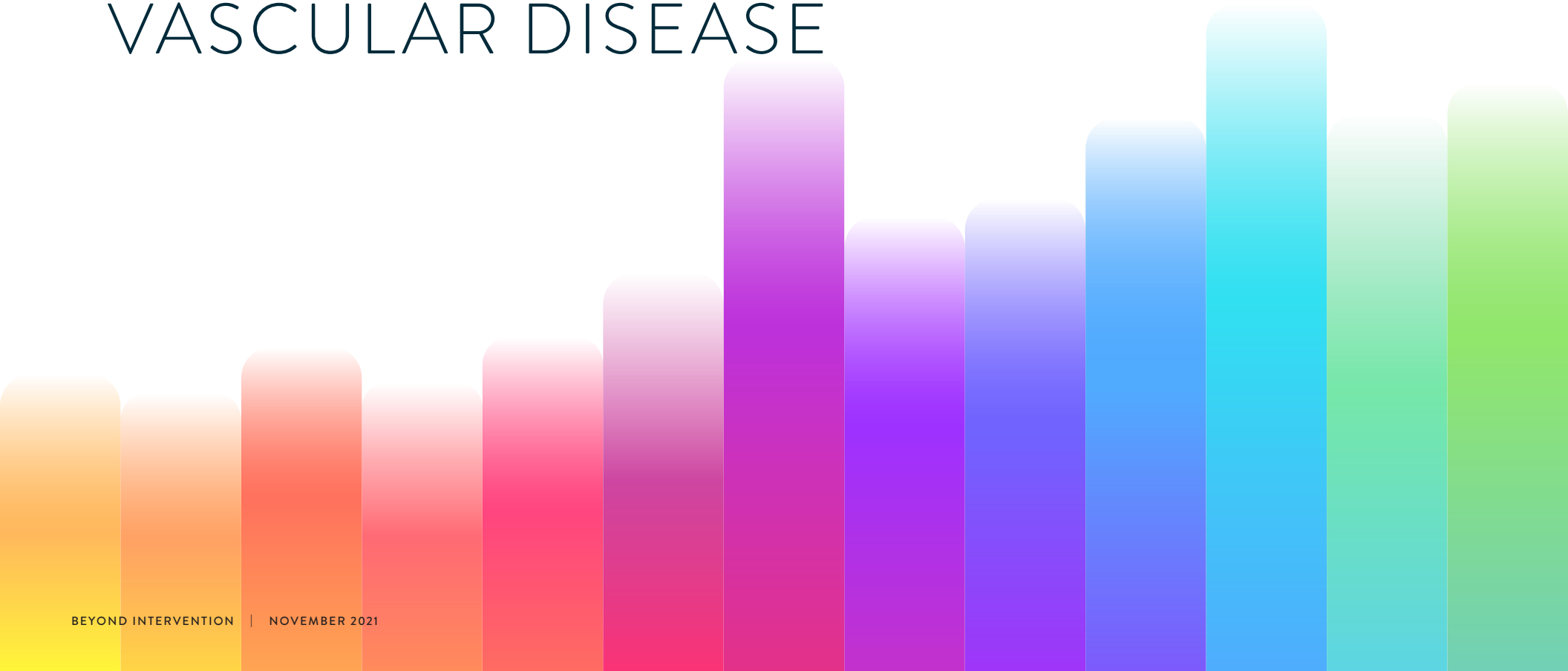
Abbott

BEYOND INTERVENTION

IMPROVING PATIENT EXPERIENCE BY ADDRESSING UNMET NEEDS IN VASCULAR DISEASE



INTRODUCTION

Abbott, as a global healthcare company, has the privilege of helping people live better and healthier lives with our life-changing technologies. With that privilege comes the responsibility to innovate and improve access and affordability to healthcare.

Because our medical devices can have a profound impact on the health of people all over the world, we are positioned to drive change in how healthcare is delivered and received. We believe we can have the greatest impact on the world's health by delivering new and better medical products and services designed to meet the needs of the individual patient, their capable physicians, and make the cost of care affordable.

To enable this vision, we must always keep our finger on the pulse of the people that we serve. We know that people are demanding more from their healthcare providers—more health monitoring, more personalized care plans and more analysis. With this in mind, we embarked on a multi-year research study that surveys the perspectives of patients, physicians, and healthcare leaders about the vascular patient journey. This research, titled "Beyond Intervention" provides insights on delivering personalized patient care, enabling data-driven decision making and creating a more connected care continuum.

When reflecting on the latest goals of the Quadruple Aim - balancing the patient experience with population health, the well-being of the care team and reducing costs - these are not the sole responsibility of healthcare systems, we all have a role to play. As part of Abbott's commitment to helping alleviate some of the biggest pain points in the vascular care journey, our research is helping us better understand that the needs of all stakeholders don't need to compete to achieve a common goal.

This research is essential to the work we do as we look to create the future of vascular care around the world. I invite you to review our latest report to identify areas that you can also influence to improve the vascular patient experience in a meaningful way.

Julie Tyler
Senior Vice President and President of Abbott's Vascular Business

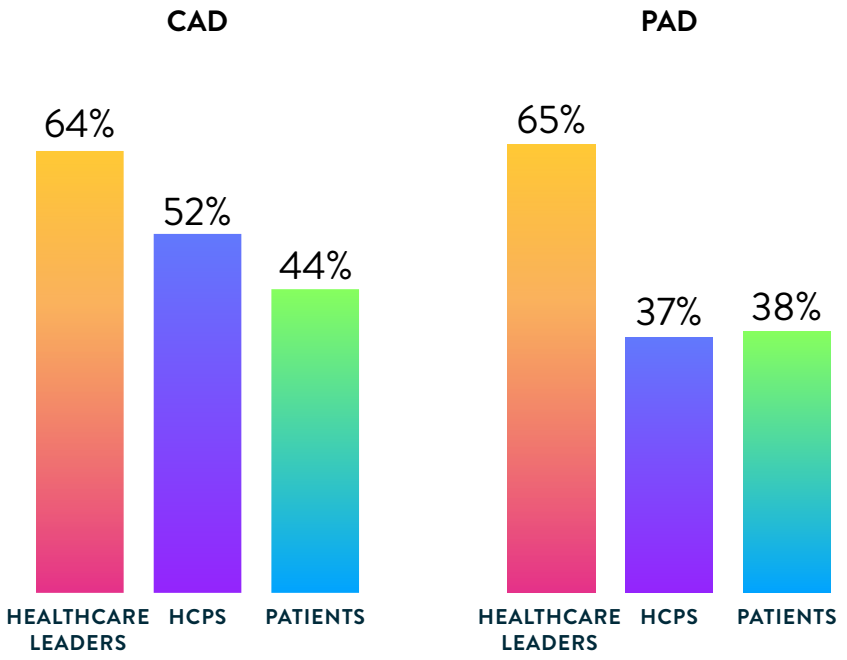
EXECUTIVE SUMMARY

In Abbott's 2020 primary-research-based white paper, "**Personalized Vascular Care Through Technological Innovation**," the majority of surveyed physicians and healthcare leaders stated that accurate decisions have the most impact either at diagnosis or when determining a patient's treatment pathway. In this year's survey, we have delved further into understanding the challenges that arise within the earliest stages of the vascular patient journey—from screening and symptom detection/recognition to specialist referral.

Our new study explores the differing perceptions and experiences of 1,289 people suffering from vascular diseases across 13 countries—along with 408 physicians and 173 healthcare leaders. A total of 1,800+ stakeholders were surveyed from April to June 2021.

The key findings highlight one crucial truth: The patient experience may not be as good as healthcare leaders and physicians think it is. Our study indicates that healthcare providers are more likely to rate a positive experience for people afflicted with coronary artery disease (CAD) and peripheral artery disease (PAD) than the patients themselves (see chart). Interestingly, although healthcare leaders are stable in their impressions across the CAD & PAD patient experience, physicians also recognize key gaps in PAD care as the PAD patient experience can be even more difficult with multiple, complex conditions contributing to a less well-defined, non-classical symptom presentation, or when medical care is not easily accessible.

Percentage of HCPs/healthcare leaders who agreed the current patient experience is ideal vs. percentage of patients who agreed their experience went as well as it could have.



The key findings highlight one crucial truth: The patient experience may not be as good as healthcare leaders and physicians think it is, with healthcare leaders especially disconnected from the nuanced challenges of PAD care.

The survey uncovered three key areas noted by physicians, healthcare leaders and patients that impede or negatively impact the patient journey. These are:

1. **Lack of awareness of symptoms and treatment options**–Many people with vascular diseases are unaware of their condition, tend to downplay their symptoms, and/or are confused about the next steps they should take for diagnosis and treatment.

2. **Lack of standardized processes and technologies for diagnosis**–Accurate diagnoses are challenged by numerous variables cited by physicians such as lack of equipment and technology, and lack of a standardized approach to diagnosis.

3. **Lack of coordination and communication among PCPs and specialists**–Patients remain dissatisfied with the amount of face time they have with their physicians, and they are equally unhappy with the communication—or lack thereof—between their primary care physicians and their specialists.

There is clinical evidence that early detection and diagnosis of patients who are at risk of developing vascular disease, and then are treated, have experienced a significant reduction in coronary events.[1] Thus it's important to identify the gaps in the earliest stages of patient care, and for healthcare organizations to acknowledge how the patient care continuum is more than just a journey - it impacts patient experience.

Our report examines the potential of these various technologies to improve symptom detection/recognition and diagnostic processes, while simultaneously easing the pain points to optimal care for vascular patients worldwide. Based on the results of our research and the clinical evidence, healthcare providers, the medical technology industry, and patients themselves should consider the following opportunities and actions for improving the vascular care experience:

1. Acknowledge that each patient journey entails unique challenges (especially for PAD patients, the underserved*, women, and people with diabetes), with an imperative to increase early-onset awareness of disease symptoms, their variability and significance, and consequent therapeutic options.

2. Address challenges to early and accurate diagnostic testing, including patient access to physicians and appropriate resources —and, equally important, physician access to proper tools.

3. Link pre-existing sources of disparate patient information to ensure seamless coordination and communication between primary care providers (PCPs) and specialists.

Patients continue to wield more power in their healthcare choices, and technology provides further opportunities for understanding and owning their own data. Through standardization of key technologies and screening methodology, physicians can provide patients more personalized, individualized care when diagnosing and treating vascular disease—ultimately achieving a better care experience.

*We used the following weightings (on a scale of 5) to determine whether patients were "less" underserved, "moderately" underserved, or "highly" underserved: Difficulties affording food (1.75), Difficulties affording medicine (1.5), Avoids medical care due to costs (1.0), Lower income than others in state/region (0.5), Has access to transportation when needed (0.25).

Based on these weightings, we determined that 27 percent of our underserved respondents fall into the "less underserved" category (receiving a score of 0.25-1.5), 13 percent into the "moderately underserved" category (receiving a score of 1.75-3.5), and 11 percent into the "highly underserved" category (a score of 3.5+). Nearly half at 49 percent were deemed not underserved (a score of 0).

AN IMPERATIVE TO ADDRESS THE INCREASING CONSUMERIZATION OF HEALTHCARE

To develop and deliver patient-forward solutions, providers must account for the rapidly increasing "consumerization" of healthcare, led by increased patient empowerment. Patients are embracing technology and other avenues to play a more active role in their own health—a tectonic shift that potentially threatens continuity of care within the traditional model of healthcare delivery.

A wide range of technology tools now provide quick and easy ways for consumers to access information on health issues and costs, monitor their own health conditions, order prescription drug refills, and play a major role in making care-related decisions—including telling doctors when they disagree with them. One key factor that may be influencing this trend is the increasing cost of care. According to Kalorama Information, patient out-of-pocket healthcare costs have risen 10 percent since 2020.[2]

For these and other reasons, organizations need to gain a better understanding of patients as healthcare consumers, along with crafting strategies that meet their evolving needs.

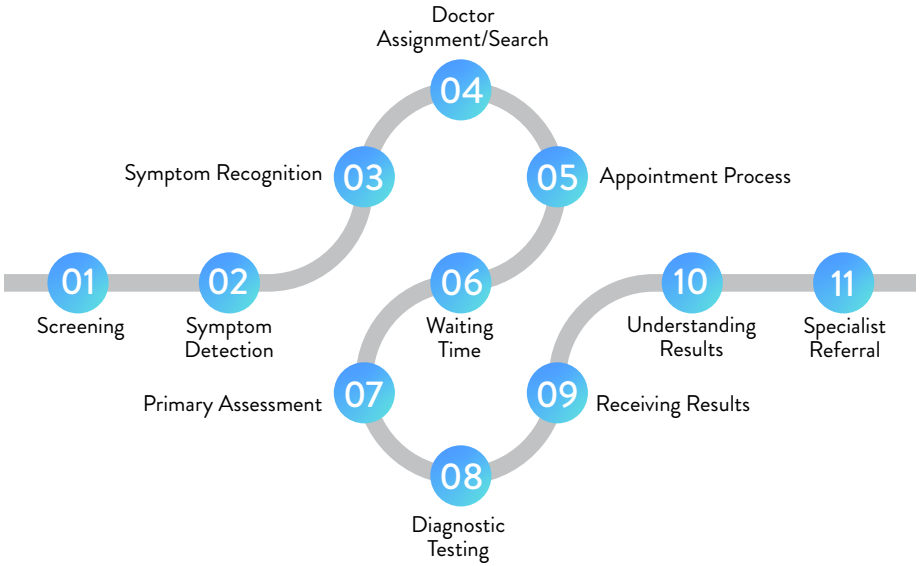
Unfortunately, most providers haven't sufficiently modified their services to meet the changing expectations of today's digitally savvy healthcare consumers. One recent study found that just 8 percent of US hospitals and health systems demonstrate strong consumer-centric performance—and that 70 percent of these organizations either have not begun their consumerism efforts or are in the very early stages.[3]

"Too often, healthcare providers forget that patients are also consumers," explained Dr. Peter Fitzgerald, Professor Emeritus in Medicine at Stanford University. "In the United States, for example, the increasing consumerization of healthcare is encouraging companies from other industries such as retail, entertainment, social media, and information technology to get more involved in addressing their customers' healthcare-related needs. Because companies in these industries are experts at engaging consumers, healthcare providers have much to learn from them."

To boost customer satisfaction and retain patients, it's imperative that providers revamp their services by using technology to increase transparency, access, and ongoing engagement outside the clinic.[4]

UNMET NEEDS IMPACTING PATIENT EXPERIENCE

This year's survey evaluated the experiences of CAD and PAD patients across 11 steps of the care journey, from symptom detection to diagnosis:



Here's what we learned:

Patients experience the most difficulty with:
(1) symptom detection/recognition
(2) diagnostic testing, both of which can be exacerbated by
(3) a system with poor coordination between primary care providers and specialists

Let's take a closer look at how survey respondents view these three critical issues.

KEY ISSUE NO. 1: Lack of Awareness of Symptoms and Treatment Options

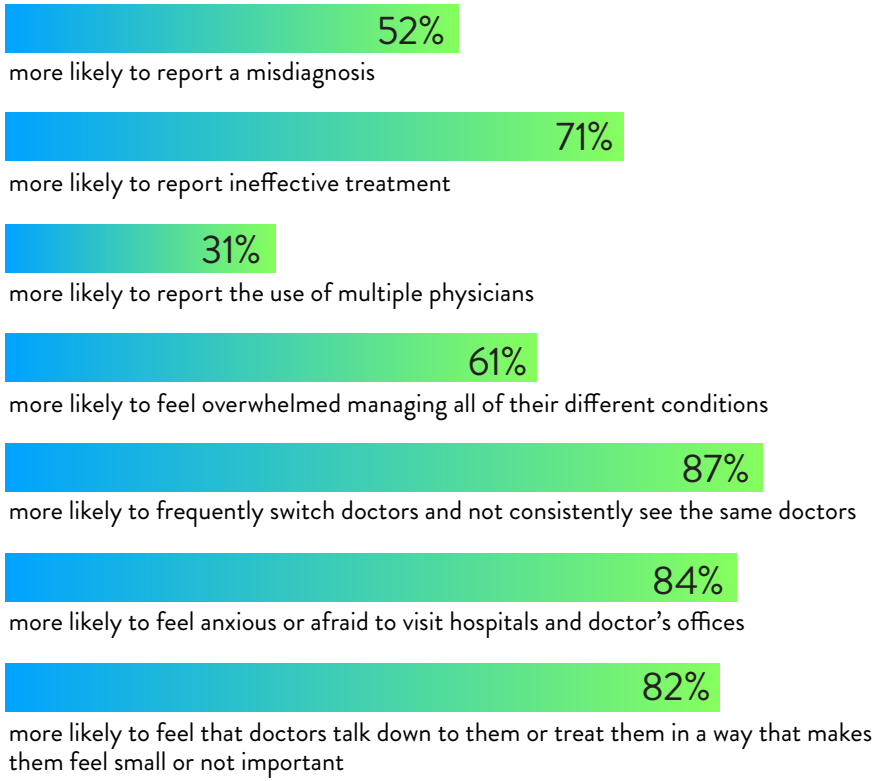
Many people with vascular diseases are unaware of their condition; they tend to downplay their symptoms, and/or are confused about the next steps they should take for diagnosis and treatment:

- About half of surveyed CAD and PAD patients cited "struggles with recognizing symptoms/not realizing the problem before it became an emergency."
- Around 2 in 5 surveyed CAD and PAD patients selected "not thinking my symptoms were a big deal" and "not thinking they were worth mentioning to my doctor" as key barriers to their diagnosis and treatment (also a heightened trend for men compared with women).
- Over a third of surveyed CAD and PAD patients named "confusion about what I was supposed to do next" as an important barrier to early and accurate diagnosis.

"It was my fault for ignoring symptoms for over a week before seeing my primary care doctor," admitted a 75+-year-old female patient respondent from the United States. "Easier identification of symptoms would have made it much simpler to find the right doctor," added a 35- to 44-year-old male respondent from India.

Based on our study, it appears that PAD patients face an even greater number of challenges to early and accurate diagnosis than their CAD counterparts, including difficulty navigating the healthcare system, lifestyle challenges, and poor physician/care provider sentiment (see chart).

Compared to CAD Patients, PAD Patients are:



> Dr. David G. Armstrong, Professor of Surgery and Director of Limb Preservation at Keck School of Medicine at USC, recommends that the industry adopt "red/yellow/green" screening techniques to help triage patients and determine the next steps for effective treatment. "Ultimately, we need to develop teams to bring awareness of symptoms and diagnostic/treatment techniques forward to the industry," Dr. Armstrong explained. "To accomplish this, it will be important to highlight patterns of success through key case studies."

KEY ISSUE NO. 2: Lack of Standardized Processes and Technologies for Diagnosis

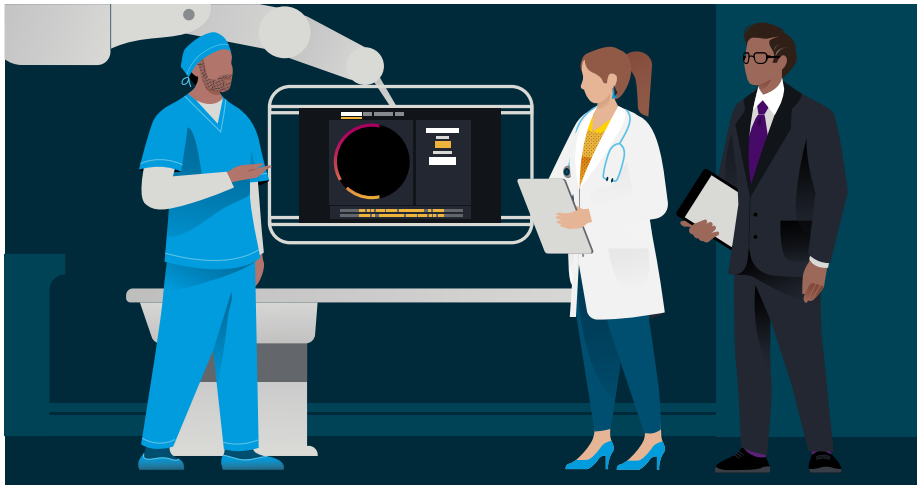
Our study shows that roughly 1 in 5 PAD and CAD patients state they were misdiagnosed on average three times before receiving a diagnosis for their symptoms—and PAD patients are significantly more likely to see multiple physicians, which may make it more difficult to share relevant information.[5]

Care providers say that the accuracy of their diagnoses is being challenged by the lack of a standardized approach or technology/equipment for diagnosing CAD/PAD:

- ~1 in 4 physicians feel that "lack of technology or equipment to accurately diagnose CAD/PAD" is a key obstacle to an accurate diagnosis.
- ~1 in 3 healthcare leaders believe that a "lack of standardized approach for diagnosing CAD/PAD" is a key obstacle to an accurate diagnosis.

This situation feeds one of patients' biggest frustrations that surfaced in our research: not receiving a clear diagnosis—even after making multiple office visits. Our study shows that, on average, doctors see patients **three times** before referring a patient with CAD symptoms to a specialist, compared with **four visits** before referring a patient with PAD symptoms.

When diagnosing patients with PAD—which can be challenging due to the fragmented care journey of these patients, who are more likely to be juggling multiple conditions—physicians stated they were less confident in the areas of symptom recognition, selecting the right diagnostic tools, interpreting results, and referring patients to the right specialists as compared to physicians diagnosing patients with CAD.



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Dr. Natalia Pinilla, Interventional Cardiologist at Hamilton Health Sciences/Niagara Health, points out that inherent biases can also hinder physicians’ ability to detect and recognize symptoms in CAD and PAD patients—particularly for populations that are known to have less prevalence of vascular disease as young, female and/or certain ethnicities; but having a lower prevalence does not rule out a diagnosis of CAD/PAD. “Females are a special population known to express symptoms differently, making it quite difficult to interpret, leading to disregarding symptoms and often delaying care and diagnostic testing—they are sent home with outpatient follow up with the message that CAD or PAD are unlikely diagnosis,” Dr. Pinilla explained. “We need better risk-factor screening tools to minimize bias and over-reliance on individual perspectives. Knee-jerk responses from physicians can cause problems for patients—either through unconscious bias or simply because patients of different sex and ethnicities present differently.”

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Dr. David Rhew, Global Chief Medical Officer and VP of Healthcare at Microsoft, believes that the keys to better, more standardized patient screening are expanded education programs and adoption of the right technologies. “We need to get better at identifying the right patients at triage and post-event—such as whether, for example, a CAD patient is also likely to have PAD,” he explained. “We also need to be able to spot signals that we may be missing, such as through routine imaging procedures occurring elsewhere in the hospital. And, finally, we need to stop treating CAD as an isolated illness. Because those with CAD likely have PAD, seeing a patient with CAD should also trigger actions to evaluate the rest of the vasculature.”

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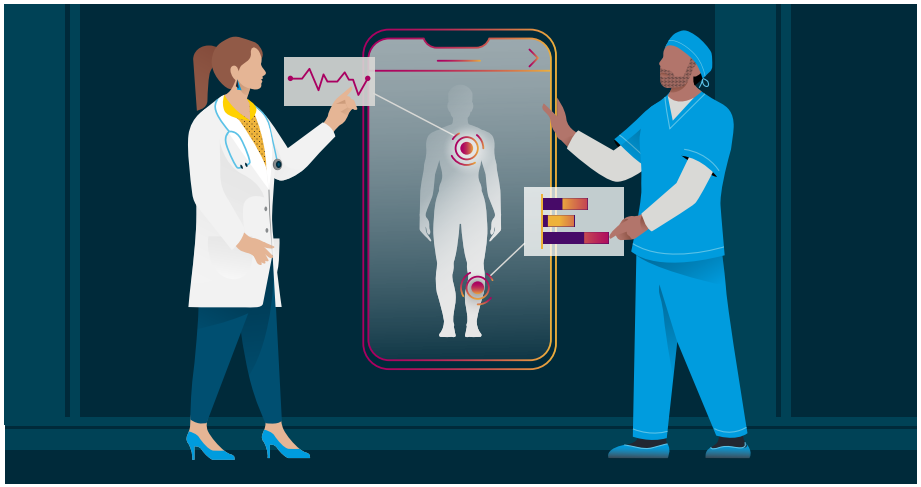
KEY ISSUE NO. 3: Lack of Coordination and Communication Among PCPs and Specialists

“Limited face time” topped the list of challenges to early and accurate diagnosis cited by physicians and healthcare leaders in this year’s survey, consistent with last year’s results. However, there are two other interrelated pain points that surfaced in our latest survey: “suboptimal coordination/communication between primary care providers and specialists” and “lack of electronic medical record (EMR) interoperability” (see chart on next page).

Patients seem to agree. In this year’s survey, roughly a third of CAD and PAD patients cited “I constantly have to provide my medical history/information, which I find inefficient” as one of the top challenges to early/accurate diagnosis. In addition, about a third of PAD patients and nearly a quarter of CAD patients cited “I felt like my different doctors weren’t talking to each other” as a top challenge.



Hospital and Staff-Related Barriers for Early and Accurate Diagnosis

	HCPs	HEALTHCARE LEADERS		PATIENTS CAD	PATIENTS PAD
Limited face-to-face doctor-patient time resulting in less comprehensive consultation/analysis of symptoms	48%	37%	It took too long to get appointments for each of the follow-ups I needed, or other specialists I needed to see	37%	38%
Suboptimal coordination between specialists and/or between primary care providers and specialists (e.g. lack of trust/lack of transparency)	43%	40%	I constantly have to provide my medical history/information which I find inefficient	32%	36%
Inefficient communication channels between primary care providers and specialists	36%	34%	It felt like my different doctors weren't talking to each other and didn't know my situation	23%	32%
Lack of staff resources to enable scheduling of timely patient consultation	34%	29%	I feel doctors and hospital staff don't have enough time for me	21%	28%
Lack of electronic medical record interoperability among providers resulting in limited exchange of patient history information	33%	38%	I feel doctors and hospital staff are not motivated to help me the best way they can	19%	23%

Time to get an appointment and constantly providing medical history are the top barriers picked by patients, followed by suboptimal physician coordination and perception of limited physician attention.

Describing her experience with lackluster communication among care providers, an underserved 75+-year-old patient from the United Kingdom complained, "The hospital should have informed my doctor of my heart attack and medication. He said that he had no knowledge of what I was talking about and did not roll out my lengthy prescription renewal. He took me off all hospital-based prescriptions. I wept with frustration and fear."

According to physician respondents to our survey, antiquated, cumbersome processes are a major contributor to the communication problems that exist among primary care providers and specialists —ultimately producing a fractured patient journey. "Getting correspondence—either written or verbal—is difficult," explained a general practice physician from the United States.

Some general cardiologists expressed frustrations about the quality of referrals and other communications they receive from primary care providers. Others expressed interest in exploring specific ways to build closer relationships through open dialogue or discussions, training, and other opportunities. "We need increased joint education and direct follow-up discussions following procedures," stated a general practice doctor from the United States. An internal medicine doctor from India added, "We need to meet more often and discuss cases on the basis of current evidence."

EMERGING TECHNOLOGY OPPORTUNITIES CAN HELP EASE PATIENT EXPERIENCE CHALLENGES

The three issues outlined in this paper have taken a significant toll on the overall experience of CAD and PAD patients. For example, nearly a third of PAD patients and over a quarter of CAD patients responding to our survey believe that certain aspects of their care could have been better. In general, younger patients and underserved populations reported worse experiences than other CAD and PAD subgroups in our survey (see appendix for more information).

According to our patient respondents, physicians can earn greater trust (and thus improved patient satisfaction) by providing more information to patients—including a personalized treatment plan based on the latest available evidence. This can be supported by providing resources to help physicians identify key variables when distilling the many patient data points provided to them in an increasingly noisy environment. Technologies such as AI and the use of digital health interventions have helped significantly in this space, the latter of which may improve patient healthcare self-management and outcomes.[6]

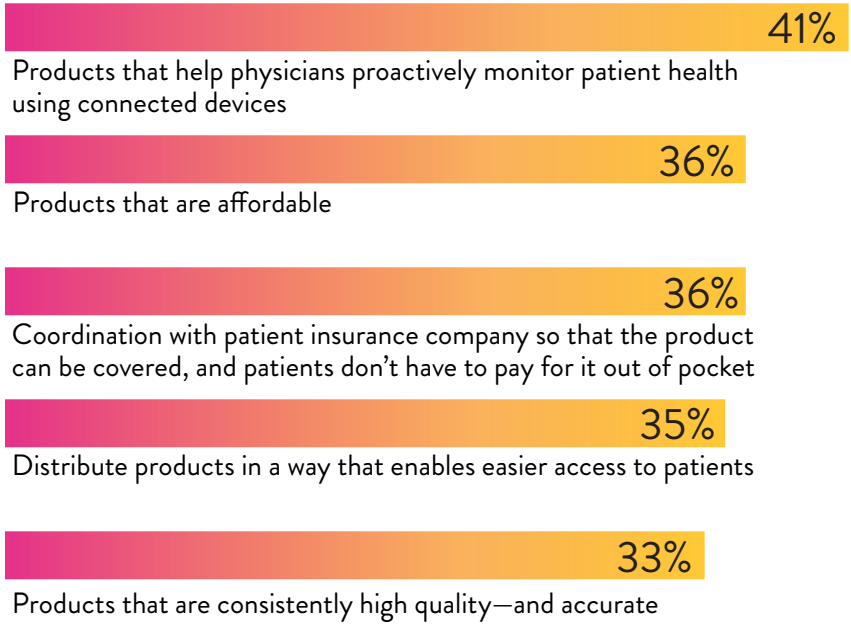
"Whether true misdiagnosis and poor communication occurs is perhaps less important to patients than the perception of such issues, seamless integration of patient records remain a key goal to mitigate such concerns," stated Dr. Nick West, Chief Medical Officer and Divisional Vice President of Medical Affairs, Abbott's Vascular Business.

The critical need to improve the patient experience aligns with hospital healthcare leaders' No. 1 priority: patient satisfaction—a change from last year's survey, when cutting costs topped the list for healthcare leaders. When creating patient-centered solutions, it is important to balance healthcare leader expectations; our research shows that healthcare leaders will be focusing on adopting technologies that:

- Help physicians proactively monitor patient health via connected devices
- Are affordable
- Can be covered by patients' health insurance
- Are distributed in a way that enables easy patient access
- Are of consistently high quality—and accurate

The critical need to improve the patient experience aligns with hospital healthcare leaders' No. 1 priority: patient satisfaction—a change from last year's survey, when cutting costs topped the list for healthcare leaders.

Adoption of proposed technological solutions can also be increased by understanding healthcare leaders expectations:



"When generalizing use of some of the patient engagement tools, we must be mindful that these technologies may not be a 'one-size-fits-all' solution," cautioned Dr. Nick West, Chief Medical Officer and Divisional Vice President of Medical Affairs, Abbott's Vascular Business. "Engagement should be tiered to patients' and their carers' desire and level of comfort. For example, some patients want active involvement and monitoring, some will accept passive monitoring, and some simply want to be directed by their medical team. Similarly, not all physicians and healthcare systems will want or be able to embrace these technologies."

CONCLUSION AND NEXT STEPS

Our latest research reveals that successful patient outcomes depend on much more than the medical procedure and intervention itself. Variations exist in how people experience the care pathway to diagnosis, treatment, and recovery, driven by factors such as disease state, socioeconomic status, and inter-physician communication. These dynamics can influence and sometimes impede awareness of disease, information sharing, a timely and accurate diagnosis, and the vital connections designed to make patient care more equitable, accurate, and personalized.

"With consumerization of the healthcare experience and increasing patient engagement, responsiveness from healthcare providers holistically is needed at a level never seen before," explained Dr. West. "Provision of appropriate products, services, and solutions to address these needs is critical to improving patient experience and satisfaction across the entire care continuum."

Medical technology companies have an opportunity to help physicians and healthcare leaders improve the patient care journey—particularly in the earliest stages. Dr. Rhew comments on the opportunity, stating "Virtual-based technologies such as telemedicine and remote patient monitoring expand patient access to care and facilitate timely exchange of information between patients, caregivers, and healthcare providers. When combined with data analytics and AI/ML, virtual care can facilitate proactive and more efficient care."

Here are some actions technology companies and healthcare organizations can consider to help address some of the issues outlined in this report:

1 Pursue standardized technology tools, processes, and training that enable physicians to make faster, more accurate, individualized diagnosis and referrals—including continuing physician and patient education on disease state awareness and symptom identification. Discrepancies in different patient experiences must be taken into consideration, making the case for individualized vascular care.

Patients cannot be ignored in symptom awareness and disease state awareness campaigns: public awareness and health literacy campaigns and other solutions that deliver an improved understanding of their own risk factors (for example, the likelihood that if they have CAD, they suffer from PAD as well) will be imperative as the rise of the "patient as consumer" era ensues.

2 Focus on developing and adopting solutions that facilitate improved communication among stakeholders, such as remote monitoring tools that also incorporate features valued most by patients. Digital health intervention patient groups had a 52 percent lower risk for 30-day readmissions—compared with an 11 percent reduction for home health visits and 8 percent for cardiac rehab.[7]

3 Store vascular disease-specific data within IT infrastructure systems (data lakes) that will enable predictive AI algorithms to improve care. Ensure that data is continually updated and tested to reflect real-world data.

IMPACT OF SOCIOECONOMIC STATUS, AGE, AND GENDER ON THE PATIENT JOURNEY

Abbott's research reveals that the most troublesome points in the vascular diagnostic journey vary not only by disease type (CAD vs. PAD), but also by patients' socioeconomic status, age, and gender.

For example, underserved* CAD and PAD patients report significantly more challenges related to access, their healthcare providers, and the resulting emotional impact than their non-underserved counterparts. Underserved patients are:

- More likely to **discover their symptoms unexpectedly** and withhold symptoms from their doctor
- More likely to struggle when scheduling appointments, and have to **wait longer for their appointments**
- More likely to have trouble explaining their symptoms, and to **feel less understood by their doctor**
- More likely to **struggle with understanding their results,** feel their doctor didn't answer their questions adequately, and to go online to learn more
- More likely to **report being misdiagnosed** more frequently

Our survey also highlighted the impact of a vascular patient's age on his or her perception of the care experience. In general, younger patients (ages 35-44) are more proactive and anxious pre-diagnosis, while older patients (age 55+) feel better understood and perceive a smoother overall process. Younger patients tend to:

- **Often think their symptoms are not serious enough to contact their doctor:** Nearly half of surveyed 35- to 44-year-old CAD and PAD patients said they "waited a couple of days to see how my symptoms were developing before taking action," compared with just 20 percent of 65- to 74-year-olds.
- **Downplay their symptoms, but investigate their options earlier:** Nearly half of 35- to 44-year-old CAD and PAD patients started doing research immediately upon symptom onset, compared with only 15 percent of 65- to 74-year-olds.
- **Feel more fear and anxiety while waiting to be seen, feel less understood by their doctor, and then subsequently report more difficulties in fully understanding their results.**

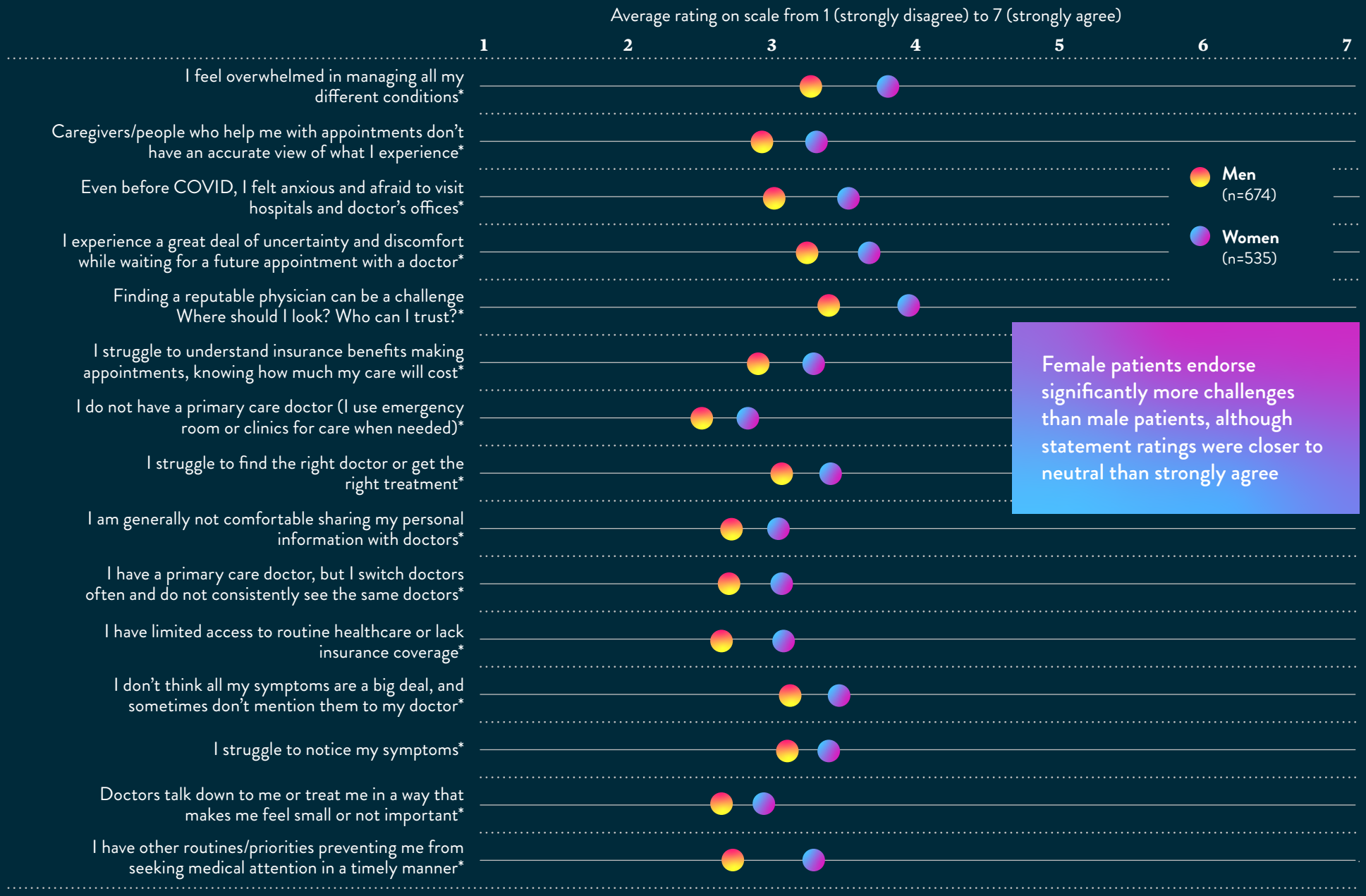
We also learned that female CAD and PAD patients report a more challenging experience than their male counterparts—particularly in the areas of finding a reputable physician, experiencing uncertainty and discomfort while waiting for an appointment, and feeling overwhelmed in managing different conditions. Male patients, on the other hand, tend to view their symptoms as less severe and find it easier to get an appointment in less time.

*We used the following weightings (on a scale of 5) to determine whether patients were "less" underserved, "moderately" underserved, or "highly" underserved: Difficulties affording food (1.75), Difficulties affording medicine (1.5), Avoids medical care due to costs (1.0), Lower income than others in state/region (0.5), Has access to transportation when needed (0.25).

Based on these weightings, we determined that 27 percent of our underserved respondents fall into the "less underserved" category (receiving a score of 0.25-1.5), 13 percent into the "moderately underserved" category (receiving a score of 1.75-3.5), and 11 percent into the "highly underserved" category (a score of 3.5+). Nearly half at 49 percent were deemed not underserved (a score of 0).

Patient Characteristics: Underserved Populations

Patient Characteristics: Gender



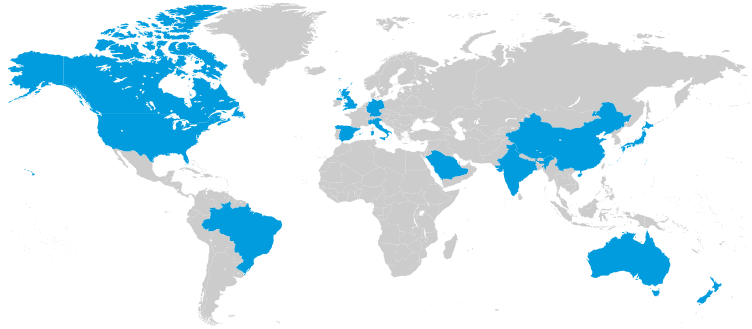
*Indicates a statistically significant difference between group means at 90% CI.

ABOUT ABBOTT AND THE RESEARCH

For over 135 years, Abbott has been committed to three things: 1) building life-changing technologies that keep people healthy, 2) providing nutritional support and novel medicines, and 3) developing diagnostic tests and breakthrough tools to help people manage their health. Today, Abbott reaches 2 billion people annually through best-in-class products and technologies, with an aim of increasing this to 3 billion (1 in 3 people on the planet) by 2030. As part of this bold mission, Abbott's Vascular business is putting science and innovation to work to create more possibilities for more people.

Our new study highlights the differing perceptions and experiences of 1,289 vascular-disease patients, 408 HCPs, and 173 healthcare leaders across 13 countries: United States, Brazil, Canada, United Kingdom, France, Germany, Italy, China, Japan, India, Australia, New Zealand, and Saudi Arabia. Fielded from April to June 2021, the survey underscores the contrasting experiences of coronary artery disease (CAD) and peripheral artery disease (PAD) patients around the world, along with exploring areas where technology can potentially solve key pain points. The study is a follow-up to last year's "Personalized Vascular Care Through Technological Innovation" worldwide research, which emphasized patients' desire for a personalized, "tailored for me" healthcare experience across the care continuum.

Characteristics of survey respondents were as follows:



	HCPs	Healthcare Leaders	Patients	**Total**
Canada	30	10	100	**140**
United States	60	31	150	**241**
Brazil	35	20	100	**155**
Germany	41	10	101	**152**
Italy	27	10	100	**137**
Spain	27	10	101	**138**
United Kingdom	28	10	120	**158**
Saudi Arabia	30	11	100	**141**
India	30	30	125	**185**
China	31	21	132	**184**
Japan	39	0	60	**99**
ANZ	30	10	100	**140**
Total # Of Interviews				**1,870**

Respondant Selection Criteria

HCP	• Board-certified/eligible physicians in practice at least 3 years • See at least 40 patients per month diagnosed with CAD and/or PAD
Health Care Leader	• Work in a healthcare setting in a healthcare leader role; in current role at least 3 years • Spend at least 60% of time in healthcare leader activities • Have direct impact on purchasing for coronary and peripheral interventional products and devices
Patient	• Age 35+ with self-reported condition associated with CAD and/or PAD • Mix of racial/ethnic backgrounds and resourced communities

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THE PAD PATIENT JOURNEY IS MORE DIFFICULT—ESPECIALLY FOR UNDERSERVED POPULATIONS, PEOPLE WITH DIABETES, AND WOMEN

Peripheral Artery Disease (PAD), a chronic disorder caused by progressive narrowing of the blood vessels (arteries), impacts more than 230 million adults worldwide.[1] PAD most commonly affects the arteries of the lower limbs, with blockages that restrict bloodflow to the legs and feet. The disease can cause troublesome symptoms that include claudication (pain brought on by walking) as well as both pain at rest and the formation of non-healing ulcers when the condition is severe. At best, the quality of life of patients with PAD can be significantly reduced; at worst, the condition can lead to amputation and premature death.

Despite its widespread prevalence, PAD remains underdiagnosed and undertreated[2]: among participants in the PARTNERS (Peripheral Arterial Disease Awareness Risk and Treatment: New Resources for Survival) program[3], nearly half of enrolled people received their diagnosis only after inclusion in the study.

Recent research reveals that adults lack knowledge about PAD: a population-based telephone survey found that only a quarter of Americans over the age of 50 had some familiarity with PAD.[4] Even more concerning is that primary care physicians—besieged by ever-increasing workloads—are aware of a PAD diagnosis having been established among their patients only around half the time[5], indicating a perception that PAD as a significant or modifiable disease entity is lacking.

These findings align with those from a new Abbott survey that explores differing perceptions and experiences of 1,289 people suffering from vascular disease (including PAD) across 13 countries—along with those of 408 physicians and 173 administrators.

Our study has confirmed that patients with PAD are experiencing significantly more difficult journeys than their Coronary Artery Disease (CAD) counterparts—with challenges that have the potential to delay a clear diagnosis and development of a treatment path. This, in turn, increases the risk of severe consequences—such as amputations—due to disease progression.[6]

PATIENTS WITH PAD ARE...

52% more likely to be misdiagnosed

71% more likely to report ineffective treatment

68% more likely to have personal routines or priorities that prevent them from seeking timely medical attention

87% more likely to switch doctors often

84% more likely to feel anxiety about visiting doctors' offices

69% more likely to experience uncertainty while awaiting an appointment

...COMPARED TO PATIENTS WITH CAD

"My primary care provider... referred me to an orthopedic doctor, which did not help. Finally, I was referred to a vascular surgeon. It was a year before I got the right referral," explained a female patient with PAD in her early 70s from the United States.

The care journey becomes even more difficult when patients with PAD are part of underserved communities (especially women), and when they also suffer from diabetes.

Underserved[7] Patients with PAD Struggle More Than Their Non-Underserved PAD Counterparts.

Overall, underserved patients with PAD have a much tougher experience than non-underserved patients with PAD throughout the care journey.

UNDERSERVED PATIENTS WITH PAD ARE...

74% more likely to report initial misdiagnosis

48% more likely to report that they felt the treatments they received were ineffective

171% more likely to lack a primary care doctor

100% more likely to have personal routines or priorities that prevent them from seeking timely medical attention

99% more likely to feel their symptoms "are not a big deal"

...COMPARED TO NON-UNDERSERVED PATIENTS WITH PAD

"My experience would have been less challenging if the clinic doctor had sent me for the proper tests in the first place," said a male patient with PAD in his early 60s from Canada. "I was able to find out what needed to be done in 10 minutes, while the doctor I was going to never did in the three years I saw him. He just kept sending me for unnecessary tests."

Unsurprisingly, the experience of underserved patients with PAD worsens based on how underserved they are. For example, highly underserved[8] patients with PAD are nearly three times as likely to be misdiagnosed than non-underserved patients with PAD—and more than twice as likely to report ineffective treatment. Highly underserved patients with PAD also struggle to notice their symptoms—and tend to underplay them—three times more often than non-underserved patients with PAD. And, they're about six times as likely to feel uncomfortable about sharing personal data with their doctor and to lack a primary care doctor.

Underserved Patients With PAD and Diabetes Face an Even Tougher Road

People with diabetes have at least twice the risk of developing PAD, CAD, and ischemic stroke.[9] Approximately 20 to 30 percent of individuals with PAD have diabetes mellitus.[10] Individuals with both diabetes and PAD are at higher risk than other patients with PAD of rapid disease progression, worsening symptoms, and of developing CAD.[11]

"Lower-extremity care of diabetes is a top-10 condition in terms of the global burden of disability," explained Dr. David G. Armstrong, Professor of Surgery at USC's Keck School of Medicine, citing recent data from the World Health Organization. "This is the most common medical problem that many people know nothing about. In fact, many would be shocked to learn that the direct costs of care for lower-extremity diabetes limb complications are more expensive in the United States than the five most expensive cancers."

When diabetic patients with PAD are also underserved, their experience becomes considerably more difficult.

UNDERSERVED DIABETIC PATIENTS WITH PAD ARE...

56% more likely to report that their physician lacks proper diagnostic equipment

150% more likely to struggle with noticing symptoms

81% more likely to have personal routines that prevent them from receiving timely medical attention

88% more likely to feel overwhelmed while trying to manage multiple medical conditions

148% more likely not to have a primary care doctor

90% more likely to struggle to find the right doctor

81% more likely to switch doctors often

...COMPARED TO UNDERSERVED NON-DIABETIC PATIENTS WITH PAD

"I believe that using technology and digital tools would have helped me a lot because they would avoid more waiting and headaches," explained an underserved diabetic male patient with PAD in his late 60s from Brazil.

Highly underserved patients with PAD and diabetes have an even worse experience.

HIGHLY UNDERSERVED DIABETIC PATIENTS WITH PAD ARE...

54% more likely to be misdiagnosed more often

114% more likely not to have a primary care doctor

104% more likely to switch doctors often

100% more likely to feel anxious about visiting hospitals or doctor's offices

83% more likely to have trouble finding the right doctor

...COMPARED TO OTHER HIGHLY UNDERSERVED PATIENTS WITH PAD

Surprisingly, although underserved diabetic patients with PAD are more likely to report issues such as misdiagnosis, they tend to have overall more positive perceptions of their experience than underserved patients who don't suffer from diabetes. For example, compared with other highly underserved patients with PAD, highly undeserved diabetic patients with PAD are more than twice as likely to believe that nothing could have been done differently to improve their diagnostic experience.

Underserved Women With PAD Experience More Hurdles Than Underserved Men With PAD

Our survey also revealed that underserved female patients with PAD face more challenges than underserved male patients with PAD—particularly when dealing with lifestyle issues and relationships with physicians.

UNDERSERVED FEMALE PATIENTS WITH PAD ARE...

90% more likely to have personal routines or priorities that prevent them from seeking timely medical attention

62% more likely to feel overwhelmed in managing their different conditions

56% more likely to feel their symptoms are not a big deal

54% more likely to lack a primary care doctor

44% more likely to have difficulty finding a reputable physician

41% more likely to feel anxious about visiting hospitals or doctor's offices

...COMPARED TO UNDERSERVED MALE PATIENTS WITH PAD

"Just being listened to properly would have made the most difference," stated 75+-year-old underserved female patient with PAD from the Australia-New Zealand region.

Next Steps: How do we Convert Pain Points Into "Gain Points" Across the PAD Patient Journey?

"This research reinforces what clinical experts have postulated: that the majority of people do not know what Peripheral Artery Disease is or how to recognize the signs and symptoms," says Jennifer Jones-McMeans, Abbott's Divisional Vice President of Global Clinical Affairs. "We also know PAD disproportionately affects communities of color in the United States as well as underserved populations around the world; with this knowledge comes the responsibility of not only increasing awareness among people at the greatest risk for PAD about its effects, but we also have the ability, the resources and the impetus to investigate new therapeutic devices designed to treat patients with PAD with the potential to improve patient outcomes."

While there is no single solution to address the challenges highlighted in this report, the healthcare industry can begin to take strides forward by working to reduce the complexities and barriers that currently hinder the patient journey for PAD sufferers by focusing on key opportunities: more informed care, better access to proper tools, and improved patient-provider communication channels.

DELIVERING MORE INFORMED CARE

The first step in addressing informational needs could be to establish a process that will help healthcare providers recognize the signs and symptoms of PAD, alongside evidence-based basic screening to establish a diagnosis.

In addition, patients and carers require a high degree of clarity and transparency throughout the PAD journey. This involves openness, honesty, and a sense of authenticity built through trust. Transparency in information-sharing between healthcare providers and patients establishes a foundation for improved healthcare experiences. Beyond transparency, patients and healthcare providers need to understand concurrent health conditions and how they might impact care. This includes addressing issues around access to medical records and health histories across the patient care continuum.

Some patients and their carers demand a strong degree of autonomy throughout their care journey, from having control over healthcare providers and treatment options, to actively engaging in preventative or other health practices.

Others may not require more than to be informed to a level that suits them; such a dichotomy requires an adaptive, interactive, and engaging healthcare experience in order to drive longer-term effectiveness.

"We can deliver better patient experiences—and save money—by having clearer pathways to referrals and diagnosis," explained Dr. David G. Armstrong. "We need to stop forcing patients to stumble from one doctor to the next without getting the proper diagnosis and treatment. Physician awareness and a coordinated approach are critical. Saving a patient's leg should be a message that resonates with all providers."

PROVIDING ACCESS TO PROPER TOOLS

With consumerization of the healthcare experience and increasing patient engagement, responsiveness from healthcare providers holistically is now needed to a level never seen before; provision of appropriate products, services, and solutions to service these needs is critical to improving patient experience across the entire care continuum.

IMPROVING PATIENT-PROVIDER COMMUNICATION CHANNELS

It's clear that patients need to feel confident about their diagnosis and treatment plan—and this mandates a mutual understanding between physicians and patients about what they are attempting to accomplish as a team. As any individual engages with uncomfortable, unfamiliar, or complex health issues relating to PAD, confidence is a critical enabler of great experiences in healthcare that allow patients not only to enjoy a sense of comfort, but also to act as brand advocates with other patients, as well as enabling them to navigate their own PAD journey.

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7. We used the following weightings (on a scale of 5) to determine whether patients were "less" underserved, "moderately" underserved, or "highly" underserved: Difficulties affording food (1.75), Difficulties affording medicine (1.5), Avoids medical care due to costs (1.0), Lower income than others in state/region (0.5), Has access to transportation when needed (0.25).

Based on these weightings, we determined that 27 percent of our underserved respondents fall into the "less" category, 13 percent into the "moderate" category, and 11 percent into the "high" category.

8. In Abbott's survey, "highly underserved" individuals are more likely to: Have lower incomes than others in their state/region, avoid medical care due to costs, experience difficulties affording food and medicine.

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