

III. CMS NATIONAL GOALS AND NETWORK ACTIVITIES

A. IMPROVE THE QUALITY AND SAFETY OF DIALYSIS RELATED SERVICES PROVIDED FOR INDIVIDUALS WITH ESRD

Quality Improvement Work Plan

The major functions and responsibilities of all ESRD Networks are focused on quality improvement initiatives. These initiatives help ESRD providers develop, maintain, and modify, as needed, their internal processes to improve patient safety and quality of care and achieve better patient outcomes. Network 1 utilizes a Quality Improvement Work Plan (QIWP) to accomplish these objectives.

This Work Plan addresses targeted clinical or patient experience areas selected by Centers for Medicare & Medicaid Services (CMS) and the Network Medical Review Board (MRB) that indicate opportunities for improvement or are of such critical importance that ongoing surveillance is required. The work plan at a minimum is updated twice a year after approval from the Network's CMS Project Officer. Revisions to specific sections are made during the year as tasks are accomplished or modifications to the plan become necessary. It is considered by the Network Board and staff an essential dynamic tool that provides a quality improvement road map for Network 1.

This QIWP is collaboratively developed by the Network of New England's Medical Review Board and Network professional staff to provide a structured method for the CMS contract year regarding the QI activities that are conducted to support specific national and New England goals. Four major QI strategies are included in the QIWP:

- Task 1a: Vascular Access: Fistula First National Initiative
- Task 1b: Clinical Performance Measures
- Task 1c: Network-Specific Improvement Projects
- Task 1d: Facility-Level Quality Assessment Activities

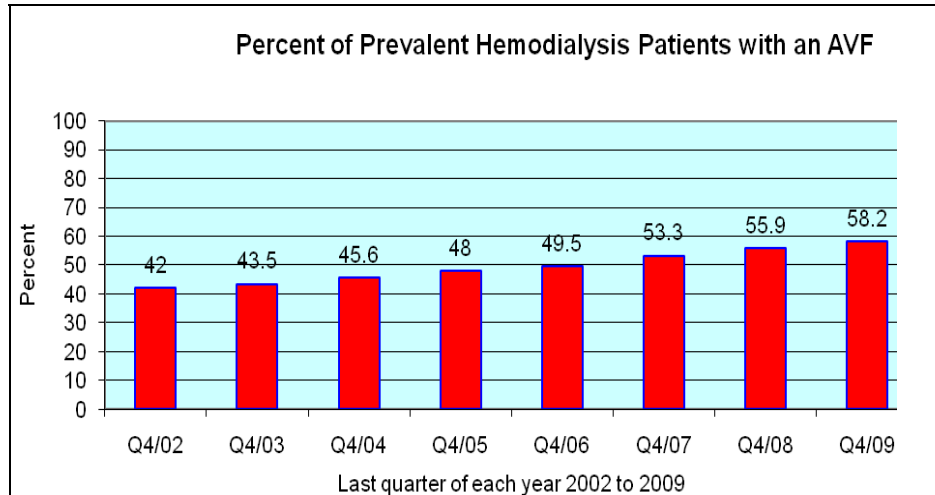
National Fistula First Vascular Access Improvement Initiative (Task 1a)

Background

In July 2003, CMS committed the Networks to a system-wide national improvement project on vascular access. Fistula First became a CMS/Fistula First Breakthrough Initiative (FFBI). A national coalition of renal community stakeholders, was established collaboratively to increase awareness of, and improvement in, the rate of use of AV fistulas in hemodialysis patients. As of December 2009, due to the efforts put forth by the hemodialysis providers, nephrologists, and vascular surgeons, the national AVF in use rate among prevalent hemodialysis patients has increased to 54.5%, which is a 22.1 percentage increase to 68.2%, improvement from the baseline rate in 2002 of 32.4%. Vascular access data is obtained from all providers on a monthly basis to allow for close assessment of

provider changes in vascular access management. The large dialysis organizations download data directly to CMS, and the independent or hospital dialysis providers send their data to the Network. The Network staff enters the data on a monthly basis. CMS had established a new goal in 2006 for the initiative, that is, to have a 66% AVF rate for prevalent hemodialysis patients nationally by 2009. The Network of New England by the end of 2009 had an AVF rate of 58.2%, improving 16.2 percentage points, or 38.6%, since the onset of the project (Figure 8).

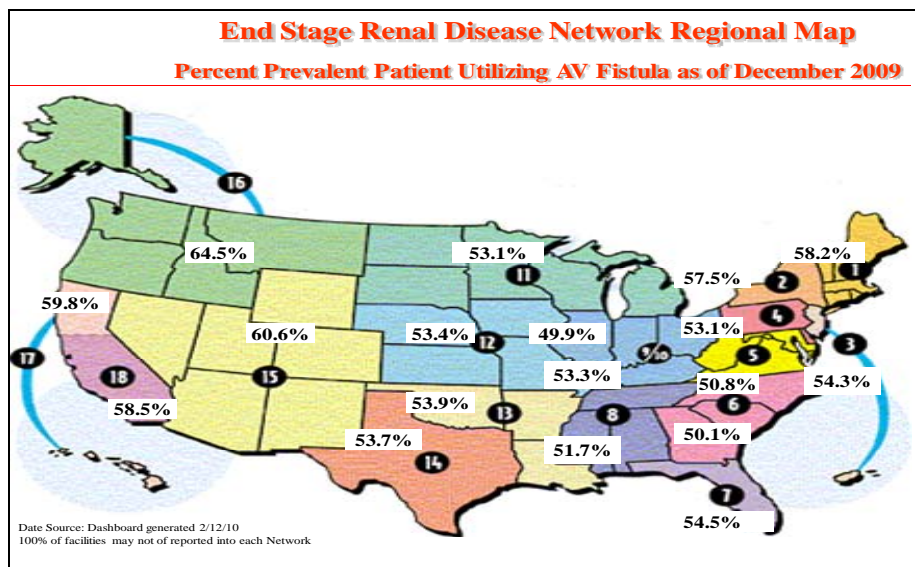
Figure 8



Source: Fistula First Dashboard

The Western states have the highest rates in the country, as shown in Figure 9. Best practices have been shared with the New England providers through mailings and referral to the national website: www.fistulafirst.org.

Figure 9



Fistula First Provider Reports-Tracking Vascular Access

Network staff provided feedback reports to all participating providers each quarter of 2009. Comparable vascular access data by state and nation was also distributed so that the providers could benchmark their AVF rates to those of other dialysis providers. New England's prevalent AV fistula rate improved slightly each month to reach 58.2% by December. The prevalent catheter rate has decreased to 25.7% from 31%. When the Medical Review Board evaluated catheter rates that are in use > 90 days the rate decreased to 11.7% from the end of 2008 to the end of 2009, a decrease of 1% in one year, suggesting that a permanent access had become fully functional in a greater number of patients.

Of 163 New England hemodialysis providers, 124 (76%) had an AVF rate equal or greater than 50% as of December 2009 (Table E). The majority of the 39 providers with less than a 50% AVF rate are improving. The providers with less than a 10% AVF rate are hospitals that initiate chronic hemodialysis and discharge the patient to their home clinic to utilize outpatient services to address permanent vascular access needs.

The MRB has and will continue to focus intervention with those providers with a < 50% AVF rate and have a high prevalent catheter rate. In order to reach the long term AVF Network goal, the MRB determined that in 2009 additional focused intervention was needed for all providers with AV fistula rates less than 66%.

The MRB and CMS acknowledge that quality improvement strategies need to be focused earlier in the CKD diagnosis. The Network will collaborate with the Quality Improvement Organizations (QIOs) in the six New England states to identify areas where practice change may be necessary in the hospital setting or primary care physician's office to foster timely vascular access placement.

Table E: Number of Facilities by AVF Rate

Rate of AVF Use among Prevalent Hemodialysis Patients	Number of Facilities
10% or less	2
30% to 39%	8
40%-49%	29
50%-59%	55
60%-69%	49
70% or higher	20
Total Providers Reporting	163

Source: Provider vascular data reports December 2009

**Table F: Percentage Point Change in AVF Rate by State,
January 2009 to December 2009**

STATE	Rate of AVF Use among Prevalent Hemodialysis Patients, January 2009	Rate of AVF Use among Prevalent Hemodialysis Patients, December 2009	Percentage Point Change
CT	53.5%	54.3%	+0.8
MA	54.9%	55.2%	+0.3
NH	65.6%	68.0%	+2.5
RI	57.8%	59.7%	+1.9
ME	58.9%	60.2	+1.3
VT	58.8%	54.2%	+3.4
Network	55.8%	58.2%	+2.4

Source: Monthly provider vascular access reports

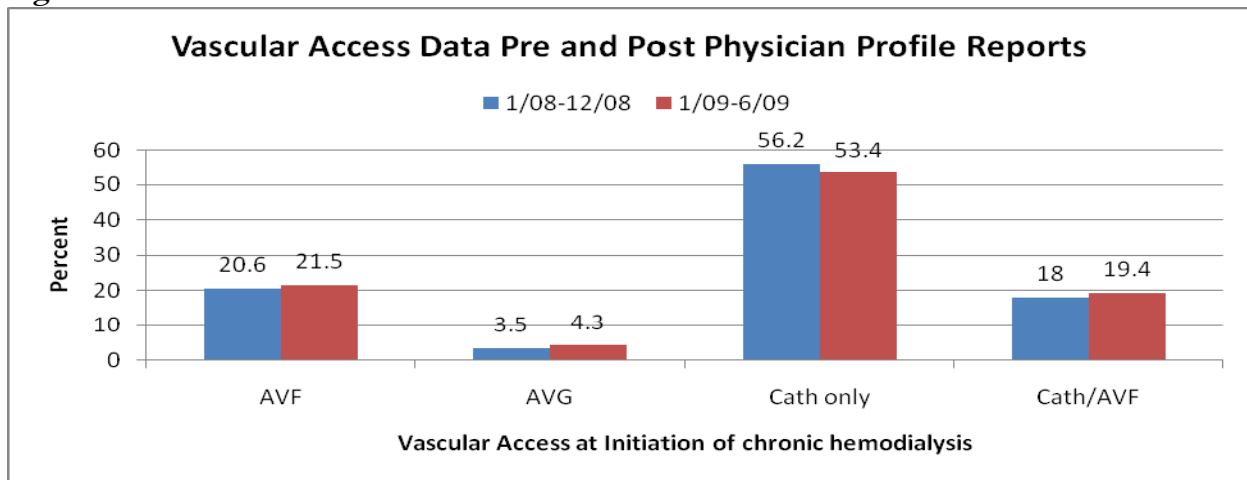
The greatest rate of improvement in AVF in use rates for prevalent dialysis patients was shown by the state of Vermont, while New Hampshire has the highest rate in the country (Table F). The Clinical Managers of dialysis units with <50% AV fistula rates received a letter of concern from the Medical Review Board requesting a plan of improvement. Each facility was assigned a goal to have >50% AVF rate among prevalent hemodialysis patients by March 2010. The submitted quality assessment performance improvement (QAPI) plans were evaluated and technical assistance provided by Network QI staff. The Network's Quality Managers arranged site visits to providers in CT and MA as these two states not only have the highest hemodialysis populations but also the lowest rates of improvement. Several of these providers have unique ESRD populations, serving patients that can only have an indwelling catheter due to co-morbidities, drug addiction or severe peripheral vascular or cardiac disease. The hospital providers often have a small patient population starting chronic hemodialysis with a catheter prior to transfer to their local hemodialysis clinic and out-patient vascular surgery. All providers with less than a 66% AVF rate received letters from the Network assigning specific goals to each clinic based on a quality reduction formula (66% - x% multiplied by 0.2). The percent point increase requested ranged from a low of 1% to a high of 4%. The New England providers' quality improvement efforts resulted in the Network reaching the March 2010 AVF goal of 58.2% in December 2009.

Physician Profile Reports

The Network staff met with the Medical Review Board (MRB) in Q1/09, Q2/09, and Q4/09 for ongoing development of provider interventions. Fistula First updates were delivered at each meeting, and the MRB responded with various new strategies, which the QI staff implemented. The MRB remains concerned about the high rate of catheter use in incident and prevalent patients. One strategy that was carried out was the development of a nephrology practice report card, utilizing data from the ESRD Disease Medical Evidence Report (Form 2728). The provider profile report showed the nephrologists by UPIN number and the number of incident patients he/she signed for in 2008, the length of time each patient was followed, and the vascular access placed at the initiation of chronic hemodialysis. In May 2009, the reports were mailed to 158 hemodialysis facility Medical

Directors; each received a report specific to the clinic with UPIN numbers of the referring nephrologists. Comparative data by state and Network was also included. The purpose of these reports was to stimulate practice changes toward earlier referral for vascular access creation in incident CKD patients in the hope that the use of catheters would be reduced and use of AV fistulas would increase. A second report was mailed in September with data for the first 6 months of 2009. Figure 10 illustrates a slight improvement in AV fistula placement and a slight decrease in catheter in the first 6 months of 2009 compared to 2008.

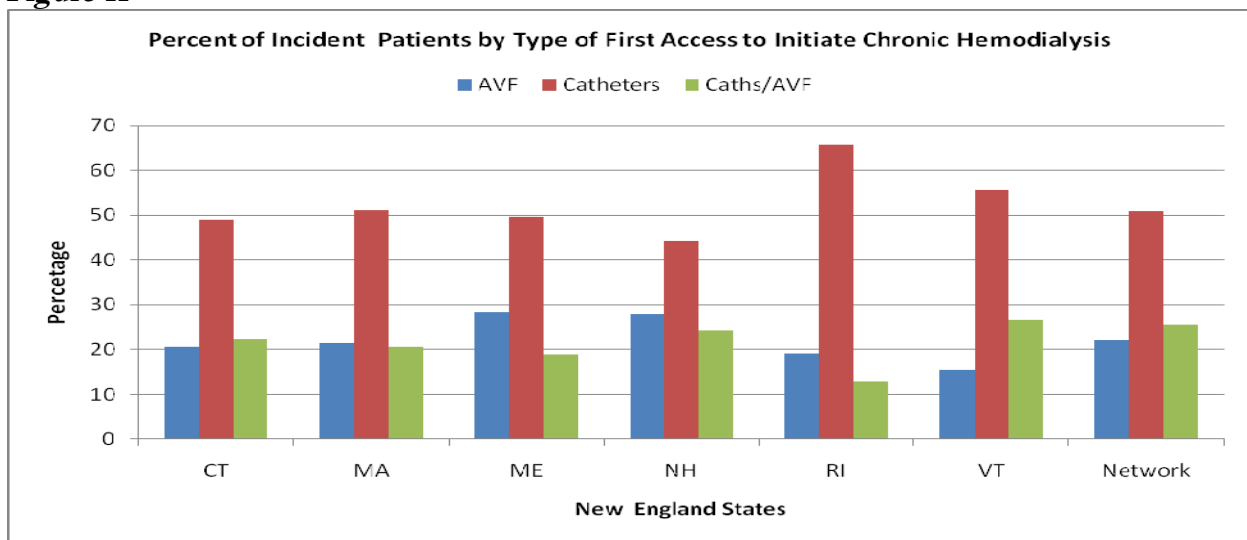
Figure 10



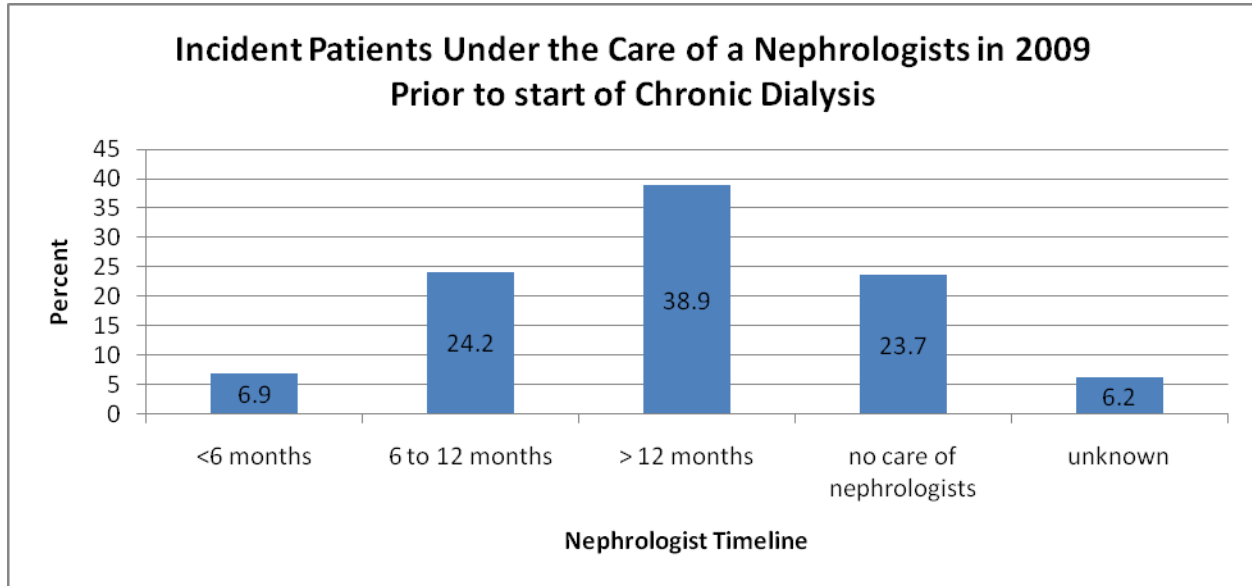
Source: CMS Form 2728

The KDOQI guidelines has a goal of 50% AVF used in incident patients and a 10% catheter rate. There continue to be opportunities for improvement in this area. In 2009, 63% of incident ESRD patients were under the care of a nephrologist for six month or more; however, only 22% started chronic hemodialysis with an AVF (Figure 11). The nephrologists who follow CKD patients prior to the initiation of chronic hemodialysis will need to take a leadership role to drive a system of change for earlier referral for vascular access (Figure 12).

Figure 11



Source: 2728 CMS Form 2728

Figure 12

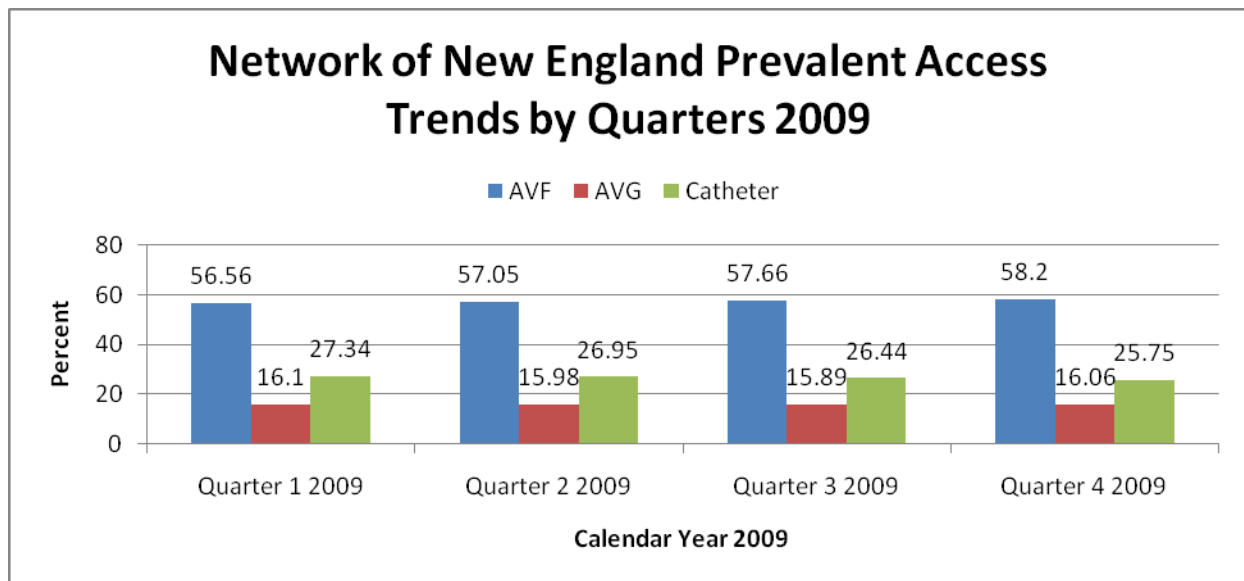
Source: Network of New England 2728 Medical Evidence Reports; 2009

The MRB decided that it was the CKD stage 3-4 population and their caregivers who were not receiving the Fistula First message. The Network communicated with the New England QIOs to request their support in the Fistula First Initiative. The collaboration with the QIOs should help in improving the education of both hospitals and physician office practices on the goal of reducing catheter use and increasing vein mapping for AVF evaluation in the CKD patient.

Network 1 has provided to each of New England's QIOs state and national vascular access data, educational tools, and written Fistula First articles for their websites or newsletters. The tools and articles stressed avoidance of catheters for the initiation of chronic hemodialysis and encouraged vein preservation and early referral for vascular access. The Network partnered with Quality Partners of Rhode Island in its CKD special project in 2009 to improve the care of the chronic renal patient in R.I.

Prevalent Hemodialysis Population

Figure 13



Source: Monthly provider reports

As shown in Figure 13, the AVF rate in prevalent patients was up to 58.2% by the last quarter of 2009 and the catheter rate decreased to 25.7%. Since the rate for incident patients drives the rate for prevalent patients, a further decrease in the catheter rate in prevalent patients will not be seen until the catheter rate in incident patients can be reduced. The MRB continue awareness and educational endeavors carried out have concentrated on the current chronic population, dialysis facilities, nephrologists, and vascular surgeons. The emphasis has been on education regarding vein preservation and earlier referral to the nephrologist and vascular surgeon for AVF evaluation. The Medical Review Board recognizes that nearly 40% of all patients start dialysis emergently and often catheters cannot be avoided. However, AVF evaluation can be done in the hospital once the patient is stabilized. The other 60% of CKD patients who are being followed by a nephrologist will benefit from early referral for AVF evaluation so that maturation and or revision can take place prior to initiating dialysis.

Fistula First Breakthrough Initiative Activities:

Quarter 1: January, February and March 2009

- The Network's Fistula First Committee decided that a dialysis clinic reminder system for AVF evaluation dates would be useful. A quality assessment improvement plan (QAPI) was written to improve timeliness of intervention for non-maturing AVFs. A sticky note pad reminder form and an Excel tracking sheet were devised. A pilot study was done with 9 providers that included independents, corporate facilities, and rural, urban, large, and small clinics. The feedback obtained indicated that the QAPI would help improve timely evaluation for AVF maturation but

most clinics would prefer an electronic flag system over sticky notes placed in the patient's chart, as the notes could easily be lost.

- Vascular Access Passports and Vessel Preservation cards designed by this Network continue to be very popular as hundreds have been requested and mailed across the country.
- All hemodialysis clinic managers received provider specific vascular access data from January 2008 to January 2009. The cover letter indicated the Network had two months to obtain the 56.6% AVF goal by March 2009. Due to the high volume of providers in CT and MA that had less than a 50% AVF, their vascular access management was reviewed on site by the Network QI managers. Providers in ME, VT and RI were contacted by phone for focused interventions (Table G). QAPIs were requested to be submitted to the Network for review. The providers were offered strategies for improvement based on the 11 Fistula First Initiative Change Concepts and given tools to assist in tracking, QAPI templates and catheter planning charts.

Table G: The Variability of Prevalent AVF Rates by State for the First Quarter of 2009

AVF Percent Range	CT	MA	ME	NH	RI	VT	Total
<10%	0	1	0	0	1	0	2
10-29%	0	1	0	0	0	0	1
30-39%	5	2	1	0	0	0	8
40-49%	9	14	3	1	1	3	33
50-59%	14	33	7	1	4	2	61
60-69%	5	14	3	5	3	1	31
>70%	4	6	4	3	5	0	22
Total	37	71	18	10	15	7	158

Source: Monthly Provider Reports

- The Network collaborated with DaVita regional staff to coordinate strategies of improvement for the DaVita clinics that were struggling with vascular access management. A specific plan directed at improving communications with the surgeons was developed. The Network supported DaVita's "Cath Away" program to decrease catheter use with a specific timeline for sending patients for vessel mapping and referral to the surgeon for permanent access. DaVita stated that a transonic program for access stenosis monitoring was in development.
- The Network QI manager gave a presentation to a CT hospital based hemodialysis clinic on the button-hole technique of cannulation. A nurse educator with clinical expertise in the button-hole technique was available to answer questions regarding challenges encountered when establishing a button-hole program.

Quarter 2: April, May, and June 2009

- Network of New England QI staff participated in the FFBI training program on access surveillance as well as the CT/MA ANNA Spring meeting.

- ESRD Clinical Performance Measures Lab data reports were mailed to all participating dialysis providers. The feedback reports on vascular access by state and Network were included in this mailing.
- The Network's Executive Director and QI manager attended the Quality Partners of R.I planning meeting for CKD coalition. The Network staff volunteered to serve on committees for patient education and policy system change.
- The Executive Director and QI managers attend the CT Hospital Association meeting to seek assistance with raising awareness of CKD and vascular access education in CT hospitals.
- An article was written for the Network Notes newsletter on catheter reduction as a patient education tool.
- A small pilot study was conducted with hospital based dialysis clinic to obtain feedback on discharge planning process of patients with catheter only or catheter and AV fistula. The cover letter emphasized the 7th change concept of the Fistula First Initiative; AVF evaluation/placement in catheter patients. One of the strategies is surgical evaluation, vessel mapping and placement of a permanent access during initial, acute hospitalization. The Medical Review Board recommended that hospitals consider vascular access management as part of discharge planning for CKD patients. Four questions were asked based on the Medical Evidence report submitted by the hospital dialysis clinics :
 1. If a patient was 60 years or older and was discharged with a catheter and an AV fistula, the questioned asked, "Has the AVF matured?"
 2. If the patient was <60 years of age and had a catheter only, the question asked, "Did you schedule an appointment for AVF evaluation?"
 3. If the patient >60 and was discharged with a catheter only the question was, "Did you consider an AVF for this patient?"
 4. If the patient was less than 60 years of age and was discharged with a catheter and AVF, the question was, "Did you schedule the catheter removal"?

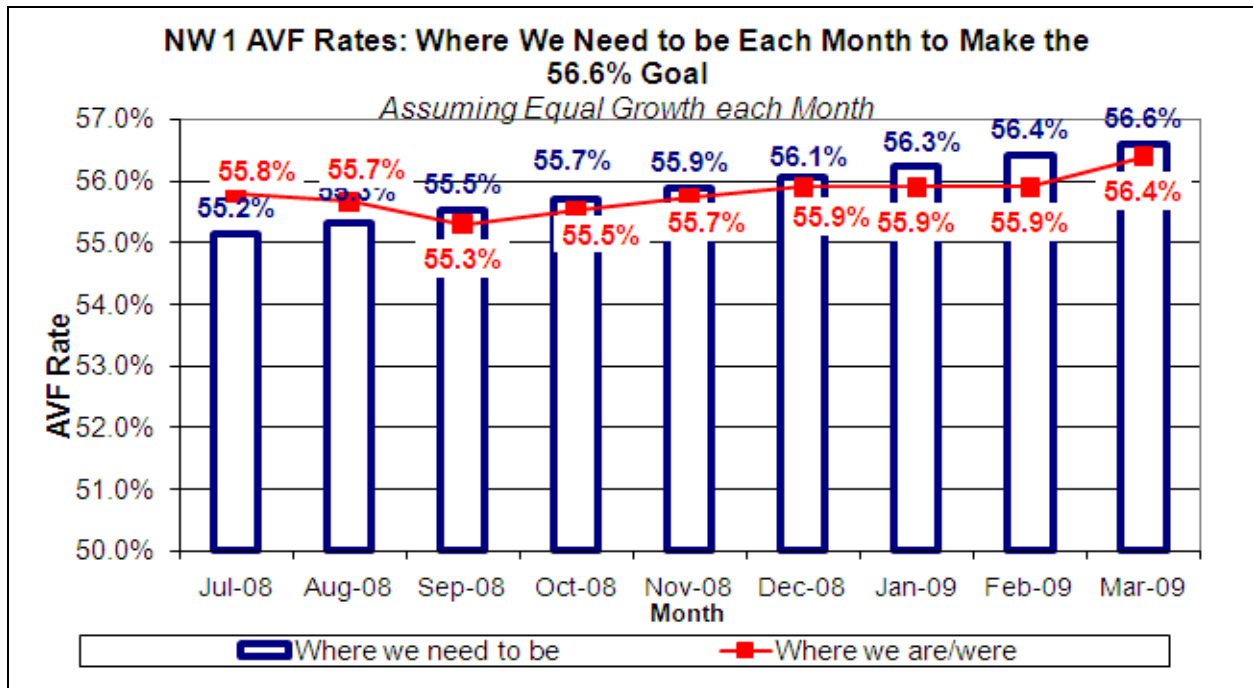
All nine hospital dialysis clinics responded to the questions regarding vascular planning for the incident patients. One hospital indicated that patient education on vascular access choices will become part of their discharge planning.

- In June, the Network worked on preparing WebEx educational programs for hemodialysis staff on assessment and cannulation of the vascular access as well as the button-hole technique for the AVF. Two nurse specialists in vascular access management volunteered to be the presenters. Flyers were mailed out to save the date and to register for the July WebEx programs.
- A notification of a web based learning event on CKD vascular access for surgeons was emailed to all vascular surgeons in the Network's data base.

- During the prior quarter, it became apparent that the Network would not meet the 56.6% AVF goal for March 2009 when the May 12, 2009 Dashboard was published. The Network strategies had not resulted in the changes necessary for significant AVF improvement.

The chart below depicts a lack of sufficient progress from October through March. The goal was missed by 0.2% (Figure 14).

Figure 14



Source: *Fistula First Dashboard*

- In May, CMS instructed the 14 Networks that did not reach their AVF goal to conduct a root cause analysis and submit it to CMS for review. The root cause analysis was done with input from the Medical Review Board and submitted on June 2, 2009.

Quarter 3 July, August and September 2009

- In July the Network produced two Web Ex presentations: “Vascular Access Assessment Skills” and “The Button-Hole Technique”. There were over 20 sites in attendance at each session and the evaluations were positive for an effective learning experience.
- The Network QI manager worked with other Network QI Directors to update the national Fistula First website.
- The Executive Director, Network QI Manager and chairman of the Medical Review Board (MRB) continue to participate with Quality Partners CKD collaborative.

- The QI managers made site visits to all dialysis providers in CT and MA that had less than a 50% AVF rate. Meetings were held with the Medical Director, Clinic Manager and regional administrators. The clinic's vascular management process was reviewed and strategies for improvement were suggested. Each provider had to submit a QAPI well as completing a catheter tracking and planning tool. The QI managers maintained monthly phone contact to review progress and offer suggestions to these providers.
- The Network met with Fresenius Medical Care regional leadership to discuss collaborative improvements for the reduction of catheters and increase in the AVF rates.
- Vascular access feedback reports were mailed to 163 dialysis clinic managers with a request to contact the Network if there were any data discrepancies.
- Network staff participated in the Quality Improvement Directors Meeting in Baltimore to discuss Fistula First progress, share successful strategies and reevaluate root cause analysis process for failing to make AVF goal.

Quarter 4 October, November and December 2009

By December 2009, 42% of 163 eligible hemodialysis providers in New England had a prevalent AVF rate of 60% or greater (Table H). The Network will continue to work closely with the 89 providers with less than a 60% AVF rate in 2010.

Table H

Percent of AVFs by State as of December 2009							
AVF Percent range	CT	MA	ME	NH	RI	VT	Total
10% or less	0	1	0	0	1	0	2
11-39%	1	5	1	0	0	1	8
40-49%	11	12	2	0	2	2	29
50-59%	12	30	6	1	3	3	55
60-69%	12	18	4	7	7	1	49
70% or >	2	6	5	3	3	1	20
Total	38	72	18	11	16	8	163

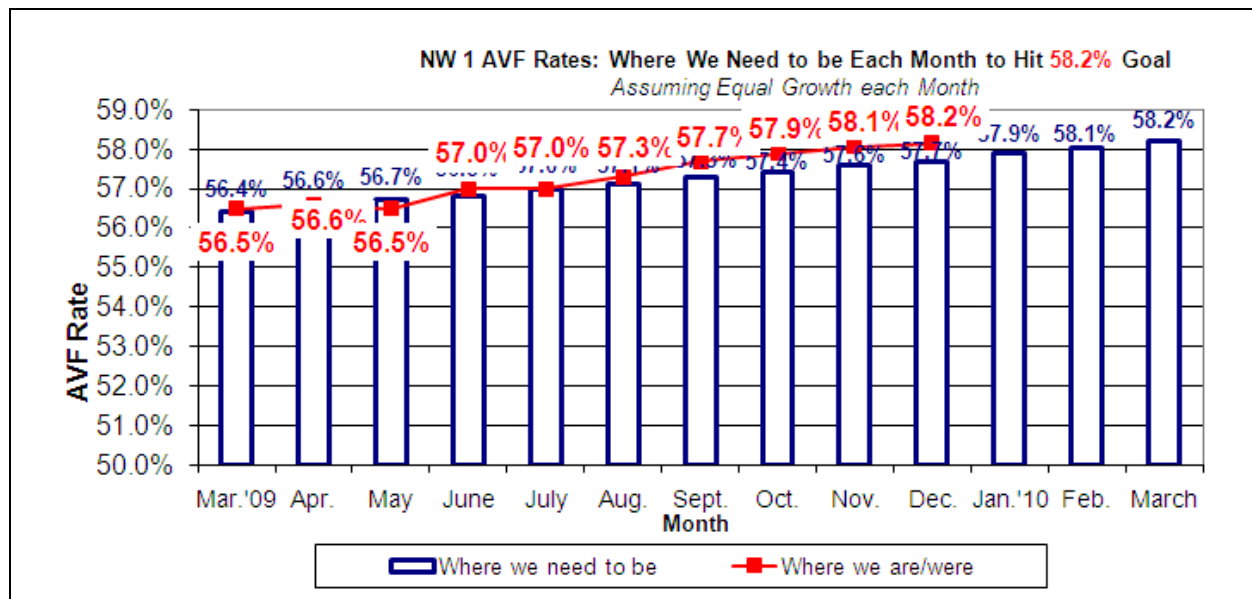
Source: Monthly Provider FF Data

- The Network of New England was one of 13 Networks that did not reach the assigned AVF goal for March 2009. These Networks were instructed by CMS to develop a Performance Improvement Plan (PIP) to describe what new strategies were to be employed in order to obtain the AVF goal for March 2010. The Network physician leadership assisted the QI managers in devising a root cause analysis addressing why the Network did not reach the goal. The main reason was that the Network did not change strategies when the AVF rate reached a plateau. In order for the Network to reach the 58.2% goal it was apparent all providers under a 66% AVF rate had to improve. All activities outlined would be directed at all providers with less than 66%.

- The Networks 21st Annual Meeting was held in Sturbridge, MA, in Oct., with over 600 attendees. Several presentations on vascular access as well as awards given to those providers with a 66% or greater prevalent AV fistula rate for the entire year (June 2008 to June 2009).
- Site visits continued to be conducted with providers having less than 50% AVF and phone contact was made with all providers <66% AVF to give technical assistance for increasing the AVF rate and decreasing catheters. QAPI templates and a catheter planning tool were shared with the clinics.
- Feedback reports were mailed to all 163 eligible providers. Medical Directors, clinical manager and regional administrators were made aware that the Network had the authority to report Medicare certified dialysis providers to CMS that were not meeting quality care indicators. The cover letter gave every provider a specific percent increase to be reached by March 2010 as well as a reminder that the Conditions of Coverage specifies that the clinics governing body and CEO were to act upon the recommendations from the ESRD Network.
- All providers were asked to notify the Network if there were any discrepancies in the vascular data reports.
- The Network QI staff made corrections in the vascular data when providers documented data showing that the dashboard was incorrect.
- A presentation on CKD care and vascular access at the CT Hospital Association meeting for discharge planners was provided by the Network QI manager.
- A survey of the high performing providers was conducted requesting best practices for vascular access management that leads to a high prevalent AV fistula rate. The best practices were placed on a poster and mailed to all providers.

The following figure (Figure 15) indicates that the ESRD Network of New England was able to achieve the March 2010 prevalent AVF goal of 58.2% in December 2009 due to all the hard work of the facilities hemodialysis, nephrologists and vascular surgeons.

Figure 15



Source: Fistula First Dashboard

Clinical Performance Measures (Task 1b)

▪ National CMS Clinical Performance Measures Project

The ESRD Clinical Performance Measures (CPM) Project, a national effort conducted by CMS and the 18 ESRD Networks was designed to give dialysis providers, the renal community and public policy agencies a report of clinical measures for determining Network level comparative quality performance data. This CPM project has changed to a 100% national provider sample known as the Annual laboratory Data Collection.

CMS has contracted with Network 11 to coordinate the project by working with independent dialysis facilities and the large dialysis organizations (LDOs) to collect laboratory data on 100% of dialysis patients. The LDOs submit data electronically to Network 11 and the independent dialysis facilities submit data to their individual Networks. Network 11 merges all the data and returns comparative analysis data files to each Network. The data collected was for the 4th quarter of 2009. Network 1 has been involved in this voluntary project since 1999.

Upon completion of the merged data, Network 11 produces the following reports:

- Facility Characteristics
- HD Quality Indicators (tabular and graphic)
- PD Quality Indicators (tabular and graphic)
- HD Percentile Ranking
- PD Percentile Ranking
- HD Means and Median Report
- PD Means and Median Report

When the data files are received from Network 11, a unique provider specific report is prepared and distributed to all freestanding and hospital based providers in New England to allow each provider to see their performance compared to Network 1.

The Medical Review Board (MRB) annually evaluates this comparative data to benchmark the clinical performance indicators of New England as compared to national and other Network's results (Table I). The Medical Review Board selected one clinical measure (anemia management) for CPM quality improvement activity. The year to year variation and comparison to national and other Networks informs the MRB on where to focus QI efforts and adjust Network target clinical goals.

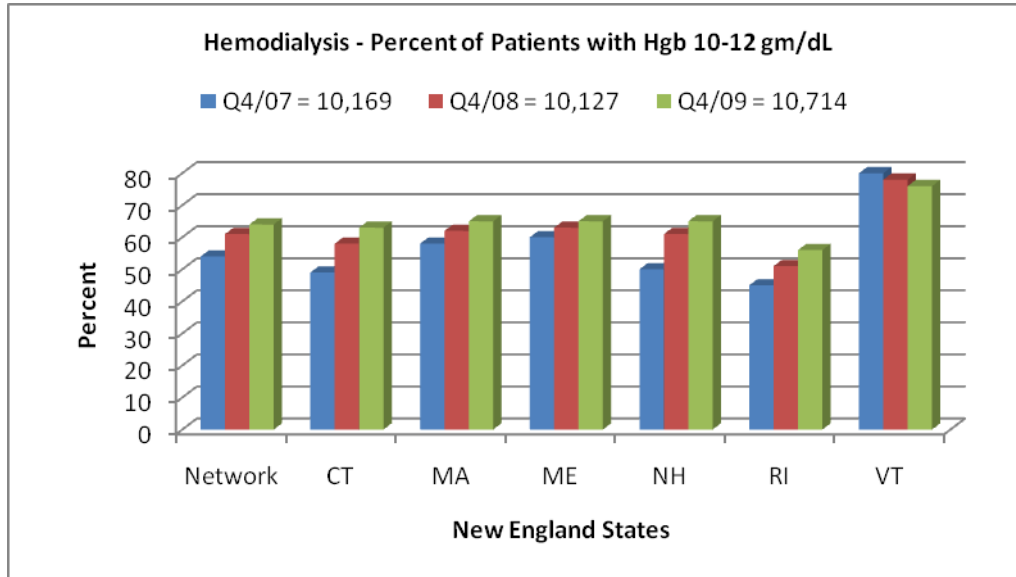
**Table I: Comparative Trend Data by Clinical Indicator
Hemodialysis Patients**

INDICATOR	Target		Network Lab Data 2005+ 9,278 Patients	Network Lab Data 2006+ 9,333 Patients	Network Lab Data 2007+ 9,440 Patients	Network Lab Data 2008+ 10,127 Patients	Network Lab Data 2009+ 10,714 Patients
	CMS	Network					
Mean URR % \geq 65	80%	90%	89%	91%	91%	91%	93%
Mean KT/V \geq 1.2	84%	90%	93%	94%	95%	95%	96%
% Pts with mean Hgb < 10 g/dL	N/A	10%	-	4%	5%	5%	6%
% Pts with mean Hgb 10-12 g/dL	N/A	80%	-	47%	54%	61%	64%
% Pts with mean Hgb 10-10.9 gm/dL	N/A	N/A	N/A	N/A	N/A	N/A	47%
% Pts with mean Hgb between 11-12 gm/dL	N/A	N/A	-	-	-	-	64%
% Pts with mean Hgb between 12.1 – 12.9 gm/dL	N/A	N/A		N/A	N/A	N/A	26%
% Pts with mean Hgb \geq 13 gm/dL	N/A	10%	-	15%	10%	6%	5%
Mean T _{sat} % \geq 20%	80%	80%	76%	79%	80%	84%	84%
Mean Serum Ferritin % > 200-800 ng	N/A	N/A	-	-	-	-	63%
Mean Serum Ferritin > 800	N/A	N/A	-	-	-	-	25%
Prevalent Pts with Serum Albumin \geq 4.0/3.7 gm/dL BCG/BCP (Nutrition)*	35%	32%	30%†	31%	35%	34%	34%
Prevalent Pts with Serum Albumin \geq 3.5/3.2 gm/dL BCG/BCP (Nutrition)	80%	80%	80%	80%	83%	81%	81%
Phos 3.5-5.5 mg/dL	N/A	N/A	-	-	55%	54%	54%
Ca 8.4-10.2 mg/dL	N/A	N/A	-	-	81%	79%	80%

Anemia

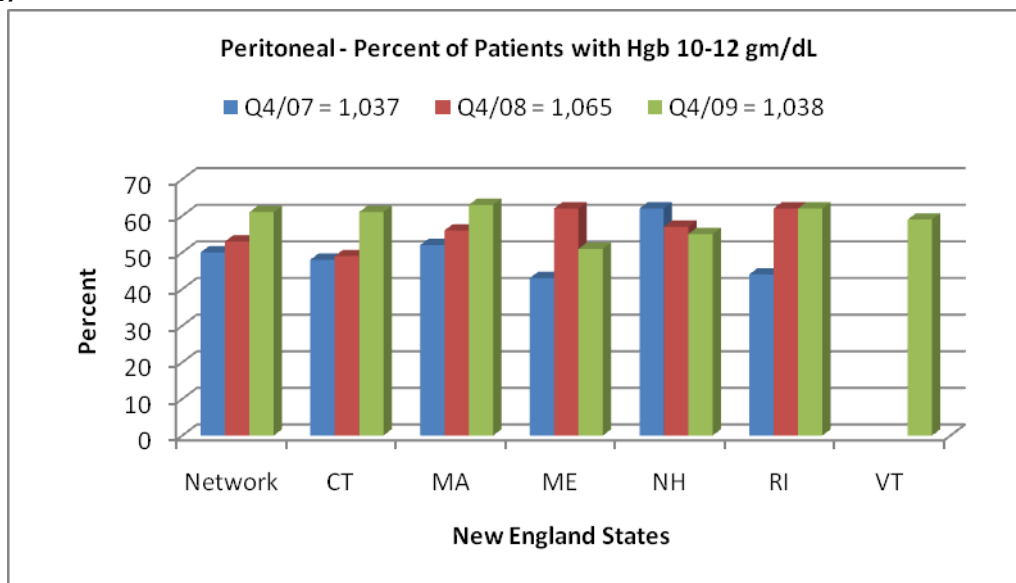
Anemia develops for all patients with chronic kidney disease (CKD) and is a risk factor for clinical complications and quality of life. The Medical Review Board has been evaluating trends focusing on Hgb levels between 10-12 gm/dL. This Network’s hemodialysis Hgb levels increased to 64% between 10-12 gm/dL, an increase of 4% since the prior data collection in 2008 (Figure 16). (NOTE: The recent FDA black box warning on risks associated with Erythropoiesis Stimulating Agents (ESAs) are having an impact on anemia treatment protocols that are causing lower Hgb levels).

Figure 16



Source: ELab Data Collection – Data Used from 4th Quarter of Previous Year.

Figure 17



Source: ELab Data Collection

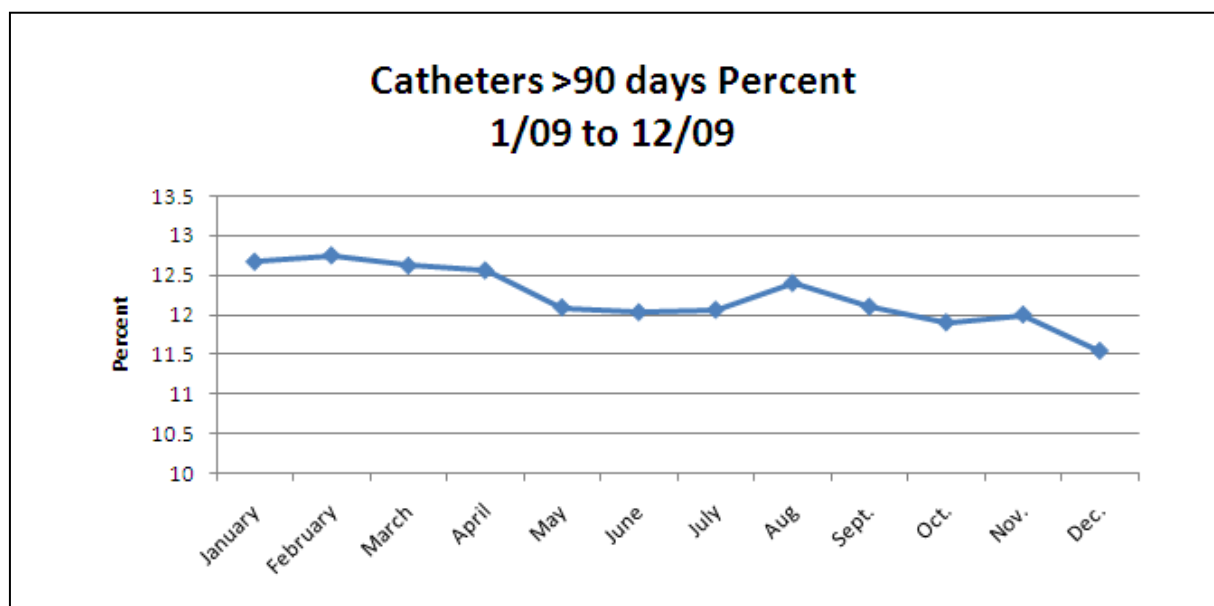
Provider specific trend data from this voluntary lab data collection were used to generate feedback reports. The main QI intervention focus was providers with Hgb levels < 10 gm/dL in 10% or greater of their dialysis patients. The interventions were based on scripted phone interviews with facility nurse manager, conducted by Network QI staff. There were 10 providers that met the project collection criteria. Quarterly, the individual providers were contacted by phone and asked to send copies of their Hgb QI reports.

Network Specific Improvement Projects (Task 1c)

▪ *Catheter Reduction in Hemodialysis Patients*

Use of catheters for long term vascular access should be discouraged due to the increased morbidity associated with infections, susceptibility to thrombus and inconsistent circulation of blood due to possible spasm in bloodline. A catheter placed in a hemodialysis patient greater than 90 days is considered long-term and should be evaluated by the medical team to develop a plan to remove the catheter. The increased complications of catheters create a greater medical or surgical interventions and hospitalization thus reducing the quality of life for those patients and risk increasing higher mortality rates. Long-term catheters should be reserved as the last choice for vascular access except in a specific subset of patients such as pediatric patients soon to be transplanted and those patients with severe co-morbidities such as congested heart failure (CHF), severe peripheral vascular disease (PVD), the very elderly, patients with inadequate vascular anatomy, or patients with limited life expectancy. Catheter placement should be used in conjunction with a plan for a different permanent access. The Medical Review Board of the Network of New England has determined that the prevalent long term catheter rate needs to be reduced.

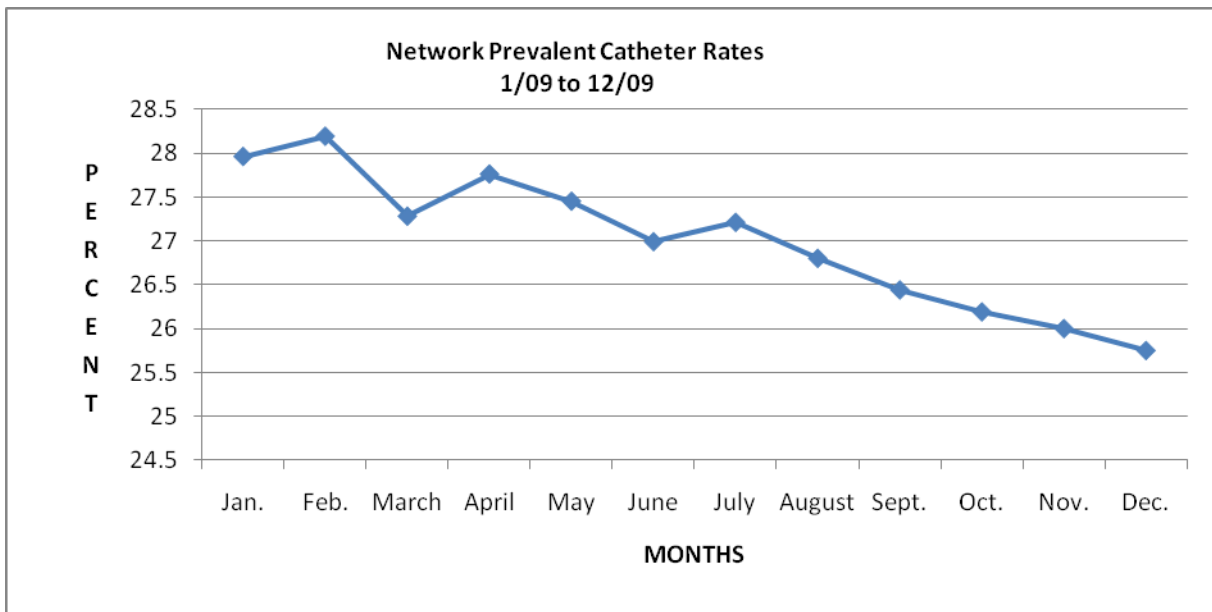
Figure 18



Source: Provider Reports based on Dashboard Data

The 90 day catheter rate has declined 1 % to 11.5% (Figure18) and the prevalent catheter rate decreased 2.2% over the course of this year. The Medical Review Board is encouraged by this downward trend. However, catheter utilization remains unacceptable with 25% of prevalent hemodialysis patients with catheters given the morbidity and mortality associated with their use (Figure 19).

Figure 19



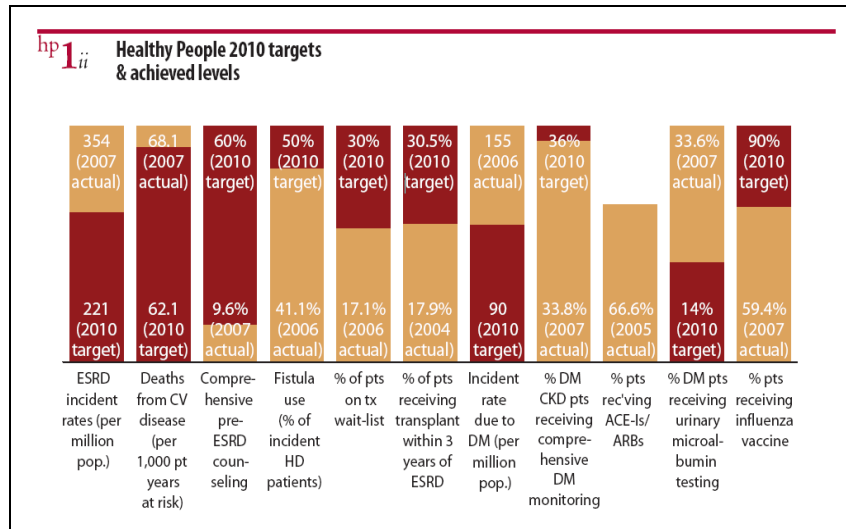
Source: Fistula First Dashboard

The data reported on the Medical Evidence Form has been used to generate a physician practice performance report. The Medical Evidence Form provides information on how long a patient has been in the care of a Nephrologist prior to first chronic dialysis treatment, and the type of access used at initiation. Physician Profile Reports were mailed to each practice group with an evaluation tool. The intent of the report was to stimulate the nephrologists' to review practice patterns and to develop strategies to increase the incident AVF rate and reduce the catheter only rate. The catheter trend indicates the nephrologists are working on decreasing catheters, however if more CKD stage 4 patients were referred for vessel mapping and vascular access place both the incident and prevalent catheter rates would be much lower. Seventy percent (70%) of new ESRD patients in New England have been followed by nephrologists' for 6 months prior to ESRD and of these 39% were followed for longer than a year. It is challenging for physicians to ascertain exactly when a patient will cross the line to End Stage Renal Failure but consideration should be given to vascular access evaluation when the GFR <30 (CKD stage 4) and patient chooses hemodialysis for treatment.

▪ **Immunization Project**

The most recent Influenza vaccination data available on ESRD patients receiving the vaccine is from the 2009 United States Renal Data System (USRDS) report which contains 2007 vaccination data. The national vaccine rate based on Medicare claims data was 59.4%. The Health People 2010 goal for ESRD immunization vaccination is 90% (Figure 20).

Figure 20



Influenza is responsible for approximately 39,000 deaths per year in the US according to the Centers for Disease Control (CDC). Dialysis patients have compromised immune systems and multiple comorbid conditions that place them at a high risk of medical complication from influenza. Thus, this low vaccine rate for dialysis patients is an opportunity for improvement. A project to determine the current vaccine rate in Network 1 was designed to obtain the vaccine rate for 2008 and compare it to 2009 by obtaining aggregate provider level data from the three large dialysis organizations (LDOs) in the region (Fresenius Medical Care, DaVita and Dialysis Clinics Inc.) because it was known that these three organizations collect patient vaccination data across the country. Therefore, no additional reporting burden would be placed on the provider staff to compile this information to submit to the Network. Educational materials, eblast reminders and CDC notifications were sent during the late summer and early fall by the Network to all dialysis providers about the importance of vaccination. The pandemic alert about H1N1 during 2009 raised new clinical concerns and the Network modified its educational and technical assistance efforts to help dialysis facilities obtain H1N1 vaccine.

The result of this project is that of the 8,352 dialysis patients offered the vaccine; 6,233 patients (adjusted for patients with allergies), 75% received the influenza vaccine in 2009.

Lessons Learned:

- One LDO only records the immunization vaccine administered by the dialysis staff. They agreed that their data system should be modified to collect external immunization data as reported by the patient.
- Analysis of another LDO’s immunization data suggests that the data is used for billing purposes. Therefore, the vaccine rate data may be under-reported.
- Provider staff may not be motivated to enter all vaccine related information in the corporate database.
- LDO profile results are likely to be representative of the Network as a whole. Since flu infection is a preventable measure, this QI topic should be repeated again next year with better advance planning to inform and educate providers of the need to give the vaccine and document vaccine

results. Next year the plan is to include independent providers (freestanding and hospital) in project.

- More work is needed with regional LDO management to understand reporting business rules for vaccine data.

Facility Level Quality Assessment (Task 1d)

▪ *5 Diamond Safety Project*

In 2007, Network 5 and Network 1 began the development of the web-based 5 Diamond Patient Safety Program to be used by dialysis providers as a template for in-service training for dialysis staff and patients (see www.networkofnewengland.org/5Diamond.htm). This voluntary program was launched in April 2008 at the 2nd Annual Dialysis Technician Educational conference hosted by Network 1. The purpose of this project is to provide dialysis providers with developed staff educational modules on different safety topics. Providers register to participate in the program and can select from 8 safety modules, which include the tools and training resources necessary for implementation of each patient safety concept. Facilities may complete as many or as few components as they wish, with only one component, Patient Safety Principles, being mandatory. As each module is completed, the provider submits a reporting form to the Network, which acknowledges finished activities. Levels of provider recognition have been established as providers move from 1 diamond status to 5 diamonds. This voluntary program is an excellent complementary tool for identifying internal quality improvement opportunities. The eight modules are:

- Patient Safety Principles (mandatory module)
- Hand Hygiene/Infection Control
- Influenza Vaccination
- Slips, Trips and Falls
- Emergency Preparedness
- Sharps Safety
- Decreasing Dialysis Patient Provider Conflict
- Medication Reconciliation

The goal of this safety initiative is to help dialysis facilities spread patient safety principles among both staff and patients.

- To build a patient safety culture in every dialysis unit
- To promote patient safety values
- To create an awareness of patient safety issues
- To help dialysis units learn more about specific areas of patient safety

This project has been endorsed by ANNA and the RPA. As of December 2009, there were 58 providers (35.6%) registered in this program of which 21 providers successfully completed at least 5 modules and were awarded achievement plaques (Table J and K).

Table J: 2009 Enrollment Trend Data

	# of NW1 Registered Facilities (% of Overall NW1 Providers)
January 2009	26 (15.9%)
February 2009	28 (17.6%)
March 2009	28 (17.6%)
April 2009	32 (20.4%)
May 2009	33 (21%)
June 2009	38 (24.2%)
July 2009	43 (27.4%)
August 2009	52 (33.1%)
September 2009	56 (34.8%)
October 2009	56 (34.8%)
November 2009	58 (36%)
December 2009	58 (35.6%)

Table K: 2009 Number of Facilities Awarded Diamond Status

	% of Diamond Status of Enrolled Providers	# of Diamonds Achieved *						
		1	2	3	4	5	6	7
January 2009	50%	-	1	2	3	7	-	-
February 2009	50%	-	-	1	4	9	-	-
March 2009	57.1%	-	1	1	1	13	-	-
April 2009	58.1%	1	1	1	1	14	-	-
May 2009	60.6%	3	1	1	1	14	-	-
June 2009	52.6%	2	1	1	1	15	-	-
July 2009	48.8%	1	3	-	1	16	-	-
August 2009	42.3%	1	3	-	1	17	-	-
September 2009	41.1%	2	1	-	-	19	-	1
October 2009	44.6%	2	1	2	-	18	1	1
November 2009	48.3%	3	3	1	1	17	1	2
December 2009	53.5%	5	4	1	0	18	1	2

* 5-Diamond status achieved between March 1, 2008 and March 1, 2009 is good through March 1, 2010.
5-Diamond facilities may renew diamond status for an additional year by completing two (2) additional modules.

All facilities that complete modules receive a letter of recognition and are listed on the Network of New England website. Facilities that complete the program, and achieve 5 diamond status, receive a letter from the Chairperson and a plaque, as well as being recognized in the *Network Notes* newsletter. These facilities will also be acknowledged at the Network Annual Educational Meeting and receive 2 complimentary passes to attend.

▪ ***Standardized Mortality Ratio (SMR)***

Each year, the University of Michigan Kidney Epidemiology and Cost Center (UM-KECC) under contract from CMS develops and distributes through ESRD Networks a facility quarterly report. This extensive report provides trend (4 years) facility information compared to the local state, Network and national experience on several clinical measures. Several sources of information are used for this analysis such as Medicare claims, hospitalization events, and CMS ESRD specific forms.

Three of the clinical performance measurements for each provider from this report are posted on the Dialysis Facility Compare website (www.cms.gov/DialysisFacilityCompare).

The measures are:

- Percent of patients receiving adequate dialysis as measured by using single pool uremia reduction ratio (URR)
- Percent of patients receiving acceptable anemia management as measured by acceptable hemoglobin ranges and treated with ESA
- Patient survival as measured by a statistical formula to compare to expected survival based of patient characteristics and co-morbid conditions.

Data files on individual provider performance developed by the University of Michigan Kidney Epidemiology and Cost Center (KECC) are provided annually to the Network. The Medical Review Board uses the patient survival 4-year trend data as a quality of care outcome measure. The analysis is expressed as a standardized mortality ratio (SMR). Providers with excessively high SMR's require quality assurance review. The SMR calculates the expected mortality rate compared to the actual mortality rate resulting in a ratio where 1.0 is the standard. Any ratio above 1.0 is a higher mortality rate than expected. Below 1.0 is lower (better) than expected. The patient census is adjusted for specific patient case mix variables associated with survival outcome. The provider listed in the Dialysis Facility Compare website as having an adjusted survival rate of "worse than expected" that is statistically significant is investigated by the Network staff for underlying causes. In July 2008 to June 2009 cycle, 6 providers with "worse than expected" SMR were identified. This represents less than .04% of dialysis providers in New England.

Action Taken:

- Onsite visits were conducted with some providers
- All providers had structured interviews with requests for more recent mortality data outcomes submitted to the Network
- Instructional sessions on assessment of underlying causes were conducted. Two reoccurring patterns were discovered:

1. The Form 2728 was not always completed for reporting co-morbid conditions which is used for adjustment of risk factors contributing to survival calculation.
2. As patient continues on dialysis for several years, they develop more co-morbid conditions which are not reported into any national database. Increased co-morbid conditions contribute to higher risk of dying. More research needs to be done to understand the degree to which these factors impact the SMR methodology.

OTHER QUALITY IMPROVEMENT ACTIVITIES IN 2009

Collaborations

The Network participated in the CKD strategic coalition kick off meeting in Providence, R.I with Quality Partners of Rhode Island. The purpose of the CKD coalition is to increase AV fistulas in CKD patients in ESRD stage 4 and to increase the use of ACE & ARB agents to slow the disease in the diabetic patient with hypertension and to improve timely testing for microalbuminuria to detect kidney disease due to diabetes.

The Network, under the direction of the Medical Review Board shared aggregate vascular access data with Quality Partners of Rhode Island. The data helped the QIO to have a baseline for their state's CKD population vascular access. Articles regarding the Fistula First Initiative directed at the primary care physician were also supplied. These steps were to lay the ground work for the special project for improvements in the CKD care under their CMS 9th Scope of Work. The Network staff and the chairman of the Medical Review Board are actively engaged with Quality Partners of R.I. serving on committees for provider education and the systems change task force to develop activities to foster improvement in CKD healthcare. The Network QI manager hosted a CKD educational table display at the Quality Improvement Fair held in Cranston, RI. This allowed the opportunity to share information and answer questions from RI hospital staff. A Network nephrologist was a featured speaker and other New England nephrologists served as panelists for an educational meeting on screening and treating CKD in patients with diabetes. The target audience was primary care physicians, endocrinologists and nephrologists. Monthly conference calls and periodic meetings were held throughout 2009 for strategic planning for this initiative.

The Connecticut Hospital Association requested the Network to speak on chronic kidney disease and the fistula first initiative. The target audience was hospital social workers and discharge planners. This presentation was done on November 18, 2009.

There was a one day meeting in September in Shrewsbury, MA titled "Collaboration Across the Continuum of Care to Reduce Pressure Ulcers in New England: Tools and Resources". The Centers for Medicare and Medicaid Services (CMS) invited the Network of New England to attend. The clinical practices and data issues presented assisted the Network to understand the potential problems that dialysis patients in skilled nursing facilities may encounter. The Network started collaborating with Qualidigm, the CT QIO to facilitate improved communications between dialysis providers and skilled nursing facilities regarding the care and reduction of decubitus ulcers. The Network gave a presentation at the Qualidigm pressure ulcer workshop on the challenges and limitations the dialysis clinic has with positioning patients during treatment.

The Network QI manger served on the Forum Medical Advisory Committee to help develop quality improvement guidelines for medication reconciliation in the dialysis clinic.

Infection Control Issues

Clinical inquiries from dialysis providers often focused on infection control issues in 2009. The most common issues addressed by the Network QI staff were:

- Calculation of infection rates
- Caring for patients with C-difficile, MRSA, VRE or TB
- CDC guidelines on Hepatitis B, C and A
- OSHA regulations concerning staff protection
- Changing patients surgical dressings in the dialysis unit
- Influenza and pneumococcal vaccinations
- Regulations concerning the patient isolation room

Clinical Technical Assistance

Network 1 is fortunate to have very knowledgeable multidisciplinary members of the Network Board of Directors and Medical Review Board. Those members have volunteered to assist the Network staff with clinical questions and other issues that might be beyond the scope of the resources in the Network office.

While Network 1 can provide educational resources, staff always advise patients to check with their own physicians for comprehensive and specific answers to their questions. Many website resources are from professional and well-recognized reliable sources. Utilizing the team approach, Network 1 has a Patient Services Manager and two Medical Quality Managers (RNs) along with the Network staff, handled a number of clinical inquiries during 2009. These included:

- Acute dialysis issues that impact chronic dialysis patients
- Adequacy of dialysis
- Advance Practice Nurses/Physicians' Assistants in nephrology settings
- Articles on a variety of subjects (vascular access, infection control, cost containment, quality improvement, miscellaneous clinical issues, etc.)
- Behavior problems (management of patients/educational guidelines for staff
- CQI resources (articles, educational programs, tool sheets)
- Dialysis of patients in rehabilitation centers or skilled nursing facilities
- Educational websites for staff and patients
- JACHO survey procedures
- Intermediary issues – referred to Intermediary Specialist, at CMS/Boston
- LPN practice
- OSHA regulations
- Pediatric issues
- Safety/security issues in dialysis facilities
- Staffing opportunities
- Water treatment management

Acute Dialysis Programs

While acute dialysis facilities are not in the scope of work for Network 1, Network 1 receives requests for assistance from acute care staff seeking educational information. Network 1 provides as much information as possible, since the staff caring for acute dialysis patients has a large impact on ESRD care. Network 1 also sends meeting brochures to acute dialysis staff for the Network 1 educational programs. In addition, Network staff communicates with the specific health departments when there are any dialysis water treatment issues that would affect acute dialysis facilities.

Assisting Facilities with Continuous Quality Improvement Activities

There has been an increase in requests for technical assistance with quality improvement management techniques, particularly for new dialysis Nurse Managers. The Network staff assisted providers with in depth QI information, which includes sample run charts, tracking/trending sheets, and tools from other QI sources. Network 1 continues to incorporate the concept of Quality Improvement in each Annual Network Meeting.

Achieving Network 1 Goals in Quality of Care and Safety

The outcome and process measurements reported in the national clinical indicator projects and the Lab Data project demonstrates an increased number of patients in New England achieving acceptable K-DOQI benchmarks. In the past 3 years this Network has exceeded the CMS target of patients having a URR > 65% $KT/V \geq 1.2$ and Hgb > 11. Collective educational efforts by physicians, administrators, and dialysis patient care teams, and the collaborative role of Network 1 has contributed to improvement in these CMS indicator targets. This Network has made improvements in anemia and ≥ 90 day catheter reduction. Network 1 successfully completed, and CMS approved the Annual QI Work Plan. As of December 2009, the Network has achieved the AVF goal of 58.2% set for March 2010. The Network is excited about the positive response from providers about the 5 Diamond Patient Safety Project.

The Medical Review Board has been increasingly aware of the benefits of collaboration within the renal community. Toward that end, Network 1 has worked diligently to survey the environment for quality improvement partnership opportunities and to nurture established relationships with those responsible for direct patient care. The Fistula First Initiative offers new challenges to expand relationships with vascular surgeons, interventional radiologists, acute care settings, and QIOs. The CKD project relationship with RI Quality Partners has been positive and helpful in identifying new partners to have a positive impact on CKD management.