



Vascular Access Management for the Recently Trained Vascular Surgeon

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Depending upon your practice location, your involvement in the management of end stage renal disease (ESRD) patients will vary. However, for most vascular surgeons entering private practice, the management of these complex patients will be a significant portion of your caseload, which can directly affect the growth of your practice.

## Vascular Access in Your Training

During your training, the majority of the dialysis access work was most likely relegated to the least junior member of the team. As a result, you may not have participated often in the management of these patients and instead spent your final years of training focused on more technically challenging components of vascular surgery.

A disconnect between training and the average vascular surgical practice is apparent when reviewing the median percentage of arteriovenous (AV) access cases reported to the American Board of Surgery/Vascular Surgery Board at time of re-certification (RC) versus the initial qualifying examination (QE). In 2011, the median percent of AV access cases in the QE participant group was 12% versus 29% in the RC group<sup>i</sup>.

## Increasing Patient Population

For the foreseeable future, the incidence of patients with chronic kidney disease (CKD) is projected to continue increasing. According to the National Kidney Foundation, 26 million American adults have CKD and millions of others are at increased risk<sup>ii</sup>.

Although the incident number of patients receiving renal replacement therapy has stabilized in the past few years (348/million in 2010), the overall population continues to grow<sup>iii</sup>. Additionally, the number of patients suffering from diabetes and age-related cardiovascular disease continues to increase. These facts coupled with improving mortality for patients on renal replacement therapy (RRT) has led to an increasing numbers of patients with CKD that will require

the unique expertise of the vascular surgeon.

# Robust Vascular Practice

ESRD patients typically have ongoing patient care concerns that vascular surgeons are uniquely qualified to treat. An extremely robust vascular practice can be developed in a very brief period of time by concentrating on the needs of this frequently underserved patient population. Below is a list of the varied procedures that are frequently required in the ESRD patient.

## *Dialysis-related*

- Creation of AV Access:
  - Primary cimino-type arteriovenous fistula
  - Basilic or other vein transposition
  - Prosthetic AV graft placement
  - Hemodialysis Reliable Outflow (HeRO) graft AV access placement
  - Hybrid arteriovenous graft placement
- AV access steal management:
  - Distal revascularization interval ligation (DRIL) procedures
  - Proximalization arterial inflow
  - AV access banding or other procedures for reducing arterial steal syndrome
- Hemodialysis catheter placement (tunneled and non-tunneled)
- Venography
- Upper extremity arteriography with intervention
- Fistulogram with angioplasty with/without stent
  - Balloon-assisted maturation (BAM)
- Percutaneous thrombectomy AV access
- Central venous recanalization procedures
- Vein mapping for AVF planning
- Peritoneal dialysis catheter placement/manipulation/removal

## *Non-dialysis-related*

- Chronic wound care
- Diagnostic and interventional arteriography
- Renal percutaneous transluminal angioplasty/stent
- Renal denervation

# Introduction to the Community

As a newly trained vascular surgeon, in order to build your practice you will need to introduce yourself to the community. An overview of how to successfully do this can be found in the SVS Practice Memo – Marketing Your Practice Series, Part 2: How to Introduce Yourself to the Community on [Vascular.org](https://vascular.org)<sup>iv</sup>.

Additionally, the ESRD community provides an excellent way to facilitate your introduction to the community. With the advent of outpatient dialysis access centers and the evolving role of the interventional nephrologist, the business of dialysis access has become exceedingly complex. Therefore, understanding your local referral patterns and meeting with specialists from dialysis centers, as well as having a better understanding of the ESRD patient population are very

important steps in this process.

### *Non-dialysis-related*

- Identify the players in your region.
- Find out if there any dialysis access centers in your area. If not, this may be an extremely fertile area to grow your practice.
- Understand the pros and cons of setting up an office-based access center.
- If applicable, meet the owners and physicians of the dialysis access centers in your area. At these centers you most likely will find a wide range of specialties involved in the care of the patients at these centers including vascular surgeons, interventional nephrologists, and cardiologists.
- Learn the demographics of ESRD patients in your region. To better understand this patient population, you will need to answer the following questions.
  1. How many dialysis units are in your community?
    - a. Are they corporately owned or owned by individual physicians?
    - b. Who are the medical directors of the clinics?
  2. How many hemodialysis patients are in your community?
  3. What renal network are you located in?
  4. Who is creating the access now?
  5. Who is maintaining the patency of access?

## Practice Support

- Dialysis units should be able to make one phone call to the contact person in the vascular surgery office and the office should then be able to coordinate subsequent care.
- The noninvasive vascular lab in the office should support the dialysis unit.

## Educational Events and Visits

After you have learned more about your local ESRD patient population and the primary providers involved in their care, key next steps include:

- Schedule time to meet with the nephrologist physician directors and the nurse managers of the individual dialysis units.
- Dialysis centers typically have a large staff of nurses and technicians that welcome physician visits featuring educational events. Often these events can be coordinated with industry or a hospital liaison to defray expenses.
- In each state, regional dialysis networks routinely provide educational events for patients. These networks welcome physicians interested in speaking to their staff on educational topics.
- Contact dialysis center managers to schedule educational events for their nurses.
- Contact local dialysis support groups to schedule physician events for patients.

## Technical Knowledge Base

Another important aspect in your management of the ESRD population is ensuring that you have the technical knowledge base to provide state of the art care.

By successfully passing your vascular boards you possess the appropriate knowledge base for the creation and management of dialysis access. However, as a newly trained vascular surgeon there may be certain aspects of this practice that you may not feel proficient in performing.

For example, many of the percutaneous procedures and more complex central venous re-canalizations may have been performed by interventional radiology/cardiology or nephrology at your training program and as a result you received less exposure to these procedures. Also, the newer hybrid grafts and HeRO graft configurations may not be familiar to you.

Newly trained vascular surgeons are encouraged to identify those areas in which they feel uncomfortable and/or deficient and seek further postgraduate training. This often can be attained by travelling on a regular basis to a physician's practice that performs these procedures or through a formal society or industry-sponsored course. Given the basic skill sets (i.e. basic AV access creation) that you have already acquired in your training, a one or two day visit is all that should be necessary.

## Resources

To further help you learn more about advanced dialysis access creation and maintenance, below is a list of additional resources.

1. The Society for Vascular Surgery: Clinical practice guidelines for the surgical placement and maintenance of arteriovenous hemodialysis access J Vasc Surg 2008;48:2S-25S (November 2008 Supplement )
2. Fistula First, [www.fistulafirst.org](http://www.fistulafirst.org) .

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<sup>i</sup>Eidt, John. "ABS/VSB Report." APDVS Spring Meeting. Hotel InterContinental O'Hare Rosemont, IL. March 31, 2012. Conference Presentation.

<sup>ii</sup>National Kidney Foundation Website, <https://www.kidney.org/kidneydisease/aboutckd> , accessed September 2013.

<sup>iii</sup>Centers for Disease Control Website, <http://www.cdc.gov/nchs/fastats/kidbladd.htm> , accessed May 2013.

<sup>iv</sup>Online resource through the Society of Vascular Surgery web site.

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