VASCULAR ACCESS: ACHIEVING OUTCOMES THROUGH QAPI

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Objectives

• 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

- CVC rate 40%
- AVF rate 42%
Clinical Pathways

• 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

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

# Patients with data (in 1 month): 59

% of Patients

Reporting Month

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

Date Extracted: 08:42 Tuesday, December 08, 2009
Report ID: QE1042.16.02
Version: 11.60
Fresenius Medical Care North America

Operational Hierarchy:
- Company: Fresenius Medical Services
- Op Group: Central
- Region: Western Ohio
- Area: Central Ohio Area
- Report for: OSU Clayton Taylor
- State/City: OH/Columbus

# Patients with data (in 1 month): 59

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

A-V Fistulas (at end of period):
- % of Patients with A-V Fistulas

# Reporting Month
- Facility Goal
- % of Patients with A-V Fistula
Hemodialysis: Quality Status Report (QSR)
Time Series Graph: Primary Indicators
Period Ending: November 30, 2009

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

# Patients with data (in 1 month): 65

Reporting Month

- Highest 10th Percentile of Facilities
- Lowest 10th Percentile of Facilities
- % of Patients Meeting Patient Target
% of Patients with A-V Fistulas

Reporting Month

- Facility Goal
- % of Patients with A-V Fistula
Focus On Fistulae

- Onset of access program 1995 - focus on placement of AVF
- Of primary accesses 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

- 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???

- 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

- 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

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Impact of Access Change on Mortality

Change in Vascular Access by May 1st, 2007 in All Surviving Patients

Lacson et al. AJKD 2009: 912-921
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?

Act  Plan

Study  Do
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!
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

• 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!