

# **VASCULAR ACCESS: ACHIEVING OUTCOMES THROUGH QAPI**

**Amy Davis, RN  
Manager  
Clayton Taylor Dialysis Unit**

# Objectives

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- Describe old and new models of Vascular Access care
- Discuss process of achieving outcomes through Quality Assessment Process Improvement
- Describe impact of changes in practice on VA outcomes
- Discuss expanding role of VA Liaison
- Consider advanced strategies to increase AVF use with catheter reduction

# Statistics in 2006

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- CVC rate 40%
- AVF rate 42%

# Clinical Pathways

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- **Old Model:**
  - Approach to Vascular access limited mostly to
    - Vascular Access Coordinator
    - Physician-driven approach

# Clinical Pathways

- **New/Current Model:**
  - Team approach involving the whole clinic
    - All Clinical Staff
    - Patients
    - Access Liaison (Sheri)
    - Physician

# New/Current Model

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- Staff relationship with patient
- Patient confidence in staff
- Staff paired with patient
  - Comfort level
  - Communication
  - Feedback from other patients
- Staff educates patient

# Approach to New Patients

- **With existing access**
  - When can it be used?
  - On-going evaluation/maturation
  - Referral for angiography if AVF not maturing at 4 weeks
- **Without access**
  - Discussion with patient and physician
  - Referral to Access Liaison
  - Access surgery after vein mapping
  - Continued monitoring for maturation

# On-Going Patients

- **Monitoring Access in Use**
  - Physical Exam
  - Access Flow & eKdrt/V
  - Changes in cannulation experience
  - Concerns expressed by patient
  - Referral for evaluation after discussion between patient and physician

# Established Patients, or Patients Transferred-In w/ CVC Only

- On-going education and encouragement
- Re-evaluation of “medically unsuitable” patients

# Other Key Practices

- **Communication:**
  - Patient
  - OCDT
  - RN
  - Physician
  - Access Liaison
- **Formal Review at CQI, Chart Rounds & PRN**

# Advantages of New Approach

- Reduction of CVC & Increase in AVF
- Single referral contact (unique to our practice)
- Single physician group
- Two supportive Nephrologists
- Collaborative team approach
- Unified Goal:  
*“improve patient outcomes by encouraging use of AVFs & eliminating use of permanent CVCs”*

# Changed Statistics

- From 1/31/06-12/31/09:
  - CVC Rate reduced from 40% to 16%
  - CVC Rate as only access 5%
  - AVF Rate increased from 42% to 64%

# Wait! Is The Model Portable?

- Similar programs, similar results
  - OSU Campus unit **6-month** trend:
    - Reduced CVCs 48% to 27%
    - Increased AVFs 45% to 63%

**Fresenius Medical Care North America**

OPERATIONAL HIERARCHY:

Company 2800 FRESENIUS MEDICAL SERVICES  
 Op Group 3446 CENTRAL  
 Region 4275 WESTERN OHIO  
 Area 3558 CENTRAL OHIO AREA  
 Report for: 6097 OSU CLAYTON TAYLOR  
 State / City: OH / COLUMBUS

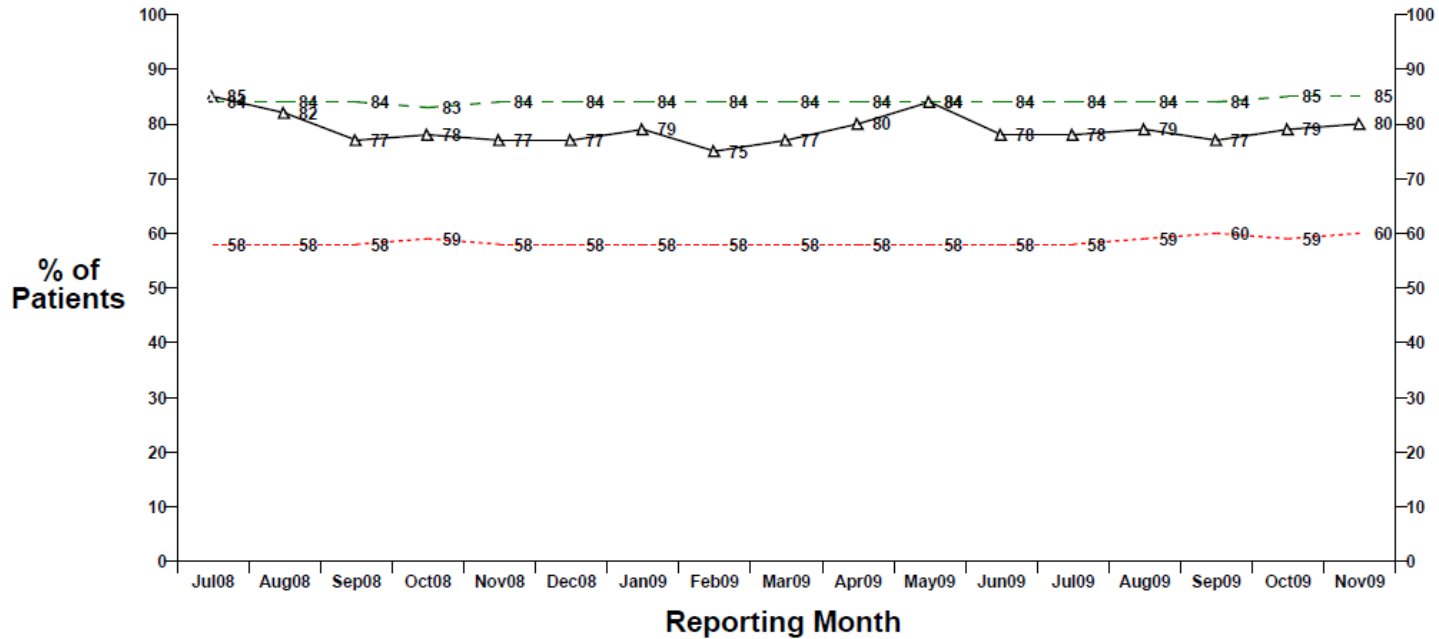
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Hemodialysis: Quality Status Report (QSR)  
 Time Series Graph: Primary Indicators  
 Period Ending: November 30, 2009

Report ID: QE1042-16-02  
 Version: 11.60

**Catheters:**  
 % of Patients with No Catheter (at end of period)

# Patients with data (in 1 month): 59



- Highest 10th Percentile of Facilities
- Lowest 10th Percentile of Facilities
- △ % of Patients Meeting Patient Target

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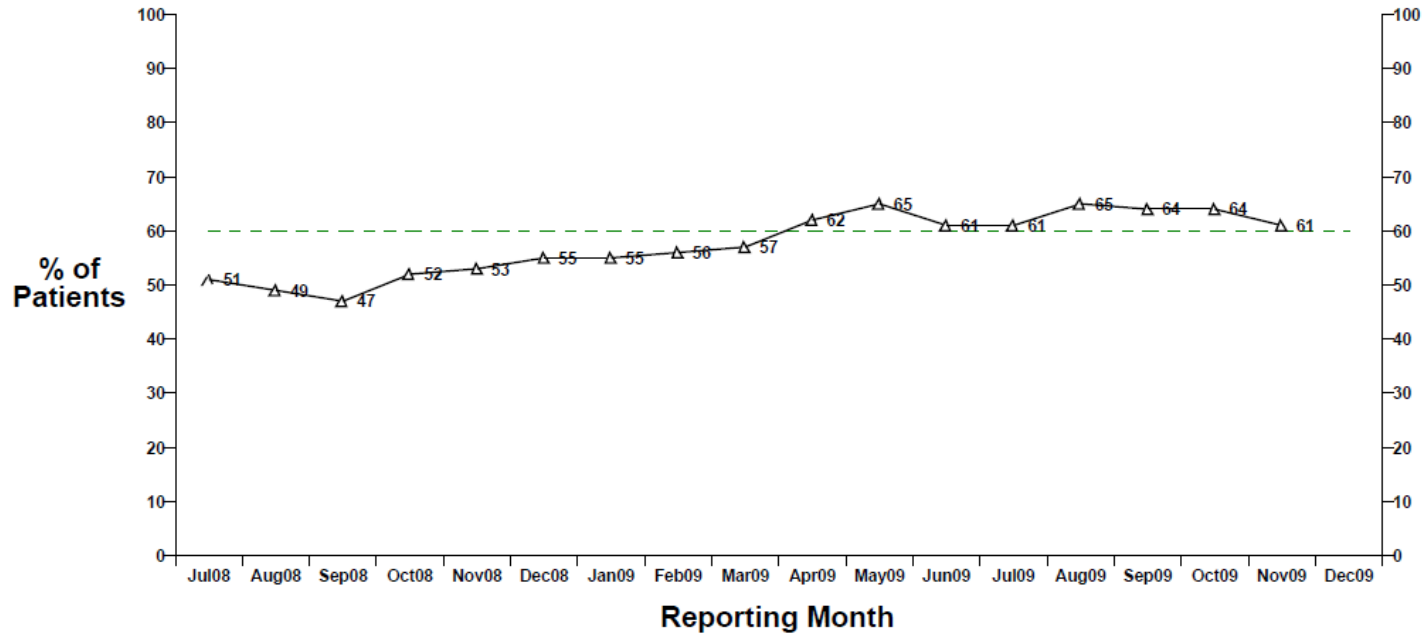
Time Series Graph: Secondary Indicators

Period Ending: November 30, 2009

A-V Fistulas (at end of period):

% of Patients with A-V Fistulas

# Patients with data (in 1 month): 59



-- Facility Goal

△ % of Patients with A-V Fistula

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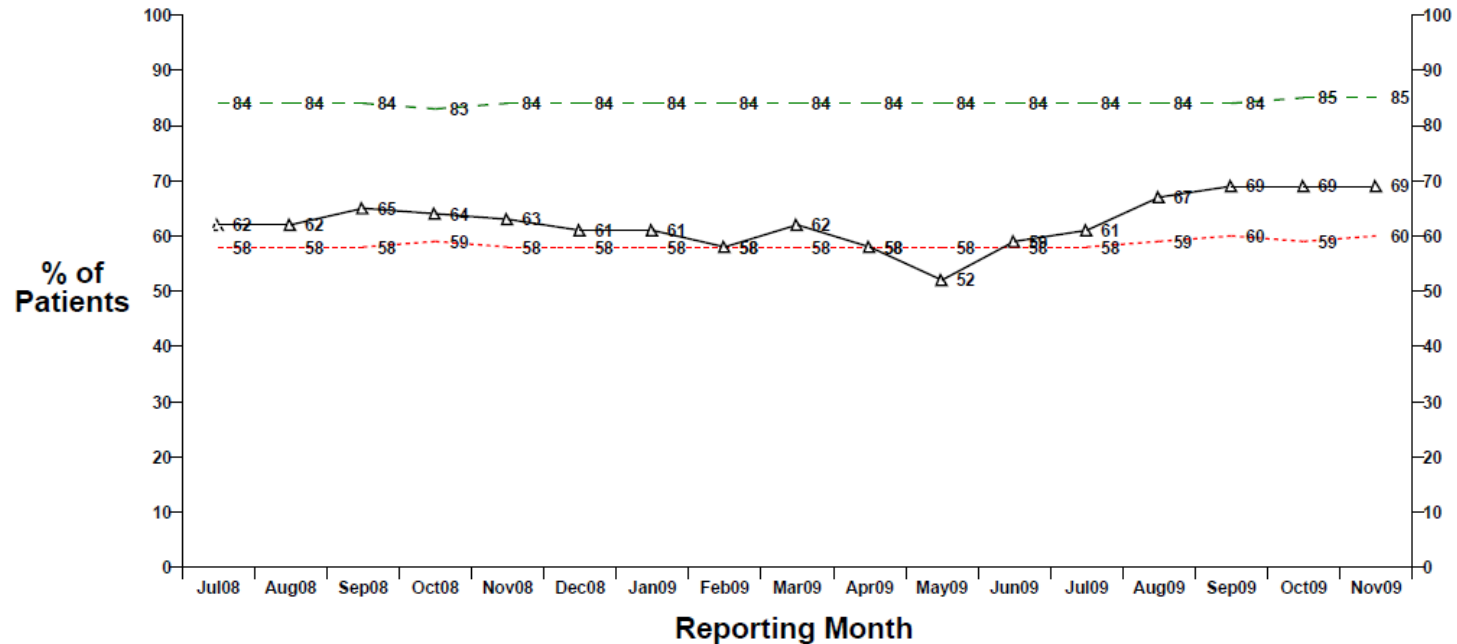
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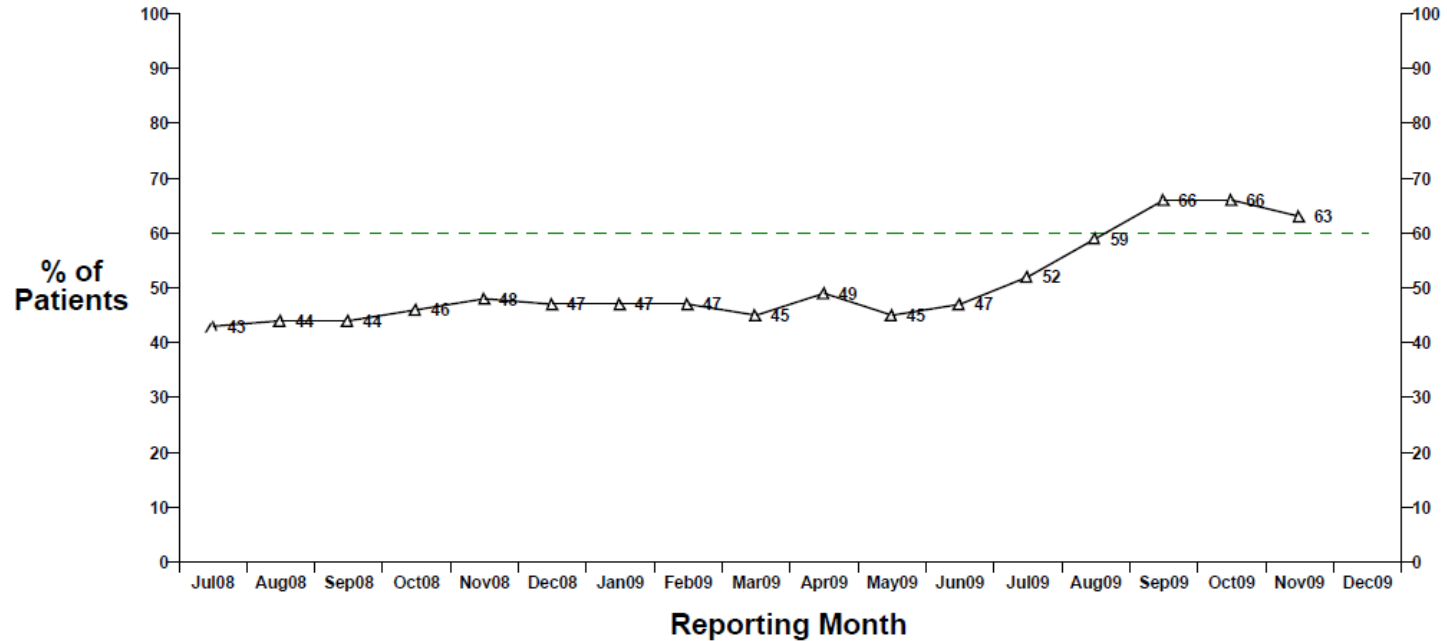
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# **Taking Care of Vascular Access: From Reactive to Proactive**

**Sheri Van Cleef, RN  
Dialysis Access Liaison  
OSU Nephrology**

# Focus On Fistulae

- Onset of access program 1995- focus on placement of AVF
- Of primary acceses placed:
  - 1996 67% fistulae
  - 2000 50% fistulae
  - 2004 78% fistulae
  - 2006 FISTULA FIRST
  - 2008 81% fistulae

# How To Improve On A Good Program

- Continue focus on pre-dialysis AVF placement
- Consistent vein mapping
- Improve AVF success rate\*\*
  - Consistent, careful physical exam
  - Earlier intervention
  - Expert cannulators
- Evaluate communication to identify areas for improvement

# Old Way: React, React, React

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- React to data shared in chart rounds
- Schedule for evaluation- hopefully before thrombosis

# New Way: Be Proactive: Invert Communication

- Continuous communication beginning with the patient
- From PCT/patient
  - Access flow
  - Changes in cannulation
  - Patient concerns/observations
- Nurse and physician
  - eKT/V

# Role of Access Liaison

- For every referral:
  - Review access history- Advantages of comprehensive access history database
  - Schedule procedure/discuss with patient
  - Obtain procedure report/follow up with missed procedures
  - Update history
  - Communicate results and plan to unit & physician

## Role of Access Liaison (continued)

- Fax report/updated access history to unit
- Can include printed pictures
- Discuss with PCT/patient
- Repeat access flow for follow-up as indicated
- Continue to monitor
- Ongoing education of both staff & patients
  - Formal inservices
  - Informal conversations

# Difference???

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- Staff and patients empowered to participate in care and decisions
- Intervention more timely
- Improved outcomes

# Tackling Tunneled Catheters

- Staff/patient rapport
- Consistency in education
- Re-evaluation of medical issues
  - Cardiac status
  - Venous occlusions
  - Access options

# Ongoing Challenge For Improvement

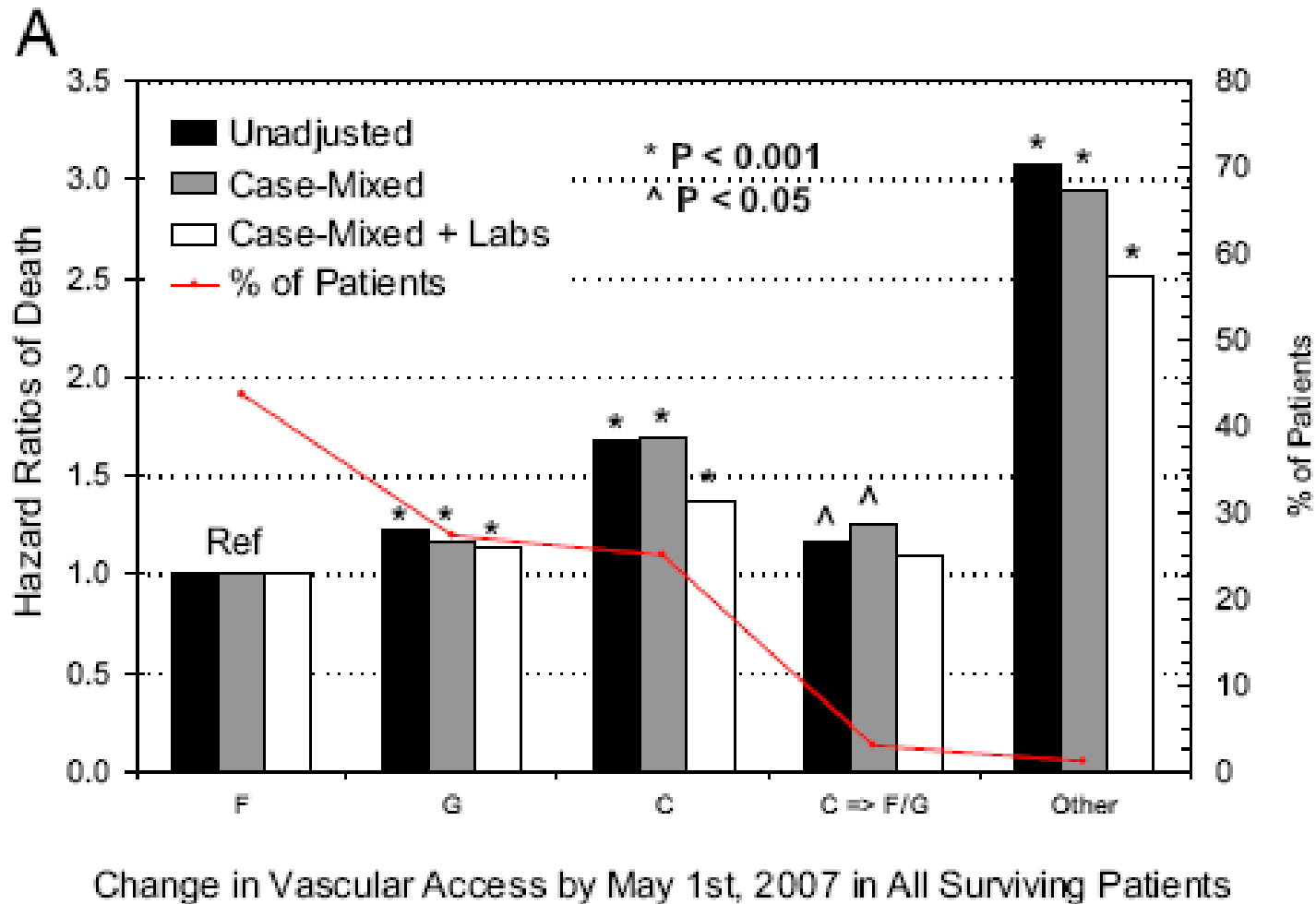
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- Minimize use of tunneled catheters
- Maximize maturation & care of new fistulae
- Continue a team effort
- Celebrate success

# **Changing The Paradigm: Taking Access Into Our Own Hands**

**Anil K. Agarwal, MD, FASN, FACP  
Professor of Clinical Medicine  
Director, Interventional Nephrology  
The Ohio State University College of  
Medicine and Public Health  
Columbus, Ohio**

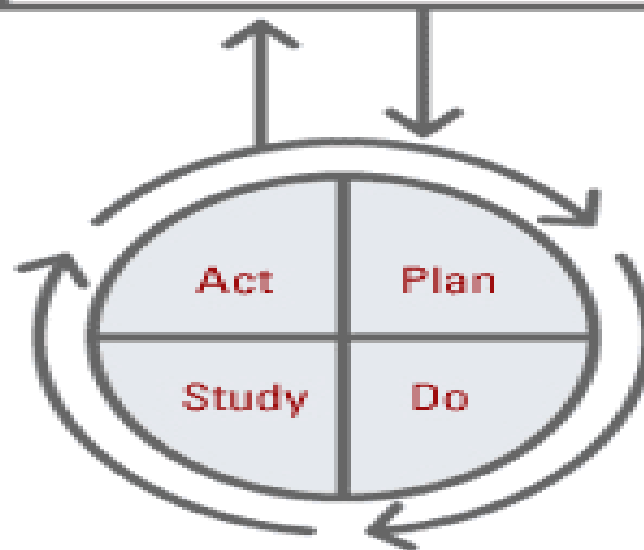
# Impact of Access Change on Mortality



What are we trying to accomplish?

How will we know that a change is an improvement?

What changes can we make that will result in improvement?



Insanity:

Doing the same thing over and over again  
and expecting different results.

-Albert Einstein.

# Changing The Paradigm of Access Care

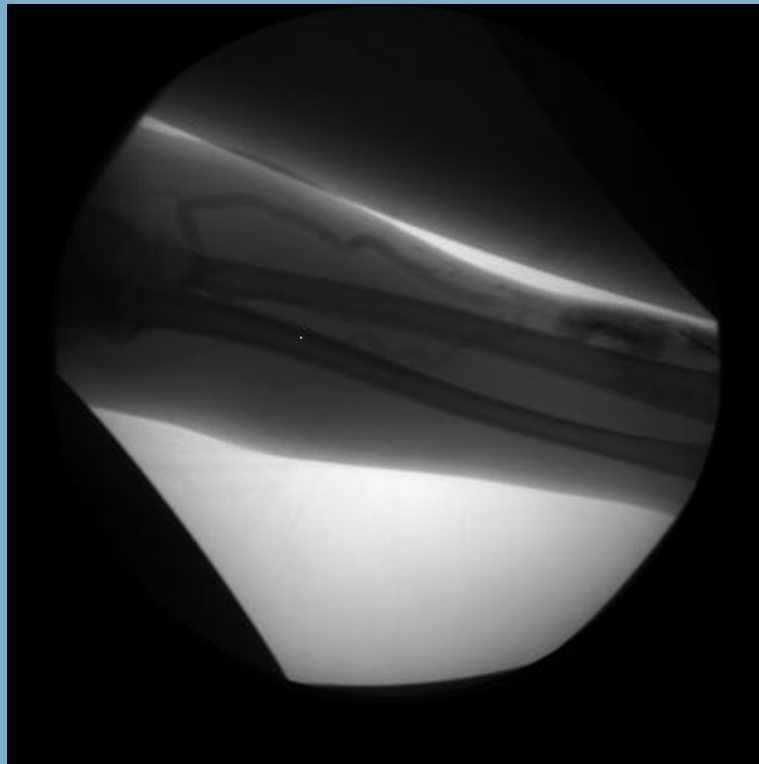
- We already had the ingredients for success:
- Physician motivation
  - One physician appointed as network advisor to National Vascular Access Initiative (Fistula First)
  - Trained as interventional nephrologist
  - Trained another physician as interventionalist
- Pre- existing excellent surgical team
- Experienced Access Liaison
- Willing clinical team, and
- *Some degree of craziness!*

# Benefiting from Pre- ESRD AVF Creation

- Already had high *AVF placement* rate
- Initiated *routine* vein mapping prior to placement
- Aggressive early intervention for immature or failing AVF
- Did not exclude 'suboptimal' candidates
  - Elderly
  - Heart failure patients
  - Diabetics
- Improved our rates when placed on dialysis

# Intervening for immature AVF- Case 1

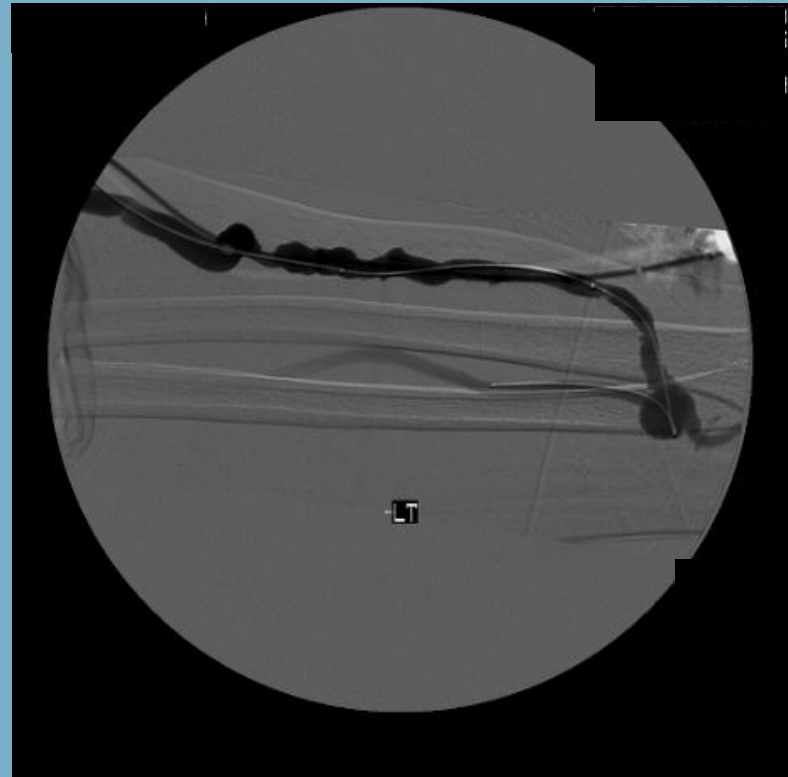
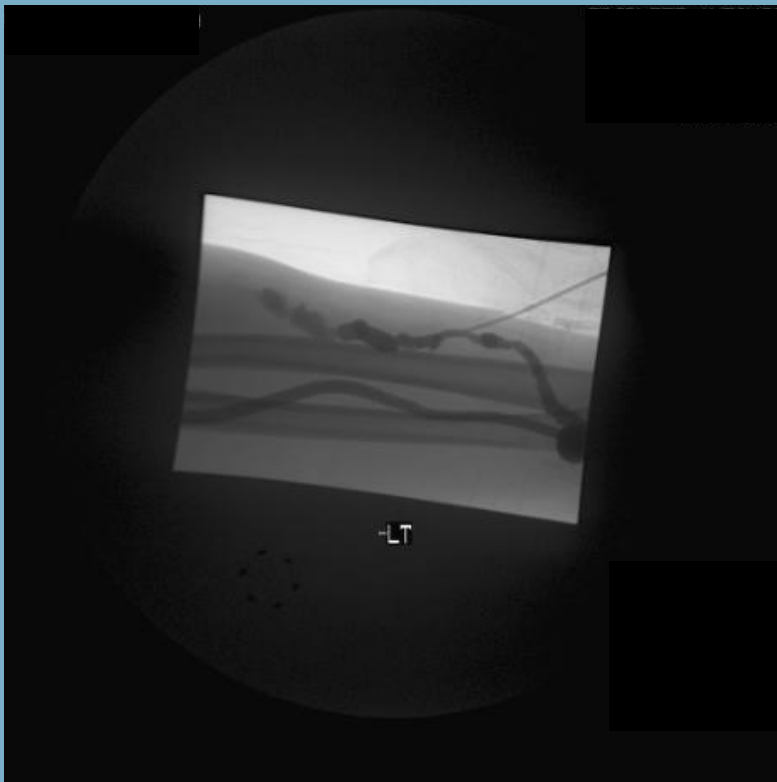
- Young, obese, failed transplant patient
- Small AVF with difficult cannulation



- Fistulogram, followed by accessory vein ligation

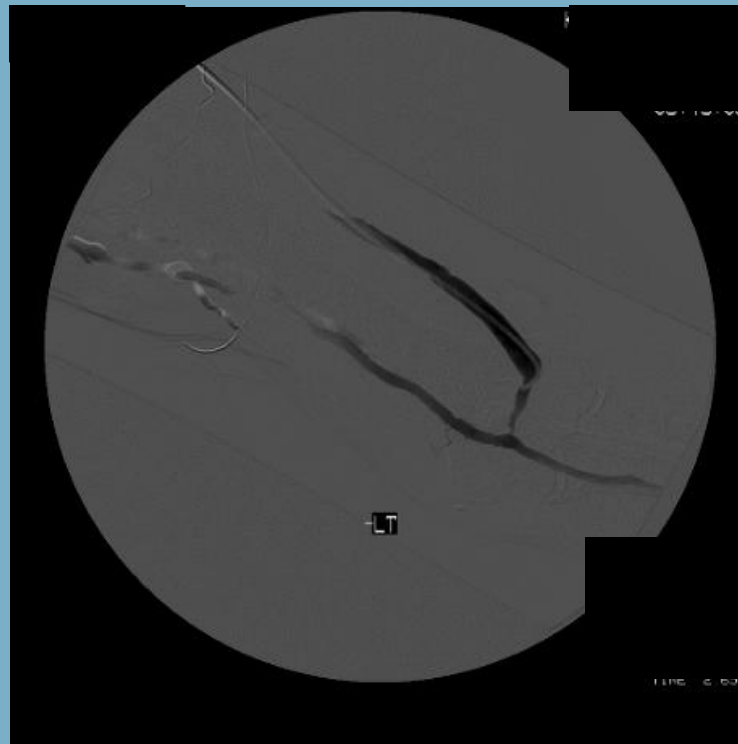
# Intervening for immature AVF- Case 1

- A nurse took initiative to learn 'Button hole technique' and started using
- Prevented catheter use!
- Requires periodic angioplasties

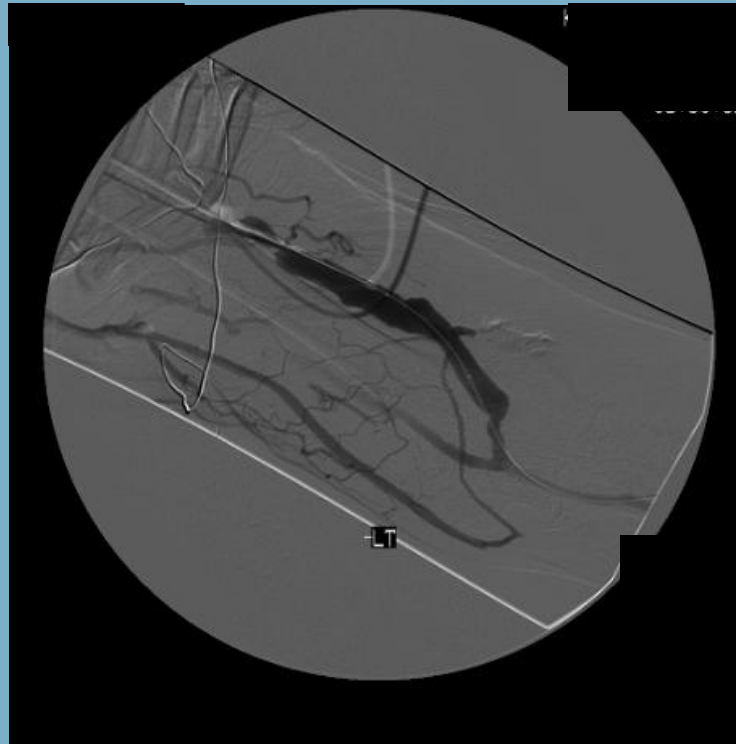


# Intervening for immature AVF- Case 2

- Elderly (85 years old), small patient
- Not considered a candidate for AVF placement- but placed anyways!
- Small AVF with difficult cannulation



# Intervening for immature AVF- Case 2



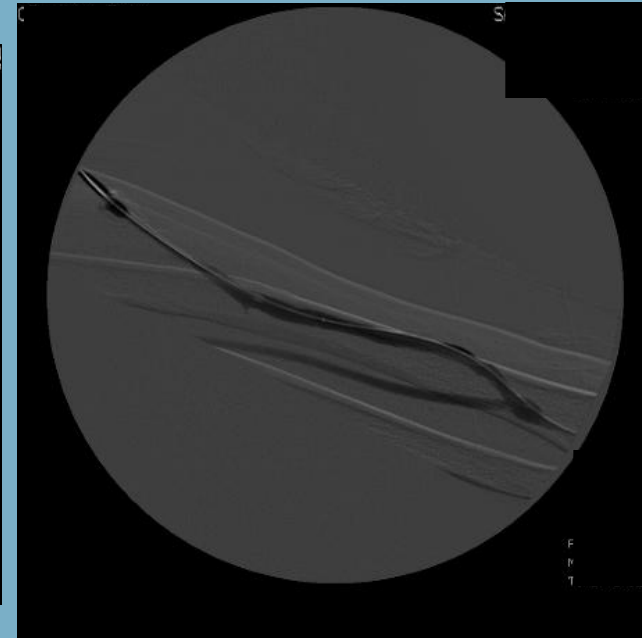
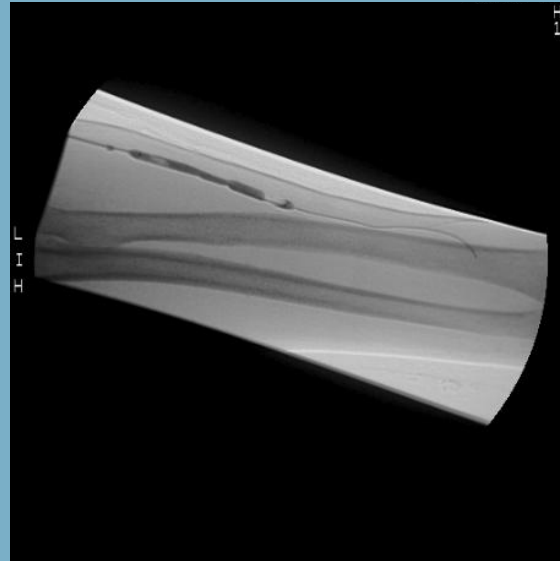
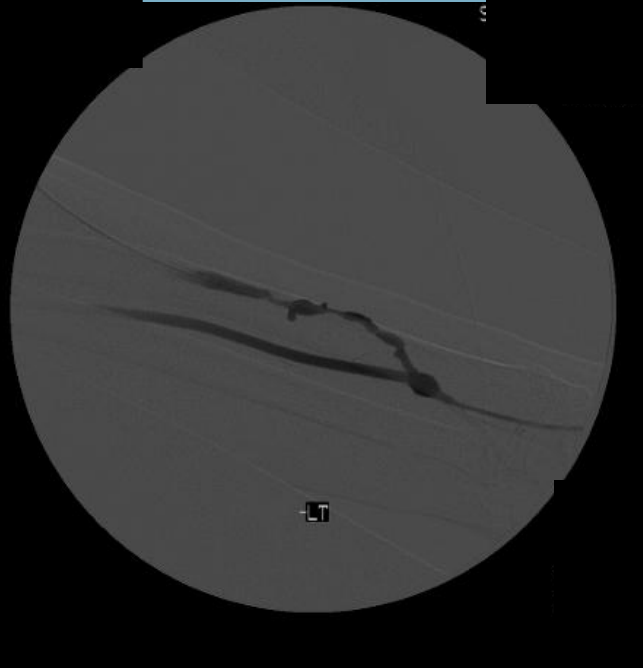
- Fistulogram and angioplasty
- 'Button hole technique'
- Prevented catheter use!

# Intervening for Difficult AVF- Case 3

- Older patient, AVF small, poor adequacy
- Small AVF with difficult cannulation
- Multiple outflows, required ligation of accessory veins



# Intervening for Difficult AVF- Case 3



- Recurrent stenosis
- Fistulogram and angioplasty
- 'Button hole technique'
- Prevented catheter use!

# Creating Secondary AVF- Case 4

- Young patient, AVG with recurrent thrombosis (CW)
- Proceeded with vein mapping, new (Secondary) AVF
- AVF matured
- 'Button hole technique'
- Prevented 'permanent' catheter use!

# Approaches Used To Reduce Catheters

- We had a number of patients with chronic catheters
- Difficult to convince, but collaboration worked
- Proceeded with vein mapping
- Created AVF, including transposition
- Salvaged as needed
- 'Button hole technique' when needed
- *Moved some patients with poor access to peritoneal dialysis or expedited their transplant*
- Reduced catheter use!

# Elements for Catheter Reduction/Fistula Use

- **Motivation- of *All involved***
- **Building a team**
- **Used most of the 'Change Concepts' of Fistula First**
- **Utilizing all possible strategies-**
  - Pre ESRD AVF
  - Salvaging AVF
  - Removing catheters
  - Creating Secondary AVF

**But, we have existing opportunities that  
we still need to utilize**

**We Are Not Done Yet!**

# SUMMARY

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- **Vascular Access remains the ‘Achilles Heal’ of hemodialysis**
- **There is a survival benefit associated with AVF use**
- **Critically appraising the paradigm of access management through QAPI and using feedback to improve the process will result in better outcomes**
- **Sheer presence of high catheter use or low AVF rates should not be considered a ‘hopeless situation’, but can simply be interpreted as ‘Lots of Opportunity’**
- **The new paradigm seems to be applicable to other units as well**

**We Are Proud of Our Team!**