

Peripheral Vascular Care: Should You Have a “Vascular Center”?

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Abstract

Cardiovascular care is big business for hospitals. Although a lot of attention and resources are directed to care and treatment of the coronary arteries, peripheral vascular disease (PVD) care has gained momentum. Even though the dollars spent on PVD care are significantly less than for cardiac, the patients are the same, and PVD care is an essential component of full-service cardiovascular care. Hospitals are researching the needs of their communities and determining whether they should have a focus on peripheral vascular care and what it should look like. Due diligence and business-model planning will lead to the most appropriate answers. The outlook for potential patients is promising.

Introduction

Today, attention is increasingly focusing on vascular care in light of dwindling open-heart surgery volumes, reimbursements, and increasing costs of supplies for cardiac catheterizations and interventions. Hospitals around the country are becoming serious about capturing market share and centralizing services for peripheral vascular disease (PVD) care.

Fleeting attention has been given to PVD with some facilities providing these services, but seldom was an entire program focused specifically on PVD. A number of factors have influenced the development—or lack of development—of these programs, with the greatest being PVD’s “big sister,” coronary artery disease, claiming most of the healthcare attention, to say nothing about its appetite for resources.

Should your hospital or health system focus on and commit resources to enhance PVD services? What is the market opportunity? What is the revenue potential? What does a “best” program look like? Spending time completing research and working through these questions will

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take the guesswork out of identifying the emerging opportunity for PVD care for your organization.

What Is PVD?

Peripheral vascular disease is a condition in which the arteries that carry blood throughout the body become narrowed or clogged. This interferes with the normal flow of blood and can cause pain, physical limitations, and reduced quality of life. The most significant risk factor for PVD is age. The older population is projected to double during the next 30 years, reaching 70 million by 2030, thereby escalating the demand for PVD care. Peripheral vascular disease is seriously underdiagnosed and undertreated. The American Heart Association,ⁱ Nursing Spectrum,ⁱⁱ and Society of Interventional Radiologyⁱⁱⁱ estimate the following:

- Eight to 12 million Americans are affected.
- PVD affects about 1 in 20 people over the age of 50.
- Men are somewhat more likely than women to have PVD.
- Patients with PVD have a sixfold higher death rate from cardiovascular disease.

What Is the PVD Market Opportunity?

The patients at risk for coronary artery disease are the same patients who will be at risk for PVD. The arguments for concentrating efforts on care specific to this patient population make good business sense—the

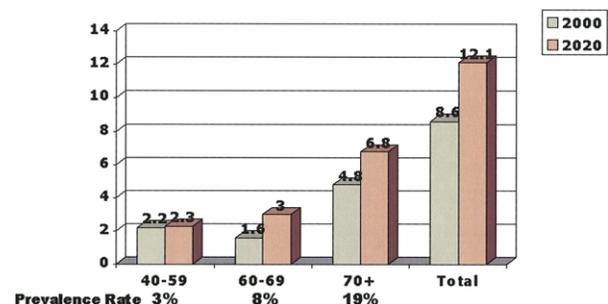


Figure 1. Projected increase in prevalence of PVD. Source: Criqui NH et al, NEJM, 1992; Cardiovascular Roundtable, 1999.

Table 1. Percentage of population with PVD by age group

Age Group	% Affected*
40–59	3
60–69	8
70+	19
Total	5.9
*Source: Vascular Disease Foundation.	

patient populations are synergistic, and interventional radiologists, vascular surgeons, primarily care physicians, and (most recently) cardiologists can diagnose and treat the conditions. The increase of patients presenting with symptoms and needing access to care for PVD conditions is anticipated to grow significantly over the next 20 years (Figure 1).

Hospital business development and planning departments are often charged with defining the market for services and estimating the demand and revenue opportunity. The feasibility models start with identifying the population at risk and applying utilization rates to determine procedure and admission volumes. Peripheral vascular disease care has been tracked and measured, but estimates are considered to be low because it is believed that older adults have, in the past, lived with their “disability,” accepted limitations and pain with ambulation, and

Table 2. Staffing considerations

Advanced nurse practitioner	<ul style="list-style-type: none"> Coordinates the care of the patients with PVD Maintains caseload of patients Can make inpatient rounds Coordinates daily activities of the Vascular Center
Noninvasive technologist	<ul style="list-style-type: none"> Completes patients’ testing Prepares department for accreditation Maintains certification

attributed nocturnal leg pain and cramps to “old age.” Demanding baby boomers are expected to be less accepting of these disabilities as they become octogenarians.

The following is a reasonable approach to estimating demand:

- Review national prevalence and utilization rates that are available from the Vascular Disease Foundation or The Agency for Healthcare Research and Quality.
- Review state utilization rates, if available, because they will provide a more realistic representation of specific geographic areas.
- Apply these rates to the population served by the facility, by age group, to obtain the available market estimates (Table 1).

Who Treats PVD?

Treatment for PVD can follow 3 main pathways:

- Noninvasive disease management that includes risk-factor reduction and medications to relieve symptoms while increasing exercise tolerance, including gene-based therapy
- Surgical intervention that is safe and effective for many patients in whom less-invasive procedures are not adequate
- Catheter-based treatments that have an important and increasing role in the treatment of PVD and are substituted for surgery

Primary care physicians are often the first provider to identify the problem. Cardiologists may identify PVD during cardiac catheterization procedures. The more complicated issue related to PVD is determining which specialist should provide treatment once the disease has been diagnosed. Traditionally, interventional radiologists and vascular surgeons have treated patients with advanced-stage PVD. With the advancement of catheter-based interventions, cardiologists are increasingly diagnosing and treating PVD in the catheterization lab setting. This shift has set the stage for cultural and political “turf wars” that need to be addressed and resolved if a hospital is to have a full-service, integrated program.

What Are the Components and Design of a Vascular Center?

The vascular center can have a distinct physical plant location or can be developed as a virtual care model. It is certainly recommended that some or most of the front-door areas be designed to be patient friendly and centralized with good signage and convenient parking.

The majority of the PVD care is outpatient, and the population is challenged to walk long distances.

The designated vascular center can be the main geographic location for admissions and screening functions providing the referral and coordination for additional diagnostic studies and treatment. Additionally, prevention, education, and outreach staff can be housed in this area and can support a cross-functioning staff model. A sample design for a vascular center is shown in Figure 2.

In addition to the patient entrance and medical staff and exam location, a number of additional components are located in areas throughout the hospital that provide services for the patient with PVD:

- The Noninvasive Lab: Ideally located in or close to the vascular center, performs a comprehensive range of testing to diagnosis PVD, and should provide

same-day testing with rapid report turnaround with a dedicated staff. It is advisable for the noninvasive lab to be accredited by Intersocietal Commission for Accreditation of Vascular Lab or American College of Radiology Accreditation.

- Magnetic Resonance Angiography: A diagnostic tool for PVD that has the patient benefit of not requiring contrast use and few procedural side effects. The equipment requires specialized software and personnel education. A new type of contrast (MS-325) to be released next year will offer additional imaging potential.
- Radiology Suite: Provides diagnostic and intervention procedures and advanced imaging quality. It is still considered the gold standard for diagnostic testing, that is, invasive procedures using both radiation and iodine-based contrast. Interventional radiologists typically perform the procedures.

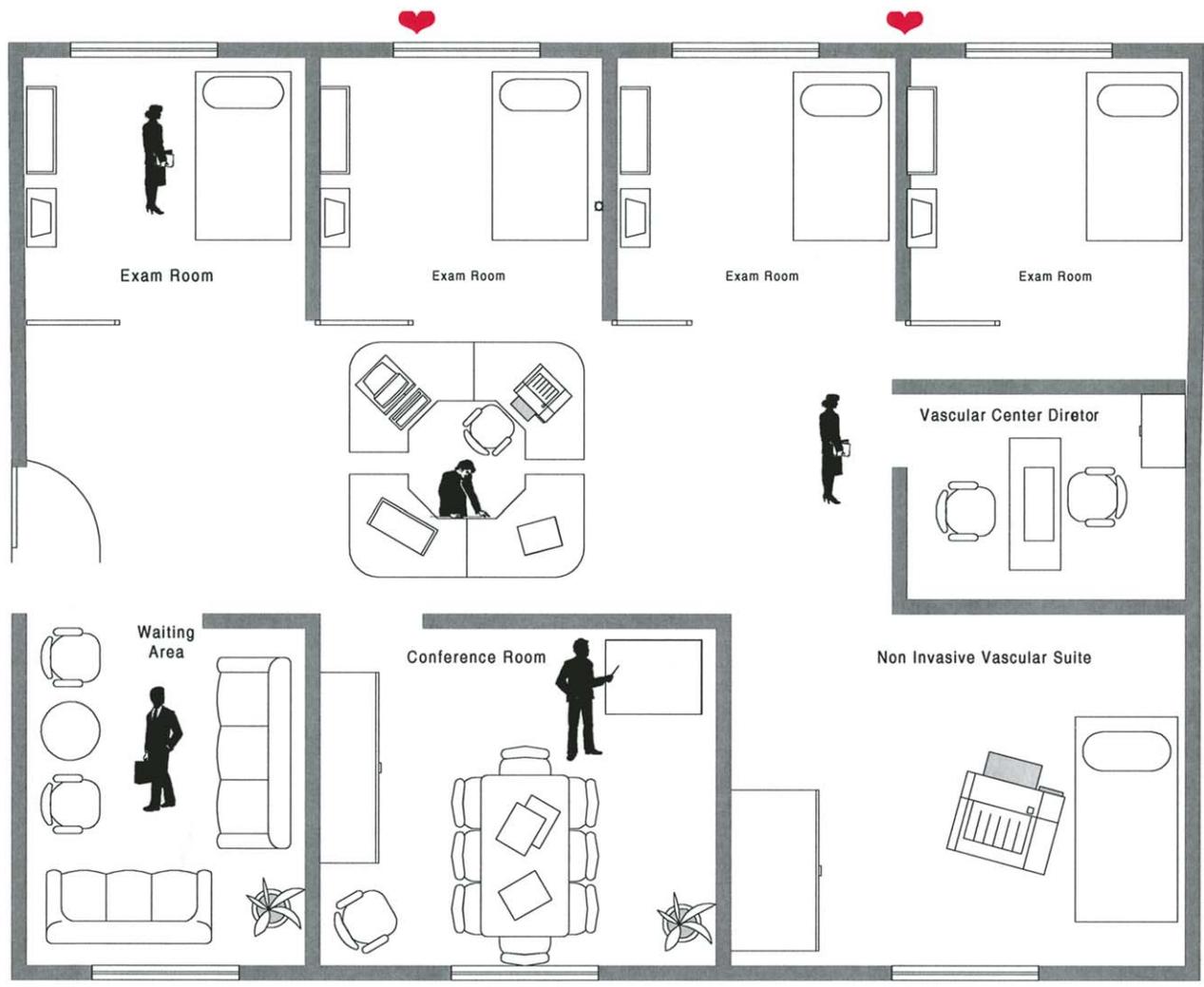


Figure 2. Sample vascular center design.

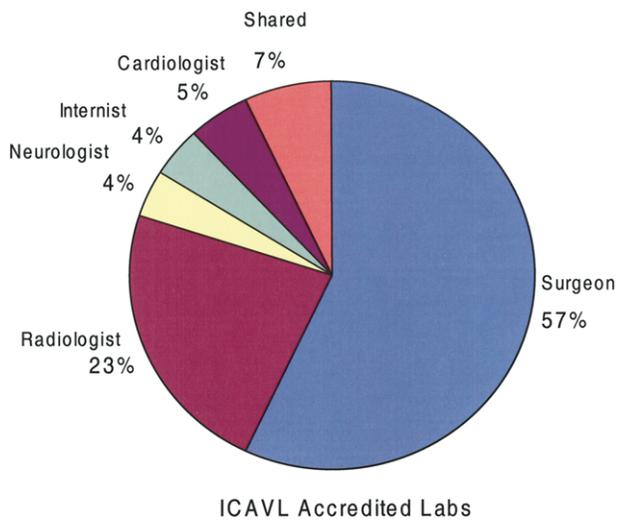


Figure 3. Who's in charge?: Vascular lab directors by specialty.

- **Cardiac Catheterization Lab:** Typically used for cardiac procedures; however, underutilized labs may provide accommodation of advanced imaging for peripheral vascular catheter-based procedures. Labs with high cardiac volumes may prohibit PVD procedures, and noncardiology practitioners are not always made welcome.
- **Operating Room:** Can be equipped to provide advanced imaging for catheter-based minimally invasive procedures, should involve vascular surgeon in imaging choices, fixed equipment may limit the room flexibility, sterile environment offers advantages for PVD procedures, supplies of stents and catheters should be controlled and coordinated with radiology and catheterization lab.
- **Wound Healing Center:** PVD is a common diagnosis for patients with nonhealing wounds. These patients may use the services of the wound center, resulting in the need for good coordination between the vascular center and the wound center if the centers are not located within the same department.

What Are the Staffing Considerations of a Vascular Center?

A number of physician disciplines have experience and involvement with vascular care. Today, we are seeing the emergence of vascular-medicine specialists. These physicians often have a background in family practice or internal medicine. They can serve as the medical director of the vascular center. They determine the appropriate referral of patients to the most appropriate subspe-

cialist and maintain the continuum of care process with daily rounding on all inpatients. The vascular medicine specialists, who are most common at academic medical centers, can serve as attending physicians for interventional radiologists. They also can be responsible for reading and reporting on vascular tests.

Although this physician staff model is growing in popularity, historically many different types of physicians have been in charge of patients' peripheral vascular care (Figure 3).

The nursing and technical staff has had a "home grown" tendency because it has only been of late that the rationale for dedicated, trained, and focused staff has taken off. The role and function of the personnel vary from hospital to hospital, but some distinct models are developing (Table 2).

What Is the Revenue Associated with PVD Care?

If PVD services are provided in existing surgery and interventional radiology suites, no additional capital costs can be expected. The expansion of catheter-based care in the catheterization lab to include peripheral vascular interventions will give rise to additional expenses. Imaging requirements for the patient with PVD may require new equipment purchases, but many hospitals have been able to use existing coronary cameras. Specialized supplies are also required. Staff education and training must be expanded to include peripheral procedure techniques and potential peripheral vascular complications.

Revenue from PVD care provides the opportunity for healthy margins for hospitals. Medicare contribution margins for vascular DRGs compare favorably with cardiac DRG margins. Across all vascular DRGs, the aver-

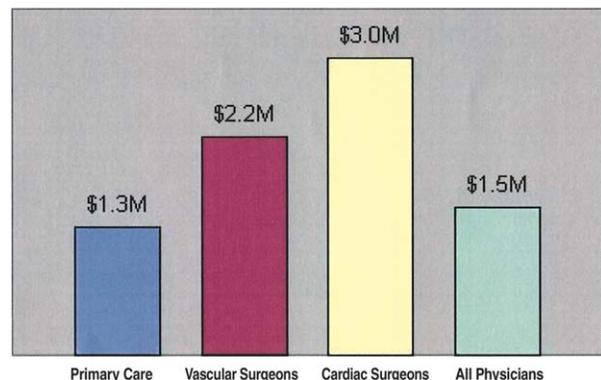


Figure 4. Average annual revenue generated per doctor for affiliated hospital. Source: Healthcare financial management, May 1, 2002.

age contribution margin (revenue minus direct costs) is more than 30%.^{iv}

Although there are no statistics on the revenue-generating figures for interventional radiologists and cardiologists treating PVD, a recent survey provides that information on vascular surgeons. Results from a survey of 1200 hospital chief financial officers reveal that vascular surgeons generate an average of \$2.2 million in revenue—derived from referrals and associated treatments—for their affiliate hospitals each year (Figure 4).

Where to Go from Here?

Cardiovascular care is big business. This year alone, the American Heart Association anticipates that \$329 billion will be spent on this patient population. Although the PVD portion of the total is significantly smaller than the cardiac portion, the patients are the same. Peripheral vascular care is an essential component of full-service cardiovascular care.

There is no question that the number of patients with PVD is growing, and these patients are underserved today. Hospitals must decide how to best care for this population. One of the first steps is compiling a PVD-dedicated business plan that covers the following:

- Market size and opportunity
- Competitive environment and issues
- Scope of service
- Physician specialties and medical coverage
- Clinical operations model
- Marketing and outreach initiatives
- Financial requirements and assumptions
- Structure, governance, and ownership

- Conditions for success
- Implementation recommendations and timeline

With the growing trend toward healthcare self-education supported through the press and the Internet, the public is becoming increasingly aware of the potential dangers of untreated vascular disease. Quality of life has taken on new meaning, and the older population will continue to seek healthcare resources that will enable them to maintain active lifestyles. Be prepared for the baby boomers to seek out and demand assessment and treatment of peripheral vascular problems.

Acknowledgment

Health Care Visions Ltd is a cardiovascular consulting firm based in Pittsburgh, Penn. The firm brings extensive knowledge and expertise in this area of clinical care. Health Care Visions Ltd has assisted a multitude of hospitals in all phases of cardiovascular care, from market assessments, program assessments, and feasibility studies to business planning and implementation.

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