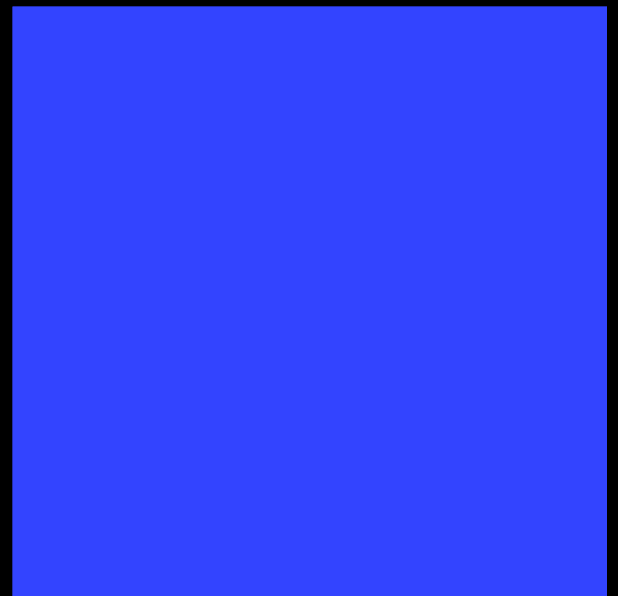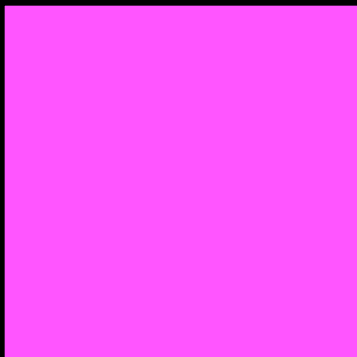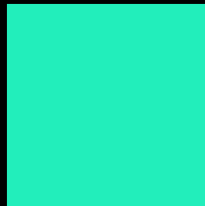# RPM Market Landscape Report

Written by Healthcare Strategy Bullpen
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Executive Summary

1. Remote Patient Monitoring (RPM) has emerged as a transformative health-care delivery method that employs medical-grade technology to monitor patient health outside traditional clinical settings. RPM involves the use of devices such as continuous glucose monitors, heart rate monitors, and blood pressure cuffs to electronically collect and interpret physiological data transmitted between patients and physicians. The global market for RPM technology is large and is estimated to grow from $8.6B in 2023 to $78.4B in 2032, according to Market.us. This translates to a market growing at a CAGR of almost 30% between 2023 and 2032.

2. The market's growth is driven by the desire of patients to age at home, cost-effectiveness for providers and payers, a need to effectively address chronic disease, and the need to address workforce shortages in health-care (a predicted 50K-120K shortage of primary care clinicians by 2030). Market growth is being driven by advancements in technology (ex: I-o-T, 5G and cloud) as well as improved reimbursement thereby enabling the shift in care out of facilities and into the home.

3. While RPM can be deployed for a number of disease states, RPM has shown to be more effective in monitoring and intervention for congestive heart failure, hypertension and diabetes. However, RPM deploying wireless scales for CHF and spirometry for COPD have shown to be less effective for monitoring and intervention. For example, in a 2021 study of RPM for CHF patients, the effects of using implantable cardiac devices led to 28% less cardiac-related emergency room visits, 19% less cardiac hospitalizations, and 51% shorter total length of stay for hospitalized patients. On the other hand, one study found spirometers, although a well-established COPD diagnostic method, ranked low in forecasting ability and when spirometry was conducted in outpatient settings or unaided by a health care profes-sional, can often yield inaccurate results due to technical factors.

4. Use of a dedicated, centralized nursing staff is the key to successful deployment of an RPM program. These nursing teams are used for patient education, health coaching, the monitoring, triage and escalation of system alerts. Creating clearly defined clinical protocols for the triage and escalation of alerts is essential in reducing the impact of "alert fatigue" on providers. In addition, alerting systems need to be customizable at the program and patient level.This will enable care teams to monitor patients based on an individual's needs and plan of care.

5. Given that cellular RPM devices are easier for patients who might not be comfortable with hi-tech gadgets because they are essentially ready to use out of the box when combined with technological advances of 5G and fixed wireless, tipping the scales in favor of cellular as the preferred connection method for RPM devices. With its promise of lightning-fast data exchange and minimal latency, 5G has the potential to revolutionize medical practices, enhance patient care, and drive innovation in the field. 5G also has significant implications for addressing rural health since patients in remote or underserved areas benefit significantly from 5G-enabled telemedicine given access to expert medical advice reduces the need for extensive travel and physical consultations.

6. It is cloud technology that empowers RPM. Cloud-based technologies can provide access to sophisticated large-scale technological infrastructures and advanced analytics services with the scope to rapidly scale up to meet peaks of demand. In addition they can provide enhanced data storage and accessibility, fostering seamless collaboration among healthcare professionals. They also facilitate secure and compliant storage of extensive patient data, promoting interoperability and integration across diverse healthcare systems. This is the very type of collaboration across organizations, geographies, sites of care and providers required for RPM to work and that empowers RPM.
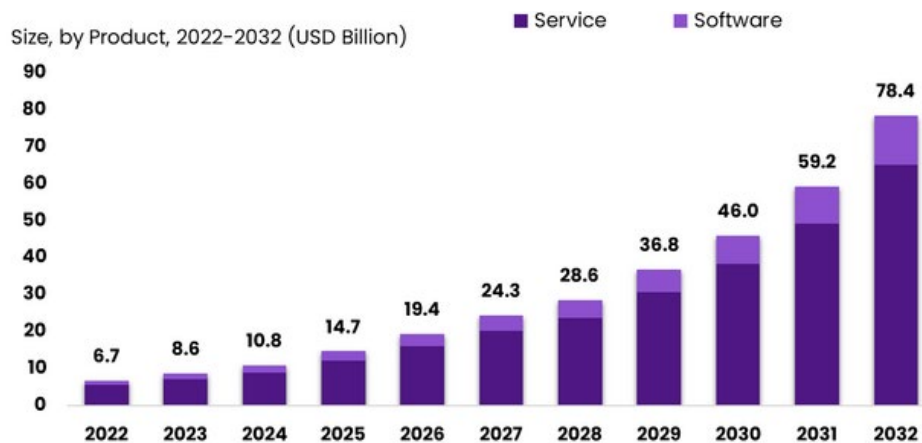
Remote Patient Monitoring

Remote patient monitoring (RPM) is a healthcare delivery method that uses medical-grade technology to monitor patient health outside of a traditional clinical setting. RPM refers to the specific technology used to electronically collect and interpret physiological data transmitted between patients and physicians. Typical remote patient monitoring devices include continuous glucose monitors (CGM), heart rate monitors, blood pressure cuffs, digital scales, peak flow meters, etc. RPM platforms are typically integrated systems that do monitoring, alerting, messaging and communication. Medical grade devices (vs. consumer health and wellness apps) require approval from FDA

via the 510(k) process. Ratio of patients/case managers (CM) varies by type of care, generally from approximately 30-40/CM for transitional care (post hospital discharge) to 100-400/CM for disease focused care programs.

RPM devices have a number of common applications, which typically include vital sign monitoring, sensors and RPM software. RPM tools such as blood pressure cuffs, pulse oximeters and scales have long been used for RPM and have more recently been connected via Bluetooth or cellular to automatically transfer patient data back to clinicians. In addition, with advancements in technology that have made sensors and semiconductors smaller and cheaper, additional sensing devices have been developed and incorporated in new and different ways (including into fabrics, bedding and other common household items). Over the last several years, with advancements in data science and machine learning algorithms, artificial intelligence (AI) has been incorporated into RPM devices and technologies that can process patient data and create predictive analytics to help indicate which patients may need more significant intervention or are at a greater risk of worsening disease.

Figure 1: Global Remote Patient Monitoring Software and Service Market

Size, by Product, 2022-2032 (USD Billion) ■ Service ■ Software

Year	Value
2022	6.7
2023	8.6
2024	10.8
2025	14.7
2026	19.4
2027	24.3
2028	28.6
2029	36.8
2030	46.0
2031	59.2
2032	78.4

Market Size

The global market for RPM technology is large and growing and was estimated to grow from $8.6B in 2023 to $78.4B in 2032, according to Market.us, growing at a CAGR of 28.7% during the forecast period from 2023 to 2032. Per Market.us, the U.S. is expected to have the dominant share of the market at approximately 54% of revenues. While the RPM market was already projected to be a growth area for acute care providers as they looked to move care out of expensive, fixed high-cost facilities prior to the pandemic, providers ability to successfully deploy RPM and patients' satisfaction with RPM during

the Pandemic only accelerated the pace of adoption. According to the report, providers are expected to be the dominant end-users, comprising just under half of the market (46.4%), followed by patients and payers.[1] RPM platforms include integrated systems that are capable of monitoring, alerting, messaging, and communication. The potential Total Addressable Market (TAM) chronic conditions include hypertension, CHF, diabetes, and COPD. The market is getting more crowded, with currently over 3,000 competitors and growing. For example, As recently as January of 2024, a company called CardioSignal raised $10M to provide early detection of heart diseases without any specialized medical equipment.[2] With so many competitors in the field of RPM, there exists no clear market leader.

The impact of COVID-19 on the world has been unprecedented, and remote patient monitoring devices have seen a surge in demand across all regions during the pandemic. Although the levels may come down from their peak during COVID, the demand may remain above pre-pandemic levels. Remote patient monitoring involves the use of digital technologies by healthcare professionals to capture and monitor patient health data to provide top-notch care and consultation. Due to the increasing prevalence of chronic diseases, such as cardiovascular, diabetes, and respiratory diseases, there is a growing need for continuous monitoring of vital signs. For instance, according to the World Health Organization (WHO), there are approximately 1.3 billion patients with hypertension globally.[3] By monitoring patients remotely, healthcare professionals can obtain real-time patient data for illnesses such as COPD, cancer, or diabetes, resulting in timely management of these diseases. The use of next-generation sensor technologies has also had a significant impact on healthcare systems by reducing the distance between the patient and healthcare provider. As a result, there is a need for technologically advanced products, which has led to the development and launch of new devices. For example, in January 2020, BioIntelliSense Inc. received U.S. FDA clearance for a BioSticker on-body sensor designed for continuous monitoring of vital signs.[4] Additionally, improvements in regulations and reimbursement policies around the world are expected to drive the sales of remote patient monitoring devices during the aforementioned forecast period. For instance, in January 2021, the Centers for Medicare and Medicaid Services announced changes to the 2021 Physician Fee Schedule with a focus on providing reimbursement for remote patient monitoring programs.[5] Therefore, with potential product launches, increased adoption of devices, and adequate reimbursement policies, we can expect the remote patient monitoring devices market to grow during the forecast duration.

Figure 2: Global Remote Patient Monitoring Devices Market Share, By Application, 2020.[6]

Cardiovascular diseases
47%

- Oncology
- Diabetes
- Cardiovascular diseases
- Others

Cardiovascular disease dominated the RPM global market in 2020 at 47.0% of the total market share followed by diabetes, other diseases, and then oncology.

Figure 3: Prevalence of Chronic Conditions - Medicare FFS 2018.[7]
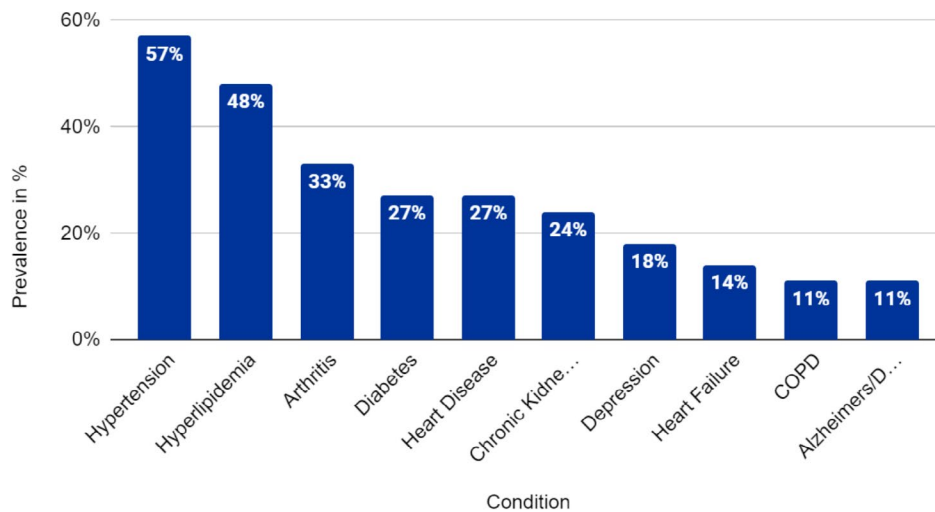
The graph displays 10 chronic conditions in order of prevalence among Medicare Fee-For-Service (FFS) beneficiaries. Hypertension tops the chart with a prevalence of 57% amongst Medicare FFS beneficiaries, followed by significant chronic conditions such as hyperlipidemia, arthritis, diabetes, heart disease, and chronic kidney. Other chronic conditions like depression, heart failure, chronic obstructive pulmonary disease (COPD), and Alzheimer's disease/dementia accounted for less than 20% each.

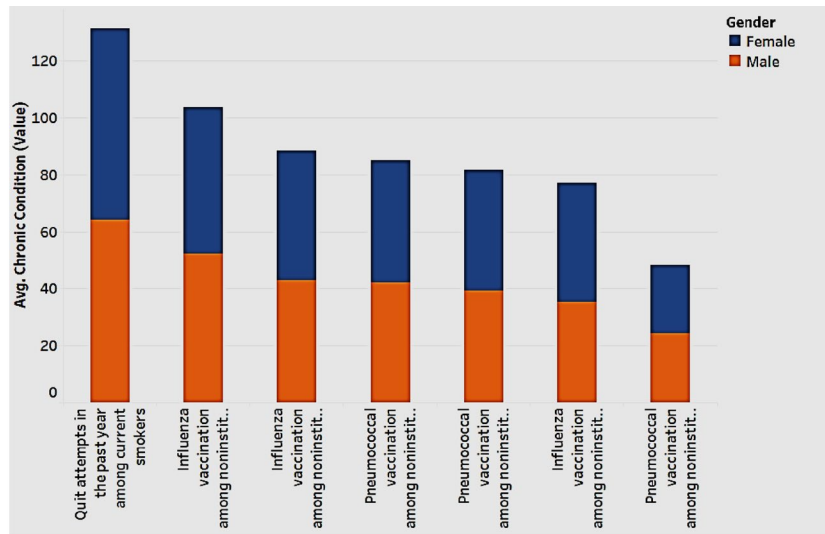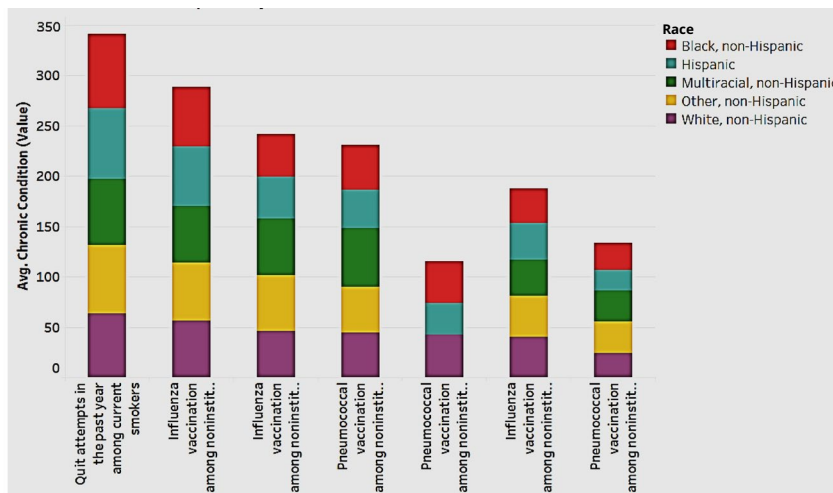## Figure 4: Preventive Health Compared by Gender[8]

Figure 5: Preventive Health Compared by Race[8]

These two figures depict preventive health measures such as quitting smoking, receiving influenza vaccination, and receiving pneumococcal vaccination amongst noninstitutionalized adults aged 18-64 years with chronic conditions like heart disease, asthma, and diabetes. It appears that both men and women appear to engage in preventive health, though women have the edge. Considering race, Black and Hispanic patients engage less in preventive health overall. These are important considerations as different levels of preventive health engagement may also lead to different costs associated with chronic conditions across patient demographics.

Figure 6: Chronic Conditions in U.S. by Total Cost.[9]
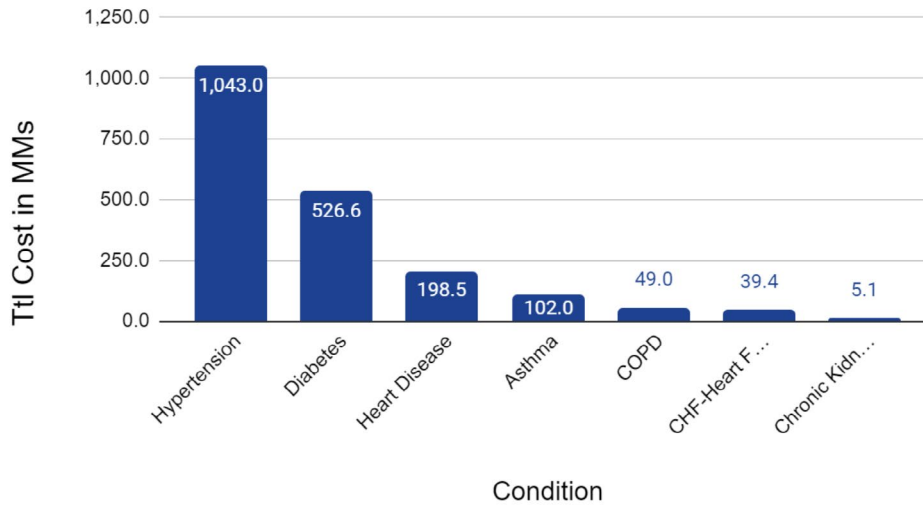
From highest total cost per patient to lowest total cost per patient:

1. **Hypertension** ($1,043) – More than 122 million people have hypertension (high blood pressure, >=140/90). Hypertension can be due to many reasons – dysfunction of the blood vessel walls, genetic factors, or due to other diseases like thyroid problems and adrenal gland tumors. If hypertension is not treated, it can lead to serious complications: chronic kidney disease (CKD), congestive heart failure (CHF), coronary artery disease (CAD), stroke, heart attacks, and more. Hypertension can be managed with lifestyle changes and/or medication. The use of RPM in hypertension includes assessment of blood pressure readings at home which are transmitted to clinicians.

2. **Diabetes** ($526.6) – More than 38 million people have diabetes. Diabetes results in high levels of sugar in your blood and can be due to lack of insulin production (type 1 diabetes), or more commonly insulin resistance (type 2 diabetes). Insulin helps redirect sugar from our blood into our body's cells; so, without insulin, an excessive amount of sugar stays in our bloodstream which can cause damage to multiple organs. Uncontrolled diabetes can result in eye problems, heart attacks, strokes, kidney damage, nerve damage, and blood vessel damage. Diabetes can be managed with lifestyle changes and/or medication. The use of RPM in diabetes includes real-time remote monitoring of the amount of sugar in the patient's blood – a surrogate of how well controlled the patient's diabetes is.

3. **Heart Disease**: ($198.5) – Heart disease is the leading cause of death in the United States. About 700,000 Americans die every year from heart disease. Coronary artery disease, plaque buildup in the wall of the arteries

that supply the heart, is the most common type of heart disease and kills almost 400,000 people a year. Heart disease can be managed with lifestyle changes, medication, and/or medical procedures. Heart disease and its complications can be monitored with RPM devices for blood pressure or implanted cardiac devices.

4. **Asthma** ($102.0) – More than 27 million people have asthma. Asthma is the result of a "hypersensitive" airway, leading to inflammation, narrowing, swelling, and sometimes difficulty breathing. Severe asthma exacerbations may require hospitalization, oxygen supplementation, a breathing tube, and medications. For the most part, asthma can be managed with medications delivered through an inhaler and/or oral medications. The use of RPM for the management of asthma can include home spirometry – a mouthpiece device that patients blow into to measure lung function.

5. **COPD** ($49.0) – Chronic Obstructive Pulmonary Disease (COPD) affects nearly 16 million adults. COPD, most common in smokers, is due to airflow obstruction in the lungs and an abnormal inflammatory response in the lungs. This can lead to a cough, difficulty breathing, mucus production, and wheezing. Severe COPD exacerbations may require hospitalization, oxygen supplementation, ventilatory support, and medications. COPD treatment can include smoking cessation, medications, supplementary oxygen, and more. The use of RPM for the management of COPD can include home spirometry – a mouthpiece device that patients blow into to measure lung function.

6. **Congestive Heart Failure** ($39.4) – Congestive Heart Failure (CHF) affects nearly 6.5 million adults. CHF is a condition in which the heart doesn't pump blood or fill with blood effectively. The severity of CHF can be assessed through the patient's symptoms and the ejection fraction, a measurement of the percentage of blood leaving your heart each time it beats. Doctors will consider placing an implantable cardioverter defibrillator (ICD) if a patient with heart failure has an ejection fraction below 35%. CHF can be the result of lifestyle factors like alcohol use and tobacco, chemotherapy medications, uncontrolled hypertension, genetic disease, coronary artery disease, abnormal heart rhythm, and more. CHF can result in difficulty breathing, limb swelling, fatigue, and cough. CHF exacerbations may require hospitalization, medications, supplemental oxygen, medical procedures, and more. CHF can usually be managed with lifestyle changes and medications but may require the use of heart devices. RPM devices like weight monitoring devices may be used to predict heart failure exacerbations. RPM-enabled implantable cardiac devices like ICDs have also been shown to decrease emergency room visits, hospitalization length, and mortality amongst patients with CHF.

7. **Chronic Kidney Disease** ($5.1) – Chronic kidney disease (CKD) affects nearly 35.5 million people. CKD is the gradual loss of kidney function over time which can be due to diabetes, hypertension, heart disease, genetic diseases, and more. Without proper function of the kidneys, the body is unable to excrete toxic wastes, filter the blood, and manage the body's electrolyte levels. This can result in nausea, vomiting, loss of appetite, fatigue, weakness, shortness of breath, and limb swelling. Medications and lifestyle changes can be used to help manage CKD, but patients suffering from severe CKD may require filtering of the blood with a machine (dialysis) or a transplant. RPM devices like weight monitoring devices may be used to predict kidney function because CKD patient's kidneys aren't working to remove excess fluid like healthy kidneys should.

Growth Drivers

First and foremost, the market growth of RPM has been driven by patients' desire to age at home as seniors overwhelmingly do not want to be institutionalized, a sentiment that was heightened during COVID. In addition, given the cost-effectiveness of deployment, RPM fits nicely into providers and payers' needs to cut healthcare costs by providing more efficient and effective care to patients right in their own homes. The desire to move care back into the home is also a reflection of the unsustainability of institutionalizing senior care from a cost perspective, especially as the number of older adults is projected to increase almost 70% between 2020 and 2060.[10] In addition to all the above factors, another driving factor is the need to find a more effective mechanism to reach and treat patients with chronic conditions. Patients with chronic conditions comprise approximately 6 out of 10 patients today and make up 4 of the top 7 reasons behind inpatient hospital stays.[11] RPM is increasingly viewed as a solution to help close the supply-demand gap in primary care clinicians, with an estimated shortage of approximately 38,000 to 124,000 physicians by 2034.[12] It is also important to note that workforce shortages extend beyond physicians; there will also be a shortage of nurses, allied health professionals, and home caregivers. For example, according to the U.S. Bureau of Labor Statistics, the number of job openings for home health and personal care will increase nearly 37% by 2028. Meanwhile, overall nursing positions are expected to grow from 3.08M to 3.36M, with 1M nurses expected to retire by 2030.[13]

As previously mentioned, a major driver of RPM growth is seniors' desire to age in place, magnified by the impact of COVID on senior living facilities. Surveys consistently show seniors overwhelmingly do not want to be institutionalized in old age. The disproportionate impact of COVID on seniors in facilities further supported this preference amongst seniors and caregivers. RPM may also result in reduced healthcare costs as RPM allows physicians and care teams

to get real-time insights into a patient's status, allowing for early intervention, preventing avoidable hospitalizations, and preventing costly trips to the emergency department.

In terms of demographics, between 2020 and 2060 the number of older adults is projected to increase by 69 percent, from 56.0 million to 94.7 million.[14] This is a result of three major forces:

1. prior to the 1960's Americans were having larger families, with the U.S. seeing a significantly higher fertility rate (3.5 births/woman vs. 1.7 in the 1970's)

2. increased average life expectancy

3. a decline in immigration, limiting the number of young adults of reproductive age who are moving to the United States and starting families.

There is also an increase in patients with chronic conditions. In fact, 4 of the top 7 reasons for inpatient stays are generally chronic and treatable. This problem is further exacerbated by a shortage of clinicians in primary care. It is estimated that the shortage of primary care doctors will be approximately 50K-120K by 2030.[15] In addition, approximately 90% of providers report having already invested in or are evaluating RPM devices to implement in their current practice.[16]

Approved Devices for RPM Services

RPM devices have a number of common applications, which typically include vital sign monitoring, sensors, and RPM software. Traditional RPM tools such as blood pressure cuffs, pulse oximeters, and scales have long been used for RPM and have more recently adopted Bluetooth or cellular technology to automatically transfer patient data to clinicians. In addition, with advancements in technology that have made sensors and semiconductors smaller and cheaper, additional sensing devices have been developed and incorporated in new and different ways (including into fabrics, bedding and other common household items). Over the last several years, with advancements in data science and machine learning algorithms, artificial intelligence (AI) has been incorporated into RPM devices. RPM devices utilizing AI can process patient data and create predictive analytics to help identify which patients may require more significant intervention or are at a greater risk of worsening of disease.

Any device used must meet the FDA's definition of a "medical device" RPM device must digitally (i.e, automatically) upload patient physiologic data (i.e., data cannot be self-recorded or self-reported by the patient). Devices must transmit valid physiologic data that is reasonable and necessary to diagnose or treat and, allow understanding of the patient's health status to develop and manage a plan of treatment.

Types of Devices

- **Blood pressure monitors**. For ongoing virtual monitoring and treatment of hypertension/high blood pressure. Patients with hypertension, or high blood pressure, require regular monitoring of their blood pressure. Blood pressure monitoring is important because an elevation in blood pressure may require starting new medications or increasing medication dosage. Meanwhile, a drop in blood pressure may require decreasing medication dosage or discontinuing medications. With over 122 million Americans living with hypertension and related health care costs exceeding $131-198 billion each year[17], blood pressure monitoring devices have a huge market and can significantly reduce healthcare expenditure in the United States by decreasing the incidence of serious complications. Further-more, home blood pressure readings may help differentiate between "white-coat hypertension" (high blood pressure readings at the doctor's office due to anxiety and stress) or "masked hypertension" (normal blood pressure readings at the doctor's office despite high blood pressure readings at home). Patients may benefit from seeing objective blood pressure readings at home which can result in increased adherence to medication and office follow-up. The clinical trial, "Is remote blood pressure monitoring and management a better approach for patients with hypertension? A narrative review" published in the Journal of Clinical Hypertension found that "remote blood-pressure monitoring can improve the self-management ability and quality of life of hypertensive patients, reducing treatment and care costs. Such a system is especially suitable for patient groups where outpatient follow-up is difficult or where follow-up awareness is less and treatment compliance is poor."[18]

- **Bluetooth/wireless scales (weight measurement devices)**. To monitor ongoing fluctuation in weight and diet (diabetes, stroke, cardiac) and sudden weight gain CHF Glucose monitoring (CGM) is used. Weight measurement devices are important as fluid retention in diseases like CHF and CKD may lead to weight gain, a signal of impending exacerba-tion. 6.5 million adults live with CHF and 35.5 million adults live with CKD which represents a significant market size. CHF and CKD costs $39.2-60 billion[19] and $100 billion[20] respectively every year. The average CHF exacer-bation costs $13,418 to treat per patient[21]. The monitoring of daily weight changes in patients with heart failure is controversial. The 2016 clinical trial, "Effectiveness of remote patient monitoring after discharge of hospi-talized patients with heart failure: the better effectiveness after transition – heart failure (BEAT-HF) randomized clinical trial," published in the Journal of the American Medical Association studied the use of telemonitoring in patients discharged after a heart failure hospitalization through elec-tronic equipment collecting information on vital signs including weight. Ultimately, the trial did not find any benefit of telemonitoring in reducing 180-day readmissions. The authors postulate that physiologic signals of

changes in daily weights may not provide adequate warning of impending decompensation in heart failure and that weight may not be a reliable signal.[22] Another 2010 clinical trial, "Telemonitoring in patients with heart failure," published in the New England Journal of Medicine found similar results. The authors found that telemonitoring of daily weight and symptoms of patients recently hospitalized for heart failure did not improve outcomes.[23]

- **Blood glucose monitoring** is one of the most traditional and effective remote patient monitoring applications. Clinicians use the data captured by a remote blood glucose monitoring device to detect potentially harmful changes in glucose levels and immediately recommend changes (ex: medications, diet, and exercise). With over 38 million Americans living with Diabetes in the United States, blood glucose monitoring has the potential to save lives. Patients with type 2 diabetes can have extremely high blood glucose levels, >600, which is referred to as hyperosmolar hyperglycemic nonketotic syndrome. Blood glucose monitoring devices can alert patients as their blood sugar level rises, avoiding costly emergency room visits, hospitalizations, and health complications.

  In the trial, "Remote Application and Use of Real-Time Continuous Glucose Monitoring by Adults with Type 2 Diabetes in a Virtual Diabetes Clinic," the authors found that the use of a real-time continuous glucose monitoring had multiple benefits. 97% of patients reported improved understanding of the impact of eating, 95.7% of patients reported increased diabetes knowledge, 79.4% reported improved diabetes control when not wearing the sensor, and HbA1c (measure of average blood sugar levels over the past 3 months) of 372 patients significantly decreased from an average of 7.7% to 7.1%.[24]

- **Spirometer**. Measures lung function for pulmonary testing. Used in diagnosis of lung diseases and monitoring asthma and chronic obstructive pulmonary disease (COPD). Allows clinicians to assess whether treatments/medications are helping patients manage breathing issues. The use of spirometers as an RPM has the potential to revolutionize care for 27 million patients with asthma and 16 million patients with COPD. The indirect and direct costs of asthma and COPD are estimated to be $50 billion for each condition annually.[25,26] Asthma and COPD exacerbations result in costly emergency room visits, hospitalization, medication use, and medical procedures. In a 2022 study, "Clinically Meaningful Data from Remote Spirometry Monitoring in Asthma Management in a US-Based Observational Study" published in the journal CHEST found promising results for the use of home spirometry measurements among patients with asthma. The trial found that the use of home spirometry provided clinically meaningful information to clinicians allowing for further action to be taken by the physicians for patients with concerning test values.[27]

However, a 2020 review article, "Remote Patient Monitoring Technologies for Predicting Chronic Obstructive Pulmonary Disease Exacerbations: Review and Comparison," published in JMIR Mhealth Uhealth found that spirometers, although a well-established COPD diagnostic method, ranked low in forecasting ability. In addition, the study highlighted the challenges of utilizing home spirometry which include inaccurate measurements due to technical factors, less robust premarket testing, and cost barriers.[28] Despite these limitations, spirometry can still be beneficial for patients with other medical conditions. For example, a 2023 paper, "Design and implementation of a digital health home spirometry intervention for remote monitoring of lung transplant function," found that the use of home spirometry to monitor for complications of lung transplantation resulted in reliable assessments of lung function which may detect early complications of lung transplants.[29]

- **Cardiac Devices**. Implantable RPM devices for heart failure and abnormal heart rhythms are demonstrating positive health benefits for patients. The results of a 2014 clinical trial published in Lancet studied the use of implantable cardioverter defibrillators (ICD) with telemonitoring capability for CHF patients. Researchers showed that the group receiving daily telemonitoring demonstrated 10% improvement in clinical outcomes and had 17 less deaths out of 333.[30] Thus, the use of RPM for CHF patients with ICDs is a promising realm. A more recent 2022 clinical trial published in Europace found that daily ICD tele-monitoring can significantly improve outcomes in patients with CHF and decrease the amount of clinic visits.[31] Another 2021 study of RPM for CHF patients analyzed the effects of using either the CardioMEMS™ HF System (a pulmonary artery pressure (PAP) monitor) or HeartLogic™ HF Diagnostic (a multisensor cardiac implantable electronic device.) RPM-implementation with these devices led to 28% less cardiac-related emergency room visits, 19% less cardiac hospitalizations, and 51% shorter total length of stay for hospitalized patients.[32] More recently, in June of 2023, the Journal of the American College of Cardiology (JACC) published a scientific statement entitled, "Remote Monitoring for Heart Failure Management at Home: JACC Scientific Statement." In this statement, they outlined the many RPM devices in use for heart failure and summarized the results of multiple major trials. Ultimately, the JACC found that early telemonitoring of weights and symptoms did not decrease heart failure hospitalization, but tracking of cardiac filling pressures or lung water content has instead shown the most benefit thus far The statement noted "In early post approval use of the implantable PA pressure monitor, 2,000 Medicare patients showed average mean PA pressure reduction of 3mm during 6 months and 60% fewer HFHs than previously. Similar results were seen in Europe and the FDA-specified post approval study of 1,200 patients. Reductions of PA pressures, HFH, and all-cause hospitalizations were sustained during the 2 years of follow-up."[33]

- **Wearables (biomarker measurement)** Used for real-time continuous measurement of brain waves, cardiac, skin, motion, etc. Combining discrete measurements can improve accuracy and predictive capacity. Emerging opportunities for wearable devices to improve patient health include AI-based gait analyzers, and sentiment analysis for fall prevention and early signs of deterioration. The use of wearables is an evolving frontier in RPM which lends itself to a couple of challenges: motion artifacts and noise induced by user-movement, privacy and security, battery lifetime and power consumption, and affordability. Wearables utilizing smartphones represents an opportunity to enable a more interconnected and responsive health ecosystem that can allow for real-time delivery of health metrics and insights. In patients with Parkinson's disease, which can induce irregular walking patterns leading to falls, smartphone-based movement sensors can enable the detection of (subtle) gait deficits to track disease progression or treatment response.[34] Other emerging capabilities for wearables (aside from vital signs like body temperature and oxygen saturation level, or electrocardiogram) include wearables for sleep monitoring in patients with sleep disorders or wearables with electroencephalogram (EEG) capability to non-invasively monitor brain signals for patients with neurologic conditions including seizures.[35]

Until more recently, RPM referred to services and devices that use "medical-grade" technology to monitor patient health outside of a traditional clinical setting. However, with the development of "consumer grade" wearables in the last several years, many people would often conflate the two. However, as noted by Alliance of Advanced Biomedical Engineering, "it is increasingly important to distinguish consumer-grade from clinical [medical-grade] wearables, the latter of which are really starting to show their potential. Industry experts believe that healthcare wearable technologies are approaching a tipping point that will elevate the focus from fitness or activity tracking devices to clinically vetted devices with intelligence solutions for meaningful health use cases."[36] Importantly, while consumer grade wearables like the Fitbit or iWatch have gained a lot of notoriety recently, the article notes "from a clinical monitoring accuracy point of view, as well the lack of long-term "stickiness" (i.e., using wearables for several months or years), these consumer-grade wearables are facing the most challenges. For example, differences in skin pigmentation and narrow blood capillaries in the wrist make it difficult for wrist wearables to capture accurate readings for critical health vitals such as heart rate and blood pressure."

As a result of these issues and others, there has been hesitancy on the part of some clinicians to embrace RPM and to incorporate data derived from these devices in their clinical work. However, developers of these devices are expected to increase both the base of clinical evidence for their technologies

and the RPM technology itself, both in terms of cost and performance. Over time, we expect improved standardization of these RPM devices and more receptivity on the part of clinicians to incorporate the data.

Don't underestimate the importance of the operational and technical model.

In addition to ensuring that RPM services are deployed where they can provide the greatest therapeutic benefit, it's also important to ensure that some of the other non-clinical, operational factors of the RPM program are aligned for success as well:

Use centralized nursing for monitoring and triage, customize alerts

In the words of the Mayo Clinic, the "key to the RPM model is a virtual, centralized team of RPM RNs [and clinician assistants (CAs)]…to provide patient education and health coaching, triage symptoms and adverse data trends and escalate care to providers as needed." Under this type of model, nurses are dedicated to the RPM program, typically reside in a separate virtual location and do not have any other patient responsibilities. Generally they are responsible for patient onboarding, education, compliance and symptom alert monitoring. In addition, nurses/clinical assistants investigate and triage alerts and when necessary escalate them to patients' providers. Creating clearly defined clinical protocols for the triage and escalation of alerts is essential in reducing the impact of "alert fatigue" on providers.

Moreover, alerting systems need to be customizable at the program and patient level. For example, according to "Development and implementation of a nurse-based remote patient monitoring program for ambulatory disease management" their "RPM software alerts the care team when the patient's data falls outside pre-defined limits. These are configurable at the program and patient level, enabling the care team to monitor patients based on an individual's needs and plan of care".[37] This too helps reduce alert fatigue for clinicians by reducing alarms which may be out of a "normal range" but within range for a particular patient or sub-group of patients with chronic conditions.

Ensure strong technology fulfillment and support

One often overlooked area of RPM programs is how to ensure that patients are supplied with the necessary equipment on a timely basis and how this equipment will be retrieved and readied for redeployment when patients are no longer in the program. As noted in " Development and implementation of a nurse-based remote patient monitoring program for ambulatory disease management", "to ensure the scalability of RPM programs, operational infra-

structure and processes must be developed to support inventory management, maintenance, deployment, and recovery of monitoring equipment. This includes the packaging of RPM equipment across distribution methods such as direct-to-patient and the use of distribution hubs for local pick-up."[38]

Once designed this supply chain function can be leveraged to improve the performance and engagement of patients in a number of ways. For example, support is essential in initial training and setup. As noted in the aforementioned article, "following [equipment] receipt, processes and services should be available to support installation and onboarding into the program. As patients utilize their equipment, support should be available to assist with any technical issues that arise with the software or equipment."[39] The authors noted that one of the key considerations was that the technology be simple, user-friendly, easy to install to create and maintain patient confidence in its use. Along these lines fulfillment should be designed to ensure that equipment is designed to arrive within 24-48 hours of participation in the program and patients should be provided maximum support resources (including additional in-person or live-video support) during set-up and installation. Moreover, organizations must ensure that patients learn to install and use the equipment in the same physical location (down to the specific room) where they will use the equipment. Once patients are up and running, additional education and training should be provided to reinforce use and maximum benefit including automated software reminders or call prompting from RPM monitors when the system notices vitals have not been reported on a particular day or days.

RPM Market-Regulatory Issues

How many days must RPM services be delivered to be billable? Billing for CPT code 99453CPT which covers initial set-up and monitoring of equipment for physiologic parameter(s) (e.g., weight, blood pressure, pulse oximetry, respiratory flow rate), and CPT code 99454 which covers continued monitoring over a 16-day period of remote monitoring of physiologic parameter(s) or programmed alert(s) requires usage of a medical device that digitally collects and transmits 16 or more days of data for periods of 30 days. This requirement is referred to as the "16-day RPM requirement." Centers for Medicare & Medicaid Services (CMS) clarified that the 2-day RPM requirement (initiated during the PHE) should only be applied to patients with a suspected or confirmed diagnosis of COVID-19. How often can CPT Codes 99453 and 99454 be reported? Devices can only be billed once per practitioner even when multiple devices are provided to the patient, only once per patient per 30-day period, only when at least 16 days of data have been collected, and if services are "reasonable and necessary". Based on this rule, each patient must have 16 unique days of reading in said month to qualify for CPT 99453 and CPT 99454.[40]

On November 2, 2023, CMS further expanded accessibility and reimbursement for RPM services at rural health centers (RHC) and federally qualified health centers (FQHC) by making RPM services eligible for reimbursement under an existing Healthcare Common Procedure Coding System (HCPCS) code, G0511. G0511 will utilize a revised payment methodology that calculates the payment rate based on actual utilization of services. The establishment of reimbursement for RPM services provided by RHC and FQHCs will improve access to RPM services in rural and underserved areas and provide reimbursement for setup and patient education. On November 2, 2023, CMS also clarified that the "16-day RPM requirement" does not apply to CPT codes for certain RPM services, including 99457, 99458, 98980, and 98981.[41] The table below shows the diverse sets of remote patient monitoring CPT codes:

Figure 7: Remote Patient Monitoring CPT Codes.

Remote Patient Monitoring CPT Codes		
CPT 99453	Initial set-up & patient education on equipment (one-time fee).	$19.65
CPT 99454	Supply of devices, collection, transmission, and report/summary of services to the clinician.	$46.83
CPT 99457	Remote physiologic monitoring services by clinical staff/MD/QHCP first 20 cumulative minutes of RPM services over a 30-day period.	$48.14
CPT 99458	Remote physiologic monitoring services by clinical staff/MD/QHCP for an additional cumulative 20 minutes of RPM services over a 30-day period.	$38.64
CPT 99091	Collection and interpretation of data by physician or QHCP, 30 minutes.	$52.71

*Pricing amounts vary from area to area and are subject to change.

Key Considerations for Tracking Data for Payment and Auditing

The table listed below details important questions to consider in RPM. These questions can pertain to topics such as tracking, coding, payment, and auditing.

It is essential that these questions be answered so that providers can ensure they have the proper procedures in place to allow for appropriate billing and coding of RPM services. In addition, ensuring that providers maintain records that can validate collection of RPM data for 16 days as required by CMS. Research has indicated that ease of collection and recording for this data is appealing to providers as many often fail to bill for RPM services due to the effort of validating claims or concern about potential audit/regulatory issues. Answering these questions will allow you to ensure that you have an audit trail for both insurers and regulators if necessary.

Scope of care given: What is the service? Who is the provider?
What are the respective electronic systems (clinic-based electronic storage system, financial system, HIM program, electronic health record system, etc.)?
Is the clinical staff coding accurately?
How is system performance maintained by IT staff?
Can results be mapped from point of care through posting of payment and validation of patient records?
Are services accurately coded and classified based on patient need, services provided, and payer requirements?
How is data collected, recorded, and stored to support the claims?

Connecting it All: Cellular vs. Wi-Fi

RPM can be used through two different routes: cellular and Bluetooth/Wi-Fi. They both have their shared advantages and disadvantages. The advantage of cellular is that Cellular connected remote patient monitoring devices can transmit patient health data from anywhere the cellular service provider can reach. The cellular option offers the ability to record and transmit patient data in real-time, allowing the patient's healthcare team to receive almost immediate alerts. Some cellular-connected RPM devices can provide two-way communications, meaning the healthcare team can reach out to the patient through the RPM device itself. Cellular RPM devices are easier for patients who might not be comfortable with hi-tech gadgets because they are essentially ready to use out of the box — just insert the batteries and power on the device.

The disadvantage of cellular is that cellular RPM devices are limited to the cellular company's service area, a potential challenge for Americans living in rural areas. There are typically higher costs associated with a cellular network connection and device components. There is a potential for loss of communication and the ability to transmit data if the cellular network has an outage. However with the advent of "fixed wireless", essentially providing broadband access to the home through a connection to a wireless network in the home, this is rapidly changing.

For example, according to the Federal Communications Commission's "2022 Communications Marketplace Report", there were approximately 2.7M residential fixed wireless connections in 2021 (latest available data), an increase of over 70% from the prior year, off an admittedly low base. While this accounts for only 2.4% of connections in the U.S. given the deployment cost of fixed wireless we would expect subscriber gains to continue. In addition, when combined with the speed advantages of 5G (or fifth generation wireless technology) we would expect to improve the attractiveness of fixed wireless networks over time as well (5G generally requires shorter distances between connections).

In terms of 5G, "with its promise of lightning-fast data exchange and minimal latency, 5G has the potential to revolutionize medical practices, enhance patient care, and drive innovation in the field. This significance extends to various medical applications, such as telemedicine, remote surgery, real-time monitoring, and more, ultimately leading to improved patient outcomes and healthcare services."

For example, with its much more rapid communications speed, 5G has dramatic potential implications in terms of timely intervention and early detection. Real-time monitoring is instrumental in enabling healthcare professionals to intervene promptly in case of any concerning changes in a patient's condition. This is especially crucial for patients with chronic illnesses, such as diabetes, heart disease, or respiratory conditions. With real-time data, healthcare providers can detect subtle deviations from a patient's baseline health parameters and respond quickly to prevent potential complications or exacerbations of the condition. Timely interventions can include medication adjustments, lifestyle recommendations, or even hospital admissions when necessary, reducing the risk of severe health episodes and improving overall patient outcomes.

5G also has significant implications for addressing rural health. "Patients in remote or underserved areas benefit significantly from 5G-enabled telemedicine. They can virtually connect with medical experts regardless of geographical constraints. Access to expert medical advice reduces the need for extensive travel and physical consultations, ultimately improving healthcare accessibility and reducing the burden on healthcare infrastructure." In addition to improving access, expanding care via RPM delivered over 5G can improve quality. For example,"telehealth and RPM are associated with improving health care access, which, in turn, is an indicator of health care quality."

Nevertheless Wi-Fi devices have their own advantages as well. The advantages of Bluetooth/Wi-Fi are that Bluetooth remote patient monitoring devices use short-range wireless connections to transmit data to an internet connected device. Patients can transmit health data via the internet to their healthcare team without any concern of cellular network availability if they have internet access and a Bluetooth-capable device. Bluetooth allows for a wider selection of devices that can be purchased more readily online and in-stores. Patients

may be able to use the devices they already own and brands they know. Bluetooth devices are cost-effective as they require no cellular data connection. Consumers are becoming more comfortable with Bluetooth devices, with the number of Bluetooth device shipments continuing to increase year over year.

The primary concern with Bluetooth/Wi-Fi is regarding privacy. Bluetooth connections particularly those considered "Bluetooth low energy" — can sometimes be "discovered," meaning that the transmission of health data over the short-range wireless connection could increase security risks. There is no provision for two-way communications. Wi-Fi devices can be difficult to set up and may require connections to be re-established more than once if a device needs to update or be reformatted. Pairing issues between devices and phones may frustrate patients and lead to more requests for technical support. Timeliness is paramount when it comes to remote physiologic monitoring. Patients need their own access to the internet to transmit their health data to their healthcare team. This connection must be reliable otherwise there is a risk that the data will not be transmitted in a timely manner or at all.

Aligning Value Proposition

RPM has been proven to help lower hospital readmission rates, unnecessary care utilization, and decrease overall costs for a variety of chronic illnesses including diabetes, COPD, CHF, hypertension, and cancer. For example, the Center for Care Transformation at healthcare consultancy AVIA has estimated that for every 500 high-risk Medicare patients suffering from multiple chronic conditions, health systems can save an estimated $5.2 million annually using RPM devices and software.[42] In fact, according to an article published in the Journal of Digital Medicine, for heart failure and COPD patients in particular, RPM saved almost $3K per patient. Similarly, a literature review published in the Journal of Value in Health had similar conclusions, finding that a review of 34 economic evaluations of RPM programs for chronic disease saved significant amounts of money in hypertension, heart failure, and COPD treatment. However, it is important to point out that the study noted "for chronic obstructive pulmonary disease and heart failure, cost-effectiveness findings differed according to disease severity."[43] Another 2022 clinical trial published in the Journal of Maternal-Fetal & Neonatal Medicine found that RPM for patients with postpartum hypertension was cost-effective and cost-saving. With a cost saving of $93 per patient and an estimated 333,253 pregnant women with hypertension in the US a year, RPM could reduce health care costs in the US by approximately $31 million a year in this subgroup of patients alone.[44] With the COVID-19 pandemic being a major factor in the growth of RPM, there exists a potential for RPM to influence care outcomes in any future pandemics. In a 2022 paper published in Frontiers in Digital Health by researchers from the

Mayo Clinic, a nurse-led COVID RPM program led to patients experiencing significantly lower rates of 30-day hospitalizations, 30-day readmissions, prolonged hospitalization, and mortality with 95% of patients agreeing that they would recommend an RPM to family or friends.[45]

Addresses Provider Burnout

One of the most effective ways to enhance the well-being of vulnerable populations and reduce hospital visits is to bolster physicians' capabilities. Instead of relying solely on the primary physician to analyze all the health information provided, remote patient monitoring partners can collaborate to extend the physician's capabilities without increasing their workload. With a dedicated clinical team that specializes in remote care for specific chronic conditions, physicians and remote patient monitoring partners can work together to enhance patient outcomes and prevent avoidable hospital visits.[46]

Figure 8: Motivators for Physicians to Use Digital Health Tools
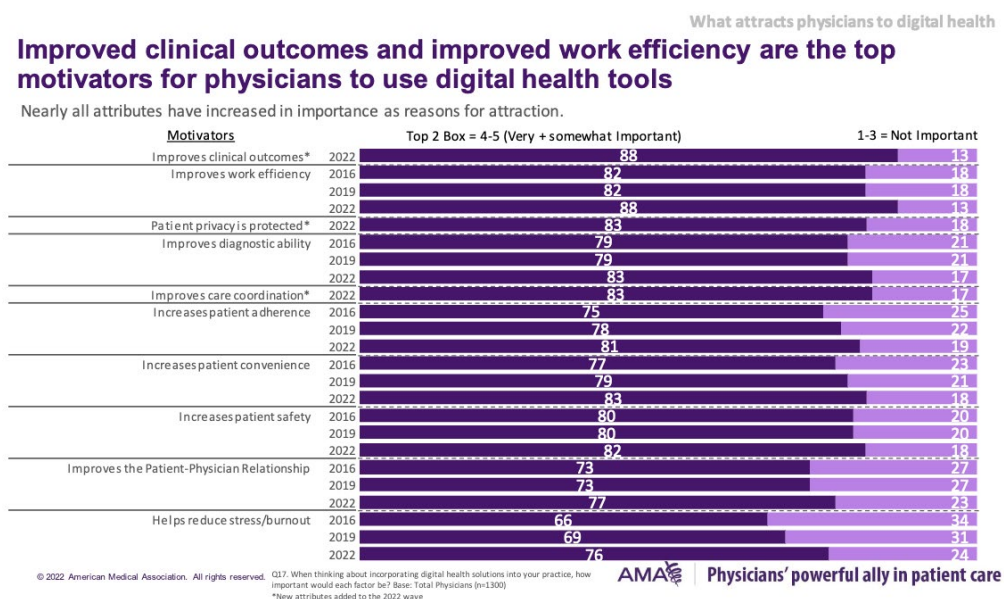
For example, as noted in AMA Digital Health Research's "Physicians' Motivations and Key Requirements for Adopting Digital Health Adoption and attitudinal shifts from 2016 to 2022", improving clinical efficiency and improving clinical outcomes were the two top motivations for physicians to use digital health tools among those surveyed. In addition, the percentage of respondents seeking to use healthtech to improve work efficiency has risen by six percentage points over the last 3 years.

Figure 9: Shift in "What Attracts Physicians to Digital Health"

What attracts physicians to digital health (cont.)

There has been a significant shift in the importance of remote care

More say it is very important as a reason to be attracted to digital health and fewer think it is not important.

Motivators		5 = Very Important	4 = Somewhat Important	1-3 = Not Important
Allows me to provide care to my patients remotely	2016	26	34	40
	2019	31	37	32
	2022	40	35	25
Supports health equity*	2022	33	33	34
Supports value-based care*	2022	31	39	30
Improves resource allocation for staff	2016	28	40	32
	2019	27	42	31
	2022	29	43	27
Allows me to see more patients	2016	27	32	41
	2019	26	32	42
	2022	25	33	42
Demonstrates awareness of the latest technologies	2016	22	38	40
	2019	23	40	37
	2022	25	36	40
Provides a new stream of revenue	2016	25	29	46
	2019	22	32	46
	2022	25	34	41
Differentiates my practice from others	2016	21	31	48
	2019	21	32	47
	2022	18	34	48
Patients demand it	2016	13	30	57
	2019	14	31	55
	2022	15	32	52

Q17. When thinking about incorporating digital health solutions into your practice, how important would each factor be? Base: Total Physicians (n=1300)
*New attributes added to the 2022 wave

AMA | Physicians' powerful ally in patient care

Moreover since the last survey in 2019, "allows me to provide care to my patients remotely" (40%) has risen to the top of physicians reasons for adopting digital tools, placing it above "supports health equity" (33%), "supports value-based care" (28%), "improves resource allocation for staff" (27%) and even "allows me to see more patients."(27%).

Evolution to the Cloud Enables Maximizing Benefits of RPM

As healthcare and healthcare data increasingly become digitized it is necessary to move increasing volumes of crucial data. "In the era of the digital revolution, healthcare and life science industries are undergoing a transformative paradigm shift. Characterized by an unprecedented influx of data, a pivot toward personalized medicine, and a pronounced emphasis on innovative approaches to research and patient care, this evolution demands novel strategies to effectively navigate the dynamic landscape."[47]

Driven by dramatic improvements in processing speeds, communications and storage technologies, healthcare providers are increasingly moving to the cloud. "Although the origins of cloud technology can be traced back to the 1960s, the term cloud computing has only emerged in this millennium. It essentially involves delegating storage and processing of data to third-party organizations accessed via the internet rather than hosting them on an organization's own computers. In doing so, cloud-based technologies can provide access to sophisticated large-scale technological infrastructures and advanced

analytics services with the scope to rapidly scale up to meet peaks of demand Cloud product types differ in the degree of vendor and organizational control and can be **public** (shared across organizations), **private** (shared within organizations), or **hybrid** (a combination of both where on-premise infrastructure is combined with a public cloud).

While healthcare has historically been slower to embrace the benefits of hybrid or public cloud, the demands for remote access by both clinicians and patients during the pandemic required various issues be set aside to keep people from getting exposed to the virus. As a result, "in the wake of the pandemic, cloud technologies have become vital to support everyday collaboration for clinicians, remote health delivery, and other operational functions, which has considerably driven the adoption of the cloud. Going forward, cloud implementation needs to be viewed as disruptive organizational change initiatives facilitated by national initiatives to promote interoperability for a vibrant cloud ecosystem."[48]

Despite issues around interoperability, security, data privacy and cultural issues around control (some at least theoretically tied to the aforementioned concerns), "as [healthcare adapted] to the changing landscape, cloud computing has emerged as a pivotal facilitator of efficiency, scalability, and innovation...Cloud-based services provide enhanced data storage and accessibility, fostering seamless collaboration among healthcare professionals. They also facilitate secure and compliant storage of extensive patient data, promoting interoperability and integration across diverse healthcare systems." It is this type of collaboration across organizations, geographies, sites of care and providers that empowers remote patient monitoring. It is this ability to move, store, analyze and run predictive algorithms that allows providers to capture real time insights, obtain contextual information and act on alerts-all of which act to improve efficiency and quality of care (see Figure 7) . "As data driven decisions become increasingly critical, the methodologies and tools employed [in the cloud] pave the way for more efficient healthcare analysis, optimized operations, and personalized healthcare recommendations."

Figure 10: The Model Architecture Diagram for Remote Patient Monitoring
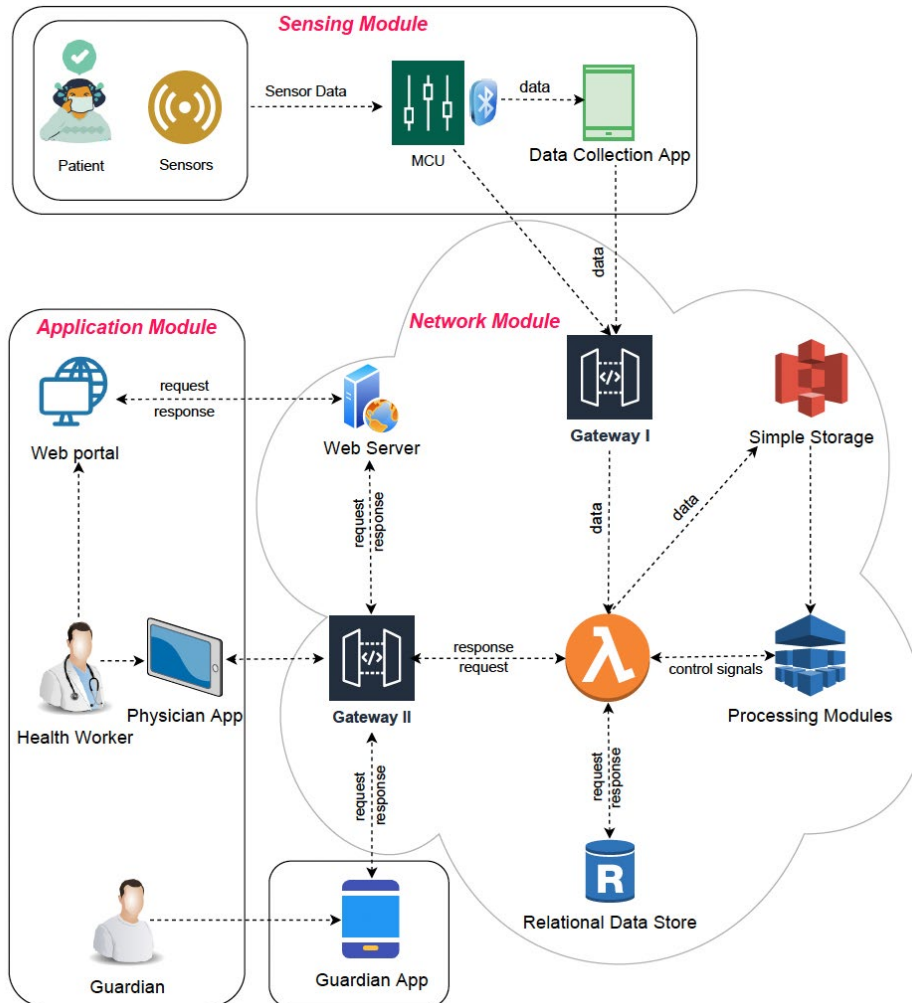
The sensing module collects data using IoT. The network module processes the data. The application module works as an interface for the end users. The modules are connected using well-defined APIs.

While cloud computing is crucial to maximize the benefits of remote patient monitoring, the aforementioned questions of interoperability, security, data privacy and cultural issues around control will remain. Though an exhaustive review of which remains beyond the scope of this report, research indicates several paths to help smooth the adoption of cloud. First and foremost engaging a multidisciplinary team from all aspects of the organization (clinical, operational, technological and administrative), from all levels in the evaluation and adoption process will help ease anxiety and improve organizational support. "It is critical for organizations promoting the use of cloud technology to place emphasis on active engagement with users and rigorously engage

with debates about privacy, ethics, and security taking place in academic and public forums."[49] In addition, it is essential to have clinical and technological teams, thoroughly explain the tangible benefits to front-line users so that they embrace and support the technology. Finally, all members of the cross-disciplinary team must be given the ability and security to provide meaningful and if necessary critical feedback from the field about possible improvements or changes to processes.

Key Recommendations for RPM

Remote patient monitoring (RPM) is an indispensable tool for healthcare providers to closely monitor treatment-sensitive conditions that can result in severe consequences if not addressed in time. RPM provides a clinical focus for situations that require extra attention and enables healthcare professionals to deliver targeted care. However, to ensure the successful delivery of RPM, healthcare organizations must have access to reliable bandwidth, which was already a pre-pandemic concern. Given the current situation, healthcare providers are under immense pressure and must juggle multiple priorities. Therefore, it is crucial to carefully evaluate which patients to monitor remotely and have contingency plans to mitigate potential issues.

According to the American Medical Association and Healthcare Tech magazine, healthcare organizations should adopt these five essential practices to implement a successful RPM program:[50]

1. Healthcare organizations should involve both clinical and IT teams in planning to ensure that the RPM technology meets clinical needs and has minimal technical limitations. The clinical team should define the patient population to be monitored and the problem they are trying to solve with RPM.

2. RPM should be kept as simple as possible in order to build success incrementally. Organizations should avoid overcomplicating the use of RPM and focus on simplicity first, then proceed to build on the RPM's success.

3. Healthcare providers should choose devices that best meet their needs and should consider where they have the necessary expertise and capacity.

4. Objectives and processes should be clearly defined, and the rationale behind RPM should be communicated to staff and patients.

5. Healthcare providers should have procedures in place for emergencies.

In conclusion, RPM is an indispensable tool for healthcare providers to monitor patients effectively. However, healthcare organizations must adopt these five essential practices to implement a successful RPM program. By planning carefully, focusing on simplicity, choosing devices wisely, making objectives and processes clear, and having strategies for emergencies, healthcare organizations can achieve better patient outcomes and improve the quality of care.

Select RPM Companies

In terms of the competitive positioning, we have identified a select number of companies that we think should be closely followed. While this list is not exhaustive, it provides a broad view of the depth and breadth of competitors in the space. **The following business profiles are presented alphabetically for informational purposes only. They are not compensated and do not represent an endorsement by Healthcare Strategy Bullpen or Redox.**

1. **American Well Corporation (Amwell)**
2. **Biofourmis**
3. **Cadence Solutions**
4. **Current Health**
5. **eVisit**
6. **Health Recovery Solutions**
7. **Medically Home**
8. **Omada Health**
9. **Optimize Health**
10. **Validic**
11. **Virta Health**
12. **Vivify Health**
13. **Wellbe**

(Funding amounts are as of date of publication.)

American Well Corporation (Amwell)

Public (AMWL)

www.business.amwell.com

Amwell's Converge platform is designed to blend physical, virtual, and automated care experiences. Converge features an open architecture, a single interface across all access points, smart collaboration tools, EHR integration, and customizable in-visit apps. Converge is based on a Fast Healthcare Interoperability Resources (FHIR) architecture and is capable of hosting and operating third-party applications and devices. Upon its launch, it supports artificial intelligence and natural language processing technologies by Google Cloud, TytoCare's handheld exam kit, virtual second opinions powered b Amwell's partnership with Cleveland Clinic, and wearable remote patient monitoring through Biobeat. According to the company "Converge, …combines its own products and technology while supporting other digital health applications like remote monitoring."

Amwell also has an automated ED follow-up program, which provides patients with a virtual companion that performs frequent, automated, chat-based, empathetic check-ins, to help care teams catch problems earlier and intervene sooner. In March of 2023, Amwell partnered with DarioHealth. Through this collaboration, patients receiving care using Amwell's platform can be referred to Dario's cardiometabolic program for chronic conditions like diabetes, high

blood pressure, and weight management.[51] In September of 2023, Amwell partnered with Health Gorilla to integrate their lab automation system into the Converge platform, which allows providers to place lab testing orders and review diagnostic testing results.[52] In October 2023, The U.S Defense Health Agency selected Amwell to develop the Digital Health Initiative, a hybrid care technology platform for the Military Health System to deliver more seamless "in-person, virtual and automated" healthcare services.[53] Amwell also partnered with Nestlé Health Science, a global leader in the science of nutrition, creating an "Advanced Surgical Nutrition Automated Care Program." Amwell's automated virtual companion technology alongside Nestlé Health Science's Impact ADVANCED RECOVERY® drink are being used to support the healing process and enhance recovery for patients undergoing a major elective surgery (ex: hernia or hip replacement). Enrolled patients receive the Impact ADVANCED RECOVERY® drink and participate in a digital program that provides education and consumption guidance. The program evaluates the patient's progress and adherence, prompting clinicians to intervene, when necessary.[54]

Biofourmis

Private, Total Funding $463.6M

www.biofourmis.com

Biofourmis uses its Biovitals Analytics Engine to monitor patients' data and compares it to population-level data for acute and chronic conditions. It provides customized insights into a patient's unique disease trajectory, enabling assessment of the patient, and determining if and when early intervention may be required. The Biovitals Index brings disease, data, and machine-learning together to process active and passive patient data and notifies clinicians of significant changes in a patient's condition thus enabling earlier intervention.

The Biofourmis platform also has a patient companion app designed to improve patient engagement and compliance by providing regular reminders and information about their condition and recovery plan. In early 2022, Biofourmis launched Biofourmis Care which includes their Care@Home technology platform that now spans the entire care continuum with Hospital@Home for acute conditions; remote patient management for post-discharge care; and now, virtual specialty care for longitudinal chronic disease management. Furthermore, Biofourmis and Augusta University Health partnered in early 2023 to focus on "improving throughput in the emergency department (ED) and inpatient setting, reducing hospital readmissions, enabling optimal clinical outcomes, and improving the experience of patients and their families."[55] The Care@Home program at Augusta was also able to show a reduced readmission rate of 7.43% and reduced length of hospital stay from 9.4 to 5.7 days, equating to a $1.13 million cost savings for the hospital.[56]

Biofourmis Care currently includes five virtual care programs: heart failure, hypertension, diabetes, lipid management and atrial fibrillation. The specialty care programs are delivered remotely by Biofourmis' trained health navigators, who are frontline care coordinators, as well as a multidisciplinary team of licensed clinicians, including physicians, nurses, and advanced practice providers. For seamless care coordination, these virtual care teams partner with the patient's pre-existing, on-the-ground primary and specialty care providers.

In January of 2023, Biofourmis announced a multi-year agreement with Orlando Health, a non-profit healthcare organization that serves the southeastern United States. Orlando Health will leverage Biofourmis' solution to support its program, which will enable providers across Central Florida to safely and effectively deliver hospital-level care to patients in their homes.[57] In February of 2023, Biofourmis announced a partnership with Beacon Health System in South Bend, Ind., to establish a multi-hospital post-discharge remote patient monitoring (RPM) program for complex chronic conditions to reduce readmissions, expand care access across the region, and improve clinical outcomes.[58]

In March of 2023, Biofourmins and Chugai entered into a partnership to focus on data-driven virtual care for endometriosis-related pain. Through this partnership, they will develop new digital solutions for the objective assessment and management of pain associated with endometriosis.[59] Biofourmis announced in December 2023 that it will partner with Nascentia Health to boost its aging in place programs with the goal of "expanding care access, reducing hospital readmissions and length of stay, improving post-acute care coordination, and enhancing patient outcomes and experience" in Central New York.[60]

Cadence Solutions

Total Funding $141M

www.cadence.care

Cadence's Care in Sync™ platform couples powerful new technology with clinical excellence, providing its patients a precise and personal level of care through remote patient monitoring and virtual care.

Cadence offers a remote care management platform that enables clinicians to monitor patient vitals remotely, provide personalized feedback via text message after each reading and conduct one-on-one telehealth visits when needed. The platform uses machine learning to continuously improve.

Once enrolled in Cadence's product, patients receive a set of smart devices and upload their weight and vital signs on a daily basis. Data is collected,

synthesized, and analyzed by a team of Cadence clinicians who work to monitor the data and ensure that patients are staying healthy.

The company states that they also make it easier for clinicians to deliver better health outcomes by partnering with some of the largest hospital systems in the country and developing a new model of integrated care combining in-person care, virtual care, and ongoing patient monitoring. For patients with heart failure, Cadence's RPM technology was able to demonstrate longitudinal improvement in patient adherence to life-saving medication and guidelines.[61]

Cadence was able to secure a number of partnerships in the past few years:

1. In August of 2021, Cadence announced a partnership with LifePoint Health whereby it will implement its remote patient monitoring platform for 100,000+ LifePoint Health members with chronic conditions across the U.S. Initially they will be focused on increasing adherence to Guideline Directed Medical Therapy (GDMT) treatment for heart failure patients in a single market. The partnership's eventual aim is to build into the largest remote care platform for heart failure patients in the country.[62]

2. In February of 2022, Cadence announced a partnership with Community Health Systems, whereby Cadence will provide RPM and virtual care across Community Health Systems' network of affiliated hospitals and physician offices in 16 states. According to the companies, Cadence will initially support patients with hypertension, CHF, diabetes, and COPD.[63]

3. In August of 2022, Cadence announced a partnership with ScionHealth to implement RPM and virtual care across ScionHealth's 18 community hospitals. The partnership will initially be rolled out to support ambulatory patients across ScionHealth's 18 community hospital campuses in 12 U.S. states, with additional work planned in the future to support ScionHealth's specialty hospitals and long-term acute patient populations in hypertension, CHF, diabetes, and COPD.[64]

4. In January of 2023, Cadence announced a partnership with Ardent Health Services to implement a remote patient monitoring and responsive virtual care program across Ardent's operations, which include 30 hospitals and 200 sites of care.[65]

5. In April of 2023, Cadence announced a partnership with Providence to implement their RPM services at two Washington clinics: St. Mary Cardiology and Lacey Family Medicine.[66]

6. In August of 2023, Cadence announced a partnership with Rush University System for Health (RUSH) to launch a remote monitoring and responsive virtual care program for Medicare and Medicaid patients in the Chicago area.[67]

7. In September of 2023, Cadence announced a partnership with Montage Health to introduce at-home patient monitoring services for patients with hypertension, congestive heart failure, and type 2 diabetes, and will later expand to include other conditions.[68]

In all of these partnerships, Cadence's program combines dynamic remote monitoring technology with a nurse-practitioner-led clinical care team that collects, analyzes, and responds to a patient's vitals in real time, supporting patients with medications, labs, and coaching to deliver exceptional care and optimal health.

Current Health

Acquired by Best Buy (BBY) Oct. 2021

https://www.currenthealth.com/

Current Health offers a solution for patients in need of hospital-grade monitoring at home. The company claims that their FDA-cleared wireless biosensor captures vital signs with the same accuracy as ICU-monitors, providing a level of care previously only found in hospitals. This agnostic approach empowers organizations to tailor their clinical program to the clinical condition and patient need, ensuring the best possible care. The devices are pre-configured and paired, offering a seamless patient experience, and care teams have unified insight into all vital signs within a single dashboard. The pen ecosystem allows for a tailored program to the individual patient, ensuring that each patient receives the care they need.

Current Health's RPM device provides a holistic picture of patient health, gathering real-time symptom and activity data directly from patients. Through logic-driven questionnaires visible alongside patient vital signs, the RPM device offers a customized approach for each clinical use case. Patients won't need WiFi or a smartphone to access the platform, which offers a seamless experience. Current Health provides all in-home connectivity and a tablet for patients as needed, ensuring equitable access for all. Their solution is tailored to the individual, offering a simple setup with proven adherence, and real-time support. With Current Health, patients can confidently rest easy knowing they have access to hospital-grade monitoring in the comfort of their own home. Current Health is also integrated with Zoom, the popular video conferencing service with enhanced video communications platform capabilities that expand Current Health's ability to deliver safe and effective virtual care services.[69] Current Health is already partnered with major health organizations including Geisinger Health in 2021, Parkland Health & Hospital System in February 2022 (to tackle hypertension), Atrium Health in March of 2023, Mount Sinai Health System and NYU Langone Health in March of 2023, UMass Memorial Health, Virtua Health, and North Manchester General Hospital.

Current Health, partnered with Best Buy, began expanding its services with Geisinger Health in September of 2023 to include "Geek Squad Agents" that deliver, install and activate these remote care management devices at the patients home while providing patient education and troubleshooting.[70] As of November 2023, Massachusetts General Brigham Hospital will partner with Best Buy Health, utilizing Current Health's technology to streamline remote patient monitoring, enable telehealth services, and provide care teams with data driven dashboards to improve patient care.[71] Current Health's innovative and holistic RPM solutions were recognized with the "2022 Frost & Sullivan Company of the Year Award" and "2022 MedTech Breakthrough Award for Best Hospital Technology Implementation Award."

In December of 2023, Current Health announced plans to integrate with BioBeat, a provider of remote patient monitoring solutions. Biobeat's wrist and chest monitors will be integrated with Current Health, improving scalability and care delivery.[72]

eVisit

Total Funding $110.8M

www.evisit.com

eVisit provides a virtual care platform that includes scheduling, intake, a waiting room, discharge and analytics.

eVisit's virtual exam room gives providers easy access to patient profiles, and the ability to chart and take notes as well as review and send attachments. In-visit chat adds an additional communication option, and multiparty video lets providers bring in additional people to the visit such as interpreters, family members, and caregivers.

The company believes that care will move from facility based to more hybrid care. As they noted "the pandemic accelerated the realization that a lot of care needn't be administered on-site, and that patients can be more comprehensively treated with care 'arcs' than with care episodes – wherever they are. What today is routinely called 'virtual care' will soon be just 'care,' in the same way that 'telebanking' (a term popularized in the '80s) is today just 'banking'.

"eVisit considers management of remote encounters to be one central aspect of end-to-end care… One of those expansions is in care navigation, helping patients find the right point of care for any situation, gathering all the right information at the right time, and then equipping healthcare providers with that information in the right ways for the right mode of care."

eVisit's virtual care platform includes the patient visit and everything around it - scheduling, intake, waiting room management, and discharge. eVisit is currently focused on urgent care, primary care, specialty care, and occupational health.

In May of 2023, eVisit purchased Bluestream Health to "to add digital front doors and other tools to its telemedicine platform."[73] eVisit also publishes their monthly product updates to their company website which mostly focuses on improving the user experience and functionality of their existing platform. Of note, an August 2023 update focused on the eVisit-Epic Standard integration, enabling Epic users to adopt eVisit more quickly by fitting eVisit into their existing Epic workflows.[74]

Health Recovery Solutions

Total Funding $87.1M

https://www.healthrecoverysolutions.com/

Health Recovery Solutions is on a mission "transform the remote patient monitoring and telehealth industry" with senior leadership team that is "dedicated to ensuring patients can receive the highest quality care when, and where, they need it." Health Recovery Solutions' PatientConnect Remote Patient Monitoring Suite has a number of different functions including medication reminders, symptom surveys, video calls, wound imaging, educational videos, and text messaging. Furthermore, the PatientConnect Remote Patient Monitoring Suite can remotely monitor risk alerts and vitals captured with Bluetooth biometric monitoring devices. It can even support rural communities with priority bandwidth network access to transmit vitals and messages. Their website boasts partnerships with UFHealth, ThedaCare, Catholic Health, AlinaHealth, Essentia Health, Sentara, Visiting Nurse Services of New York, Saint Luke's, Hackensack Meridian Health, Penn Medicine, and more. At Penn Medicine, Health Recovery Solutions' home monitoring and teleheath services resulted in a 53% decrease in 30-day readmission rates for heart failure patients at Penn Medicine.

Health Recovery Solutions announced in August of 2023 that they are partnering with Corstrata, a tech-enabled services company connecting patients to wound and ostomy (WOC) expertise to improve the care of WOC patients in home health, hospice, and other in-home providers.[75] The company also launched their early adoption client program for continuous monitoring capabilities in September of 2023. This program—piloted by criteria-based clients—incorporates continuous body temperature, heart rate, respiratory rate, pulse oximetry and ECG metrics to further support healthcare organizations with high acuity patients such as cardiac care and hospital at home programs. Additionally, the program streamlines the integration of medical-grade wearable devices.[76] The company recently partnered with numerous companies including Evara Health as its RPM vendor in December of 2023,[77] and with Expert Medical Services in November of 2023.[78]

Medically Home

Total Funding $274.5

www.medicallyhome.com

Medically Home is leading the charge for decentralized care, recognizing the importance of comprehensive care delivery for those with serious or complex illnesses. Recently, they announced a strategic collaboration in November of 2022 with BioIntelliSense to enhance patient management for high acuity hospital care at home.[79] By offering continuous biometric data and insights to physicians and nurses, the collaboration expands the availability of medical-grade BioButton® wearable devices. This enables an enhanced level of data-driven care that can inform prioritization of care, allocation of resources, and improved clinical workflow in treating and caring for patients with complex or high-risk conditions being cared for at home.

In addition, the rechargeable multi-parameter BioButton® wearable devices capture clinically validated vital signs, including heart rate, respiratory rate, and skin temperature, along with a broad range of physiologic biometrics. With the BioCloud™ data analytics and algorithmic-based alerting, clinicians can provide actionable clinical triage and proactive clinical intervention through potential earlier detection of adverse trends. By offering this comprehensive solution, Medically Home and BioIntelliSense are meeting the needs and preferences of patients who desire to be cared for in the comfort and convenience of their home while reducing the necessity for traditional building-centric care.

In January of 2023, Medically Home announced ED in Home, a program to bring emergency department level care to patients at home. While screening out for trauma, stroke, acute coronary syndrome, and patients needing immediate life sustaining care, the program is designed for those patients who truly need emergency department level service (versus those using a traditional hospital emergency department for urgent care). Medically Home's advanced treatment approaches result in patients in ED in Home being less likely to need ongoing hospital care.[80]

In December of 2023, Louisiana-based Acadian Health joined Medically Home's network, enabling patients to stay home while receiving their care. Patients can access providers and services that include onsite and virtual nursing, specially trained paramedic care, mobile imaging, IV infusion, and 24/7 monitoring and care team access.[81] This partnership is one of 160 partnerships by the company, including Mayo Clinic, Kaiser Permanente, Cleveland Clinic, UNC Health, Yale New Haven Health and others.

Omada Health

Total Funding $528.5M

www.omadahealth.com

Omada started as a way to bring new digital health tools like smart-phone-based apps and wireless weight scales for the CDC's Diabetes Prevention Program. Omada sells virtual and in-person tools to bring evidence-based care pathways across the five chronic conditions they serve (diabetes, musculo-skeletal issues, preventative health, hypertension and behavioral health).

Omada is focused on aiding individuals in managing their own health conditions through personalized data-driven behavior change coaching. The platform can help users keep track of their diet, exercise, blood glucose and other metrics. Patients can also access virtual care for support.

In 2020 the company acquired MSK-focused Physera, which gave it a foothold in the physical therapy space. Since then the company rolled out new computer vision technology to help physical therapists virtually measure a patient's movement and range of motion.[82]

In April of 2021, the company created the Omada Insights Lab, which uses clinical design, care delivery, product design, data science and behavioral science to help develop personal goals and plans for patients. According to the company, "the Insights Lab is an approach to product development that leverages multidisciplinary teams to rapidly look at what does and does not work in a digital care setting and then scale those tools within the company."[83] One of Omada's main differences in the company's approach is the use of "behavioral nudges" based on its data. The company states that it is already using the more than a billion data points it's recorded from 450,000 members in the company's 10 years of business to improve its own tools combined with so-called "active nudges" which combine behavioral nudges with human reinforcement.

In March of 2022, Omada Health announced integrated behavioral health support across their chronic care programs. Omada Health provides an upfront assessment of mental health symptoms for anxiety and depression, detailed resources to address social determinants of health (including access to healthcare, food insecurity, and barriers in their built environment), tools to tackle specific behavioral challenges based on cognitive behavioral therapy and mindfulness (such as stress management and sleep lessons), care teams that are enhanced by ongoing training and mental health specialist support to better support behavioral health, and services that are out of scope, including triaging high-risk situations and guiding immediate intervention in moments of crisis.[84]

In January of 2023, Omada partnered with intermountain healthcare and castell to establish an integrated virtual care option for diabetes management & prevention. Omada Health's Diabetes Prevention Program and Diabetes Program offer members support along with intervention from health coaches certified through CDC-affiliated Diabetes Training and Technical Assistance Center. The members of the programs receive pre-connected cellular scales, with Diabetes Program members also receiving continuous glucose monitors and blood glucose meters, all which report data seamlessly and track progress in real-time. The Diabetes Prevention and Diabetes programs also include an individualized care plan that is backed by behavior science to encourage lasting lifestyle changes.[85]

In May of 2023, Omada Health launched a GLP-1-specific program for patients battling chronic obesity. GLP-1 medications are currently being used to battle chronic obesity with growing interest and demand for the medication. This program includes rigorous training for Omada's care delivery team, free lifestyle change resources, community offerings to build a support system, and services to support employers and PBMs with administering coverage policies.[86]

Omada moved to this approach after finding passive nudges aren't as successful as a comprehensive and proactive approach to care that involves human interaction. For example, during testing of behavioral nudges for weight loss Omada found that patients who interacted with a clinician or others in the care community during their first week of the program were 24% more likely to achieve their health goals while patients who messaged their care teams were 2x as likely to achieve positive health outcomes.[87]

Optimize Health

Total Funding $37.1M

www.optimize.health

Optimize sells a remote end-to-end patient monitoring service used by independent practices, hospital systems, and more. The Optimize software provides a variety of communication methods for contacting patients, including text messages and video calls.

Optimize uses registered nurses (RNs), who can identify and investigate patterns and present clinically sound solutions. Their training in motivational interviewing and health coaching focuses on developing a relationship with patients. Optimize's software provides a variety of communication methods for contacting patients, including text messages and video calls. The company's dashboard also provides a way to trigger a bill to the insurer for clinician moni-toring. The system integrates with Electronic Health Record (EHR) software.

In July of 2022, Optimize announced that they would join athenahealth's marketplace thus making their RPM product available to athenahealth's growing network of healthcare providers. At the time the company noted that from their own data, patients monitored through their platform have achieved an 11-point decrease in systolic BP and a 7-point decrease in diastolic blood pressure within their first three months of monitoring.[88]

In October of 2023, Optimize announced a strategic partnership with the Florida Association of Accountable Care Organizations (FLAACOs). As stated by Optimize, "ACOs are the standard bearer in the shift towards value-based care. Through our partnership, Optimize Health brings the latest in remote care technology and services to a leading group of healthcare organizations committed to delivering coordinated, high-quality care."[89] In the same month, Optimize Health announced the completion of its latest Series B financing, raising more than $18 million.[90]

Validic

Total Funding $30.4M

www.Validic.com

According to the company, Validic provides organizations with a single connection point for ingesting data from hundreds of connected data sources in near-real-time. The Validic digital health platform powers the access, standardization and integration of personal health data from an ecosystem of connected apps, enabling improved remote care, preventive wellness and continuous monitoring programs.

Users authorize healthcare and wellness organizations to collect and use their device-generated data within the organization's application, platform, clinical system or data warehouse. With integrated data from 530 consumer and clinical sources, organizations can monitor, measure and derive valuable insights into their members' outcomes, engagement and adherence with a particular program. The platform also supports a bring-your-own-device (BYOD) strategy, meaning companies can integrate activity, sleep, vitals or biometric data regardless of device manufacturer or connectivity.

Validic-offers two platforms: 1) the Validic Inform Platform - a data connectivity platform designed to enable a simple, standardized connection between customers and their end users' mobile health, wellness apps, and devices, and 2) the Validic Impact - a stand-alone, web-based application to manage device-driven RPM programs, offering support for a wide range of connected health apps and devices. The Validic Inform platform offers an API that delivers standardized, normalized data via a secure, HIPAA-compliant connection from wearables, health apps and in-home medical devices.

According to the company, Validic supports the largest RPM program in the country at Kaiser Permanente, with more than 250,000 enrolled patients since its inception and 6,000 referring providers. The company states their digital health platform has more than 5 million active users and 530+ supported devices.

In our view, Validic allows users to leverage a single connection to their platform and integrate data from hundreds of clinical and consumer health devices via an open API, thereby increasing interoperability and exchange. As such we view Validic as more of an interoperability play than true RPM but there is overlap.

In March of 2022, Validic announced that it's Impact platform is available on the Epic App Orchard, allowing for organizations that utilize Epic to easily integrate Validic Impact into their existing workflow.[91] In October of 2022, Validic announced their expanded collaboration to bring Validic's integrated digital health and remote care platform to Oracle Cerner clients.[92]

In March of 2023, Validic integrated with Smart Meter cellular-enabled connected health devices. Smart Meter's proprietary, cellular, FDA-registered monitoring devices are connected to an exclusive AT&T 4/5G private data network to improve adherence for a number of chronic conditions: including blood glucose monitors for diabetes; blood pressure monitors for hypertension and other cardiac diseases; pulse oximeters for COPD, COVID-19, and other respiratory disorders; and weight scales for congestive heart failure and weight-related diseases.[93]

In May of 2023, Validic acquired the assets of Trapollo LLC, a connected health, technical support, and device logistics provider that helps healthcare organizations care for patients at home. As stated by Validic CEO Drew Schiller, "with the Trapollo assets, Validic, which has long been the leader in scaling remote and personalized healthcare programs, is now also a leading connected health and device logistics company, supporting the full range of personalized care programs – from BYO-tech, low-touch programs to high-risk, high-touch, fully kit-based remote monitoring and everything in between."[94]

In October of 2023, Withings Health Solutions and Validic partnered on a new integration of best-in-class cellular smart scales and blood pressure monitors. This integration brings Withings Body Pro, a cellular smart scale, and Withings BPM Connect Pro, a cellular blood pressure monitor, into the Validic ecosystem. These cellular devices come equipped with seamless WiFi and Bluetooth fallback options, ensuring that every patient can participate in their program, even if they live in a cellular dead zone.[95]

Virta Health

Total Funding $373M

www.virtahealth.com

Virta is the ultimate healthcare solution that guarantees personalized care to help individuals reverse your diabetes and lose weight. Virta provides access to a team of physicians, nurse practitioners, and coaches who use the latest technology to provide expert medical care through their custom-designed app and medical records system. With Virta's extremely flexible RPM, users can receive care on their own terms. The personalized approach guarantees that users lose weight while controlling their blood sugar, which means they may need fewer or no medications.

Virta's evidence-based approach is entirely about changing what one eats, and their medical team and health coaches are there to support the patient every step of the way. Virta is the perfect solution for anyone dealing with Type 2 diabetes, pre-diabetes, or clinical weight loss. With Virta, individuals can lower their blood sugar and get off diabetes medications, which is truly life-changing. Virta has pioneered a sustainable approach to diabetes reversal, and for those with pre-diabetes, it can help prevent rising blood sugar. As for clinical weight loss, Virta helps individuals lose weight without counting calories, and their health coaches can help them gain control of cravings and stay on track.

In June of 2022, Virta partnered with Careington International Corporation and DialCare, a telehealth company.[96,97] In August of 2022, Virta partnered with Nonprofit insurer Providence Health Plan. Virta Health's clinical trial results showed 94% of participating patients who use insulin decreasing or eliminating their dosage after just a year. Further results from the clinical trial showed 63% of all diabetes prescriptions are eliminated at one year – and this improved to 67% at year two – and patients have seen a sustained 12% weight loss.[98] The CEO of Banner|Aetna also attributes his company's success to his partnership with Virta Health, which has already benefited many of their own employees.[99] Virta also partnered with AutoZone, a retailer and distributor of automotive replacement parts and accessories. After offering Virta's type 2 diabetes and weight loss solutions to eligible AutoZoners at no-cost, patients saw a 73% reduction in insulin prescribed, a significant 1% average HbA1c improvement, and an 8% weight loss on average after 12 months.[100] In February of 2023, Blue Shield of California announced its partnership with Virta Health to allow members in PPO plans and Medicare Advantage to have access to Virta's digital nutrition therapy program.[101]

Vivify Health

Acquired by UnitedHealth (UNH) Nov. 2019

www.vivifyhealth.com

Vivify Pathways solution is intended to enable remote patient monitoring at home. According to the company, Pathways expands care team outreach and keeps a vigilant, automated eye on early decompensation, transitioning episodic care into financially efficient, proactive ongoing care. Vivify offers an RPM kit that pairs a tablet with Bluetooth biometric devices such as scales, blood pressure cuffs, and pulse oximeters. While some patients get a Vivify kit as part of a hospital discharge or during a home visit, Vivify typically ships the solution straight to patients.

Vivify also offers the Vivify Pathways+ Portal, a cloud-based virtual platform for providers and payers to manage the complex workflow of remote care for clinical conditions. The product collects data from patients through their mobile digital devices or at-home remote monitoring kits, allowing clinicians to intervene and help reduce ED visits and hospital readmissions. Moderate uptake currently. Vivify's solution is integrated into their +Go mobile app which allows for sending biometric data, watching educational videos, completing condition-based pathways, conducting video visits with your care team, and accessing secure two-way in-app messaging. Patients who do not have WiFi or cell service can choose Vivify Voice, allowing the patient or their caregiver to use a landline phone.

AdventHealth, a health system based in Altamonte Springs, Florida, is just one health system that utilizes Vivify's care portal to help providers monitor patients for chronic conditions and manage their post-discharge needs. As stated by Ashley Bard in February of 2023, IT Director of AdventHealth, "With remote patient monitoring, we saw a 60% reduction in hospital admissions for those who were ongoing users of the emergency departments for chronic conditions."[102]

Wellbe

Please note this profile is for Wellbe (the cloud-based platform that facilitates connected care between patients and healthcare providers), not Wellbe Senior Medical (which provides home-based medical care to patients who are facing multiple complex health challenges).

Acquired by Orbita (Private) Aug. 2023

www.wellbe.me

Wellbe's personalized automation platform is designed to help patients who are preparing for bariatric surgery. With their Complete Care™ plan, patients can receive compassionate care from a team of geriatric specialists who are dedicated to providing all the support and care they need in their home or wherever they are. The geriatric care team includes a lead physician, nurse

practitioner, medical assistant, behavioral health specialist, community worker, and pharmacist, who work together with patients, their caregivers, and physicians to nurture their medical, social, and emotional health. Wellbe's RPM offers comprehensive health assessments, care coordination, medication review and reconciliation, preventive care features, chronic care, and urgent care. The company's Complete Care™ solution synchronizes patient and provider activities throughout their entire journey, regardless of their location, using a quality tool that ensures a seamless experience. The company's ConnectedCare™ led to a 41% reduction in length of stay, 30% reduction in readmissions, and 30% growth in bariatric surgical cases in the first year.

In January 2022, Sauk Prairie Healthcare announced that they are partnered with Wellbe to provide online self-navigation that gives moms the personalized and on-demand guidance they need. The service was made available to expectant mothers up to ten weeks prior to delivery and ten weeks post-delivery.[103]

In August of 2023, Orbita acquired Wellbe assets, including software and staff, to create a seamless digital pathway for care – from streamlining patient access, to facilitating the care journey and enabling timely outreach and follow-up.[104]

In conclusion, these RPM companies are committed to improving patient outcomes through remote monitoring and management. They offer a wide range of solutions to meet the unique needs of each patient, ensuring that they receive the highest quality of care possible.

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About Healthcare Strategy Bullpen

Healthcare Strategy Bullpen (HSB) is a healthcare strategy consulting firm founded by Jeffrey Englander. Mr. Englander is an award-winning Industry analyst who has over 15 years of experience in healthcare strategy, market research positioning, regulatory analysis, industry disruption, and innovation at a number of Fortune 100 firms. HSB is a digital healthcare consulting firm that helps apply the use of digital tools to improve access & quality of care.

Mr. Englander, together with his team of expert advisors and experienced industry consultants works to help healthtech innovators be more effective in developing and deploying their technology within the healthcare delivery system. HSB has four focus areas: 1) empowering payers, providers, and suppliers to operationalize data to maximize its analytical value; 2) helping demonstrate the benefits of new applications enabled by digital health; 3) applying digital healthcare technologies to the management of high-cost and chronic conditions, and, 4) gauging and managing the practical, cultural and technological issues creating barriers in addressing the social determinants of health (SDOH).

About Redox

With extensive integration experience working with over 4,500 healthcare organizations, Redox has catalyzed cloud projects with providers and payers to accelerate completion up to 80% faster than other solutions. Redox partners with Amazon Web Services, and Microsoft Azure to accelerate data interoperability and unlock data trapped in legacy formats for health plans, providers, and digital health organizations.