Creating Secondary AV Fistulas from Forearm Grafts

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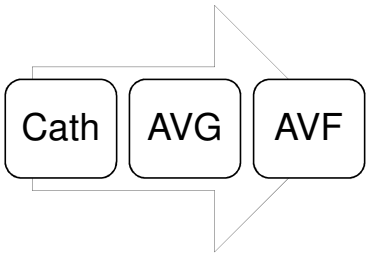
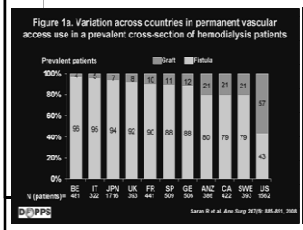
The Hemodialysis Access

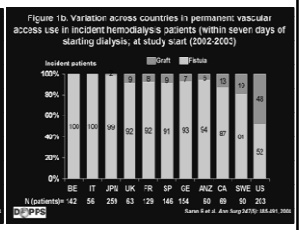
Worst ⟶ Best



DOPPS Data on Comparing AVF & AVG - Internationally



Prevalent Dialysis Patients



Incident Dialysis Patients

Superiority of Functional AVF

Far less infectious complications
- AVFs 4.4-12 x less infection rates than AVGs

Far less interventional procedures to keep patent
- AVFs 2.4-7.1 x less salvage procedures than AVGs

Better 1 year primary patency in incident HD patients
- 68% for AVFs
- 49% for AVGs

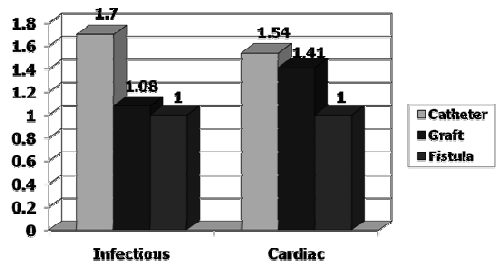
Allon & Robbin, 2002, *Kidney Int 62: 1109-1124.*
Nassar & Ayus, 2001, Kidney Int. 60: 1-13.
Pisoni, RI et al., 2002, *Kidney Int.* 61: 305-316.

Importance of Access Type

- Studies indicate that AVFs have lower mortality rates compared with AVGs and CVCs
- Morbidity, mortality, and treatment costs have been shown to be higher for diabetic patients when they use an AVG.

Bottom Line

Relative Risk of Mortality By Access Type



Dhingra et al, Kidney International, 60, p1443, 2001

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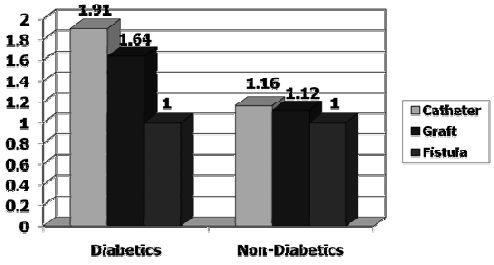
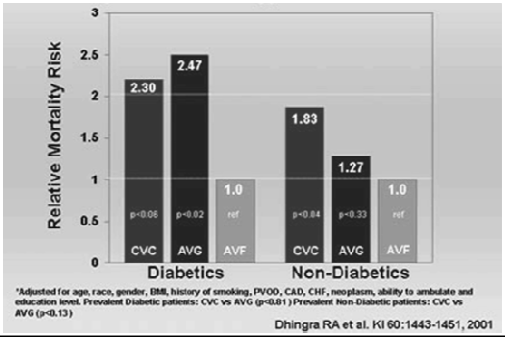
Bottom Line

Relative Risk of Death by Access Type



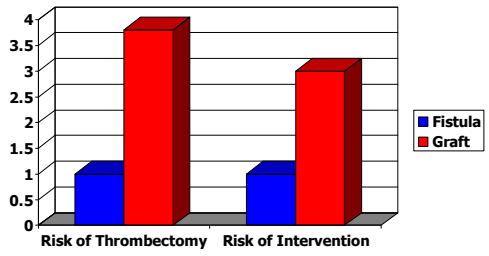
Dhingra et al, Kidney International, 60, p1443, 2001

Adjusted* Relative Risk of Death Due to Infection by Vascular Access Type and DM Status



Dhingra RA et al. KI 60:1443-1451, 2001

Relative Risk of Access Failure



DOPPS Study, Young et al, Kidney Int 2002 June;61(6):2266-71

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Cost Per Patient by Access Type

USRDS 2010 (2008 data)

Annual Per Patient Per Year Expenditure

Catheter	$90,110
Graft	$79,337
AVF	$64,701

- The annual per patient cost savings of an AVF over a graft is $14,636
- The annual per patient cost savings of an AVF over a catheter is $25,409

FFBI Change Concept #6

Evaluate Every AV Graft Patient for Possible Secondary AVF

- *Nephrologists should evaluate every AV graft patient for possible placement of a secondary AV fistula, including mapping as indicated, and document the plan in the patient's record.*

FFBI Change Concept #6

- *AV fistula evaluation of graft patients should include an updated vascular access history, physical exam with tourniquet, and vessel mapping, if suitable vessels are not identified on physical exam.*

FFBI Change Concept #6

- *A secondary AV fistula plan should be documented in the chart and discussed with the patient, family, staff, nephrologists, and surgeon in anticipation of AV fistula construction on the earliest evidence of graft failure.*

Protocol for Secondary AVF Creation of Forearm AV Grafts

PURPOSE: To identify a suitable outflow vein for conversion from an AV graft to an AV fistula, in anticipation of secondary AVF construction by the surgeon.

1. **Once a month, clinic rounds should include an examination of the AV graft extremity to the shoulder, by rolling sleeves up (or removing shirt if necessary).**

“Sleeves Up” Check

“Sleeves Up” Protocol

2. After upper arm is exposed to the shoulder, the hand or a tourniquet is used for light compression just below the shoulder, to see if the outflow vein of the forearm graft appears suitable for immediate use as an AVF. If this appears to be the case, (often this is the case if the cephalic vein is the outflow vein), the vein is evaluated by:

“Sleeves Up” Protocol

- Referring patient for fistulogram (or Doppler study) to confirm that the outflow vein and draining system back to the heart is normal.
- If fistulogram is normal, the vein is “tested” by cannulating the outflow vein with the venous needle only, for 2 consecutive dialysis sessions.

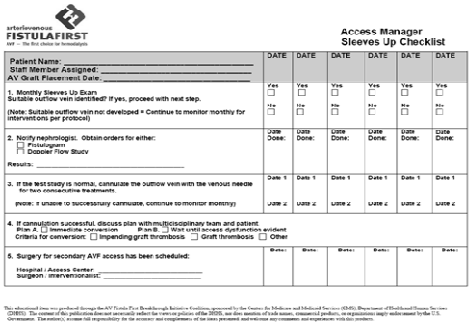
“Sleeves Up” Protocol

- If both cannulation sessions are uneventful, the plan for surgical conversion from graft to upper arm fistula is discussed with patient, staff, nephrologists, and surgeon—and documented in chart.
- Staff follows patient until AVF conversion is performed.

Developed Outflow Vein

Courtesy of L Spergel, MD

“Sleeves Up” Checklist

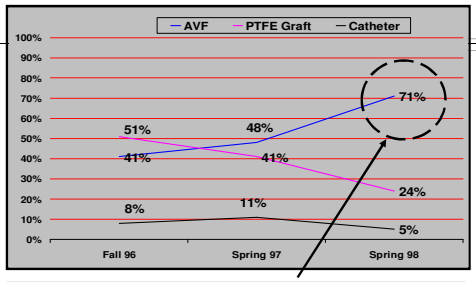


Access Manager
Sleeves Up Checklist

Patient Name: _____ Staff Member Assigned: _____ AV Graft Placement Date: _____	DATE	DATE	DATE	DATE	DATE	DATE
1. Monthly Sleeves Up Exam Suitable outflow vein identified? If yes, proceed with next step. (Note: Suitable outflow vein not developed = Continue to monitor monthly for interventions per protocol)	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐
2. Notify nephrologist. Obtain orders for either: ☐ Fistulogram ☐ Doppler Flow Study Results: _____	Date Done:	Date Done:	Date Done:	Date Done:	Date Done:	Date Done:
3. If the test study is normal, cannulate the outflow vein with the venous needle for two consecutive treatments. (Note: If unable to successfully cannulate, continue to monitor monthly)	Date 1 Date 2	Date 1 Date 2	Date 1 Date 2	Date 1 Date 2	Date 1 Date 2	Date 1 Date 2
4. If cannulation successful, discuss plan with multidisciplinary team and patient. Plan A ☐ Immediate conversion Plan B ☐ Wait until access dysfunction evident. Criteria for conversion: ☐ Impending graft thrombosis ☐ Graft thrombosis ☐ Other:						
5. Surgery for secondary AVF access has been scheduled: Hospital / Access Center: _____ Surgeon / Interventionalist: _____	Date:	Date:	Date:	Date:	Date:	Date:

Can converting AVGs to AVFs Really Have an Impact on Your Facility's AVF Rate?

Replacing Grafts with AV Fistulas



AVF prevalence increased to 71% by replacing failing grafts with AVF

Vo Nguyen et. al ASN 1999 ABS. A1085 (slide prepared by Dr Jeff Sands)

Can You Sustain the Results?

- Champion nephrologist Vo Nguyen, who lead the Network 16 Quality Improvement Project, *Back to the Basics,* successfully converted all grafts at his facility (51% of patients) to AVFs within 4 years, and achieved a 98% AVF rate.
- What's his secret? – He tells his surgeon
  "NO GRAFTS – AVF ONLY"
- Key Concept: The nephrologist needs to be in charge of the patient.

Nguyen, V. & Griffith, C. (2007). *J. Vascular Access* 8:91–96

Vo's Keys to Success

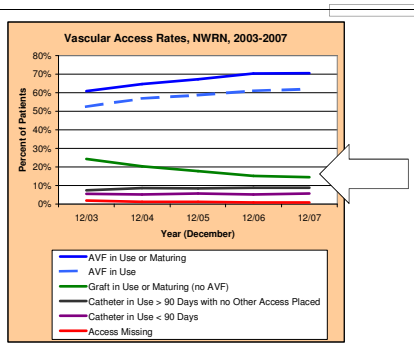
- Vascular access is a team effort
- The nephrologist must play a central role
- Plan for an AVF long before it's needed
- Educate patients and their families
- Use new surgical approaches

Vo's Keys to Success

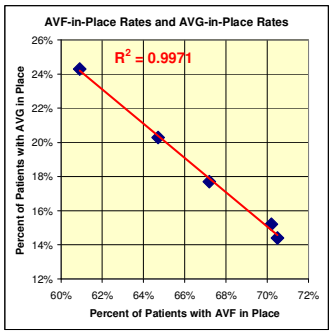
- Convert all grafts – stop revising
- Late referrals – consider PD until AVF matures
- Maintain a checklist for each patient
- Educate staff
- Monitor results in a CQI program

Nguyen et al. (2003). A multidisciplinary team approach to increasing AV fistula creation. *Nephrology News & Issues*, 17(7): 54-57.

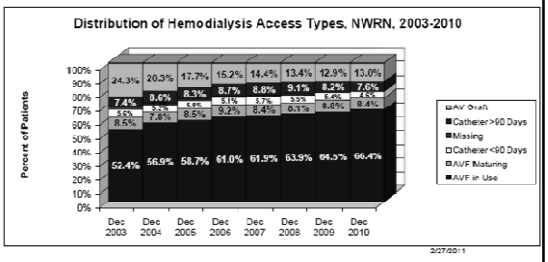
What Has Contributed to Network 16's Overall AVF Success?



Are We Sure?

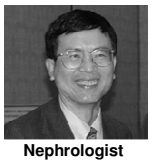


An Eight-Year Look - NWRN



Become a Network 16 Champion


Patient


Nephrologist


Nurse


Data Analyst


Surgeon

"You must be the change you want to see in the world."

Mahatma Gandhi

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