The Benefits of a CLI Program in a Large Health Care System

***CLI Perspectives* is headed by section editor Jihad A. Mustapha, MD, Metro Health Hospital, Wyoming, Michigan.**

This month, Dr. Mustapha interviews Christopher Boyes, MD, and Phalan Bolden, MSN, MBA, FNP, Cardiovascular Nurse Practitioner, Sanger Heart & Vascular Institute-Charlotte, Charlotte, North Carolina.

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Introduction

Jihad A. Mustapha, MD

Critical limb ischemia (CLI) does not discriminate between large or small hospitals, or young or old patients. Once it touches the life of a patient, the cascade of events inherent to this disease spirals into an array of uncontrolled, negative events with unfortunate outcomes. Some of these outcomes are major amputations followed by major cardiovascular events, leading to death. A "CLI team" is a new way to approach the devastation wrought by CLI disease. Despite minimal data at this point, there is still reasonable consensus on its valuable outcomes. This month, Dr. Mustapha interviews Dr. Christopher Boyes and cardiovascular nurse practitioner Phalan Bolden, MSN, MBA, FNP. Dr. Christopher Boyes, a vascular specialist with major interest in CLI treatment, found many limitations when treating CLI patients. Instead of giving in to the challenges and stopping treatment of CLI patients, he chose to develop a CLI team, which turned the corner for his patients and improved their overall outcomes. Phalan Bolden is a cardiovascular nurse practitioner with a vested interest in CLI patients. In their community, a CLI team was created using a multidisciplinary approach and a well-planned algorithm for treatment. Coordination of care between the different providers was improved though better communication between multiple disciplines, despite the inherent information hurdles often seen between different electronic medical records (EMRs) within a community. Ultimately, the efforts of this CLI team have led to increased access to care and improvement in overall outcomes for CLI patients.

J.A. Mustapha, MD: **What prompts you to take on CLI, knowing the historic, devastating nature of this disease?**

Christopher Boyes, MD: I was inspired to develop a CLI program soon after I graduated from vascular surgery fellowship 5 years ago. I attended a small peripheral vascular meeting in Europe, and witnessed a speaker review many difficult infrapopliteal and inframalleolar cases with amazing limb salvage outcomes. It was in that moment that I realized we needed to create a limb salvage program in Charlotte, North Carolina. Traditional U.S.-based vascular surgery fellowship programs at that time did not emphasize difficult below-the-knee cases, nor was there any significant literature to support these types of difficult cases. I decided to branch out, and immerse myself in literature and conferences that were not just vascular surgery-based, which included interventional cardiology and interventional radiology. From there, I was exposed to a whole different world of CLI that, quite frankly, I never knew existed. I was fascinated with these difficult cases and the amazing outcomes interventionalists were achieving. It was these experiences, along with listening to operators discuss the hardships they overcame, that really gave me the inspiration and confidence to build a successful CLI program.

Phalan Bolden, MSN, MBA, FNP: CLI is a devastating disease that has directly impacted my family. With our current approach to CLI, my aunt could have kept her legs. She would have been able to see her grandsons play for the symphony or graduate from college.

Dr. Mustapha: **Share with us some of your early challenges in caring for CLI.**

Dr. Boyes: My initial challenge was getting buy-in from the administrators. This began with first educating the administrators on the often-unknown devastating outcomes with amputations. It's amazing to me how this information isn't more widely known! Once the administrators saw how an entire new service line can be created with a limb salvage program and how much downstream revenue a successful program can bring a hospital system, I received their full support.

Ms. Bolden: From a coordinator prospective, an early/current challenge is the need to continue to educate our internal staff. It is important to have all teammates on the same page for management of the CLI patient population. I have created documentation templates to ensure all pertinent data is collected and shared for review. Time management of the correspondence to our external offices is imperative to the success of the program.

Dr. Mustapha: **When did you realize that CLI is a specialty that requires its own team?**

Dr. Boyes: I very quickly realized how much effort a successful limb salvage program demands. When I first started recruiting specialists across different disciplines of medicine, I understood the hardships of bringing these disciplines together to a common algorithm for CLI treatment. I look at CLI like a cancer. A successful cancer institute brings together multiple disciplines of medicine to fight a complex disease process. This is exactly what CLI is! CLI is not just about the blood flow, or just about wound care, or just about diabetic or infection control. A successful CLI program demands all of these disciplines unify and function as a single team, with protocols and timelines for treatment, analogous to a cancer institute. Every team needs a plan of attack, and every plan needs a quarterback. This is where a limb salvage coordinator is an absolute necessity, to bridge the gaps inherent with any program that uses multiple disciplines to treat a complex disease process.

Ms. Bolden: I agree, and this became clear for me while assessing these patients with multiple comorbidities that were uninformed about the disease process. We were seeing patients after months of nonhealing ulcerations. There was a true lack of coordination of care regarding referrals to specialties and open lines of communication between offices. After assessment of cases that we were not consulted on for vascular studies, it was clear there was a need for CLI program. Effectively caring for this patient population requires multiple disciplines, i.e., endocrine, wound care, infectious disease, and so on.

Dr. Mustapha: **What approach did you take to initiate the building of your CLI program?**

Dr. Boyes: After I gained support from the administrators, I needed to first find a coordinator to help me with this effort. This process is too big for any one person to handle. Once I found my nurse practitioner, we sat down and discussed all the components we needed to bring this program together. And I'm not just speaking about the different specialties of medicine, I'm speaking about the logistical changes we needed to make with our operators and front office staff, schedulers, nurses and back office staff, referral coordinators, etc. We needed these staff members to understand that CLI is a completely different disease process than any other vascular surgery disease and timing is everything! I used the analogy of a patient with symptomatic angina — these patients absolutely cannot wait until a new office appointment opens up in 3 weeks. For symptomatic angina patients, "time is tissue"… and the same goes for CLI patients. CLI patients are essentially having a heart attack on their foot! I think that analogy really made a significant impact with the staff members. From there, they helped to create an expedited pathway to get these patients into our office as quickly as possible so that we can implement our treatment program in a timely fashion.

Ms. Bolden: I focused on educating key internal and external stakeholders. We were able to share and educate our internal team, home health/wound care nurses, schedulers, and podiatry groups. It was important in our community to provide a collaborative and educational approach to this program. We were tasked with changing a culture. I have invested a great deal of time in networking and bridging gaps between offices that are not affiliated with our system. I have taken the time to educate myself and our staff about many of our collaborating teammates, in order to bring awareness to other disciplines and to

be able to educate patients on why and when these appointments are needed.

Dr. Mustapha: **What were your biggest obstacles and how did you overcome them?**

Dr. Boyes: We are still overcoming our biggest obstacle — and that is physician education. We are looking to obtain buy-in from physicians within our own hospital system and across the community that a limb salvage program does work. Although we are getting referrals of CLI patients that live 2 hours away, there are still amputations being performed without prior vascular assessment in hospitals 10 minutes away. This has been one of the most frustrating and demoralizing facets of developing a new service line that really hasn't yet been widely accepted. I know we are still a relatively young program. And although we are showing amazing results with our limb salvage program, there are still many physicians within our community that still have doubts about our program. But I continue to have faith that progress will prevail. We'll keep pushing forward. In time, we can show these physicians that a successful limb salvage program does work. Limbs can be saved, and by extension, so can lives.

Ms. Bolden: One of our biggest obstacles has been communication to our office and other offices. This obstacle has led to the use of our EMR as a tool for direct access to the CLI navigator in order to increase early access to vascular assessment and treatment. It enabled us to assist in decreasing prolonged stays in the emergency department for ultrasounds or consults on nights. It was brought to our attention that many of our documents that were faxed to outside offices were not being seen by the physician. These documents were being placed in the chart without review. After having a dialogue with various offices and departments to understand their preferred method of communication style, we have been able to make modifications and increased communication. This communication is always to receive, evaluate, and treat patients more efficiently.

Dr. Mustapha: **Who is the most important member of your CLI team?**

Dr. Boyes: My nurse practitioner, Phalan Bolden… of course. She is the glue to this whole world. Without her, we wouldn't be half the program we are today.

Ms. Bolden: I am. (LOL.) Our endocrine providers are a major part of this program. Diabetes is one of the contributing factors to CLI. We have also learned with the development of our program comes the need for a creative orthotist. We have seen patients lose limbs due to lack of offloading in the acute and chronic phase of wound healing. Proper footwear is a frequent topic that leads to some confusion with this patient population. This is where having baseline knowledge of orthotic devices or having a great orthotist on your team is helpful.

Dr. Mustapha: **Do you believe you have built a sufficient, self-sustained CLI program?**

Dr. Boyes: I don't believe any program is ever really self-sustaining. I believe that continued outreach efforts will always be required. You would be surprised how short someone's memory can be. Of the many things I've learned from the experts in this field, one is that you always need to continue to reach out to your providers and referrals. Always remind them of the service you are providing and keep them updated with your progress. Showcase your results. Involve them in your efforts. And they will continue to reward you with their trust.

Ms. Bolden: I agree with Dr. Boyes, in regards to any program truly being sufficient and self-sustaining. There is survivability due to the devastation of this disease. To remain sufficient, it is important to maintain strong relationships and patient outcomes. With a dedicated program, it can reach a level of sustainability. It will always require outreach, networking, and continued education.

Educate the administration on CLI. Involve them in your journey. Find a quality control officer, and show how a CLI program can improve outcomes and decrease readmission rates. Show the downstream revenue a CLI program can achieve.

Dr. Mustapha: **How do you adapt to the constant demands of the CLI patient?**

Dr. Boyes: As with any disease process, every patient is different. But with a dedicated treatment algorithm, the differences between patients can be managed more easily. CLI patients are the most difficult patients of all peripheral vascular patients. They are often the sickest, most non-compliant, and undermanaged of all other patient populations. I refer them to the "forgotten" patients. Their multiple medical problems can often be overwhelming. But that's where building a team of providers becomes important. Each physician is only responsible for their piece of the pie. No longer does the wound care physician have to worry about infection control — we have an infectious disease doctor for that. No longer does the podiatrist have to worry about diabetic control — we have an endocrinologist for that. So if you shrink these very difficult patients with multiple, uncontrolled disease processes into pieces that the individual physician specialist can handle, everything becomes much more manageable. Of course, you need a quarterback to help bring the whole picture together. And don't forget about the other non-physician providers that are essential to a successful program — i.e., orthotists, home health nurses, nutritionists, etc.

Ms. Bolden: We meet the demands by being open-minded and willing to adapt to change. We take time to understand these patients' needs and concerns. As program coordinator/navigator, I make myself available to ensure this patient population is seen and treated in a timely fashion. I ensure that our teammates are aware of trends and changes in the program needs. I have given my number to patients, home health nurses, and other physicians to provide real-time access.

Dr. Mustapha: **What do you say to the naysayers who don't see the value in the "CLI team"?**

Dr. Boyes: They are often the ones that don't understand the CLI disease process and it can certainly be difficult. They see these CLI patients with blinders on, and don't recognize that it is multiple disease processes and environmental factors that led these patients down this path. My discussion with the "naysayers" begins with explaining the CLI disease process and how there are many factors that brought this patient to their plight. Next I explain how difficult it is to manage the multiple disease processes of these patients and the job is really too big for any one physician to handle. I often use the example of how a cancer patient requires a team with a planned algorithm and highlight how a similar team approach is required with the CLI patient for a successful outcome. Restoring blood flow will definitely improve amputation rates. But if you want your program to see limb salvage rates approaching or even exceeding 90%, you need to address all the factors that go into saving a leg during the acute treatment phase, which includes diabetic control, infection control, proper wound care, offloading, proper nutrition, and appropriate follow-up to closely monitor the wound progression. Once the wound is healed, your job isn't done! Now it's time to place the patient in what I call the chronic phase of our limb salvage program. This plan of care prevents recurrence of the wound. This means ensuring appropriate follow-up visits and patient compliance, podiatry care, risk factor modification, and most importantly, patient education. This entire process requires a dedicated and well-planned team approach.

Ms. Bolden: We have also been able to speak to the naysayers through our outcomes. Dr. Boyes is often slated to cover amputation cases. He will assess images and patient wounds, and has redirected patients to have catheter-based procedures with great results. Limbs are saved, and patients are then enrolled into the program.

Dr. Mustapha: **What is your advice to the up-and-coming CLI enthusiast?**

Dr. Boyes: Developing a new program takes time. First, gain support from administration. There are many ways to achieve this. Offer to start a new service line, or add to an existing one. Educate the administration on CLI. Involve them in your journey. Find a quality control officer, and show how a CLI program can improve outcomes and decrease readmission rates. Show the downstream revenue a CLI program can achieve. I would not just barge into their office and start demanding materials and support, because you will be met with a hard and fast "NO". Opening a new service line and gaining support takes time. Once you have gained administrative support, find your co-pilot. For me, it was my nurse practitioner. This effort is too big for any one person to handle. Sit down and come up with a plan. What physicians do we need? How do we need to change the logistics of our office to accommodate this patient population? How do we come up with a treatment algorithm that fits for our community? How can we improve communication between different offices that have different EMRs? Once you find your team, start doing cases. Your program doesn't need to be perfect before you start. Remain malleable and understand that your algorithm, communication, and logistics are going to change with time. Keep in constant contact with your providers and office staff. Find out what's not working and make appropriate changes. Don't get discouraged. Things will always be difficult at first. But it does get better with time. Stay true to your efforts and everything will work. Once you start, your program will spread like wildfire!! And always remember the infamous words of Coach Jimmy V: "Don't give up. Don't ever give up."

Ms. Bolden: Don't be afraid of the challenge. I would also recommend finding a nurse practitioner/physician assistant that shares your passion and drive to make an impact on your community. Having wound care and strong networking skills is a bonus.

Dr. Mustapha: **What do you hope to see the CLI specialist doing in 10 years?**

Dr. Boyes: I hope to see that the treatment for CLI patients becomes the new standard of care. We aren't there yet… but we are a relatively new subspecialty. And that is exactly what this disease process demands — a new subspecialty. It doesn't matter if your background is vascular surgery, cardiology, or radiology. CLI really is its own subspecialty. But I believe it will take a paradigm shift in how we as physicians view these patients. As with any new treatment for an old disease process, change takes time.

Ms. Bolden: I hope to see other programs with decreased amputation rates nationally and internationally. I agree that change takes time. With the acknowledgement of this subspecialty, I hope it will evolve to a standard of care.

Thank you, Jihad, for the opportunity to share our program and some of its highlights. We are excited to share our work and efforts with like-minded providers. ■