

Improving PAD Awareness, Access, and Amputation Prevention

The role of health care access, early diagnosis, multidisciplinary care, and innovation in improving limb outcomes in peripheral artery disease.

With Eric A. Secemsky, MD, MSc, RPVI, FACC, FAHA, FSCAI, FSVM



Despite concerted efforts toward improved peripheral artery disease (PAD) awareness, diagnosis, and treatment, amputation rates remain high, including many cases with no imaging taking place. What do you see as the biggest disconnect between awareness and action today?

The challenge with awareness is that it usually occurs in areas of the country with greater access to health care resources, such as communities with highly educated patients and clinicians who are already well trained in vascular disease like PAD. Awareness is often lacking in smaller, lower-income, and rural communities, where access to information, education, and vascular providers is more limited.

Although many attempts have been made to improve awareness across the country, they have often been directed toward communities that already have a relatively high level of understanding. As a result, the impact has been more limited than we would have hoped. To make meaningful progress, awareness initiatives need to be more intentionally focused on the populations and regions where the gaps in knowledge and access are greatest.

What specifically is preventing early diagnosis in the primary care setting?

We still are just challenged overall with primary care access. There is already an incredibly long wait list to be seen in a primary care clinic; even when patients are able to get seen, there remains a minority who have

never been adequately trained on the diagnosis and sequelae of PAD. So, most of these patients aren't being regularly monitored. Many are being diagnosed with diabetes years into the disease process. The combination of these things means delayed detection, delayed treatment, and worse outcomes.

Which historic or ongoing efforts or initiatives have been successful in improving awareness?

Several years ago, the Society for Cardiovascular Angiography & Interventions, in partnership with the PAD Pulse Alliance, launched the "Get a Pulse on PAD" initiative to raise clinical and public awareness of PAD. As part of the campaign, we partnered with local community markets and media outlets, including television stations in regions where residents often rely on local networks as a primary source of information. We also reached out to social media influencers with large followings to help increase awareness of and discussion around PAD. The goal was to take an alternative approach to education and outreach.

Early feedback from that initiative was positive. Patients were more aware of the disease and recognizing symptoms in themselves or family members that they previously had not associated with PAD. Some even recognized that symptoms they had dismissed might warrant evaluation. I thought this initiative had a unique approach, doing a campaign from the ground up to identify effective ways to educate communities that often have less access to health information and resources than larger urban centers.

Although the initiative was a strong start, it unfortunately lost momentum over time. However, I believe it

was an important model for how we should approach education and awareness efforts in underserved communities. The strategy helped point us in the right direction to expand outreach beyond traditional health care channels.

How can the effects of awareness initiatives be studied and quantified?

This falls somewhat into the social services space, where you first need to reliably determine whether patients and clinicians understand what PAD is. Hirsch et al performed a multicenter, cross-sectional study in 1999 that assessed awareness of PAD among patients and providers across 27 sites in 25 cities and 350 primary care practices.¹ Patients were asked if they had a diagnosis of PAD, their charts were reviewed, and then clinicians were asked whether their patients had PAD. The study found that awareness of PAD was very low, particularly among clinicians, even though most clinicians recognized that their patients had cardiovascular disease. I thought this was a valuable initiative to try to understand the educational and health literacy barriers from both the clinician and patient side.

This is difficult to measure in large data sets. Even when we see PAD diagnoses increasing over time, it can be hard to know whether that reflects a true rise in disease prevalence or simply better recognition and diagnosis. Ultimately, we need targeted initiatives to really understand whether these educational tools are translating to meaningful benefits for our patients.

Moving from early detection to aftercare, how have advancements in collaborative care involving podiatry been shown to improve outcomes and prevent or lessen the extent of amputations?

Podiatry is one of several specialties that can play an important role in improving outcomes for patients with PAD. Podiatrists play many roles, including overseeing wound care, debridement, and minor amputations, which are critical tools for limb preservation. When I work with podiatric surgeons, they can alert me if a wound is not healing as expected, if there's concern for infection, or if a revision might be necessary.

That feedback is incredibly valuable. While we try our best to follow our patients closely, we can't see them every week in clinic. Having other specialists involved helps extend that monitoring and ensures patients are being evaluated more frequently. For me, that tends to be the biggest benefit. It's the early awareness that the wound isn't healing, the limb is still ischemic, and additional treatment may be needed. Just as importantly, it

helps us identify when a patient is making good progress, which is always a positive.

If amputation rates drop considerably in the near future (ie, the next decade), what factors will have most contributed to this trend?

I don't think we will be able to identify one single driver of improved outcomes. Over the last 5 years, we've seen increasing focus on PAD from clinicians, professional societies, industry, and even our governing bodies. Efforts like the PAD National Action Plan and various ongoing alliances have helped build momentum around improving care. If we begin to see meaningful improvements in outcomes, I think it's important to recognize that those improvements will be the result of many coordinated efforts by people and organizations dedicated to changing the prognosis of our PAD patients.

I still think that it's going to be hard for us to make major strides without more access to vascular providers. That remains our critical pain point. Some patients with severe PAD present to the emergency department and end up with a major amputation that weekend by a trauma surgeon because they lack access to appropriate vascular care. If we do see meaningful improvements, I believe most of them will come from earlier education and better medical management. I would be surprised if we saw major differences before we more fully equip and encourage the workforce to adopt our medical therapies and prioritize early screening.

Do you see advancements in medical/pharmacologic advancement or device innovation having a greater likelihood of making the most impact?

It will certainly be a combination of approaches. We have many emerging medical therapies and a growing number of advanced endovascular tools. Over the years, we've seen significant innovation in devices, including wires, balloons, imaging technologies, and procedural techniques. At the same time, there's still a tremendous need for continued innovation, particularly for devices designed specifically for PAD, which we're fortunately starting to see more of.

Despite these advances, the failure rate of endovascular treatment could be up to 20%, and on the surgical side, many patients don't have suitable vein for bypass and require synthetic grafts, which generally don't achieve the same outcomes.

On the medical/pharmacologic side, the introduction of low-dose rivaroxaban was an exciting development, but adoption was initially slow until it finally got a class 1 recommendation in the American College of

Cardiology/American Heart Association (ACC/AHA) PAD guidelines and became more widely accessible. Still, optimizing medical therapy is a moving target.

Pharmacologic therapies are most effective when they are started early and maintained consistently. Too often, patients begin treatment only after they've experienced a major event, such as an amputation or revascularization procedure. But, at that point, the horse is out of the stable and it's harder to manage recurrent events even with maximum medical therapy.

We continue to see high rates of smoking among patients with PAD, far higher than what we typically see in the coronary disease population. Tobacco use has declined substantially overall, yet in the PAD population, it remains prevalent and is strongly linked to disease development and outcomes.

How can a multidisciplinary approach succeed not just at the facility level but also at a society level in lowering the rates of advanced disease and amputation?

We are continuing to make progress, but there are many factors that influence the success of multidisciplinary care. Historically, barriers have included specialty silos, perceptions of ownership over a condition, and differences in compensation models. As medicine has evolved and more physicians have become part of hospital-based systems, some of those barriers have started to come down. We're spending more time training together, working together, and focusing less on specialty divisions, which is a positive step forward.

The bottom line is that we need the resources to train dedicated vascular specialists, and that training must emphasize that PAD care is inherently multidisciplinary. I often point to pulmonary embolism (PE) care as an example. PE programs were built around a multidisciplinary model, bringing together interventional radiologists, interventional cardiologists, vascular surgeons, cardiothoracic surgeons, pulmonary and critical care specialists, hematologists, and others from its origin. That is where vascular care needs to be as well.

I'm optimistic that we'll get there because there are a lot of talented people committed to improving outcomes for patients with vascular disease. We can no longer view PAD as a disease that belongs to any single specialty. Current guidelines reinforce that message, including the ACC/AHA PAD guidelines, which give multidisciplinary care a class 1 recommendation.

One of the most important lessons from BEST-CLI was the value of multidisciplinary evaluation in determining the best treatment strategy for individual patients. While the trial focused on identifying patients appropriate for randomization, the broader takeaway is that every patient should benefit from that same collaborative decision-making process. The focus should be on identifying the optimal treatment approach and ensuring patients receive the intervention most likely to improve their outcomes. That's the message we need to continue emphasizing. ■

1. Hirsch AT, Criqui MH, Treat-Jacobson D, et al. Peripheral arterial disease detection, awareness, and treatment in primary care. *JAMA*. 2001;286:1317-1324. doi: 10.1001/jama.286.11.1317

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