

**Strategies to Reduce Hemodialysis Catheters in Your  
Dialysis Facility**

**It's a Team Effort**



**ICNNT/NKFI**

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# Presentation Outline

- **How is Illinois Doing with CVC rates**
- **Why Catheter Reduction a Priority**
- **Benefits of Permanent Access over CVC**
- **Physician and Facility Challenges**
- **Team Catheter Reduction Strategies**
- **What is Working for You**

# History is a Wonderful Teacher We Have Come So Far – Except for...



# **What's Positive About Dialysis Catheters?**

- **Easy to place**
- **Allows patients to leave hospital quicker**
- **No need to wait for healing/maturation**
- **Saves lives of acute/new ESRD patients**
- **No needles**
- **No waiting for exit sites to stop bleeding**

**CAUTION**

**DANGEROUS!**  
**HEMODIALYSIS CATHETER**

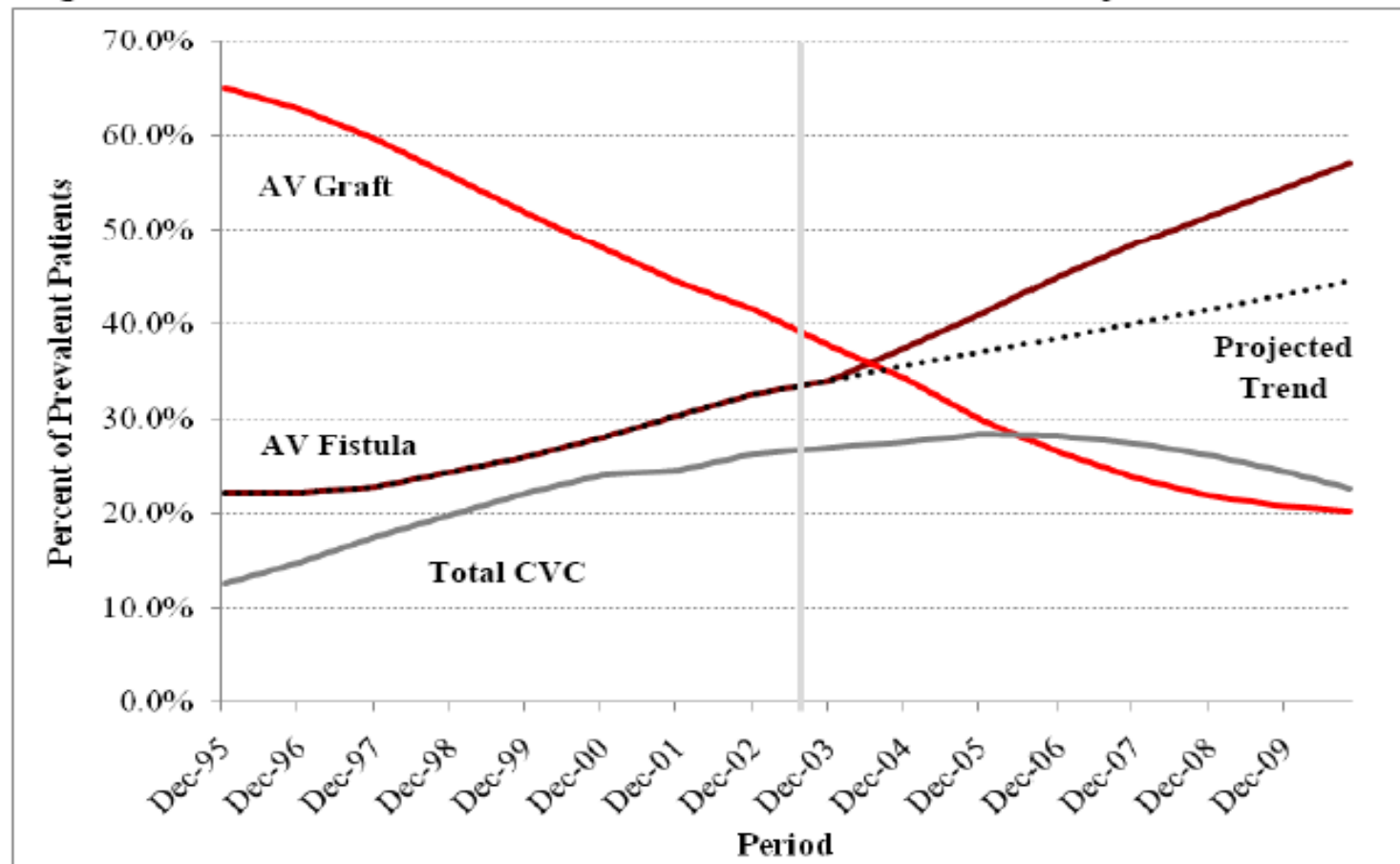
(Scientific name: Niveus hose of nex / White hose of death)

**AVOID CATHETER CONTACT**  
**WITH YOUR PATIENTS**

**CAUTION**

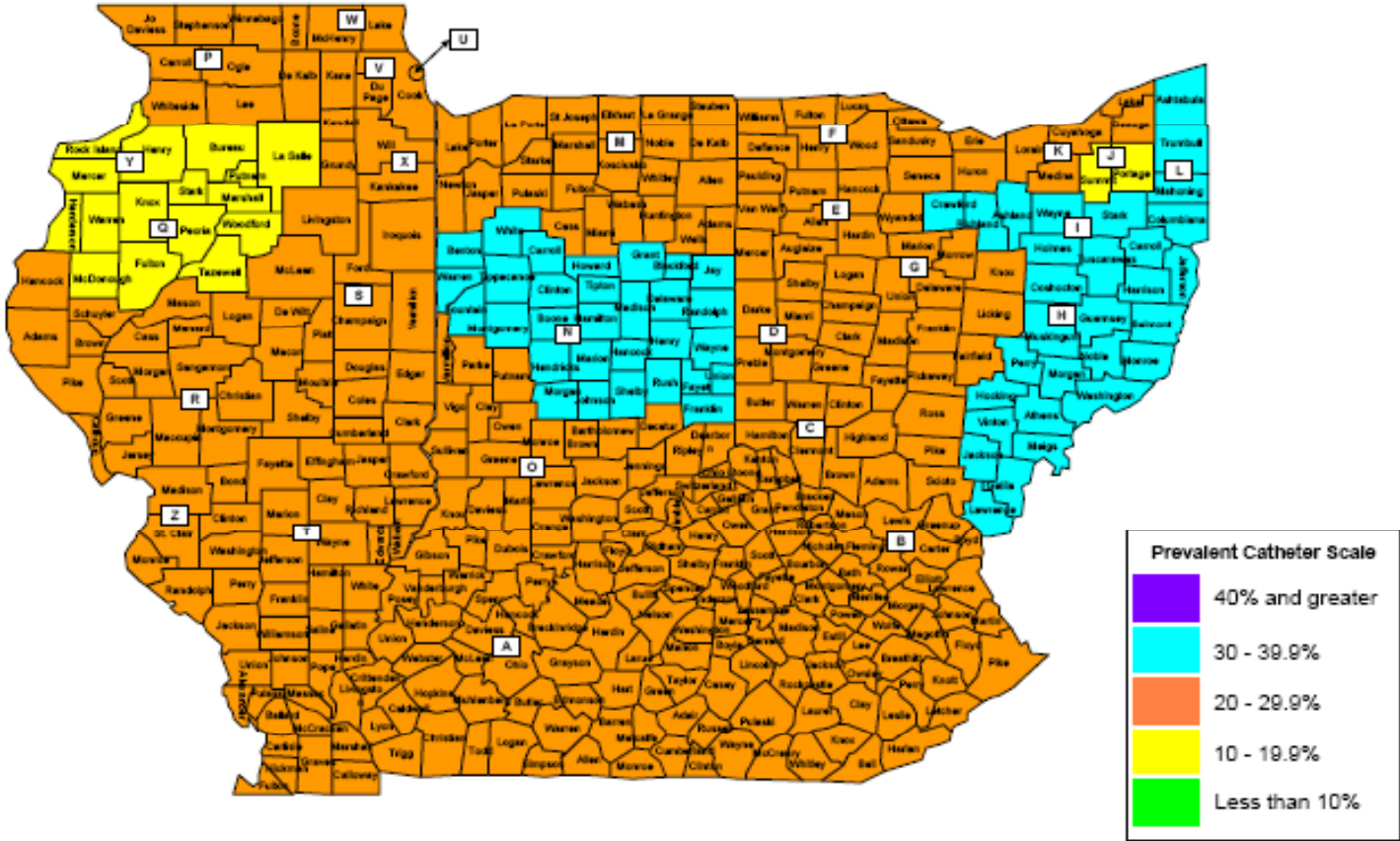
# Vascular Access Trends

Figure 2: U.S. Trends in AV Fistula<sup>1</sup>, AV Graft<sup>2</sup> and Total CVC<sup>3</sup> Use, December 1995 through October 2010, with Trend in AV Fistula Use Prior to FFBI Projected Forward<sup>4</sup>

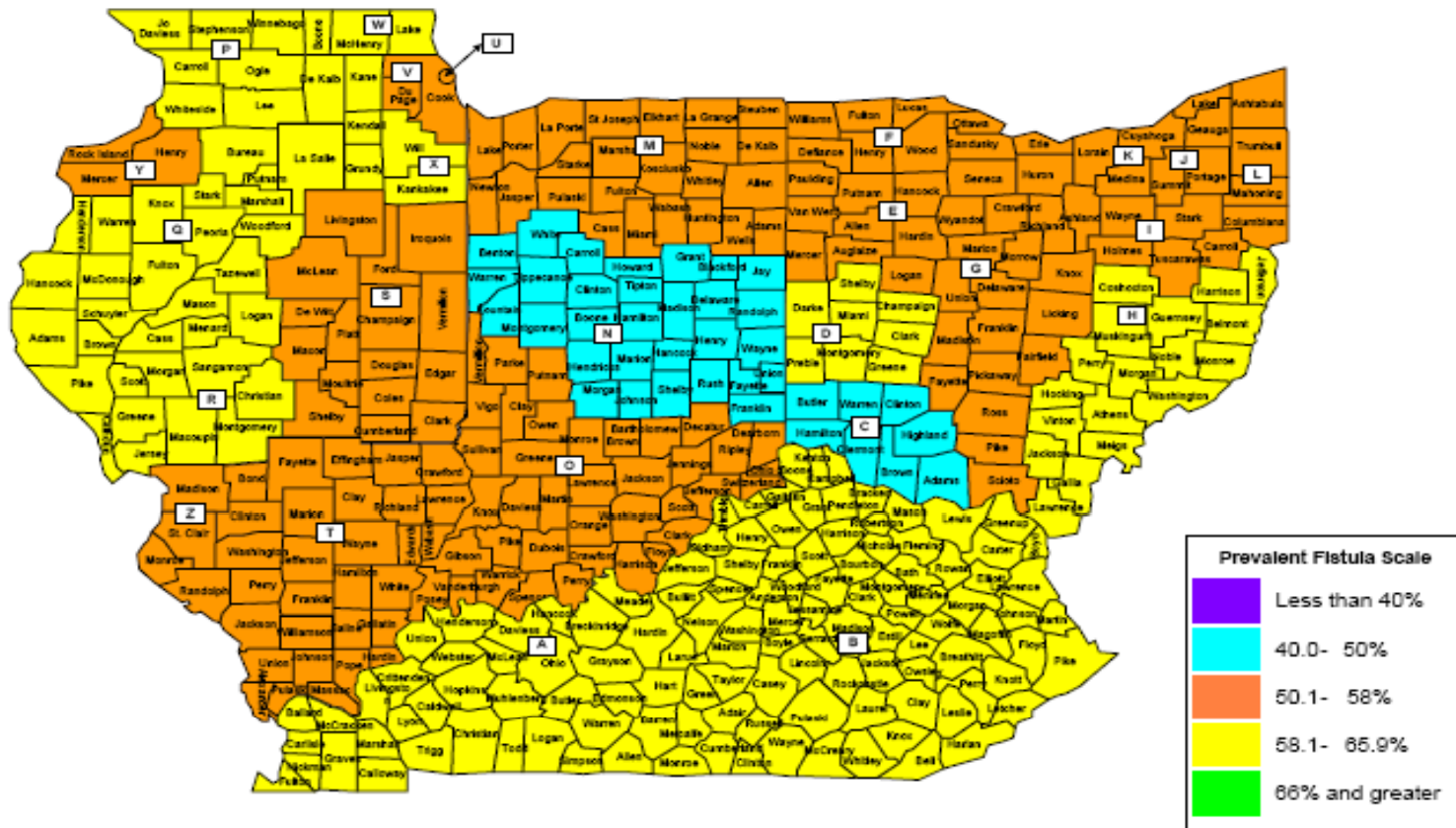


*YOUR ZIP CODE MATTERS*

# Network Prevalent Catheter Rates December, 2010



# Network Prevalent Fistula Rates December, 2010

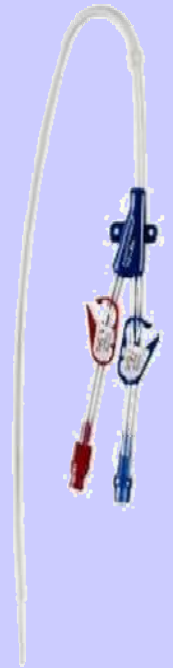


Time Out:  
Why Does Your Facility  
Struggle with Catheters!

# Catheters Are Dangerous!

Compared to AVF/Gs, CVC patients have:

- Two to three times increased risk of death
- Five to ten times increased risk of septicemia
- Hospitalized eighteen days per year, compared to nine days
- Reduced Kt/V, HGB and albumin values
- Higher ESA, antibiotic and thrombolytic use (10K)
- Higher expenses to facility and the healthcare system

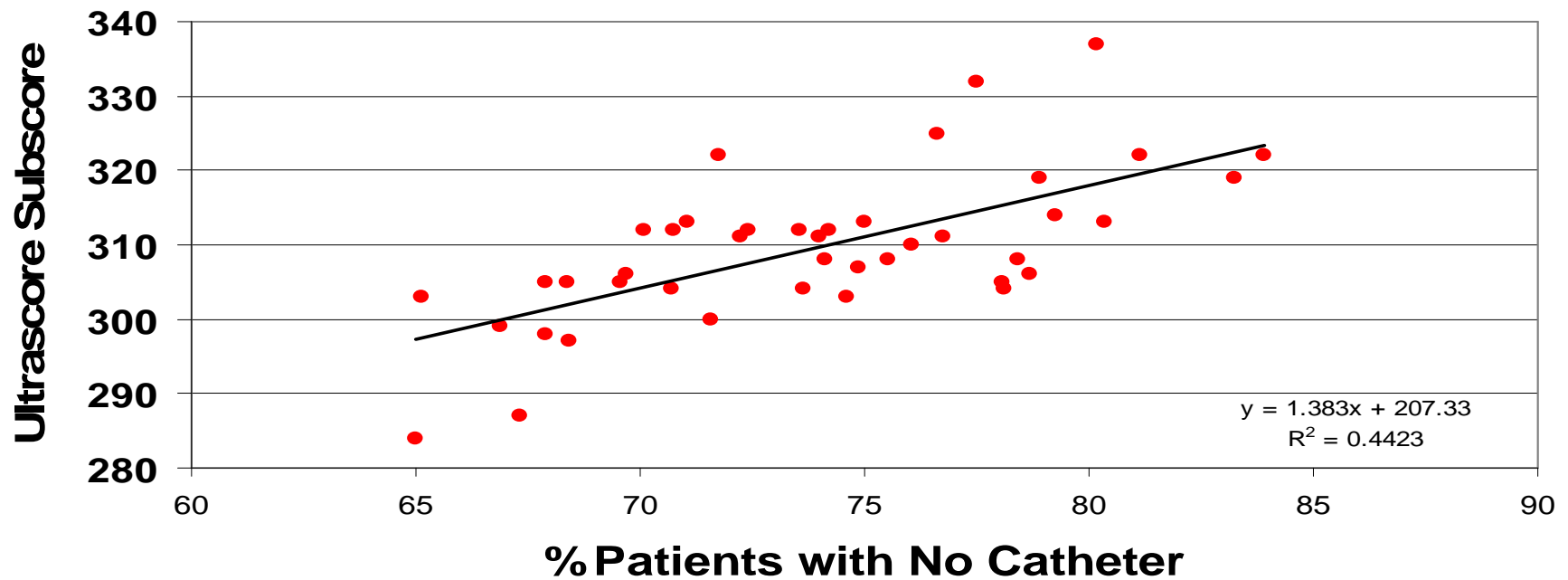


# Why Catheter Reduction a Priority?

Fewer Catheters – Improved Outcomes

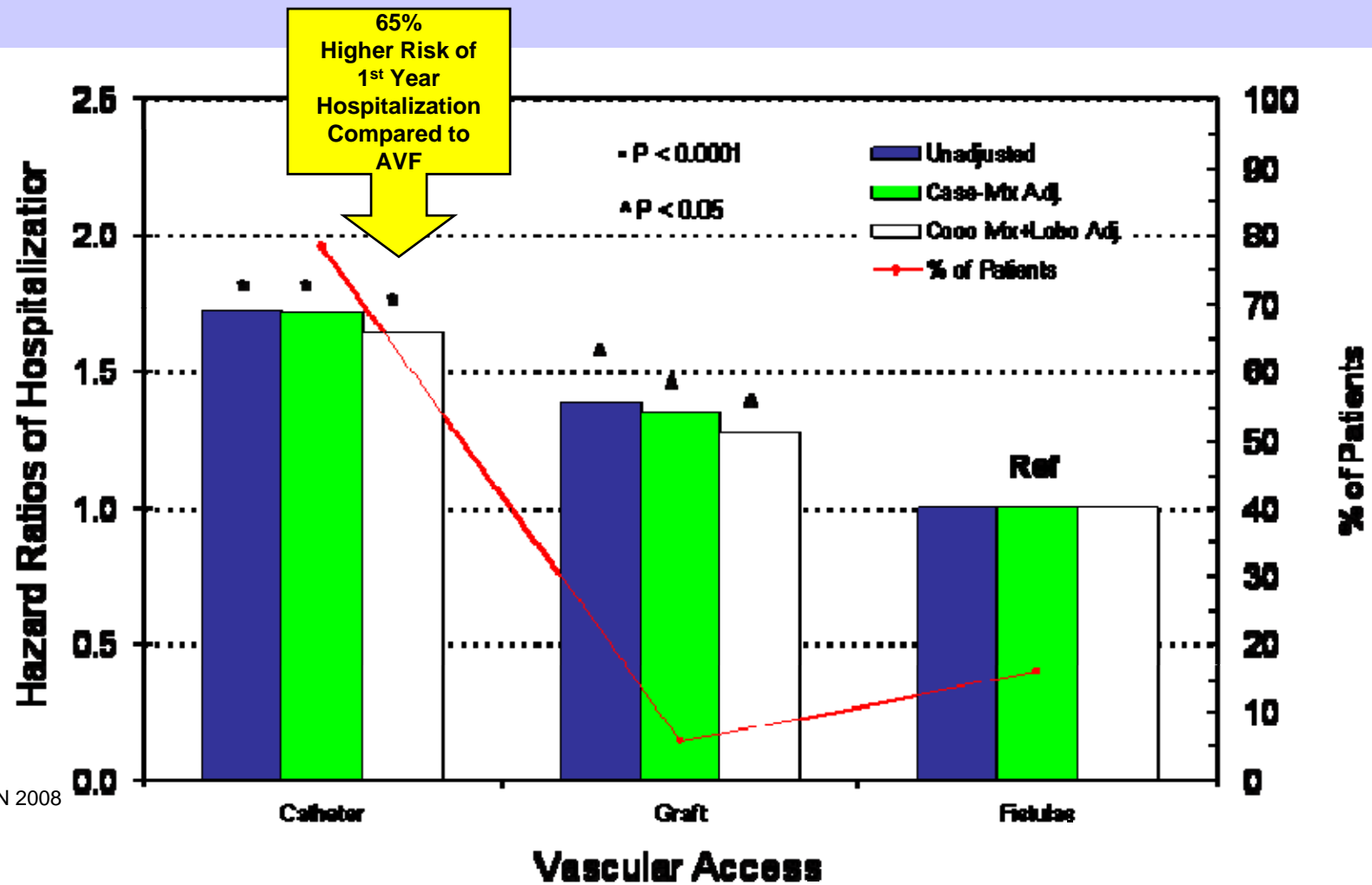
## Regional UltraScore Subscore vs. % No Catheters: April - June 2010

Lower Catheter Rates Are Associated with Higher UltraScore Subscore



# Vascular Access & 1st Year Outcomes in Incident Hemodialysis Patients

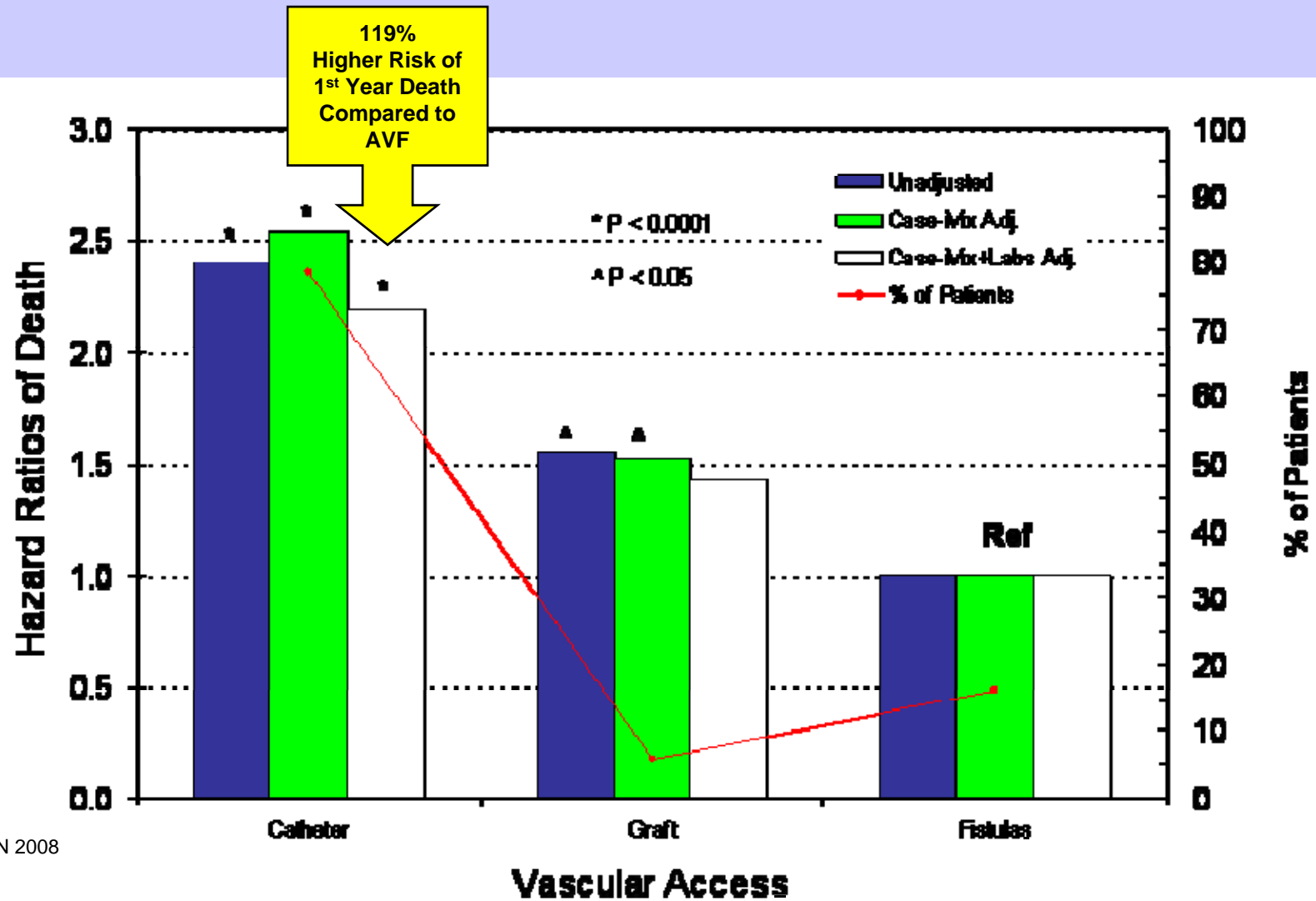
## Impact of Access Type on Hospitalization Rate



Presented ASN 2008

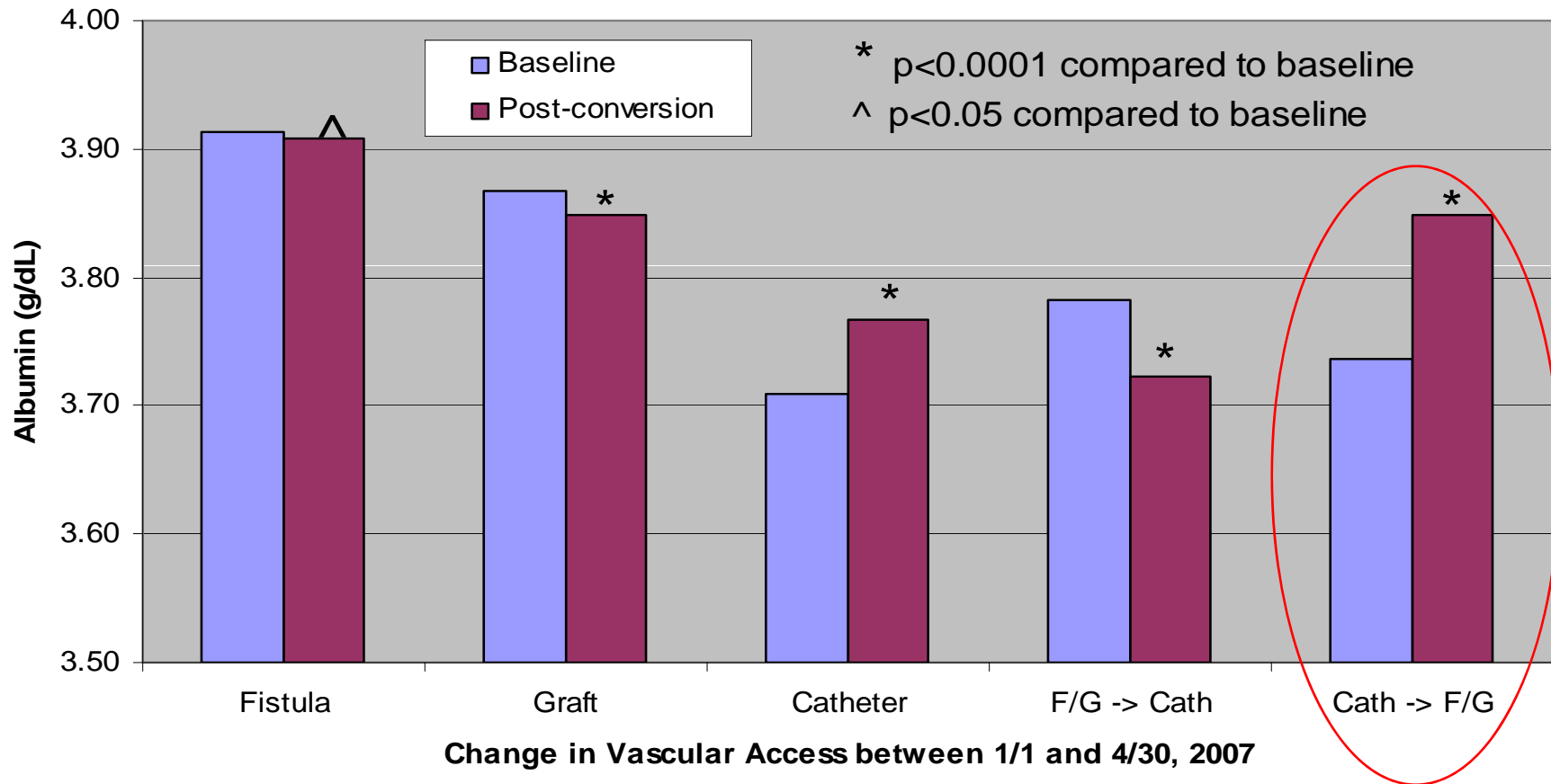
# Vascular Access & 1st Year Outcomes in Incident Hemodialysis Patients

## Impact of Access Type on Death Rate



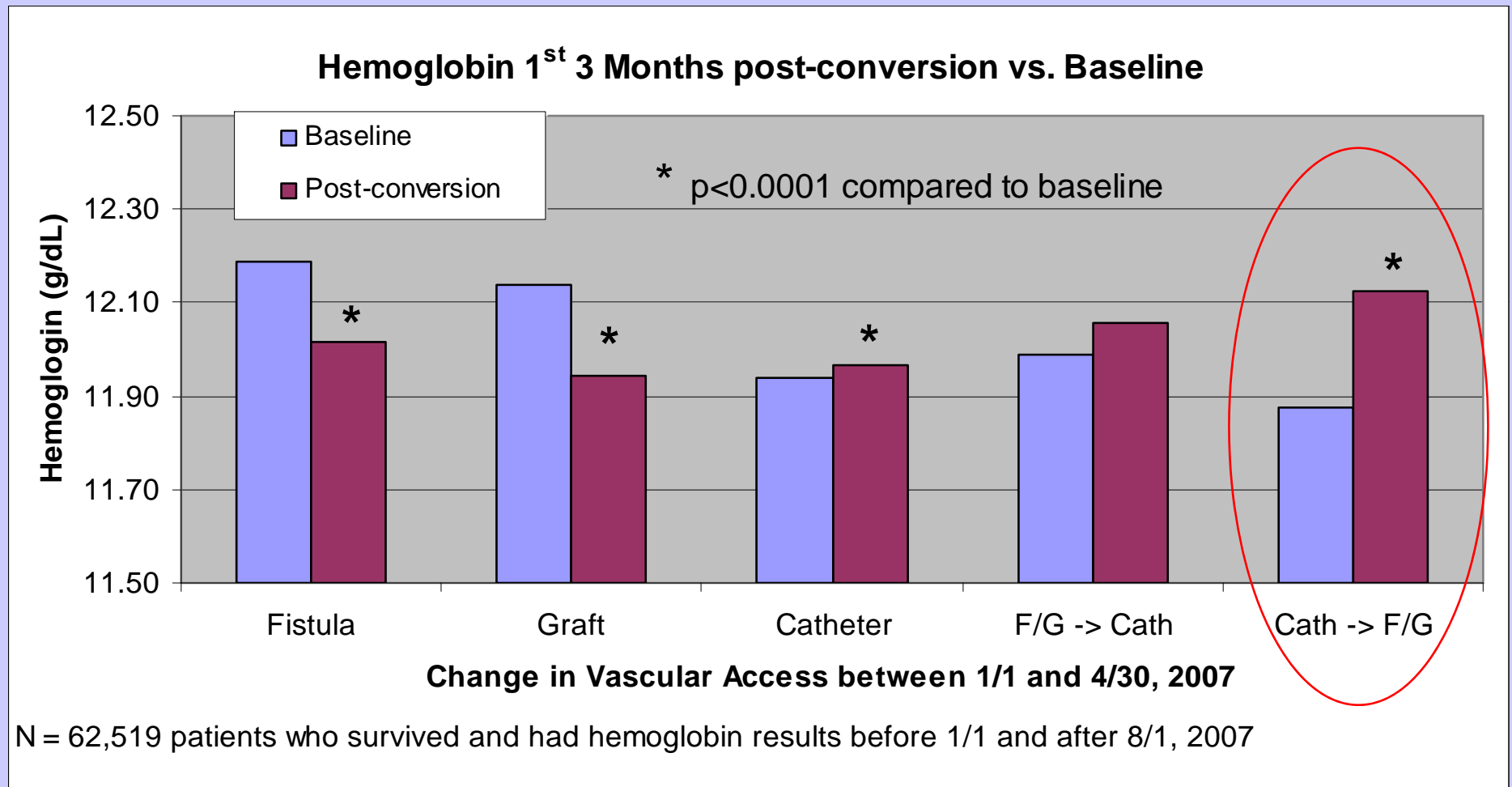
# Impact on Albumin When CVC Removed

Albumin 1<sup>st</sup> 3 months post-conversion vs. Baseline



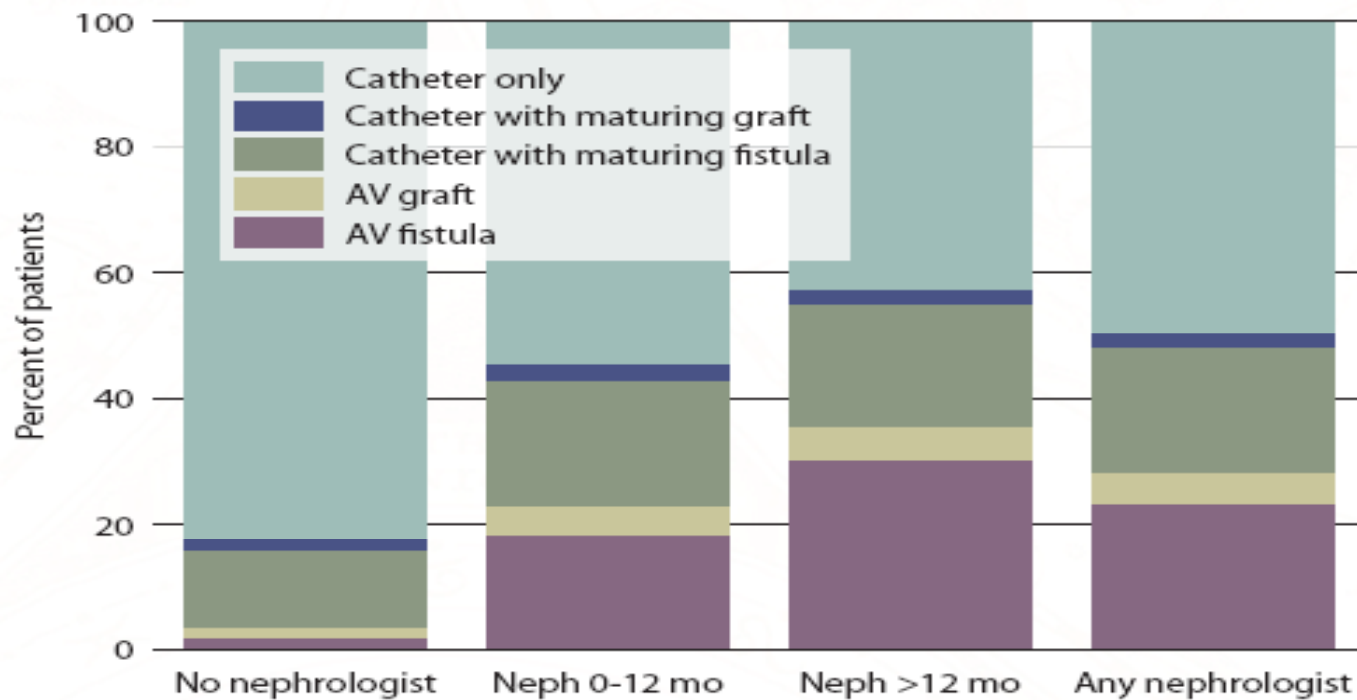
N = 62,254 patients who survived and had albumin results before 1/1 and after 8/1, 2007

# Impact on HGB When CVC Removed



# Access on Admit and Pre-ESRD Care

**3 1 ii** Access use at first outpatient hemodialysis, by pre-ESRD nephrology care, 2008



# Catheter Reduction Challenges:

## **Incident Patients**

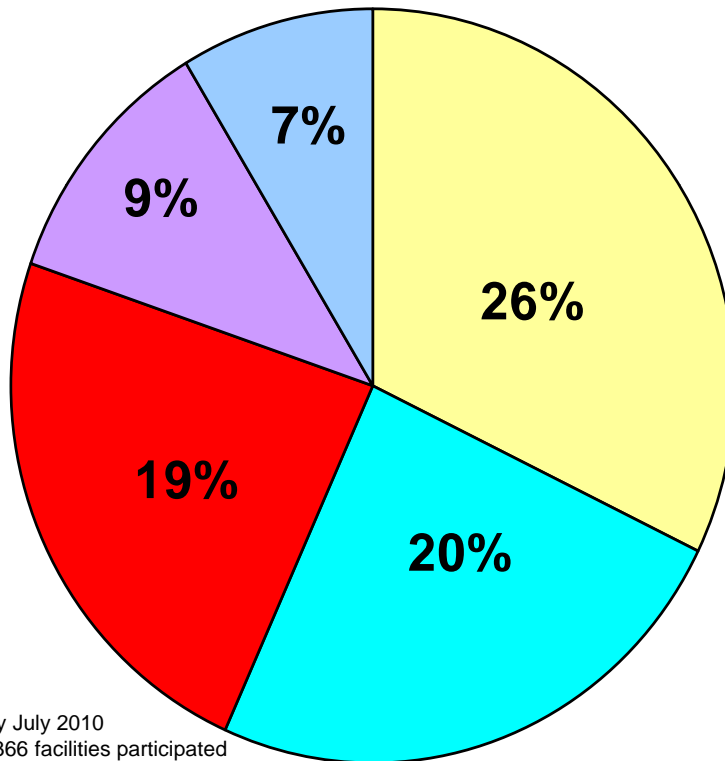
- Delayed referrals to nephrologist
- Nephrologists with no formal CKD education program.
- Failure to place AVF/G/PD access in CKD patients.
- Treatment Options program underutilized.
- Hospitals and surgeons not placing permanent access before discharge

## **Prevalent Patients**

- Nephrologists not taking accountability and responsibility for access plan while patient in hospital/clinic.
- Utilization of surgeons that do not meet quality and service expectations.
- Lack of team priority and processes to minimize CVC exposure time.
- High rate of primary AVF failure.
- Suboptimal cannulation practices and access flow issue referrals.
- Patient refusals.

# Why CVC Patients with Permanent Access Options Refuse Referral?

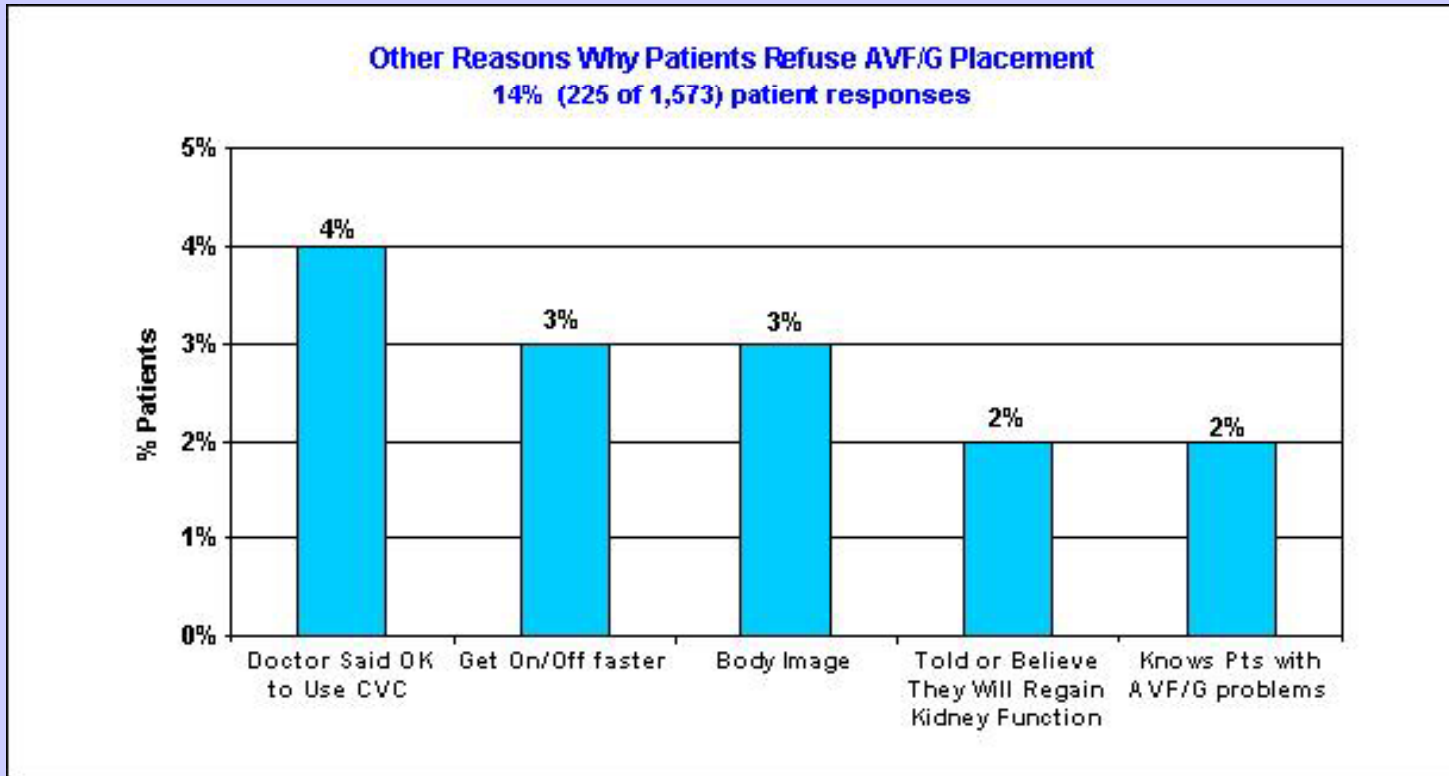
**Top Five Reasons Why Patients Refuse AVF/G Placement**  
82% (1,235 of 1,573) Patient Responses



- Previous Negative Surgical Experience
- Had a AVF/G in Past and Did Not Work
- Cannulation Fear / Pain Concerns
- I am Too Old for More Surgery
- Waiting for Transplant

Source: FMS Survey July 2010  
Volunteer Survey - 366 facilities participated

# Why CVC Patients with Permanent Access Options Refuse Referral?



## Example of Variation in Management of New CVC Patient

*Both patients seen by a Nephrologist 3 times over 12 months period before starting dialysis in hospital and discharged with CVC only*

| <b>Patient A</b>                                                                                 | <b>Patient B</b>                                                                                 |
|--------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|
| Team waits <u>3 weeks</u> for physician order for mapping and surgical consult.                  | <u>Day of admission</u> , appointments made for mapping and surgical consult.                    |
| Surgery date <u>12 weeks</u> from admission.                                                     | Surgery date <u>4 weeks</u> from admission.                                                      |
| AVF placed, surgeon sets follow-up appointment for <u>8 weeks</u> to assess AVF maturation.      | AVF placed, surgeon sets follow-up appointment for <u>6 weeks</u> to assess AVF maturation.      |
| Facility assessed AVF at <u>8 weeks</u> , referred back for no signs of maturation.              | Facility assessed AVF at <u>4 weeks</u> , referred back for no signs of maturation.              |
| <u>8 weeks</u> later physician and staff deemed access mature, surgeon concurred.                | <u>5 weeks</u> later physician and staff deemed access mature, surgeon concurred.                |
| Cannulation protocol implemented and 2 needles in place at <u>5 weeks</u> and meeting Kt/V goal. | Cannulation protocol implemented and 2 needles in place at <u>3 weeks</u> and meeting Kt/V goal. |
| CVC removed in <u>3 weeks</u> .                                                                  | CVC removed in <u>1 week</u> .                                                                   |
| <b>CVC Removed in 36 weeks</b>                                                                   | <b>CVC Removed in 17 Weeks</b>                                                                   |

# Catheter Reduction “Best Practices”

- Team approach with Medical Director taking leadership role:
  - Identification and utilization of preferred surgeons.
  - Catheter Patient Access Plan.
  - Vascular Access Managers and Expert Cannulators.
  - Specific timeline protocols for referral, assessments and follow-up.
  - Reporting and tracking of nephrologist and surgeon outcomes.
  - *Special* POC for patients refusing permanent access.
  - Monthly Access Flow Testing.
  - Fistula First Sleeves-Up Protocols.
  - Celebration of patient CVC removals.
  - Buttonhole Cannulation Technique.

## Hemodialysis Catheter Patient Access Plan

- Initiate permanent access plan and education on day of admission for all patients admitted with CVC.
- Vascular Access Managers/designee should review Access Plan with patient at least weekly and / Attending physician reviews on rounds
- Information (dates) from this form should be transferred to *Catheter Reduction Workbook*

| Patient Name                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Attending Nephrologist                                                                                                                                                                                                                                                                                 | Admit Date                                                                                                                                                                                                                                                                                                                                | Date Catheter (CVC) Placed                             | Date AVF/G/PD Placed |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------|----------------------|
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                        | / /                                                                                                                                                                                                                                                                                                                                       | / /                                                    | / /                  |
| <b>Surgeon:</b> _____                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                        | <b>Phone:</b> _____                                                                                                                                                                                                                                                                                                                       |                                                        |                      |
| <b>Radiologist:</b> _____                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                        | <b>Phone:</b> _____                                                                                                                                                                                                                                                                                                                       |                                                        |                      |
| Action                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                        | List date(s)                                                                                                                                                                                                                                                                                                                              | Comments/Notes                                         |                      |
| If CVC+ Developing AVF, start at # 6<br>If CVC+ Developing AVG, start at # 7                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                           |                                                        |                      |
| 1.                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | <b>Catheter Patient Education:</b><br>Initial patient education (encourage family participation) on importance of permanent access establishment and risks of CVC should be implemented day of admission and then weekly until permanent access placed.                                                | -- / -- / --<br>-- / -- / --<br>-- / -- / --<br>-- / -- / --                                                                                                                                                                                                                                                                              | Comments/Notes                                         |                      |
| Initial vascular access education must be performed using FMS educational handouts: a) Choosing Your Access (CFC008) <u>OR</u> b) Treatment Options Access (TOPS021) <u>AND</u> c) Hemodialysis Catheter Care and Dressing Education (CFC012)<br>"Catheter in your Heart" handout (FMS041) must be used for permanent access eligible patients who are refusing permanent access referral                                                                           |                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                           |                                                        |                      |
| 2.                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | If "CVC Only", schedule for vessel mapping and surgical consult <u>day of admission</u> (if not already scheduled or completed)                                                                                                                                                                        | <b>*Renal Physicians Association VAI Recommendations</b> <ul style="list-style-type: none"> <li>Surgical consult within 2 weeks of admission, with results of vessel mapping</li> <li>Permanent access placed within 2-4 weeks of admission</li> <li>Utilization of permanent access without CVC within 90 days from placement</li> </ul> |                                                        |                      |
| 3.                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Vessel Mapping Appointment Date                                                                                                                                                                                                                                                                        | -- / -- / --<br><input type="checkbox"/> Procedure completed prior to admission                                                                                                                                                                                                                                                           | Comments<br><br>Dates patient reminded : _____         |                      |
| 4.                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Surgical Consult Appointment Date                                                                                                                                                                                                                                                                      | -- / -- / --<br><input type="checkbox"/> Procedure completed prior to admission                                                                                                                                                                                                                                                           | Comments<br><br>Dates patient reminded : _____         |                      |
| 5.                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Access Surgery Appointment Date                                                                                                                                                                                                                                                                        | -- / -- / --<br><input type="checkbox"/> Procedure completed prior to admission                                                                                                                                                                                                                                                           | Comments<br><br>Dates patient reminded : _____         |                      |
| 6.                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | <b>Four-Week AVF Maturation Assessment Date</b><br><br>Appointment date <u>if</u> AVF not showing signs of maturation at <u>4-weeks</u> (refer within <u>3 treatments</u> )<br>Do not accept "wait another 4 weeks" from surgeon, this should be considered a <u>priority referral</u> from physician. | -- / -- / --<br><br>-- / -- / --                                                                                                                                                                                                                                                                                                          | Comments<br><br>Dates Patient Reminded: ____ ____ ____ |                      |
| 7.                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Date of first cannulation by Expert Cannulator<br>CVC should be removed <u>no later than 7 days after six consecutive two-needle</u> cannulations with no infiltrations at prescribed needle gauge and BFR.                                                                                            | -- / -- / --                                                                                                                                                                                                                                                                                                                              | Comments                                               |                      |
| 8.                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Date CVC removed<br>Update clinical system when CVC removed                                                                                                                                                                                                                                            | -- / -- / --                                                                                                                                                                                                                                                                                                                              | Comments                                               |                      |
| Note: Any patient determined by the surgeon as "having all permanent access options exhausted" should have this determination validated with vessel mapping (if not previously performed) and a second opinion. If the patient is ultimately determined to have all permanent access options exhausted, the physician must document the reasons for this determination as well as any actions in the medical record that were taken to validate this determination. |                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                           |                                                        |                      |

All referrals require physician order. All steps may not be applicable.  
 Steps and timeline may need to be modified based on patient's insurance situation or changes in health status.  
 Maintain Access Plans in binder at nursing station for physician rounding and team review / Place in medical record when complete.  
 \* Recommendations are sourced from the 2010 Renal Physicians Association Catheter Reduction Initiative

## Catheter Reduction “Best Practices”

- Add 30 minutes to new patients with CVC – provides leverage and will allow for improved clearance
- Hold meeting with patient and family ASAP as to importance of permanent access
- Meet with hospitals to discuss ways to reduce CVC only admits – Utilize Renal Physicians Association Resources
- What would you add?

# Take Home Actions!

- Make CVC reduction a priority for team.
- Identify your root causes.
- Focus on minimizing CVC only admissions and speeding up CVC in to CVC out.
- Advocate for your patients.
- Watch your outcomes improve as CVCs are reduced!

