

PREPARED
BY THE



American Heart Association.
Center for Health
Technology & Innovation

Self-Measured Blood Pressure Digital Health Platform Provider Landscape

Getting Ahead of the Hypertension Curve
to Select the Most Appropriate
Self-Measured Blood Pressure Platform

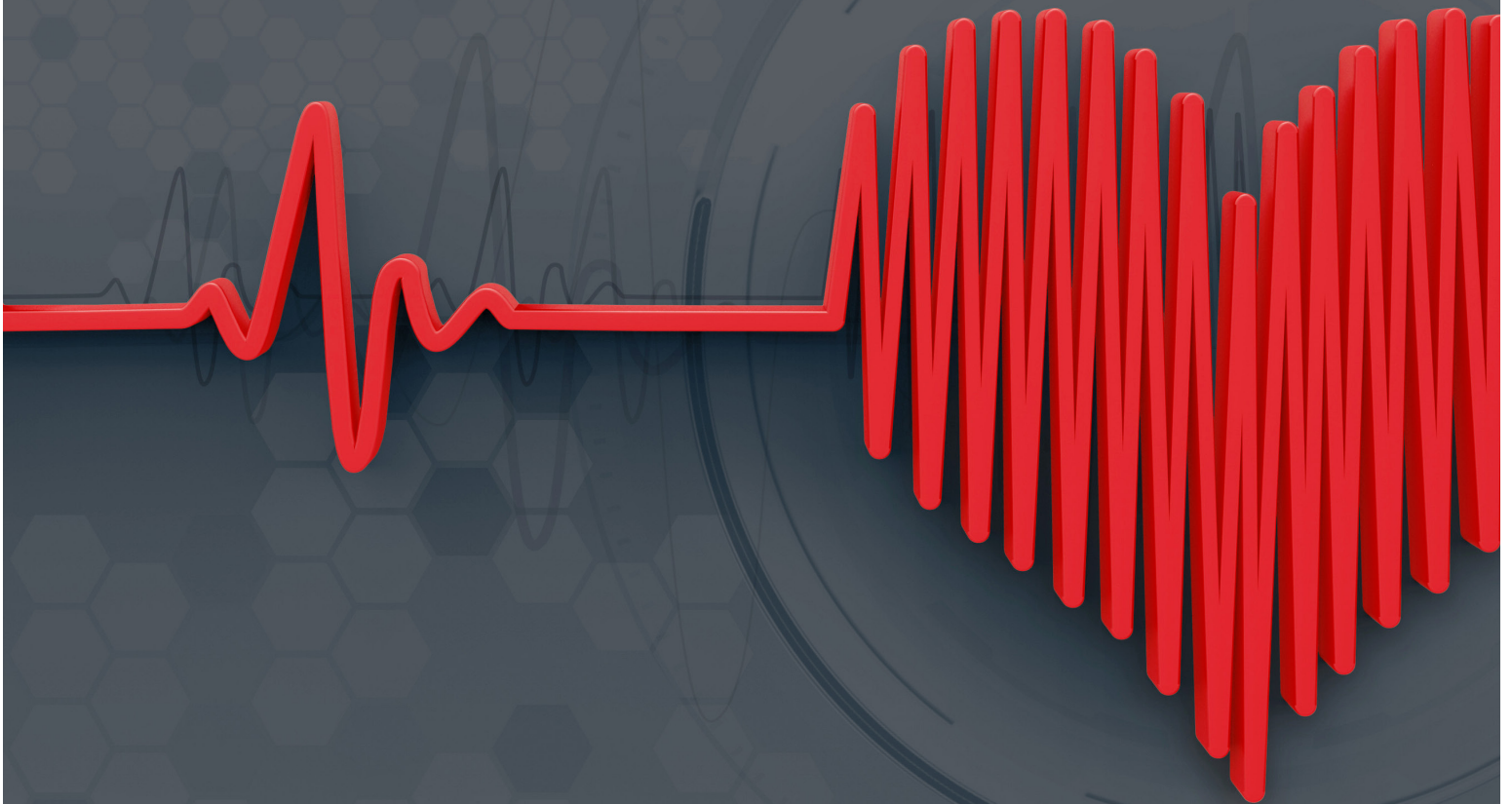


TABLE OF CONTENTS

03	Foreword
05	Acknowledgements
06	Executive Summary
09	Key Insights
10	Introduction and Purpose
13	Effective Use of SMBP
14	Barriers to Widespread Use of SMBP
15	Coverage and Payment for SMBP
15	Purpose and Scope of this Analysis
16	Data and Information Collection Method
17	Key Questions
19	Presentation of Information
41	Summary and Insights
47	Funding and Oversight
48	Role of the American Heart Association's Center for Health Technology & Innovation
49	Appendix A: Introductory Email with Overview and Instructions
50	Appendix B: Companies Responding to the Survey
52	Appendix C: Instructions on the Digital Health Platform Provider Capabilities Form
53	Appendix D: Provider Contact Email Template
54	Appendix E: Survey Questions
55	Appendix F: Validated Device List (VDL)
57	Supplement 1: Community Connectivity Platform Reviews
71	References
72	Disclosures and Disclaimers

This project was supported by two cooperative agreements (CPIMP201227 and CPIMP201228) with the Office of Minority Health (OMH) of the U.S. Department of Health and Human Services (HHS), as part of a financial assistance award totaling \$12.2 million in partnership with the Health Resources and Services Administration (HRSA). The contents do not necessarily represent the official views of, nor an endorsement by, OMH/OASH/HHS or the U.S. government. For more information, please visit: minorityhealth.hhs.gov.

Foreword

Improving the diagnosis, treatment and control of hypertension is critical for the American Heart Association to achieve its impact goals and enhance the cardiovascular health of all Americans. Of the 116.4 million adults in the U.S. with hypertension, nearly half don't have the condition under control and many are undiagnosed. Rates of blood pressure (BP) control are disproportionately lower among some racial, ethnic and socioeconomic groups¹. They also have higher rates of obesity, tobacco use, Type 2 diabetes, hyperlipidemia, cardiovascular disease, mortality, shorter lifespan and many other objective measures of health status. The COVID-19 pandemic has dramatically highlighted long-standing social inequities in health care.

In response, the AHA and U.S. Department of Health and Human Services (DHHS) launched the [National Hypertension Control Initiative](#) (NHCI) to improve BP and risk factor control in under-resourced communities. The goal: to create a healthier, more equitable country.

Hypertension is a silent killer. It often has no obvious signs or symptoms as it progresses and increases risk for heart attack, stroke and other cardiovascular diseases. Ensuring accurate BP measurement is essential to identifying and managing hypertension. The diagnosis and management of hypertension has been based primarily on measurements in health care settings. But BP readings may differ considerably when measured outside the office. Many patients who have elevated BP when measured in the office have normal BP when measured outside the office, a phenomenon dubbed white-coat hypertension. Other patients have normal in-office BP readings and elevated readings outside the office, known as masked hypertension.

Regular out-of-office BP measurements provided through self-measured blood pressure (SMBP) readings help exclude these misclassifications to ensure patients are diagnosed and managed more accurately. SMBP is associated with a reduction in BP and improved BP control. Additional evidence indicates that the benefits of SMBP are greatest when done with co-interventions (educational materials or classes, behavioral change management, medication management, telemonitoring, etc.). Recognizing the potential for SMBP to improve hypertension control, the NHCI calls for the expanded use of SMBP across the more than 350 Health Resources and Services Administration-funded Federally Qualified Health Centers (FQHCs) participating in the initiative.

Device accuracy is fundamental to hypertension control. To accurately measure blood pressure, the device should first be validated for clinical accuracy and then routinely calibrated per the manufacturer's recommendations. The [US Blood Pressure Validated Device Listing \(VDL™\)](#) or other reliable sources ([Hypertension Canada](#), [Stride BP](#), [British and Irish Hypertension Society](#)) indicate if devices have been through rigorous testing and validated for clinical accuracy.

Measurement technique is also critical for accurate BP measurement to inform diagnostic and treatment recommendations. Increasing the BP measurement knowledge of staff who measure BP and train patients in BP measurement is recommended every 6-12 months to ensure proper patient preparation:

- Avoiding caffeine, tobacco or exercise 30 minutes prior to measurement
- Emptying bladder and resting for five minutes prior to measurement
- Positioning (back supported, feet uncrossed and flat on the floor, arm supported at heart level)
- Using the correct cuff size (S-M-L-XL)
- Measuring while sitting still, quiet and not distracted by the TV, phone or talking

Preparing patients with education to operate their home device, measure properly and record readings is essential to SMBP.

Since the mere existence and use of home BP monitors doesn't lead to BP control, relaying readings from patient to health care professional remains a critical step to inform clinical decision-making and action — to diagnose hypertension, treatment intensification that includes pharmacologic and non-pharmacologic means. Several methods can transfer measurements, ranging from fully manual (i.e., recording on a paper log that patient brings into their health care professional's office), to intermediate or hybrid (i.e., storing and uploading data manually or into an app, platform or data portal), to fully integrated solutions (from BP device to EHR).

SMBP data platforms, created by a device manufacturer or a third party, represent a growing area of solutions for relaying data from patient to health care professionals. And while there are many SMBP platforms, no single platform addresses all the needs for SMBP. Further, many different EHR vendors are used in outpatient care settings, so a plan for full integration needs to consider the BP device, data transfer strategy and the receiving EHR, while recognizing many combinations of these technical components.

The AHA's Center for Health Technology & Innovation conducted a Digital Health Platform Provider Landscape Analysis to provide a resource for FQHCs and other health care entities. FQHCs can use this landscape analysis to identify and select the most appropriate platform(s) to meet the SMBP objectives outlined in the NHCI and beyond. Our goal is to reduce hypertension and improve cardiovascular health in under-resourced communities.

Acknowledgements

Authors, American Heart Association's Center for Health Technology & Innovation:



Patrick Dunn
PhD, FAHA



Patrick Wayte
MBA



David Santeusano
MS, FAWHP

Contributors:



Eduardo Sanchez
MD, MPH, FAAFP
American Heart Association



Pamela Garmon Johnson
MBA
American Heart Association



Sang-Mi Oh
MHA
American Heart Association



Michael Rakotz
MD, FAHA, FAAFP
American Medical Association



Alison P. Smith
MPH, BA, BSN, RN
American Heart Association



Brooke McSwain
MSc, MA, RRT
American Heart Association

Executive Summary | Challenge

- High blood pressure, which is 130/80 mm Hg and higher for most people, is a primary cause of poor cardiovascular health and a primary contributor to heart attack, stroke, other cardiovascular diseases (CVD) and cardiovascular - related death.
- Both hypertension and CVD disproportionately affect Black, Hispanic, American Indian and Alaska Native and other people in under-resourced communities.
- The age-adjusted prevalence of hypertension is higher among adult non-Hispanic Black and Hispanic people than among non-Hispanic White people. American Indian and Alaska Native people are also more likely to have hypertension than non-Hispanic White people.
- These disparities can be related to social determinants of health (SDOH) such as income, education, geography, access to health care, diet, transportation options and social norms as well as genetics and other health and environmental issues.
- These long-standing health disparities have become more evident in under-resourced communities during the COVID-19 pandemic.

- In December 2020, the American Heart Association and U.S. Department of Health and Human Services (DHHS) launched the evidence-based, community-driven [National Hypertension Control Initiative](#).
- The primary goal is to target patients and populations disproportionately impacted with hypertension particularly Blacks, Hispanics, American Indians and Alaskan Natives. Consider “equip priority patients with home monitoring devices”, “equip priority patients with media messages....”
- Provide evidence-based education and support for health care professionals to integrate SMBP into their clinical practice and care processes.
- Equip patients with home monitoring devices.
- Engage patients with media messages, community outreach and training to help them control their BP more effectively.
- Integrate SMBP into the management of hypertension....in patients and populations disproportionately impacted with hypertension across the nation.

- With access to validated blood pressure measurement devices, patients can be trained to use SMBP to routinely monitor their BP at home or other convenient locations.
- BP readings are automatically transmitted to their health care professionals using cellular or Bluetooth technology, depending on the SMBP device used.
- Health care professionals use the readings to make and adjust management recommendations for pharmacologic intervention and lifestyle changes that may reduce BP and lower cardiovascular risk.
- Multiple studies and clinical experience have shown that integrating SMBP into care can reduce hypertension.
- No single platform meets the needs of all patients and community health centers, and there's no publicly available comparison of SMBP platforms/devices' capabilities and features.
- This SMBP Digital Health Landscape Analysis will help community health centers and other health care professionals evaluate available digital health platforms.

The analysis is not intended to recommend specific platforms, but to provide information that can help community health centers and other health care professionals identify the most appropriate platform(s) for their community, patients, needs, resources and technology capabilities.

Key Insights

In early 2021, the American Heart Association's Center for Health Technology & Innovation identified 24 SMBP platforms to participate in an email survey. Twenty platforms responded in March and April 2021 to the same 27 questions to detail their business models, technologies, measurement and reporting capabilities, social media integration and other BP-related attributes.



Only five platforms had prior experience with HRSA or other government grant programs at the time of the survey. Prior experience navigating the platform and device acquisition processes part of the government grants that fund community health centers is helpful, but not vital.



Platforms use a variety of business and delivery models, including Software as a Service (SAAS), Platform as a Service (PAAS), Device as a Service (DAAS), remote patient monitoring (RPM), SMBP, device + app, EHR light and others. Decision-makers should recognize that the local electronic health record (EHR) and other elements that make up the existing community health center technology platform may link more easily — or less easily — with different business and delivery models.



Only nine platforms use a validated SMBP device from the Validated Device List (VDL) <https://www.validatebp.org/>. The Centers for Medicare and Medicaid Services (CMS) requires the use of a validated SMBP device for reimbursement. Other payers may have other validation requirements. Food and Drug Administration marketing authorization does not guarantee a SMBP device can deliver clinically accurate BP readings.



BP readings can be transmitted using Bluetooth or cellular technology. The choice of communications technology depends largely on which is more readily available for patients where they normally use their SMBP device. If the necessary communication link is not available, some devices can store readings and transmit data later.



No one platform meets all needs and health center capabilities may change significantly within a short period.



The device and integration technology landscape is changing rapidly.

Introduction and Purpose

Hypertension is a primary cause of poor cardiovascular health and a major contributor to cardiovascular disease and cardiovascular-related mortality in Black, Hispanic, American Indian and Alaska Native and other people in under-resourced communities. Further, the COVID-19 pandemic has highlighted differences in care and outcomes across different communities. Like hypertension, COVID-19 is hitting some communities much harder than others.

The American Heart Association and the U.S. Department of Health and Human Services (DHHS) recognized the challenge of social and health inequities with the [National Hypertension Control Initiative \(NHCI\)](#). Launched in December 2020, our collective aim is to reduce hypertension and improve cardiovascular health in under-resourced communities. Our strategy is to elevate the quality of care delivered in health centers funded by the Health Resources and Services Administration (HRSA) by providing evidence-based education to health care professionals and engaging patients with training to effectively control their hypertension. The AHA will also leverage and expand its existing hypertension programs in 350 Federally Qualified Health Centers (FQHCs).

35% of total
US population
has hypertension



An estimated 116.4 million adults in the United States have hypertension — about 35% of the total population and 45% of all adults. By age 60, three-quarters of adults in America have hypertension¹. Nearly half of adults don't have hypertension under control and a significant percentage of the condition goes undetected. Lowering blood pressure can decrease the incidence of cardiovascular disease including stroke, heart attack and heart failure.

Improving the diagnosis, treatment and control of hypertension is critical to the American Heart Association achieving its Impact Goal to advance cardiovascular health for all, including identifying and removing barriers to health care access and quality by 2024. Improving the awareness and control of hypertension is particularly important in Black, Hispanic and American Indian and Alaska Native people, who are disproportionately affected by hypertension, cardiovascular disease and cardiovascular mortality.



- **Black (non-Hispanic)**
- **Hispanic**
- **American Indian**
- **Alaska Native**

More Likely To Have Hypertension

The age-adjusted prevalence of hypertension is higher among adult non-Hispanic Black and Hispanic people than among non-Hispanic White people¹. People who are American Indian and Alaska Native are more likely to have hypertension than non-Hispanic White people². Social determinants of health such as income, geography, environment, access to health care, educational level, dietary habits, transportation options and social norms also play important roles in the prevalence of hypertension and control rates³.

The NHCI opens a new front in the fight against long-standing health disparities that the COVID-19 pandemic has starkly exposed. The DHHS Office of Minority Health (OMH), HRSA Bureau of Primary Health Care and American Heart Association are moving to improve blood pressure control among the nation's under-resourced populations, including racial, ethnic and socioeconomic groups. The three-year project will integrate remote self-measured blood pressure (SMBP) monitoring technology into the management of hypertension for patients served by participating HRSA-funded health centers.

The initiative supports targeted patient and public education programs on blood pressure awareness and education to reach Black, Latino, American Indian and Alaska Native and other impacted people, businesses and organizations with culturally and linguistically appropriate messages. NHCI also engages health care professionals with targeted technical assistance, training and skills-building to embed blood pressure monitoring and management best practices in clinical settings, particularly health centers that serve at-risk communities.

Part of that education and engagement is promoting the use of SMBP by patients outside the clinical setting. SMBP is an evidence-based approach for out-of-office BP measurement that shows significant promise for improving hypertension diagnosis and management, per the 2017 American Heart Association/ACC Guideline on the Diagnosis and Management of Hypertension³. An American Heart Association and American Medical Association (AMA) joint policy statement reviews the evidence supporting the use of



SMBP and offers policy mechanisms and guidance to address barriers to implementing SMBP monitoring adequately and equitably⁴. Recommendations include promoting patient and professional education on SMBP, strengthening our health IT capacity, incorporating SMBP readings into clinical performance measures, investing in SMBP co-interventions and increasing coverage for patient- and professional-related costs.

Multiple national and international hypertension guidelines support the use of SMBP to manage and/or diagnose high BP. Best practices of SMBP include using validated devices with appropriately sized cuffs and a standardized protocol for BP measurement and monitoring. Some payers, including the Centers for Medicare and Medicaid Services (CMS), which oversees Medicaid and Medicare payments, require the use of validated devices such as those listed on the [US Blood Pressure Validated Device Listing \(VDL™\)](https://www.validatebp.org/) <https://www.validatebp.org/>. Validation and Food and Drug Administration marketing authorization (510(k)) are not the same thing. Securing FDA clearance does not guarantee that a SMBP device can deliver clinically accurate BP readings.

Higher blood pressure readings measured in the home are associated with increased cardiovascular risk, independent of office BP measurements. While there is a lack of strong evidence showing that SMBP is superior to ambulatory blood pressure monitoring (ABPM) and vice versa for predicting cardiovascular risk, the [2017 Guideline for High Blood Pressure in Adults](#) concluded SMBP is a more practical approach than ABPM in clinical practice, particularly for people taking antihypertensive medication. The use of SMBP without co-interventions versus usual care is associated with moderate reductions in SBP and DBP at six months. The use of SMBP with co-interventions versus usual care is associated with moderate reductions in SBP and DBP and improved BP control at 12 months. The benefits of lowering BP and BP control are greatest when SMBP is conducted along with co-interventions.

In addition to undiagnosed and poorly controlled hypertension, two other factors complicate successful identification and management of BP. White-coat hypertension is the temporary elevation of BP in a health care setting. People with otherwise normal BP may become anxious and tense when visiting a health care professional, resulting in elevated BP. Visiting a health care professional can also have the opposite effect, temporarily reducing an otherwise elevated BP, a condition known as masked hypertension. SMBP may identify both white-coat and masked hypertension to enhance BP identification and management to reduce cardiovascular risk and improve long-term cardiovascular health.

Effective Use of Self-Measured Blood Pressure (SMBP)

The AHA and AMA have collaborated to produce an online guide on the appropriate use of SMBP in [TARGET: BP](#). Key steps include:



Use a SMBP device that measures BP at the upper arm using a cuff that fits each person. One cuff size does not fit everyone.



Use a standardized protocol to measure and monitor BP.



Use devices that have been validated and are on the [US Blood Pressure Validated Device Listing \(VDL™\)](#) <https://www.validatebp.org/> or other reliable sources ([Hypertension Canada](#), [Stride BP](#), [British and Irish Hypertension Society](#)). Validation is different from the Food and Drug Administration's marketing authorization (510(k)). Securing FDA clearance does not guarantee a SMBP device can deliver clinically accurate BP readings.



Use devices that store readings, if possible. SMBP requires transmission of BP data to the health care professional, usually using Bluetooth or cellular technology. Some people aren't always within range of the needed Bluetooth or cell signal when taking a BP reading. But the data will not be lost if the monitoring device stores the reading for later transmission.



BP readings should be transferred electronically to health care professionals through the EHR, if possible. Printed readings are acceptable if EHR access is not available — but printed records can be misread or mislaid and are more time-consuming to integrate into care planning than EHR data.



Monitoring Schedule - A common recommendation is that self-measured BP monitoring be based on 2 measurements taken at least 1 minute apart in the morning and evening (ie, 4 readings per day) optimally for 7 days (ie, 28 readings total) with a minimum of 3 days (ie, 12 readings total). For each monitoring period, the average of all SBP and DBP readings should be obtained to assess BP. The "eyeball method" (i.e., visually scanning the readings to determine the presence of high BP or BP control) should be avoided. Once BP control is achieved and BP remains stable for several months, monitoring 1 to 3 days every week is probably sufficient⁴.

Barriers to Widespread Use of SMBP

Multiple barriers can prevent successful implementation and use of SMBP at the patient, health care professional and health care system levels.



Patient barriers include:

- Feeling burdened by overly rigid protocols for measurement frequency and duration over extended periods
- Lack of education about the importance of BP monitoring and the benefits of SMBP
- Lack of feedback and recognition from health care professionals
- Lack of the needed Bluetooth or cellular links or other technology gaps
- Out-of-pocket costs for SMBP



Health care professional barriers include:

- Concerns about potential inaccuracy of monitoring device
- Time needed to educate patients on the benefits and use of SMBP devices
- Training patients to use SMBP devices
- Adherence to SMBP schedules by patients
- Concerns about possible patient anxiety associated with SMBP
- Increased burden on practice operations and staff time
- Additional time needed to interpret readings
- Lack of reimbursement for SMBP devices, device training and monitoring by some payers



Health care system barriers include:

- Education of health care professionals and patients regarding the value of SMBP
- Resources and time needed for staff and health care professional training
- Lack of systems for SMBP readings to be transferred from devices to EHRs
- Lack of infrastructure to implement co-interventions that can improve BP management and long-term cardiovascular health
- Documentation requirements for SMBP coding, billing and reimbursement

Coverage and Payment for SMBP

Although SMBP adoption remains limited, numerous private and commercial payers, as well as Medicaid programs, provide coverage. Medicare provides reimbursement for the collection and interpretation of physiologic data including BP monitoring via CPT code 99091. Platforms or devices that don't transmit patient-generated data to the health care professional are not eligible for reimbursement.

Two CPT codes have supported initial and ongoing SMBP services since Jan. 1, 2020:

CODE

99473

SMBP using a device validated for clinical accuracy; patient education/training; and device calibration. This code can only be used once per device, typically when a patient receives education and training facilitated by clinical staff on the set-up and use of a SMBP device that has been validated for clinical accuracy.

CODE

99474

Two separate self-measurements one minute apart, twice daily over 30 days (minimum of 12 readings). This code is used to collect and interpret SMBP data when patients use a validated device. The patient and/or caregiver reports the average systolic and diastolic pressures to the physician or other qualified health care professional, who subsequently communicates a management plan to the patient.

Additional details can be found on [SMBP CPT® coding](#) from the AMA and [Target: BP™](#) from the American Heart Association/AMA.

Purpose and Scope of this Analysis

The purpose of this SMBP landscape analysis is to inform community health centers to help them identify the most appropriate platform(s) for their community, patients, needs, resources and technology capabilities. It's not intended to determine which platform to use. This landscape analysis is limited to the platforms that support SMBP and does not analyze individual devices or social navigation platforms.

The American Heart Association and American Medical Association provide a guide to design and implement SMBP programs at [Target: BP™](#). Recommendations include staffing, budgeting, scheduling, purchasing and managing SMBP devices, selecting a cuff size, identifying and training trainers, training patients, collecting data, interpreting results and managing patients.

Data and Information Collection Method

The American Heart Association's Center for Health Technology & Innovation invited 24 digital health platform providers via email or phone to participate in the SMBP Digital Health Platform Provider Capabilities Landscape Survey (Appendix A). They were asked to voluntarily submit their responses to 23 questions describing their abilities to provide SMBP and SMBP management services to participating community health centers in accordance with the grant requirements.

Selection criteria included:



Commercial digital health platform providers known by the AHA to offer SMBP devices and/or blood pressure management programs, which included several companies that are members of the AHA's Center for Health Technology & Innovation Innovators' Network.



Commercial digital health platform providers that were recommended or referred to the AHA's SMBP Committee.

The 20 providers (Appendix B) that submitted completed surveys were included in the analysis. No financial payments or other incentives were offered to providers to participate.

Survey instructions were printed at the top of the survey form and in the introductory contact email (Appendix C).

Responses were collected over three weeks. After reviewing initial responses, the AHA's SMBP Committee contacted all 20 platform providers a second time by email (Appendix D) requesting responses to four additional questions (Appendix E). All 20 platform providers responded to the four questions within the requested two weeks (Appendix F).

Key Survey Questions

While the survey contained 27 questions, the authors identified seven groupings of questions that are key to identifying platforms that do, or do not, meet health centers' specific needs. No single platform is likely to match the ideal SMBP platform, but some platforms will come closer than others. Key survey questions included:

1 Business Model

The 20 platforms have adopted a variety of business models:

- Software as a Service (SAAS)
- Platform as a Service (PAAS)
- Device as a Service (DAAS)
- Remote patient monitoring (RPM)*
- SMBP
- Digital therapeutics**
- Guideline-directed medical therapy (GDMT)

**RPM is a technology that enables health care centers to monitor patients outside of the conventional health care setting. RPM is similar to SMBP but uses different billing codes.*

***Digital therapeutics is a subset of digital health focused on evidence-based therapeutic interventions to manage specific conditions.*

2 Description of Solution

The providers variously identify themselves as provider platform, patient platform, device plus app, mobile app, EHR light, a kiosk and other terms.

3 Prior Experience with HRSA or other Government Grants

Most platforms (15 of 20) have no prior experience with HRSA or other government grants.

4 Blood Pressure Device Cuffs

Accurate measurement with SMBP devices requires the use of the correct cuff size for the patient (S-M-L-XL); otherwise, readings are falsely increased or decreased. Most of the platforms (16) allow for different cuff sizes. There is no additional cost for different cuff sizes in most platforms.

5 Device Validation

Using a validated device is a key element of SMBP and required for CMS reimbursement.

But only nine of the platforms have devices on the [US Blood Pressure Validated Device Listing \(VDL™\)](https://www.validatebp.org/) <https://www.validatebp.org/> (Appendix F). Validation requirements set by other payers may be different. To address this validation challenge, the AMA is working with the National Opinion Research Center at the University of Chicago to design and manage the validation process. An independent review committee of subject matter experts assesses whether the device has met the validation criteria for clinical accuracy. <https://www.validatebp.org/manufacturers/>.

FDA approval does not imply that the device has been validated for clinical accuracy. The AMA recommends that all automated BP devices be submitted to the VDL for validation.

6 Data Transmission and Telemedicine

The platforms in this analysis are split evenly between Bluetooth and cellular transmission of blood pressure data. While some of the platforms also allow the patient or health care professional to manually enter data, Bluetooth or cellular transmission technology allows for automated data transfer from the device to an app or platform. Bluetooth devices connect via Wi-Fi, so intermittent access to Wi-Fi, at a minimum, is required. Cellular devices connect through cellular signal, so intermittent access to a signal, at a minimum, is required. Either technology may be preferable for a patient depending on their technology capabilities and access. But connectivity may not always be possible due to lack of internet/broadband access, which are often due to geographic or financial barriers.

Eleven of the platforms have telemedicine capabilities.

7 Care Plans and Social Navigation Platforms

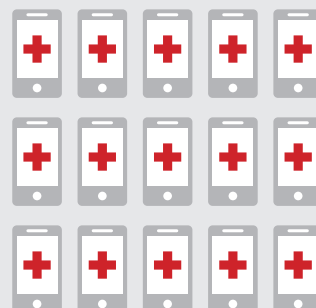
Most of the platforms use care plans to provide additional coaching, alerts, prompts and distance learning to help patients manage their blood pressure. The AHA's Blood Pressure CarePlan is a science-based approach <https://ahahealthtech.org/videos/aha-ctti-digital-care-plans/> that's used by nine of the platforms. Seven of the platforms also use social navigation platforms to help their patients access the resources they may need to use their device more easily and effectively.

Summary and Insights

SIZE of global digital health market:



181.8 billion
in 2020



551.1 billion
in 2027 (expected)

The number of companies providing digital health platform services is increasing rapidly. More and more companies are also expanding their digital health services. The global digital health market size was \$181.8 billion in 2020 and is expected to reach \$551.1 billion by 2027, according to a report published by Precedence Research in June 2021⁵.

The American Heart Association's Center for Health Technology & Innovation identified 24 SMBP platform providers in early 2021 to participate in an email survey. In March and April 2021, 20 platforms responded to the same 27 questions to detail their business models, technologies, measurement and reporting capabilities, social media integration and other BP-related attributes.

24 SMBP
platform
providers

27
Questions
Asked

20 SMBP
platforms
responded

Insights include:

- Only six platforms — AliveCor, Canary Telehealth, Indie Health-Verustat, Lumi Health, Pack Health, and PharmaSmart — had prior experience with HRSA or other government grant programs at the time of the survey. Prior experience navigating the platform and device acquisition processes part of government grants that fund community health centers is helpful, but not vital.

- Platforms use a variety of business and delivery models, including Software as a Service (SAAS), Platform as a Service (PAAS), Device as a Service (DAAS), remote patient monitoring (RPM), SMBP, device + app, EHR light and others. Decision-makers should recognize that the local electronic health record (EHR) and other elements that make up the existing community health center technology platform may link more easily — or less easily — with different business and delivery models.
- Conventional BP measurement cuffs come in a variety of sizes to fit the broad range of human body shapes and sizes. The availability of multiple SMBP cuff sizes is an advantage.
- Using a validated SMBP device is required for reimbursement by the Centers for Medicare and Medicaid Services (CMS). But only nine platforms have devices on the Validated Device List (VDL) <https://www.validatebp.org/>. Other payers may have other validation requirements. Food and Drug Administration marketing authorization does not guarantee that a SMBP device can deliver clinically accurate, repeatable and useful BP readings.

9

Validated Device Listing Platforms:



- **A&D Medical**
- **AliveCor**
- **AMA Innovations**
- **Canary Telehealth**
- **Continuing Health**
- **Heka**
- **PackHealth**
- **PharmaSmart**
- **Reach**

- BP readings can be transmitted using Bluetooth or cellular technology. The technologies are functionally equivalent and dependent on operational Bluetooth or cellular links to transmit BP measurements to the health care professional. The preferred communications technology largely depends on which is more readily available to patients in the location they normally use their SMBP device. If the communication link is not available, some devices can store readings and transmit data later.

Data Transmission Capabilities:

Company	Manual	Bluetooth	Cellular
A&D Medical	Yes	Yes	No
AliveCor	--	--	--
AMA Innovations, Inc. (Verifi Health)	Yes	Yes	Yes
Canary Telehealth	Yes	Yes	Yes
Certintell Telehealth (Powered by Link4life)	No	No	Yes
Continuity Health Solutions	--	--	--
Heka Health, Inc.	Yes	Yes	No
Hello Heart, Inc.	No	Yes	No
Higi	No	No	Yes
Hoy Health	--	--	--
Indie Health / Monitored Therapeutics Inc. (MTI)	No	Yes	Yes
Indie Health / Verustat	No	Yes	No
Lumi Health	No	No	Yes
mmHg (Millimetres Mercury) Inc.	--	Yes	Yes
Pack Health, LLC	Yes	Yes	Yes
PharmaSmart	No	Yes	Yes
Preventric Diagnostics, LLC	--	--	--
Reach	Yes	Yes	No
TimeDoc Health	No	No	Yes
TupeloLife Digital Therapeutics	No	No	Yes

-- No Response

- Most platforms use a care plan to provide additional coaching, alerts, prompts and education to help patients better manage their blood pressure. The [American Heart Association's Blood Pressure Care Plan](#) is a science-based approach used by ten of the 20 platforms.
- Just six platforms incorporate social and community health connectivity and navigation from Aunt Bertha's [FindHelp.org](#), [Unite Us](#) or other platforms that can connect users to local community resources. A review of community health connectivity platform vendors is in Supplement 1.



FindHelp.org



Healthify.us



NowPow.com



UniteUs.com

- Telemedicine has emerged as a key service during the COVID-19 pandemic to improve health and provide care when physical visits were not possible or impractical. Telemedicine remains a valuable resource for more people in under-resourced communities that may lack adequate in-person access to health care professionals and facilities.

Telemedicine Capabilities:

Company	Telemedicine
A&D Medical	No
AliveCor	Yes
AMA Innovations, Inc. (Verifi Health)	Yes
Canary Telehealth	Yes
Certintell Telehealth (Powered by Link4life)	Yes
Continuity Health Solutions	Yes
Heka Health, Inc.	Yes
Hello Heart, Inc.	Yes
Higi	Yes
Hoy Health	Yes
Indie Health / Monitored Therapeutics Inc. (MTI)	Yes
Indie Health / Verustat	No
Lumi Health	No
mmHg (Millimetres Mercury) Inc.	No
Pack Health, LLC	Yes
PharmaSmart	Yes
Preventric Diagnostics, LLC	Yes
Reach	Yes
TimeDoc Health	Yes
TupeloLife Digital Therapeutics	Yes

- It is vitally important that digital health platform services use devices that provide accurate and reliable measurement data (See Validated Device List in Appendix.) and that all health recommendations and treatment protocols are generated from science-based medical guidelines.
- No one platform meets all needs. One hallmark of a top performer is membership in the AHA's Center for Health Technology & Innovation Innovators' Network, a consortium that connects entrepreneurs, health care professionals, researchers and payers to accelerate novel solutions across the health continuum. Tupelo Life and Hoy Health are the top Innovators' Network platforms. Other similarly strong contenders that are not part of the network include AMA Innovations-Verifi, mmHg, TimeDoc and Canary Telehealth.
- The technology that allows for accurate and effective remote patient monitoring is growing at an exponential rate — evidenced by the capabilities of the participating platform providers. Because of rapid technological advances, a health care professional's capabilities can change within a short period.
- From the AHA's perspective, the most important takeaways are how different features are more useful/important/appropriate for various health centers and populations, i.e., urban verses rural, specific language needs, spotty cellular coverage, etc.



“No one platform meets all needs but the most important takeaways are how different features are more useful/important/appropriate for various health centers and populations.”

Funding and Oversight

The American Heart Association/Department of Health and Human Services National Hypertension Control Initiative (NHCI) is a comprehensive blood pressure and risk factor program designed to reduce disparities among people in under-resourced communities nationwide. The initiative is funded by three DHHS investments over three years:



\$17.5 million
The Office of Minority Health

The Office of Minority Health (OMH) will contribute \$17.5 million to community outreach and integration; program evaluation and management; and patient and public education through community events, outreach and messaging.



\$14.5 million
The Health Resources and Services Administration

The Health Resources and Services Administration (HRSA) will contribute \$14.5 million for health organization, health care professional and clinician training and a patient/public education campaign.



\$60 million
HRSA

HRSA will provide an additional \$60 million to HRSA-funded health centers.

Role of the American Heart Association's Center for Health Technology & Innovation

The American Heart Association's Center for Health Technology & Innovation develops and delivers evidence-based, scalable, digital health solutions through innovative health tech solutions to provide affordable health care access for patients and their families. The center connects entrepreneurs, providers, researchers and payers to accelerate novel solutions across the health continuum. The center is both a convener, bringing parties together to solve a problem, and a strategic collaborator, lending expertise to develop products and solutions and bridge care gaps and...

improve cardiovascular health for all.



Appendix A

Introductory Email with Overview and Instructions

Provider Contact Email Template

Subject Line:

RESPONSE REQUESTED: Digital Health Platform Provider Landscape

Attachment:

Digital Health Platform Provider Capabilities Form

Hello Mr./Ms. _____

The American Heart Association and U.S. Department of Health and Human Services have launched the National Hypertension Control Initiative (NHCI) on self-measured blood pressure for people in under-resourced communities. We would like to know if you're interested in participating in our Digital Health Platform Provider Landscape.

We're evaluating providers on their capabilities to meet the requirements to work with the Federally Qualified Health Centers (FQHCs). Upon completion of the landscape, the AHA will make "recommendations only" to the FQHCs. We will not be involved with contracting or implementation.

Details on the grant can be viewed at <https://bphc.hrsa.gov/program-opportunities/national-hypertension-control-initiative>.

If you would like to be included, please fill out the attached Digital Health Platform Provider Capabilities Form and return it to me via email at _____ by **end of Friday, April 30, 2021**.

Your responses on the form can be succinct and you're welcome to attach supplemental materials to further describe your capabilities.

For this stage of the process, I will be your only contact. Please let me know if you have questions, etc.

Best regards,

Appendix B

Companies Responding to the Survey

Company	Contact	Website
A&D Medical	Kyle Kline kkline@andonline.com 408-518-5118	www.andonline.com
AliveCor	Sarah Zweifach szweifach855@livecor.com	www.alivecor.com
AMA Innovations/ Verifi Health	Matt Menning matt.menning@ama-innovations.com	www.verify.health
Canary Telehealth	Carla Robinson crobinson@canarytelehealth.com	www.canarytelehealth.com
Certintell Telehealth	Benjamin Lefever benjamin@certintell.com 515-802-1281	www.certintell.com
Continuity Health	Bryan Poteet bryan.poteet@continuityhealth.com	www.continuityhealth.com
Heka Health	Tony Salah tsalah@hekahealth.com 650-464-6859	www.hekahealth.com
Hello Heart	Terri Bogen terri.bogen@helloheart.com 971-216-2762	www.helloheart.com
Higi	Vicki Harter vharter@higi.com 570-490-3757	www.higi.com
Hoy Health	Mario Anglada mario@hoyhealth.com 973-647-4247	www.hoyhealth.com

Appendix B

Companies Responding to the Survey (continued)

Company	Contact	Website
Indie Health-MTI	Clint McClellan clintm@indie-health.com 619-890-4966	www.indie-health.com
Indie Health-Verustat	Clint McClellan clintm@indie-health.com 619-890-4966	www.indie-health.com
Lumi Health	Fahad Rahman fahad@lumi.health 571-451-5551	www.lumi.health.sg
mmHg	Peter Wood peter.wood@mmhg.ca 587-926-0440	www.mmhg.ca
Pack Health	Megan Martin megan.martin@packhealth.com 703-400-6513	www.packhealth.com
PharmaSmart	Josh Sarkis js@pharmasmart.com 604-512-5550	www.pharma-smart.com
Preventric Diagnostics	Phillip White pwhite@preventric.com 205-478-1110	www.preventric.com
Reach	Fran Ayalasomayajula fran@reachtl.org 619-800-6443	www.reachtl.org
TupeloLife	Rob Sanchez rob@tupelolife.com	www.tupelolife.com

Appendix C

Instructions on the Digital Health Platform Provider Capabilities Form

“Please provide your succinct responses in each of the columns. Feel free to provide additional information on your capabilities as separate attachments.”

“PLEASE RETURN YOUR COMPLETED FORM BY **END OF FRIDAY, APRIL 30** via email to the person who sent it to you.”

Appendix D

Provider Contact Email Template

Subject:

Request for Additional Information on Digital Health Platform Provider Landscape

Thank you for submitting your company's information to be included in the American Heart Association/U.S. Department of Health and Human Services National Hypertension Control Initiative's Digital Health Platform Provider Landscape.

Before we conclude and provide our analysis to the Federally Qualified Health Centers (FQHCs), the committee has requested a few additional information we hope you're willing to include in your submission. They are as follows and are highlighted in yellow on your attached submission form.

1. IF YOUR DEVICE ALLOWS FOR DIFFERENT CUFF SIZES, IS THERE AN ADDITIONAL COST?
2. DOES YOUR OFFERING INCLUDE THE AMERICAN HEART ASSOCIATION-LICENSED HIGH BLOOD PRESSURE CAREPLAN?
3. DO YOU POSSESS AN OFFICIAL CERTIFICATION OR CERTIFICATE THAT CLASSIFIES YOU AS A DIVERSE BUSINESS?
4. IF YOU ANSWERED "NO" TO THE PREVIOUS QUESTION, IS THE OWNERSHIP 51% OR MORE OWNED BY ANY OF THE FOLLOWING: ASIAN AMERICAN; BLACK/AFRICAN AMERICAN; HISPANIC/LATINA AMERICAN; NATIVE AMERICAN/ALASKA NATIVE; NATIVE HAWAIIAN; LGBTQ; OWNER WITH A DISABILITY; VETERAN; WOMAN-OWNED?

This additional information is not required, but it's important to the FQHCs.

The AHA offers licensed digital CarePlans for people to improve and manage their health. If you would like more information on the CarePlans, please let me know.

After providing your responses to the additional questions, please review your submission form for accuracy and completeness before returning it.

Please return your updated submission form **by Friday, May 14.**

Thank you again for your cooperation.

To your good health,

Appendix E

INITIAL SURVEY QUESTIONS (23)

1. BUSINESS NAME
2. CONTACT PERSON NAME/EMAIL/PHONE
3. BUSINESS MODEL DESCRIPTION OF YOUR PLATFORM/SOLUTION
4. PRIOR EXPERIENCE WITH HEALTH RESOURCES AND SERVICES ADMINISTRATION (HRSA) OR OTHER GOVERNMENT ORGANIZATIONS
5. BP MEASURING DEVICE DESCRIPTION (STANDARD CUFF, XL CUFF, MINI CUFF, WEARABLE, ETC.)
6. WHICH OF THE DEVICES LISTED ARE VALIDATED?
7. HOW IS THE DATA TRANSMITTED? (CELLULAR, BLUETOOTH, MANUAL)
8. DESCRIBE YOUR EHR INTEGRATION CAPABILITIES (INCLUDE WHICH EHRs YOU CONNECT WITH)
9. INTERNET/WI-FI CONNECTION REQUIREMENTS
10. USER INTERFACE (INTERNET, APP, WEARABLE OR OTHER)
11. USER MESSAGING/PROMPTS/ALERTS
12. USER DASHBOARD/REPORTING
13. USER EDUCATION/DISTANCE LEARNING
14. USER COACHING
15. SOCIAL/COMMUNITY CONNECTIVITY (SUCH AS AUNT BERTHA/UNITE US/OTHER)
16. CAN YOU LINK WITH A NATIONAL HBP REGISTRY?
17. IDENTIFIES GAPS IN CARE
18. AVAILABLE LANGUAGES
19. CULTURALLY ADAPTED VERSUS STRICT TRANSLATION
20. USER TRAINING/SUPPORT/MAINTENANCE
21. BACK-END OFFICE/ADMINISTRATIVE/REPORTING/TRACK OUTCOMES
22. TELEMED CAPABILITY
23. ADDITIONAL FEATURES

ADDITIONAL FOLLOW-UP QUESTIONS REQUESTED BY THE ASSOCIATION'S SMBP COMMITTEE (4)

1. IF YOUR DEVICE ALLOWS FOR DIFFERENT CUFF SIZES, IS THERE AN ADDITIONAL COST?
2. DOES YOUR OFFERING INCLUDE THE AMERICAN HEART ASSOCIATION-LICENSED HIGH BLOOD PRESSURE CAREPLAN?
3. DO YOU POSSESS AN OFFICIAL CERTIFICATION OR CERTIFICATE THAT CLASSIFIES YOU AS A DIVERSE BUSINESS?
4. IF YOU ANSWERED "NO" TO THE PREVIOUS QUESTION, IS THE OWNERSHIP MORE THAN 51% OR MORE OWNED BY ANY OF THE FOLLOWING: ASIAN AMERICAN; BLACK/AFRICAN AMERICAN; HISPANIC/LATINO AMERICAN; NATIVE AMERICAN/ALASKA NATIVE; NATIVE HAWAIIAN; LGBTQ; OWNER WITH A DISABILITY; VETERAN; WOMAN-OWNED?

Appendix F

US Blood Pressure Validated Device Listing (VDL™)

An American Heart Association and American Medical Association joint statement notes that self-measured blood pressure is an evidence-based approach to measure out-of-office BP to confirm a diagnosis, titrate medications and/or engage in longer-term lifestyle changes and medication adherence. The accuracy and utility of SMBP depend on the use of a device that has been validated for clinical accuracy, such as those submitted and accepted on the [US Blood Pressure Validated Device Listing \(VDL™\)](https://www.validatebp.org/) <https://www.validatebp.org/>. Food and Drug Administration approval to market a BP device does not imply that it has been validated to deliver clinically accurate and useful BP readings. The AMA recommends that all automated BP devices be submitted to the VDL for validation.

In addition, Centers for Medicaid and Medicare Services requires use of a validated device for reimbursement. But only eight platforms have devices on the VDL. Validation requirements set by other payers may be different.

To establish the VDL™ Criteria, the AMA convened those with relevant technical and clinical practice expertise to aid in determining which automated blood pressure measurement devices in the United States have been validated for clinical accuracy. The VDL Criteria were refined and finalized with input from key stakeholders including clinicians, health care organizations, BP device manufacturers and the FDA.

The VDL Criteria apply to BP devices used in clinical, community or home settings. These BP devices must meet the following criteria to be formally listed on the VDL:

1. Active FDA 510(k) pre-market clearance record and documentation
2. Automated devices with cuff sizes tested with and available for the intended population
3. Documentation of independent validation testing (provided by a qualified third party or peer-reviewed publication) following one of these accepted protocols:
 - A. ISO 81060-2:2018
 - B. ANSI/AAMI/ISO 81060-2: 2013
 - C. ANSI/AAMI/ISO 81060-2: 2009
 - D. ANSI/AAMI SP10: 2002
 - E. BHS Revised Protocol: 1993
4. Documentation that a device is an equivalent model variant

The complete VDL Criteria can be viewed here: [Download VDL Criteria](#).

AMA funds an independent third party, the National Opinion Research Center (NORC) at the University of Chicago, to manage the validation process, including an independent review committee of subject matter experts to assess whether the device has met the validation criteria for clinical accuracy. <https://www.validatebp.org/manufacturers/>. At the time of the survey, 17 devices or device series for home or ambulatory use had been approved for inclusion on the VDL.

Devices must meet all criteria.

Manufactures are encouraged to submit their BP device information to NORC at VDLsubmission@norc.org to receive instructions for submission.

Supplement 1

SMBP Initiative Supplement Community Health Connectivity Platform Vendor Reviews

This SMBP Initiative Supplement provides information on four large community health connectivity platforms that enable bi-directional e-referrals between a network of organizations providing care. The organizations include health care systems, health plans, government agencies, non-government organizations and community-based organizations (CBO) providing social services programs. These social services programs often span the spectrum of the social determinants of health (SDOH), including food insecurity, housing, transportation, legal support, education, employment, social connection, finance and health management. Programs that provide lifestyle change support could be a social service listed on a platform that enables bi-directional e-referrals between the program providers and other care providers in the network.

These are uniquely developed platforms and solutions that can improve community connectivity between health care entities, government agencies, non-government organizations and community-based organizations for social and support services. The platform organizations included in this supplement have established networks in various regions of the country and continue to expand.

Review Criteria

This review focused on four main criteria:

- 1 Accessibility:** Does the platform provide open or limited access for users/patients?
- 2 Inclusivity of Listings:** Does the platform provide a comprehensive or limited list of social service providers?
- 3 Referral Loop Closure:** Is the user/patient able to view actions taken on their referral and are they able to communicate bi-directionally?
- 4 Integration:** What is the extent of integration with EHR and/or customer relationship management (CRM) systems?

4

Main Criteria

	Yes	No	
Accessibility	Open access format with full access to all features for all user types, including the patient.	Limited access format with limited access to some features for some user types, including the patient.	
Inclusivity of Listings	Comprehensive list of social service providers included on the platform (includes both engaged and non-engaged social service providers).	Limited list of social services providers included on the platform (includes only those that are engaged with the platform).	
	1-Star Rating	2-Star Rating	3-Star Rating
Referral Loop Closure	Users unable to view actions taken on a referral or send custom bi-directional communications.	Limited ability for authorized users to view actions taken on a referral and send custom bi-directional communications.	All authorized users may view all actions taken on a referral and send custom bi-directional communications.
Integration	Digital Health Platform Provider Landscape Framework - Rev 6 clean FG0910	Limited integration with EMRs and CRMs.	Full and seamless integration with EMRs and CRMs via single sign on functionality.

findhelp (also known as Aunt Bertha)

Accessibility	Inclusivity of Listings	Referral Loop Closure	Integration
Yes	Yes	★ ★ ★	★ ★ ★

Configuration

Findhelp was built in 2010 to offer an easier way to find social services and to connect to them directly and electronically. Their mission is to connect all people in need and the programs that serve them, with dignity and ease. Over the last decade findhelp has built the most comprehensive network of free and reduced-cost community resources. Their network includes federal, state, county, municipal, and local programs, lists at least 1,300 social care programs in every US ZIP, and 543,316 total programs nationally. Findhelp has over 370 customers from all different industries, with a focus in healthcare. They were awarded Best in KLAS for SDOH this year, and they check all the boxes at very affordable rates. They’ve helped over 8.1 million people find the social care they need.

Findhelp uses an “open network” model, listing every available free or reduced-cost service, while featuring the nearest and most-engaged programs relevant to a search. They do not charge nonprofits to get listed, and do not require them to meet certain criteria to stay listed aside from offering free/reduced-cost care. Findhelp’s in-house Data Operations team keeps the network complete (listing every available service) and current (up-to-date). Listed organizations can also update their own information.

Patient Self-Navigation

Findhelp is the only platform that supports anonymous self-navigation through free, public accessibility to their platform. Nobody is required to log in or share personal information to search the network or to request help. This protects the dignity and privacy of those in need and expands access to even the most vulnerable communities. Findhelp’s platform is also translatable into over 100 different languages. Through self-navigation and their open network model, findhelp gives people in need the dignity of choice from a complete set of options, and the ability to filter on multiple dimensions for relevant results without prematurely excluding available programs.

Free Access for Nonprofits

Users from community-based organizations (CBOs) providing services can create free accounts. “Claiming” their listing gives CBOs access to a free toolkit to create, track, and manage referrals. The toolkit includes free case management tools, bi-directional communication with referring organizations, and impact reporting. CBOs can also create their own intake screening forms to ensure they’re receiving pre-screened candidates and necessary information with each referral made. With platform interoperability, findhelp doesn’t even require nonprofits to actually use findhelp to receive referrals and coordinate care, further expanding the list of participating programs. Findhelp’s dedicated Community Engagement team also offers free training and enablement to all nonprofits, nationwide, to help them more effectively communicate and coordinate care for people seeking help. This is a shared service, so the findhelp network is already in-place and actively communicating - ready to receive referrals on Day 1.

Tools for Health Centers

Findhelp’s interoperability extends to health centers, too. Findhelp can be used as a stand-alone, or integrated directly into EHRs like eCW, athenahealth, Epic, and Cerner. Either option allows health center staff to search and refer on behalf of patients on a staff-only version of the platform. This staff-only site is essentially a medical record for social care, in addition to findhelp’s standard search/referral functionality. Integrations leverage Single Sign-On (SSO) and are also able to pass demographic information from an EHR like patient name, MRN, and DOB to minimize data entry and to link back to the EHR.

Team Navigation tools allow functional groups collective visibility into patient populations, while also allowing role-based security around more sensitive referrals like mental health or SUD/OD. The findhelp platform is secure, HITRUST-certified, and HIPAA compliant. Health centers can build standard (e.g. PRAPARE) or customized assessments directly into findhelp to leverage automated program recommendations for identified needs, or assess in their EHR and use assessment results alongside findhelp’s native navigation. Health centers can also curate their staff sites specifically for their staff and patients using favorites folders, customizable search results, and the ability to list and feature internal-only programs available specifically to their patients.

Closed-Loop Referrals

Findhelp provides a full, closed-loop experience between health centers, patients, and CBOs. When a health center makes a referral, the receiving CBO has several options for coding the referral status. These include options like Got Help, Referred Elsewhere, Not Eligible, No Capacity, and No Longer Interested. All items pertaining to a referral — appointment details, screening results, referral status, and more — are available to view in real-time. The status of the referral can be viewed or updated by the referring health center, the receiving CBO, or the patient at any time with a single click. CBOs do not even need to be using

findhelp's toolkit to close the loop - they can do so via email as well. Findhelp also supports bi-directional communication in context of a referral, right within the platform.

Reporting

Findhelp offers reporting out-of-the-box, with 12 reporting suites including over 40 dynamic dashboards. Health centers can use these to monitor patient engagement, staff adoption & utilization, referral volume and closed-loop rate, most-referred programs, geographies of greatest need, and more. Findhelp also licenses access to SQL data, which includes transaction-level data that can then be blended with clinical data to demonstrate (for example) improved outcomes from social care interventions. Findhelp also gives free reporting as an incentive to CBOs, to demonstrate their impact both to health centers referring patients and to potential funders.

Technical Support

Health centers who license with findhelp have access to a dedicated Customer Success Manager, who will handle training & implementation, answer inquiries, resolve issues, drive user adoption, and review progress against target milestones. Findhelp also provides free technical support (training videos, in person, and web-based trainings) for anyone using the platform as well as an online help desk and email support.

Costs

Findhelp is free to patients and CBOs, and offers three paid tiers for other types of organizations - Basic, Professional, and Enterprise. The paid accounts have much higher functionality and are provided at straight forward transparent pricing. Pricing is structured as a monthly fee, and the two highest priced options also require a one-time training & implementation fee. The cost for paid accounts is incredibly reasonable with a price of \$4,167/month (plus \$15K one-time fee) for the highest functionality package (Enterprise).

More at <https://company.findhelp.com/>.

Healthify

Accessibility	Inclusivity of Listings	Referral Loop Closure	Integration
No	Yes	★★★	★★★

Configuration

Healthify is a social determinant of health technology company that helps health plans, health systems and CBOs work together to better serve families with SDOH needs. Its solutions include predictive analytics, accountable networks of CBOs and a comprehensive SDOH platform.

Predictive Analytics: Healthify combines client demographic and claims/utilization data with its aggregated consumer database to build digital profiles at the individual, family and neighborhood levels. These data are then run through Healthify’s SDOH models to identify SDOH risk and impactable costs.

CBO Networks: Healthify includes three types of networks: a national network of validated social service organizations around the country where users can close the loop via text and interactive email to CBOs; an accountable network where users can coordinate referrals with CBOs in real time as CBOs are tied to service level agreements for engagement and accountability; and a preferred network where Healthify identifies and manages a preferred network of services driven by membership need and SDOH analysis. Preferred networks can align with supplemental benefit structures and support financial incentives to CBOs.

Platform: Healthify’s technology platform enables clients (generally some type of Risk Bearing Entity (RBE)) and CBO users to screen for social needs, connect individuals with services, coordinate SDOH care and close the loop on SDOH referrals. A patient/member portal is also available where consumers can self-service search and refer.

Referral Loop Closure

Referrals can be sent from CBO to CBO or from the Healthify client user, member or patient to any listed CBO on the platform. The loop can be closed in a few different ways. For in-network and preferred network CBOs, who are held accountable for closing the loop, all actions and notes regarding the referral are logged and viewable. The system allows for several drop-down options to convey referral status, and custom notes can be added to all actions taken. The platform will automatically update the referral as completed based on the actions of all Healthify client and CBO users. When a CBO refers to another CBO,

both the referring CBO and the original referral source can see all actions and notes. Out-of-network referrals can be closed by a CBO via an email mechanism or the referring user. But the loop is usually closed by asking the patient if they were able to obtain services.

Reporting

In-network and preferred CBOs can extract detailed data detailing incoming/outgoing referral activity and disposition for all referrals into a spreadsheet. They are also sent graphic dashboards with data on issues such as users and incoming/outgoing referral activity. Healthify clients using the platform have access to comprehensive dashboards, reports and extracts on platform use, network performance, screening/search/referral activity and community need insights.

Technical Support

The onboarding process to use the platform for CBOs is free and includes technical assistance, a learning management system, convening sessions and best practice sharing. Extensive onboarding, training and technical assistance is provided to all Healthify clients who pay for access to the platform.

Integration

The Healthify platform supports single sign-on and can be integrated into EMRs, care management systems, HIEs, HMIS and commonly used CBO support systems.

Costs

Healthify charges an annual license fee for the technology platform. The creation and management of an accountable network is priced based on a per member per month fee model. The population health analysis work is a separate one-time fee. Community organizations are not charged.

More at <https://www.healthify.us/>.

Accessibility	Inclusivity of Listings	Referral Loop Closure	Integration
Yes	Yes	★ ★ ★	★ ★ ★

Configuration

NowPow is a woman-owned and led social impact company that makes it easy for care professionals to connect patients to the right community resources so they can stay well, meet basic needs, manage with illness and care for others more effectively. NowPow, whose name is a play on “knowledge is power,” is a personalized community referral platform that includes a hyper local community resource directory; social determinants of health (SDOH) and other needs screenings; evidence-based condition algorithms and matching logic; one-way and closed loop referral capabilities; and data and analytics reporting. The platform is grounded in science and supports all needs, patients and workflows.

NowPow owns and operates a digital resource directory, profiling local community resources such as fresh fruits and vegetables, weight management programs, exercise classes, financial assistance, transportation to medical appointments and over 200 other service types. NowPow can completely manage the directory or partner and exchange information with other established directories, such as 211. NowPow’s resource matching algorithms curate a highly matched, high-quality list of recommended resources that can be shared with a patient (via text, email or print in over 100 languages). Care professionals also have the option to send the patient’s information (with consent) to other health care, human and social service professionals on the NowPow platform.

In addition to providing the leading personalized community referral platform, NowPow offers a community engagement service that manages the identification, recruitment and onboarding efforts of community-based organizations to use the free version of the technology to create meaningful community partnerships aligned with interventions to drive impact and equity.

As the go-to referral platform for clinical research, NowPow is supporting numerous research efforts across multiple geographies and intervention types, including research funded by the American Heart Association, National Institutes of Minority Health/Disparities, National Institutes of Aging, National Heart, Lung, and Blood Institute, Agency for Healthcare Quality Research and National Institutes of Diabetes and Digestive Kidney Disease.

Referral Loop Closure

NowPow's platform goes beyond identifying if a referral's loop was closed. It enables all stakeholders to monitor and track every aspect of the referral — from process tracking to detailed outcomes — to drive and measure engagement, performance and impact. NowPow offers two different types of closed loop referrals. A tracked referral enables a 1:1 relationship between the referral sending and receiving organizations, allowing them to communicate and close the loop. NowPow coordinated referral networks allow for patient information to be viewable by all network partners so that a comprehensive history of services is available for that patient. There are several ways to update the referral (received, application completed, etc.) and customers can customize referral forms and notifications. To further extend care, including during times of crises or in the field, the NowPow platform also gives care teams the ability to quickly connect patients with community resources without using personally identifiable information.

Reporting

The NowPow platform captures outcome data to monitor workflows and measure success, including comprehensive metrics on referrals made, referral service types, referral outcomes, needs identified, user activity and more through a series of standard and custom reports. NowPow can also support ROI evaluations with their team and Raw Data Package, complemented by or a community-wide resource supply and demand scan at both the network and community level.

Technical Support

Customers using NowPow's free and paid tools are provided with comprehensive technical assistance and support throughout the onboarding process and beyond. Organizations on the free technology receive support from a community engagement manager. Paid customers receive support through a customer success account manager to provide 1:1 support throughout the entire partnership, in addition to 24/7 product support, regular webinar-based trainings and referral network monitoring.

Integration

NowPow's tools for care professionals can securely and seamlessly integrate with any EHR, HIE, CRM or case management system. This includes options for single sign-on, as well as bi-directional data sharing for demographic data, screening responses and other activity data — reducing duplication and ensuring up-to-date records. NowPow provides several connection options including HL7 file, FHIR and web service APIs such as Epic's App Orchard.

While NowPow offers an array of tools for care professionals, the technology can also be used in a patient-facing capacity so people can self-serve to find the resources they need and share referrals with others. Via NowPow's APIs, organizations can host resource information on public-facing websites, patient portals and other applications.

Costs

Community-based organizations can access NowPow's free tool, CommRx, for up to 20 users. Organizations such as FQHCs, health systems, provider groups, public health departments and others are well suited for NowPow's paid tools. One-time fees include implementation, integration(s), raw data feed build and screening functionality build. Annual subscription fees are based on the quantity and type of license, as well as ongoing maintenance fees for integrations, resource directory and referral network as applicable.

More at <https://nowpow.com/>.

Unite Us

Accessibility	Inclusivity of Listings	Referral Loop Closure	Integration
Yes	Yes	★ ★ ★	★ ★ ★

Configuration

Since 2013, Unite Us has been the national leader in deploying community-wide coordinated care networks to connect health and social care providers in a common ecosystem. They have identified and addressed unmet social needs by deploying a community engagement process in more than 42 states that are diverse in demographics and geography — rural, urban and frontier. Their coordinated care networks demonstrate that a robust, collaborative and holistic community-wide approach to identifying and addressing unmet social needs not only improves individual health and quality of life, but also improves community health, reduces health care costs and promotes health equity. They have partnered with some of the leading state governments, health care systems, payers and nonprofits in the country.

They have established standards of care for providers across a broad continuum, enabling information standardization and accountability for actual service provision (rather than mere referral facilitation). To maintain and improve quality of care, all partners in a network agree to adhere to established network standards. The result: no dropped referrals and a detailed longitudinal record of care provided to every person in the network. This means providers can better support clients in their communities over time, reviewing service history, obtaining feedback and establishing trust-based relationships grounded in a long-term commitment to improving health and social outcomes. Unite Us is the only SDOH vendor to scale this model and the only one to support visibility across an accountable network of care.

The Unite Us platform features the ability to identify and predict social care needs in communities, manage enrollment of individuals in services and leverage meaningful outcome data and analytics to further drive community investment. Their team leverages a community engagement process that curates an accountable network of engaged community partners to deliver local and accessible care. This infrastructure provides their partners with real-time, actionable metrics on individuals, outcomes and provider performance, enabling their clients to proactively address the complex needs of their most vulnerable populations and prove impact.

Referral Loop Closure

Closing the loop is their fundamental functionality and differentiation. Their solution goes far beyond resource searches and electronic referrals by confirming the specific outcome of every service episode, using a list of more than 700 structured outcomes. More traditional SDOH technologies only allow organizations to send one-off referrals that dead-end with the receiving agency without an outcome ensured. Unite Us' end-to-end solution manages a person's multiple social needs concurrently, through an interconnected multi-dimensional network, while tracking outcomes and maintaining accountability throughout a person's complete care journey. Other technologies use a hub-and-spoke model that can only address one social need at a time, with no visibility or responsibility between partner organizations to ensure all needs are met. Because their community engagement team builds use of the platform into the workflows of CBOs, public agencies and clinical providers, Unite Us enables visibility into actual care delivery. The result is a completely closed-loop ecosystem. An organization that sends a referral is capable of viewing outcomes and notes from the direct receiving organization and can also track aspects of that patient's care journey across other organizations that provided services to the patient. As a result, a holistic team of human, social and clinical services providers can coordinate and communicate with one another in real time, using a common, universal record of care. They enable closed-loop referrals through a unique combination of technologies and privacy policies:

- The platform is a multi-tenant, single instance, software as a service (SAAS) platform. This means there is only one instance of the solution, hosted in the cloud, rather than individually installed versions of the software at client sites. All users, regardless of their organization or location, can collaborate on a person's care without concerns about data currency or software version.
- The Master Person Index technology solution ensures only one record for an individual, regardless of where they seek service, enabling the platform to avoid duplicate records. Sending and receiving organizations can have confidence that they are seeing a complete, longitudinal record for the person being served.
- The robust informed consent requires any person seeking services to sign an informed consent prior to the first referral being made on their behalf. The consent form links to a publicly available privacy policy and outlines how their information may be shared to connect them with the services they need.

Privacy and Security

Privacy and security are emphasized in every aspect across their organization. Unite Us is HITRUST, NIST and SOC 2 Type II certified and follows the highest security frameworks in the industry. Unite Us is also fully HIPAA compliant and aligns with the strictest federal privacy regulations, including 42 CFR Part 2 and FERPA. Access to the Unite Us Platform is role and permission based. This structure is the backbone of their HIPAA-compliant and HITRUST-certified architecture. Users can only view information about clients

to whom they are providing services, aligning with the NIST standard of least privilege. Unite Us conducts continuous vulnerability monitoring of its platform with proactive alerts if anomalies are identified and engages third-party auditors to conduct targeted penetration testing and security risk assessments.

Data and Analytics

The Unite Us Insights Center is their data platform that provides access to robust, real-time social care analytics to equip cross-sector network partners to match, prove and improve performance standards. The Insights Center is your one-stop-shop to understanding the power and activity of coordinated care networks to optimize service delivery for better health outcomes. In the Unite Us Insights Center, providers can:

- Identify areas of need in their community to strategize a scalable path towards action and proactively inform individual care management to drive positive outcomes, using their Identify data solution.
- Understand performance, efficiency and efficacy of their network and the services delivered across their community, patients, clients, using their Activity data solution.
- Track the impact of their investments in the community at the client and services level, using their Invest data solution.
- Access detailed client-level data to enrich data needs through their Data Delivery solution.

Training and Technical Support

The User Education Team offers dedicated end-user training during implementation and regularly occurring training post-launch. Upon go-live, the Unite Us User Education Team will provide an in-person or live webinar software training to users, depending on preference. In addition to live training, Unite Us provides online E-Learning modules, New User Training Guides and a library of articles in the in-app Help Center. The community engagement manager will consult one on one with network organizations and for users who need support integrating the system into their existing workflows. The Technical Support Team is available via phone, email and real-time live chat within the software to any license holder for general software questions as well as problem resolution.

Interoperability

Unite Us interoperability is a suite of interfaces and integration tools that connects health and social care systems or applications and empowers communities with seamless connectivity. Unite Us is a member of the Gravity Project, an HL7 FHIR© accelerator, a member of the HIMSS SDOH Task Force and a technology

partner to communities in over 42 states. They support standards-based single sign-on into the Unite Us platform. They also support resource directory exchange. Unite Us is working with several major vendors in the EMR and social care industries on more integrated bi-directional referrals. The bi-directional referrals work is based on the HL7 FHIR SDOH Clinical Care Implementation Guide being designed in collaboration with the Gravity Project. Bi-directional referrals are still new between the health and social care industries. But Unite Us is committed to providing open APIs based on standards such as HL7 FHIR. Unite Us is a strong supporter of standards-based, person-centric interoperability. They invite industry stakeholders — vendors, community-based organizations, health care organizations, payers, HIEs, governments and more — to join in promoting of guiding principles, trusted networks and data standards to better facilitate care across the health and social care continuum. They closely partner with community-based organizations, social service agencies, health providers, health plans, state governments, philanthropic entities and HIEs to create networks that enable secure electronic referrals, social care analytics and payments.

Costs

Unite Us offers their solution at no cost for CBOs, primarily providing social services and Federally Qualified Health Centers. For other organizations, such as health systems, health plans and government entities, they pay to gain access to the platform and the associated coordinated network and insights.

Other Considerations

In addition to facilitating social care referrals, the Unite Us Payments solution enables social care funding at scale through funds distribution, invoice management and reimbursement for social services. This technology is coupled with on-the-ground services, which provide the robust support required to build and manage the performance of a quality and accountable network of health and social service providers. Unite Us Payments is natively integrated with their core referral functionality to enable payers to fund social care services at scale. This flexible, cross-sector system enables all referral, service and payment activities to happen seamlessly in one system. This allows payers to use eligibility, authorization and referrals services to send referrals for eligible members and allows social care providers to document services provided, attachments of receipts and other relevant information necessary to be paid for services rendered. This generates detailed data and reporting that can be used to examine the return on investment from social care. Payers and funders of health use Unite Us Payments to work directly with organizations in the community to build a long-term pathway to value-based social care.

More at <https://uniteus.com/>.

Summary Review

	Accessibility	Inclusivity of Listings	Referral Loop Closure	Integration
Aunt Bertha	Yes	Yes	★ ★ ★	★ ★ ★
Healthify	No	Yes	★ ★ ★	★ ★ ★
NowPow	Yes	Yes	★ ★ ★	★ ★ ★
Unite Us	No	Yes	★ ★ ★	★ ★ ★

SOURCE NOTE: THE ORIGINAL REVIEW OF THESE PLATFORMS WAS DEVELOPED BY THE USC GEHR FAMILY CENTER FOR HEALTH SYSTEMS SCIENCE AND INNOVATION AND WAS SUPPORTED BY A PARTNERSHIP WITH THE LOS ANGELES COUNTY DEPARTMENT OF PUBLIC HEALTH AND WITH FUNDING FROM THE CENTERS FOR DISEASE CONTROL AND PREVENTION [NU58DP006619]. THE INFORMATION WAS UPDATED IN JULY 2021 BY THE AMERICAN HEART ASSOCIATION AND CONFIRMED BY THE PLATFORM PROVIDERS FOR USE IN THE U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES (DHHS) NATIONAL HYPERTENSION CONTROL INITIATIVE (NHCI).

References

- (1) Viriani, SS et al., Heart disease and stroke statistics – 2021 Update: A report from the American Heart Association. *Circulation*. 2021;143:e00–e00. DOI: 10.1161/CIR.0000000000000950
- (1) Hales CM, Carroll MD, Fryar CD, Ogden CL. Prevalence of obesity and severe obesity among adults: United States, 2017–2018. *NCHS Data Brief*, no 360. Hyattsville, MD: National Center for Health Statistics. 2020.
- (2) Heart Disease and American Indians/Alaska Natives, U.S. Department of Health and Human Services Office of Minority Health. <https://www.minorityhealth.hhs.gov/omh/browse.aspx?lvl=4&lvlid=34>, accessed 7/5/2021.
- (3) Whelton, PK, Carey, RM, Aronow, WS, Casey, DE, Collins, KJ, Dennison-Himmelfarb, C, DePalma, SM, Gidding, S, Jamerson, KA, Jones, DW, MacLaughlin, EJ, Muntner, P, Ovbigele, B, Smith, SC, Spencer, CC, Stafford, RS, Taler, SJ, Thomas, RJ, Williams, KA, Williamson, JD, and Wright, Jr, JT. 2017 ACC/AHA/AAPA/ABC/ACPM/AGS/APhA/ASH/ASPC/NMA/PCNA Guideline for the Prevention, Detection, Evaluation, and Management of High Blood Pressure in Adults: A Report of the American College of Cardiology/ American Heart Association Task Force on Clinical Practice Guidelines
- (4) Shimbo D, Artinian NT, Basile JN, Krakoff LR, Margolis KL, Rakotz MK, Wozniak G; on behalf of the American Heart Association and the American Medical Association. Self-measured blood pressure monitoring at home: a joint policy statement from the American Heart Association and American Medical Association. *Circulation*. 2020;142:e42–e63. doi: 10.1161/CIR.0000000000000803.
- (5) Precedence Research Report “Digital Health Market Size to Garner Around US\$ 551.1 Bn by 2027,” June 30, 2021. <https://www.precedenceresearch.com/digital-health-market>. Accessed 8/24/2021.

Disclosures and Disclaimers

This landscape analysis is not intended to be an exhaustive, all-inclusive list of digital health platform providers. No platform providers were intentionally omitted from this landscape analysis. We welcome companies and platform providers not included in this analysis to submit their capabilities for future updates to the landscape.

For additional information about the SMBP Initiative or the landscape analysis, please email the NHCI Team at nhci@heart.org.

Platform providers were not compensated for participating in the landscape analysis.

Information presented in this analysis was accurate at the time of initial publication. But the digital health landscape is changing rapidly. Individual elements may not be accurate later. Please exercise due diligence in confirming all data in this landscape that's used to select a provider platform(s). The American Heart Association, the Center for Health Technology & Innovation and the authors are not responsible for any additions, deletions or other changes to the information provided by the 20 respondent platforms at the time this landscape survey was conducted.