

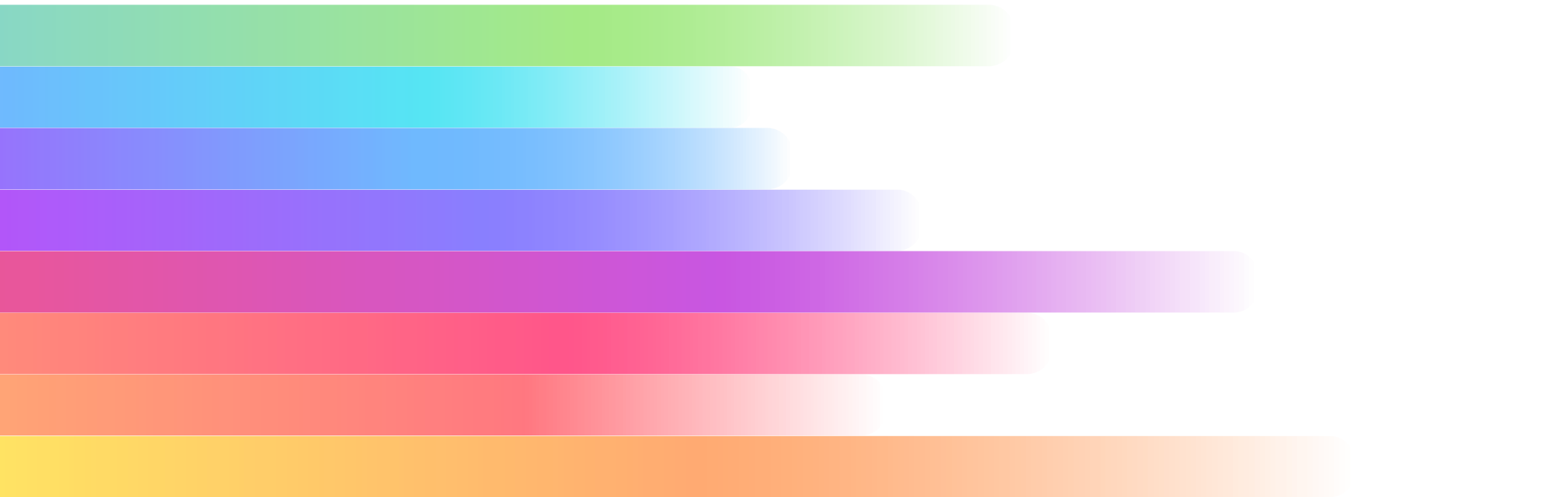


Abbott

**BEYOND
INTERVENTION**

ENHANCING POSITIVE OUTCOMES FOR PATIENTS

How shared decision-making and consumer technologies
can help drive patient adherence and compliance



INTRODUCTION

From the moment we come into this world, until the moment we depart, each and every one of us will face a time when we have a pivotal conversation with a doctor or a nurse about our health or the health of a loved one; conversations that are often the basis of decisions that will determine our future health.

Today, those conversations are being influenced by the tools and technologies that were once considered disruptive or superfluous to the delivery of healthcare. Now, we must consider the influence of those technologies designed to augment and, in effect, extend the reach of providers and patients beyond the clinic or the hospital.

In this research, our third year of *Beyond Intervention*, we seek to understand what is influencing patients with coronary artery disease (CAD) and peripheral artery disease (PAD), the physicians who have dedicated their careers to improving outcomes for their patients, and the healthcare leaders who strive to enable better patient care.

The goal is to take the findings surfaced in our research and ask ourselves how can we do better? Not only for the patient, but also for the provider and the healthcare leader.

I invite you to review our newest study and consider what role you play in making healthcare better for all. We recognize that to achieve better care we all have a role to play, and that the responsibility lays with all of us—Abbott included—to find innovative ways to harness the vast quantities of data to help physicians make treatment decisions, to create a more connected care continuum, and to improve the patient experience.



A handwritten signature in black ink, appearing to read 'Julie Tyler', written in a cursive style.

Julie Tyler

Senior Vice President and President of
Abbott's Vascular Business

EXECUTIVE SUMMARY

When a person receives a diagnosis of coronary artery disease (CAD) or peripheral artery disease (PAD), the focus is often on the intervention. However, the success of any intervention depends upon a myriad of factors, both directly and indirectly related to the prescribed intervention. Many of those factors affect patients after the intervention, when they are discharged and sent home with instructions related to prescribed medications and lifestyle modifications.

What many fail to account for are the prevailing circumstances that impact a patient's ability to adhere to those instructions—circumstances that are often beyond a patient's control such as socioeconomic status or access to high-speed internet. Ensuring and monitoring patient adherence and compliance with their aftercare remains a key unmet need for all forms of medical care and applies critically to vascular procedures.

For patients with CAD and PAD whose conditions have advanced so far as to require an intervention, compliance with post-discharge drug treatments is crucial; not only to alter the curve of the disease trajectory moving forward, but also to guarantee the short-term efficacy and success of the intervention itself.

Accordingly, the focus of Abbott's third assessment of the state of global vascular care through primary research was to solicit the perspectives of patients, physicians, and healthcare leaders to learn more about the post-procedural/post-discharge journey for vascular patients. As digital tools and technologies continue to make inroads in healthcare delivery, we explore the attitudes and appetites to adopt such solutions to better help patients recover from vascular interventions.

In detail, the research sought to examine:

- Post-procedure factors impacting patient satisfaction and how healthcare providers are currently prioritizing those needs.
- Key barriers hindering delivery of optimal post-intervention care and the pain points impeding post-intervention compliance and patient progress.
- Opportunities for novel technologies and data-driven approaches to help overcome barriers.

The research uncovered three key findings:

1



Patient satisfaction is based on a comprehensive care experience interacting within the healthcare system and not solely on the success of the recommended treatment.

2



Finding the motivation and time to manage their conditions, and the costs related to treatments are the primary challenges for patients, and thus, the chief contributing factors to adherence and compliance.

3



Many patients see the value in digital solutions that monitor disease for managing their own health and wellness, although physicians and healthcare leaders seem less eager to adopt such solutions at present.

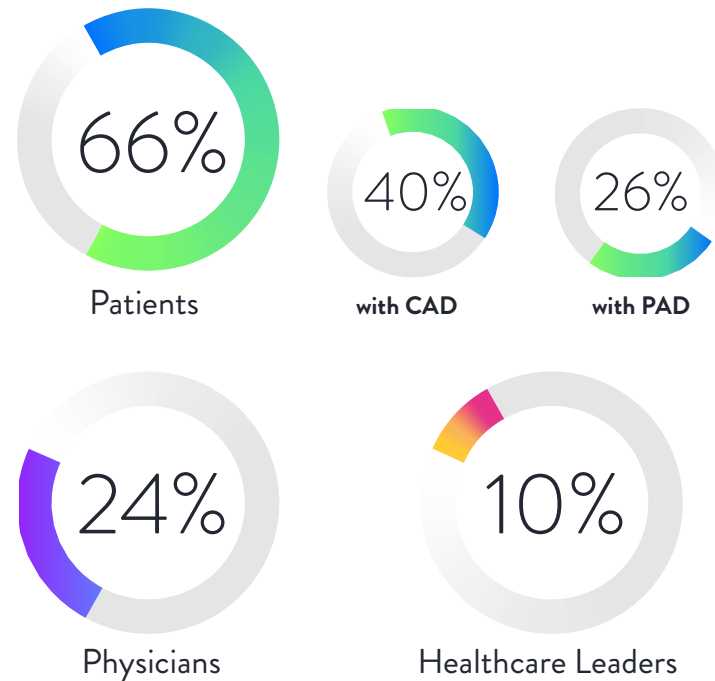
BEYOND INTERVENTION AND RESEARCH METHODOLOGY

As part of a multi-year program, the Abbott *Beyond Intervention* initiative has launched three in-depth global surveys exploring patient, physician, and healthcare leader perspectives around the state of vascular care, the different stages of the patient journey, and how technology could help overcome barriers to optimal care by improving patient experiences, outcomes, and satisfaction.¹

In this third year, the research focuses on the later stages of the patient experience following hospital discharge or after an intervention (whether lifestyle modification recommendations, prescribed medications or a surgical or endovascular procedure). A total of 2,056 stakeholders across 16 countries answered a structured questionnaire between March and May 2022 that informed this research.

- The surveyed patient population was near balanced in terms of gender representation (female respondents 44%) and included significant portions of people with either CAD (61%) and/or PAD (39%).
- Interviewed physicians included general cardiologists (36%), primary care physicians (31%) and internal medicine specialists (23%).
- Healthcare leaders were primarily medical directors (24%) and included those with some responsibility for procurement of coronary and peripheral interventional devices used in the cardiac catheterization laboratory or cardiology department.

Survey Population



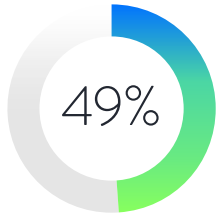
It is important to note that while the research attempts to capture and synthesize insights about patients with vascular disease, we recognize that patients are not a monolith and that their individual circumstances and the health systems they interact with influence their varied responses.

Likewise, the perspectives of the surveyed physicians and healthcare leaders are informed by the settings in which they work, which could be a single-payer or for-profit health system. Therefore, it is important to acknowledge that we understand the topics we are attempting to tackle are complex and nuanced.

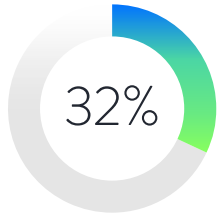
GLOBAL POPULATION STATISTICS OVERVIEW



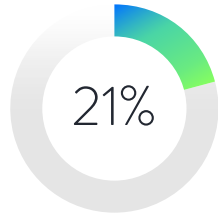
Patient Insurance Type



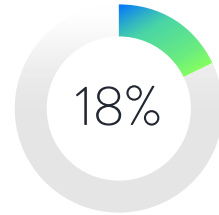
Private insurance that I personally pay for



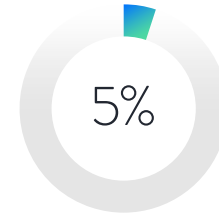
Private insurance provided by my employer



Government funded insurance provided to me for free



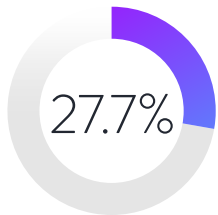
Government subsidized insurance that I also pay for



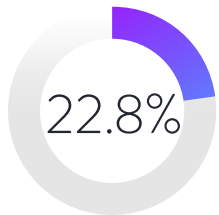
No insurance



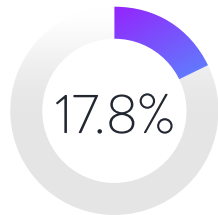
Physician Practice Type



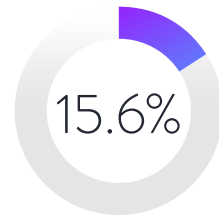
Large private practice (for-profit)



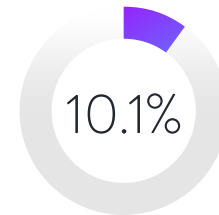
Public university/teaching hospital (government-funded/subsidized)



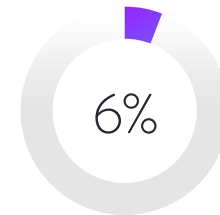
Small private practice (for-profit)



Public community hospital (not-for-profit) (government-funded)



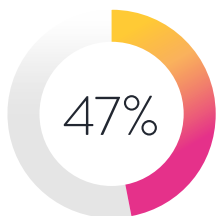
Private university/teaching hospital (for-profit)



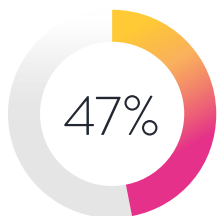
Government hospital



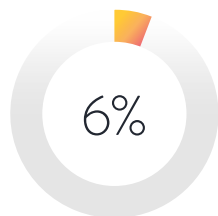
Healthcare Leader Practice Type



Private (for-profit)



Public (not-for-profit)



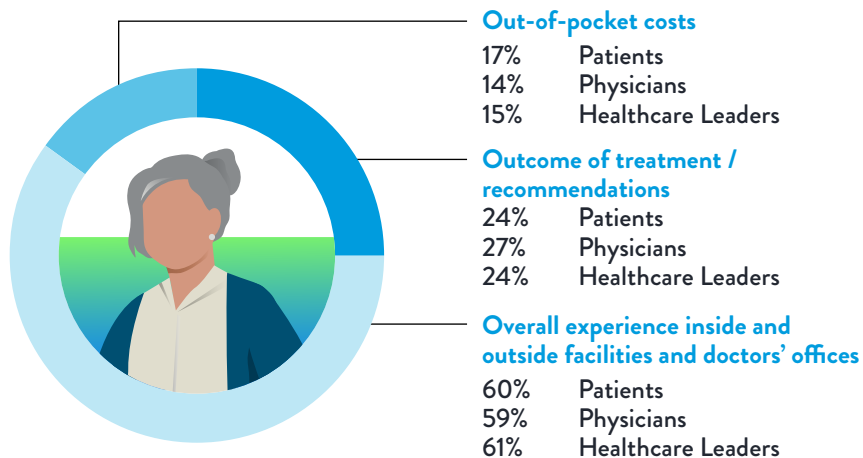
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KEY FINDING 1:

Patient satisfaction is based on their comprehensive care experience, beyond the intervention

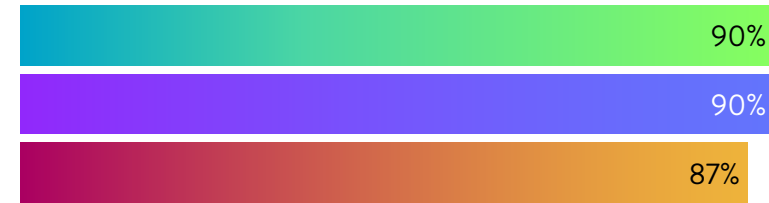
For patients, the care journey begins well before first medical contact, usually with the onset of symptoms. The subsequent cascade of interactions with different points of the healthcare system can manifestly affect overall patient experience and outcome and thus, patient satisfaction.

Patients' perceptions about their experiences are dictated by a wide range of factors that are comprehensive in nature, both medical and non-medical:² from feeling confident in a physician's recommendations to the quality of continued care received after a procedure, both of which ranked near the top in terms of importance; to feeling heard and respected during visits, right down to how long they must wait to see the physician—and even out-of-pocket costs such as parking. Any pain points that occur during these interactions or moments influence a patient's perception of the care they expect to receive, or have received, and can leave a lasting impression that shapes overall patient satisfaction.

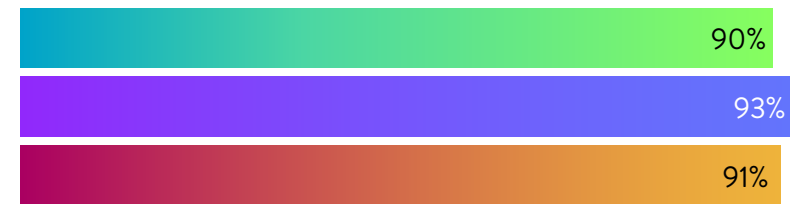


Importance of factors influencing patient experience: differing perspectives

Having a clear understanding of next steps



Having all questions answered



■ Patients ■ Physicians ■ Healthcare Leaders

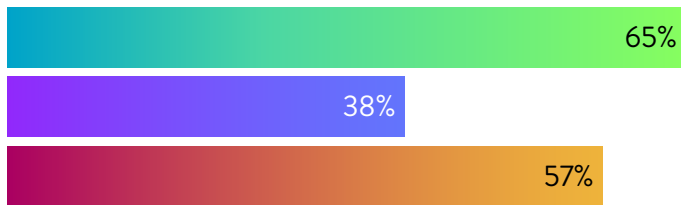
90% of patients surveyed stated that the two most important factors impacting their overall experience are: 1) having a clear understanding of the next steps in managing their disease and 2) having all their questions answered. These factors were closely followed by having confidence in their physician's recommendations (89%). However, there are gaps between the perceived importance of these factors to patients and their satisfaction with how well their providers deliver on them. The bottom line: some patients are moving through the healthcare system without fully understanding how they are being treated for their condition.

Additionally, there is a gap between patients, physicians, and healthcare leaders regarding the importance of digital health services.

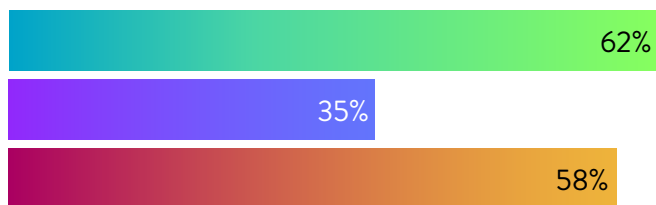
When all three groups were asked about their satisfaction with online patient portals, patients indicated that having access needed improvement, while physicians and healthcare leaders indicated they were satisfied with the current status quo.

The gap between patients, physicians, and healthcare leaders regarding the importance of digital health services

Having access to online patient portal



Having access to digital health tools



■ Patients ■ Physicians ■ Healthcare Leaders

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Creation of a patient portal does not translate into use of a patient portal. When online patient portals were first introduced many thought it would initiate a change in behaviors and solve problems such as medication adherence and readmissions, but that wasn't so. Physicians realize that patient engagement is so much more than access to a patient portal.

David Rhew, M.D., Global Chief Medical Officer and VP of Healthcare, Microsoft

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ACTIONS TO CONSIDER

With the understanding that patient satisfaction is determined by multiple factors outside the intervention, and in the spirit of continuous improvement, physicians and healthcare leaders should consider creating opportunities for patients to:

- a) **Identify the factors most important to their experience when interacting with physicians and healthcare systems**
- b) **Provide feedback on their satisfaction with the overall experience related to their care and whether it met their expectations**
- c) **Influence the design and delivery of their post-procedure care**

Measuring the quality and effectiveness of post-procedural care by soliciting patients for their insights demonstrates to patients that their opinions are not only valued, but are also able to influence their own care.

KEY FINDING 2:

Motivation, time, and costs are the contributing factors to compliance and adherence.

Understanding the impact of the barriers that patients face throughout their care journey can provide greater insights into the overall patient experience. Although both physicians and healthcare leaders desire the best possible outcome for their patients, the identification and recognition of experiential barriers may not at first glance seem relevant to a patient's medical care. However, there are countless factors beyond a patient's control, such as their socioeconomic circumstances, that may impact their ability to follow through with the recommended treatment following a procedure.

Social determinants of health—the economic and social conditions that influence individuals' health—are increasingly recognized as having a significant impact on health outcomes. Our survey confirmed that nearly half of patients reported finding time to manage their condition somewhat challenging, and a similar proportion described ongoing costs related to treatment as another problem, as well as the motivation to manage their condition.



Lack of knowledge is a barrier to compliance and progress

A troubling lack of knowledge regarding the progressive nature of atherosclerotic vascular disease (CAD and PAD) is also known to be a significant barrier to post-procedural patient care and adherence.² In our survey, nearly 70% of patients were “pleasantly surprised” their symptoms had been reduced post-procedure, yet just over 20% of patients didn't understand what happened to them. Furthermore, 57% of surveyed patients who underwent a procedure thought they were “fixed” by their procedure; yet only 33% of physicians reported that their patients feel “fixed.”



The stark difference between patient and clinician responses to the question about feeling “fixed” suggests that patients may perceive the procedure as being curative of their disease, while clinicians may view the procedure as therapeutic—an intervention to address the acute nature of the disease at one point in time.

Helping patients understand the progressive nature of both CAD and PAD, and the possible need for future interventions, is key to improving patient compliance with lifestyle changes and prescribed medications.

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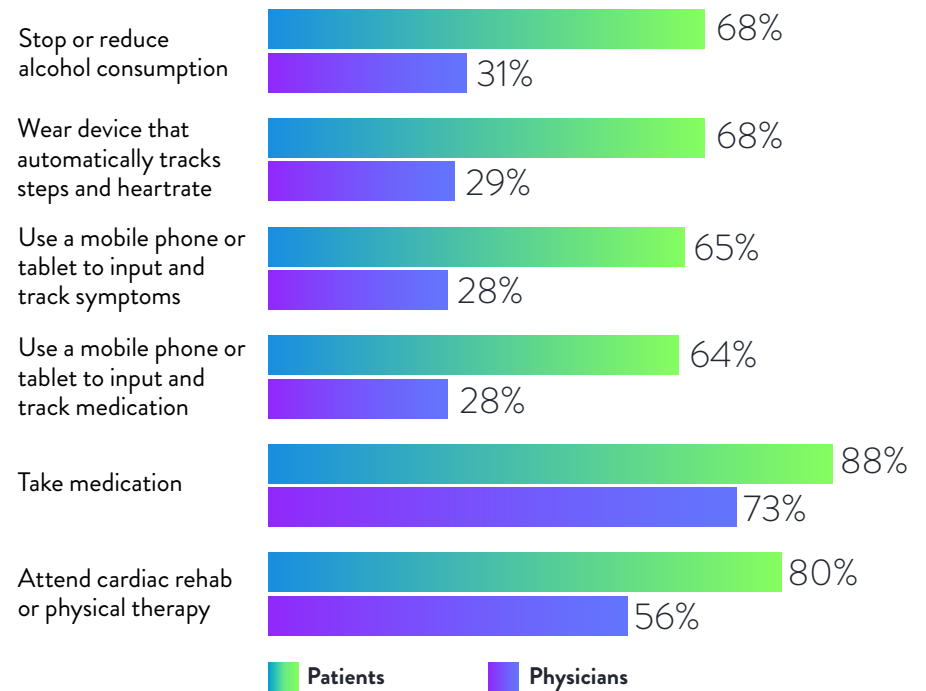
Vascular patients are patients for a lifetime; it is no different than cancer and just like cancer—restenosis with ischemia or just like re-ulceration with diabetic foot complications—these patients are not ‘cured.’ They are in remission. The care team must be there for the patient at the center, from the Alpha to the Omega. A procedure to address an acute episode of vascular disease is only one moment in time in the on-going comprehensive care of our patients.

David G. Armstrong, D.P.M., M.D., PhD, Professor of Surgery Director, USC Limb Preservation Program Keck School of Medicine of University of Southern California (USC)

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Adhering to prescribed medications, following a heart-healthy diet, and increasing physical exercise continue to be the primary actions recommended by providers for managing both CAD and PAD.³ More telling, however, are the recommendations that fall to the bottom of the list. For example, according to patients, only 6% reported their doctors recommended inputting their symptoms or tracking medications via a mobile phone or tablet. Physicians may question the utility of such tools; if they do not provide continuous or intermittent measurement of biometrics, symptoms and medications, physicians are unable to draw correlations needed to determine the best course of treatment. Differences may also be partially explained, by the observed disparity between patients’ and physicians’ perceptions regarding post-procedural adherence and rehabilitation: patients think they are doing a better job of following “doctor’s orders” than the doctors themselves do. Physicians reported limited confidence in their patients’ ability to make substantial lifestyle changes or employ certain technologies to provide insights into adherence to such advice (e.g., passive monitoring via smartwatch/phone or active data entry into tablet/computer).

Gaps in perception as it relates to adherence



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We are so enamored with technology that we have lost sight of what we expect it to do. If our patients are using technologies that reflect nonadherence with meds or lifestyle changes, that information is of great value to practitioners. However, we need to ask ourselves what unmet need the technology is addressing. Is it providing insight into the patient’s current disease status or adherence, or is it offering guidance regarding barriers to care optimization? If it’s behavior change we are seeking in our patients, then we need to consider if a digital tool has the ability to deliver on that expectation.

Lonny Reisman, M.D., Founder and former CEO of HealthReveal; former CMO of Aetna.

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When examining post-procedure resources for patients, more than half of physicians thought clearer explanations by hospital staff on next steps, more cardiac rehabilitation referrals, better resources to improve health and diet, and clear milestones for tracking progress on lifestyle goals would be most helpful to patients following discharge.

Given the limited resources available, healthcare leaders tend to prioritize some of the more traditional recommendations associated with discharging a patient (e.g., discharge instructions, referral to cardiac rehabilitation programs, and prescribed medications) over digital tools such as mobile post-care apps designed to help patients monitor and manage their disease. Only 36% of healthcare leaders indicated that their institutions offer patients clear lifestyle milestones to track their progress, and far less offer digital services such as an online portal, mobile post-care apps, or devices for at-home remote monitoring.

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As a cardiovascular disease specialist, I see gaps in the continuity of care constantly. The focus on episodic care for people with cardiovascular diseases that have an acute myocardial infarction, congestive heart failure exacerbation or a hypertensive crisis does nothing to address care between episodes or after intervention.

Technology companies have built digital platforms to blunt churn in other areas of our lives and create frictionless experiences. Healthcare providers and health systems may find it helpful to leverage these mature digital technologies that have been proven out in other areas of our lives, coupled with personalized data analytics and engagement to improve patient care. In some cases, AI-driven features may blend with providers to “mind the gap” in care. Further, this blend of medtech and traditional tech (Amazon, Microsoft, Google, Apple, Oracle) may help augment and in some cases optimize the temporal synchrony between patients, payors, physicians and providers.

Peter Fitzgerald, M.D., PhD, Professor Emeritus in Medicine at Stanford University

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Overall, what seems to resonate for patients, physicians, and healthcare leaders is that establishing *multiple touchpoints* to help patients navigate their post-procedure care journey, both inside and, especially, outside the healthcare facility, could help patients feel more connected to their care team, thereby improving the overall patient experience, and consequently, adherence.³ In addition, these touchpoints can also provide the care team a route to continuously monitor and gain insight into a patient’s progress, provide the patient with feedback, and adjust care planning as appropriate.

ACTIONS TO CONSIDER

Patients come from all walks of life and may face numerous obstacles that prevent them from following through on the care plan prescribed by their physicians following a procedure; likewise, not all health systems are created equal. For-profit fee-for-service hospitals are in a very different financial position than government-funded hospitals with limited resources. Therefore, healthcare leaders and physicians should consider:

- a) **Adopting solutions that either alleviate or circumvent the barriers to digital inclusion, such as access to broadband internet**
- b) **Creating incentives and realistic, attainable goals for patients, physicians, and healthcare leaders to lower readmission rates**
- c) **Broadening the care circle and developing a decentralized model of care to support patients outside the clinical setting**

OPTIMIZING PATIENT EXPERIENCE THROUGH SHARED DECISION-MAKING

Shared decision-making in care planning enables the patient’s voice to be heard when medical decisions are made. For this process to be truly successful, patients must be fully informed by their care team to express opinions, and physicians (and their healthcare systems) must be both receptive to, and respectful of, such opinions. Patients need to set their own goals alongside a framework of shared responsibility between them and their providers. **Studies have demonstrated that such an approach both engages and improves patient compliance⁴ as well as satisfaction by as much as twofold.⁵**

Improving Post-Procedure Patient Adherence And Compliance Through Shared Decision-Making



- STEP 1:** Seek your patient’s participation
- STEP 2:** Help your patient explore and compare treatment options
- STEP 3:** Assess your patient’s values and preferences
- STEP 4:** Reach a decision with your patient
- STEP 5:** Evaluate your patient’s decision

Source: Agency for Healthcare Research and Quality.

The Challenge:

Despite these successes, patient-physician shared decision-making has not experienced large-scale adoption. In fact, published data suggest less than 10% of decisions meet the minimum standards for shared decision-making,⁶ citing lack of physician adoption, lack of reimbursement, insufficient integration into clinical workflows and a dearth of patient-centric information all likely contributing factors.

The Opportunity:

Enable and/or build shared decision-making platforms that focus on health status outcomes that reflect the patient’s perspective and are easily available to patients and clinicians, such that more informed, evidence-based, shared treatment decisions occur. Additional solutions may lie in providing training, educational material, and encouraging inclusive patient-physician dialogue,⁷ as well as a change in philosophy from “sick care” to a value-based approach that emphasizes managing wellness as opposed to sickness—moving from a model of episodic to continuous care.⁸ Further, studies have found that shared decision-making has the potential to improve treatment satisfaction, decrease conflict, and enable cost savings.⁹

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Vascular interventions are a turning point in time for many patients to change the trajectory of their personalized care journey. Global healthcare companies like Abbott have an opportunity to play a role in championing shared decision-making as the standard of care. Conversations around a menu of options and technology-enabled solutions that meet each patient’s individual lifestyle and needs are essential to driving adherence and compliance. However, evidence on the benefits of shared decision-making must go one step further and demonstrate how these tools can also help alleviate some of the administrative burden already placed on the care team.

Jennifer McCaney, PhD, Executive Director, UCLA Biodesign

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KEY FINDING 3:

Health and wellness technologies as enablers of improved patient care

There has been rapid growth in the adoption of wearable health trackers—533 million wearables were shipped in 2021; 1 in 5 Americans use a tracker and 1 in 4 approve of their data being used in heart research.¹⁰

This rapid adoption may explain why more than half of surveyed patients were interested in continuing to use telemedicine and wearable health trackers—some of which automatically send their health information to physicians. Healthcare leaders are aligned with patients in this regard and are interested in investing further in telemedicine and some digital monitoring tools. Nearly 85% of physicians have experience using telemedicine to support their patients with CAD and PAD, however only 60% of physicians were interested in using or recommending telemedicine as one way to manage a patient’s CAD or PAD in the next year. When physicians were asked about the adoption of digital health monitors, fewer than 20% use digital solutions that monitor disease and automatically send them information following a procedure.

Similarly, when physicians were asked to identify tools to improve patient care following a vascular procedure, only a quarter considered increased use of progress-tracking technology helpful to patients.

Reasons for this observation perhaps mirror concerns regarding shared decision-making, such as lack of reimbursement, additional work to physicians already overburdened by administrative work, and/or interoperability concerns.

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Digital health solutions require that both the patient and clinician are comfortable with the solution and willing to adopt it. Today, some patients are eager to capture information about themselves and share it with their clinicians, but clinicians need to have a way to digest the data in an automated manner, perhaps using artificial intelligence and machine learning, so they can act on it in a workflow compatible manner. We need technology to triage and synthesize the information, and that information needs to be sent to the right people—not necessarily the physician—and then escalated as necessary to the physician. This type of intelligent triage process doesn’t currently exist.

David Rhew, M.D., Global Chief Medical Officer and VP of Healthcare, Microsoft

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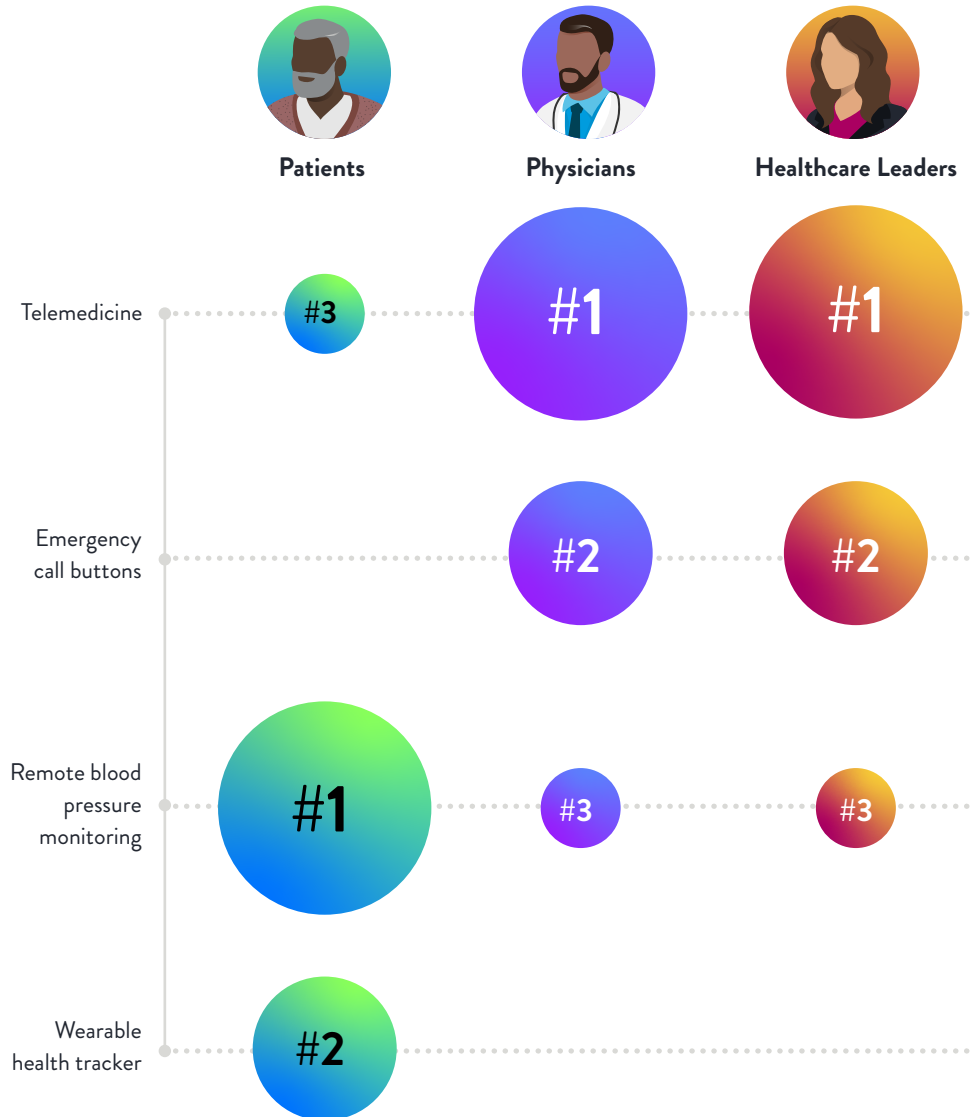
How can technology enable a more personalized approach to patient care and what is medtech’s role in supporting this? The answer may be more straightforward than we think: increased penetration of smart devices, wearables and remote self-monitoring tools not only provide granular data on recovery, progress and adherence, but critically may drive patient engagement and therefore behavioral change. Perhaps it is this latter factor that we overlook in the rush to develop the newest device or ‘widget’: behavioral transformation in terms of lifestyle, including exercise, diet and sleep, may be bigger drivers of improved outcomes, and can empower patients to participate both in their own healthcare directly and in the critical decisions around it that will affect them and their loved ones. Medtech’s role therefore should be to help carve out ways that such patient-level information can add to traditional methods of assessment and create hitherto-unrealized synergies for care.

Nick West, M.D., Chief Medical Officer and DVP Global Medical Affairs, Vascular, Abbott

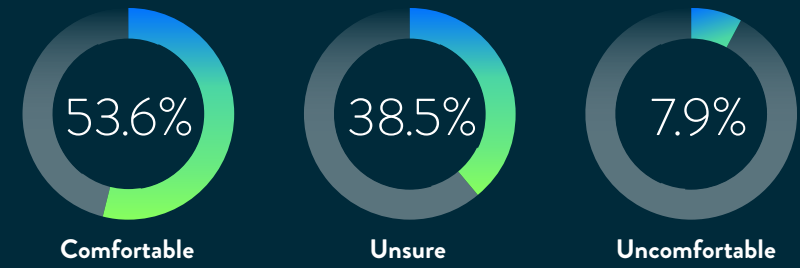
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GLOBAL STATISTICS OVERVIEW

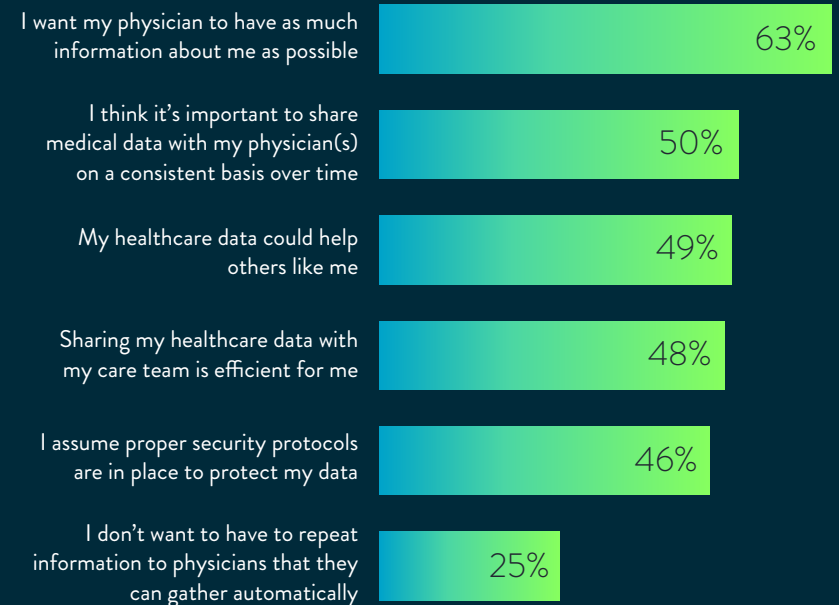
Summary of top 3 technologies for each respondent



The global average of the comfort level patients have with technologies that collect and share data with physicians



Top reasons for patients being comfortable with sharing data with physicians



n=1,131

Another important insight that emerged from our research was that physicians do not necessarily link extra datapoints to outcome improvement. Only 37% of physicians believe that the large quantities of patient data available now are helping them provide better care. Roughly the same percentage (38%) wish they had a care team to help them analyze the data and that they were compensated for reviewing the data. However, many of the physicians surveyed are excited by the possibilities that big data present, and nearly half of all physicians (48%) believe big data will help them provide better care in the future.

Healthcare leaders are even more optimistic, with well over half believing that large quantities of patient data already help their institutions to provide better care today (56%) and will continue to do so in the future (57%).

Attitudes towards artificial intelligence (AI) as a tool to help patients with similar conditions were overwhelmingly positive: nearly 60% of patients and half of all healthcare leaders (50%) would trust AI to help them make a correct diagnosis or recommend the best course of treatment, but just over a third of physicians felt the same way (35%).

With increasing global penetration of health and wellness monitoring devices, it's increasingly important for physicians and healthcare leaders to understand that such digital health tools are favored by patients and, despite perceptions around lack of immediate value, should not be a reason for their quick dismissal. Not all digital tools need be complex to have a positive impact on patient adherence or provide meaningful insights to physicians; important data can be harvested from relatively unsophisticated tools, such as pedometers. For example, a pedometer may tell a doctor that a patient with arthritis is taking 5,000 steps a day, suggesting their mobility is relatively good; meanwhile a cardiologist with a patient taking only 100 steps per day might surmise that angina or heart failure symptoms could be becoming intrusive.

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We must be mindful of technology's potential as both an enabler and a barrier to achieving better health outcomes. Those who work at the intersection of healthcare and technology must straddle the digital divide and work toward widespread digital inclusion. We cannot assume that every person or patient has the access or the means to interact with health systems or care teams in the same way. For this reason, stakeholders across the care journey from product manufacturers to payers and providers alike, need to empower patients with technologies that overcome systemic health inequities and deliver on the promise of truly transformative care.

Jennifer McCaney, PhD, Executive Director, UCLA Biodesign

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ACTIONS TO CONSIDER

Healthcare leaders are faced with the challenging task of balancing the needs of patients with those of an overburdened health workforce, all while managing increasingly tight budgets. When evaluating health technology solutions designed to complement the care administered by physicians, healthcare leaders might consider:

- a) **Partnering with medical device and technology companies to train and educate physicians and their care teams on AI-enabled technologies**
- b) **Adopting digital tools that have already proven to be time efficient and effective for both the patient and the physician**
- c) **Implementing digital tools that can be integrated and operationalized within the existing health system infrastructure**

CONCLUSION AND NEXT STEPS

Abbott's third *Beyond Intervention* initiative has revealed three key steps physicians, healthcare leaders, and medical technology companies might consider for improving the patient care journey following an intervention:

- 1 The comprehensive care experience affects overall patient satisfaction; this begins well before first medical contact, followed by the subsequent cascade of interactions with different points of the healthcare system. To address this reality, providers should invest in creating multiple post-procedure touchpoints—especially *outside* the walls of healthcare facilities.
- 2 Providers can reduce barriers to post-intervention care and drive better experiences and outcomes by engaging in shared decision-making—an approach that enables and encourages patients to play a central role in their medical decisions. Technology is essential to providing patients with easy access to evidence-based tools that allow them to become knowledgeable enough to set their own goals and clarify their values. Patients involved in shared decision-making are more likely to feel more engaged, be satisfied with their treatment choices, and, crucially, comply with their prescribed treatment regimens.^{4,5}
- 3 In-person interactions are still highly valued and prioritized by patients and physicians alike. Digital health tools can extend beyond the walls of the hospital, which may support patient adherence through data-driven insights, but also through improved care coordination and integration into existing electronic systems.

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Patient centricity is not a new concept, but with the rush to embrace the newest and most fashionable technologies, perhaps the delivery of truly personalized healthcare can be overlooked. In such an evolving future, the mass penetration of smart consumer devices could act as an enabler of patient centricity and allow enhanced patient engagement and empowerment. Such devices are not the answer on their own, but as agents capable of supporting adherence and behavioral change, they could yet prove the cornerstone of a holistic and socially-conscious approach to personalized care—one that could begin to address, or at least avoid perpetuating, the health inequities inherent in contemporary delivery of healthcare.

Nick West, M.D., Chief Medical Officer and DVP Global Medical Affairs, Vascular, Abbott

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ABOUT ABBOTT AND THE RESEARCH

For over 135 years, Abbott has been committed to building life-changing technologies that keep people healthy, providing nutritional support and novel medicines, and 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.

Throughout the course of this 3-year research program, comprising nearly 5,500 individual surveys, clear insights into the care experiences of vascular patients have emerged, alongside potential technological solutions that could improve end-to-end patient experiences, including:

- use of standardized technologies to achieve timely diagnosis;
- use of tools enabled by artificial intelligence to assist physicians and enable shared decision-making;
- *medical* adoption of wellness tools including smartphones, wearables, mobile apps, and digital health trackers that have already saturated the consumer market;
- mechanisms to synthesize the vast quantities of data generated from electronic healthcare records, imaging tools and consumer technologies into meaningful and actionable insights.

The results of the first survey, detailed in the white paper *Personalized Vascular Care Through Technological Innovation*, and also published in the European Heart Journal, included that physicians and healthcare leaders felt that early in the care journey—at the point of diagnosis and when determining the treatment pathway—was the point at which accurate decisions could have the most impact, enabled by new imaging modalities and data-driven approaches.^{11,12} However, the survey also highlighted troublesome issues around data-sharing and trust: while most patients could understand the benefits of sharing their data, both for their own benefit and for that of others, a significant minority still stated that they would not want their data shared, even if anonymized.¹²

The follow-up survey therefore concentrated on the earliest stages of the vascular patient journey, from symptom detection and recognition to specialist referral. The findings published in *Improving Patient Experience By Addressing Unmet Needs In Vascular Disease*, and a supplement focused on gender, included the critical, concerning truth that patients consistently rated their overall care experience significantly less favorably than either physicians or healthcare leaders.¹³ Three areas principally drove this dissatisfaction: namely a lack of awareness of symptoms and of subsequent treatment options amongst both patients and involved physicians, a lack of standardized processes and technologies to enable timely and accurate diagnosis, and a lack of coordination and communication between stakeholders throughout the patient journey.¹³ Seemingly, the key to improving vascular patients' experience, and potentially their outcomes, therefore lies in improving these issues.



1,350
Patients



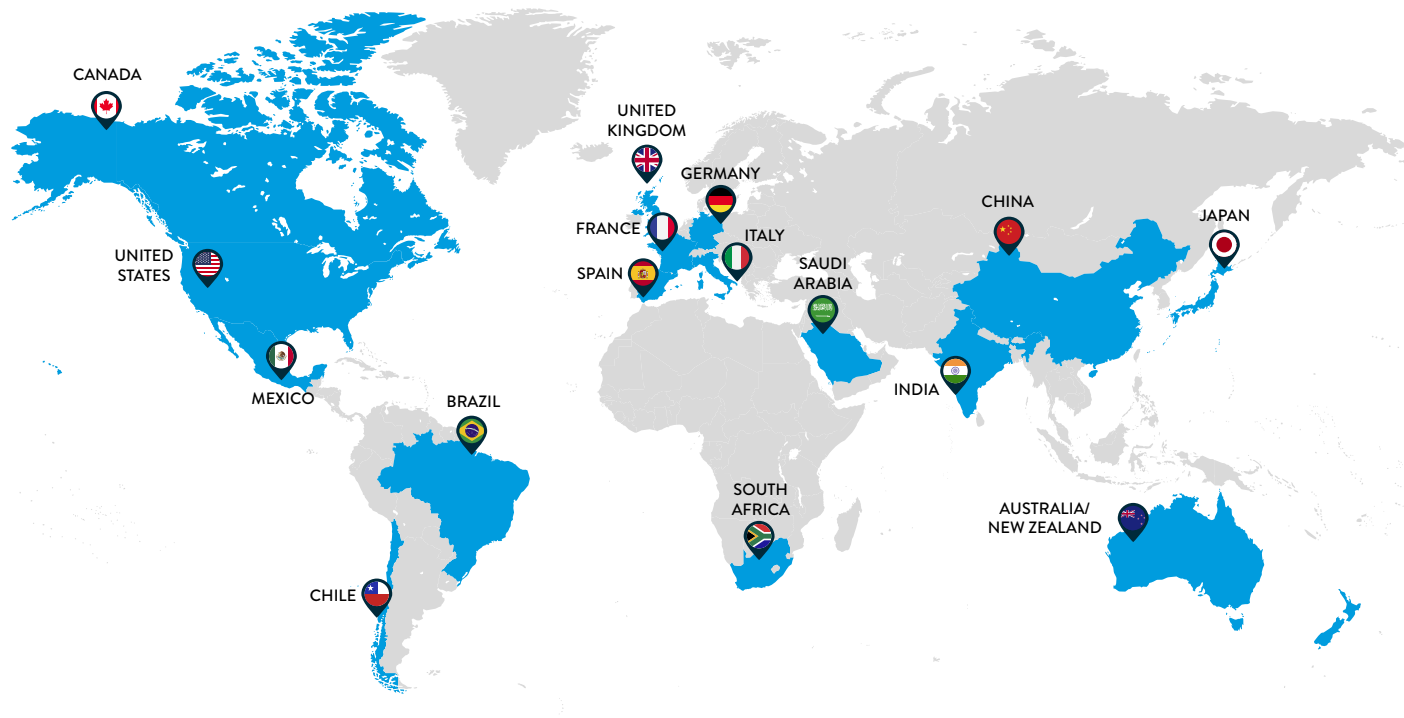
499
Physicians



207
Healthcare Leaders

Our new study highlights the differing perceptions and experiences of 1,350 vascular-disease patients, 499 physicians, and 207 healthcare leaders across 16 markets: United States, Brazil, Canada, Chile, Mexico, United Kingdom, France, Germany, Italy, Spain, China, Japan, India, Australia/New Zealand, Saudi Arabia, and South Africa. Fielded from March to May 2022, the survey underscores the contrasting

post-procedure 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 Year 1'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, and Year 2's "Improving Patient Experience By Addressing Unmet Needs In Vascular Disease" study, which 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. This initiative, moving away from the primacy of the procedure and "Beyond Intervention" has now taken in opinions of over 5,500 patients, physicians, and healthcare leaders worldwide, providing a unique holistic view of the state of vascular care today.



AUTHORS



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



Nick West, M.D.
Chief Medical Officer and Divisional
Vice President of Medical Affairs,
Abbott's Vascular Business



Connie Baumgard, MSN, NP
Director, U.S. Medical Affairs of
Abbott's Vascular Business



Jennifer Burnham
Digital Marketing Group Manager of
Abbott's Vascular Business

SPECIAL THANKS TO CONTRIBUTING KOLS



David G. Armstrong, D.P.M., M.D., PhD
Professor of Surgery
Director, USC Limb Preservation Program
Keck School of Medicine of
University of Southern California (USC)



Peter Fitzgerald, M.D., PhD
Professor Emeritus in Medicine
at Stanford University



Jennifer McCaney, PhD
Executive Director,
UCLA Biodesign



Lonny Reisman, M.D.
Founder and former CEO of HealthReveal;
Former CMO of Aetna



David Rhew, M.D.
Global Chief Medical Officer and
VP of Healthcare at Microsoft

1. West NEJ, Boone E. The future of personalized care for vascular patients: an industry perspective. *European Heart Journal* 2022; 24 (Supplement H): H57-H61.
2. Mentrup S, Harris E, Gomersall T, Kopke S, Astin F. Patients' experiences of cardiovascular health education and risk communication: a qualitative synthesis. *Qual Health Res* 2020; 30: 88-104.
3. Newman S. Engaging patients in managing their cardiovascular health. *Heart* 2004; 90: iv9-iv13
4. Guadagnoli E, Ward P. Patient participation in decision-making. *Soc Sci Med* 1998;47(3):329-39.
5. Nwosu, Kenneth & Hershman, Stuart & Cha, Thomas. (2017). Shared decision-making in spine surgery. *Seminars in Spine Surgery*. 30. 10.1053/j.semss.2017.11.004.
6. Braddock III CH, Edwards KA, Hasenberg NM, Laidley TL, Levinson W. Informed Decision Making in Outpatient Practice: Time to Get Back to Basics. *JAMA*. 1999;282(24):2313–2320. doi:10.1001/jama.282.24.2313
7. Hibbard, Judith and Helen Gilbert, Supporting People To Manage Their Health: An Introduction To Patient Activation, The King's Fund (May 2014).
8. Durand MA, Carpenter L, Dolan H, Bravo P, Mann M, Bunn F, Elwyn G. Do interventions designed to support shared decision-making reduce health inequalities? A systematic review and meta-analysis. *PLoS One*. 2014 Apr 15;9(4):e94670. doi: 10.1371/journal.pone.0094670. PMID: 24736389; PMCID: PMC3988077.
9. Smolderen KG, Pacheco C, Provance J, Stone N, Fuss C, Decker C, Bunte M, Jelani QU, Safley DM, Secemsky E, Sepucha KR, Spatz ES, Mena-Hurtado C, Spertus JA. Treatment decisions for patients with peripheral artery disease and symptoms of claudication: Development process and alpha testing of the SHOW-ME PAD decision aid. *Vasc Med*. 2021 Jun;26(3):273-280. doi: 10.1177/1358863X20988780. Epub 2021 Feb 25. PMID: 33627058; PMCID: PMC8169642.
10. Vogels, E. A. (2020, August 14). About one-in-five Americans use a smart watch or fitness tracker. Pew Research Center. Retrieved December 28, 2022, from <https://www.pewresearch.org/fact-tank/2020/01/09/about-one-in-five-americans-use-a-smart-watch-or-fitness-tracker/>
11. West NEJ, Juneja M, Pinilla N, De Loose KR, Henry TD, Baumgard CS, Kraineva O. Personalized vascular healthcare: insights from a large international survey. *European Heart Journal* 2022; 24 (Supplement H): H8-H17.
12. "Beyond Intervention: Personalized Vascular Care Through Technological Innovation." Abbott Cardiovascular, 2020.
13. "Beyond Intervention: Improving Patient Experience By Addressing Unmet Needs In Vascular Disease." Abbott Cardiovascular, 2021.

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3200 Lakeside Dr., Santa Clara, CA 95054 USA, Tel: 1.800.227.9902

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