

Fistula First: The National Vascular Access Improvement Initiative

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MetaStar is partnering with the regional Medicare End Stage Renal Disease (ESRD) Network (Network 11) on the National Vascular Access Improvement Initiative (NVAII) (also known as Fistula First), a 3-year project to promote the use of arteriovenous fistulas (AVFs) for vascular access in patients undergoing hemodialysis. Donald L. Berwick, MD, of the Institute for Healthcare Improvement, has called this initiative “one of the nation’s most innovative and effective quality improvement activities.”

The Problem

There is longstanding agreement among specialists that the preferred type of vascular access is a native arterial venous fistula (AVF). Compared to catheters and AV grafts, native AVFs show significantly lower rates of complications (infection, clotting, etc.), longer patency, fewer hospitalizations, lower patient morbidity, and significantly lower costs. The

Centers for Medicare & Medicaid Services’s (CMS) ESRD Clinical Performance Measures project reflects the desirability of the native AVF: “Vascular Access CPM 1-A primary arterial venous fistula (AVF) should be the access for at least 50% of all new patients initiating HD [hemodialysis]. A native AVF should be the primary access for 40% of all prevalent patients undergoing HD.”¹ These recommendations are echoed in the Kidney Disease Outcomes Quality Initiative (K/DOQI) practice guidelines for vascular access.²

In view of this evidence-based consensus, rates of AVF use have been remarkably low. In 2001, before the start of the Fistula First initiative, national AVF rates were reported as 29% for incident patients and 31% for prevalent patients. At the same time, globally, there were substantially higher rates of AVF prevalence: Italy–90%, Germany–84%, Spain–82%, France–77%, UK–67%.³

In light of the evidence for use of AVFs, why have the rates been so low? Possible causes that have been cited include the following:⁴⁻⁶

- Inadequate care of pre-ESRD patients, making early placement and maturation of AVF impossible.
- Lack of awareness among nephrologists and vascular surgeons about the current medical criteria for AVF.

- Poor communication between nephrologists and vascular surgeons about nephrologists’ specific expectations regarding vascular access.
- Lack of training of vascular surgeons in placing AVFs successfully.
- Financial incentives for surgeons that encourage catheter and graft placement and discourage AVF placement.
- Patients not fully understanding the benefits of AVF and opting for catheters because of the less invasive surgical procedures and avoidance of needle “sticks.”

Recommendations for increasing rates of successful AVF placement have included the following:⁷⁻¹³

- A multidisciplinary team approach ensuring coordination and consensus among nephrologists, surgeons, radiologists, dialysis nurses, and patients.
- Establishment of policies emphasizing preferential placement of AVFs.
- Early referral of pre-ESRD patients to nephrology care, allowing for early evaluation and placement of AVFs.
- Patient counseling regarding the advantages of AVFs and specific procedures to protect the vasculature of the arm selected for AVF.
- Good surgical judgment regarding location and technique for placing AVFs, and any needed

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revisions to ensure successful maturation.

- Referral of vascular access procedures to surgeons with demonstrable skill, interest, and experience.
- Routine preoperative mapping of veins and arteries.
- Understanding and supporting the maturation period for an AVF.
- Monitoring and documentation to ensure that the AVF is functioning properly and to detect any problems (infection, stenosis) at an early stage so that remedial steps can be taken.
- Timely intervention to correct any emerging problems that might endanger patient well-being or the patency of the access.
- Prospective tracking of outcomes with continuous improvement.

The NVAII

In 2003, CMS, the ESRD Networks, the renal community, and the Institute for Healthcare Improvement (IHI) joined together in the NVAII. (IHI's initial report on the NVAII is the source of much of the preceding information.) The mission is to increase the likelihood that every eligible patient will receive the optimal form of vascular access for that patient (in the majority of cases, an AVF) and to avoid vascular access complications through appropriate access monitoring and intervention.

The national NVAII project also supports the ESRD Networks in enhancing their own improvement capabilities and in transferring useful improvement skills to facilities and medical specialists. Networks are expected to use their collective knowledge and experience in new and expanded ways to generate significant national progress around this issue.

NVAII Goals

- Initial K/DOQI guidelines recommended AVF use of 50% incidence and 40% prevalence by June 2006 and updated K/DOQI guidelines have revised AVF prevalence to 50%.
- All ESRD Network contracts with CMS include a goal to increase AVF prevalence rates by 1%-4% per year through June 2009.
- All ESRD networks are encouraged to reduce the number of patients with catheters or grafts who have not been appropriately assessed for possible AVF placement.

As part of this initiative, a set of clinical and organizational recommendations based on best practices was developed to increase AVF use and to improve hemodialysis patient outcomes:

1. Routine continuous quality improvement (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 surveillance to ensure adequate access function.
10. Education for caregivers and patients.
11. Outcomes feedback to guide practice.

Regional Progress to Date

In 2005, ESRD Network 11 (which includes Michigan, Minnesota, and the Dakotas, as well as Wisconsin) formed the Upper Midwest Fistula First Coalition to bring together regional stakeholders, in the Network 11 states. This coalition brings in resources from Quality Improvement Organizations including MetaStar, state survey agencies, large dialysis organization providers, regional chain and independent dialysis providers, and others. Three main workgroups have formed within the Coalition.

1. The Early Referral Workgroup is focusing efforts in 3 areas: (1) legislation to require automatic Glomerular Filtration Rates with creatinine; (2) primary care professional education; and (3) identification of pockets of low AVF rates.
2. The Chronic Kidney Disease (CKD) Management Workgroup has focused efforts in 2 areas: (a) Working with nephrologists and nurse practitioners caring for Stage 3 and 4 CKD patients to implement a CKD clinic model to facilitate early placement of vascular access and early anemia management and (b) obtaining funds for regional workshops to educate nephrologists and nurse practitioners on how to begin using this model.
3. The ESRD Workgroup has focused efforts on developing a tool to be used by the dialysis facility to prepare for a state survey, specifically in the area of vascular access.

Improvement in Rates

Nationally, the baseline prevalence rate for AVFs in October 2003 was 33%. By December 2005 it had reached 41%, an increase of

24% over baseline. CMS has stated that this increase is due largely to Fistula First.¹⁴ Over that same period, Wisconsin has improved its AVF prevalence rate from 38.5% to 41.8%, an increase of only 9% over baseline. While we're moving in the right direction, there's much more that needs to be done, and MetaStar will be working with the ESRD Network to make it happen.

For more information, visit www.fistulafirst.org and www.esrdnet11.org.

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