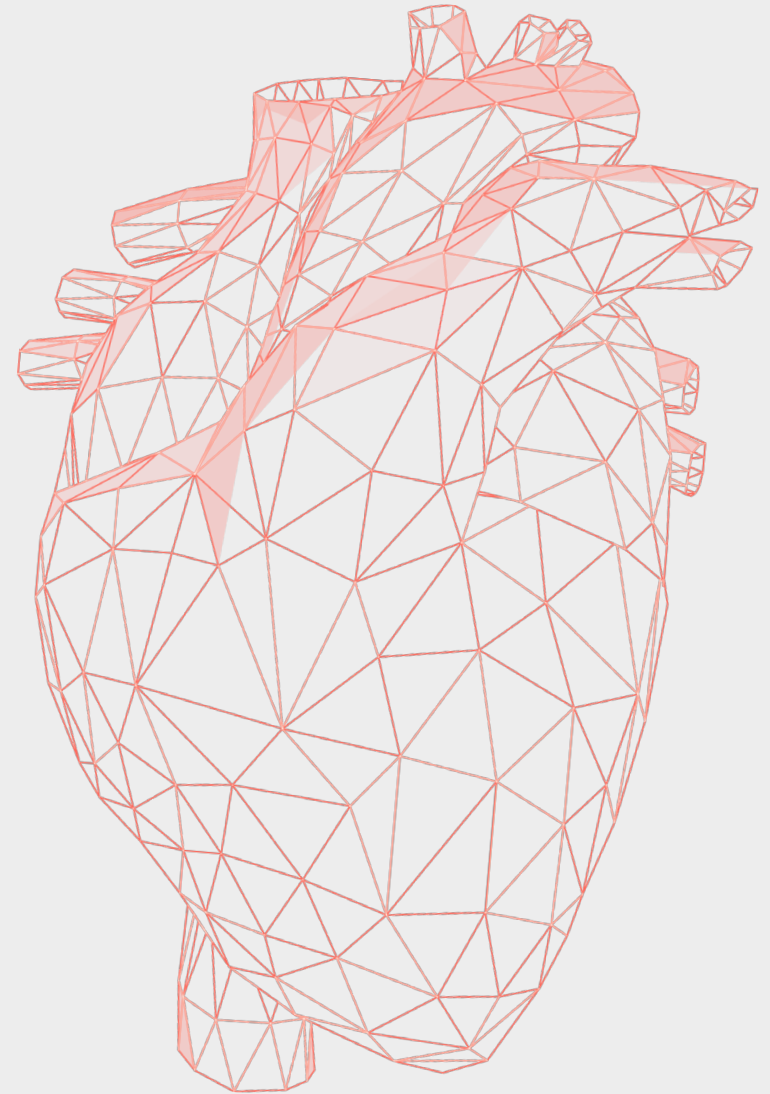


The State of Heart Health Technology

Research reveals healthcare provider satisfaction is at odds with evolving consumer wearable technology



Introduction

Healthcare ecosystems around the world are facing formidable challenges when it comes to cardiovascular disease (CVD).

The number of CVD diagnoses continues to rise annually and related costs associated with cardiovascular risk factors are **projected to triple by 2050 to \$1851 billion**. A rapidly **aging population** is expected to drive up costs and further create gaps in accessibility and quality of care. Compounding the issue is a growing **cardiologist shortage**, placing additional burden on primary care providers to manage chronic conditions that may traditionally be under the purview of a specialist.

Concurrently, consumers are more proactively monitoring their heart health thanks to increasing access to advancing health and wellness technologies. New research from B-Secur finds consumers are more likely to purchase and consistently use wearable devices like smartwatches, smart rings, and personal fitness devices to monitor their health and share collected data with their care teams. Of the consumers who use wearables, 95% say they would share information generated by it with a medical professional to manage their heart health.

The overwhelming propensity of consumers to share their health information, the number of wearable devices in use, and the volume of data generated by such devices create a paradox for all providers surveyed, however – most of whom report a lack of trust in the clinical accuracy of data generated by current wearable devices as a top challenge.

While, by and large, providers understand the big-picture impact of how consumer technology can transform healthcare, there are other obstacles around the increasingly blurry line between consumer wearables and medical devices. These include infrastructure that supports data sharing, heightened measures around data security and privacy, and reimbursement structures and regulations that keep pace with contemporary technology.

80 percent of cardiovascular disease deaths globally are preventable.

- WORLD HEART FEDERATION

METHODOLOGY

B-Secur commissioned healthcare consultancy Sage Growth Partners to conduct independent research in the United States in Q3 2024. The research included one survey of 85 provider respondents, spanning primary care (n=46) and cardiology (n=39). A second survey included 500 consumers aged 18 and older. Providers and consumers answered questions about technology including wearable devices (defined as smartwatches, smart rings, personal fitness devices); and ECG (electrocardiogram) technology.

Key Findings

In remote monitoring of cardiac patients, providers report mixed satisfaction levels with the diagnostic process based on ECG data from traditional ambulatory devices. Unreliable and inaccurate data collected from current consumer wearable technology is likely to further exacerbate their challenges.

PROVIDER FINDINGS

More than half of providers

report challenges accurately diagnosing and treating patients with cardiac events due to difficult-to-read ECGs captured by traditional ambulatory devices such as Holter event monitors, or mobile cardiac telemetry.



Equally, providers report challenges with noise in ECG monitoring that leads to repeat or additional testing/procedures further delaying diagnosis and treatment — and thus, negatively impacting patients.

1/3 of most critical arrhythmia providers

feel they can detect extremely well using ambulatory monitoring devices.

Only 9% of providers

find more than 75% of the data from consumer wearables useful.

CONSUMER FINDINGS

69% of consumers

who own a wearable device wear it daily.

75% use a wearable

for health tracking activities like heart health, sleep monitoring, and blood pressure.

95% of consumers

who use a wearable device say they would share information generated by it with a medical professional to monitor their heart health.

61% of consumers

who own a wearable device are confident in the accuracy of diagnoses or treatments based on the heart health data from that device.

Data Accuracy

There's a large delta in the amount of trust providers and consumers have in the accuracy of heart health data generated by consumer wearables

Consumers overwhelmingly report having a high level of trust in the accuracy of data provided by their wearable devices.

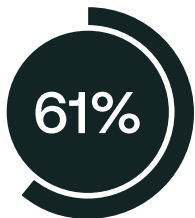
But only 9% of providers say they are “very satisfied” with consumer wearables to monitor the cardiac health of their patients. There's a wider delta between those numbers when it comes to PCPs and specialists: just 4.3% of PCPs say they are “very satisfied” as compared to 15.4% of cardiologists.

As the volume of wearables purchased **continues to explode** – with assumed trust from consumers in the tsunami of heart health data generated by such devices – challenges will likely be compounded for providers who already don't thoroughly trust the clinical accuracy of data generated in traditional ambulatory settings.

“Better-quality data, understanding the clinical testing that goes into the device, and the device's ability to capture and report cardiac data and anomalies would influence my decision to incorporate data from a patient's consumer wearable device into the management of their cardiac condition.”

- PROVIDER INSIGHT

CONSUMER FINDINGS




of consumers

who own a wearable device are confident in the accuracy of diagnoses or treatments based on the heart health data from that device.

PROVIDER FINDINGS

Only 9% of providers

are “**very satisfied**” with the diagnostic process based on the use of ECG recordings to monitor the cardiac health of their patients.

There's a dichotomy in the 9% among the type of provider:  15.4% of cardiologists report being “very satisfied” and 4.3% of primary care providers have the same sentiments.

63% of primary care providers and 44% of cardiologists

have concerns about analysis accuracy when it comes to consumer wearables capturing transient or infrequent cardiac events.

Population Health

For the better, consumer technology has the power to change healthcare

Preventive versus reactive care is one of the tenets of population health. But for too long, the healthcare ecosystem has wrestled with the dilemmas of how to get patients truly engaged in their own outcomes – and getting providers accurate information and automation capabilities. Now is that inflection point.

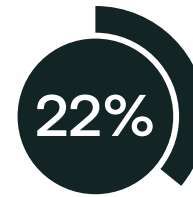
Among consumers who use a wearable device, three-quarters do so for health tracking activities like heart health, sleep monitoring, and blood pressure. Heart health tops the list of those activities. It's clear that consumer technology has the power to change healthcare engagement – and thus, outcomes.

“Wearing a smartwatch has improved my overall cardiac health because it brought my attention to how much exercise I should be getting.”

- CONSUMER INSIGHT

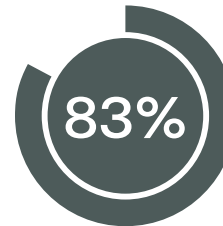


CONSUMER FINDINGS



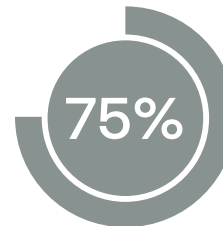
22% of consumers are taking preventive measures

for cardiovascular health not monitoring a known cardiac condition.



83% of consumers

who use a wearable device, do so for fitness activity tracking.



75% of consumers

who use a wearable device, do so for health tracking.

Among health tracking activities like heart health, sleep monitoring, blood pressure, and respiration monitoring, heart health topped the list of activities that are regularly checked by consumers, at 77%.



Continued >

Population Health, continued

Providers' insights on the value of signal processing for ECG data

PROVIDER FINDINGS

But are providers ready to change their own behaviors and assumptions about technology that can shift the pull away from **cardiovascular clinical inertia**?

As consumers are taking proactive and preventative measures to monitor their heart health, new survey data show that almost half of providers are willing to leverage new solutions like AI-powered algorithms to improve diagnostic speed and accuracy.

When asked about the value of signal processing for ECG data, 47% of providers report that they believe advanced signal conditioning and signal quality indications (as shown in the visual) will support earlier detection of cardiac issues; 65% believe the value of signal conditioning and signal quality will improve speed to diagnosis.

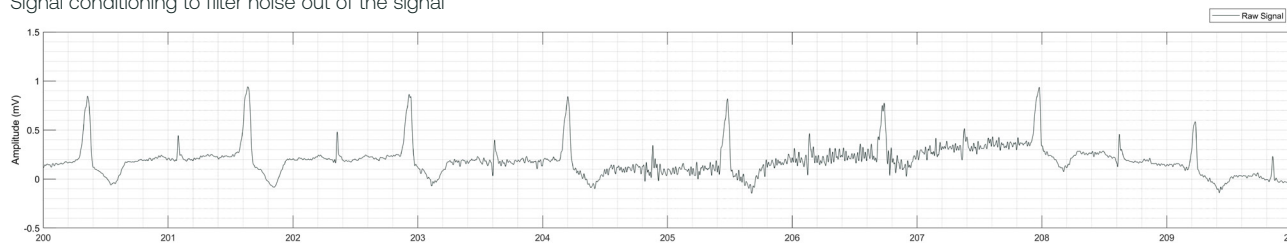
“Being able to summarize all the data succinctly, interpret it and store it – or get a summary of it – in the EHR would influence my decision [to use consumer wearable data].” - PROVIDER INSIGHT

Adoption of technology that triages low-quality signals to enable diagnostic efficiencies – and provides clearer signals to better optimize advanced algorithms that identify actionable cardiac events – is crucial. That will alleviate widespread provider burden, enhance patient-provider relationships, and prevent chronic conditions that challenge health systems around the world.

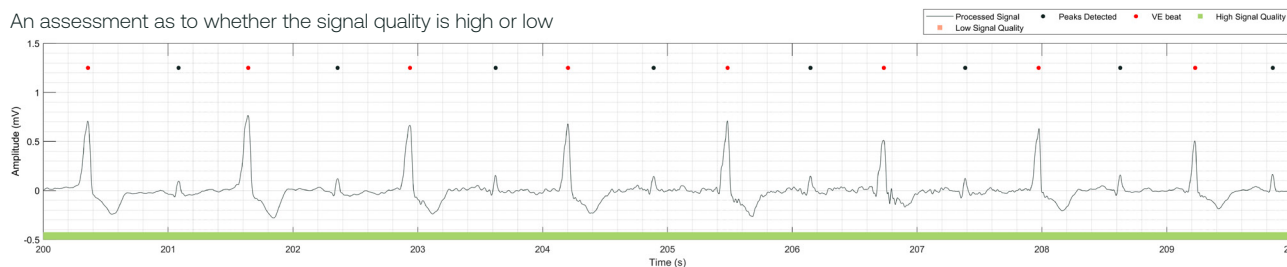
Algorithm Elements

Signal Processing Engine which includes:

Signal conditioning to filter noise out of the signal



An assessment as to whether the signal quality is high or low



HeartKey® is a suite of powerful ECG algorithms and analytics from B-Secur, providing high levels of clinical accuracy and efficiency through enhanced signal clarity and a reduction in ECG signal noise, as well as delivering FDA-cleared health data with actionable wellness insights. [Learn more.](#)

Data Privacy & Security

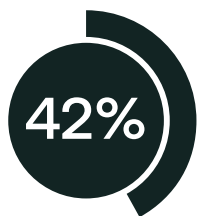
As the line blurs from consumer wearables to medical devices, there's a need for heightened security

The number of high-profile headlines surrounding healthcare data breaches continues to climb; no longer are security incidents the topics of boardrooms, but also of mainstream media. This results in alignment across providers and consumers when it comes to the level of importance they place on healthcare data privacy and security.

Prioritizing data security while negating risk ultimately enhances the reputational, clinical, financial, and operational resiliency of the entire healthcare ecosystem. However, it needs infrastructure to support data sharing safely, with technology that keeps providers focused on providing care – instead of on prioritizing increasingly complex cybersecurity and compliance concerns.

B-Secur's on-chip or cloud-based **HeartKey®** solutions are designed to embed in existing healthcare platforms and consumer devices to deliver enhanced signal clarity while mitigating cybersecurity and compliance risks. This allows patient data to stay within the provider systems while delivering enhanced signal clarity to improve workflow efficiencies without compromising performance.

PROVIDER FINDINGS



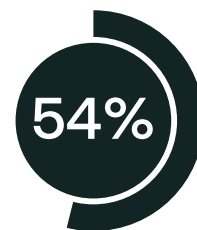
of providers

cite data security and privacy as a concern surrounding the use of consumer wearables to capture transient or infrequent cardiac events.



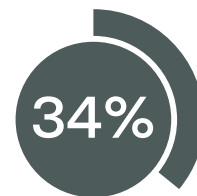
That percentage skews slightly higher among PCPs, but both PCPs and cardiologists selected data privacy and security as one of their top concerns.

CONSUMER FINDINGS



of consumers

say the privacy of data collected by wearable devices is “an important or very important” concern.



of consumers

said they are willing to share their data with a medical professional to help monitor their heart health – but only if data privacy was guaranteed.

Data Sharing

With influx of data from disparate sources, there is an urgent need for infrastructure change

There is a growing agreeance among providers. 71% of providers agree or strongly agree that patients as “medical consumers” are motivated to share data to support their health goals. And it’s clear that the majority of consumers want to share their wearable device data with providers. But provider willingness to review said data is less straightforward.

There are likely multiple reasons why, including signal noise from inadequate technology that can lead to potential liability; and lack of reimbursement structures compensation — especially when additional monitoring may be required.

The high volume of data to analyze when using ECG recordings in clinical workflows was just one notable difference of opinion between primary care providers and cardiologists. More than half of PCPs cited that as a challenge, compared to 44% of cardiologists. PCPs are less likely to review information from patients’ consumer wearable devices as part of the management of cardiac condition(s) (52% vs. 31%, respectively).

The majority of insights shared by providers who said they were not currently reviewing information from their patients’ wearable devices to manage cardiac conditions were about workflow integrations, and a desire for summaries of data surfaced directly into EHRs. As primary care physicians frequently manage patients with multiple chronic conditions – and thus, exponentially more data sets – it’s natural to anticipate some upfront hesitancy to add more data to manage and interpret to the mix.

CONSUMER FINDINGS

61% of consumers

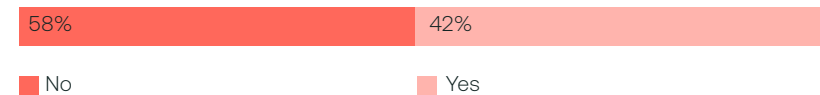
are willing to share their information from wearable devices with a medical professional to help monitor their heart health.

PROVIDER FINDINGS

42% of providers

are not currently reviewing information from their patients’ consumer wearables to manage their cardiac conditions.

Q: Are you currently reviewing information from your patient’s consumer wearable devices as a part of the management of their cardiac conditions?



That 42% indicated a possible behavior change for myriad reasons:

Q: If no, what would it take for you to incorporate data from a patient’s consumer wearable device into the management of their cardiac condition?

WHEN THERE IS	%
Improved accuracy, more reliability	47%
Better integration into workflow	22%
Ease of use/more widespread use	14%
Well-validated evidence/studies	14%
Reimbursement and time	11%

Cost and Accessibility

Resource concerns could stymie the potential impact of life-saving technology

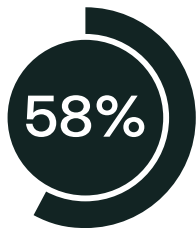
Whether access to services and technology is geographic or financial, resource limitations are holding back the potential impact of innovations that can save lives. But are those limitations also partially assumptions?

Surprisingly, more than half of consumers said they would consider using a wearable device to track their heart health if it was recommended by a medical professional – even if the cost was not covered.

That's compared to almost 60% of providers, who ranked cost and accessibility for patients as their top concern surrounding the use of any continuous ECG monitoring devices.

Relative to the potential costs of reactive patient care, the lower cost of a consumer wearable device (such as smartwatches, rings) can lead to preventive health management and a more cost efficient solution to better healthcare.

PROVIDER FINDINGS



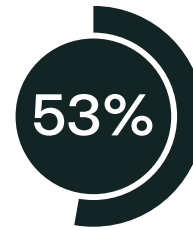
58% of providers

have concerns about the **cost and accessibility** for their patients surrounding continuous ECG monitoring devices.



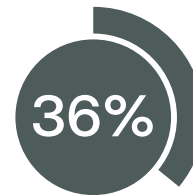
This was the most-selected response on a the list of potential concerns that also included patient **adherence and use**, and **integration with patient records and clinical workflows**.

CONSUMER FINDINGS



53% of consumers would consider

using a wearable device to track their heart health if it was recommended by a medical professional—**even if the cost was not covered**.



36% of consumers would consider

using a wearable device to track their heart health if it was recommended by a medical professional — **if the cost was covered**.



About B-Secur

B-Secur is on a mission to save and improve millions of lives around the globe by advancing heart health technology. As an advanced biosensing technology company, B-Secur has developed on-device and cloud-based applications that enable accurate ECG signal monitoring for early observation and treatment of cardiovascular disease, driving preventative and proactive healthcare management. The company's origins in biometric security laid the foundation for its proprietary AI-powered signal processing technology today to provide more usable, clinical-grade ECG data to enable faster, more confident diagnosis, treatment, and management.

Founded in 2015 after 15 years of academic research, B-Secur is a privately held global company with teams in the United States and headquartered in the United Kingdom. B-Secur is ISO 13485:2016 certified.



About Sage Growth Partners

Sage Growth Partners is a healthcare advisory firm with deep expertise in market research, strategy, and communications. Founded in 2005, the company's extensive domain experience ensures that healthcare organizations thrive amid the complexities of a rapidly changing marketplace. Sage Growth Partners serves clients across the full healthcare spectrum, including Ingenious Med, GE Healthcare, Meddecision, ProgenyHealth, Kyruus, Best Buy Health, New Jersey Brain and Spine, the National Minority Health Association, Philips Healthcare, Quest Diagnostics, Livongo, and Syft. For more information, visit [sage-growth.com](https://www.sage-growth.com).

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