

# FistulaFirst

## The Fistula First Breakthrough Initiative (FFBI)

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### Increasing A-V fistulae

#### Rationale

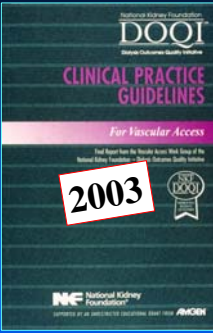
**Autogenous A-V Fistulae are Superior to Grafts and Catheters:**

- ↑ Patency
- ↓ Morbidity & Mortality
- ↓ Costs:
  - Per annum Cost Savings<sup>1</sup>
  - \$ 4500. vs. AVG
  - \$ 9000. vs. Catheter

**Most VA-related Complications, Mortality & Costs are due to Grafts & Catheters**

<sup>1</sup> Eggers et al

### NKF-K/DOQI Clinical Practice Guidelines

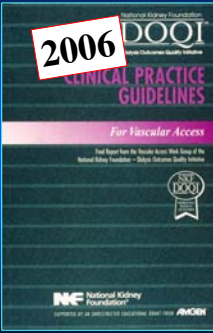


**2003**

#### GOALS OF ACCESS PLACEMENT: A-V FISTULAE

- An AVF should be attempted in **50%** of new patients (Incident rate goal).....
- **40%** of AVF's expected to develop (Prevalent rate goal)
- Re-evaluate every patient for an AVF after every access failure
- Track AVF construction and failure rate (CQI/QA)

### NKF-K/DOQI Clinical Practice Guidelines:



**2006**

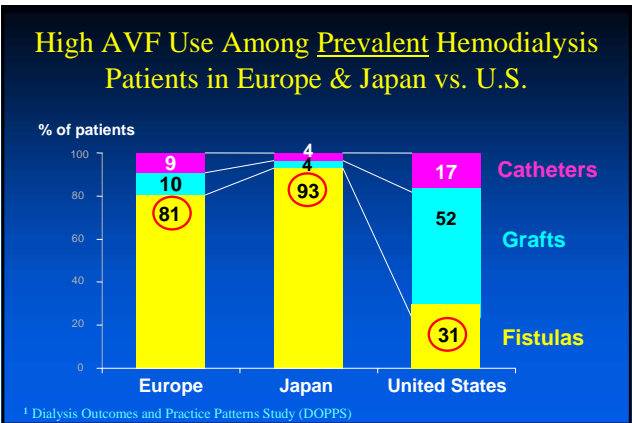
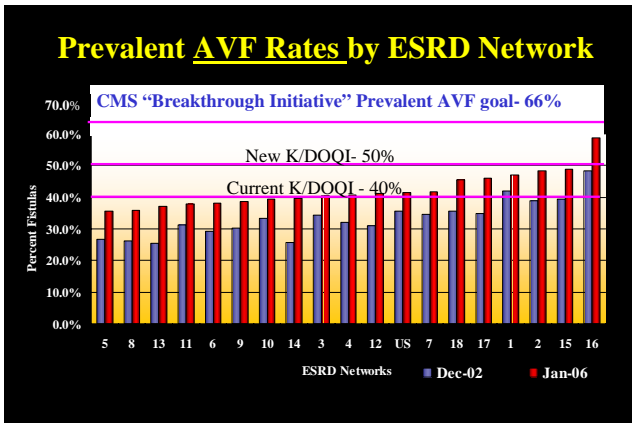
#### 2006 KDOQI Update


**New AVF Goal:**

- **65%** functioning AVFs in Prevalent patients

**New FFBI Goal:**


- **66%** AVFs




  
**The National Vascular Access Improvement Initiative (NVAII)**  
 2003-2006  
 ↓  
**Fistula First Breakthrough Initiative (FFBI) 2006-2009**

**2006**

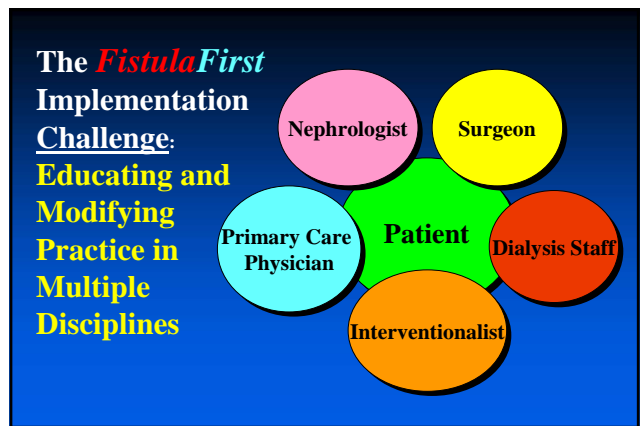
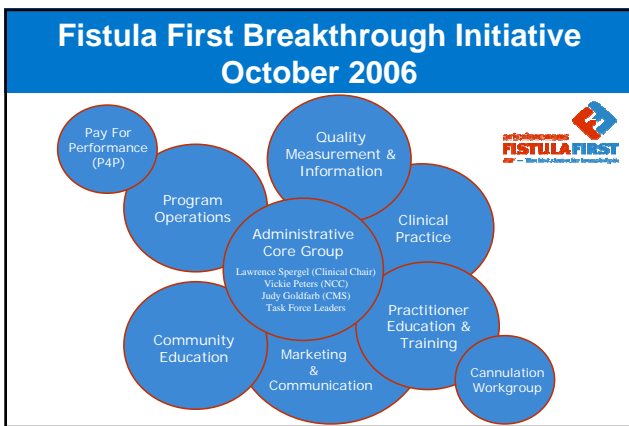
Sponsored by the Centers for Medicare and Medicaid Services



**“FistulaFirst” GOAL**

Goal is to *maximize* autogenous AVF construction & success rate to achieve AVF use in 66% of Prevalent patients by 2009.....

**while reducing Catheter use !**



- FFBI /“FistulaFirst”**  
**11 key Change Concepts**
- |  |  |
|--|--|
| 1. Routine CQI review of vascular access         | 6. Secondary AVF’s in AVG patients               |
| 2. Timely referral to nephrologist               | 7. AVF evaluation/placement in catheter patients |
| 3. Early referral to surgeon for “AVF only”      | 8. Cannulation training                          |
| 4. Surgeon selection                             | 9. Monitoring and Maintenance                    |
| 5. Full range of appropriate surgical approaches | 10. Continuing education                         |
|  | 11. Outcomes feedback                            |
- \*A Change Concept is an approach to change that has proven to be successful and which is intended to stimulate specific strategies relevant to that Change Concept. B

**FFBI /“FistulaFirst”**  
**11 key Change Concepts**

The Surgeon is Directly Involved in “Change Concepts” #3 through #7

### FFBI (“FistulaFirst”)

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### Pre-Operative AVF Planning:

#### The Surgeon’s role

- **History:** diabetes, peripheral vascular disease, catheters, PICC lines, surgery, trauma, pacemaker
- **Physical Exam:**
  - Artery suitability: pulses, bilateral BP, status of peripheral circulation /Allen’s test.
  - Vein suitability: soft, straight, superficial, >2.5mm

**Vessel Mapping:** (Doppler Ultrasound/Venography)  
Increases AVF options & success rate, ensures vessel suitability (patent, adequate lumen diameter: A>2.0mm, V>2.5mm, adequate vessel function).

**Post-Op: Exam for early failures at 4 wks. post-op**

### Vessel Mapping for Autogenous Fistulae

- Vessel mapping significantly increases **AVF opportunities** by identifying suitable vessels not identifiable by physical exam alone
- Vessel mapping increases the **AVF success rate** by permitting evaluation of vessels & appropriate choice of options for surgery
- Vessel mapping for AVF evaluation of incident dialysis patients is now (as of Jan.1’05) **re-imbursible** under new G-codes

#### Vessel Mapping and Autogenous Fistulae: Impact of vessel mapping on increasing the AVF placement & success rate

	No Mapping (n=183)	Mapping (n=172)
<b>% AVF of New Accesses</b>	<b>14 %</b>	<b>63 %</b>
<b>Early Failures</b>	<b>36 %</b>	<b>8 %</b>
<b>1-Yr. Patency</b>	<b>48 %</b>	<b>83 %</b>

*Silva et al*

### Mapping Criteria For Arteries and Veins

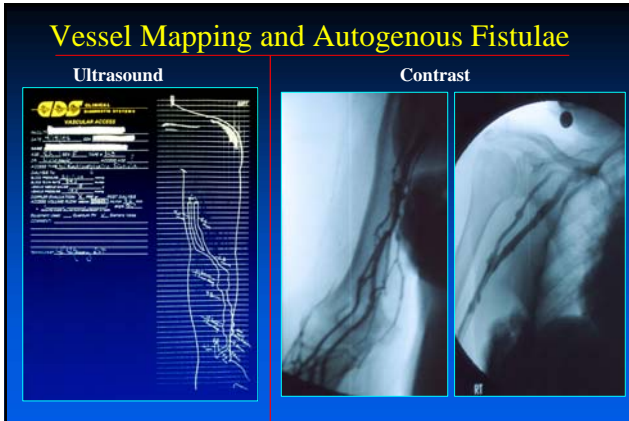
**Vein:**

- Lumen Diameter ≥ 2.5 mm (AVF); ≥ 4.0 mm(Graft)
- Absence of segmental stenosis or occluded segments.
- Continuity with Upper Arm Deep Venous System
- Absence of ipsilateral central venous stenosis or occlusion
- Compliance / ability to dilate with tourniquet

**Artery:**

- Arterial lumen Diameter ≥ 2.0 mm
- Reasonably normal vessel wall
- Pressure differential ≤ 20 mm Hg between arms
- Patent Palmer Arch

*M Silva et al; J V Surg 1998;27:302-8*



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### 1° Autogenous A-V Fistula Options

#### Simple Direct A-V Fistulae

- > Radial-Cephalic (Forearm)
- > Brachial-Cephalic (Arm)
- Proximal Radial-Median antebrachial (Forearm)
- Posterior tibial-Saphenous (Ankle)

#### Vein Transposition A-v Fistulae:

- Cephalic vein (forearm):	Radial a.-Cephalic v.
- Basilic vein (forearm):	Radial a.-Basilic v.
- Cephalic vein (arm):	Brachial a.-Cephalic v.
> Basilic vein (arm):	Brachial a.-Basilic v.
- Brachial vein (arm):	Brachial a.-Brachial v.
- Saphenous vein (thigh):	Sup. fem. a.-Saphenous v.
- Femoral vein (thigh):	Sup. fem. a.-Fem. v.

### Historical Autogenous AVF Options:

1. **Radio-cephalic:**  
[Radial a.-Cephalic v. (forearm)]
2. **Brachio-cephalic:**  
[Brachial a.-Cephalic v. (arm)]

### 1° A-V Fistula Options I

#### Simple Direct (non-transposed) AVF Options:

1. Radial a.-Cephalic v. (forearm)—incl. snuffbox
2. Brachial a.-Cephalic v. (upper arm)
  - 2a. Grac variation (ante-cubital)
3. Proximal Radial a.-Median Antebrachial v. (forearm)

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**Strategies to Increase Autogenous Fistulae**

**2° A-V Fistula Options**  
(Prevalence Strategy)

Re-evaluation of all AVG patients for all AVF options:

- Conversion of existing AVG to AVF, utilizing outflow vein of graft for AVF where feasible
- or**
- Exam & Vessel Mapping for alternate options

**- K/DOQI guideline 29: Every patient should be evaluated for a secondary fistula after each episode of graft failure**

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**CATHETERS**

**Higher Catheter Use is Associated with Increased Infection, Morbidity, Mortality & Hospitalization**

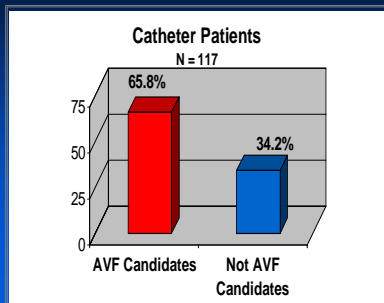
<sup>1</sup> Dialysis Outcomes and Practice Patterns Study (DOPPS); 2 yrs./ 7 Countries / 10,000 pts.  
<sup>2</sup> Pastan et al: Vascular access and increased risk of death among hemodialysis patients.

**Reducing Catheter Use**

**Remedial Strategies**

As the AVF rate increases, the catheter prevalence has been increasing as well—in large part because of the high early AVF failure rate and the lack of protocols to ensure early recognition of early failure followed by timely and aggressive intervention

## AVF Sites in Prevalent Catheter Patients



Sands et al NKF 2001

## Reducing Catheter Use

### Remedial Strategies

- Early Referral to Nephrologist & Surgeon for Permanent Access
- Monitoring & Timely Intervention for Access Failure

- Surgical Evaluation & Placement of Permanent Access during initial Hospitalization

- **Protocol for Catheter Indications & Removal**

## CC # 8: Cannulation Training

“Buttonhole” (same-site) AVF cannulation / self-cannulation



## FistulaFirst: Strategies to Increase Autogenous Fistulae

### SUMMARY I : Dialysis Providers

- Establish a Vascular Access CQI program based on a Multi-Disciplinary Team approach
- Implement an AVF Performance Improvement Initiative based on the 11 FistulaFirst Change Concepts and the K/DOQI Guidelines
- Track and Profile Outcomes

## SUMMARY : the Surgeon's Role

- Learn & utilize current AVF options & techniques, including vein transpositions
- Perform vessel mapping on all patients if suitable vessels not identified on physical exam
- Work with nephrologists, interventionalists & dialysis staff to plan and construct secondary AVFs in patients with failing AVGs
- Take aggressive approach to salvage of the failing fistula



For questions related to the **FistulaFirst** initiative, please contact your local ESRD Network at:

<http://www.esrdnetworks.org/>

AND

visit the **FistulaFirst** Website:

**FistulaFirst.org**

