IPRO ESRD Network Program
Long Term Catheter Reduction
2016 Vascular Access Quality Improvement Activity

May 10, 2016
Meeting Facilitator/Host

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Agenda

- Speaker 1: Lynn Poole
  - The Team Approach for Achieving Catheter Freedom
  - Open Forum Q & A
- Speaker 2: Wesley Spencer
  - Patient Perspective – Overcoming Needle Fear
  - Open Forum Q & A
- Closing Remarks/Next Steps
How to be...

- Be present and engaged in our speaker presentations
- Remain open-minded and respectful in hearing other’s opinions
- Actively participating in the discussion
- Speak up on the line, send in comments in the chat
- Be mindful of muting your phone when not speaking
- Don’t place the call on hold, instead disconnect your line and rejoin the call when able
Purpose/Objectives

- Hear more on a team approach to reaching LTC reduction
- Learn new tools and strategies to meeting LTC goals
- Listen to a patient perspective on overcoming needle fear
- Plan to share the information learned on this webinar with the staff and patients in your unit
- View available Network resources to help reach project goals
The Team Approach for Achieving Catheter Freedom
Vascular Access Management

May 10, 2016

Lynn Poole FNP-BC, CNN
Figure 4.7  Vascular access use during the first year of hemodialysis by time since initiation of ESRD treatment, among patients new to hemodialysis in 2013, from the ESRD Medical Evidence form (CMS 2728) and CROWNWeb data, 2013-2014

Data Source: Special analyses, USRDS ESRD Database. Medical Evidence form (CMS 2728) at initiation and CROWNWeb for subsequent time periods. Abbreviations: CMS, Centers for Medicare & Medicaid; ESRD, end-stage renal disease.
80.2 % using catheter at initiation
- Little change since 2005

2013
- 68.3 % were using a catheter at 90 days

2005-2013
- 12%-17.1% AVF in use at initiation
- 28.9%-35.1% Maturing AVF in place

2013
- 135 days (mean) from placement to use
Figure 4.4 Geographic variation in percentage catheter use among prevalent hemodialysis patients by Health Service Area, from CROWNWeb data, December 2013

Data Source: Special analyses, USRDS ESRD Database. Abbreviation: ESRD, end-stage renal disease.
Figure 4.5 Geographic variation in percentage AV fistula use among prevalent hemodialysis patients by Health Service Area, from CROWNWeb data, December 2013

Data Source: Special analyses, USRDS ESRD Database. Abbreviations: AV, arteriovenous; ESRD, end-stage renal disease.
Figure 4.8  Percentage of failed fistula placements, by Health Service Area, for new AV fistulas created in 2013 (excludes patients not yet ESRD when fistula was placed), from Medicare claims and CROWNWeb, 2013-2014

Data Source: Special analyses, USRDS ESRD Database. Abbreviations: AV, arteriovenous; ESRD, end-stage renal disease.
Lifeline for a Lifetime

The Team Approach for Achieving Catheter Freedom
Fistula First Breakthrough Initiative (FFBI)

2005 – Transitioned to Fistula First Breakthrough Initiative (FFBI)

AVF

*5/12 transition to CROWNWeb
Fistula First Catheter Last Data

- AVF
- AVG
- HDC* AII
- HDC > 90

*HDC- Hemodialysis Catheter
**#1: Routine CQI review**

- Dialysis facilities should incorporate vascular access into their continuous quality improvement (CQI) processes

**#2: Timely referral to nephrologist**

- Reach out to the primary care physician (PCP) community to educate clinicians on appropriate referral criteria

**#3: Early referral to surgeon**

- Coordinate chronic kidney disease patient care so that patients will be referred early to surgeons specifically for AVF evaluation, including vessel mapping where indicated, allowing sufficient lead-time for AVF maturation

**#4: Surgeon Selection**

- Choose surgeons who are willing and able to do AVF construction
**FFBI Change Concepts**

**#1: Routine CQI review**
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**#4: Surgeon Selection**
- Choose surgeons who are willing and able to do AVF construction
**#5: Full range of appropriate surgery**

- Surgeons who are skilled in vein transposition techniques are able to create successful AVF in a substantially greater number of patients
- Make sure surgeons understand the logistics of cannulation so that they position the veins suitably and safely for cannulation

**#6: Secondary AVF placement**

- Evaluate graft patients for placement of a secondary AVF

**#7: AVF placement in patients with catheters**

- Regardless of prior access, nephrologists and surgeons evaluate all catheter patients as soon as possible for AVF, including mapping

**#8: Cannulation training**

- Facility uses best cannulators and best teaching tools to teach AVF cannulation to all appropriate dialysis staff
#9: Monitoring and maintenance
- The health care team should establish a process for monitoring and maintenance of AVF and AVG to ensure adequate access function

#10: Education of patients and caregivers
- Dialysis patients/caregivers need support and resources, including information about the value of AVFs, how to protect their veins, and to advocate for themselves with their health care team

#11: Outcomes feedback
- Review data monthly in facility staff meetings. Present and evaluate data trended over time for rates of AVF, AVG, and catheter use.

#12: Modify hospital systems to detect CKD and promote AVF planning
- Hospitals develop a comprehensive plan of care for patients at risk for or with kidney disease
FFBI Change Concepts

#13: Support patient efforts to have the best possible quality of life through self-management

Patient self-management support will increase patients’ skills and confidence in managing their health problems, including goal setting, regular assessment of progress and problems, and problem-solving support.
Patient’s Access Status

- Working AVF or AVG
- AVF with HDC
- AVG with HDC
- Catheter Only
Let’s review a case that is typical and will be familiar to many of you:

A 65 year old female with diabetes and hypertension initiated hemodialysis with a hemodialysis catheter (HDC) and no other access in place. When she comes in for her sixth dialysis treatment, she says she does not feel well.

You do your assessment and note that she has a fever, her blood pressure is 90/60 and she is nauseated. Since she has a HDC, you suspect a bloodstream infection. After consulting her nephrology practitioner, you obtain blood cultures, initiate intravenous antibiotics, and refer her to the Emergency Department for evaluation.

When you review her dialysis clinic and hospital records, you find no access plan in place to move her toward catheter freedom.
In this presentation, we are going to provide you with tools and resources to help to prevent this from happening to the patients in your care.
What about our patient?

What do we know from the case study?
- She has a HD catheter
- She has had a blood stream infection
- She has no access plan

What should be the focus of her care?
- Catheter safety
- Access Planning to Catheter Freedom
- On-going Access Monitoring
What can we do to increase AVFs and reduce/avoid catheters?

Catheter Safety
A Bridge to Your Lifeline
One Minute Catheter Check

Access Planning and Coordination
Lifeline for a Lifetime
Planning for Your Vascular Access

Access Monitoring
Taking Care of My Lifeline for a Lifetime
The One Minute Access Check
Tunneled Catheters

Tunneled Dialysis Catheter into tip of Right Atrium

Used as temporary Access or if permanent access is not an option

Highest Rates of Infection, and Vessel Stenosis
Arteriovenous Fistula

Surgical connection between an artery and vein
Continuous CIRCUIT
Lowest complication rate
4-6 weeks maturation time
Best long-term primary patency
Requires the fewest interventions

1 – Perera et al, Ann Vasc Surg, 2004
2 – Huber et al, J Vasc Surg, 2006
3 – FFCL Images
AVF Timeline

Best case scenario for a “simple” AVF

Patient agreement to catheter freedom

No complications along the way

140-150 days or 4-5 months
Arteriovenous Graft

AVG (synthetic)

Ready for use in 2-3 weeks

May be an option if veins prohibit AVF development

More infections than an AVF, but less than an HDC

Tends to clot more often than AVFs

1 – Perera et al, Ann Vasc Surg, 2004
2 -- Huber et al, J Vasc Surg, 2006
3 – FFCL Images
AVG Timeline

Grafts heal. They do not mature

2-3 weeks from placement to use

Early cannulation AVGs have been cannulated successfully within a couple of days of insertion

Some surgeons prefer to wait for 2 weeks

➢ Then what were the indications for an early cannulation AVG?
Catheter Safety

A Bridge to Your Lifeline
Catheter Safety

“One Minute Catheter Check” Overview

What it IS
Checking the catheter and catheter site
A “bridge” to an AVF or AVG

What it is NOT
Checking for catheter performance or care
One Minute Catheter Check
Dialysis Care Team
It only takes a minute to check your patient’s catheter.

**Dialysis Care Team:**
- Perform catheter check at each treatment or when patient reports a change.
- Reinforce importance of daily catheter check to patient.
- Listen to the patient.

**Look**

**Listen**

**Feel**

Were there any abnormal findings during the catheter check?

- **No**
  - Document that there were no abnormal findings.

- **Yes**
  - Report and document findings per facility policy and procedure.

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This material was prepared by the End-Stage Renal Disease Network Coordinating Center (NCC), under contract with the Centers for Medicare & Medicaid Services (CMS), an agency of the U.S. Department of Health and Human Services. The contents presented do not necessarily reflect CMS policy. CMS Contract Number: HHSM-500-2013-NW002C.
**Look**

Look at the CATHETER to make sure:
- There are no cracks in the catheter tubing.
- The caps are on the ends of the catheter tubes.
- The catheter cuff is not coming out of the skin.

Look at the EXIT SITE to make sure there is no:
- Redness
- Drainage
- Bleeding
- Exposure of catheter cuff

Check the skin over the tunnel for redness.

**Listen**

Listen to the patient and be sure to ask:
- If they think they might have a fever.
- If they have noticed anything different with their catheter since the last dialysis treatment.

**Feel**

Press lightly on the area over the tunnel away from the exit site.

There should be no:
- Pain
- Drainage coming from the exit site

The area over the tunnel should not feel warmer than the area around it.

**Stop**

- If you think there is a problem with the catheter tubing.
- If the catheter hubs are exposed or dirty.
- If the catheter cuff is coming out of the skin.
- If the exit site is red, draining or bleeding.
- If the cuff is exposed.
- If a stitch is still in place: Check to see if it can be removed
- The skin over the tunnel is red.
One Minute Catheter Check Patient
It only takes a minute to check your catheter.

Check your catheter every day.

Look

Feel

Did you notice anything different when you checked your catheter today?

No change.

Great!
Keep checking each day.
At your next treatment, tell your Dialysis Care Team that there was no change.

Yes, a change.

Call the contact given to you by your Dialysis Care Team.
Share what you found.
They will tell you what to do next.
It only takes a minute to check your catheter.

A Bridge to Your Lifeline

Look

Look at your catheter dressing in the mirror.

- **It is clean and dry**, and it covers the exit site (the place where the catheter comes out of your skin)
- **The dressing does not cover the exit site**, it is wet or dirty, there is blood or pus on the dressing.

Feel

Feel over the catheter dressing. **Do not remove the dressing!**

- **The dressing is dry** and there is no pain in the area under the dressing.
- **The dressing is wet**, you have pain in the area under the dressing, something feels different, or you think you may have a fever.

If you notice any of the red “stop” signs during your daily catheter check, follow these instructions IMMEDIATELY:

Contact: ___________________________________________

During regular facility hours ___________________________________________

After hours __________________________ 38
Our patient and the dialysis care team are doing the one minute catheter check
- Catheter safety

Now we are going to focus on Access Planning
- The pathway to catheter freedom
Access Planning

Lifeline for a Lifetime:
Planning for Your Vascular Access

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A Team Approach

ESRD NCC
NATIONAL COORDINATING CENTER
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Step 1: Develop an Access Plan

Step 1: Develop Vascular Access Plan

Every hemodialysis patient has one or more vascular access in place, so having a vascular access plan is beneficial to everyone. Developing, executing, and managing an access plan across the access continuum is vital to maintain each patient’s lifetime for a lifetime.

**What is a vascular access plan?**
- A description of the steps necessary to achieve catheter freedom and maintain a working fistula or graft.
- Individualized for each patient based on the clinical status and options available to the patient at the time.

**Why have a vascular access plan?**
A vascular access plan provides an organized approach for the management of a complex clinical condition. Patients on hemodialysis will have multiple encounters with the healthcare system over their lifetime. These encounters are likely to include:
- Dialysis treatments;
- Primary care visits;
- Specialist visits;
- Hospitalizations; and
- Out-patient procedures.

Because these encounters take place in various sites of care, they provide challenges and potential turning points in the patient’s plan of care. The existence of an access plan that guides practitioners and patients in every setting can minimize the risk of disrupting long-term access planning options for the patient and promote patient safety.
Step 2: Refer for Vessel Mapping

What is vessel mapping?
Vessel mapping is a simple test done with an ultrasound machine. No needles are used unless there is a need to look at the central veins. The test is used to determine arterial inflow and venous outflow and to assess the adequacy of the venous system to support an AVF or AVG in the extremity.

Most surgeons perform vessel mapping in their offices. This can decrease the access timeline by two weeks for a new AVF or AVG. In advance of the surgery appointment, it is important to know whether a surgeon does vessel mapping. If he or she does not do vessel mapping, the patient should be referred to other vessel mapping services before he or she has the surgery appointment.

Identifying vessel mapping services.
First, find out if the surgeon who will do the access surgery also does vessel mapping:
- The DCT members will need to communicate with their surgeons to learn who does and does not perform their own vessel mapping.
- If a surgeon does not do vessel mapping, the DCT will need to identify other vessel mapping services. Vessel mapping done by someone other than the surgeon can add up to two weeks to the timeline.

Key questions:
Key questions to ask when identifying and evaluating vessel mapping services:
- Do they perform comprehensive mapping of the upper extremities?
- When requested do they map the lower extremities?
- Do they map the arteries to assess inflow?
- Do they map the venous system to assess outflow?
- How do they assess the central veins?
- How will the vessel mapping results be communicated to the ordering practitioner?
- If vessel mapping services are being offered by a vascular lab, is the lab accredited by the Intersocietal Accreditation Commission?

Some radiologists may work in a setting that is not accredited as a vascular lab but may do adequate vessel mapping. You may want to consult with the surgeon and/or nephrology practitioner about the reliability of these radiologists in performing vessel mapping.
Vein Preservation

High priority before and after the initiation of dialysis

Veins in both arms must be preserved

When possible, utilize the dorsum of the hand

Limit use of percutaneously inserted central catheters (PICCs)

Preserve veins in patients on PD and those with transplants
Step 3: Coordinate Surgeon Appointment

Working with the surgeon. The appointment with the surgeon can be made as soon as the patient agrees to see the surgeon. If the surgeon performs the vessel mapping, that will be done at the time of the appointment. It is important for the members of the DCT to know what surgical services are available in their area. The list of questions shown below points to important information members of the DCT should know in order to assess the surgical services offered.

Most nephrology practitioners have identified surgeons to whom they refer their patients for vascular access surgery and follow-up. It is very important for the DCT to obtain this information from each surgeon in their area in order to work more efficiently with them and their staff members. Information is essential for coordinating access services among the DCT, nephrology practitioners, surgeons and patients to ensure that the patient can navigate the access process and potentially have an AVF created or an AVG placed.

The DCT should gather the following information from each of the vascular access surgeons in their area:

- Do they create AVFs?
- Do they place AVGs?
- Do they place hemodialysis catheters?
- Do they place PD catheters?
- Where do they perform access surgery?
- During what office hours do they schedule appointments to evaluate patients for access surgery?
- What days of the week and during what time periods do they perform vascular access surgeries?
- Will they send the DCT a drawing of the access anatomy and structure?

- What is the usual protocol for follow-up after access surgery for an AVF?
- Does the protocol differ based on the type of AVF?
- What is the usual protocol for follow-up after access surgery for an AVG?
- How do they assess and treat an AVF that is failing to mature?
- How do they assess and treat an AVG that is not healing as it should?
- What information do they want from the dialysis clinic and/or nephrology practitioner?
Step 4: Access Surgery and Follow-up

Delays may occur and barriers may arise in this stage. It is important to manage this step carefully to ensure the best outcome for the patient. The surgeon should have a specific approach for each access type, with a predictable timeline for AVF maturation and AVG healing. If there is a delay in these timelines the surgeon should be asked to articulate his or her approach to evaluation, intervention, and follow-up.

It is important for the DCT to start this process by understanding the scope of a surgeon’s vascular access expertise.

Does the surgeon create fistulas?
Does the surgeon create the more common types of fistulas?
- Using superficial vessels in the lower arm?
- Using superficial vessels in the upper arm?
Does the surgeon create complex fistulas, such as transposition of vessels in the upper arm?
Does the surgeon use a one-step procedure?
- What is the surgeon’s projected timeline for fistula maturity?
Does the surgeon use a two-step procedure?
- What is the surgeon’s projected timeline for fistula maturity?

Does the surgeon place grafts?
What types of grafts does the surgeon place?
- Straight
- Looped
- Graft/catheter hybrid
What types of graft materials does the surgeon use?
- PTFE (most common)
- “Early stick”
- Bovine
- Genetically modified
- Cadaver
- Other

Vascular Access Planning Guide for Professionals
Step 5: Assess Fistula (AVF) Maturation; Graft (AVG) Healing and Readiness

"Ready, Set, Go" the Steps to Catheter Freedom is a process and timeline based on nationally accepted standards for vascular access placement and development. This provides a consistent and coordinated approach for the DCT and patient to check the new fistula for maturity or the new graft for healing. By performing the checks outlined in this week by week process, the team will help to ensure the readiness of a new vascular access for use in hemodialysis. Studies document that it is not uncommon for there to be a delay to achieving "catheter freedom" because problems with a newly created vascular access are not identified and acted upon in a timely manner. This increases the overall time of catheter exposure and poses a safety risk to the patient.

The “Ready, Set, Go” AVF and AVG checks can identify access maturity/healing problems early so action can be taken. Most AVFs that "fail to mature" can be fixed if referred for intervention. AVGs that "fail to heal" must be addressed promptly to find the cause and treat appropriately. Here are the questions the DCT should ask and get answers to with each check.

- "Ready" - Is the access maturing or healing as it should?
- "Set" - Are we moving toward cannulation and catheter freedom?
- "Go" - Are the “Go” signs checked off for each step on the timeline?

**When should we start to do the “Ready, Set, Go” checks?**

The “Ready, Set, Go” checking process should begin the first day your patient returns to the clinic for dialysis following access surgery.

The surgery team should send as much information as possible about the new access to the DCT so the team and the patient can begin performing the AVF maturity/AVG healing checks. If no information has been sent, the DCT should request it from the surgeon and the nephrologist. Here are examples of the information that is most often needed:

- Patient post-surgery instructions.
- Post-surgery instructions for the DCT.
- Indication of whether the access is a fistula or a graft, as well as information on the type and location of the access.
- Access diagram.
- Plan for surgical follow-up.
“Ready, Set, Go”

- New AVF for Maturity
- New AVG for Healing/readiness

Each tool reflects a specific point on the timeline.

Tools for the Patient and the Dialysis Care Team are similar in appearance and construction to the Access Monitoring tools already in use.
Dialysis Professional
“Ready, Set, Go” The Steps to Catheter Freedom
Week 4: Fistula Maturity Check

- Perform fistula maturity check at each treatment or when patient reports a change.
- Reinforce to patient the importance of daily fistula checks.
- Listen to the patient.

Look  Listen  Feel  Arm Elevation test (AVF Only)  Augmentation Test

Were there any abnormal findings during the fistula maturity check?

No

Yes

Perform once.
If normal, no need to repeat.
**Dialysis Professional**

“Ready, Set, Go” The Steps to Catheter Freedom

**Week 4: Fistula Maturity Check**

**GO**

The hand looks the same as it did before surgery.

The surgery site is clean and dry. The skin over the fistula is all one color and looks like the skin around it.

**STOP**

The arm is bruised and/or the hand is not the normal color.

There is redness, swelling, or drainage.

**Look**

**Listen**

Bruit: Listen with a stethoscope over the anastomosis. This is where the artery is joined to the vein.

The bruit is audible.

You hear the bruit along the cannulation segment.

The bruit sounds like a “whoosh” or, for some, like the beat of a drum.

There is no sound, or the bruit is not as loud as the last time it was checked.

Sound is different from what a normal bruit should sound like.

You cannot feel the cannulation segment.

**Feel**

You can feel the fistula and identify the cannulation segment.

The cannulation segment is long enough to use two needles placed two inches apart.

Thrill: A vibration or buzz that can be felt most prominently over the anastomosis; it will diminish along the length of the fistula.

The thrill becomes stronger as the fistula matures.

**Pulse:** A slight beating that feels like a heartbeat. Fingers placed lightly on the fistula move slightly.

Thrill: You cannot feel the thrill, or it is weaker than the last time it was checked.

Pulsatile: A Pulsatile beat is one that is stronger than a normal pulse. Fingers placed lightly on the fistula rise and fall with each beat.

Continued..
Dialysis Professional
“Ready, Set, Go” The Steps to Catheter Freedom
Week 4: Fistula Maturity Check

GO

Arm Elevation
Lower Arm Fistula
The fistula outflow vein **collapses** when the arm is raised above the level of the heart.

Upper Arm Fistula
The fistula outflow vein **partially collapses** when the arm is raised above the level of the heart. It may feel “flabby” when palpated.

STOP

Lower Arm Fistula
The fistula outflow vein **does not collapse** after the arm is raised above the level of the heart. This may mean there is a problem allowing the blood to flow from the fistula.

Upper Arm Fistula
The fistula outflow vein **does not collapse partially or become “flabby”** after being raised above the level of the heart. This may mean there is a problem allowing the blood to flow from the fistula.

Augmentation Test

Occlude Access
Place your fingers on the out-going vein, feel the pulse, and press down until no blood is flowing through the access.

Palpate Pulse
Keep your finger on the vein and feel for the pulse near the arterial connection of the fistula.

Pulse is **“strong and bounding”** and may cause your finger to **rise and fall with each** beat.

Pulse does not become more forceful or **“strong and bounding.”**
Step 6: Cannulation

The technique and process for cannulating an arteriovenous fistula (AVF) is different from the technique and process for cannulating an arteriovenous graft (AVG). It is important for the dialysis care team (DCT) to understand the differences. The dialysis clinic should have a policy and procedure for cannulating each type of access.

AVFs are created by joining a native artery to a native vein. During the maturation period, the vein will grow larger and take on the characteristics of an artery. Often this is referred to as the vein becoming “arterialized.” The result of the vein becoming arterialized is that the bloodflow through the AVF is high enough to deliver the dialysis prescription. For most AVFs, this takes about four to six weeks.

Once it is determined that the AVF has reached maturity, the DCT will begin cannulation of the AVF based on the Policy and Procedure specified by the clinic. As cannulation progresses, it is important that the DCT be diligent to avoid complications. If there are complications, the DCT may need to let the access rest and resume use of the catheter until given orders to resume the cannulation process.

AVGs are created by joining an artery and vein together with a piece of graft material. There are a variety of materials in use today but most commonly grafts are made from polytetrafluoroethylene or PTFE. AVGs are made from materials that are not native and have a fixed length and diameter so they don’t mature, they heal. AVGs are either straight or looped and may be in the forearm or the upper arm. Today most AVGs can be cannulated two to three weeks after placement. Occasionally there may be complications during the cannulation process. If there are complications, the DCT may need to let the access rest and use the catheter until they are given orders to resume the cannulation process.
Step 7: Arrange for Catheter Removal

Step 7: Arrange for Catheter Removal and Celebrate Catheter Freedom

Catheter removal.
The DCT should make an appointment for the patient to have the catheter removed within one to two weeks, once the AVF or AVG:
- Has been cannulated successfully with two needles for a prescribed number of treatments;
- Delivers the full dialysis prescription;
- Provides adequate dialysis; and
- Shows no signs or indications of complications.

Most dialysis providers include these criteria as a stand-alone Policy and Procedure or a component of their Cannulation Policy and Procedure. Actions that delay catheter removal extend the time of catheter exposure and can result in morbidity and in some cases, mortality. Catheter safety checks should be continued even when the catheter is not in use and the patient is awaiting the removal procedure.

Celebrate catheter freedom.
The patient and the DCT have worked hard to achieve catheter freedom. Often there are detours along the way that delay the process. It is important to celebrate the removal of the patient’s dialysis catheter with the same intensity that you would celebrate important milestones in a person’s life. Both the DCT and the patient have worked through the necessary steps to achieve catheter freedom. Some clinics hold a celebration ceremony to recognize this important milestone.

Celebrate Success.
Your patient has achieved catheter freedom!

Congratulations on achieving catheter freedom!

Reminder: Tell your patients about the “Planning for Your Vascular Access” guide. Make sure the patient knows the importance of catheter removal. Step 7: “Getting My Catheter Out” will help reinforce the importance of catheter removal.
Step 8: “One Minute Access Check”

How does the dialysis care team (DCT) make sure the access is working as it should?

The DCT should perform the “One minute access check” at each dialysis treatment to save the patient’s lifeline for a lifetime. The one minute access check provides a systematic and consistent approach to access monitoring. The goal is to identify problems early and arrange for the appropriate assessment and referral for intervention, if needed. This will help maintain the health and function of the working AVF or AVG and decrease the need for placement of a hemodialysis catheter.

What if there is a problem with the access?

It is important to make sure the lifeline for a lifetime keeps working as it should. Sometimes problems will occur in the access that may require evaluation and referral. If a problem is identified it may be corrected with an interventional procedure or, if more complex, it may require surgical intervention.

In a new fistula or graft, problems that slow the maturation or healing process may occur. Additional problems may arise when the access is cannulated. It important to act on these findings in a timely manner since many can be remedied with the appropriate intervention.

A problem requiring evaluation and intervention may occur in an established fistula or graft. In addition to conducting the one minute access check prior to cannulation, the DCT should teach the patient to perform the one minute access check every day. The goal is to maintain the existing AVF or AVG and avoid the placement of an HD catheter.

Reminder: Tell your patients about the “Planning for Your Vascular Access” guide. The DCT should teach the patient how to do the “one minute access check.” Step 8: “Taking Care of My Lifeline for a Lifetime” will support and reinforce the teaching and learning processes.

Look  Listen  Feel
Access Monitoring

It only takes a minute to save your patient’s lifeline.

Look
- The skin over your access is all one color and looks like the skin around it.
- There is redness, swelling, or drainage. There are skin tags with shiny, bleeding, or peeling skin.

Feel
- Thrill: a vibration or buzz in the full length of the access.
- Pulse: the beat is stronger than a normal pulse. Fingers placed lightly on the access should move slightly.

Listen
- There is no sound, decreased sound or a change in the sound.

Stop
- Contact your dialysis care team if you notice any “stop” signs!

Go
- Good to go!

Arm Elevation
- Upper Arm AVF
  - The AVF outflow vein partially collapses when the arm is raised above the level of the heart. It may feel “flabby” when palpated.
  - The AVF outflow vein partially collapses when the arm is raised above the level of the heart.

Distended
- Upper Arm AVF
  - The AVF outflow vein does not collapse after being raised above the level of the heart. This finding should be reported to an expert clinician.

Collapsed
- Upper Arm AVF
  - The AVF outflow vein does not collapse after being raised above the level of the heart. This finding should be reported to an expert clinician.

Annexure
- Dialysis Care Team
  - Perform access check at each treatment or when patient reports a change.
  - Notify hemodialysis staff if any problems exist.

Augmentation Test (Optional)
- Document findings to report to physician.

Access
- Assess each access immediately, once other problems are reported.

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It only takes a minute to save your patient’s lifeline.

Dialysis Care Team:
- Perform access check at each treatment or when patient reports a change.
- Reinforce importance of daily access checks to patient.
- Listen to the patient.

Look

Listen

Feel

Arm Elevation Test (AVF Only)

Augmentation Test (Optional)

Were there any abnormal findings during the access check?

No

Document that there were no abnormal findings.

Yes

Document findings and refer to expert clinician.

Expert Clinician:
Assess each access monthly or more often if problems are reported.

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This material was prepared by the End-Stage Renal Disease Network Coordinating Center (NCC), under contract with the Centers for Medicare & Medicaid Services (CMS), an agency of the U.S. Department of Health and Human Services. The contents presented do not necessarily reflect CMS policy. CMS Contract Number: HHSM-500-2013-NW002C.
It only takes a minute to save your patient’s lifeline.

**GO**

The skin over the access is all one color and looks like the skin around it.

**Look**

There is redness, swelling or drainage. There are skin bulges with shiny, bleeding, or peeling skin.

**Listen**

Bruit - the hum or buzz should sound like a “whoosh,” or for some may sound like a drum beat. The sound should be the same along the access.

There is no sound, decreased sound or a change in sound. Sound is different from what a normal Bruit should sound like.

**Feel**

Thril: a vibration or buzz in the full length of the access.

Pulse: slight beating like a heart-beat. Fingers placed lightly on the access will rise and fall with each beat.

Pulsatile: The beat is stronger than a normal pulse. Fingers placed lightly on the access will rise and fall with each beat.

**Arm Elevation**

Upper Arm AVF

The AVF outflow vein partially collapses when the arm is raised above the level of the heart. It may feel “flabby” when palpated.

Lower Arm AVF

The AVF outflow vein collapses when arm is raised above the level of the heart.

**Upper Arm AVF**

The AVF outflow vein does not partially collapse or become “flabby” after being raised above the level of the heart. This finding should be reported to an expert clinician.

**Lower Arm AVF**

The AVF outflow vein does not collapse after being raised above the level of the heart. This finding should be reported to an expert clinician.
Augmentation Test

Place your fingers on the out-going vein, feel the pulse, press down until no blood is flowing through the access. Keep your finger on the vein and feel for the pulse on the lower part of the access.

Pulse should be “strong and bounding” and may cause your finger to rise and fall with each beat.

Pulse does not become more forceful or “strong and bounding”.

GO

Good to go!

STOP

Contact expert clinician if any “stop” signs noted.

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CMS Contract Number: HHSM-500-2013-NW002C.

arteriovenous FISTULA FIRST

AVF — The first choice for hemodialysis.
Should all members of the dialysis care team learn how to assess a vascular access? YES
Question

Does access monitoring work?
If fistula diameter is 0.4 cm or greater, the chance that it would be adequate for dialysis is 89% versus 44% if size was less.

If fistula blood flow is 500 ml/min or greater, the chance that it would be adequate is 84% versus 43% if it was less.

Combining the two variables, the chance that it would be adequate is 95% versus 33% if neither of the criteria were met.

Experienced dialysis nurses have an 80% accuracy in predicting the ultimate utility of a fistula for dialysis.
Lifeline for a Lifetime:

Planning for Your Vascular Access
Access Planning Steps

The guide below lists all the steps in your access plan. You can use this guide to keep track of the access planning steps. After you review all the steps, you should be able to see what step you are on. Some of you may need to start at the beginning and go through all the steps. Some of you may already have an access in place. If you are at Step 8, you should be doing your daily one minute access check.

<table>
<thead>
<tr>
<th>Step #</th>
<th>Step Name</th>
<th>What Does This Step Mean For Me?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step 1</td>
<td>Making an access plan</td>
<td>This step shows you what is in an access plan. Once you review it, you will see what step you are on.</td>
</tr>
<tr>
<td>Step 2</td>
<td>Finding the best place for my access</td>
<td>This step tells you how the surgeon will find the best place for your access to go.</td>
</tr>
<tr>
<td>Step 3</td>
<td>Going to see the surgeon</td>
<td>You will need to go see the surgeon before you get scheduled for your surgery. This step tells you how to prepare for the visit and what will happen on the visit.</td>
</tr>
<tr>
<td>Step 4</td>
<td>Going for surgery</td>
<td>This is a big step, so make sure you read it carefully. You will learn what will happen when you go for surgery and about going back to see the surgeon.</td>
</tr>
<tr>
<td>Step 5</td>
<td>Waiting for my access to mature or heal</td>
<td>How long this step takes will depend on what kind of access you have. Your dialysis care team will help you understand what this means for you.</td>
</tr>
<tr>
<td>Step 6</td>
<td>Using my access</td>
<td>This step tells you what to expect when the dialysis care team starts to use your access for your dialysis. They will have a plan for how to do this.</td>
</tr>
<tr>
<td>Step 7</td>
<td>Getting my catheter out</td>
<td>Once you are using your access without any problems, you will need to go to have your catheter taken out.</td>
</tr>
<tr>
<td>Step 8</td>
<td>Taking care of my lifeline for a lifetime</td>
<td>This step tells you how to do your daily one minute access check. Your care team will teach you how to do the check.</td>
</tr>
</tbody>
</table>
Step 1: Making an Access Plan

**What is an access plan?**
In order to get started, you will need an access plan to help guide you through all the steps toward a fistula or graft. You and your dialysis care team will make this plan together. For most people, a fistula is the best type of access. An access plan helps guide you through the steps you need to take in order to make sure you have the best access for you. It is important to note that you may need more than one access over your lifetime. There is a simple checklist in this manual that will help you keep track of your plan. Make sure you have a copy of the plan.

The eight steps in your access plan are:

1. Making my access plan
2. Finding the best place for my access
3. Going to see the surgeon
4. Going for surgery
5. Waiting for my access to mature or heal
6. Using my access
7. Getting my catheter out
8. Taking care of my lifeline for a lifetime

---

*Lifeline for a Lifetime: Planning for Your Vascular Access*
Step 2: Finding the Best Place for My Access

How will the surgeon know what type of access is best for me and where it should go?

To find the best place for your access, the surgeon needs to have a picture of your blood vessels before he or she does surgery. This test is called “vessel mapping.” It is a simple test done with an ultrasound machine. No needles are used during the test.

Some surgeons do their own vessel maps. But since not all do, you might need to go to someone other than your surgeon to have the map done. This test will be set up by either your surgeon or your dialysis care team.

After the test, your surgeon will review the vessel map. The map will help the surgeon decide what type of access is the best for you and where it should go.

I have my vessel map. What should I do now?

While you are waiting to meet with your surgeon, you need to take care of your veins. Here are some tips to help you do that.

DO:
- Tell the person taking your blood that you are going to have an access in your arm, or that you already have one in your arm.
- Ask them to use the veins on the back of your hands

DON'T:
- Let anyone take blood from the veins in your arms above your wrists.
- Let anyone give you a shot in your upper arm.
- Let anyone take your blood pressure in the arm with your access.
Step 3: Going to See the Surgeon

Step #3: Going to See the Surgeon

Why do I need to go see the surgeon before my surgery is scheduled?

The surgeon is an expert at making vascular accesses. He or she needs to see you before surgery to make sure you are ready. Be sure you know where to go for the visit. Allow plenty of time to make it to your visit. Take a list of questions with you to ask about what to expect when you have the surgery to make your vascular access.

A list of questions which you can take with you is available in the back of this manual.

At your appointment, your surgeon will review your vessel map. The map will help the surgeon see what type of access is best for you and where it should be placed. The surgeon will also record your medical history and check the blood vessels in your arms. He or she will ask you about:

- Your health
- IV lines you have had
- Your medicines
- Allergies
- Other surgeries you have had

These are questions most people have about their surgery. Your surgeon can answer these for you:

- Should I take all my medicines before I come in for my surgery?
- How long will I be at the hospital or surgery center when I have my surgery?
- Will I need to be put to sleep for the surgery?
- Will I have to stay in the hospital overnight?
- Should someone come with me?
- Can I drive myself home after my surgery?
- Will you give me something for pain to take home with me?
- Can I use my arm after I have surgery?
- Will the arm with my access look different?

Ask your surgeon to:

- Talk with your dialysis care team so they know the plans for your surgery
- Send your care team a report from your visit
- Give you a copy of the report, too
Step 4: Going for Surgery

What is going to happen when I go for surgery?
Going in for surgery is your next step. This is when you will have a fistula made or a graft placed. Your surgery to get your access could take place at a surgery center or hospital. Make sure you know how to get there and give yourself enough time to do so. The surgery team will tell you what to do before you come in for surgery.

When you go for surgery you will be seen by several people on the team. Some of the questions they ask you will be the same. Try not to get upset by all this—they want to make sure you are safe. Here are some of the things you need to know to be prepared.

What do I need to do to get ready for surgery?
Make a list of your medicines to take with you. The surgery team will need to know if you take:
- A blood thinner
- Medicine for a heart problem, diabetes, pain, anxiety, depression, or psychiatric illness
- Over-the-counter medicines like herbs, vitamins, or minerals
- Home remedies

Tell the surgery team other health information such as if you:
- Have allergies
- Have a pacemaker or other heart device
- Have sleep apnea
- Have had a problem with anesthesia
- Are pregnant
- Are allergic to latex
- Smoke
- Drink alcohol
- Do not agree to take blood transfusions

When is My Surgery Scheduled?
If your surgery is on your dialysis day:
- Your dialysis care team will help you work this out.
- You will need to do both.
- You may need to change your dialysis day.
- Your care team will help you make the change.

If your surgery is not on your dialysis day:
- You are good to go.
- If you have questions, ask the care team to help you.
Step 5: Waiting for My Access to Mature or Heal

Step #5: Waiting For My Access to Mature or Heal

**Fistula or Graft?**

Your surgeon should tell you and the dialysis care team what kind of access you have. It will be either a fistula or a graft. A fistula is made by joining your own artery to your own vein. When the surgeon places a graft, he or she will use a plastic tube to connect an artery to a vein. If you are not sure what you have, ask your care team to tell you.

**If You Have a Fistula: Going back to See the Surgeon**

Most surgeons will ask you to see them about two weeks after the surgery so they can make sure your access is healing as it should.

After that, most surgeons will also ask you to come back again about six weeks after your surgery. On this visit, they will want to make sure the fistula is growing as it should. It can take several weeks for the fistula to grow enough to use it. The surgeon will let you know when it is ready to use.

If it is not growing as it should, you may need to have some tests. The tests might be:

- An ultrasound test
- A test where they put dye in your access and take x-rays

Many access problems can be fixed if they are found early.

**If You Have a Graft: Going Back to See the Surgeon**

Most surgeons will ask you to see them about two weeks after the surgery so they can make sure your access is healing as it should.

At this visit, the surgeon will let you know when you can use your graft. A graft may be ready to use in three to four weeks.

If there is a problem with your graft, you may need to go for tests. Those tests might be:

- An ultrasound test
- A test where they put dye into the access and take x-rays.

Many access problems can be fixed if they are found early.
Step 6: Using My Fistula or Graft

When can I start using my fistula for my treatments?
If you have a fistula, it will take several weeks for it to grow before you can start using it. How will you know when your fistula is ready to use? The dialysis care team will check your fistula each time you have dialysis. They will also teach you how to check it and what you should check for. You will need to check your fistula every day.

If the care team has questions about how it is growing, they may send you back to see the surgeon who put it in, a kidney doctor who is an access expert, or an x-ray doctor who knows about accesses.

If there is a problem, you may need to have it fixed.
The care team will be able to tell when your fistula is ready. They will talk with your surgeon about starting to use your fistula. When your fistula is ready for use, your care team will have a plan for how to put the needles in your fistula. The plan will include these steps:
• Putting one needle into your fistula and using your catheter, too.
• Using small needles for your fistula.
• Using your fistula with needles that are a bit bigger.

Many patients have questions about the needles when they start using their access. Ask your care team. There is a list of questions in the appendix which you may want to ask.

These steps will take a few weeks. When your care team is sure your fistula is working well, you and your care team can start making plans to get your catheter taken out. Make sure you are doing your one minute access check.

Look

Listen

Feel

12

Lifeline for a Lifetime: Planning for Your Vascular Access
What should I expect when the needles are put in and taken out?

Many patients have questions about the needles when they start using their access. Ask your care team if you have any questions. Here are some of the questions you may want to ask them:

- Do the needles hurt when they go in?
- If the needles hurt me, is there something that can be done to help with the pain?
- What can I do to get used to the needles?
- Will I have any problems with the needles during my treatment?
- How can we make sure the needles stay in during my treatment?
- Am I going to put the needles in or will the dialysis care team?
- What will happen when you take the needles out?
- What should I do if my access starts to bleed when I am not at the dialysis clinic?
**“Ready, Set Go”**

<table>
<thead>
<tr>
<th>Patient</th>
<th>“Ready, Set, Go” The Steps to Catheter Freedom</th>
<th>Weeks 4-5: New Fistula Daily Check</th>
</tr>
</thead>
<tbody>
<tr>
<td>Access Placed</td>
<td></td>
<td>Catheter Freedom</td>
</tr>
<tr>
<td>Weeks 1-2</td>
<td>Week 3</td>
<td>Weeks 4-5</td>
</tr>
</tbody>
</table>

Check your fistula every day.

If you do not know how, ask your Dialysis Care Team to teach you how to monitor your fistula.

**Look**

**Listen**

**Feel**

Did you notice anything different when you checked your fistula today?

| No change. | Yes, a change. |
Patient
“Ready, Set, Go” The Steps to Catheter Freedom
Weeks 4-5: New Fistula Daily Check

GO
The hand **looks the same** as it did before surgery.
The skin over the fistula is **all one color** and looks like the skin around it.

STOP
The arm is **bruised** and/or the hand is **not the normal color**.
There is **redness, swelling or drainage**.

Look

Listen
When you place your fistula next to your ear, you hear the **sound of the blood going through it**.
As the fistula grows larger, the sound becomes **louder**.

You hear **no sound or decreased sound**.

Feel
You **feel the fistula under the skin**. At first, the fistula seems small but it should grow over time.
You cannot feel the fistula. The hand of the affected arm feels numb or cold to the touch.
Step 8: Taking Care of My Lifeline for a Lifetime

How do I check my access to make sure it is working like it should?
To make sure your access keeps working well, you should do your one minute access check to save your lifeline for a lifetime. Ask your dialysis care team to teach you how to do this. If you are already doing your dialysis access checks, keep up the good work!

What will happen if I have a problem with my access?
It is important to make sure your lifeline for a lifetime keeps working as it should. Sometimes there will be problems with your access and you may have to go for tests. If the tests show a problem that can be fixed, it might be fixed on that day. Other problems might need to be fixed with surgery.

In a new fistula or graft, some problems may come up when you are waiting for it to grow or heal. Others may happen when you start using it. If there is a problem, the dialysis care team will send you to the surgeon, a kidney doctor who is an access expert, or an x-ray doctor who knows how to work on accesses.

If your fistula or graft has been in for a while, you and your care team may find a problem when you do the one minute access check. If that happens, they will send you to a surgeon, a kidney doctor who is an access expert, or an x-ray doctor who knows how to work on accesses. They will check your access to find the problem. Again, many problems can be fixed on that day.

Doing your daily one minute access checks will help keep your lifeline for a lifetime healthy and working well.

There are resources in the appendix to help you plan for and check your lifeline for a lifetime.
Catheter Freedom Achieved!

Celebrate your success and make sure you know how to take care of your lifeline for a lifetime!
What About the Patient?

- **The One Minute Catheter Check**
  - Catheter safety
- **Access Planning**
  - The pathway to catheter freedom
- **On-going Access Monitoring**
  - Identify access problems early
- **Planned intervention**
  - Avoid placement of a tunneled HD catheter
Access Monitoring: Patient

Look | Listen | Feel
It only takes a minute to save your lifeline.

**Look**

The skin over your access is all one color and looks like the skin around it.

- **GO**

When you place your access next to your ear, you hear a sound. And it **sounds the same as the last time you checked it.**

- **GO**

There is **redness, swelling or drainage. There are skin bulges with shiny, bleeding, or peeling skin.**

- **STOP**

**Listen**

You place your access next to your ear and hear **no sound. Or it sounds different than it did the last time you checked it.**

- **STOP**

**Feel**

- **Thrill:** a vibration or buzz in the full length of the access.
- **Pulse:** slight beating like a heart-beat. Fingers placed lightly on the access should move slightly.

- **GO**

- **Pulsatile:** The beat is **stronger than a normal pulse. Fingers placed lightly on the access will rise and fall with each beat.**

- **STOP**

*If you notice any of the red “stop” signs during your daily access check, follow these instructions IMMEDIATELY:*

<table>
<thead>
<tr>
<th>Contact: ____________________________</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>During regular facility hours _______</td>
<td></td>
</tr>
<tr>
<td>After hours ________________________</td>
<td></td>
</tr>
</tbody>
</table>
Consider

“The Patient is the owner of the access”

“Stenosis happens”

“Access events provide an opportunity to explore other modalities”

“A problem AVG/AVF is a catheter waiting to happen”

“Long term catheter use is always an outcome”
For More Information

http://esrdncc.org/

http://esrdncc.org/ffcl/

http://esrdncc.org/ffcl/change-concepts/

http://esrdncc.org/professionals/lifeline-for-a-lifetime/esrd-ncc-resource-downloads/?orderby=create_date&order=asc
From: Tushar Vachharanjani, MD, FACP, FASN  
Veteran’s Affairs Medical Center, Salisbury, NC

Vascular Access Atlas  
http://esrdncc.org/ffcl/change-concepts/change-concept-10/

AVF Physical Examination Made Easy- Videos  
http://www.youtube.com/watch?v=m1-C61AOY3Q
KDOQI Clinical Practice Guidelines for Vascular Access
http://www2.kidney.org/professionals/KDOQI/guideline_upHD_PD_VA/

Recommendations for the Limited Use of PICC Lines
http://esrdncc.org/ffcl/change-concepts/change-concept-10/
FFCL Data Dashboard

National *Vascular Access* Data from CrownWeb Network State Affiliation (Dialysis Organization)

Spread sheet updated quarterly


See “FFCL Dashboard” tab
Lynn Poole, FNP-BC, CNN

clpoole@verizon.net

703-790-1383 (home)
703-282-3139 (cell)
We want to hear from you...Time for a Live Poll

Has your unit tried using any of these tools or strategies?

Chat In

What were the successes?

What were the barriers?
Open Forum

LET’S

? TALK
What is the most effective technique your facility has used to decrease catheters?
Patient Perspective
OVERCOMING NEEDLE FEAR

Wesley Spencer
Home Hemodialysis Patient
Cleveland Home Dialysis
We want to hear from you...

What was your top takeaway or key learning after hearing Wesley’s story?
Open Forum

LET'S TALK
Chat Check-in

How have you engaged patients in vascular access planning?
Where do we go from here?
Next Steps

- Share your feedback by completing our evaluation survey
- Visit new IPRO website http://esrd.ipro.org/
- Review Vascular Access QIA page
- Download webinar slides and/or playback event recording
- Follow and like us on Facebook https://www.facebook.com/IPROESRDProgram/
- Contact your local Network for support and assistance with meeting project goals
- Send in ideas or suggestions for consideration for future webinars to vascularaccess@nw2.esrd.net
Please Take the Webinar Evaluation
Remember our Objectives were…

- Hear more on a team approach to reaching LTC reduction
- Learn new tools and strategies to meeting LTC goals
- Listen to a patient perspective on overcoming needle fear
- Plan to share the information learned on this webinar with the staff and patients in your unit
- View available Network resources to help reach project goals
Additional Resources
Vascular Access Program Website

ESRD Program Website: [http://esrd.ipro.org](http://esrd.ipro.org)

Resources and Timelines available 24/7
IPRO ESRD Program Email Marketing
http://tinyurl.com/IPROESRD
Questions?

- Do you have a success story or best practice model you would like to share?
- What barriers are you facing that we haven’t covered yet?
- We want to feature you or these topics on future webinars, send in your suggestions to vascularaccess@nw2.esrd.net
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IPRO
Improving Healthcare for the Common Good
# IPRO ESRD Network of New York (Network 2)

<table>
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<th>Title</th>
<th>Email</th>
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<tbody>
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