively – e.g., standards of care set by experts; 'theoretical',

vs.

Quantitatively – e.g., standards of care already practiced by the top performers.

<http://main.uab.edu/show.asp?durki=14527>

Achievable Benchmarks of Care (ABC™)

- Developed at the University of Alabama at Birmingham under an initiative supported by the Agency for Health Care Policy and Research, now the Agency for Healthcare Research and Quality (AHRQ)

<http://main.uab.edu/show.asp?durki=14527>

ABC™

- Objective, data-driven benchmarks
- Performance targets that have already been achieved by “best practice” providers
- Based on a sound theoretical approach
- Represents a measurable level of excellence that always exceeds average performance

<http://main.uab.edu/show.asp?durki=14527>

What do we mean by, “always exceeds average performance”?

- The Achievable Benchmark of Care™ is the average performance of a group of top performers on a given measure (e.g., prevalent AVF rate)
- It is not the average performance of the entire group

ABC™

- Ensures that all superior providers contribute to the benchmark
- Ensures that providers with high performance but very low numbers of cases do not unduly influence benchmark levels
- Useful for provider feedback and quality improvement

<http://main.uab.edu/show.asp?durki=14527>

ABCTM *Methods*

- A few definitions:
 - Benchmark breakpoint – superior performance reflects the care provided to the top 10% of patients when facilities are ranked on performance in descending order
 - Pared mean – average performance of providers in the cohort above the benchmark breakpoint
 - Adjusted Performance Fraction – detail to follow

<http://main.uab.edu/show.asp?durki=14527>

ABCTM *Methods*

An adjusted performance fraction (APF) is calculated for each dialysis facility in a manner that reduces the impact of facilities with small numbers of patients

<http://main.uab.edu/show.asp?durki=14527>

ABCTM Methods

$$\text{Adj. Perf. Fraction (APF)} = (x + 1) / (d + 2)$$

Where,

x = number of patients in denominator receiving the chosen process of care, and

d = total number of patients included in the denominator

<http://main.uab.edu/show.asp?durki=14527>

ABCTM Methods

Examples: Using Prevalent AVF rate

Facility with one (1) prevalent patient; that 1 patient has an AVF (100%),

$$\text{APF} = (1 + 1) / (1 + 2) = 0.67 \text{ (or 67\%)}$$

Facility with 100 prevalent patients; 55 patients have an AVF (55%),

$$\text{APF} = (55 + 1) / (100 + 2) = 0.549 \text{ (or 54.9\%)}$$

<http://main.uab.edu/show.asp?durki=14527>

A Few More Words About the APF

- For facility with a denominator of 1, the unadjusted AVF rate can only be 0% or 100%
- If facilities are ranked on this unadjusted measure, a large number of facilities with 100%, but small numbers of patients, could artificially inflate the benchmark.
- The APF offers a solution to the small numbers problem without entirely eliminating the influence of small providers

<http://main.uab.edu/show.asp?durki=14527>

ABCTM Methods

How to construct the benchmark:

- Rank dialysis facilities in descending order on the APF
- Add the patient denominators for facilities to produce a cumulative frequency
- Count down the list and draw a line so that 10% of the patient population is above the line

<http://main.uab.edu/show.asp?durki=14527>

ABC™ Methods

How to construct the benchmark:

- Calculate the average performance (pared mean) for the top providers caring for 10% of the patients by adding all their numerators and denominators
 - For the 10% cohort: summed numerator/summed denominator

<http://main.uab.edu/show.asp?durki=14527>

ABC™ Calculation Example

Provider	Pts Num	Pts Denom	Pts Mean	APF
1	31	29	0.857	
2	1	1	0.847	
3	0	0	0.700	
4	1	0	0.222	
5	125	95	0.768	
6	56	45	0.750	
7	64	26	0.456	
8	31	38	0.820	
9	7	7	0.889	
10	44	44	0.875	
11	26	34	0.853	
12	28	21	0.710	
13	8	7	0.858	
14	24	21	0.800	
15	21	21	0.800	
16	31	26	0.810	
17	61	46	0.734	
18	4	4	0.800	
19	35	31	0.790	
20	1	1	0.800	
21	1	1	0.750	
22	49	61	0.713	
23	4	4	0.800	
24	43	41	0.627	
Total	767	525		

Calculate the APF for each Provider.

$$APF = \frac{\text{"Pts Num"} + 1}{\text{"Pts Denom"} + 2}$$

Next, sort Providers in descending order on APF and add a column for cumulative frequency of patients. (Shown on next slide)

<http://main.uab.edu/show.asp?durki=14527>

ABC™ Calculation Example

Provider	Pts	Denom	Pts	Num	A/R	Care Pts	Part Rate
9	7	7	0.888	7	1.000		
1	31	29	0.862	31	0.904		
11	14	14	0.812	39	0.905		
15	4	4	0.812	35	1.000		
18	4	4	0.812	37	1.000		
23	3	3	0.800	151	0.905		
30	1	1	0.800	159	0.905		
31	28	28	0.800	187	0.905		
32	1	1	0.800	190	1.000		
33	6	56	0.760	246	0.904		
34	123	95	0.768	305	0.772		
35	21	2	0.750	271	1.000		
36	31	34	0.718	311	0.712		
37	28	22	0.719	311	0.710		
38	81	51	0.713	546	0.728		
39	15	13	0.706	581	0.713		
40	1	1	0.667	562	1.000		
41	41	81	0.617	617	0.611		
42	8	8	0.590	617	0.590		
43	15	7	0.471	642	0.467		
44	28	28	0.431	706	0.431		
45	1	1	0.333	717	0.333		
46	307	325					

10% of 707 = 71.

We could draw the benchmark breakpoint at provider #11 but #11 ties with #18 and #23, so make the breakpoint occur at #23.

The top providers are 9, 15, 1, 11, 18, & 23

The pared mean, or benchmark rate, equals the sum of the numerators for providers 9, 15, 1, 11, 18, & 23, divided by the sum of their denominators

Benchmark rate = .908

<http://main.uab.edu/show.asp?durki=14527>

Prevalent AVF Rates, November 2009

Network	ABC™ Benchmark	Network Average*
1	74.5%	58.1%
2	76.2%	57.4%
3	75.1%	54.6%
4	73.8%	53.1%
5	69.1%	50.9%
6	68.6%	49.9%
7	71.1%	54.3%
8	73.0%	51.7%
9	69.1%	49.8%

* Per the FFBI Dashboard

The Achievable Benchmark of Care™ is the average performance of the top performing facilities providing care to 10% of the patients in our Network.

Prevalent AVF Rates, November 2009

Network	ABC™ Benchmark	Network Average*
10	70.6%	52.8%
11	72.8%	52.7%
12	74.6%	53.5%
13	74.8%	53.8%
14	71.6%	53.6%
15	79.1%	60.3%
16	79.7%	64.5%
17	74.9%	59.7%
18	76.6%	58.6%

* Per the FFBI Dashboard

The Achievable Benchmark of Care™ is the average performance of the top performing facilities providing care to 10% of the patients in our Network.

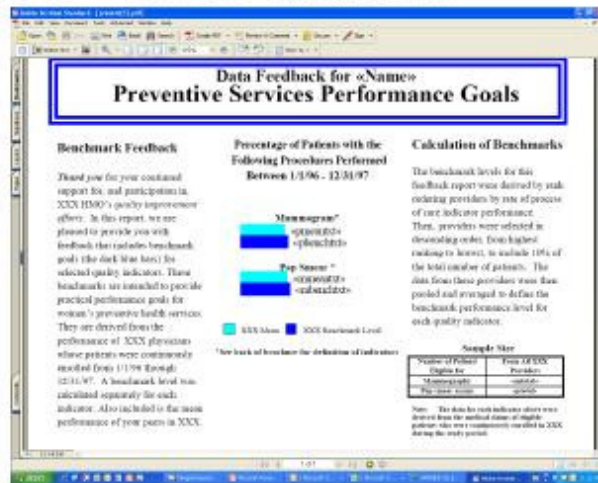
Has ABC™ Been Tested?

- Yes - with support from CMS, AHRQ and AQAF; tested under everyday, clinical conditions
- Successfully applied in a variety of situations - e.g., management of diabetes mellitus, treatment of post MI patients, and utilization of mammography and pap smear screening.

<http://main.uab.edu/show.asp?durki=14527>

- Being used by ESRD Networks 5 and 15

Example of Feedback Report from ABC™ Users Manual



Advantages of the ABC™ Method

- Objective, data-driven benchmarks,
- Performance targets that are already being achieved by "best practice" providers rather than expert opinions,
- Focus on excellent, rather than poor performers,
- Includes a convenient feed-back mechanism,
- Applies a sound theoretical approach, and
- Simplicity

<http://main.uab.edu/show.asp?durki=14527>

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Questions?

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ABC™ Users Manual:
<http://main.uab.edu/show.asp?durki=14527>