

PATIENT RELATIONSHIP MANAGEMENT



SOLUTIONS AND THEIR EFFECTIVE APPLICATION



MARKET SCAN REPORT



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Executive Summary

Healthcare organizations (HCOs) striving to improve patient engagement are increasingly turning to solutions that promise more targeted patient outreach, more coordinated care management, and more potential for patient self-support in between care episodes. These solutions fall under a broad umbrella that can be described as patient relationship management, or PRM – and despite its name, it’s much more than a rebranding of customer relationship management (CRM) for healthcare.

This Market Scan Report expands on the reasons that healthcare needs PRM, describes the current and future state of the market for PRM solutions, identifies the seven classes of vendors operating in this market (see Figure 1), assesses the features available (and missing) from PRM solutions from these classes of vendors, profiles 13 leading vendors, and offers a series of recommendations to help vendors meet current and projected PRM market needs (including the challenges presented by value-based care and payer-provider convergence).

MARKET DYNAMIC

True PRM is more than just “CRM for healthcare.” It focuses on patients’ needs outside of the healthcare facility setting, in between care episodes, as they live their everyday lives. It is more than improving engagement at the hospital bedside, more than making phone calls after hospital discharge, more than launching a “portal of portals” to provide a unified engagement experience, and more than opening an Innovation Center to solve one-off problems that an HCO faces. Healthcare needs specific solutions for PRM because current engagement solutions fall short of the mark for several reasons. (See Table 1.)

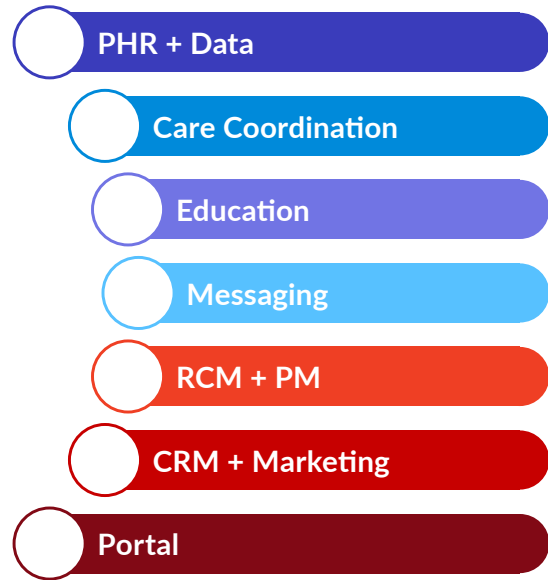


Figure 1: The Seven Classes of PRM Vendors

Current Shortcoming	Why It Falls Short
Legacy portals	Poor engagement, little context, tied to care episodes
Point solutions	Fragmented, outside care continuum, poor “stickiness”
Extensibility	Not tied to HCO engagement goals or business objectives
Current Unmet Need	Why It Matters
Engagement outside hospital	Connect to payers, employers, surrogates, telehealth providers
Payer-provider convergence	Better data flow reduces friction among entities
Analytics	Identify which patients to target with which intervention
Behavior change	Support short, frequent interventions to improve health

Table 1: Why Healthcare Needs PRM Solutions



Despite these needs, we expect the market for PRM solutions to grow slowly over the next 24 to 36 months. The average HCO is not taking on enough financial risk, and has too many other IT priorities, to make a significant investment in PRM. When solutions are implemented, it will be on a small scale, limited to cohorts covered under value-based care (VBC) contracts such as ACOs and MSSPs or bundled payment plans.

Large-scale adoption is unlikely to occur until at least 2020. By this time HCOs will better understand MACRA, PRM solutions will more readily integrate with clinical systems, and the convergence of payer and provider business lines will place increasing demands for a more complete view of patient data.

MARKET OUTLOOK

There is no dominant vendor in the PRM market. In fact, there is no dominant set of vendors, though the CRM/Marketing and Care Coordination sectors have been the most active – and the PHR sector has been injected with some life following the announcement of Apple’s Health Records pilot. This report identifies dozens of vendors and provides profiles for 13 representative solutions that are seeing market traction (See Table 2).

This report evaluates the PRM market as a whole on the maturity of functionality in five key areas:

- > Patient outreach
- > Care management
- > Engagement and communication
- > Patient self-support
- > Analysis and reporting.

Broadly speaking, engagement and care management functionality is closest to meeting Chilmark Research’s expectation of what PRM solutions should offer, while self-support functionality falls short.

Finally, solutions are beginning to address the needs of patients, who appreciate the convenience that PRM solutions offer but would like to see an increased focus on giving patients digital access to their records across disparate care settings.

Vendors Profiled
Care Cloud
Cerner
Conversa Health
Docent Health
Epic
HealthLoop
Influence Health
Meditech
mPulse Mobile
Orion Health
Pegasystems
Salesforce
Solutionreach

Table 2: Vendors Profiled in This Report

KEY TAKEAWAYS

The PRM market is active but fragmented. Vendors approach PRM by supporting one of the seven core competencies required to support true patient relationship management: Care Coordination, CRM (both enterprise and healthcare-specific), Education, Messaging, PHR, Portal, and Revenue Cycle Management (RCM) and Practice Management (PM). Most vendors offer only some of these attributes – none currently offer all seven.

For PRM vendors, value propositions vary. Vendors with core competencies in CRM and Marketing, Messaging, and RCM can provide broad engagements across large population cohorts but struggle on their own (absent third-party partners) with deep engagements with specific population subsets. On the other hand, vendors focused on Care Coordination and Education tend to provide the opposite – deep engagements with specific use cases (e.g. disease states or surgical procedures) but not broad engagements across a larger patient population.

For all the promise of PRM, HCOs are biding their time... Uncertainty about value-based payment models, long lists of IT priorities, and M&A activity among PRM vendors will contribute to HCO hesitance to invest heavily in PRM solutions over the next 24 to 36 months. Pilot programs will remain the norm, focusing on patient populations covered under HCO's risk-based contracts. HCOs may increasingly lean on their portals, too – especially as EHR vendors continue to pivot to PHM and offer patient self-management and support features in addition to the traditional communication features.

...and this pause will let the PRM market sort itself out. The slow pace of PRM adoption should not cause vendors to panic (too much). In fact, the pause gives them a chance to do two things. One is address feature sets that are weaknesses – such as clinical content for CRM and RCM, or broader use cases for Care Coordination and Messaging. The other is anticipate future HCO needs such as non-clinical resources, complex clinical pathways, and the creation of collaborative health records easily shared among patients, care teams, and payer and provider entities. All told, wider PRM adoption will follow as these pilots achieve proof-of-concept, as VBC models get fleshed out, and as solutions expand their feature sets and clinical integrations.

Patients want their data. Make no mistake – patients appreciate functionality allowing them to schedule appointments, email physicians, and even pay bills like they can in consumer-facing applications. By and large, though, the biggest “ask” of patients is the ability to access their records from disparate data sources in a single location. The historical struggles of PHR vendors suggests that this is quite difficult to accomplish – but the promise of Apple entering the PHR market suggests that barriers to patient data access may be starting to fall.

Market Dynamic: Manage Relationships, Improve Care Coordination

The underlying goal of customer relationship management (CRM) solutions is to provide customers with what they need, when they need it, in order to retain existing customers and attract new ones.

Outside of healthcare, enterprises use CRM in several ways:

- > Gather data about customers as well as prospects, as well as share data across an organization.
- > Apply predictive, prescriptive, and descriptive modeling to that data.
- > Target specific customers with new product or service offerings that bring additional value to their relationship with the enterprise.
- > Measure the downstream results of targeted outreach in order to improve future product and service offerings.
- > Track all interactions with customers, across all channels, to avoid redundant communications.
- > In short, CRM supports enterprises in their aim to serve the customer, based on the mantra that the customer is always right.

HCOs have struggled with CRM, as the idea that the customer is always right – that is, the patient – conflicts with healthcare's traditionally paternalistic approach to care delivery. In this "CRM for healthcare" model, communications typically focus on reminders, whether it's care reminders (wellness exams, preventive services such as mammograms or colonoscopies, or organ donation) or financial reminders (bills, EOBs, or fundraising requests). Plus, while customers voluntarily buy from brands such as Apple or Netflix, or companies willingly buy from vendors such as Google or Microsoft, people do not choose to be patients and often do not want ongoing reminders that they are ill.

Under fee-for-service (FFS) medicine, targeted offerings trend toward revenue-generating services, even if they are not always necessary for a given patient population or diagnosis. Under value-based care (VBC), meanwhile, HCOs increasingly emphasize preventive services that aim to improve patient outcomes and lower care costs, even if it means patients do not come into the office.

To that end, true patient relationship management (PRM) is more than just CRM for healthcare. It focuses on patients' needs outside of the healthcare facility setting, in between care episodes, as they live their everyday lives. It supports the notion, reflected in a Society for Participatory Medicine survey, that patients "overwhelmingly" deem partnership with clinical staff as critical to maintaining and improving health. (See Figure 2.)



Patients Overwhelmingly Believe in Partnership With Their Clinicians to Improve Overall Health

National survey also reveals people see benefits in monitoring and sharing their health information between visits



88% believe that working with their health care professional AS A PARTNER will help them manage and improve their overall health.

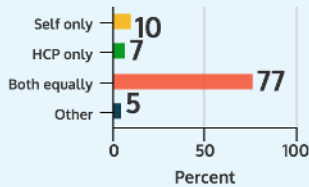


Health care as collaboration = Participatory Medicine

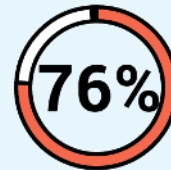


84% believe self-tracking their health data* & sharing it with their health care professional (HCP) between visits would help them better manage their health.

Believe that easily and accurately monitoring their bodies is important to ...



76% would use a clinically accurate and easy-to-use monitoring device:



81% are more likely to use device if their HCP recommended it.

**Health data* includes blood pressure, heart rate, respiratory rate, glucose, physical activity and other key assessments

This survey and infographic brought to you by The Society for Participatory Medicine. More info at ParticipatoryMedicine.org

Study was conducted by ORC International Dec. 10-13, 2015 using two probability samples: randomly selected landline telephone numbers and randomly selected mobile (cell) telephone numbers. The combined sample consists of 1,012 adults (18 years old and older) living in the continental United States. Of the 1,012 interviews, 512 were from the landline sample and 500 from the cell phone sample. The margin of error for the sample of 1,012 is +/- 3.08% at the 95% confidence level. Smaller subgroups will have larger error margins.

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Figure 2: Society for Participatory Medicine Survey on Patients Partnering with Clinicians

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PROVIDER PRM STRATEGIES REMAIN IMMATURE

In addition to the complexities of providing the functionality necessary for information flow, vendors face a diverse market of enterprise HCO customers. Since healthcare systems differ in size, mission, geographic footprint, patient populations served, dominant payers, ability to take on risk, financial footing, and numerous other factors, a flexible and modular PRM solution is necessary.

As a result, HCO strategies for patient engagement often take on forms that do not necessarily address aspects of our definition of true PRM. These include the following:

- A “portal of portals,” giving patients a single entry point for several portals. These are common at AMCs or IDNs that have grown through M&A and therefore have multiple EHR vendors or multiple instances of the same system. While providing a single entry point helps patients access information previously found in disparate portals, it fails to add new functionality for patient self-management, education, or communication.
- An emphasis on care coordination, whether outsourced or conducted in-house, in order to overcome the “last mile” automated engagement gaps common in care management and PHM solutions. This addresses a glaring need but is often conducted through non-automated, labor-intensive modalities (in-person or over the phone).
- A focus on the bedside, particularly at surgical centers or other facilities where inpatient stays (and FFS payment models) are the norm. Here HCOs often emphasize the patient experience – esoteric features such as nice TVs, valet parking, and comfortable waiting rooms – without addressing the need for engagement in the care process, particularly when patients must manage their health outside the hospital. Plus, [evidence](#) from the Mayo Clinic suggests that in-hospital engagement has little impact on post-discharge outcomes, as it does not focus on post-discharge needs such as access to clinical notes, links to care team members, or access to a care plan and educational materials.
- A push for internal development of solutions, typically by an AMC “Innovation Center.” This pushes HCOs to address their specific engagement needs, rather than adopt a more generic third-party solution, but it also runs the risk of limiting an organization’s focus when it comes to broadening its PRM focus – not to mention devoting internal resources to developing something that’s already available on the market.

PRM DEFINED

Chilmark Research provides the following definition for PRM:

Patient relationship management (PRM) is the use of multiple modes of outreach (such as email, messaging, and mobile applications) to assist patients in monitoring their symptoms, managing their health, learning about their conditions, coordinating the care that they receive, and dealing with the various challenges of a disjointed care delivery system – all while living their daily lives in between appointments, office visits, or other episodes of care. As payer and provider business models and technology strategies continue to converge under value-based care models, PRM will shift from a task managed solely by provider organizations to a collaborative effort that involves providers, payers, and third parties working on their behalf.

Figure 3: PRM Definition

Healthcare is filled with personal stories of disjointed care. Incorrect diagnoses, conflicting care plans, duplicative tests or procedures, prior authorization questions, disparate patient records, missed opportunities to prevent chronic conditions, transfers or referrals to the wrong care venue or provider, confusing bills, faxes – the list goes on.

Whatever the causes of disjointed care, the effects are often the same: Poor patient experience and care quality, little impact on clinical outcomes, poor understanding of diagnoses and treatment options, minimal accounting for social determinants of health (SDoH), obscure lines of communication between patients and clinical staff, and expensive bills for patients and payers alike. As HCOs face increasing regulatory and market pressure to improve care quality and the patient experience while lowering care costs, they face a similar pressure to mitigate the causes and effects of disjointed care.

Amid these pressures, HCOs must make a concerted effort to connect with patients in various ways as they manage their health, fitness, well-being, and the inevitability of aging – all while going about their daily lives. Making connections before patients receive care, and maintaining connections after they receive care and in between care episodes, can provide a more coordinated and less disjointed care experience. And it's more than just reminders about billable services.

To support this “patient journey,” HCOs in the last 18 to 24 months have shown increased interest in solutions that focus on the needs of individual patients and care team members as well as the HCO as a whole. (See Figure 4, a model [presented](#) by Salesforce at HIMSS17 that Chilmark Research has broadened.) The vendors providing these come from numerous core competencies within healthcare IT – ranging from enterprise CRM to EHR-based patient portal to patient-facing messaging and education – and number, conservatively, at least several dozen.

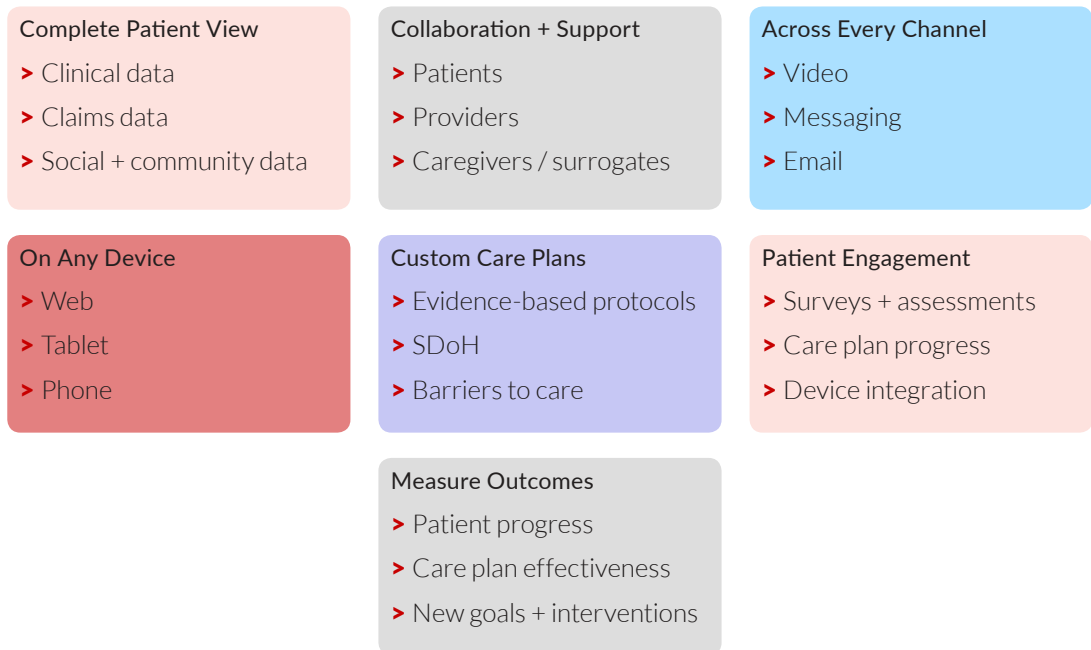


Figure 4: The Patient Journey Checklist

WHY THE MARKET NEEDS PRM

As noted in one of the first research [papers](#) to address PRM – published by HIMSS in 2008 – both patients and HCOs can benefit from the use of PRM in supporting the patient journey. (See Table 3.)

Impact	Patient Benefit	HCO Benefit	Financial Benefits
Comprehension	Self-awareness, education	Patient care process + workflow	Reduces non-compliance
Communication	Dialogue with care team	Messaging among care team	Reduces duplicate services
Conceptualization	Shared decision-making	Identify unit goals + priorities	Increases visibility into needs of high-risk patients
Collaboration	Participation in care process	Coordinate workloads	Enables capitated care
Collective Intelligence	Point-of-care preparation	Patient identification + risk mgmt.	Reduces readmissions or preventable care episodes

Table 3: PRM Benefits for Patients and HCOs

Activity in the PRM market has picked up over the last 18 to 24 months as PRM solutions have separated themselves from other types of engagement solutions (such as legacy portals, point solutions, and employer-centric solutions) in several key ways.

Economic Drivers of PRM Adoption

Economic factors affecting key stakeholders are collectively motivating early investments in PRM.

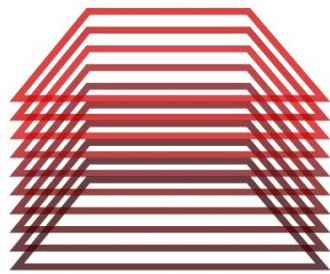
- > **Providers** that do not maintain high HCAHPS scores tied to patient satisfaction metrics risk lower Medicare reimbursements. As of 2018, MACRA requirements tied to patient engagement metrics could similarly impact reimbursement. In addition, increasingly competitive markets are forcing providers to work harder to acquire new patients and retain existing patients.
- > **Payers** have traditionally sought to control healthcare costs through capitation, utilization management, condition management, and risk-based contracts. In today's environment, though, payers are also moving into care delivery, whether through joint ventures (JVs) with hospital/telehealth/retail health providers or through their own brick-and-mortar locations.
- > **Patients** face increased out-of-pocket expenditures for healthcare services via high deductible health plans (HDHPs), with [drug prices](#) rising 10% per year and [premiums](#) having tripled in the last 20 years. This puts pressure on patients to remain within a network to avoid further unexpected costs.

Limitations of Legacy Portals

[According to](#) the Government Accountability Office, only 15% of hospital patients and 30% of medical practice patients access their health records electronically.¹ Numbers are lower for providers in rural areas, with a high population of senior patients, or with 50 or fewer group practice members.

¹ The GAO's data came from the 2015 Medicare EHR Incentive Program as part of meaningful use; the program included 3,218 hospitals and roughly 194,200 healthcare providers.

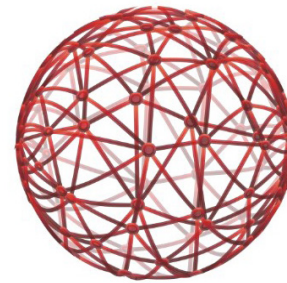
Patients don't use first-generation portals because, as legacy systems that predate the emergence of smart-phone applications or broad acceptance of user-centered design principles, they suffer from clear limitations. (See Figure 5.)



SYSTEM OF RECORD

Hosting Processes

- > Highly Structured
- > Hierarchical
- > Transactional
- > Slow Response
- > Long Deployment Cycles
- > Inward Focus



SYSTEM OF ENGAGEMENT

Touching People

- > Dynamic, Loosely Structured
- > Responsive, Adaptive
- > Conversational
- > Fundamentally Social
- > Short, Rapid, Iterative Releases
- > Edge of Care

Figure 5: System of Record vs. System of Engagement

- > They remain systems of record, **failing** to provide functionality so patients can update personal information or view treatment plans.
- > They lack context, which **prompts** patients to call the physician's office or consult Dr. Google.
- > They reflect single care episodes, with records as well as engagements tied to single visits.

(Note: Numerous EHR vendors recognize these limitations and continue to roll out features that allow for better communication, care/condition management, and education. Not surprisingly, these are the same EHR vendors pivoting to address population health management, or PHM.)

Limitations of Point Solutions

Point solutions help patients manage a specific facet of their care – vital signs, diet and nutrition, physical activity levels, and so on. They typically accomplish a single task well (think Fitbit and Garmin for fitness tracking) but also present clear limitations:

- > **They remain fragmented**, leaving patients with multiple chronic conditions to use separate apps to manage activity tracking, blood glucose, blood pressure, a CPAP machine, and diet/nutrition.
- > **They remain outside the care continuum** and are not optimized for interactions with members of the clinical care team. (The notable exception here is solutions for blood glucose monitoring that transmit data directly to endocrinologists.)

- > **They can be hard to use**, making it [difficult](#) for patients to manually enter data or look up information without assistance.
- > **They struggle to achieve “stickiness”** due to [factors](#) ranging from the burden of data entry to hidden costs to a loss of interest.

Engagement Outside the Enterprise HCO

Many improvements to the engagement experience enabled by technology occur outside the enterprise HCO setting. Broadly speaking, four classes of vendors support these types of engagements.

- > **Telehealth.** Direct-to-consumer (DTC) telehealth vendors offer patients fast access to low-acuity care. Payers increasingly cover these visits as a way to steer patients to lower-cost utilization.
- > **Retail health.** CVS Health, Walgreens, and Walmart have been expanding their retail clinic footprints. With CVS Health closing in on its acquisition of Aetna, and with Aetna entering numerous JVs with large HCOs, it’s possible that more provider will leverage CVS Minute Clinics rather than build their own low-acuity or urgent care clinics.
- > **Payers.** Payers have been building engagement apps internally (both generic and condition-specific), partnering with vendors (namely Castlight Health, Livongo Health, and Omada Health), or outright acquiring vendors (Cigna buying Brighter).
- > **Employers.** Vendors such as Accolade, Limeade, WebMD, and Welltok offer services ranging from chronic condition management to wellness programs (the latter emphasizing overall health and well-being, not “voluntary” screenings tied to insurance premiums).

These solutions offer greater convenience but also present the risk of further fracturing clinical workflows and creating additional care (and data) silos. PRM offers the potential to support these care venues while bringing their engagements back into the enterprise HCO setting.

Need for Extensibility

Both legacy portals and point solutions tend to focus on a single use case. PRM solutions require the extensibility to account for potential use cases in three key ways.

First, PRM must address the various goals that define the engagement process across the care continuum. (See Table 4.)

Status of Patient	Patient Goal	HCO Goals	Engagement Goals
Healthy	Fitness	Prevention, lifestyle management	Outreach
At-Risk	Wellness	Behavior change	Intervention (education, coaching)
Simple Chronic	Stay the course	Disease management, medication adherence	Compliance
Episodic / Procedural	Return to normal	Condition management, recovery	Decision support
Complex Chronic / Acute	Retain quality of life	Utilization management	Care management

Table 4: Engagement Goals Across the Care Continuum

Second, PRM must accommodate both high touch and high-tech engagement modalities. (See Table 5.)

Status of Patient	Engagement Tools	Care Team Members	Additional Care Venues
Healthy	Mobile apps, wearables, portal tools	PCP	Retail health, urgent care (as needed)
At-Risk	+ Targeted messages, feedback / notifications	+ Dietician / health coach	+ Community resources
Simple Chronic	+ Care Plans	+ Mental / behavioral health	+ Virtual visits
Episodic / Procedural	+ Targeted education	+ Physical therapist, other specialists	+ Acute care
Complex Chronic / Acute	+ Medical devices / sensors	+ Home care	+ LTPAC, PCMH, hospice (as needed)

Table 5: Growing Needs of Patients Across the Care Continuum

Third, PRM must also recognize that, with each engagement touchpoint, an HCO has several related business objectives:

- > Avoid duplicate and/or unnecessary services.
- > Streamline clinical workflows.
- > Practice preventive vs. reactive care delivery.
- > Reduce the need for high-acuity services.
- > Reduce overall spending.
- > Remove (or at least reduce) friction with payers.

Provider-Payer Convergence

Reducing friction with payers is a key challenge for any HCO implementing PRM (and more so for HCOs in shared-risk contracts). A provider needs to know that a payer recommends a member enroll in a Diabetes Prevention Program, for example, or a payer needs to know a provider recommends additional preparation in advanced of a pre-approved surgery.

The convergence of provider and payer services lines, driven by healthcare's shift to risk-adjusted care, depends on the free flow of data between payer and provider IT systems. (See Figure 6.)



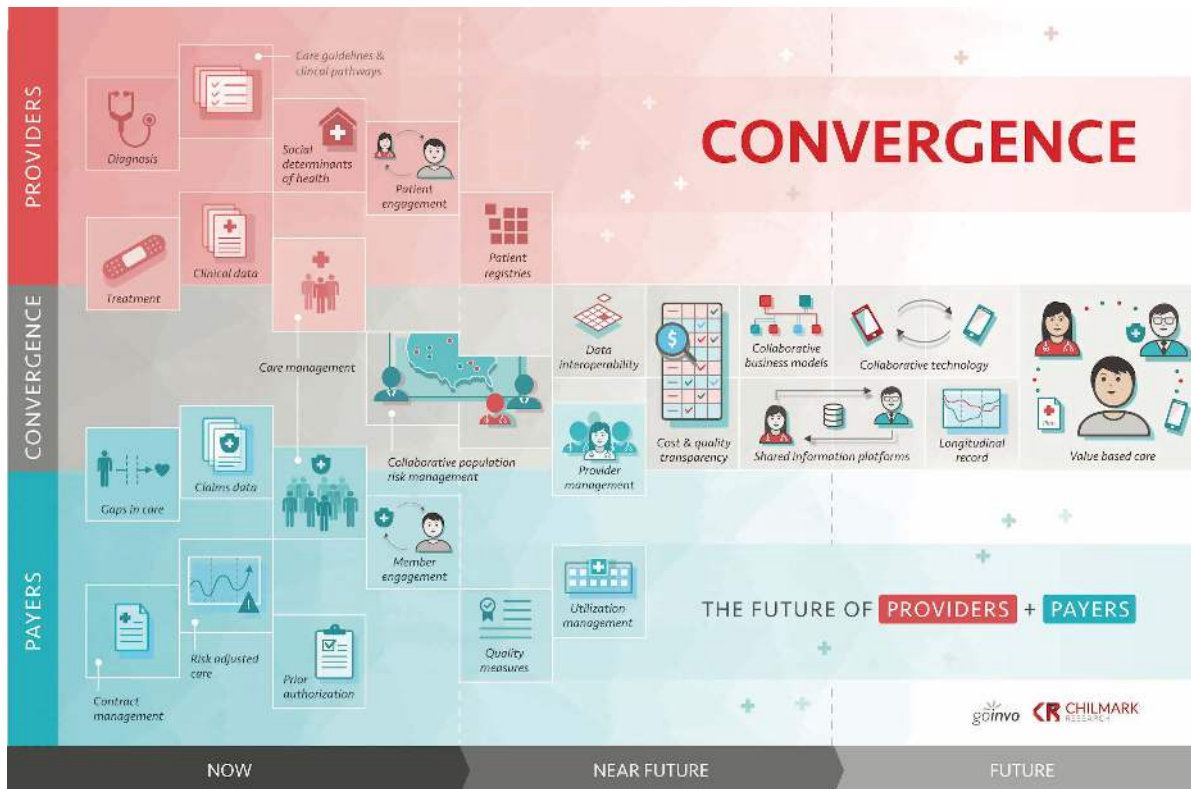


Figure 6: Convergence: Points of Distinction and Opportunities for Collaboration on Path to VBC

Under a converged model focused on value-based care, patient-generated health data (PGHD) – such as patient reported outcomes (PROs), answers from a health risk assessment, or data synced from a fitness tracker or remote patient monitoring (RPM) device – plays as important a role in managing health and wellness as clinical, claims, financial, and operational data.

To date, the ability to collect, analyze, parse, and share this PGHD requires functionality that legacy portals, point solutions, and engagement solutions adopted outside the enterprise HCO setting are largely unable to provide. That said, payers entering JVs with HCO partners, as Aetna has done in several markets, are increasingly taking steps to improve the engagement experience at the HCO level and could play a greater role in PRM over the next 3-5 years.

Need for Analytics

Under FFS contracts, HCOs engage with patients so they visit the office for billable services. These outreach efforts need not be highly targeted: All patients for messaging about wellness exams or flu shots, all patients over 50 for a colonoscopy screening, all women over 40 for a mammogram, and so on.

Under VBC, HCOs need to identify which patients are most likely to benefit from the PHM initiatives written into risk-based contracts – most notably 30-day hospital readmission reduction but also Type 2 diabetes prevention, hypertension management, or joint replacement recovery (bundled payments).

To target these patients, HCOs need engagement solutions that integrate with the analytics tools used for risk stratification and patient identification. (This can happen even at a basic level of importing a static list of patients.) Along with streamlining workflows for patient identification and outreach, integration adds legitimacy to

PRM, framing it in the larger context of system-wide analytics and PHM initiatives and not just as a standalone effort disconnected from care delivery or business objectives.

Analytics is not a core competency of most PRM vendors, so many address this functionality via partnership. Examples include Eliza (partnered with Caradigm), HealthLoop (Sherbit), and Salesforce (Geneia). There are two exceptions: Large EHR vendors that can easily integrate the analytics functionality they have building for the last 2-3 years, and vendors such as Health Catalyst and IBM Watson Health that have a core competence in analytics and also provide PRM as part of a larger care management and PHM solution.

The Struggle to Change Behavior

Engagement is only the first step of a 4-step process in supporting the patient journey. (See Figure 7.)

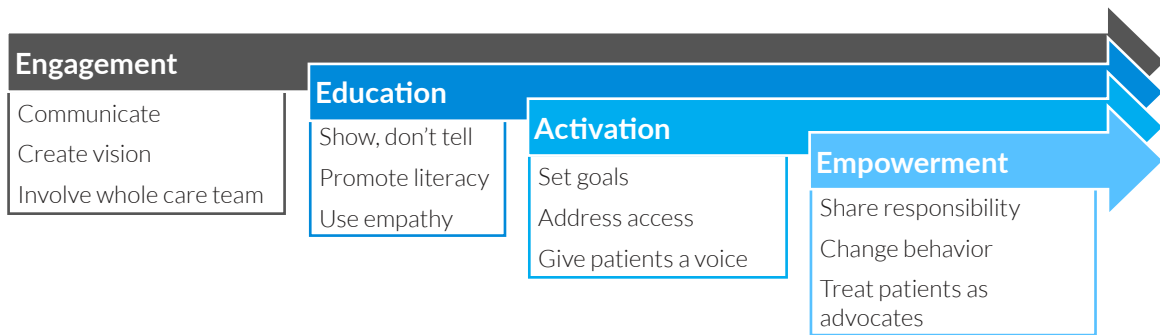


Figure 7: The Path from Engagement to Empowerment

Effectively monitoring behavior change requires dozens of interventions, if not hundreds – and it takes only one failure among a multitude of successes for a patient to stop participating. This requires a degree of interactivity that legacy engagement solutions typically do not support:

- > Asking open-ended questions that provoke patients to think, in order to understand how best to support patients as they try to change.
- > Using short, frequent, and evidence-based triggers to help patients build the skills and confidence they need to accomplish big-picture care plan goals.
- > Offering multiple recommendations to best meet patients where they are.
- > Using personalized Web forms, graphics, and videos in place of lengthy medical documents.
- > Developing programs that evolve, with tasks increasing in difficulty as patients make progress.
- > Providing feedback in real-time, or as close to it as possible, and offer suggestions or encouraging nudges if patients aren't hitting their targets.

Current State of PRM Market

There no single dominant vendor in the PRM market. In fact, there is no single dominant set of vendors in the PRM market. Based on current as well as desired use cases, Chilmark Research has identified seven types of core functionality for PRM, with key information flowing among these “stacks” of functionality. (See Figure 8.)

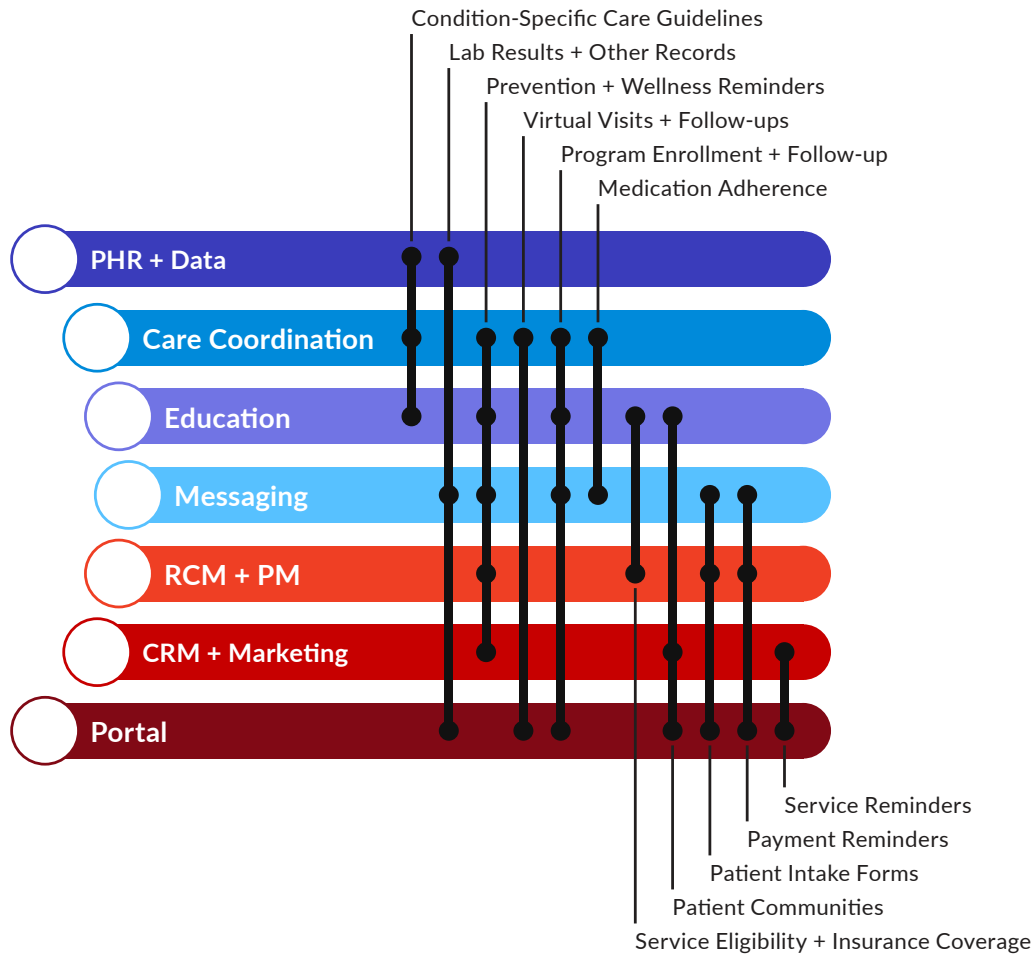


Figure 8: Core Functionality and Information Flows for PRM

Our research found most HCOs are seeking to improve engagement and outreach efforts, whether they are still in full-fledged FFS contracts, experimenting with VBC contracts, or taking on greater risk through ACO or MSSP arrangements. This is driving modest, yet uneven, growth in the PRM market, which can be separated into three categories based on HCO adoption and interest:

- > The most active sectors have been CRM (as enterprise CRM vendors extend their reach into health-care and smaller healthcare-specific CRM vendors emerge) and Care Coordination (as HCOs look to close care gaps, particularly for high-risk and/or chronic patients).
- > The Portal sector is in a state of flux; leading EHR vendors pivoting to care management and PHM are modernizing their portals, but their execution strategies and roadmaps vary. RCM and Practice Management are also in a state of flux, as vendors – much like their HCO clients – attempt to operate with one foot on the dock (FFS) and one foot in the boat (VBC).
- > The Education, Messaging, and PHR sectors have been quiet, with little vendor activity that suggests a shift away from core competencies and toward true PRM – though the announcement of Apple’s Health Records pilot may have breathed some life into the PHR sector.

Table 6 lists each PRM market sector and identifies the leading vendors in each sector.

Classification	State of Sector	Leading Vendors
Care coordination	Active	Conversa Health, Evolent Health, Fitango Health, Health Dialog, Navigating Cancer, Stitch Health, Vital Health (Philips), Welkin Health, Wellframe, Wellpepper
CRM (Enterprise)	Active	Microsoft, NetSuite, Oracle, Pegasystems, Salesforce, SAP
CRM (Healthcare)	Active	Docent Health, Evariant, HC1, Healthgrades, HealthGrid, Influence Health, PatientPop, Silverline, Solutionreach
Education	Quiet	Elsevier, GetWellNetwork, Healthwise, Mytonomy, RelayHealth (McKesson), StayWell, Wiser Together, Wolters Kluwer (Emmi Solutions), Zynx Health
Messaging	Quiet	AdvanceMD, mPulse Mobile, Patient Bond, PatientPrompt (Stericycle), Qliksoft, WellPass
PHR + Data	Quiet	Apple, b.well, CareEvolution, Care Passport, Get Real Health, MintHealth, Orion Health, Picnic Health
Portal	In Flux	Allscripts, athenahealth, Cerner, Epic, InterSystems, Medfusion, Meditech, Surescripts
RCM + PM	In Flux	CareCloud, CureMD, Eliza (HMS), Kareo, Greenway Health, TruBridge (CPSI), ZirMed

Table 6: PRM Market Sector Activity

MARKET FORECAST

Though the market for PRM solutions remains nascent, Chilmark Research foresees several trends taking shape over the next 3-5 years. These are listed in Figure 9 and summarized below.

Trends to 2020

- > Not enough risk
- > Focus on acquisition + retention
- > PRM a low IT priority
- > Small deployment footprints
- > Uncertain payment models
- > Vendor M+A shows volatility
- > PRM market fragmentation

Trends Beyond 2020

- > MACRA
- > More payment model certainty
- > Broader economic drivers
- > Provider-payer convergence
- > Clinical system integration
- > Broader telehealth integration
- > Shift from paternalism to partnership

Figure 9: PRM Market Forecast

To 2020: Early Stages of Adoption

Over the next 2-3 years, adoption of PRM solutions will largely be limited to HCOs proactively taking on risk through VBC contracts (whether through ACOs/MSSPs or contracts with individual payers); they have direct financial incentives to improve outcomes and lower costs, which offers a clearly defined use case for PRM. We see seven main reasons for this limited adoption.

Not enough risk. HCOs taking on little to no risk are likely to stand pat with legacy portals, point solutions, and marketing-centric engagement strategies. With more than 80% of healthcare reimbursement still under FFS contracts, the pool of HCOs thinking about PRM as part of an overall VBC strategy remains limited.

Focus on acquisition and retention. Add the slow uptake of VBC to the trends of thinning hospital margins and increased competition/M&A, and it is no surprise that PRM outreach efforts focus on services that promote patient retention and revenue growth. Examples include marketing to first-time mothers who need a pediatrician or to recent knee replacement patients who need outpatient services.

Higher IT priorities. HCOs have prioritized care management, EHR, and PHM in their IT roadmaps and intend to leverage the engagement functionality that these solutions provide. These solutions emphasize processes such as risk stratification, patient identification, patient assignment, and the generation of evidence-based interventions. Patient assessment and outreach have yet to be automated in the same manner.

Small footprints. Among HCOs using PRM, implementation tends to be in the pilot phase, largely with a focus on a single disease state or a single hospital department. This reflects both the limitations of risk-based contracts, which typically cover a small percentage of an HCO’s patient population, as well as the hesitance to roll out a PRM solution to an entire population.

Payment model uncertainty. HHS put the brakes on bundled payment [initiatives](#); hip fracture and cardiac care bundled payment models are no longer mandatory, and the number of geographic regions participating in the joint replacement program was cut from 67 to 34. Meanwhile, only about 30% of MSSP participants earned [savings](#) in the 2016 performance year – igniting a larger [debate](#) about whether the MSSP and ACO programs truly generate savings.

M&A activity driving hesitance. The last 18 months have seen substantial PRM market merger and acquisition [activity](#). (See Table 7.) Taken together, these moves suggest market volatility and may give pause to HCOs that traditionally prefer to invest in vendors with more stable long-term prospects.

Buyer	Acquisition	Key Asset
athenahealth	Praxify	Personal assistant
Medfusion	NexSched	Appointment scheduling
PatientBond	C2b solutions	Market segmentation
Philips	VitalHealth	Telehealth
Wolters Kluwer	Emmi Solutions	Educational content

Table 7: Key PRM Market Acquisitions in the Last 18 Months

PRM market fragmentation. With dozens of vendors and several approaches to PRM (based on the core competencies of PRM vendors), HCOs will have to approach the PRM acquisition process with due diligence. It will take time to for HCOs to identify their most pressing engagement needs – especially if they are also in the midst of identifying the patient populations to cover in risk-based contracts – and shortlist the PRM vendors capable of addressing those needs.

Beyond 2020: Wider Use

Over the next 3-5 years, several factors will motivate HCOs to more widely adopt PRM solutions.

MACRA. MIPS rewards physician practices that offer education, care coordination, secure messaging, health data/record access, and PGHD functionality to their patients; expect practices that fall short on these requirements (which account for 25% of the total MIPS score) to evaluate PRM solutions to improve engagement and boost scores. Alternative payment models such as ACOs, MSSPs, and bundled payments aren't subject to the same requirements under MACRA – but, as [noted](#) in *AJMC*, success in these APMs nonetheless depends on practical patient engagement strategies.

Private payer interest in new payment models. Payers will continue to push HCOs toward risk-based contracts, including the private ACOs and bundled payment models receiving lax support from CMS and HHS. For the HCOs that sign these contracts, PRM will shift from a nice-to-have to a must-have for managing the complex needs of populations covered under risk-based contracts and ensuring that interventions do in fact improve outcomes while lowering overall care costs.

Broader economic drivers. Competition, M&A, and other competitive pressures will drive HCOs to acquire and retain patients. Continued growth in HDHPs will drive patients to seek high-value engagements with HCOs. This combination of economic factors will motivate HCOs to invest in PRM as a way to target new patients and effectively manage existing patients under tightening margins.

Provider-payer (and -employer) convergence. This trend further emphasizes the need to manage patients' health and wellness outside the healthcare system. One adage suggests meeting patients where they work, live, play, learn, and pray. "Work" will be the most important of these locations, given employers' need to cut healthcare costs and keep employees and beneficiaries healthy (if nothing else, for the sake of productivity). We expect the market to favor PRM solutions with the extensibility to accommodate providers as well as payers and employers.

Integration with clinical systems. That said, providers will nonetheless remain the patient's primary entry point into the healthcare delivery system. PRM solutions that do not integrate with EHR, PHM, care management, and practice management systems will quickly fall from favor. In addition, integration with analytics solutions will take on added importance as HCOs increasingly apply PGHD and PROs to predictive analytics for risk stratification.

Broader telehealth offerings. Expect major DTC telehealth vendors (American Well, Doctor on Demand, MDLive, and Teladoc) to pivot away from standalone care episodes toward more coordinated care. Vendors will do this in three ways: Functionality improvements, additional HCO partnerships, and integration with EHR, PHM, and care management systems. (American Well got this started with its Philips partnership, announced in early 2018, which will enable the integration of American Well telehealth visits with Philips HealthSuite.)

Clinical shift from paternalism to partnership. As *NEJM* recently [pointed out](#), true empowerment involves treating patients as equal partners, not merely as recipients of care, which in turn "involves both clinical and personal values-based input." Beyond providing diagnoses and treatment options, clinical staff in particular and HCOs in general must address patients' SDoH through education, social and community support, and considerations for cultural norms. PRM solutions can leverage their collaborative functionality to support this shift from paternalistic to participatory healthcare.

Market Outlook: Much Competition, No Clear Leaders

For a market as nascent as PRM, there has been much activity in the past 18 to 24 months. A market previously dominated by enterprise CRM vendors (InfoSys, Microsoft, Oracle, Salesforce) and healthcare-specific CRM vendors (Evariant, Influence Health) has seen vendors with numerous core competencies – care coordination, patient education, messaging, personal health record (PHR), revenue cycle management (RCM) and practice management (PM), and even the patient portal – pivot their offerings into more comprehensive PRM solutions. This increased competition leaves HCOs with plenty of PRM options to consider, based on their short- and long-term patient engagement strategies.

CLASSES OF PRM VENDORS

There are seven classifications of vendors providing functionality that Chilmark Research broadly defines as necessary for PRM. (See Table 8.)

Classification	Advantages	Drawbacks	Vendors Profiled
Care coordination	Evidence-based programs, self-management support	Scalability, extensibility	> Conversa Health > HealthLoop
CRM (Enterprise)	Scalability, outreach, customization	Limited clinical interventions, self-management support	> Pegasystems > Salesforce
CRM (Healthcare)	Outreach, customization for specialties	Limited clinical interventions, self-management support	> Docent Health > Influence Health > Solutionreach
Education	Tied to clinical quality goals	Limited communication	> None
Messaging	Simple + familiar UX, targeted interventions	Extensibility, limited clinical interventions	> mPulse Mobile
PHR + Data	Patient data stewardship, collaborative health record	Lack of HCO buy-in, unclear business model	> Orion Health
Portal	Clinical integration, business case	Cost, reputation for poor usability	> Cerner > Epic > Meditech
RCM and PM	Individualized outreach, metrics and reporting	FFS emphasis, limited clinical functionality	> CareCloud

Table 8: The Classes of PRM Vendors

Care coordination vendors emphasize engagement as a way to close care gaps, especially among patients with high-acuity conditions and/or multiple chronic conditions. Engagements range from virtual visits to surveys/HRAs to medication reminders to care plans backed by evidence-based clinical content. Though comprehensive, the narrow population focus poses scalability challenges.

CRM vendors apply the core competencies of enterprise CRM to the healthcare setting, emphasizing multichannel engagement, highly targeted messaging, and robust metrics. Vendors serve clients of various sizes, with various needs, and can both scale and customize offerings accordingly. Partner ecosystems accommodate a range of features, including clinical functionality that CRM solutions notably lack.

Education vendors provide resources such as information about a new diagnosis or medication, as well as step-by-step instructions to prepare for or recover from surgery. Multimedia materials are increasingly common, both as videos or “guided journeys” that help patients evaluate symptoms, treatment options, and care plan goals. Interest is highest for common procedures where there is direct incentive to cut costs and provide more standardized care (e.g. bundled payment models); use cases for general wellness topics that would benefit larger patient cohorts are not yet fully baked.

PHR and data vendors aim to help patients curate, manage, and in a sense “own” their own health data, both for their own education and to assist physicians with clinical decision support. A lack of patient and physician buy-in, combined with a lack of a tenable business model, has left this market segment stagnant. However, provider-payer convergence and retail health growth could renew interest in patient-driven health record management, as it will be difficult for one entity to provide a “single version of the truth.”

Messaging solutions focus on bidirectional messaging among patients and care team members. Messages include appointment reminders, educational resources, medication reminders, brief surveys/HRAs, and payment reminders. The simplest implementations use SMS messages, accommodating patients without smartphones and/or restrictive data plans. The simplicity is also a drawback, however, as solutions struggle to support more complex interventions that require additional context.

Next-generation EHR portals coincide with the pivot of vendors such as athenahealth, Allscripts, Cerner, Epic, and Meditech away from pure-play EHR and toward PHM and care management. Functionality improvements include alerts/notifications, contextual explanations of lab test results, and care team messaging – though a team of Texas-based healthcare researchers say portals need substantial UX improvements in order to accommodate further enhancements such as collecting PGHD and PROs.

Revenue cycle management and practice management vendors help small and/or independent practices (both PCPs as well as specialists) manage day-to-day operations. Solutions approach engagement from two perspectives: Streamlining data collection and offering multiple payment options in order to increase collections. If available at all, additional functionality such as messaging, care coordination, and condition management typically comes from third-party partners.

Who’s Missing?

Five classes of solutions have been omitted for consideration for this Market Scan Report. Three are missing the functionality that we deem necessary for PRM, and three focus on engagement outside the enterprise HCO setting.

Legacy portals focus on single care episodes, present information to patients without adequate context, and lack functionality to enable bidirectional communication with care team members. They reinforce the paternalistic view of patients as recipients of healthcare services.

Point solutions tend to do one thing very well, though this means that patients with multiple chronic conditions need multiple apps in order to manage their health. In addition, these apps are largely marketed and sold directly to consumers, which makes them difficult to integrate into clinical workflows.

Payer-centric solutions vendors are pursuing several strategies: Build internally (Humana and UnitedHealthcare), partner (Anthem, Cigna and Humana), acquire (Cigna and Aetna), or stick to legacy engagement modalities. Taking several engagement paths leaves these solutions short on both functionality and enterprise HCO integration – though JVs with HCOs in the name of payer-provider convergence may change this.

Telehealth solutions complement PRM but do yet not on their own support PRM within an HCO setting. While payers are increasingly willing to partner with DTC telehealth providers, HCO partnerships are limited to

risk-bearing organizations with direct incentives to steer patients to low-cost low-acuity services. Interest among HCOs could pick up as EHR vendors integrate video visits into patient portals, though there are currently two competing strategies: Partnership with telehealth vendor (Vidyo with Allscripts, eVisit with athenahealth, American Well and Vidyo with Cerner) or internal development of video visit functionality (eClinicalWorks, Epic, and Meditech).

Employer-centric solutions from vendors such as Accolade, Limeade, Fitbit (Twine Health), and Welltok will not be adopted by HCOs for at least 2-3 years, until risk-bearing contracts move beyond 30-day readmission reduction and start addressing chronic condition management and even prevention. Until then, vendors will focus on employers' incentives to cut costs and improve outcomes at the same time.

FEATURE ASSESSMENTS

We surveyed vendors on five categories of PRM functionality. Each category is summarized in Table 9 and described in greater depth below. We also identify which groups of PRM vendors are leaders in providing this functionality and which groups are falling short.

Functionality	Key Features	Leading PRM Sectors	Trailing PRM Sectors
Outreach	<ul style="list-style-type: none"> > Patient identification > Initial Outreach > Ongoing Outreach 	<ul style="list-style-type: none"> > CRM > Portal > RCM + PM 	<ul style="list-style-type: none"> > Education > PHR + Data
Care Management	<ul style="list-style-type: none"> > Evidence-based programs > Digital interventions > Comorbidities and SDoH 	<ul style="list-style-type: none"> > Care Coordination > Education > Portal 	<ul style="list-style-type: none"> > CRM > RCM + PM
Engagement	<ul style="list-style-type: none"> > Mobile interface > Communications > Care plan access 	<ul style="list-style-type: none"> > CRM > Portal > Messaging 	<ul style="list-style-type: none"> > Education > PHR + Data
Support	<ul style="list-style-type: none"> > Self-management > Device integration > Patient communities 	<ul style="list-style-type: none"> > Care Coordination > Education > Portal 	<ul style="list-style-type: none"> > RCM + PM > Messaging
Analysis	<ul style="list-style-type: none"> > Outreach metrics > Care delivery metrics > Report delivery 	<ul style="list-style-type: none"> > Care Coordination > CRM > RCM + PM 	<ul style="list-style-type: none"> > Education > PHR + Data

Table 9: PRM Feature Assessment

This Market Scan Report does not rate individual products or services. We feel the PRM market is too immature, with too many classes of solutions offered, for solutions to be effectively compared and scored. In addition, the level of readiness demonstrated by the vast majority of HCOs suggests that the initial deployment of PRM solutions will cover a much smaller cohort population than a care management or PHM solution and, as a result, does not require the same level of scrutiny before implementation.

Instead, this report rates the overall maturity of the five categories of functionality listed in Table 5. We assign letter grades to each based on how the functionality that is currently available compares to market and program participant needs. We also identify the vendors among those considered for this report that are leaders in providing this functionality.

Outreach

Overall Grade: B+

Strengths: Patient identification data sources, non-clinical roles involved in outreach

Opportunities: More automated outreach

Leading Vendors: Conversa Health, HealthLoop, Influence Health

The first steps in PRM are among the most important: Identifying which patients would benefit from increased engagement – whether it's a one-off wellness reminder or a year-long disease management program – and reaching out to them using the methodology most likely to elicit a response. Research from San Francisco General Hospital has shown that ongoing outreach after hospital discharge increases attendance for 7-day follow-up appointments and reduces 30-day readmissions.

To identify patients, solutions pull data from multiple sources. The use of clinical data is more common than the use of claims and HRA data. Most solutions also pull mental health and SDoH data from their clinical data sources, which reflects an increased awareness of addressing these non-clinical factors in patient engagement.

The risk stratification process – taking information about patients and deciding who to reach out to – tends to use methodologies that are either proprietary to the vendor or defined by the individual customer. Solutions tend to use a single methodology rather than two or more in tandem.

Initial outreach typically still happens through a phone call or portal message and in most cases is not automated, which shows room for improvement. Ongoing outreach, more likely than not, is also not automated, though messages that are automate tend to be based on patient diagnosis or preference (as opposed to automated mass mailings).

Care Management

Overall Grade: B

Strengths: Availability of multiple modalities for digital interventions

Opportunities: Improved functionality from CRM and RCM/PM vendors

Leading Vendors: Cerner, Epic, Orion Health

PRM solutions typically pull evidence-based guidelines from more than one source, whether proprietary, third party, or from a payer/provider customer; there is no dominant source of guidelines. Likewise, solutions typically offer more than one type of care management program, though these tend to be more clinical in nature – that is, tied to episodic care (30-day readmission prevention) or ongoing condition management – as opposed to general health and wellness. Most solutions are able to identify comorbidities and SDoH, though this typically happens though through the patient outreach or assessment process and is not yet automated.

When solutions offer digital interventions based on clinical guidelines, they tend to offer at least three modalities. Video and AI/virtual visits are less common than phone, SMS, and email interventions, which are nearly universal among PRM solutions that offer interventions.

Overall, CRM and RCM/PM vendors have been slow to add care management functionality. Those CRM and RCM/PM vendors that do offer care guidelines and/or digital interventions tend to do so through a third-party partnership instead of building their own.

Engagement

Overall Grade: A-

Strengths: Availability of mobile interfaces, breadth of automated communications

Opportunities: Synchronous messaging, message rerouting, access and consent configuration

Leading Vendors: Epic, mPulse Mobile, Pegasystems

Engagement is critical to PRM efforts, especially efforts centered on long-term program participation and/or behavior change. Efforts cannot simply rely on single message or intervention, either. As the marketing Rule of Seven suggests, it can take seven nudges (or more) before the person who is being targeted is finally prompted to take action, and a *New York Times* [analysis](#) of healthcare research suggests that these nudges need to come in many forms to be truly effective.

Mobile-enabled interfaces are nearly universal. Bidirectional messaging with care team members is nearly universal as well, and it is rare for patients to not be able to connect with clinical staff. However, this communication option is more likely to be asynchronous than synchronous, which gives vendors room for improvement.

Automated communications between a care team and a patient include reminders (upcoming appointments, overdue appointments, and wellness checkups) as well as patient satisfaction surveys, which are critical to linking engagement and experience improvement efforts to quality metrics and other measurable outcomes. (Medication reminders are less common, but the market for point solutions for medication adherence is quite active and presents plentiful partnership opportunities.) Most communication modalities are offered, though interactive voice response (IVR) is rare. Few solutions have the ability to reroute messages using a different modality if, for example, a text message or email is undelivered; this represents another area where vendors can improve their offering.

Vendors with a core competency in RCM tend to offer strong support for individualized patient communications but weak support for larger cohort communications. Other vendors show strong support for cohort communications but weak support for individual communications; in this case, though, there is no single core competency that stands out.

The majority of solutions allow patients to access and make changes to their care plan, and access from a mobile device is nearly as common as access from a portal or Web application. However, the ability to configure access and consent, whether to release information to a caregiver/surrogate or to another provider, is not yet universally available.

Support

Overall Grade: C

Strengths: Growing support for device integration, SDoH resources

Opportunities: Virtual support, links to patient communities, specific educational materials

Leading Vendors: Conversa Health, Orion Health, Pegasystems

Beyond reaching out to patients and providing them with care plans, PRM strategies strive to provide patients with self-management and support to manage their health outside of a clinical setting. It is in this category of functionality that PRM solutions have the most progress to make.

Educational materials are widely available, but generalized resources are more common than resources linked to a specific clinical topic, which in turn are more common than personalized educational materials.

Manual data entry or direct connections to devices remain the most common methodologies for integrating fitness or medical devices. When it comes to integrating devices with third-party services – whether medical device platforms (Qualcomm, Philips, Cardiocom), consumer platforms (Apple, Google, Samsung), or data platforms

(Validic) – vendors either support 2+ services or no services. There remains a substantial gap between vendors that utilize third-party services to sync device data and vendors that require a more manual process.

Most solutions opt to leverage an HCO's patient communities rather than provide their own or link to third parties such as PatientsLikeMe or disease-specific forums. This offers the benefit of meeting patients where there are (in a geographic sense), but it also requires patients to remain in a healthcare setting when they may benefit from external support services.

Analysis

Overall Grade: B-

Strengths: Tracking open cases and care gaps

Opportunities: Tracking ROI of outreach (revenue, savings, etc.)

Leading Vendors: Docent Health, Pegasystems, Salesforce

Whether patient engagement efforts succeed stems in large part from the ability to track, at a granular level, the effectiveness of outreach efforts. PRM metrics must be a bit more nuanced than CRM, as HCOs need to be able to link outreach efforts to their impact on clinical as well as financial outcomes.

PRM solutions currently handle typical marketing metrics well, tracking how many patients respond to outreach efforts (both mass messages and individual messages) as well as the response rates for different types of outreach. The ability to track open cases and care gaps, as well as whether they have been closed, is also common; this helps HCOs track progress toward achieving quality metrics.

Less common is the ability to track projected revenue (from services booked, under FFS) or savings (from services or care episodes avoided, under VBC) as a result of outreach. This functionality is critical for helping HCOs demonstrate the ROI of PRM, regardless of whether they are operating under FFS or VBC contracts, and represents a clear opportunity for PRM vendors to differentiate from the competition.

What Patients Want

One of the biggest challenges facing PRM vendors is identifying the features that matter most to patients. Traditionally, vendors and HCOs alike aligned engagement functionality with clinical workflow, not the flow of everyday life for patients outside the four walls of the healthcare setting. This disconnect, combined with the "check the box" mentality of implementing engagement functionality under meaningful use, led to the spread of features that benefit HCOs but not necessarily patients.

To find out what patients want in PRM and engagement solutions, Chilmark Research asked the membership of [Savvy Coop](#) – a patient-owned co-op launched in 2017 that allows patients to share their experiences directly with healthcare stakeholders – to describe the features that matter most to them. In addition, we ran a [Twitter poll](#) allowing respondents to choose from one of four options – though the ensuing conversation proved to be more enlightening than the poll results themselves.

Table 10 lists the responses to survey and whether PRM vendors have made these desired features a priority. It's worth noting that most are available – and whatever features are missing will make handy additions to vendors' roadmaps for future consideration.

Feature	Specific Request	Vendor Priority (5=high, 1=low)
Appointment scheduling	Appts. w/specialists	5
Bidirectional messaging	Assign high/low priority	5
Prescription refills	Automated when reasonable	5
Embedded telehealth	Care coordination + follow-up appts.	4
Patient communities	Moderated by providers or clinical staff	3
Contribute PROs	Personal care plan goals	2
Contribute PROs	Log symptoms + other external data	1
Single longitudinal record	All HCOs a patient sees (inc. out-of-network)	1

Table 10: Features Patients Want – and Whether PRM Vendors Have Them

The next step, as respondents on both Twitter and Savvy Coop said, is to bring patients – the true end users of PRM solutions – into the design process from the beginning. It’s all too common for patients to enter design review when a product is near completion and it is too late to make wholesale changes. The sooner that patients are involved, the more likely that a solution will truly meet their needs.

VENDOR BREAKDOWN

This report profiles 13 vendors, representing six of the seven classes of PRM vendors. (All classes of vendors are represented except Education, where we felt that market activity was too limited to warrant consideration.)

Vendor	PRM Sector	Differentiators
Care Cloud	RCM and PM	Automated patient intake, partner ecosystem
Cerner	Portal	High patient visibility, links to PHM + care management
Conversa Health	Care coordination	Patient self-support, strong ongoing patient outreach
Docent Health	CRM (Healthcare)	Variety of communication options, robust reporting
Epic	Portal	Broad functionality, links to PHM + care management
HealthLoop	Care coordination	Robust patient identification, automated outreach
Influence Health	CRM (Healthcare)	Multimodal outreach, emphasize preventive care
Meditech	Portal	Educational content variety, robust reporting (integrated)
mPulse Mobile	Messaging	Scalability, can target underserved populations
Orion Health	PHR + Data	Comprehensive patient data set, accounts for SDoH
Pega Systems	CRM (Enterprise)	Broad functionality, robust reporting
Salesforce	CRM (Enterprise)	Customization, scalability, partner ecosystem
Solutionreach	CRM (Healthcare)	Customization for specialties, cohort communications

Table 11: PRM Vendors Profiled

Chilmark Research chose to include these vendors based on the following criteria:

- > A minimum of 5 clients in the United States live on the vendor's engagement solution.
- > A minimum of 25 employees.
- > Recognition as a leader in their respective PRM sector.
- > Demonstrated, published impact on patient outcomes or care costs.

VENDORS TO WATCH

The 9 vendors listed in Table 12 do not meet our inclusion criteria but are worth watching due to their unique and/or emerging approach to their respective PRM sectors. We expect these vendors to build on the success of their pilot programs – or, in the case of Apple, their brand awareness – to achieve greater scale over the next 18 to 24 months.

Vendor to Watch	PRM Sector	Why to Watch
Apple	PHR + Data	DTC PHR with enterprise HCO + EHR partners
CareEvolution	PHR + Data	HIE-based data aggregation + holistic PHM beyond metrics
Greenway Health	RCM + PM	Emphasizes VBC models + chronic care
Health Dialog	Care coordination	Ties to retail health (Rite Aid) + engages at-risk population
HealthGrid	CRM (Healthcare)	Robust outreach (including education) + reporting
Mytonomy	Education	Emphasizes micro-learning + behavioral science principles
PatientBond	Messaging	Cohort segmentation provides custom communication
Wellframe	Care coordination	Engagements tied to HCO's key HEDIS, Stars measures
Wellpepper	Care coordination	Interactive treatments; Alexa integration; Mayo Clinic content

Table 12: PRM Vendors to Watch

Vendor Profiles

Each of the following vendor profiles is divided into three sections.

- > The first section includes general company information such as year founded, types of customers, flagship customers, and estimated number of employees.
- > The second section describes and evaluates the company's product strategy and portfolio.
- > The third section offers proof points such as published research or customer case studies that demonstrate the efficacy of the vendor's solution or approach to PRM.

CARECLOUD

Headquarters: Miami, FL

Year Founded: 2009

Website: <http://www.carecloud.com>

Ownership: Venture-backed

Approximate Number of Employees: 220

PRM Sector: RCM and PM

Type of Customers: Ambulatory and specialty clinics

Flagship Customers: Core Orthopedic Medical Center (CA), Rockingham Foot and Ankle Associates (NC),

Sanova Dermatology (TX)

Partners: First Data (Clover), ZocDoc, PNC (Lockbox), Lightbeam Health Solutions, Talksoft

Pricing Model: SaaS or RCM (% of collections)



CareCloud helps high-growth medical practices thrive in the new medical economy through an integrated cloud-based financial, clinical and patient platform. The company offers solutions and services across Revenue Cycle Management, Electronic Health Records, Practice Management, and its latest offering, Patient Experience Management. CareCloud supports PCP offices as well as more than 50 medical specialties, primarily in the 5- to 50-doctor range.

Last year CareCloud launched Breeze, a solution designed to handle five engagement workflows: Checking in, making a payment, managing appointments, checking out, and retail (for example, new creams at a dermatology practice). In between care episodes, patients can send emails to clinical staff through the Breeze app, and these messages appear in the CareCloud EHR inbox; practices can also push notifications such as educational materials or appointment reminders to the Breeze app and share medical documents and results. The company believes that patients who prepare for appointments in advance, arrive on time, and pay on time are more engaged in their care and achieve better outcomes - as well as pay more of their balances, faster. The goal is to provide an all-around personalized experience - the company calls it patient experience management - rather than a single point solution.

Within the practice, patients receive a tablet device at check-in, allowing them to use Breeze to confirm and update their information, fill out intake forms, photograph insurance cards and make payments on any outstanding balances. Through the Breeze app or on the web, patients can also complete the entire check-in process at home prior to an appointment as well. Intake information is imported into the CareCloud EHR and also converted to a PDF. A Breeze update announced at HIMSS18 lets practices add retail workflows to easily offer physician-recommended consumer products such as creams, sunscreens or orthotics.

CareCloud's exclusive partnership with First Data (the world's largest merchant processor) means Breeze users have access to best-in-class payments software and beautiful hardware terminals through First Data's Clover brand, including access to more than 300 curated business apps ranging from loyalty apps and Net Promoter Score surveys to telehealth and chronic condition management. Seamless integration means payments made anywhere - online, through the app, a tablet, or a Clover device - all feed right into the same patient ledger in real time.

Case Studies: [Rockingham Foot and Ankle](#) has increased traffic by 700 visits per month and cut in half the number of days that bills stay in accounts receivable. [Sanova Dermatology](#) increased profits by 40% in a six-month span and dramatically reduced the time it takes to register and schedule patients. In addition, CareCloud estimates that Breeze's early users - more than 750 physicians in all - will reduce the number of days in A/R by 33%.

CERNER

Headquarters: Kansas City, MO

Year Founded: 1979

Website: <https://www.cerner.com>

Ownership: Public (NASDAQ)

Approximate Number of Employees: 26,000

PRM Sector: Portal

Type of Customers: Health Systems

Flagship Customers: Memorial-Hermann, Mission Health, NorthBay HealthCare, University of Missouri, VCU Medical Center, Virginia Mason

Partners: American Well, Healthwise, IdealLife, Livongo Health, Salesforce, Validic, Vidyo, xG Health Solutions

Pricing Model: PMPM, plus fees



Cerner takes a broad view of PRM and PHM. The company believes that any patient along the spectrum from healthy to end-of-life can benefit from engagement, and that engagement is a continuous process that encompasses the full span of hospital and community settings.

Cerner offers two Web-based patient engagement solutions. HealthLife provides functionality to better connect patients and providers, in the name of improving outcomes as well as operational efficiency. HealthLife: Engagement is a HealthLife extension that provides customized care plan content built around an HCO's PHM strategies.

After the patient assessment process, care managers can select from roughly 20 different high-level goals and then select from a library of about 200 interventions; clients can customize which programs are offered, and the assessment process supports the identification of comorbidities. For each patient, the care manager can see the factors used to identify the patient for the care management program. Color-coded reminders specify upcoming activities for a patient. Analytics pertaining to open cases / closed care gaps is available through integration with the HealthRegistries product.

Various care team members, including community health workers and health coaches, can initiate patient outreach. The majority of initial as well as ongoing outreach is not automated, though virtual visits are available using technology from third-party partners. Patients do have the ability to correct data in their records and care plans.

PRM workflows due for release in 2018 will allow clients to choose their preferred modality for initial patient outreach. Meanwhile, the roadmap for HealthIntent, Cerner's PHM platform, includes more mainstream use of non-traditional SDoH (such as air quality and food sources) to evaluate care needs and build care models.

Case Studies: Patients at Virginia Mason (WA) self-scheduled up to 500 appointments per week through the HealthLife portal; this generated savings of \$5 per appointment since staff did not have to take phone calls. More than 35% of patients at NorthBay Healthcare (CA) use the portal to book appointments and communicate via secure messaging.

CONVERSA HEALTH

Headquarters: San Francisco, CA

Year Founded: 2014

Website: <http://conversahealth.com>

Ownership: Venture-backed

Approximate Number of Employees: 30

PRM Sector: Care Coordination

Type of Customers: Large health systems, Pharma

Flagship Customers: Carolinas HealthCare System, Centura Health, Northwell Health, Ochsner Health System

Partners: Allscripts, Healthgrades

Pricing Model: SaaS PMPM



Conversa Health's approach to engagement, care management, and PHM intends to automate 85% of its patient interactions by 2020. The company emphasizes mobile-enabled and automated yet personalized digital conversations to help patients and care teams communicate around key health experiences like chronic condition management, post discharge, pre- and post-surgery, patient education, medication adherence, and lifestyle health coaching.

Using its Conversational AI technology, Conversa enables its Digital Checkups to consolidate PGHD with biometric and EHR data, and integrate with more than 400 digital devices to create its own longitudinal record. The breadth and depth of this record allows Digital Checkups to provide structured responses, based on a decision tree architecture, which do not require the use of NLP technology. The solution does not need to make inferences about a patient's condition, as it already has access to that information through the longitudinal record.

While its solution can support both FFS and VBC business models, Conversa Health has deep experience in care management initiatives such as CJR and 30-day readmission prevention. Patients are enrolled in Digital Checkups through a link sent via SMS or email. Conversa Health offers more than 300 patient support conversation modules, which are then bundled into programs and packages. A chronic care package, for example, may include programs for COPD or hypertension; a pre- and post-op package may include separate programs for hip and knee replacements.

After enrollment, Digital Checkups provides a series of short question-and-answer interactions to address common concerns for, say, a new hypertension diagnosis or the first days after hip replacement. These questions are meant to promote better adherence and provide an early indication of non-adherence, allowing nurse case managers to focus their phone call follow-ups only on the patients whose answers within Digital Checkups raise warning signs. Customers typically use the off-the-shelf modules without any customization, but Conversa Health typically creates custom thresholds for event escalation, as well as a customized escalation process.

Case Studies: One Conversa Health customer reports 20% savings in PAC care costs. Another client was able to redirect 45% of patients to a different care plan after identifying those patients as non-adherent.

DOCENT HEALTH

Headquarters: Boston, MA

Year Founded: 2015

Website: <https://www.docenthealth.com>

Ownership: Private

Approximate Number of Employees: 40

PRM Sector: Customer Relationship Management

Type of Customers: Large hospitals

Flagship Customers: Dignity Health, Hospital for Special Surgery, Intermountain Healthcare

Partners: N/A

Pricing Model: Per managed population



Docent Health extends the concept of CRM to help organizations coordinate the customer experience. By aggregating structured and unstructured data to help hospitals create holistic customer profiles, the platform provides complete information awareness and business intelligence from across the enterprise. Automated customer segmentation and relationship management workflow capabilities help ensure the best increased engagement and improved customer experience.

Hospital customers primarily use Docent Health to manage populations around planned events or clinical episodes in the ambulatory, cardiac, maternity, and orthopedics departments. The emphasis is engagements before, during and after care is delivered, such as pre-surgery education, digital rounding, and no-show reduction. This mimics concepts used in the hospitality industry and is applied to an HCO's clinical or business needs, allowing hospitals to configure service interventions around their own evidence-based care guidelines. Interventions emphasize SMS, email, or portal message modalities.

In addition to technology, Docent Health has a tech-enabled service offering where customer relationships are managed via outsourced patient liaisons, or "docents." Some docents provide patient support through a remote call center and primarily handle automated campaigns, which can range from broad reminders to log into the portal to prompts for specific population segments (first-time mothers, recent knee replacement patients, and so on). Other docents work onsite at Docent Health clients and, with their insight into what services a patient is due to receive, provide more high-touch services such as making an appointment with a specialist or arranging a ride home after hospital discharge.

Docent Health's reporting capabilities cover a variety of use cases. Users can track conversion rates for different modalities of outreach, the number of interactions with each individual patient, and patient sentiment (both in real-time and in follow-up surveys). In addition, the company can provide referral pattern analysis that, combined with service gap analysis, can help HCOs identify which affiliated practices to work with in order to improve patient acquisition and retention. The company's roadmap includes building out journey mapping and consumer persona development and helping customers incorporate these insights into day-to-day operations.

Case Studies: The maternity program at Chandler Regional Medical Center (AZ) saw 12% growth in prenatal class attendance once patients began engaging with a docent (starting 20 weeks into maternity). Overall, the program grew from the 85th to the 94th percentile in the HCAHPS "Willingness to Recommend" top box score in one year and saw 3% YOY volume growth.

EPIC SYSTEMS CORPORATION

Headquarters: Verona, WI

Year Founded: 1979

Website: <http://www.epic.com>

Ownership: Private

Approximate Number of Employees: 9,500

PRM Sector: Portal

Type of Customers: Large IDNs, AMCs, Hospitals with CINs, Standalone CINs, Health Plans

Flagship Customers: Kaiser Permanente, Mayo Clinic, Partners HealthCare, Northshore, Sutter, Stanford

Partners: Apple, Elsevier, Milliman, xG Health Solutions

Pricing Model: PUPY



Epic provides a broad range of patient engagement, care management, and self-support functionality through its MyChart portal. Epic determines risk scores from proprietary methodologies as well as those developed by its broad customer base, and the data sources for risk stratification can include weather and census data in addition to clinical, claims, HRA, and patient-generated data. The company's Happy Together capabilities pulls together a longitudinal patient record (LPR) across different instances of Epic.

Initial outreach is primarily done by phone for complex cases (such as disease management) and by portal message in other cases. Evidence-based guidelines come from third-party partners. A registered nurse most commonly owns ongoing outreach; this process primarily remains high-touch, given the nature of long-term care/disease management, though Epic expects a shift to more automated outreach as HCO interest in patient self-support grows.

MyChart supports a broad range of intervention modalities, including embedded video visits; IVR and SMS communications require third-party integration. Communications include standard care reminders as well as patient satisfaction surveys; context-specific reminders and notifications were released in early 2018. MyChart offers access to patient communities by leveraging an HCO's existing resources. Unlike many solutions, MyChart can re-send undelivered messages in a different modality (a text message after an email bounces back, for example) through integration with third-party software.

Epic will release a Campaigns module later in 2018. This covers a number of marketing metrics, such as the ROI of outreach efforts (both individual and cohort), as well as care delivery and service metrics such as the number of appointments booked following outreach (both individual and cohort). The ability to track existing care gaps, along with how many were closed and by whom, as well as the ability to send bulk communication and automated reminders for patients to close care gaps, is available prior to the Campaigns release.

Case Studies: [Medical University of South Carolina](#) used MyChart to contact patients about potentially participating in future research studies; more than 40% of patients responded, and about 75% of respondents opted in for future research. More than 95% of [Cone Health](#) patients who use MyChart to request a virtual visit receive a response in less than an hour, and 63% of users say they initiated a virtual visit instead of going to urgent care or the ED.

HEALTHLOOP

Headquarters: Mountain View, CA

Year Founded: 2010

Website: <http://www.healthloop.com>

Ownership: Venture-backed

Approximate Number of Employees: 50

PRM Sector: Care coordination

Type of Customers: Health systems, physician practices, care management organizations

Flagship Customers: Advocate, LifeBridge, Northwestern Medicine

Partners: BTG Intentional Oncology, Datica, Livongo Health, Sherbit, Wellpepper

Pricing Model: SaaS



HealthLoop provides automated engagement and care coordination for patients in two scenarios: Those who have recently been discharged from the hospital, and those scheduled for an elective procedure. Many solutions cater to the 5% to 6% of patients who account for the majority of healthcare costs, but HealthLoop positions itself as a solution for the at-risk and rising-risk tier of the cost pyramid. In particular, the company has focused its attention on helping HCOs participating in bundled payment programs (joint replacement and oncology care) as well as MACRA and MIPS.

Initial outreach to patients is typically automated based on clinical events that have been recorded in an HCO's EHR. HealthLoop indicates that non-clinical staff handle nearly 80% of patient support, which consists of daily interactions that educate patients and reinforce the importance of the care plan. The solution logs a patient's participation rate and modifies interventions accordingly. Interventions occur via email, SMS, or the HealthLoop app, which operates as an app within a patient portal and, on the clinical side, as an app within the EHR itself.

HealthLoop's analytics capabilities will determine if a patient's responses to these interactions require escalation to a member of the clinical care team. This allows HCOs to identify small cohort groups among the overall patient population who are at risk and in need of a follow-up without the need for separate population micro-segmentation.

Case Studies: [MD Anderson Cancer Center](#) found that patients receiving educational materials through HealthLoop were 3x as likely as a control group to correctly answer questions about a type of radiation treatment. [University of California San Francisco](#) found the 30-day readmission rate for total joint replacement patients was 3x lower for those using HealthLoop compared to the control group.

INFLUENCE HEALTH

Headquarters: Birmingham, AL

Year Founded: 1996

Website: <https://www.influencehealth.com>

Ownership: Private

Approximate Number of Employees: 225

PRM Sector: CRM (Healthcare)

Type of Customers: Hospitals and health systems

Flagship Customers: Henry Ford Health System, Meridian Health System, Presence Health

Partners: CrownPeak, Experian, Facebook, Google, Healthwise, StayWell

Pricing Model: PMPM, subscription



Influence Health's PRM philosophy emphasizes the role of the "consumer" in between active care episodes. The company likens its approach to the way airlines serve customers in between flights, which is different than the way they serve passengers in midflight.

Influence Health sees the process of improving consumer relationships being different than both care management and marketing. The process focuses less on what to do – which many vendors and HCOs alike have already done – and more on how to get consumers to do what needs to be done. To that end, the company sees its Consumer Experience Platform complementing other solutions rather than serving as a comprehensive solution in and of itself.

Consumers are identified for outreach using both an HCO client's clinical, financial, and marketing data and consumer demographic data from partner Experian. The outreach approach may seem like marketing – staying in contact with consumers using educational material, care reminders, or assistance such as referral to a ride share service – but the company says the underlying emphasis of outreach is behavior change as opposed to paternalistic reminders. Meanwhile, supporting the customer lifecycle allows HCOs to provide a user experience beyond that of traditional care management, through the use of personalized content that targets proactive self-management of health and wellness.

Given its roots as a CRM vendor, Influence Health offers robust tracking and reporting capabilities. Users can connect outreach campaigns to leads, appointments, and the amount of revenue generated, down to the individual consumer and/or provider level.

Additional product offerings include digital marketing, reputation management, and provider directory listing management. Service offerings include SEO and website strategy/design.

Case Studies: [Presence Health](#) exceeded by 4.5 times its goal of 1,200 completed HRA screenings for women at risk of cardiovascular disease; 46% of those who completed the screening were determined to be at risk. [Parrish Medical Center](#) sent wellness newsletters emphasizing self-management of common chronic conditions (diabetes, CHF, COPD) and measured a response rate of nearly 67%.

MEDITECH

Headquarters: Westwood, MA
 Year Founded: 1969
 Website: <https://ehr.meditech.com>
 Ownership: Private
 Approximate Number of Employees: 3,700
 PRM Sector: Portal
 Type of Customers: Hospitals and health systems, Ambulatory/physician practices, Post-acute services
 Flagship Customers: Avera Health, Kalispell Regional Medical Center, Commonwealth Health Corporation
 Partners: Arcadia Health Solutions, First DataBank, Validic, Zynx Health
 Pricing Model: % of organizational net patient revenue (hospitals and health systems); # of providers (ambulatory)



MEDITECH offers a patient portal as well as a mobile app that integrates with its eponymous EHR solution. Now in version 6.1, MEDITECH's Expanse EHR emphasizes proactive monitoring of patient conditions in a redesigned interface.

The Patient Registries solution lets HCOs identify at-risk patients for condition management as well as promote broader wellness programs such as flu shot clinics or smoking cessation programs. Care management guidelines come from MEDITECH's own content (developed by clinical staff) as well as several third-party partners, and educational content can cover wellness topics or clinical topics for specific specialties.

Once patients are identified, either upon discharge from ED/acute or from an ambulatory patient registry, initial outreach occurs via email, with ongoing outreach occurring primarily through the portal (supplemented by phone, email, and in-person visits). Registries can be further broken down into worklists, which can be managed at the individual provider/clinician level and also pulled into a customizable dashboard for tracking and analysis. Additional tracking functionality is available through the company's Cost Accounting solution (for projected revenue by service line) and Business and Clinical Analytics solution (straight-line projections).

Case managers and patient care navigators typically manage ongoing outreach. Messaging includes common care reminders as well as practice newsletters and patient satisfaction surveys; caregivers have proxy access to these messages, and the ability for patients to grant access and consent rights to family members or other care proxies is under development. Additional roadmap items include the development of virtual visits accessible from the portal and the addition to SDoH data to the MEDITECH Expanse EHR (via the company's Arcadia partnership).

Case Studies: Type 2 patients receiving Direct messages from [Hilo Medical Center](#) (HI) reported improvements in self-management (physical activity at least 3x per week, from 5% to 35%; self-monitoring blood glucose, from 2% to 25%). [Ontario Shores Centre for Mental Health Sciences](#) increased referrals to cognitive behavior therapy by nearly 75% and adherence to metabolic monitoring by more than 50% for schizophrenia patients using self-reporting and survey tools within the MEDITECH portal.

mPULSE MOBILE

Headquarters: Encino, CA

Year Founded: 2015

Website: <https://mpulsemobile.com>

Ownership: Venture-backed

Approximate Number of Employees: 55

PRM Sector: Messaging

Type of Customers: Providers, commercial health plans, Medicaid and Medicare plans, medical device firms, wellness and PHM firms, pharmacies

Flagship Customers: Anthem, Humana, Kaiser Permanente, Mayo Clinic, Inland Empire Health Plan, Medtronic, Redbrick Health, AbleTo

Partners: AxisPoint Health, HealthX

Pricing Model: Technology license based on solution and population



mPulse Mobile has quickly made a mark in the patient engagement market, with 70 live accounts in less than four years. The company provides interactive, tailored messaging solutions to a broad range of clients, which in addition to HCOs includes pharmacies, public and private payers, and other solution providers such as Redbrick Health and Medtronic. The use of natural language processing (NLP) technology allows mPulse Mobile to tailor automated messages to the individual patient level.

The company organizes its technology offering into three layers. Communicate supports multimodal messaging (including SMS, secure message, email, push and IVR) as well as automated triggers that determine when to send a message. Engage uses rules-based, natural language dialogues and sentiment analysis to respond to patients. This functionality can support a number of care management programs, ranging from common chronic conditions and behavioral health to pre- and post-op programs and medication adherence; the solution can also identify barriers to care based on information contained in patients' messages. Activate creates patient profiles in order to deliver tailored content that is likely to help patients achieve behavior change.

Unlike most vendors profiled in this report, mPulse Mobile relies on automated messaging for the majority of communications. Initial outreach, for example, is typically triggered based on information from either integrated EHR datasets or the solution itself. However, initial outreach can be triggered manually by a member of the care team, and 1:1 engagements with care team members with the appropriate access levels are available as part of ongoing outreach.

Case Studies: A [Kaiser Permanente](#) study of Medicare patients with a history of poor medication adherence found that patients were 47% more likely to refill a prescription if they received text message reminders; in addition, 37% of refills occurred within 2 hours of receiving a text. Medi-Cal plan [Inland Empire Health Plan](#) reported the number of participants who said they'd visit an ED for a minor condition dropped from 11% to 4% after receiving educational messages about their plan benefits.

ORION HEALTH

Headquarters: Auckland, NZ; Scottsdale, AZ

Year Founded: 1993

Website: <http://www.orionhealth.com>

Ownership: Public (NZX)

Approximate Number of Employees: 1,200

PRM Sector: PHR + Data

Type of Customers: ACOs, payers, HIE organizations, providers and organizations moving toward value-based payment models

Flagship Customers: Maine HealthInfoNet, Vanderbilt Health Affiliated Network, Inland Empire HIE, State of North Dakota

Partners: Amazon Web Services, NextGate, Philips, Carecom, Stibo, Cognizant-Trizetto, HealthTerm

Pricing Model: License or subscription, PMPM or PPPM, plus license fee



Orion Health focuses on the interoperability challenges of healthcare providers trying to shift from data silos toward shared data and workflow. Orion Health Coordinate, its care management and PHM solution, is built atop the Orion Health Amadeus Platform, which pulls disparate data together and then ingests, aggregates, and cleans the data to present a complete picture of the patient's health. This data is then accessible by the care team and the patient themselves, either in a portal view or mobile application. All data and functionality is supported with FHIR APIs. This aggregated single source of truth also provides an information source to power machine learning insights.

Coordinate supports care coordination activities across multiple EHRs and patient portals, as well as any number of community-based providers involved in delivering health or social services. Coordinate uses numerous data sources to support multidisciplinary, multi-organizational care teams, to enable them to deliver evidence-based care management. Orion Health builds care management applications around the requirements of the HCO and its patient population, leveraging a comprehensive workflow engine and configurable forms.

Coordinate's approach to data aggregation as well as care coordination stems from Orion Health's heritage in international markets (which support larger numbers of care venues and diverse networks of social care providers) as well as a U.S. client base of HIE entities and large IDNs drawing from disparate data sources. Use cases in the U.S. have focused on transitions of care, patients with multiple chronic conditions, and general mental/behavioral health support.

Once Coordinate identifies patients for outreach, assessments can be created and/or customized using Orion Health's form technology and its library of evidence-based templates. Assessments capture barriers to care and identify clinical needs. Patients can be added to pathways in bulk or individually, and pathways can be aligned to best-practice recommendations or customized to meet existing clinical workflows. Patients also have the ability to create their own Circle of Care, which includes the clinical care team as well as friends and family.

Patient engagement has an important role within Orion Health's solutions, to enable true collaboration between patients and providers. The vendor's solutions help patients manage their health and wellness on their own terms, alongside their healthcare provider. Patients can view key clinical information from across multiple providers in a single unified view. Patients can interact with their record and be active participants in their care plan, tracking and updating progress against goals that have been agreed with their care team. They can complete patient-reported outcome measure questionnaires, keeping the care team up to date with how they are progressing.

Case Studies: [Innovation Care Partners \(ICP\) ACO](#), formally known as [Scottsdale Health Partners](#), used Orion Health's PHM to double YOY shared savings earnings in the MSSP and achieve the highest savings rate (9%) of all MSSP participants. [HealthInfoNet HIE](#) includes records for 1.53 million lives in Maine – some 98% of the lives in the state – as well as some 300,000 out-of-state lives; the HIE delivers roughly 40,000 real-time patient-encounter notifications per month.

PEGASYSTEMS

Headquarters: Cambridge, MA

Year Founded: 1983

Website: <https://www.pegasystems.com>

Ownership: Public (NASDAQ)

Approximate Number of Employees: 4,200

PRM Sector: CRM (Enterprise)

Type of Customers: ACOs, IDNs, payers, life science firms

Flagship Customers: Alere, Anthem, Fallon Health, Kaiser Permanente, UnitedHealthcare

Key Partners: Milliman, Philips, StayWell, Validic

Pricing Model: Available upon request



Pegasystems' goal with its healthcare offerings is to bring together customer service and care management service lines. This aligns with the company's expertise in CRM and business process management (BPM); here, Pega emphasizes its ability to fix broken or otherwise complex transactions, especially transactions such as episodes of care that generate large amounts of data.

Pega sees its role as implementing a "CRM for the patient" as opposed to replacing EHRs and other existing clinical systems. The aim is to provide a more holistic view of a patient in order to better understand the non-clinical factors that affect outcomes and drive care decisions that can impact those outcomes. To that end, care plan protocols extend beyond a single starting point to include numerous variants that can be tailored to clinical as well as personal needs.

Use cases to date have typically focused on population subsegments driving costs and/or quality scores, such as high-risk populations or common diagnoses at discharge that result in readmission. Part of Pega's value proposition involves helping customers reduce one-off engagements; a registered nurse prompted to conduct outreach for a single action (such as a prescription refill) can identify additional actions that a patient may need to take (such as scheduling a wellness visit). In addition to saving downstream work, such action can help increase customer loyalty.

Among the vendors profiled, Pega is a leader in providing patient self-support functionality. Integration of medical and fitness device data is available through partnerships with Philips and Validic. Pega solutions will also integrate with third-party platforms – both consumer platforms such as Apple HealthKit and patient communities such as PatientsLikeMe – that provide an open API.

Case Studies: [UnitedHealthcare](#) created a back-office desktop solution to improve call center customer service for its Medicare and retirement beneficiaries. [Kaiser Permanente](#) implemented a single customer service platform for its call centers and increased its first call resolution rate to 90%.

SALESFORCE

Headquarters: San Francisco, CA

Year Founded: 1999

Ownership: Public (NYSE)

Approximate Number of Employees: 25,000

PRM Sector: CRM (Enterprise)

Types of Customers: Elective specialties, self-insured providers/DPC, ancillary/LTPAC, life science, medical devices

Flagship Customers: Beech Medical Group, Silverado, CareCentrix, Mount Sinai Health System

Key Partners: Catalyze, Cerner, Geneia, Healthwise, Kyruus, TigerText

Pricing Model: PUPM



Health Cloud, built atop Salesforce's Service Cloud, takes the company's sell-service-market mantra and applies it to healthcare in the form of acquire-care-engage. As with other core Salesforce products, it is updated three times per year. Health Cloud use cases include patient onboarding, care coordination for Medicare populations, and cancer research and screening surveys.

Health Cloud emphasizes a visual interface, from a patient information care team "map" to a dynamic patient health timeline that includes clinical and non-clinical data. Chatter, Salesforce's messaging and collaboration tool, is embedded in the solution. Customers have the option to integrate mental health protocols, home health protocols, and PGHD. They can also import their own care plan templates.

Salesforce has built on the relationships it established with its CRM customers in healthcare to garner its Health Cloud user base. These customers tend to be HCOs that require a high-touch service model as a result of the patient acquisition process or the nature of their chronic care management or PRM model.

Salesforce has attracted a number of Health Cloud partners, including system integration (Accenture, Deloitte, PwC) data middleware (Catalyze, Neosoft, Redox), and technology. In the latter case, the company announced more than a dozen partnerships in 2017, ranging from care plan content (Healthwise, xG Health) to scheduling (Kyruus) to care coordination (Zynx Health) to telehealth (VSee) to analytics (Geneia). These partners publish APIs and SDKs through the Salesforce AppExchange, allowing Salesforce customers to write software extensions to their Health Cloud deployments.

Case studies: [UC Health](#) used Health Cloud to recruit 100,000 women ages 40 to 74 for a five-year breast cancer study, record participants' medical information, and provide ongoing analysis to researchers. [Mission Point Health Partners](#) uses Health Cloud as the portal for its 90,000 members, with available features ranging from managing chronic diseases to tracking the status of EOB documentation.

SOLUTIONREACH

Headquarters: Lehi, UT

Year Founded: 2000

Website: <https://www.Solutionreach.com>

Ownership: Private Equity Backed

Approximate Number of Employees: 600

PRM Sector: CRM (Healthcare)

Type of Customers: Dental, dermatology, optometry/ophthalmology, pediatrics, other specialty practices

Flagship Customers: Heartland Dental

Key Partners: N/A

Pricing Model: Monthly service fee



Solutionreach provides CRM solutions for practices that do three things: Communicate effectively with patients, provide an exceptional level of service to patients, and improve internal operational efficiency. Solutionreach products also help practices acquire new and retain existing patients. Offerings rang from automated patient communication (appointment reminders, recall notifications, post-appointment surveys, online review requests) to online self-scheduling, HIPPA-compliant SMS messaging, and patient educational email campaigns.

In communications with patients, Solutionreach emphasizes messaging functionality. This includes dynamic messaging in appointment reminders and bidirectional messaging from a practice's landline; the latter helps practices maintain their existing phone number (and the branding associated with it) while modernizing communication practices. Integration with practice management (PM) software lets offices automatically text or email patients on an appointment waiting list in the event of a cancellation.

Solutionreach allows practices to offer patients an online self-scheduling tool that integrates with the provider's PM software. Practices can determine what type of appointments are available for self-booking, and how long they should last. This feature is web- and mobile-enabled, and patients can upload their insurance information when booking an appointment, which saves time during the patient intake process.

Using Solutionreach, practices can send text messages to patients asking them to complete a review. The review captures a Net Promoter Score for each patient; in addition, completed reviews are pushed to Google and Facebook (in addition to a practice's website) to help boost practice visibility.

Case Studies: [Today's Vision Sugar Land](#) (TX) has realized \$2.2 million in recall revenue over the last decade by automating the process of sending recall messages to eye care patients. 20/20 Eye Care (Alabama) automated its daily outbound appointment reminder phone calls and reduced no-shows by 66%.

Market Needs and Recommendations

PRM solutions are making notable progress addressing the needs of patients as well as care team members along the patient journey. Vendors have learned the lessons of digital health and consumer technology innovation; they focus on what enterprise HCOs need instead of building solutions in search of problems. They regard PRM as a complement to existing technology, not a standalone panacea for all of healthcare's ills, and integrate PRM solutions with the range of EHR, PHM, care management, practice management, and analytics solutions used at the various touchpoints on the patient journey.

For PRM solutions to achieve wider adoption among enterprise HCOs as well as patients, we recommend the following steps.

INCORPORATE NON-CLINICAL RESOURCES

PRM solutions need to link patients with the non-clinical resources in their communities that can help them manage their health and also address SDoH and other barriers to care. These resources can include the following:

- Ride-share programs, whether national (Uber or Lyft) or local (Council on Aging or Senior Center shuttles).
- Meals on Wheels, WIC, food pantries, farmer's markets, or other programs that provide subsidized or low-cost healthy food options.
- Community-based, in-person health and wellness programs such as the Diabetes Prevention Program, which is available through the YMCA of the USA.
- Patient communities and support groups (both online and in-person).
- Government or nonprofit programs that offer assistance with paying utility bills.
- Services to assist chronic and/or elderly patients with everyday odd jobs or other household tasks that, left undone, can reduce quality of life.

HCOs need to play a leading role in this process, as they are better positioned than vendors to identify the programs and organizations that will work best within their geographies and patient populations.

ADDRESS COMPLEX CLINICAL PATHWAYS

Vendors and HCOs alike have made strides in the last 2-3 years building patient engagement strategies around closing care gaps. These efforts, which range from scheduling overdue annual wellness screenings to structuring interventions to prevent 30-day hospital readmissions related to a single chronic condition, are tied to quality metrics that impact Medicare reimbursement.

Engagement that addresses comorbidities and other complex clinical pathways has been slower to catch on, partly due to a lack of reimbursement – or, in the case of the little-used CPT code 99040 for non-face-to-face chronic care management, reimbursement that isn't worth the [trouble](#). This will change as HCOs shift to VBC, stand up their own health plans, and/or advance their PHM strategies, as more than 70% of U.S. healthcare [spending](#) is associated with the 25% of Americans with more than one chronic condition. Managing patients beyond single care episodes and single diagnoses will be critical to avoiding preventable complications and high-cost interventions (both of which are penalized under capitated care models), as well as reimbursement penalties under MACRA.

PRM solutions will have to evolve to meet this need. Care plans must continue to draw from evidence-based protocols while taking the next step of accounting for both comorbidities as well as SDoH. Goals must stick to the

clinical quality measures tied to an HCO's risk-based contracts while recognizing that hitting the targets defined by those clinical quality measures (CQMs) – say, a hemoglobin A1c level below 7 – may require incremental interventions not defined in a clinical protocol. Finally, vendors must prepare to work with HCO clients to define and map clinical workflows to automate new (and existing) interventions whenever possible to relieve the burden on clinical staff.

DEVELOP CLEAR ROI MODELS

HCOs need to understand how a PRM solution adds value. Otherwise, they will not invest. There are three tiers of ROI, as shown in Figure 10 and described below.

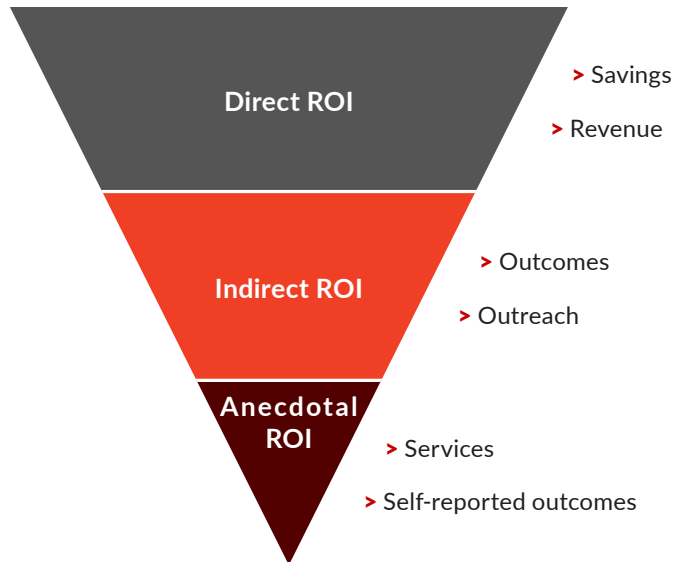


Figure 10: ROI Model for PRM Solutions

- > The clearest indication of ROI is direct. This includes top-line ROI (new patient acquisitions, more appointments booked, improved collections) and bottom-line ROI (avoiding unnecessary costs, reducing readmissions, more controlled spending). **Priority: High.**
- > Other indicators of value emphasize outcomes tied to savings and/or increased payments; these include measured improvements to patients' A1c or blood pressure, as well as improved HCAHPS or quality scores. Indirect indicators tied to revenue revolve around marketing metrics such as number of patients reached by new outreach campaigns. **Priority: Medium.**
- > Anecdotal evidence of value – for example, patients' self-reported outcomes or practices' improved customer service – adds a personal story to a PRM solution but rarely offers a quantifiable calculation of savings. **Priority: Low.**

TIE PRM INVESTMENTS TO CLEARLY IDENTIFIED ENGAGEMENT GAPS

The lack of an all-in-one PRM solution should not dissuade HCOs from making an investment. As noted, few HCOs have advanced their VBC initiatives enough to require an all-in-one PRM solution.

Instead, HCOs will be better positioned over the next 2-3 years to identify gaps in their overall patient engagement strategies – whether they are deficiencies in a core competency or issues that cannot be addressed by internal solution development – and seek vendor partners who are best suited to fill those gaps. Here are a few examples:

- > HCOs in competitive markets (whether due to geography or specialty) may seek **CRM** solutions to improve outreach to new patients.
- > HCOs operating in areas with developed HIE organizations (public or private) may look to **PHR + Data** solutions that help patients contribute to and use the HIE's data store.
- > HCOs specializing in high-touch care management may seek **Care Coordination** or **Messaging** solutions to provide high-tech touchpoints in between care episodes. (The decision may come down to whether an HCO possesses its own clinical care plan content; one that does may be able to opt for Messaging, while one that does not may opt for Care Coordination.)
- > HCOs may leverage new functionality in their vendor's **Portal** offering, especially if that vendor is supporting PHM in its product updates.
- > HCOs still operating primarily under FFS contracts may seek **RCM + PM** solutions to improve episodic engagement and outreach around collections.
- > HCOs participating in bundled payment programs may use **Education** solutions in an effort to standardize care and minimize complications over the course of treatment.

The key for HCOs is to focus on vendors with a clear 2- to 3-year roadmap for addressing additional core competencies (either via internal development or partnership). This will let HCOs obtain assurance that solutions will be able to accommodate the scaling up of their PRM initiatives.

IDENTIFY OBSTACLES BEFORE THEY COME UP

A multitude of factors can cause a PRM solution to fall flat: Addressing the wrong patients, providing poor usability, not integrating with competitive or even complementary solutions, and so on. Meanwhile, institutional challenges range from disruptions to clinical workflows to a supply-and-demand mismatch to the fear that scaling a solution will leave clinical staff without a job. Successful PRM implementation depends on identifying these factors before they come up, as well as having a plan in place to mitigate the impact of these factors as they come up.

To that end, a group of British researchers recently published a framework to help vendors and HCOs evaluate non-adoption, abandonment, and challenges to the scale-up, spread, and sustainability, or NASSS, of digital health solutions. (See Figure 11.) The framework encourages stakeholders to look at several factors: What condition(s) a PRM solution will address, the solution's feature set, its value proposition to vendors and HCOs alike, how adoption impacts both individual users and the HCO at large, and how solutions align with the larger context of state and national healthcare policy (funding, reimbursement, priorities, and so on).

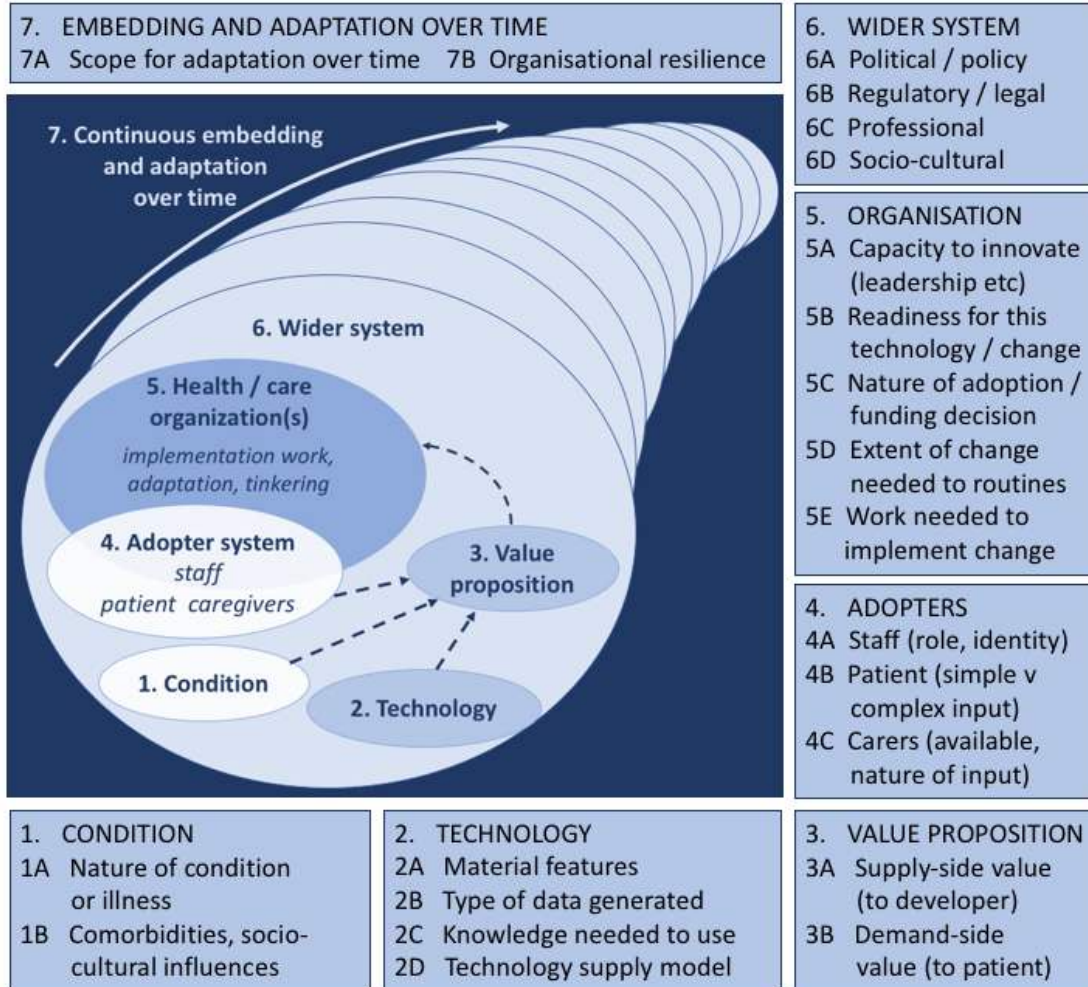


Figure 11: The Non-Adoption, Abandonment, and Challenges to the Scale-Up, Spread, and Sustainability (NASSS) Framework

The value of the framework is that it encourages stakeholders to examine the factors that can make or break a PRM solution’s launch as a whole, and not in isolation. This makes it easier to identify which factors will influence each other or have a “trickle down” effect that causes the issue to grow in importance or severity as a product implementation progresses.

PROVIDE A COLLABORATIVE HEALTH RECORD

Offering coordinated, value-based care – especially in a converged provider-payer-employer business model – requires access to a collaborative health record (CHR) that brings community data, SDoH data, and PGHD together alongside clinical and claims data. (See Figure 12.)

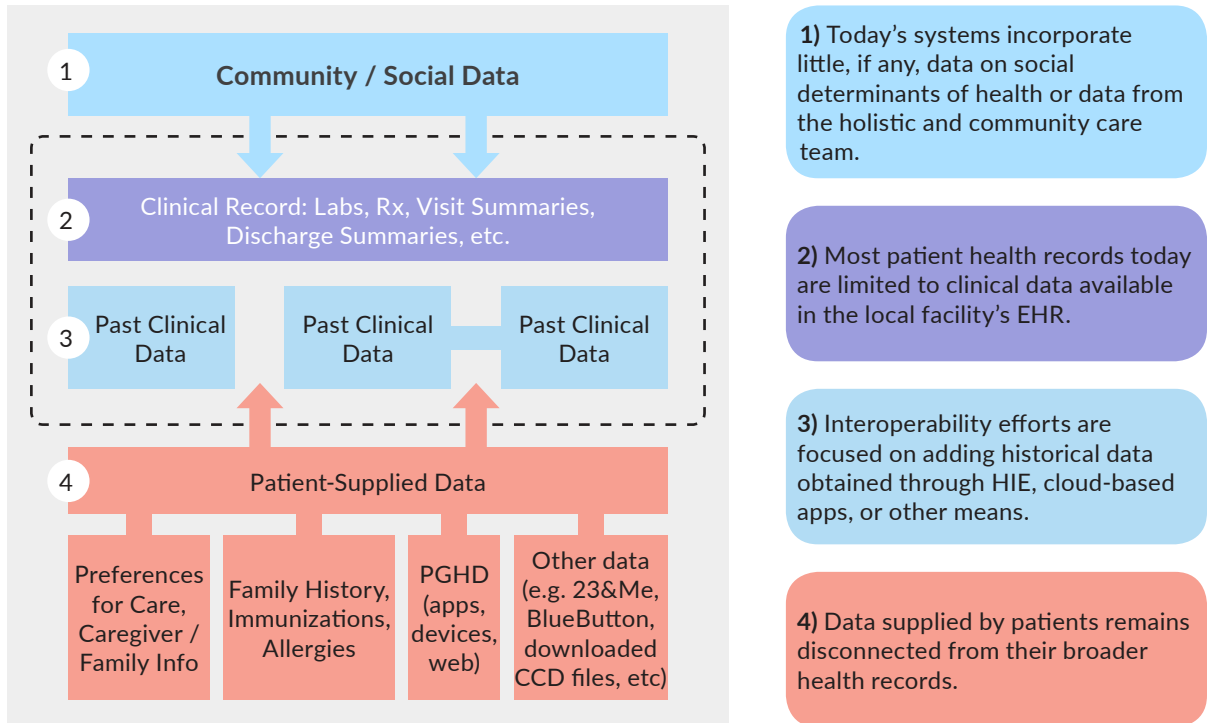


Figure 12: The Collaborative Health Record

We see two paths forward for enabling patients to create a CHR using a PRM solution.

- > A larger role for PHR functionality that gives patients access to medical records from disparate sources. Ideally, it would be mobile-first – like Apple's Health Records pilot – and adopt a consent model that empowers patients to share with their care team, rather than forcing patients to request information from HCOs, payers, and other entities.
- > Wider data sharing, enabled by FHIR and Open APIs, such that the clinical application a PRM solution integrates with is able to pull a complete CHR from a clinical data warehouse (CDW) aggregates data from disparate data sources.

Neither path is perfect. A PHR requires patients to manage their own data, and their own consent models; patients with low levels of health literacy or tech savvy may not participate. A CDW could alleviate this burden if it has good participation from all entities that possess relevant healthcare data – including retail health clinics and/or telehealth services (which sit outside the traditional enterprise HCO but provide low-acuity and/or follow-up care), as well as employers, government entities, and non-governmental community organizations (which possess valuable SDoH data often unavailable elsewhere).

The path that PRM vendors take is likely to depend on the extent to which they can already access clinical and claims data. Portal, RCM, CRM, and large-scale care coordination vendors will be able to take the CDW approach. Messaging, education, PHR, and smaller care coordination vendors will likely rely on the patient-centric PHR approach.

Key Conclusions

- > **Do your homework – it's a fragmented market.** With dozens of vendors approaching PRM from a variety of core competencies, HCOs need to examine their options carefully. Identify key deficiencies in overall engagement strategies and find the vendor(s) best suited to meet those needs.
- > **Expect slow progress, but don't slow down.** PRM adoption will be slow over the next 24 to 36 months. As HCOs bide their time, smart vendors will work to fill gaps in their feature sets, both through development and partnership, to branch out beyond their core competencies. Few vendors will stand pat.
- > **Look for what's next.** Basic engagement functionality – messaging, automated reminders, condition/disease management programs – is almost universally available. Look ahead to more robust functionality, ranging from patient community access to virtualized support to the ability to track the ROI of engagements.
- > **Listen to patients.** While patients appreciate the convenience of PRM solutions, and messaging in particular, they have two clear unmet engagement needs: Scheduling appointments (especially with specialists) and accessing their clinical records. The sooner that vendors involve patients in the design and development process, the sooner that PRM solutions can effectively deliver this functionality.
- > **Focus on metrics.** To justify an investment in PRM, HCOs need to demonstrate that improving engagement also improves outcomes and reduces costs. Solutions will need to beef up reporting and analysis functionality so HCOs can monitor how both one-time and ongoing engagements impact the metrics HCOs are judged against in risk-based contracts.

About the Author



Brian Eastwood joined Chilmark Research in June 2015. His research focuses on the role that provider, payer and personal technology can play in advancing consumer-driven health and empowering consumers to make healthy decisions.

Prior to joining Chilmark Brian spent 12 years as a journalist, with more than five years of experience covering the healthcare industry at Fierce Markets, CIO.com and TechTarget. He has covered topics such as meaningful use, HIE, fitness tech, interoperability, analytics, innovation and the health insurance industry.

Brian holds a B.S. in Journalism from Emerson College and an M.A. in History from the University of Massachusetts Boston. Outside of work, Brian is a Boston sports fan, history buff and runner who has completed 12 marathons in all six New England states.

Appendix A: Scope and Methodology

To compile this report, Chilmark Research combined extensive primary and secondary research techniques. Primary research was divided into three distinct steps.

First, we solicited targeted vendors for their involvement in the research.

Second, we asked participating vendors to complete a questionnaire whose purpose was to collect qualitative and quantitative information about the company and the markets it serves. Questions included number of employees, primary market, number of healthcare entities currently using its solution, and more in-depth questions regarding solution features and functions.

Third, upon receiving the completed questionnaire, we conducted a follow-up interview with each vendor. These in-depth telephone interviews typically lasted 30 to 60 minutes and aimed to clarify responses to the questionnaire and provide additional information. This portion of the research effort also focused on topics that cannot easily be captured with-in the context of a written questionnaire, including competitive positioning, product roadmap, partnership strategy, and which solution features are most attractive to prospective customers.

Prior to publication, all vendors were given an opportunity to review their profile narratives for fact-checking purposes. Their comments and feedback were considered and, where relevant, incorporated into the final profile narratives.

In compiling this extensive report, Chilmark Research maintained absolute objectivity throughout the entire research process and it is our sincere hope that this report brings greater clarity to this developing market.

Appendix B: Acronyms Used

ACO	Accountable care organization	IVR	Interactive voice response
AI	Artificial intelligence	JV	Joint venture
AMC	Academic medical center	LTPAC	Long-term post-acute care
CDW	Clinical data warehouse	MACRA	Medicare Access and CHIP Reauthorization Act of 2015
CHF	Congestive heart failure	MIPS	Merit-based Incentive Payment System
CJR	Comprehensive Care for Joint Replacement	MSSP	Medicare Shared Savings Plan
CHR	Collaborative health record	PCMH	Patient-centered medical home
COPD	Chronic obstructive pulmonary disease	PCP	Primary care physician
CPT	Current procedural terminology	PGHD	Patient-generated health data
CRM	Customer relationship management	PHM	Population health management
CQM	Clinical quality measure	PHR	Personal health record
DTC	Direct to consumer	PM	Practice management
EHR	Electronic health record	PMPM	Per member, per month
FFS	Fee for service	PRM	Patient relationship management
HCO	Healthcare organization	PRO	Patient reported outcome
HDHP	High-deductible health plan	PUPM	Per user, per month
HHS	U.S. Department of Health and Human Services	PUPY	Per user, per year
HIE	Health information exchange	RCM	Revenue cycle management
HIMSS	Health Information and Management Systems Society	ROI	Return on investment
HRA	Health risk assessment	RPM	Remote patient monitoring
IDN	Integrated delivery network	SDoH	Social determinants of health
		VBC	Value-based care



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