



Network 8, Inc.  
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## Fistula First Educational CD/DVD Set Available for Surgeons

In an effort to meet the educational needs of vascular access clinicians, a surgical review course was recently held at the University of Oklahoma College of Medicine, Tulsa. Course presenters included:

- William Jennings, MD, FACS, Associate Professor, Department of Surgery, University of Oklahoma College of Medicine, Tulsa
- Lawrence Spergel, MD, FACS, Clinical Chair of the National Vascular Access Improvement Initiative: Fistula First, Director of the Dialysis Management Medical Group
- W. Perry Arnold, MD, Medical Director RMS Lifeline, Inc.

The entire session, entitled "Creating AV Fistulae in All Eligible Hemodialysis Patients", was recorded and is being offered by the ESRD Networks to surgeons throughout the United States, in a CD/DVD set. The materials are also available by Internet at: <http://cme.ouhsc.edu>. (Click on "CME on the web" for program and available 10.5 AMA PRA Category 1 credits.)

The program content includes a detailed review of new and established surgical and endovascular techniques for constructing and maintaining autogenous dialysis vascular access, ultrasound techniques for the vascular access surgeon, and Fistula First tools and strategies for the renal care team.

**Network 8, Inc. will first distribute copies to surgical practices by request. Due to the limited supply, one copy per practice will be issued, free of charge. To receive a copy for your practice, please copy this page, to include your address label, and fax or mail to the Network 8 office. (Fax number:601-932-4446) Following distribution to surgeons, copies will be made available to interested interventionalists, nephrologists and dialysis facilities.**

Network 8, Inc., a CMS contractor, is the quality improvement organization serving the dialysis and transplant centers in Alabama, Mississippi, and Tennessee. For more information regarding the Fistula First initiative or other Network 8 services, contact Ann Pridgen, RN, CDN, Quality Improvement Director.

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2005 Special Edition - Fistula First

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On Thursday March 17, CMS announced the launch of the Fistula First Breakthrough Initiative, the first in a series of Breakthrough Initiatives targeting critical areas of opportunity for rapid and significant improvement in healthcare. In addition to improving the health of millions of Medicare beneficiaries, the Fistula First Initiative has the potential for significant Medicare savings related to access complications and procedures.

The Fistula First Breakthrough Initiative stems from the National Vascular Access Improvement Initiative: Fistula First, launched in 2003 by CMS and the ESRD Networks. By designating the project as a breakthrough initiative, CMS has committed more time and resources to support the efforts of healthcare providers in achieving project goals.

Widely reported statistics reveal that patients dialyzing with access other than AVF have a 20 to 70 percent greater chance of death in the first year after access placement. It is estimated that access choice alone is associated with over

### Fistula First Breakthrough Initiative Announced

5,000 unnecessary deaths each year. Additionally, 25 to 50 percent of all

hemodialysis patient hospital admissions/hospital days are related to vascular access—at the cost of over \$1 billion to Medicare annually.

With this announcement comes the goal of doubling the percentage of patients with AVFs over the next 5 years—increasing from the current average of 33% to 66%. While an undoubtedly ambitious goal, other countries currently range from 66% to 90% fistula prevalence. To this end, it is important to note that differences in the US mortality rate of 21% and European mortality rate of 16% have been linked to access choice.

At this time, AVF rates in the Network 8 region have increased by 6.0% over the past two years. As providers become more aware of the Fistula First Initiative, we expect to see a continual increase in rates. Working together with CMS and other partners, our goal is to “press ahead” and improve the lives of dialysis patients via increased rates of fistula access.

### Reimbursement for Vessel Mapping

Evidence has shown that preoperative vessel mapping can lead to an increased number of suitable candidates for AVF placement and improved success rates of AVFs once created. Therefore, the Fistula First initiative has recommended that this procedure be included as part of the preoperative assessment.

The procedure has not been widely used in the past for various reasons, one due to lack of reimbursement. As CMS was made aware of its importance, efforts were made to remove the financial barrier.

A new G-code for vessel mapping reimbursement was created and published in the Federal Register November 15, 2004. The G-code G0365, vessel mapping of vessels for hemodialysis access, includes assessment of arterial inflow and venous outflow. Due to comments received, the code allows clinicians, other than the operating surgeon, to bill for the service. Use of the code is restricted to two times per year and to patients who have not had a prior A-V graft or fistula. The code will crosswalk to CPT code 93990.

For questions concerning vessel mapping reimbursement, contact your local Medicare intermediary.

### Fistula First Change Package

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

1. Routine CQI review of vascular access
2. Timely referral to nephrologist
3. Early referral to surgeon for “AVF only” evaluation and timely placement
4. Surgeon selection based on best outcomes, willingness, and ability to provide access services
5. Full range of appropriate surgical approaches to AVF evaluation and placement
6. Secondary AVF placement in patients with AV grafts
7. AVF placement in patients with catheters where indicated
8. Cannulation training for AV fistulas
9. Monitoring and maintenance to ensure adequate access function
10. Education for care givers and patients
11. Outcomes feedback to guide practice

## The Problem

Americans are developing renal insufficiency/ end stage renal disease (ESRD) at an alarming rate despite the efforts of the medical community. Considering this fact and the continued scarcity of transplant kidneys, physicians managing ESRD patients are faced with the prolonged maintenance of an increasingly “unwell” cadre of long-term patients. The most common problem requiring inpatient hospitalization for these patients is related to their dialysis access. The dialysis access is the patient’s lifeline, yet it is placed in jeopardy by necessity 3x/week when utilized in the dialysis units. The financial burden, along with the patient morbidity and mortality associated with access dysfunction, reaches millions of dollars each year. Since the federal government, through Medicare, is the major underwriter for ESRD, Uncle Sam is watching this situation closely. The Dialysis Outcomes and Quality Initiative (NKF-DOQI) guidelines are testament to the need for continued improvement in our work.

I would be the first to say that I do not have all the answers to the vexing ESRD problem. The NKF-DOQI guidelines make an excellent resource and I will not attempt to regurgitate it here. However, a noted philosopher once said, “Truth is a matter of perspective.” My “truth” is to try to optimize dialysis access. By doing so, the patient will hopefully be able to dialyze most effectively and ultimately be as healthy as possible when the ideal renal replacement therapy occurs – Transplantation. I wish to discuss some of the “truths” that I believe can contribute to better dialysis access.

## Multidisciplinary Approach to Dialysis Access

A team approach including primary care physicians, nephrologists, dialysis nurses and technicians, surgeons, and radiologists is paramount to prolonged success of a dialysis access. No patient relishes the impending onset of dialysis. However, the emergent hospitalization and placement of a temporary catheter to initiate immediate hemodialysis is less than ideal care. Therefore, timely referral by the internist to the nephrologist is a vital first step in the process. Both the nephrologist and internist can begin the effort to protect the venous anatomy of the patient’s forearms by educating the patient where venipunctures should be avoided. When the renal disease has progressed sufficiently that dialysis is in the patient’s future (e.g.

## Improving Vascular Access Outcomes – A Surgeon’s Perspective

Michael Gallichio, MD, Vascular Access and Transplant Surgeon

Cr. > 3.0mg/dl), an access surgeon should become involved.

The first issue that the surgeon can address with the patient is allaying the fear that the onset of dialysis is in the immediate future. Early initiation in the access process is particularly helpful in this regard. Next, the patient needs to understand that the placement of the access does not guarantee the need for dialysis nor hasten its commencement. Once these fears can be quelled, the patient can then look upon dialysis access as needed insurance for the future and not a foregone conclusion, regardless of the likelihood of its use.

The development of a functionally mature fistula can take more than 2 months to occur. The surgeon must be willing to place the access well in advance of its requirement, recognizing that some of the work may need to be redone or revised before it is used. The surgeon must also listen to the dialysis unit when the unit is unable to stick the access. An inaccessible fistula regardless of the reason is still useless. The types of access that can be placed and how to optimize their utility will be addressed separately.

After dialysis has started, realistically, the individuals most intimate with the access are the staff in the dialysis units. The continued care and proper cannulation of a fistula cannot be stressed enough. Unfortunately, months of work and planning can be ruined with one bad stick. Alternatively, a knowledgeable and proficient staff member can maintain a tenuous fistula and potentially initiate an evaluation of a failing access before thrombosis and loss occurs.

## Utility of Venous Mapping

A preoperative venous ultrasound (U/S) can provide a roadmap for the access journey. There is no exposure to dye load or X-irradiation. There will not be the potential phlebitis as can be seen with venography, either. When combined with physical exam (PE), the best chance for a

successful fistula placement will occur. This is particularly true in obese, elderly, or diabetic patients that comprise a significantly increasing percentage of the ESRD population. Anatomic variants such as a high bifurcation of the brachial artery or a proximal stenosis of the cephalic vein or central venous system will be seen on U/S but frequently missed on PE. An unusable calcified artery seen on U/S will frequently continue to have a palpable pulse. When attempting more extensive procedures like transpositions, a pre-op U/S should be mandatory. I foresee the use of pre-op U/S becoming the standard of care in all ESRD patients and failing to perform at least a preoperative in-office U/S becoming borderline malpractice.

## Surgical Considerations in Dialysis Access

The surgeon must be familiar with all modalities available for dialysis access. The multitude of graft and fistula possibilities should be able to be performed by the surgeon. “Inflow, outflow, and conduit” is the surgical mantra. When a large enough superficial vein is connected to a suitably calibered artery with an appropriately sized anastomosis, the best potential for a mature fistula will exist. Practically every vessel in the human body has been considered for use in dialysis.

There should be a concerted effort to place a fistula whenever possible. This would include the employment of venous transpositions when feasible. In obese patients a transposition or a superficial mobilization of the vein will often be needed. This should be done before failed attempts at cannulation occur. The superiority of a mature fistula for use in dialysis is well documented in the literature and is the overwhelming recommendation of DOQI.

We must recognize that this vascular circuit begins and ends with the heart and its central vasculature. Making certain that the cardiac pump is sufficient is particularly important when evaluating a patient who has failed previous accesses. We must be cognizant of any time the patient has had central lines of any kind (e.g. cardiac surgery, transplant surgery, or an ICU stay).

## Avoid Catheters

If the patient’s vasculature is analogous to real estate, to quote Dr. John Ross, “The central venous system is beachfront property.” The use of dialysis catheters could best be described as a necessary evil.



## The Role of the Vascular Access Coordinator

Donna Carlton, RN,  
answers our questions

In this question and answer article, we are spotlighting the role of the vascular access coordinator. We would like to thank Donna Carlton, RN, Nephrology Access Coordinator at the University of Alabama, Birmingham, for taking the time to answer our questions and educate dialysis providers about the benefits of this role.

### **Q. How long has this role been a part of the Nephrology program at UAB?**

We started our access program here at UAB in 1996.

### **Q. Were you the first access coordinator? If so, what were some of the barriers you encountered in establishing this role?**

I was not the first coordinator. Bob Bailey, PA, started this role for us at UAB. Initially, Dr. Allon set up meetings with the different departments that would be involved in this role, i.e. Surgeons, Radiologists, Nephrologists, and Dialysis unit managers to make them aware of the new role. Bob then introduced himself to the other staff involved in making this role work i.e., staff and secretaries in all these areas. When I took over this job prior to Bob's retirement in 1998, Bob took me on walking rounds to meet the key people I might need to contact to get something scheduled urgently.

### **Q. What were some of the immediate benefits to patients, staff, and physicians?**

An immediate benefit to all is having one person, one telephone number to contact to get anything in regards to access taken care of. Benefits seen later are outcome related, such as increased placement of fistulas, faster follow up on problems noted by our radiologists and the identification of specific vascular access problems that need to be addressed.

### **Q. List some of the common functions of this role.**

Handle all access-related calls and schedule all access appointments. Act as a liaison between the nephrologists, surgeons, radiologists, dialysis nurses, and patients. Provide the relevant clinical information to radiology and surgery for appointments

scheduled. Follow up on all vascular access procedures done and relay this information to the nephrologists and dialysis units. Maintain a prospective computerized database to track all vascular access procedures.

### **Q. What are some of the less-well known functions of this role?**

We do what ever it takes to get the patient in for appointments—we call them at home, we call their children, we call them at the dialysis unit, and we send messages to the clinics they will be seen at. This does not mean we can always get them in but sometimes, after getting calls from us and others involved in their care, we sometimes can make the difference that gets them to their appointment.

### **Q. What are some of the changes in access management that can be associated with this role?**

We have been able to streamline the scheduling process for vascular access procedures. We can make a rapid implementation change in procedures since it is just the coordinator involved in the scheduling process. We also provide a uniform approach to vascular access problems and are able to make assessments of outcomes and efficacy of changes. Additionally there has been improved communication among the disciplines—the surgeons call us instead of trying to page a doctor that might be out of town. We are then able to immediately take care of issues or relay this information to the covering physician and dialysis unit.

### **Q. How are medical records kept? Are procedure records routinely sent to dialysis facilities?**

We don't keep any records in our office. The access database is on a secure server connection. Any medical records we need access to are available on the UAB Internet.

### **Q. Are you aware of any cost/benefit studies of this role?**

I could not tell you the actual cost savings but I do know that we have been able to decrease hospital admissions, reduce graft thrombosis, and increase the rate of fistula placement. We all know the biggest cost now is related to hospital admission, so any savings there is tremendous.

### **Q. Do you have a role in educating facility staff on cannulation techniques/concerns?**

I don't have a direct role since we work

with one of the dialysis corporations, but I do assist with difficult cases. We also see patients in our nephrology clinic to give recommendations. Additionally, I have provided in-services at the dialysis units in regards to other access concerns.

### **Q. What is the most challenging aspect of this role?**

The most challenging part is to stay on track in spite of all that is going on and not get overwhelmed if a lot of issues are presented at one time from different areas! It can get quite hectic since we get information from several areas. It is very important to prioritize the problems presented and work down the list.

### **Q. What is the most rewarding aspect?**

I enjoy the success of getting catheters removed after a dialysis access is in use. Knowing the patient's outcomes will improve makes it worth the challenges I face day to day.

### **Q. What are common misperceptions of this role by facility staff and/or physicians?**

We are constantly educating new staff on our role here at UAB. They think they should follow the old way of paging a doctor for any problems. This usually resolves after meeting with them and explaining the services we can provide.

### **Q. Are you involved with pre-ESRD access placement?**

We are called about all new patients that need access placement from the clinics.

### **Q. In this role, are you involved in peritoneal dialysis access placement/intervention?**

We also set up for patients to get the peritoneal catheter and see the surgeon if intervention is needed.

### **Q. What are some of the interventions that facilities without VA coordinator can take to improve vascular access outcomes?**

The most important steps are to work out a tracking method for all access procedures. Make the catheter patients a priority for access appointments. Follow up on patients that have an access that is maturing. The easiest place to get lost is with follow up.

to have a successful AVF. In the CKD clinic, the patient is examined and evaluated for access placement. Then the patient is referred for vein mapping and arterial Doppler to determine which vessel would most likely be successful. Lastly, the nephrologist makes the referral to the surgeon for “AVF only”.

In an effort to improve access outcomes the nephrology team evaluated the surgeons who had placed vascular access on frequency, timeliness, quality, and success of access placement. Specifically, data was obtained to conclude the percent of successful AVFs placed by each surgeon. Of the eight surgeons who had placed AVFs in the market, two key surgeons had together placed 56% of the successful AVFs. From this point, the focus was placed on these two surgeons for future referrals.

### Routine Access Conference

A team was assembled including nephrologists, surgeons, radiologists, nurse practitioner, dialysis nurses, social worker, and dietician. These individuals met monthly for Access Conference and reviewed access QI data, recent journal articles related to access, and discussed difficult cases. One of the goals of the conference was to encourage the surgeons to develop a more active role in meeting and maintaining the AVF target of 40%.

During this time of reviewing access QI data, a significantly higher percentage of AVFs were noted in one dialysis unit compared to the other three. The data from this unit was evaluated separately to determine factors that had made it more successful. The most significant difference in this unit was that 38% of AVFs were placed in the pre-dialysis (CKD) clinic. This information was relayed at the access conference and the team set an even higher priority on placement of AVFs in the CKD clinic.

The access conference provided valuable experience for each of the team members. The nurses were given time to communicate problems they experienced and those verbalized by the patients. The radiologists were able to determine areas of opportunity to fine-tune imaging techniques. The surgeons developed new approaches to access and took on a more active role. An invaluable benefit was bringing the radiologists and surgeons together to review films and as a result, more successful plans were developed. The nephrologists obtained a clear understanding of the role of each team member and became the “team leader”. The social worker gained an understanding

of access issues and the importance of working with the patients to prevent “no shows”. Lastly, the dietician learned more about access and was then better equipped to assist in the educating of patients regarding the advantage of AVFs. Overall, the access conference opened up a forum for communication and relationship building, which contributed significantly to improved access outcomes.

### AVF placement in existing catheter/graft patients

An essential step in reaching the 40% AVF target included a close observation of and plan development for the existing catheter/graft patient. The dialysis staff and/or rounding nephrologist or nurse practitioner examined the outflow vein of all grafts patients at least monthly. The next important step was for the nephrologist to refer the patient to the surgeon for AVF placement prior to failure of the graft. It was determined that a dialysis unit with 25% AVFs could reasonably make target with up to 20% of graft patients having a secondary AVF option. The catheter patients were also evaluated monthly. The facility manager was asked to compile a list of all catheter patients for review. The team would then discuss each patient and develop or update the plan for AVF placement. The list of patients were categorized as “no hope”, AVF option, graft option (with hope for a secondary AVF in the future), or modality change. The team found many AVF options in this group of patients who were previously overlooked as they dialyzed with an existing graft or catheter.

### Cannulation training

Cannulation training was also determined to be of critical importance to maintain the target number of AVFs in each unit. Each unit identified the most experienced cannulators, and they were the primary cannulators for the new AVFs until it matured adequately. A protocol was developed for the cannulation of the new AVF. A worksheet was developed as a communication tool for the staff and nephrologist/nurse practitioner to know how the access had been doing and problems experienced (i.e. infiltration, aspirating clots, poor flow, etc.).

Lastly, a dialysis nurse from outside of the Columbus market with 25 years of experience was asked to come to the units to evaluate the nurse’s cannulation skills. The nephrologists, surgeons, and radiologists had been implicating the nurses for access failure due to poor cannulation techniques. This experienced

nurse evaluated each cannulator in the unit. She concluded that the techniques of cannulation were not the issue, but that the nurses were being asked by the nephrologist to cannulate the AVF before they were adequately matured. The nephrologists were educated on criteria for cannulation. An algorithm was then developed with literature review defining criteria for cannulation. It was at this point a grading system was developed to determine the readiness of the fistula for cannulation. An algorithm was developed to monitor the maturation of a new AVF. Many of the AVFs had been ignored after placement with little effort to initiate salvage procedures, and the grading system drew attention to the actual maturation process. Principally speaking if the access could not be cannulated, the algorithm determined what action needed to be taken next.

### Monitoring and surveillance

To maintain a successful AVF rate, those currently in place must be continually monitored for signs of failure. The units adopted standard procedures for monitoring, surveillance, and timely referral for the new AVF and the failing AVF. As mentioned above, the grading system and algorithm were used to evaluate when the AVF was mature enough to cannulate and determine if further intervention was needed when not maturing adequately. The nephrologist and surgeon also evaluated the AVF 4 weeks post op for early signs of failure. At 8 weeks, a decision was made on whether or not intervention would be required. Recent literature suggests well-defined radiologic criteria for cannulation clearance. In the marginal cases, the interventional radiologist was consulted for an ultrasound evaluation for vein diameter, depth, length, blood flow, and presence of stenotic lesions. These findings often resulted in interventions to salvage an immature fistula. The mature and functioning AVF was also evaluated monthly by physical exam and with Transonic testing.

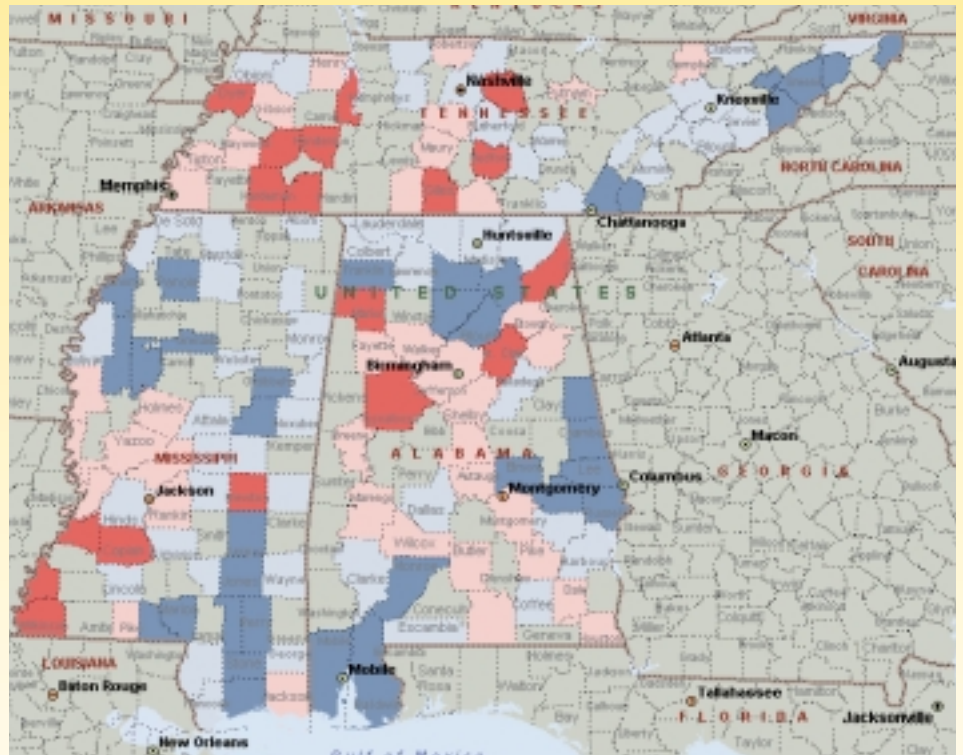
### Access tracking database

The presence of an organized and up to date access tracking database became invaluable in determining AVF options and monitoring for failure. Each patient had an entry with a brief history indicating age, race, gender, etiology of ESRD, and pertinent comorbidities (i.e. CHF, diabetes, PVD, etc.). An intervention history was then outlined indicating dates and outcomes of Transonic testing, interventions, problems with access, etc.

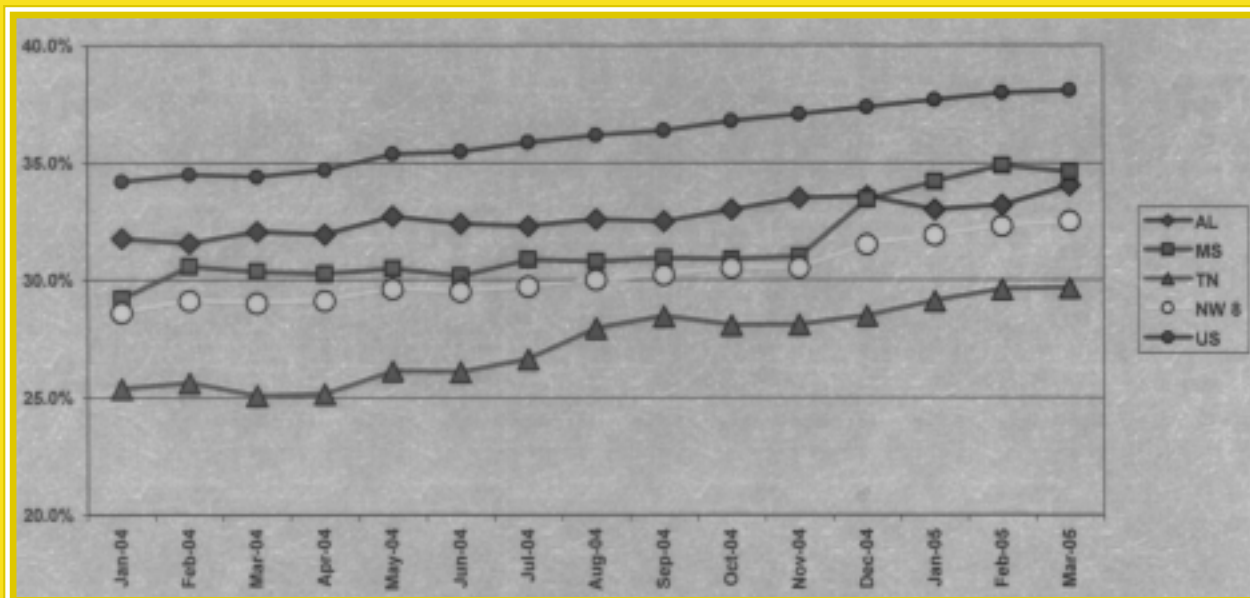
With the data readily available, each team member was kept informed of new developments with the access. By having all developments outlined, the team was able to maintain an informed plan to prolong the life of the access.

In conclusion, the target of having 40% fistulas can seem to be a daunting task but not necessarily an impossible one. The entire team must be committed to the goal and each willing to contribute to the process. The AVF is known to be superior to grafts and catheters with better patency, decreased morbidity and mortality, and decreased costs. The process must begin with the referring physicians recognizing the importance of early referral to the nephrologist. With this early referral, the patient can then be sent to the access surgeons in a timely manner. By having the Access Conference in place, the team can have the opportunity to communicate, review QI data and journals, and develop new approaches. Close observation of outflow veins for existing grafts offers fertile ground for future AVFs. Lastly, cannulation training, monitoring, and tracking the access data are also steps in the attainment of the 40% AVF target. These steps are simply one example of how the target was reached. Each market and nephrology team must evaluate their resources and develop a plan to meet the goals of the National Vascular Access Improvement Initiative.

### Percent AVF Prevalence by County – *March 2005*



### Monthly AVF Prevalence Rates *January 2004 - March 2005*



## Radiological Procedures for A-V Fistula Maturation

Neil Solomon, MD,  
Interventional Radiologist

including, and most importantly, the patient. The surgeon who creates the fistula, the nephrologist who takes care of the patient and the interventionalist who assists in the maturation evaluation and salvage procedures of the fistula all understand the time, energy and resources required for a fistula to function effectively.

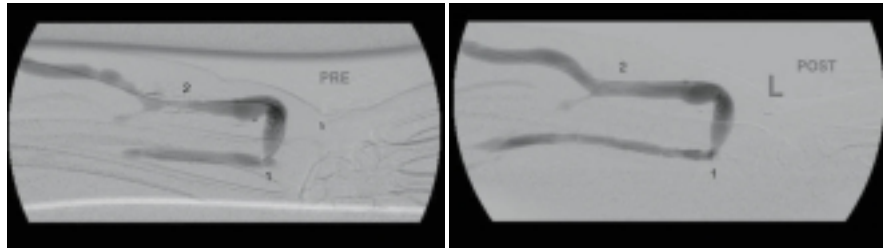
An important concern the interventionalists of the Hattiesburg Radiology Group sought to address regards the maturation of the fistula. Procedures such as accessory vein embolization and angioplasty play a crucial role in this process.

Accessory vein embolization is a procedure in which you occlude the enlarged veins, which are not the primary outflow vein but originate from it, with small coils 3-4 mm in size by deploying them through a catheter selectively placed in the accessory vein by initially accessing the fistula. Angioplasty involves using balloon catheters to expand narrowed segments of the outflow vein. Proximal venous stenoses and

A-V fistula creation, maturation and maintenance can be a daunting challenge. The Fistula First endeavor is certainly in the long-term interest of all concerned,

prominent accessory veins diminish the flow and retard the maturation of the fistula. A total of 14 procedures on 12 patients (two required second procedures) were performed over an 8 month time period during 2003-2004. All these patients underwent fistulagrams to assess the fistula that had failed to mature in the 6-8 weeks following creation. All these patients had prominent accessory veins and 6 also had proximal venous stenoses (within 10 cm of the anastomosis). A total of 14 embolization procedures (1-3 veins in each subject) and 6 angioplasties were performed. Ten of the 12 patients had functioning fistulas after an average of 4 weeks following the initial procedure, and the 2 patients which required second procedures also had functioning fistulas within 4 weeks of the second procedure.

Though this evaluation was based on a small number of patients and does not address long-term patency issues, it nevertheless demonstrates the effectiveness of this approach. Other investigators have also come to the same conclusion. This approach to fistula maturation will continue.



## Available Fistula First Tools

The following tools are currently available from Network 8. Please contact the QI Department to request materials. Additional tools may be downloaded from the FistulaFirst website at [www.fistulafirst.org](http://www.fistulafirst.org)

### Nephrologist specific

- Sample letter to PCP from Nephrologist with CKD referral guidelines
- VAMP© Vascular Access Monitoring & Surveillance Flow Chart—Larry Spergel, MD
- Evaluation for secondary AVF – “Sleeves Up” policy
- Management of patient with central venous catheter algorithm

### Nephrologist/Surgeon/Interventionalist specific

- National Kidney Foundation Kidney Disease Outcomes Quality Initiative (K/DOQI) Clinical Practice Guidelines for Vascular Access (limited supply)
- Practitioner’s Resource Guide to Hemodialysis AVFs—article by Gerald Beathard, MD
- Practitioner’s Resource Guide to Physical Examination of Dialysis Vascular Access— Gerald Beathard, MD
- Autologous AVF Algorithm—Larry Spergel, MD
- Hemodialysis Access Referral Form with Access Diagram

### Surgeon/Interventionalist specific

- CD/DVD set: Creating AVF in All Eligible Hemodialysis Patients—William Jennings, MD & Larry Spergel, MD (limited supply)
- Vascular Access Intervention Reporting Tool
- Procedure for Duplex of Upper Extremity Vessels Prior to AVF Surgery— Chris Griffith MD, James Reus MD, Kevin Robinson MD, Richard Krug MD, Diane Seagroves RVT, Memorial Nephrology Associates – Vo Nguyen MD, Olympia, WA

### Dialysis staff specific

- FistulaFirst toolkit
- Cannulation Camp—article by Debbie Brouwer, RN, CNN
- Cannulation Workshop Presentation Video— by Debbie Brouwer, RN, CNN – recorded at the Network 8 Annual Meeting, October 2004, Memphis, Tennessee
- MediSystems Constant Site (Buttonhole) Cannulation video and materials
- Buttonhole Technique Materials for staff and patients – developed by Lynda Ball, BSN, RN, CNN, Northwest Renal Network (Network 16)
- Understanding Your Hemodialysis Access Options—patient booklet from AAKP

However, both patients and dialysis units can fall in love with them without appreciating the terrible price that the patient will pay in the future with a central stenosis. A temporary catheter can easily be avoided when a patient has a fistula that is mature well in advance of dialysis need. When a catheter must be used, a sense of urgency should be felt to hasten its removal. When an access is failing, there is no law against placing a second access in the opposite extremity. If the patient has suitable cardiac function, it will be tolerated readily for the period of time necessary. This is particularly true if the second access is a maturing fistula.

### Place More Successful Fistulas

Not every patient we encounter is a candidate for a fistula. This is not heresy but fact. Pre-op venous U/S will help to cull out many of these patients. However, six months of catheter dialysis while the surgeon steadfastly waits for the fistula that will never mature is even more of a disservice to the patient than placing a graft when appropriate. I suspect that the untapped key to fistula success, bedside pre-op mapping, is forearm transpositions and large (e.g. > 1cm in the radial artery and 0.8cm in the brachial artery) arteriovenous anastomoses. This has been what Dr. Michael Silva has been publishing now for about a decade, and I subscribe to many of his notions.

### Early Intervention of a Failing Access

All dialysis accesses have a finite lifespan. Ideally its longevity would be from dialysis onset until after transplantation, but this is often not the case. What should be avoided is the thrombosis of the access. This is particularly vital in fistulas. Monitoring U/S, serial measurement of Kt/V's, and intra-dialysis U/S flow monitoring are all non-invasive methods for surveillance. The dialysis unit or nephrologist may note a change in the character of the access (e.g. increased pulsatility or prolonged post-dialysis bleeding) that is a precursor to failure. Once this is recognized, referral to vascular radiology for evaluation may occur. An access surgeon teamed with an interventional radiologist can creatively maintain dialysis accesses for years. A thrombosed access must be addressed expeditiously. The cause of the failure should be investigated and remedied also.

The caretakers for ESRD patients are becoming increasingly challenged to perform these duties. What I have written is not Gospel but I hope it carries some truth.



## National Vascular Access Improvement Initiative *The Road to Success*

Betsy H. Copeland, BSN, MSN, CFNP  
John E. Reed, Jr., MD

The National Vascular Access Improvement Initiative has brought the concept of Fistula First to the forefront. With the aim to fulfill the National Kidney Foundation (NKF) Kidney Disease Outcome Quality Initiative (K/DOQI) goals for AV fistulas, the nephrology team is closely examining the way to meet what for some seems rather lofty goals. After achieving the elite goals for AV fistulas in the Columbus, Mississippi market, the nephrology team evaluated the steps taken on the road to success.

Seven key steps were identified in the process to meet the K/DOQI target for 40% AV Fistulas.

### Early Referral to Nephrologist

Arora et al (JASN, 1999) reported that early referral to the nephrologist increased the likelihood of first dialysis with permanent access. Forty percent of patients referred to the nephrologist early had a functioning access on first dialysis compared to less than 10% of the late referral patients. Similar findings were seen in the Columbus market from 2002 thru 2004. Seventy-eight percent of the early referral patients had an access placed prior to starting dialysis and only 8% of the late referral group had an access in place. During this time, the nephrology team began informing referring physicians of the importance of early referral.

In the spring of 2002, dinner presentations were scheduled with the goal of educating referring physicians on the benefits of early referral. One of the primary topics stressed during these presentations was the importance of early placement of an AV fistula (AVF) in the CKD patient. With each early referral

presentation, the number of referrals rose significantly as well as access placement.

The percent of new patients with an access in place and cannulated with at least one needle on the first dialysis day also increased. In 2002, only 31% of dialysis patients had an access

cannulated with one needle at the first treatment. This percent improved to 40% in 2003 and further to 75% in 2004. The access outcomes illustrated the benefit of conveying the value of early referral to referring physicians.

The goals of early referral were outlined clearly to insure maximum benefit. The referring physician was made aware that ideally our goal would be to have an access placed when the GFR reached 20cc/min. The fact that it could take up to a year or longer to have an access placed and adequate maturation occur was relayed to the physicians. Secondly, the nephrology team must document a plan for AVF placement for all patients expected to require renal replacement therapy. Lastly, a member of the nephrology team was designated to educate the patient and family regarding the importance of AVF placement and issues regarding protection of options and not missing scheduled appointments or access. Alon et al (AJKD, 2004) reported the percentage of missed appointments for access surgery at University of Alabama, Birmingham from 2001 to 2002. Twenty-one percent missed one to two appointments. Three to four appointments were missed by 23% of the patients and 16% missed five to ten appointments. With this trend of missed appointments, the next logical conclusion was to make early referral to the surgeon a priority as well.

### Early referral to the surgeon

As mentioned above, "no show" trends for access appointments make early referral to the surgeon critical. Early access placement is also important to allow time for adequate maturation and time for second procedures which are often required