Hype Cycle for U.S. Healthcare Payers, 2018

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This Hype Cycle provides critical input for strategic planning by tracking the maturity and adoption rates of technology developments. CIOs should use this research to understand technology change and prioritize investments — aiding organizationwide and, in fact, industrywide transformation.

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What You Need to Know

Auto pioneer August Horch named his carmaker Audi, or "Listen!" in Latin, as an attention-grabbing play on German words.

U.S. healthcare payer CIOs — as well as the vendor leaders who provide applications and services to support their strategies — must likewise stop and listen to the persistent, increasing drumbeat of government, purchaser and consumer demands for industry change (see "Business Drivers of Technology Decisions for Healthcare Payers, 2018"). This Hype Cycle paves the way forward from an analog past of claims adjudication to a digital future. It's a future in which payers orchestrate a diverse scope of health improvement activities and resources for their consumers and their funding sponsors of health coverage.

Gartner's health value management business model lays out the rationale and architecture for transformation. Health value management spans business capabilities across the domains of health value administration, health value intelligence, applied business intelligence (BI)/analytics, provider/partner alignment, purchaser alignment, population health management and consumer engagement (see "Industry Vision: Health-Value Management, the Next-Generation Healthcare Payers' Transformation Strategy"). By defining, categorizing and evaluating technology innovations, we give CIOs a powerful tool to track the readiness of important technologies designed to enable those core health value management capabilities.

The Hype Cycle

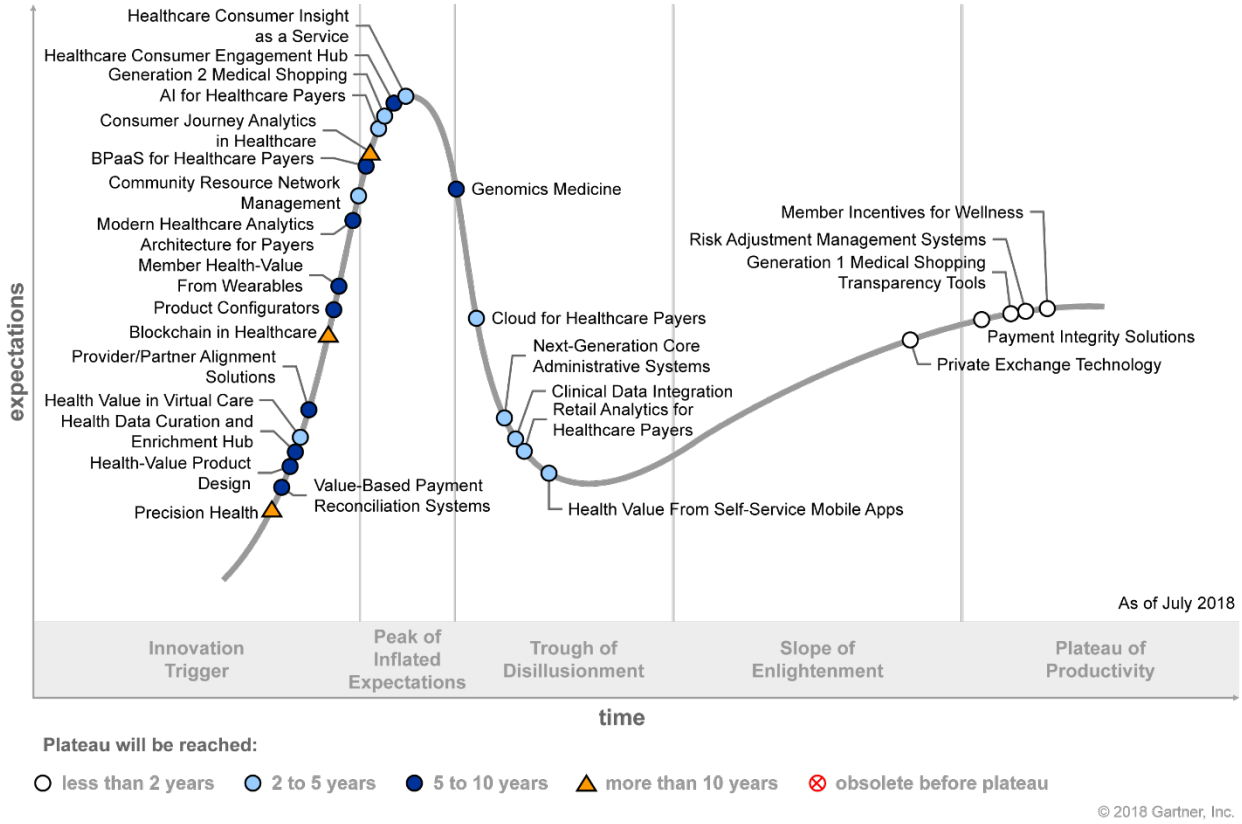
The unsustainable economic and unsatisfying results of the U.S. healthcare industry today mean the general reorientation toward value-based care and payer-provider collaboration is necessary, pragmatic and essential to the future success of payers and their partners alike. Thus, value-based care enablement via next-generation technology capabilities is a common theme underlying most of the innovation profiles in this Hype Cycle. We consistently find that payers — and their vendors of industry-specific IT solutions — are seeking to make the concept of value-based care more actionable and immediate through improved member engagement, health monitoring and administrative technologies. Value-based care is the north star by which CIOs are steering their most important investment decisions. Given the direction in which payers are generally heading, then members' realization of health value is the ultimate objective and metric of success. This is evident across many of the innovation profiles we track, such as health value in virtual care, community resource network management and value-based payment reconciliation systems.

This trend is attracting significant capital investment and, thus, many of the technologies we profile are at an early stage of maturity, falling between the Innovation Trigger and the Peak of Inflated Expectations. This fact indicates not only a real appetite for industrywide change, but also in all but a few instances, just how far behind the payer industry is in digital business when compared to more advanced industries such as banking and retail (see "2018 CIO Agenda: A U.S. Healthcare Payer Perspective" and "IT Key Metrics Data Highlights U.S. Healthcare Payer CIOs' Need to Transform"). For example, Generation 2 medical shopping offers healthcare consumers functionality

on par with the capabilities that retailers offered their online shoppers 10 years ago. Your task then is to use this research to help your CEO, CFO and board of directors to hear the drumbeat of change. Use these insights as a tool for advocacy, if not outright evangelism, in your organization to grow support for digital enablement. This includes optimization of your current business model and operations as well as the transformation of your business to pursue new revenue from delivering greater health value to the consumers upon whose satisfaction and health your ultimate success depends.

Use this research to discern the fads from the truth, as well as vendors' hype from the actions you must take. Industry combinations such the proposed merger between CVS and Aetna or the shared initiative of JP Morgan Chase, Amazon and Berkshire Hathaway will force a far quicker pace of making change. Prepare yourself, your IT team and your payer organization to move decisively to into the emerging technology areas we profile here.

Figure 1. Hype Cycle for U.S. Healthcare Payers, 2018



Source: Gartner (July 2018)

The Priority Matrix

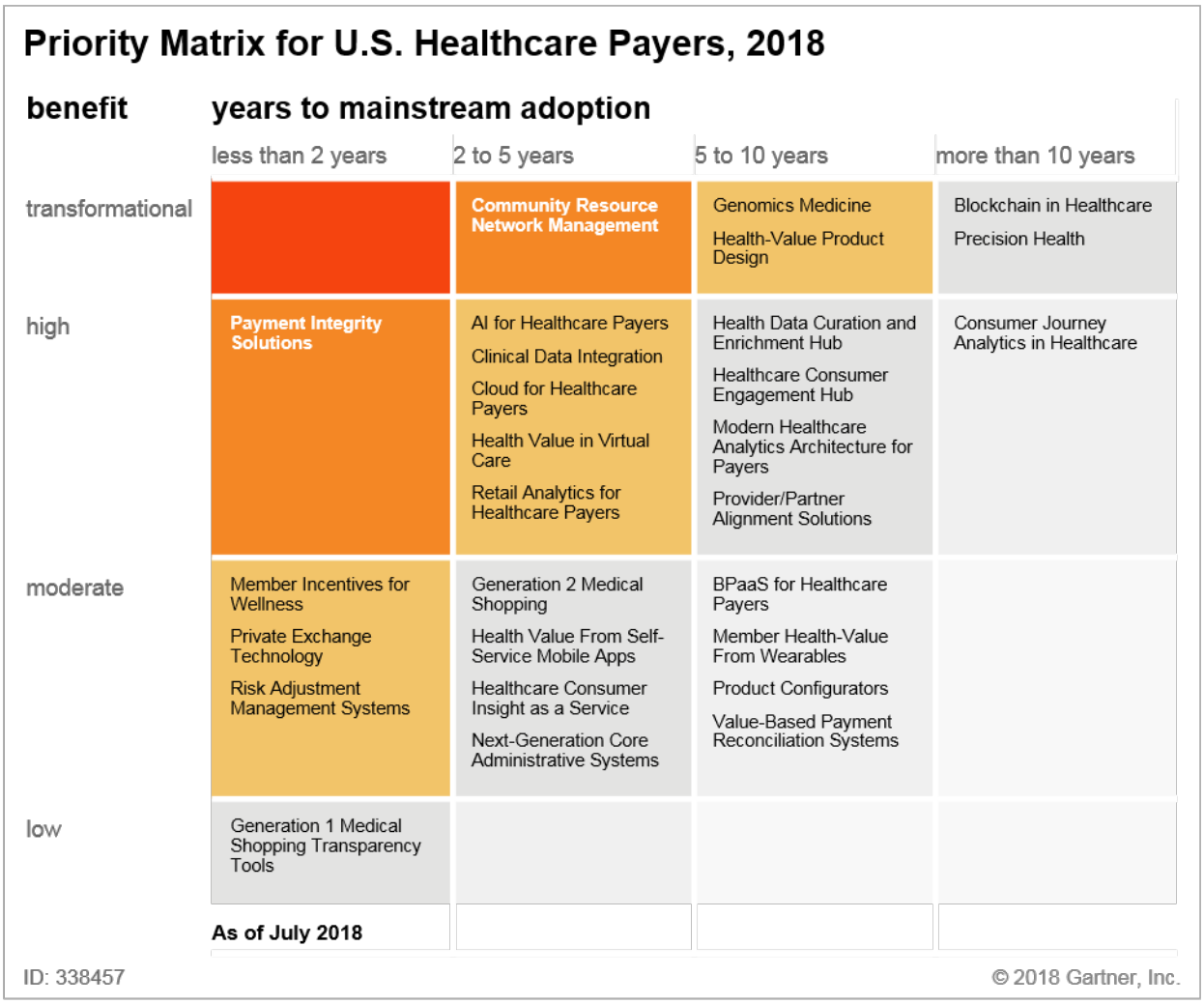
The Priority Matrix is a summary companion to the Hype Cycle graphic. Using data from the benefit rating and time-to-plateau values for each technology, it plots the answers to two key questions:

1. How much value could your organization expect to realize from the effective implementation of a particular technology?
2. When will the technology be mature enough to help deliver that value?

Quickly maturing, high-importance transformational technologies are on the upper left-hand side of the Priority Matrix. Below them are technologies that are still important, but with a lesser scope of potential impact. Look to the right and you will find emerging technologies with great potential that are further away from their full maturity. Technologies with lower benefit ratings and longer times to value are listed in the Priority Matrix's lower right-hand sections. Broadly speaking, if it's red, it's hot — if it's gray, it's not.

The Priority Matrix shows a basic truth of the current state of payer industry technology: There is no panacea technology for payers' pressing business and operational problems. Transformational technologies are five to 10 years away from mainstream adoption, and may change significantly during that time due to changing industry dynamics. Thus, the heart of CIOs' work will be on assembling forward-leaning technologies with moderate and high values over the next two to five years.

Figure 2. Priority Matrix for U.S. Healthcare Payers, 2018



Source: Gartner (July 2018)

Off the Hype Cycle

We have made the following changes to this year's Hype Cycle:

Renamed:

- We have renamed the health data convergence hub as the health data curation and enrichment hub, and the member engagement hub as the healthcare consumer engagement hub to better reflect the technologies' use and scope.

Consolidated:

- We determined smart health plan selector tools to be Obsolete Before Plateau in 2017, and have consolidated elements of that innovation profile into a revised private exchange technology profile.

On the Rise

Precision Health

Analysis By: Mark E. Gilbert; Laura Craft

Definition: Precision health is an emerging healthcare approach focused on proactively diagnosing and lowering the risk of a future illness based on knowledge of genetics, lifestyle, real-world environments, behaviors, biometrics, genomes, exomes and other sources. The early diagnosis of an illness enables treatment using wellness, prevention, behavior change and minimally invasive treatment interventions.

Position and Adoption Speed Justification: Last year, precision health was introduced as a transformative technology at the Innovation Trigger to reflect both the early research in the field and the potential that precision health has for revolutionizing the health industry. This year precision health is starting to inch up the innovation slope. We see increased commitment to the field by researchers, academic medical centers and health systems outside of the U.S. Evidence of efficacy is increasingly being presented at conferences and published in journals. The research consistently demonstrates the revolutionary impact that precision health can have on the prediction, early diagnosis and treatment of a disease or illness using behavioral change.

Precision health emphasizes the identification of extremely early indicators of a health risk using clinical and real-world data (socio-economic and behavior). Treatment emphasizes preventative or wellness interventions that can materially delay or entirely prevent the onset of an illness. Precision health builds upon the foundations of precision medicine ("disease treatment and prevention that takes into account individual variability in environment, lifestyle and genes for each person," National Institutes of Health). Whereas precision medicine focuses on the complete collection of medical data surrounding an individual, such as patient history, physical exam, routine laboratory studies, genomic sequencing, microbiomic (skin, respiratory tract and intestinal bacteria) sampling, proteomes and assorted biomarkers. Precision health adds real-world data regarding an individual's behavior (habits and lifestyle), socio-economic environment, biometric monitoring and other real-world data to create real-world-evidence-based health pathways.

Precision health is a nascent science. It will take years to develop the technology to capture precision health data elements, standardize their recording and analysis, and create evidenced-based health pathways. It may take many more years to create public policy and reimbursement models that reimburse the value of a preventative intervention that successfully eliminates an illness predicted to occur possibly more than 50 years in the future. In two to five years, we will see precision health rapidly rise up the slope as the technology; but the Plateau of Productivity is still projected to be at least 10 years away.

User Advice: CIOs, medical and service line leaders in life sciences, healthcare delivery and health insurance should become collaboratively engaged within precision health developments. CIOs should look for opportunities to leverage developing organizational competence in responding to genomic and biomarker analysis and consumer engagement to amass the data and analytics required for precision health initiatives. Observe and monitor precision health research and trials. Keep precision health concepts in mind as you establish your population health management and precision medicine enterprise IT architectures. At a minimum, CIOs should include the ability to target providing life extending elective precision health services to high-income consumers within consumer and patient engagement strategies.

Business Impact: Precision health breakthroughs will disrupt the business, operational and technical models of healthcare companies by curing illnesses before they happen through wellness and prevention efforts. In a precision health future, HDOs will find themselves increasingly focused on monitoring healthy individuals, identifying risks, and performing wellness and preventative interventions.

Precision health research is still in the early stages of multidecade development. As such, the impact on current business models will be minimal. Over time, we expect to see precision health have a breakthrough impact on a person's longevity through a combination of early diagnosis, early interventions and behavioral change. Precision health will forestall disease, extend a healthy life, improve the quality of life and reduce the prevalence of comorbidities over an individual's lifetime as it delays the onset of heart disease, cancer or other chronic illnesses. As a result, initial use will target wealthy individuals who consider the cost an attractive investment for achieving a longer life. Estimates of economic benefit from delayed aging are as low as $7.1 trillion in increased GCP over the next 50 years gained from an average life extension of 2.2 years (see "Substantial Health and Economic Returns From Delayed Aging May Warrant a New Focus for Medical Research"). High estimates of life extension include Aubrey de Grey's prediction that "the indefinite postponement of aging … may be within site." We predict that precision health will soon become an essential elective health service for high-net-worth individuals eventually expanding to the mass market as the standard for quality care.

Benefit Rating: Transformational

Market Penetration: Less than 1% of target audience

Maturity: Embryonic

Sample Vendors: Counsyl; DNAnexus; Genome.One

Recommended Reading: "Prepare Your Healthcare Delivery Organization for the First Wave of Genomics"

"Business Drivers of Technology Decisions for Healthcare Providers, 2018"

"Maverick* Research: Endangered! How Technology Will Cause Extinction of the Primary Care Tier of Medicine"

Value-Based Payment Reconciliation Systems

Analysis By: Bryan Cole

Definition: Value-based payment reconciliation systems automatically combine payer claims data with quality reports (such as the Healthcare Effectiveness Data and Information Set, or HEDIS) and provider contract terms. The resulting outputs are both real-time reporting of provider progress against value-based contract thresholds and periodic bonus or penalty payment calculations. Systems should also include a risk adjustment component to correct for varying population health burdens among providers.

Position and Adoption Speed Justification: Payer CEOs have been rapidly expanding value-based contracts with providers. While current agreements are already complex, a new generation of value-based contracts will take hold across the industry over the next 10 years. New value-based provider arrangements will be:

- Broader — Apply to more providers and lines of business (for example, managed Medicaid)
- Deeper — Comprise a greater share of total provider revenue, with a higher percentage of dollars in the contract at risk
- Granular — Use advanced analytics and methodologies over and above HEDIS quality metrics
- Variable — Include nonstandard clauses based on the negotiating power of local provider organizations

Payers' current value-based reconciliation and payment processes are simply not up to the task. Most payers use inefficient manual processes to calculate periodic provider bonus payments. These quarterly or annual payments then lag the close of financial reporting periods by several months.

Complete value-based payment reconciliation solutions are still emerging, with key reconciliation functionality still largely in development from three primary groupings of vendors. The first vendor group has a background in analytics, often with significant provider experience. The second vendor group specializes in healthcare payments and is building analytics and quality expertise. Finally, core administrative processing vendors are examining the space as product extensions of claims payment.

We therefore rate value-based payment reconciliation systems as an emerging technology. While Gartner clients are increasingly curious about these systems, current penetration at U.S. healthcare payers is low.

User Advice: Gartner believes that value-based payment is a durable trend that will outlast short-term course corrections in public policy, such as possible revisions to the Merit-Based Incentive Payment System (MIPS) in Medicare fee for service under the Medicare Access and CHIP Reauthorization Act of 2015 (MACRA). Capabilities that support the broad needs of value-based care — and that are configurable enough to allow significant program variability — are a safe IT investment.

Furthermore, the financial stakes are too high for payer CIOs to ignore. Payers' next-generation value-based contracts with providers will increase both the quantity of data to reconcile and the financial risks due to payer error. Thus, legacy applications that rely on retrospective reporting against static measures will become liabilities. Payer CIOs should:

- Look for vendors and application packages that support various payment models such as shared savings, shared risk, bundled payments for specific procedures, partial capitation and full capitation.
- Demand maximum flexibility and efficiency since your organization does not know today the detailed parameters of future provider agreements, or even the broad domains that will be contained.
- Integrate value-based payment reconciliations with provider engagement hubs to share performance data, as well as payer population health management and quality reporting applications (see "U.S. Healthcare Payer CIOs Move From Provider Portals to Provider/Partner Alignment Hubs").
- Monitor the investments that major provider partners make in the areas of revenue cycle management, electronic health record megasuites, population health management and value-based analytics to achieve the goal of eventual integration.

Business Impact: The lag time between provider action and incentive payment blunts the effectiveness of value-based payments in improving quality and care management outcomes. By speeding up nonclaim value-based payments, payers can make those payments much more direct, tangible and motivating for providers. In this way, payers can get more provider behavior change for less money than they otherwise would spend on value-based payments.

Improving value-based payment processes using real-time systems also aids provider relationships. Sharing transparent, auditable and accurate incentive data with providers that they can, in turn, reconcile against their records builds trust. Trust can translate into better, mutually beneficial payment arrangements when compared to the hard-fought provider contracts common today.

Benefit Rating: Moderate

Market Penetration: 1% to 5% of target audience

Maturity: Emerging

Sample Vendors: Cedar Gate Technologies; Payformance Solutions; Payspan; Simplify Healthcare

Recommended Reading: "MACRA's Downstream Effects Change Healthcare Payer CIO Spending Priorities"

"Healthcare Business Driver: The Evolving Expectations of Value Delivery"

"Healthcare Business Driver: Industry Structure Transformation and Value Models"

Health-Value Product Design

Analysis By: Bryan Cole

Definition: Health-value product design is a composite profile that tracks payers' deployment of product components or end-to-end plan designs that make consumers' receipt of health value prominent in what is marketed, orchestrated, measured and reported. Health value is the measurable enhancement or maintenance of health status realized by individuals through their personal actions or engagement with the services, tools, products and content of the broad health ecosystem at an attractive price, with clear quality and with minimal personal disruption.

Position and Adoption Speed Justification: Payers and providers are taking more accountability for health results — not just unit costs or volumes. Individual, employer and government purchasers alike put increasing weight on care quality, satisfaction and health status as the results they want from their investment in health coverage. The logical end to this industrywide transformation is a product that delivers true member health improvement.

Coverage plans today manage costs and utilization, but do not actually improve health except when paying claims after an accident or adverse health event. The features in current plans instead highlight provider access, cost-sharing and fitness club discounts which do not or only weakly address the genetic, lifestyle and social drivers of high medical costs and poor member health. For example, conventional coverage plans measure success with a quality metric such as the Healthcare Effectiveness Data and Information Set (HEDIS). HEDIS tracks clinical best practices but ignores the obvious and material: Are members actually feeling better because of their coverage plans?

Payers have to engineer a major transformation in order to deliver on the full health-value management (HVM) vision. HVM is a digital business proposition that will only be credible as payers make the transition from analog to digital across all their basic business capabilities. We see increasing evidence of the health-value trend manifest in components of an overall product design and value proposition. One example of this is an offering from Optum that works across the continuum of care, from preconception through the first year of life, which improves outcomes and reduces costs for mothers and their newborns. Likewise, in 2018 the U.S. Centers for Medicare and Medicaid Services (CMS) announced a much broader range of goods and services that Medicare Advantage payers can include as benefits in their plan filings. Thus, we believe this technology to be advancing beyond the Innovation Trigger in 2018. In the next five to 10 years we expect to see many more examples in marketplace, perhaps even from new industry combinations such as the proposed CVS Health — Aetna merger or the collaboration between Amazon, Berkshire Hathaway and JPMorgan Chase for employee coverage.

User Advice: You can't manage what you can't measure, and healthcare payers— and the healthcare industry at large— have only primitive basic measures of member health value today. CIOs should thus start by capturing the interplay of how quality, cost and member experience improvement affect attained member health status over time. Capturing that data is fundamental. CIOs of organizations moving toward this model must also engineer a more digitalized, open, adaptive approach to technology deployment as well as workflow, data, analytics and service collaboration with other organizations in the ecosystem of health.

Payers can take steps toward the model by focusing first on consumer engagement and population health management. Examples here include accepting and monitoring self-reported member health data, or better integrating virtual care technologies with proactive efforts addressing the social determinants of health.

Component pilots like these help payers deliver, capture, report and promote the health value they orchestrate for a targeted group at a manageable scale. This kind of discrete pilot can be tried at the same time as longer lead time projects to modernize core systems, leverage the cloud, reinforce and invest in bimodal, and as innovation teams work their way through the organization and deliver a more digitalized platform for a full HVM model.

Business Impact: Health-value product components and plan designs have the potential to massively shift the business models of today's payers into something more valued by customers and profitable too. The advantage gained from earning trust, loyalty and increasing retention of end customers will eventually lead to a reshaping of the health insurance industry. Traditional payers will move to the commodity end of the value chain. HVM organizations will occupy the value-added, premium end of that spectrum. The middle ground will not be sustainable.

Benefit Rating: Transformational

Market Penetration: 1% to 5% of target audience

Maturity: Emerging

Sample Vendors: 23andMe; American Well; Apple; Emmi; Geneia; Medtronic; Optum; The Robotics Institute at Carnegie Mellon University; Zipari; Zocdoc

Recommended Reading: "Industry Vision: Health-Value Management, the Next-Generation Healthcare Payers' Transformation Strategy"

"Healthcare Payer CIOs Must Jump-Start Their Health-Value Management Strategy"

Health Data Curation and Enrichment Hub

Analysis By: Laura Craft

Definition: Formerly called "The Health Data Convergence Hub," this is the technology capability that brings together data from across the consumer/citizen/patient health and wellness continuum and prepares the data for delivery to downstream consumption platforms, applications, analytics and "things." It automates the ingestion of data from all identified and permissioned sources; provides tracking and traceability; and manages identity, compliance and security. It may process algorithms and deliver the output to the correct modality.

Position and Adoption Speed Justification: This technology profile acknowledges that the vast amounts of data that are becoming essential to sustain health and wellness, contain healthcare costs, and make sure the customer/patient/person is engaged and satisfied. This is becoming an enormous and daunting curation and integration undertaking. The assessment of health and health risk is now relying on data sources that historically have been beyond the reach of the healthcare

delivery organization, such as social determinants of health and genomic profile data. In addition, delivery of care is coordinated across an integrated community network. The result is an expanding ecosystem of care coordination and data exchange demanding really complex governance and policy enforcement. The data needed to support all the healthcare actions is often needed in real time and is typically an aggregation of many data points to provide the holistic picture of the patient. This broadening ecosystem of data collection, sharing and delivery taxes traditional data exchange integration methods (HIEs and ETLs) that have been implemented for purpose-specific reasons are less effective to manage new data demands. Healthcare delivery organizations that are truly executing population health management will quickly feel the gaps, bottlenecks and delays created by poor data movement. The health data curation and enrichment hub, which is distinctly different from an HIE (but may rely on one as a source of information) and ETL tools, is also critical to HDOs' real-time and digital healthcare strategies.

There are two approaches emerging in the industry. The first emerges from existing analytic and population health platform players that historically have been the integrators of bringing the disparate data together. Gartner has noted that some of the large, well-established population health/analytic vendors like health catalyst are retooling their platforms to have more powerful ingestion and data management strengths. The second approach is a new, emerging class of vendors. These vendors may have tangential solutions to support population health and analytics, but have as their primary focus data ingestion, indexing and distribution capabilities.

We position this profile at post-trigger 20%, as the solutions are still early attempts to build a hub that effectively transacts, normalizes and manages real-time patient/consumer/citizen data regardless of origin or destination. The lack of more accepted industry standards may impact progress as well as adoption. However, Gartner believes this will be a powerful (and standard) layer of the HDO's enterprise information architecture on the further side of five to 10 years.

User Advice: Healthcare CIOs must make sure that integration and data challenges do not become a bottleneck to organizational progress and transformation:

- Get ahead of the need by proactively understanding what the data integration demands across the healthcare delivery organization will be over the next three to five years. These needs can be culled from information in the organization's strategic plan and through other deliberate short- and long-term visioning exercises.
- Create requirements. Map out the patient, provider and administrative journeys, and document the ideal movement of data across the enterprise. Update the enterprise and information architectures to reflect the future state. Develop your roadmap.
- Evaluate your existing EHR, population health, analytics and/or integration vendor to see if they have a roadmap and strategy to meet your demands. Understand the specialty vendors in the market and track their evolution.

Business Impact: Successful deployment of a comprehensive health data curation and enrichment hub is a foundational component of the real-time health system, conducting digital healthcare, and the ability to execute population health and community care management. There is no question that how successful an HDO is in optimizing the use of its data has a strong correlation to achieving

successful outcomes. The health data convergence hub facilitates the exchange of information and insight from origin to destination at the right time. In the U.S., continuing healthcare reform, including MACRA and MIPS, raises the stakes; globally, healthcare reform and e-health initiatives will also rely on more industrial-strength capabilities to share and exchange data.

Benefit Rating: High

Market Penetration: Less than 1% of target audience

Maturity: Emerging

Sample Vendors: DataMotion Health; Health Catalyst; IMAT Solutions; Innovaccer; Verinovum

Recommended Reading: "Developing the Healthcare Enterprise Analytics Strategy Primer for 2018"

"Industry Vision: The Real-Time Health System Transformation"

Health Value in Virtual Care

Analysis By: Bryan Cole

Definition: Health value in virtual care is the business model, technology integration, incentive design and messaging that, in combination, enables payers to obtain the highest financial, population health, analytic and consumer engagement benefit from virtual health services. This category includes only those technologies that a payer typically funds and implements such as wearable health monitoring and virtual or electronic physician visits.

Position and Adoption Speed Justification: While the category includes several discrete technologies, this profile tracks how payers have applied these technologies, integrated with other payer IT systems and implemented them to orchestrate health value for members. Of the range of potential virtual care technologies, this profile focuses attention on tools that:

- Facilitate member access to care, such as on-demand virtual visits and e-visits.
- Aid payer care management efforts in areas like medication compliance management, wearable health monitoring and personal health management tools.

On-demand virtual visits (that is, a remote visit to remedy simple conditions such as colds and flu without an ongoing in-person care delivery relationship) are quite a common payer benefit today. Payers often deliver through partnerships and at the behest of major employer group clients. The tools are poorly utilized by members, however, and often include high per-member, per-month fees that challenge the health value proposition.

Payers will achieve higher value through integration and proactive application of virtual care to augment in-person care interactions. For example, payer care management staff could use the virtual technologies to routinely check in on members and relay health status changes to primary care providers. Improved access to care equates to increased satisfaction for members, but payer adoption is still low due to:

- Cultural change for more members and payer medical directors to accept that virtual care can be as effective as in person care for some conditions.
- Growing, but not complete, adoption of value-based payment arrangements that share financial gains when virtual care is championed by network providers.
- Lack of payer medical policies on provider payment for virtual care and network provider contract terms outside of narrowly defined electronic visits using vended services.
- Inconsistent state rules on providers giving care virtually.

Consumer demand, better experiences, programmatic integration and improving technology will lead to mainstream payer adoption within the next five years. With few innovative new payer examples in 2018, we will see only slow industrywide progress in coming years for this early mainstream technology.

User Advice: Virtual care to date has been very fragmented, with individual vendors each pursuing different technologies to address one element or another of patient health or member care management. For example, one vendor might have a remote cardiac monitor read by a physician in private practice, while another vendor offers a medication adherence program offered through the payer, with both installed in the same member's home. Thus, Gartner believes various stand-alone telemedicine solutions will be usurped by integrated telehealth platforms. Consolidation of technologies and services from vendors meshes with payers' need for greater integration of virtual services to further their care management objectives. Payer CIOs should actively support the trend of incorporating virtual care with population health management by:

- Urging consolidation of existing pilot programs for wearables or in-home monitoring.
- Integrating virtual care programs with quality improvement, risk adjustment optimization and care management workflow applications.

Business Impact: Payers will obtain maximum health value for their members by expanding and integrating virtual care with care management programs. In the long term, increased access and earlier intercession, combined with effective incentives and metrics, will lead to improved member experience and health outcomes. However, there are trade-offs:

- Quality — there is emerging evidence that virtual care practitioners overprescribe antibiotics and are not as adept at diagnosing complex cases. Better practices and standards will evolve as adoption increases.
- Clinical data — virtual care runs the risk of creating another silo of clinical data, unless payers utilize virtual care services staffed by network primary care providers or aggressively integrate data generated by virtual care practitioners.
- Short-term financial results — emergency room and urgent care diversion is partially offset by increased member utilization of more convenient and lower-cost virtual services. Targeted promotion, smart incentives and value-based payments will refine the payer ROI of virtual care.

Benefit Rating: High

Market Penetration: 5% to 20% of target audience

Maturity: Early mainstream

Sample Vendors: American Well; Health Dialog; Livongo; MDLIVE; Teladoc; virtuwell

Recommended Reading: "Hype Cycle for Digital Care Delivery Including Telemedicine and Virtual Care, 2017"

"Master These Proof Points to Create a Sustainable Virtual Care Roadmap"

Provider/Partner Alignment Solutions

Analysis By: Bryan Cole

Definition: Provider/partner alignment solutions are the technology tools and services associated with managing the relationships and interactions between payers, providers and other partners in delivering health value to members. These solutions integrate all of the data sharing, workflows and contractual obligations necessary to support the full life cycle of provider relationships, from network design and onboarding to claim payment, servicing and contract renewal.

Position and Adoption Speed Justification: Provider network management IT systems that help payers contract, credential and load providers for claim payment suffer from a lack of integration, inconsistent data formats and poor usability. The result is data gaps, inconsistent provider directories, inaccurate claim payment, costly rework cycles and poor member service. Provider/partner alignment solutions, in contrast, expand technology enablement beyond contracting, credentialing and data loading to all interactions a payer has with its network of providers and partners. This capability allows payers and providers to overcome historically strained relationships, fostering collaboration to improve care outcomes and lower cost.

Comprehensive provider/partner alignment solutions continue to emerge, but slowly. Payer CEOs and boards of directors realize that provider relationships are strategic assets. Thus investments in improving communication and easing operations with providers generate positive ROI. For example, implementing CRM for provider service or replacing a legacy provider portal can reduce call center volume. However, business decision-making silos, long-term contracts with vendors of legacy IT systems and lack of IT budget to integrate disparate point applications hinder progress.

The pace of change will hasten. Several firms now offer provider network management solutions engineered to be the consolidated source of truth for provider data. Within two to five years, vendors will enhance their solutions' functionality to support care management and quality improvement, satisfying expanded alignment goals. In five to 10 years, a majority of payers will have applied this technology to their own operating environments. We thus continue to rate this category as emerging in 2018.

User Advice: Payer CIOs must manage the increasing complexity of provider network relationships under value-based payment models as well as the increasing burden of provider data regulation. The applications and operations that payer business teams have used for provider network

management are mostly piecemeal and simply not up to this task. Furthermore, the rework that piecemeal systems require is a real cost to payers and providers alike.

Gartner believes that by creating a comprehensive provider alignment discipline for healthcare payers, CIOs can maximize strategic investments while addressing the complexity of IT activities. Reliance on fragmented legacy applications and operational practices that are not integrated with other areas of the IT system must be modernized to a more integrated whole. Solutions must address the operational challenges of provider data as well as enable improved relationships with providers. CIOs and their executive peers can build trusted, mutually beneficial relationships with providers on the two key pillars of engagement and analytics.

CIOs must obtain support from business sponsors of legacy IT systems by assessing the costs of and risks arising from current practices. CIOs and their IT leaders must then create migration plans that enable real-time integration to care management, quality improvement, risk adjustment optimization and core administrative processing systems to realize ROI from provider/partner alignment systems.

Business Impact: In an era of increased emphasis on care coordination and value-based networks, mutually beneficial payer/provider relationships are essential for all parties' growth. For example, payers have a palpable need to bring products defined by network composition to purchasers. Providers, in turn, need more comprehensive, ongoing relationships with their patients. Thus, IT systems that help cultivate, support and redefine those relationships play a strong role in both payers' and providers' digital transformation efforts.

The payoff for improving provider interaction applications is not just about strategy, however. Closing provider data gaps and making provider business processes more efficient will:

- Lower operating costs by eliminating duplicate entry processes and rework cycles.
- Improve provider data accuracy and consistency.
- Remove abrasion points for members seeking care.
- Smooth relationships with the providers that payers depend upon for health-value delivery.
- Speed claim payment, financial reconciliation and audits with providers.
- Reduce the risk of state and federal regulatory penalties for poor provider directory data quality.

Benefit Rating: High

Market Penetration: 1% to 5% of target audience

Maturity: Emerging

Sample Vendors: Change Healthcare; Cognizant; Gaine; Newgen Software Technologies; Optum; Santech

Recommended Reading:

"Introducing Provider/Partner Alignment: U.S. Healthcare Payer CIOs' Transformative Relationship Model"

"Transform Healthcare Provider Relationships With Provider/Partner Alignment Maturity Model for Payer CIOs"

"Top Pain Points and Solutions for U.S. Healthcare Payer CIOs in Provider Network Management"

"U.S. Healthcare Payer CIOs Move From Provider Portals to Provider/Partner Alignment Hubs"

Blockchain in Healthcare

Analysis By: Gregg Pessin

Definition: A blockchain is an expanding list of cryptographically signed, irrevocable transactional records shared by all participants in a network. Each record contains a time stamp and reference links to previous transactions. With this information, anyone with access rights can trace back a transactional event, at any point in its history, belonging to any participant. A blockchain is one architectural design of the broader concept of distributed ledgers.

Position and Adoption Speed Justification: Blockchain, the top search term on Gartner.com, is characterized as a radically new method of capturing, exchanging and tracking data and therefore value. Bitcoin and the cryptocurrency craze have put blockchain to the forefront for IT and laypeople alike. Mainstream media and industry magazines include blockchain-related topics on a daily basis. Vendors such as IBM, Hewlett Packard Enterprise, Microsoft, and Oracle aggressively include blockchain technology solutions and services in their marketing literature. Articles about how blockchain will transform health, medicine and science are going viral.

In a recent Gartner survey of CIOs summarized in 2018 CIO Agenda: A Life Science Perspective, only 5% of LS CIOs say they have blockchain projects in their short-term planning or that they are actively experimenting with blockchain. None of the CIOs say they have already deployed the technology. Similarly only 5% of HC Payers and 2% of HC Providers are in the short-term planning phase. For those organizations that are participating in blockchain projects some of these projects are outside of IT and initial CIO sentiment is mixed. While there is excitement about the possibilities of the technology to transform the broader health ecosystem, there is equal also skepticism about what can actually be accomplished. A few CIOs have reviewed their initial blockchain projects and decided that their organizations may have been misguided about blockchain capabilities or applied them in a way that was misaligned with their strategy. Several HC and LS CIOs are already predicting failure on their initial investments. This creates tension — in the quest to improve efficiency, CIOs must experiment with innovative trials using technologies like blockchain, as this technology is potentially foundational.

In the payer and provider worlds, the speculation is focused on streamlining transactions and data sharing among all the major players in the healthcare value chain for everything from contracting, credentialing and claims payment, to health data aggregation and analysis, and population health management. Also, longitudinal medical records could be the source for precision medicine and population health studies.

In 2018, although the interest level in blockchain has grown along with the media hype, the actual success rate of pilot is not increasing at the same rate. The high level of industry interest in the technology has resulted in an increase in development investment, which is why we have moved the profile forward slightly this year.

User Advice: Distributed ledger concepts are complex and are not well-understood by the healthcare CIO community. Existing production examples of blockchain such as bitcoin are useful to understand and explain the concepts and underlying technologies.

Progress is being made by several vendors to develop distributed ledgers for medical information storage. At least eight startups are underway for this purpose. Tracking those vendors is a smart step.

To fully keep abreast of this emerging technology:

- Track blockchain's market readiness in HC and LS, and factor these trajectories into your strategic plans and investment timing. The most transformative and impactful applications will be ecosystem services oriented with multiple organizations involved and they will take longer to evolve.
- Differentiate the kinds of blockchain technology providers and disruptors by establishing a map of solution providers in your industry sector.
- Use Gartner's criteria for identifying opportunities and apply the decision framework to determine the blockchain technology approach.

Business Impact: Blockchain and distributed-ledger concepts are gaining traction with healthcare businesses because they hold the promise of transforming both architectures and operating models. However, the business case for blockchain in healthcare is still an open book.

Now is the time for industry stakeholders to learn from and then build upon existing models as they evolve. The potential of this technology to radically transform economic interactions should also raise critical questions for health value chain, regulators, suppliers, patients and consumers, for which there are no clear answers today.

As healthcare companies get more serious about blockchain, it will become critical to ensure that the right type of governance is applied in order to drive innovation, collaboration and more efficient supply chains. The benefits, if the technology can be applied correctly, are very clear. Blockchain will enable efficiencies for reaching new customers, extending relationships with supply chain partners, and offering better quality and more complete links between events. It should expand the boundaries of healthcare businesses.

Benefit Rating: Transformational

Market Penetration: Less than 1% of target audience

Maturity: Embryonic

Sample Vendors: Blockchain Health; Brontech; Gem; Guardtime; Hashed Health; HealthCombix; MedRec; PointNurse; PokitDok

Recommended Reading: "What Healthcare and Life Science CIOs Need to Know About Blockchain"

"How to Determine If You Need a Blockchain Project, and If So, What Kind?"

"Top 10 Mistakes in Enterprise Blockchain Projects"

"Practical Blockchain: A Gartner Trend Insight Report"

"The Bitcoin Blockchain: The Magic and the Myths"

Product Configurators

Analysis By: Bryan Cole

Definition: Product configurators are IT systems composed of a database, workflows and document generation to manage the variability of payer health plans. Product configurators use rule sets to guide how payer salespeople, underwriters, product developers and operations teams accurately structure, price and administer plans. For a healthcare payer, a product configurator typically replaces a heavily manual process scattered across various functions and lines of business with an enterprise system of record for all insurance products.

Position and Adoption Speed Justification: Payers typically support thousands of product permutations encompassing cost sharing, benefit coverage and network variations. While payers often speak of consolidating product offerings, they usually fail due to purchaser expectations of plan choice and the new complexity of provider-network-based plan offerings. Product configurators help by managing the middle-office processes of plan construction for quoting, adjustment in the sales process, finalization for core loading and member document generation (for example, certificates of coverage and benefit summaries). Product configurators are especially useful in the large group commercial segment in which purchasers commonly demand custom cost-sharing combinations or specialized benefits administration.

Core administrative systems treat products as discrete stock-keeping units, and assign each an alphanumeric code within a hierarchical structure that ties that product code back to lines of business for provider network or medical code definitions. However, health benefit plans are also often approved by regulators in a manner that allows variability (such as any primary care copayment within the range of $0 to $50), with group purchasers demanding skinnier benefit combinations to lower premium costs.

While basic product configurators have been available for years, current technology is significantly better than predecessor IT systems. Additional capability enhancements, such as managing code-level medical management rules by provider in a narrow network product, are still emerging. Future enhancements will support new digital products, such as wellness offerings not part of a regulated benefit plan, as well. We thus rate the technology as adolescent, with only minimal new improvements to vendor offerings and new payer client implementations in 2018.

User Advice: CIOs should invest in product configuration when product complexity surpasses — or business and IT leaders expect it to surpass — the ability of product development, regulatory, operational and IT staff to efficiently manage it across IT systems. CIOs should also consider the technology to support improved care management and actuarial reporting by providing a backward lookup from product codes on core systems to cost-sharing amounts and other benefits in member plan designs.

To get the most from product configurator technology, CIOs should look for vendors that use:

- Web-based graphical user interfaces for ease of use, along with APIs for easier IT integration with underwriting, CRM and other applications that leverage product data to function
- Workflows and levels of user authority with boundary settings to approve simple (such as new primary care copay amount within approved range), medium difficulty (such as primary care copay amount outside of range currently filed with regulators) and significant (for example, exclude certain codes from primary care office visit set) product variations

Replacing outdated business processes is key to a successful product configurator installation. Business rules and staff roles around product configuration can grow haphazardly over time. Thus, CIOs must use the launch of a product configurator as an opportunity to document, audit and fix underlying process flows and decision loops.

Business Impact: Product configurators offer:

- A far more organized and manageable product "shelf" for payer sales, product development/ management, underwriting, operations and IT staff
- Strategic visibility into product design, analytics enablement, and the ability to be more consultative with employer and government clients
- Management of the relationships between contract form numbers and product codes, especially as they change over time
- Automated production of member documents, such as certificates of coverage or summary plan descriptions, ACA-mandated Summary of Benefits and Coverage forms, and unregulated benefit summaries
- Benefit data availability for portals (for members, providers and brokers)
- Easier core administrative processing setup, ranging from standardized reports for product management, IT or operations staff to use when setting up new benefit packages to semiautomated setup via integration, depending on the core administrative system and product configurator being used
- Integration with premium rating engines and financial accounting tools to facilitate the processes by which actuaries, underwriters, informatics and finance personnel pull utilization data from data warehouses and core administrative processing systems

- Improved compliance and audit readiness with benefit plan contract filings made with state and/or federal regulators

Staff and error rectification costs for current operations associated with this problem have been borne by product development, sales, operations and IT teams for years. Product configurators reduce these costs through:

- Administrative simplification and cost reduction — streamlining middle-office processes so that downstream IT teams are involved only when finalized benefits must be set up on a legacy administrative system
- Improved compliance and error resolution — controlling middle-office information and actions to avoid a sales or customer service representative quoting the wrong benefit, resulting in a member appeal

Benefit Rating: Moderate

Market Penetration: 1% to 5% of target audience

Maturity: Adolescent

Sample Vendors: FJA; HighRoads; Optum; Oracle; Pegasystems; Simplify Healthcare; ValueMomentum

Recommended Reading: "U.S. Healthcare Payer CIOs Should Deploy Product Configuration Technology to Deliver Efficiency"

"Market Guide for Healthcare Payers' Core Administrative Processing Systems"

Member Health-Value From Wearables

Analysis By: Mandi Bishop

Definition: Health-value from wearables is a composite profile that tracks the health outcomes members achieve with the help of wearable devices supported or incented by payer programs. The devices in this category include both clinical and consumer-grade devices that span from the most common smartwatches, wristbands and smart footwear to the emerging smart lenses, rings, garments and noninvasive glucose monitors.

Position and Adoption Speed Justification: Although measurable health-value realization at scale remains elusive for wearables, several developments in 2017 reinforced our focus on the promise of these technologies for payers. For example, the U.S. Food and Drug Administration (FDA) commenced a pilot program with Fitbit, Apple and Samsung among others to accelerate the process to certify digital health products including consumer-grade wearables. Life science firms are also increasingly using wearables in their clinical trials.

Additionally, we predict corporate employee and payers' member wellness programs will drive 15% of total fitness tracker purchases in the U.S. in 2018. Aetna, for instance, is now expanding their

Apple Watch pilot to more than 500,000 members and UnitedHealthcare's Motion employee program has significantly broadened its device options.

Low consumer retention rates, limited organizational digital maturity and embryonic AI capabilities in IoT platforms will continue to challenge expansion of pilot programs. However, in the next five to 10 years, the convergence of the next generation of wearables with payers' maturing digital capabilities will unleash greater member health value, placing this profile on the rise of the Hype Cycle.

User Advice: As clinical use cases gain acceptance and digital giants accelerate adoption with expanded consumer offerings, more payers are actively seeking ways to capitalize on the momentum. As recently as last year, the wearables market for health management was dominated by popular fitness brands and startups with proprietary applications. However, just as the Apple iPhone ushered in the smartphone era, the Apple Watch has set the new bar for wearables with ecosystem integration across healthcare and consumer domains, and is now the dominant market player.

Because these wearables serve as extensions of smartphones, their consumer retention rate is expected to be substantially higher than for specialized devices. Device manufacturers of all sizes will have to provide differentiated capabilities — or they will need to refocus on developing specialized apps that can run on competitor's wearables, as Mio, Under Armour, Nike and adidas announced in 2017.

Gartner has predicted that payers will align with better-loved brands to take advantage of some members' natural affinity to the company as well as its established digital ecosystem for its exercise sensors, services and community. To increase the health-value received (and perceived) by participating members, payers must use data from wearables to enhance member experience personalization. Integrating these insights with benefits and related health services, financing from health reimbursement arrangements (HRAs) and health savings accounts (HSAs) would multiply the value opportunity. For example, a runner could not only track her fitness changes, she could share them with her physician, be rewarded by her employer and use her HSA to pay for related care or allowable expenses.

Business Impact: Wearables have the potential to deliver multiple valuable results for members, both on their own and as a channel for other services and sources of value. In this profile, we focus specifically on health value results for end consumers, which are considerable in their potential and breadth (i.e., from compliance for those with a chronic disease, to early detection and prevention or delay in disease onset, to wellness enhancement, to feelings of loyalty and satisfaction with the payer). Over the long haul, Gartner believes adoption will increase as the devices and the supporting digital ecosystems mature. The path to that result will be rocky, however, as is the case for most rapidly developing categories of technology. In the case of wearables, that rocky path is compounded by the many forms of sensing, delivery and integration of these devices with our many use cases (such as sleep, mindfulness and activity promotion and monitoring), as well as their connection to the ecosystem.

Benefit Rating: Moderate

Market Penetration: 5% to 20% of target audience

Maturity: Adolescent

Sample Vendors: Apple; Biotricity; Fitbit; Google; iRhythm Technologies; Misfit; Samsung; Spry Health; Validic

Recommended Reading: "Connecting Consumer Engagement Moments Into a Longitudinal Healthcare Journey"

"Market Insight: Wearables in Healthcare Ecosystems Get Rolling in 2018"

"Market Trends: Social Analytics Show Consumers Want More Health Features From Their Wearables"

"Hype Cycle for Wearable Devices, 2017"

"Hype Cycle for Consumer Engagement With Healthcare and Wellness, 2017"

Modern Healthcare Analytics Architecture for Payers

Analysis By: Jeff Cribbs

Definition: Modern healthcare analytics architecture for payers refers to the next generation of enterprise analytics, as adopted by healthcare payers seeking to drive health value via pervasive analytical insight. Current payer analytics architecture often includes information portals (conventional reports and dashboards) and an analytics workbench (for data exploration). Modern architecture adds a data science laboratory (for advanced modeling) and a decision hub (to deploy insight into operations), and coordinates all four functional elements.

Position and Adoption Speed Justification: Most U.S. payers are more than a decade into their investments in classical BI and analytics architecture:

- Extraction, transformation and loading (ETL)-based data movement
- Enterprise data warehousing
- Reporting and dashboarding
- Data exploration tools

These investments have, by and large, performed well, as more payer business decisions are being informed by ever-improving analytical insight. In fact, many payers can still realize considerable value from classic BI architecture by increasing business utilization of tools through more flexible self-service capabilities, evangelism and training, improved data storytelling and a renewed focus on member health value (see "Payer Analytics Put Health-Value Intelligence at the Core of Industry Transformation"). However, the most innovative payers have started to experience the technical limitations of this architecture, and have begun to consider more modern approaches that could unlock new levels of health value.

Gartner has defined the four functional components of modern BI and analytics architecture as it emerges across all industries (see "Technology Insight for Modern Analytics and Business Intelligence Platforms"):

1. Information Portal
2. Analytics Workbench
3. Data Science Laboratory
4. Decision Hub

The three use cases that will drive adoption of modern architecture in most payer organizations are consumer engagement analytics, population health management analytics and provider/partner analytics, each of which benefit substantially from predictive and prescriptive capabilities and fast deployment of insight. In 2018, a majority of leading healthcare payers have one or more installations of a Data and Science and Machine Learning Platform, but few are connected to a logical architecture that systematically deploys models into operations. Enterprise-level decision management for payers exists largely in PowerPoint decks; however, a small number of have started implementations in the last 12 months. This later point has us advance the adoption to 1% to 5% in 2018.

Note that the positioning of this category is weighted by the size of the payer organizations adopting the approach and by the penetration of the approach within those organizations. Representative vendors in this category cover various components of the architecture. No one vendor encompasses all required capabilities or all payer use cases.

User Advice: All payer CIOs and data/analytics leaders should maintain their investments in classic BI and analytics architecture. New solutions will take years to stabilize to the point that they can replace the old ones. Even then, replacement will occur incrementally by function and use case. It is also likely that certain components of modern architecture, especially information portals, can be adapted from current tools to operate effectively in the new architecture. Investments made today in data governance, master data management and enterprise services integration will be almost completely transferable, and will position payers well as new tools, functions and use cases come online.

For forward-leaning payers, data science workbenches and decision hubs are key areas for investment in data and analytics innovation. Even in the evaluation and pilot stages of an innovation project, however, CIOs should consider the path to assimilation in a modern architecture.

Later-adopting payers, as well as those that have determined these analytics capabilities won't be differentiating in the near term, should:

1. Monitor the adoption of leaders for signs that advanced analytic capabilities are changing the competitive landscape.

2. Consider analytic product and service providers that can give you faster time to value. For example, Healthcare Consumer Insights as a Service vendors who apply advanced analytics to multisector data and deliver via an API call.
3. Re-evaluate annually for at least the next two years.

Business Impact: The adoption of modern BI and analytics architecture in the payer industry will be primarily driven by the challenges and opportunities of three use cases:

1. **Consumer engagement analytics —** Payers are seeking to experiment with a vast array of consumer- and Internet of Things (IoT)-generated data in order to better understand and influence member behavior. Classic architecture cannot assimilate new sources quickly enough, and it cannot support the development of advanced behavioral models.
2. **Population health management analytics —** As a starting point, payers need a more sophisticated analytical expression of health value — one that accounts for the interplay of cost, health and experience. With that understanding, they need pervasive analytics that are coordinated throughout the operations of the payer to drive that health value. Classical architecture limits both health-value modeling and coordinated, pervasive analytics.
3. **Provider/partner analytics —** As the transaction processes of provider network management transform into the relationship management model of provider/partner alignment, payer analytics must be much more sophisticated in analyzing providers and the health value they can deliver to members.

Benefit Rating: High

Market Penetration: 1% to 5% of target audience

Maturity: Emerging

Sample Vendors: IBM; RapidMiner; SAP; SAS; Teradata; TIBCO Software

Recommended Reading: "Payer Analytics Put Health-Value Intelligence at the Core of Industry Transformation"

"Developing the Healthcare Enterprise Analytics Strategy Primer for 2018"

"Select the Right Architecture Model for Your Modern BI and Analytics Platform"

"How to Implement a Modern Business Intelligence and Analytics Platform"

"Critical Capabilities for Data Science and Machine Learning Platforms"

"How to Move Analytics to Real Time"

Community Resource Network Management

Analysis By: Jeff Cribbs

Definition: Community resource network management (CRNM) is an operational model that an entity (typically a payer, provider or government agency) adopts to optimize the utilization of nonmedical services by the individuals it serves. Key components of CRNM include:

- Workflow and analytics to identify unmet nonmedical needs
- Directory of service providers
- Ability to refer individuals to service providers and track those individuals
- Analytics to assess the efficacy of service providers

Position and Adoption Speed Justification: Research studies and commentaries in leading health policy journals continue to conclude that the causal determinants of health (and, by extension, healthcare costs) are predominantly outside the healthcare system. If healthcare payers and providers are to impact these causal determinants, they need to extend their reach beyond the healthcare system and into the communities of their patients and members. One approach is to better coordinate efforts and, sometimes, payment with community resources such as:

- Housing
- Food banks
- Legal services
- Transportation services
- Education assistance

Government grant makers, think tanks and thought-leading health policy foundations (especially the Robert Wood Johnson Foundation and The Commonwealth Fund) are making grants to pilot and study care and payment models that better incorporate community resources. In 2018, we observe a pronounced shift toward the systemization and scalability of the initial pilots. For example, CMS announced that private Medicare Advantage plans will have more flexibility to include nonmedical products and services in their 2019 benefit packages. Plans are expected to increase coverage for programs like Meals on Wheels, homemaking and modification services, and medical transportation, to name a few.

Of the dozens of financing and payment approaches that have been considered for connecting healthcare and social services, direct inclusion in medical benefits will have the greatest and most immediate impact on the U.S. healthcare payers and providers. Globally, a number of regions have announced similar integrations — from the 2017 announcement by the National Health Service to use accountable care systems to the ambitious efforts by the Ministry of Social Affairs and Health to actually consolidate medical and social care record systems. The preponderance of these initiatives leads us to position CRNM just short of the peak in 2018.

The headlines that will accompany the decent to the trough for CRNM almost write themselves. We are likely to find that the "medicalization" of certain social services will actually make those services more expensive overall, especially in the U.S. We will see fraud, waste and abuse by sham social

service providers. Surveys or journalistic profiles will call attention to consumers that find new processes and data sharing, employed to addressing leading determinants of health alarming. Establishing CRNM now as a continuously improving operational model will be required to navigate this next phase.

User Advice: CRNM is the organizational competency that will be required to move pilot initiatives to an enterprise scale, and avoid the worst missteps along the way. However, substantial challenges lie ahead in the following areas:

- Business — aligning financial incentives, payment models and medical policy
- Technical — addressing requirements for data quality and sharing, and for care management integration
- Cultural — facilitating collaboration among clinical, social and technology workers from healthcare organizations, government agencies and nonprofit organizations

Therefore, we extend the following advice to both healthcare payer and healthcare provider CIOs:

- Drive the urgency of improving coordination with community resources by promoting CRNM with your population health peers. Invoke analogies from established, core competency "referral networks" or from "provider network management."
- Establish the business value of CRNM for your organization. Assign a business analyst to document the current state of community resource network integration within your organization. Identify use cases, user stories, pain points and opportunities for improved technology support.
- Form a cross-functional team of population health management (PHM) leaders and IT partners from your organization, and hold product demonstrations with at least one of the CRNM vendors included in this profile.

Business Impact: There is compelling emerging evidence that CRNM can deliver improved health at a lower cost. The largest, most persuasive studies are those that use CRNM in the context of value-based contracting. For example, in 2012, the state of Oregon initiated an ambitious delivery system reform for its Medicaid beneficiaries by creating 16 regionally based coordinated care organizations (CCOs). These CCOs receive a global budget for their attributed beneficiaries, and they have the flexibility to spend those funds on nonmedical services outside of the conventional guidelines of medical necessity. A 2017 Health Affairs study of the Oregon Medicaid coordinated care organizations (CCOs) that featured social service integration showed a 9% reduction in expenditures for the CCO population relative to a similar control. Oregon will double down on their success by explicitly emphasizing advancing "requirements or other ways to promote or increase spending related to social determinants of health and equity" in the CCO 2.0 guidelines announcement in March 2018. Studies of particular services (like educational classes for prediabetics or employment support for the mentally ill) and referral processes (like the CommunityRx program in Chicago) put details around how such savings are realized.

Benefit Rating: Transformational

Market Penetration: 1% to 5% of target audience

Maturity: Emerging

Sample Vendors: 86Borders; Aunt Bertha; Health Leads Reach; Healthify; NowPow; Purple Binder; United Us; Wholesome Wave

Recommended Reading: "U.S. Healthcare CIOs Must Master a New Pillar of Population Health — Community Resource Network Management"

"Leveraging IT for Effective Healthcare Consumer, Member and Patient Engagement Primer for 2018"

At the Peak

BPaaS for Healthcare Payers

Analysis By: Mandi Bishop

Definition: Business process as a service (BPaaS) is the delivery of business process outsourcing (BPO) services accessed via internet-based technologies and frequently sourced from the cloud. BPaaS services are often multitenant, automated or have no dedicated labor pool per client. BPaaS for healthcare payers tracks the overall adoption of BPaaS across both knowledge-intensive activities (e.g., utilization management, analytics and risk adjustment optimization) as well as transaction-intensive ones (e.g., claims processing).

Position and Adoption Speed Justification: BPaaS accelerated from an emerging to adolescent solution for healthcare payers in 2018 with the proliferation of the "healthcare payer in a box" cloud-based operations model driven by next-generation core administrative processing solutions. This model transcends traditional BPO — or the delegation of business or IT processes to a vendor. Payers have looked to outsourcing most often to lower transaction costs for tasks such as claims data entry, document imaging and mailroom services and billing. BPaaS, however, also enables payers to expand quickly into new product lines like Medicare Advantage plans or outsource higher value functions such as care management.

BPaaS necessarily requires cloud delivery options. With payer cloud spending approaching parity with other industries (see "IT Key Metrics Data Highlights U.S. Healthcare Payer CIOs' Need to Transform") — BPaaS is poised to accelerate faster to mainstream adoption than Gartner predicted in 2017 and ascend quickly up the Peak of Inflated Expectations.

User Advice: Healthcare payer CIOs should actively engage with BPaaS providers to evaluate available opportunities to achieve cost containment goals by decreasing their labor and technology footprints. Consider BPaaS options when formulating an overall operations modernization or transformation strategy, and incorporate innovation (such as intelligent automation) into vendor evaluation criteria to drive out new possibilities for increased organizational performance.

BPaaS must be the outsourcing of responsibilities, as measured by results, rather than simple tasks. Thus CIOs must put in place SLAs (covering both transactions and access) as well as tight

operational and technology monitoring. Over time, payers must routinize these oversight functions to ensure consistent, high-quality performance. Payers should also see BPaaS vendors as long-term partners and thus include risk-sharing terms in any contracts, in order to increase accountability.

CIOs must review the value of transactional or single-service solutions against end-to-end strategic BPaaS options. Aggregated tactical solutions allow cost savings but not necessarily equal value across all payer business processes. Furthermore, strategic BPaaS can give payers access to high-value skills and a wider pool of in-demand resources allowing payers to expand in knowledge-intensive activities without adding significant internal staffing.

Finally, CIOs must prepare detailed risk management plans, including immediate, short-term and long-term mitigation elements, to minimize reputational and operational risk resulting from a BPaaS vendor disruption or subpar service.

Business Impact: BPaaS combines two discrete approaches to reduce IT spending: outsourcing and the cloud. It can also improve performance of business operations with specialized resources, enabling the organization to adopt new applications and deliver new value and services quickly and efficiently. In this way, healthcare payer CIOs can address longstanding inefficiencies through external resources available via BPaaS.

BPaaS pricing models are consumption-based or subscription-based, making them ideal for calculating per member per month costs to budget commodity functions (e.g., claims adjudication or fee for service payment reconciliation). This model also lends itself to product line expansions or new ventures in which the payer does not have a strong internal knowledge base. An example here is a commercial payer entering Medicare Advantage for the first time that does not want to hire a team of government program specialists.

Benefit Rating: Moderate

Market Penetration: 5% to 20% of target audience

Maturity: Adolescent

Sample Vendors: Cognizant; EXL; HM Health Solutions; Infosys; NASCO; NTT DATA Services; Optum; Sutherland; UST Global; Wipro

Recommended Reading: "IT Key Metrics Data Reveals U.S. Healthcare Payer CIOs' Budget and Innovation Challenges"

"Business Drivers of Technology Decisions for Healthcare Payers, 2018"

"Healthcare Payer CIOs Should Flip Their Pace-Layered Application Strategy to Enable Intelligent Health-Value Administration"

Consumer Journey Analytics in Healthcare

Analysis By: Mark E. Gilbert; Jeff Cribbs

Definition: Consumer journey analytics is the process of tracking and analyzing the way consumers use a combination of communication channels to interact with an organization over time. Channels include human interaction (call centers or physician encounters), digital (websites or mobile), assisted help (live chat and co-browsing), those operated in physical locations (clinics) and those with limited two-way interaction (display advertising).

Position and Adoption Speed Justification: (Note that this profile is a healthcare-specific positioning of the cross-industry profile for customer journey analytics, which appears in "Hype Cycle for Customer Experience Analytics, 2017.")

In recent years, a number of tools and techniques for assessing and reimagining consumer experience have gained significant adoption in healthcare. These include persona development, voice of the customer and customer journey mapping. The output of these efforts among leading healthcare organizations has been beneficial to fostering an enterprise understanding of both the current and the target state of consumer experience. CIOs and their teams are doing serious work to meet the challenge of enabling these newly imagined healthcare journeys. This has created an urgent need to develop measurement capabilities that will give healthcare organization leaders feedback on the successes and failures of these journeys as they are enabled.

Relative to other industries, consumer journey analytics is just as promising in healthcare, but moderately more complex. This is largely due to the complexity of health journeys and the prevailing use of face-to-face communication channels in healthcare. A longitudinal understanding of consumer experience in healthcare must include in its scope important consumer touchpoints with:

- Other enterprises (e.g., doctors referring patients to external specialists for consults prior to a procedure)
- Other sectors (e.g., a patient checking out-of-pocket costs for a procedure)
- Other industries (e.g., a member earning wellness incentives through the use of a personal wearable device)

The prevailing practice of direct observation of interactions is not sufficient (e.g., call center monitoring) as the number of digital interactions increase. Healthcare analytics teams will also need data from internal and external systems to make inferences and complete the picture.

Healthcare organization leaders will make progress in the next two years largely by limiting the scope of the journeys and channels they choose to analyze. The first digital channels that will be integrated and analyzed are those that authenticate and match users to master person identifiers employed in other enterprise systems (such as EDW, CRM/call center, claims processing and care management). Sources that require a more probabilistic approach are several years away. These include display advertising, marketing, using beacon technology in brick-and-mortar outlets, and tracking unauthenticated use across multiple digital channels.

User Advice: Healthcare CIOs, as well as leaders in IT, customer experience and analytics, should:

- Prioritize projects that analyze customer journeys across two or more channels over projects that continue investment in more granular analysis of single channels.

- Limit scope and maximize impact by choosing journeys that primarily leverage channels with authenticated users that can (ideally) be mapped to enterprise person identifiers. Alternatively, develop a plan to introduce authentication to the most relevant and beneficial channels.
- Use agile analytics approaches to quickly pilot customer journey analytics for important cohorts of customers. This pilot will give business and IT leaders a sense of what is possible, and will guide investment in building production capabilities.

Business Impact: Healthcare organizations stand to receive many of the benefits that other industries have begun to realize from customer journey analytics:

- Higher customer satisfaction from more seamless and personalized interactions across channels
- Increased visibility into the benefits that each interaction delivers to the overall journey, resulting in better investment allocation to support the overall relationship
- Better allocation of investment in functionality and capabilities for each engagement channel, to ensure the customer's needs are met at the earliest opportunity
- Refined, accurate consumer segments that increase the effectiveness of marketing campaigns
- More successful personalization tactics — whether on commerce sites, in communication channels or elsewhere in the customer experience — are based on data that gives a more complete view of the customer's activity in multiple channels (instead of a single channel)

In addition, healthcare organizations can obtain the following:

- Increased revenue streams tied directly to satisfaction measures (e.g., CAHPS), medical risk (e.g., risk adjustment) and channel utilization (e.g., patient portal adoption)
- A better understanding of how improvement in experience relates to improved clinical and financial outcomes
- A direct line of sight into how the following are either supporting or preventing the ideal customer journeys:
  - Business partners within the sector (e.g., physician to physician)
  - Business partners across sectors (e.g., retail clinics and payers providers)
  - Business partners across industries

Benefit Rating: High

Market Penetration: 1% to 5% of target audience

Maturity: Embryonic

Sample Vendors: Adobe; Clarabridge; ClickFox; IBM; NICE; Salesforce; SAP; Teradata

Recommended Reading: "Technology Overview for Customer Journey Analytics"

"Industry Vision: Health-Value Management, the Next-Generation Healthcare Payers' Transformation Strategy"

AI for Healthcare Payers

Analysis By: Jeff Cribbs

Definition: Artificial intelligence (AI) is an IT system that can change behavior, without being explicitly programmed, based on collected data, usage analysis and other observations. Many applications of AI technology extend to healthcare payer functions. This profile tracks the adoption of formal, enterprisewide AI strategies by U.S. healthcare payers.

Position and Adoption Speed Justification: Just 12 months ago, AI was a futuristic fantasy discussed mainly at a conceptual level in the payer industry, largely within various innovation centers or groups. Now, in 2018, AI is a serious and regular point of conversation at many payer organizations — including among senior business, clinical and IT leaders. As a result, we have advanced the profile significantly in 2018 to just short of the peak.

The substance of the conversations varies tremendously, however. Many struggle to define AI and the science that is driving it forward. Others have performed substantial pilots. A small number has developed and deployed AI applications to production and is looking to bring their early success to scale.

Payer business and IT leaders are coming to realize that, for a technology category as disruptive as AI, opportunistic investments need to be coordinated by a larger strategy. In "The Four Components of Artificial Intelligence Strategy for U.S. Healthcare Payer CIOs," we specified what is required in the AI strategy tracked in this profile:

1. A definition for AI that will be used by the organization.
2. An overall assessment of the business impact of AI on the payer industry.
3. The most important AI use cases for the organization.
4. Guidance for how solutioning decisions will be made in delivering AI applications (insourcing/outsourcing, packaged applications, AI-enabled cloud services, in-house algorithmic development).

Given the rapid pace at which AI is moving from vision to execution for leading payer organizations, we expect that such strategies — socialized at the enterprise level— will reach mainstream adoption among payers in two to five years.

Representative vendors in this category do not offer "AI strategies" per se. However, at a minimum, they offer analytical, customized consulting services that cover AI strategy for at least three payer use cases.

User Advice: Every U.S. healthcare payer should have an explicit enterprise AI strategy. In time, of course, this will be subsumed by the regular processes of business strategy and IT planning. But at

this early point in the understanding and application of AI to the payer industry, AI deserves its own process. The strategy should be owned and maintained by a cross-functional team (sponsored by the innovation group, if it exists). The team should include IT, operations, medical management, sales and marketing and informatics (or whatever domain owns the advanced analytics functions). Payers that have procurement or vendor management functions should include representatives from those areas as well, since much of the AI strategy will be implemented in the context of vendor analysis and selection decisions.

A key purpose of this document in the short term will be to manage stakeholder expectations about the state of the technology. More sophisticated organizations with larger data resources are more likely to internally develop and deploy AI applications in the long term. The practical step toward this end today is to modernize the enterprise analytics architecture — especially the components of the data science workbench and the decision hub.

Business Impact: One of the key drivers for an enterprise AI strategy is the breadth and complexity of the potential AI use cases in the payer industry. Below are example use cases in each of five AI application categories:

- **Virtual customer assistants —** Health plan selection, medical shopping/digital concierge services, appeals and grievances
- **Virtual personal assistants —** Member self-triage, fitness and wellness coaching, medical scheduling, and navigation
- **Smart advisors —** Prior authorization, payment integrity, claims processing exception handling
- **NLP —** Medical chart abstraction (for risk, quality or care management) and service center voice pattern diagnostics
- **Smart IoT —** Home health monitoring, and wellness app and device signal processing

Evidence of "lift" gained by AI approaches to these payer use cases is only beginning to emerge and is difficult to validate. We rate the business impact of having an AI strategy as high, recognizing that AI is very likely to, at a minimum, reduce administrative costs and optimize current revenue for those that effectively execute a strategy. AI certainly has the potential to be transformational to the payer industry, but we will wait for more concrete evidence.

Benefit Rating: High

Market Penetration: 1% to 5% of target audience

Maturity: Emerging

Sample Vendors: Fractal Analytics; IBM Watson Health; SCIO Health Analytics; SDLC Partners

Recommended Reading: "U.S. Healthcare Payer CIOs Must Make Conversations About AI Productive"

"The Four Components of Artificial Intelligence Strategy for U.S. Healthcare Payer CIOs"

"Craft an Artificial Intelligence Strategy: A Gartner Trend Insight Report"

"Developing the Healthcare Enterprise Analytics Strategy Primer for 2018"

"Business Drivers of Technology Decisions for Healthcare Payers, 2018"

Generation 2 Medical Shopping

Analysis By: Jeff Cribbs

Definition: Generation 2 medical shopping is distinct from its predecessor in providing additional capabilities common to the digital commerce experience in other industries. At a minimum, these additional capabilities must include:

- A comparison of nontraditional venues (such as virtual care, retail or workplace facilities)
- Connection with appointment scheduling and provider payment
- Improved coordination with adjacent parts of the consumer experience (such as self-triage, treatment decision support and medical banking)

Position and Adoption Speed Justification: The prospects for true e-commerce shopping consumer experiences in healthcare have improved somewhat in 2018.

The individual components of a Generation 2 solution, which strive to replicate the kinds of experiences consumers have grown accustomed to in other industries, have shown substantial advancement in the last 12 months.

Leading Generation 1 vendors have, through partnerships, begun to list virtual care and retail alternatives (such as Walmart's Care Clinics and CVS Health's MinuteClinics) alongside in-person office visits.

The scheduling component has seen the following:

- Venture-capital-funded startups (for example, DocASAP)
- Improved API access to scheduling from electronic health records (EHRs) and practice management systems
- Heightened consumer expectations based on the scheduling capabilities available in consumer sites like Zocdoc
- Better integration with medical banking, provider payment and virtual customer service from new vendors like Amino

Structural changes in the industry seem to favor continued progress looking forward. Announcements such as Aetna's acquisition by CVS Health and the Berkshire Hathaway, Amazon, and J.P. Morgan health initiative are driving a new urgency in established healthcare companies to start to compete with more consumer-centric capabilities.

Still, broad adoption of this category relies on a level of financial incentive alignment, ecosystem collaboration and data sharing that is extraordinarily rare in U.S. healthcare today. In 2018, however, there is sudden business impetus that will compel more rapid adoption. As a result, we have advanced the profile to just short of the peak and shortened, substantially, our time to mainstream adoption, to the upper end of three to five years.

Representative vendors in this space supply components of Generation 2 medical shopping; however, no single vendor can fulfill all of its requirements. This year, we have also included several of the Generation 1 vendors who have led in delivering Generation 2 capabilities.

User Advice: Payer CIOs and business leaders must agree on the strategic importance and prioritization of delivering a leading medical shopping experience to members:

- If enabling market-leading medical shopping is not among the highest priorities, CIOs should delay investments until easier, less-expensive solutions emerge and competitive pressures force broader provider participation. In the meantime, CIOs should monitor the:
  - Results of early pilots
  - Rate of provider participation (especially in opening scheduling APIs and posting reduced service pricing in exchange for prepayment)
  - Advancement of vendor capabilities
  - Capabilities of large payer competitors and new entrants in the market.
- For those who determine it is of high strategic importance to aggressively pursue Generation 2, they will next need to decide how important it is to own the experience. There will be alternative options — such as integrating key payer data points (like provider network status and accumulator information) into third-party applications delivered directly to consumers (like Zocdoc) or through their employers (like Castlight Health or Compass Professional Health Services).
- Payers who, in the near term, want to own the experience will need to piece together vendor offerings for various components and devote significant development resources to coordinate the experience with other applications. Efforts to enable Generation 2 capabilities should be tightly coordinated with enterprise-level priorities in "consumer experience" and "digital strategy."

Strategically, CIOs and business leaders must recognize that, when it is fully realized, Generation 2 medical shopping will substantially change the payer practice of provider network management. Those payers that are successful will derive the competitive advantages of being the first to market with these capabilities.

Business Impact: Generation 2 medical shopping is distinct from Generation 1 in its ability to deliver value beyond consumer selection of lower-cost care. These additional sources of value include a positive association of technology with the payer brand, improved member loyalty, better quality scores, reductions in administrative costs in the member call center and improved utilization of other population health management services offered to members.

Benefit Rating: Moderate

Market Penetration: 1% to 5% of target audience

Maturity: Emerging

Sample Vendors: Castlight Health; Compass Professional Health Services; DocASAP; HealthSparq; Payspan; PokitDok; Zocdoc

Recommended Reading: "Healthcare Business Driver: Emerging Consumer Power"

"The Current State of Medical Shopping Transparency Tools"

"Leveraging IT for Effective Healthcare Consumer, Member and Patient Engagement Primer for 2018"

Healthcare Consumer Engagement Hub

Analysis By: Jeff Cribbs; Mark E. Gilbert

Definition: The healthcare consumer engagement hub (HCCEH) is a technology and process concept that ties multiple systems together to optimally engage the healthcare consumer. A HCCEH includes proactive and reactive communication, allows personalized, contextual engagement with consumers across all interaction channels, and orchestrates interactions across all organizational functions. These capabilities enable synchronization of sales and marketing, clinical encounters, administrative service center and care management.

Position and Adoption Speed Justification: The HCCEH is the healthcare application of the cross-industry customer engagement hub (CEH) concept. The HCCEH represents a generational — not an incremental — change to healthcare enterprise architecture. Whereas current healthcare enterprise architecture has largely been retrofitted to address growing consumer experience requirements, the HCCEH is purpose-built for optimizing every interaction with a consumer. When a healthcare organization has fully realized an HCCEH, it is able to "act as one" in its relationship with a consumer. That means consumer experiences appear cohesive and coordinated regardless of the function (such as administrative service, clinical encounter or care management) or the engagement channel (that is in person, telephone, print, web or app). The HCCEH is distinguished from current solutions by the logical consolidation of longitudinal consumer experience data, intelligence and data services into a single platform (or a handful of highly interoperable applications). Finally, the HCCEH connects with functional applications, such as core administration, EHR, call center, campaign management, care management and portal applications, to the extent needed to act as the enterprise orchestrator of them all.

Healthcare organizations are moving toward HCCEH architecture with investments in these areas:

- Detailed analysis of the various consumer-facing and relationship management functions of existing IT systems (for example, the patient portal in the EHR or the call center records of the

CRM). Healthcare organizations look for opportunities for light application integration that will yield substantial improvements in a particular aspect of a consumer experience.

- CRM vendors, and the consulting firms that maintain practices in integrating CRM products, are configuring tools specifically to support healthcare consumer experience requirements.
- Healthcare organizations are increasing investment in internally built applications that are intended to give various departments a "360-degree view" of a consumer's profile and interaction history with the enterprise.

It is unclear which of these early investments can be incrementally transitioned into a full HCCEH, and which will be replaced by new solutions as they appear across industries. As a result, we position HCCEH near the peak — identically to the cross-industry CEH, with significant progress in the last 12 months.

Because HCCEHs will almost certainly be a combination of internally built and externally bought applications, and because no single vendor offers a comprehensive solution today, representative vendors in this category offer key features aligned with an HCCEH.

User Advice: Most healthcare CIOs should maintain their current incremental investments in improving consumer engagement. The specific investments will vary based on which consumer journeys are important to the enterprise. Healthcare CIOs that seek to innovate specifically in the area of consumer engagement should ensure that their investments today are compatible with an engagement hub concept, with a target date for full realization of the HCCEH in five years. This will, at times, mean forgoing quick wins with tactical solutions in certain engagement channels, in order to solve deeper architectural issues, including master data management and service-based application interfacing. Ensuring support from executive peers for these kinds of trade-offs through careful discussion, education and alliance building is essential.

Business Impact: The HCCEH will deliver value to healthcare organizations in the same way that the CEH will deliver value in other industries — with improved satisfaction, gained and retained consumers (that is patients and members), and better brand advocacy. In healthcare, however, there is great potential for additional value streams. Numerous studies have shown that improving integration and workflow between administrative functions (like scheduling an appointment or finding a doctor) with clinical functions (like a care manager call or physician office visit) can significantly improve clinical and financial outcomes. In addition, as the industry seeks to be more efficient, convenient and personalized, the HCCEH will provide the intelligence to direct consumers among a growing number of settings of care, digital interactions and virtual care options. In the payer industry, however, additional sources of value can be realized in medical cost, operational efficiency, or revenue improvement via risk adjustment and quality-based reimbursement.

Benefit Rating: High

Market Penetration: 1% to 5% of target audience

Maturity: Emerging

Sample Vendors: Lumeon; Medullan; Microsoft; Oracle; Salesforce; Teradata; Zipari

Recommended Reading: "Healthcare Payer CIOs Will Accomplish the Digital Transformation of Member Experience in Three Generations of Technology"

"The Future of Experience in Healthcare Demands a Consumer-Aligned, Collaborative Ecosystem"

"Integrate Cloud CRM Applications With the Back Office to Enable a Customer Engagement Hub"

"Develop a Strategic Plan to Integrate Your Customer Engagement Hub"

"Ten Steps for Planning Your Customer Engagement Hub"

Healthcare Consumer Insight as a Service

Analysis By: Jeff Cribbs

Definition: Healthcare consumer insight as a service (HCIaaS) refers to applications that:

- Source data from multiple sectors or industries
- Employ advanced analytics techniques
- Derive predictive or prescriptive health-related insight at the individual-consumer level
- Deliver such insight into a workflow application via an API call

Position and Adoption Speed Justification: Healthcare payers and providers are seeking efficient paths to derive more value from:

- Their own data
- Data from other sectors within healthcare
- Data from other industries
- Data from consumer interactions
- Highly hyped advance analytic techniques, commonly referred to as artificial intelligence, machine learning or deep learning

The initial challenge is finding an efficient means of acquiring data, normalizing it to a multisector data model and enhancing it through analytics. The next challenge is to:

1. Align the most valuable analytical insight (which is increasingly the realm of data science) to the specific target business outcomes of the healthcare organization.
2. Deploy that insight into the operational systems that need it (for example, the EHR, care management system, claims processing system or CRM).

HCIaaS has recently emerged to offer a faster, more efficient path to value than internal advanced analytics initiatives can provide. Most HCIaaS efforts are in pilot or limited production stages at no more than a handful of clients. These implementations will be testing both the specific use cases of

the insight and the delivery method. Many vendors in this space offer "as a service" as one option for delivery (e.g., through an API call), but are in fact functioning today very much like the licensed predictive models that have been used in healthcare for decades — processing data files through a "black box" of logic, albeit with more diverse data inputs and more advanced analytic techniques. If and when there is demonstrable improvement over existing methods, the agility of the model will allow rapid market adoption by a larger number of organizations, which is why we position this profile prepeak, but expect mainstream adoption in the lower end of two to five years. We also may see HCIaaS vendors begin to sell their analytic content in a more targeted way by using healthcare algorithmic marketplaces as an efficient channel to a broader market.

User Advice: Healthcare CIOs, IT leaders and analytics leaders should consider HCIaaS an emerging, and potentially crucial, component in developing their enterprise analytics strategy. The most promising use cases will be those that are experimental, that stand to gain the most lift from multisector data sources combined with advanced analytics techniques, and that can be delivered directly into a workflow application. For both payers and at-risk providers, analytics infused into the care management workflow application fits this description. Meet with your chief medical officer or your chief medical informatics officer to discuss the care management use case, and consider jointly attending an exploratory call with one of the representative vendors in this profile. In all likelihood, your ability to fully pilot this approach will be more limited by your workflow system vendors (EHR, care management, call center, etc.) than by the vendors capabilities. If you are aggressively modernizing your enterprise analytics architecture, consider HCIaaS solutions as a stopgap to consumer insight solutions you may, someday, build and deliver internally.

Business Impact: HCIaaS offers a mechanism to gain the unique value of advanced analytics at the individual-consumer level. It alleviates the requirements of large datasets, integration of partner data sources, in-house data science talent, advanced analytics technology and decision hub architecture for putting predictions into workflow. This type of service is especially important to small or midsize healthcare businesses, because it:

- Drastically lowers the barriers to entry for advanced analytics (including AI)
- Reduces the size requirement for many population health management use cases
- Allows for less risky, more agile solutions at this early stage of the technology

Early use cases for HCIaaS will be improvements of existing ones. For example, at-risk entities engaging in care management activities will replace their batch loads of "chase lists" and stratification scores with case-level API calls. These consumer risk and stratification scores will replace or supplement the scores often generated from conventional licensed predictive models. The addition of consumer and sociodemographic data will provide better targeting and intervention strategies, especially in addressing leading determinants of health. Next, HCIaaS will bring advanced analytics predictions into the workflow for use cases that have high revenue impact, such as hospital readmissions for providers or under documentation of risk for payers.

Benefit Rating: Moderate

Market Penetration: 1% to 5% of target audience

Maturity: Emerging

Sample Vendors: Altrics; CareSkore; Decision Point; Interpreta; Lumiata; Medial EarlySign; NextHealth Technologies; VitreosHealth

Recommended Reading: "Developing the Healthcare Enterprise Analytics Strategy Primer for 2018"

"How to Move Analytics to Real Time"

"Gartner Healthcare Analytics Framework for Healthcare CIOs"

"Payer Analytics Put Health-Value Intelligence at the Core of Industry Transformation"

"Emerging Applications of AI for Healthcare Providers"

Genomics Medicine

Analysis By: Mike Jones

Definition: Genomics medicine and its IT support enable the translation of genomics into patient diagnosis, treatment, and personalized health/disease risk prediction and management. This includes genomics-specific data capture (family history) EHR workflows, testing and clinical decision support/knowledge management, data storage and analytics, and many fields, such as functional genomics, proteomics, epigenomics and pharmacogenomics.

Position and Adoption Speed Justification: Genomics medicine is one of the most important advances in modern medical science. Such an advance is as difficult to translate into beneficial practice as it is to uncover, and has required decades and extensive research to deliver. There are weighty barriers, including development and clinical trial and regulatory approval of new tests, drugs and therapies. It is equally challenging to make this knowledge actionable by physicians within their workflows (as well as for consumers). Experiences to date in oncology and across other disease areas are setting expectations high that genomics will solve many medical mysteries, driving substantial government and private research funding. Overall, however, and especially measuring against the opportunities beyond oncology, adoption is in the 1% to 5% range. However, we predict substantial convergence on the technologies, test costs, decision support and processes for applying raw sequencing data over the next 5 years.

These significant events are new signposts of increased momentum and the need for HDOs to solve the genomics delivery dilemma:

- The U.S. Food and Drug Administration's April 2017 announcement "allowed marketing of 23andMe personal genome service genetic health risk (GHR) tests for 10 diseases or conditions … the first direct to consumer (DTC) tests authorized for information to consumers on an individual's genetic predisposition to certain medical diseases or conditions."
- The governments of Finland and U.K. have National Genome Centers and open genomic platform projects underway, to act as a central point for genome data which can be utilized by

citizens, healthcare providers and research establishments. These are examples of nationally coordinated biobanks and registries for identifying the genetic basis of common diseases.

- HCA, one of the world's largest health systems, in 2017 acquired Genospace to deploy its genomics decision support across its large-volume Sarah Cannon cancer services across the U.S. and U.K.
- Geisinger health system (U.S.) announced its "Springboard Healthy Scranton" program will prescribe healthy foods and sequence tens of thousands of citizens to study the genetic versus behavior origins of their high chronic disease prevalence.

We also note that in 2018 one of last years' sample vendors closed operations with reports that the reasons for closure included difficulties in agreeing pay or reimbursement for rare disease tests and the impact of price competition with other laboratories. This indicates that patient payment obligations are important dimensions in commercial sustainability that need to be addressed at the outset.

User Advice: Healthcare provider CIOs, CMIOs, and medical and population health leaders:

- Understand the evolving market. Become educated on different approaches and options.
- Plan for a rich combination of tools and knowledge/decision support services to incorporate genomics medicine in the disease domains they serve.
- Scrutinize EHR vendors for their plans to support genomics medicine needs, such as the ability to record, store, secure, and access genetic marker data from patients, and their ancestors and family members, within the individual patient's record.
- Understand that enhanced genomics decision support for diagnosis and treatment will likely come from a combination of traditional evidence-based content vendors, government sources, genomics data banks and bioinformatics providers.
- Plan to leverage FHIR for continuous connections between genomics and analytics results. Functional interoperability of this rapidly advancing knowledge with individual patient data in the EHR and clinician workflows will be critical.

Life science CIOs and IT leaders:

- Outline business process, compliance, regulatory and IT implications when including genomics medicine disciplines for decisions about research, therapies and business opportunities, while ensuring patient privacy.

Business Impact: The major value of genomics medicine so far has been in more finely tuned diagnosis and better-targeted cancer therapy and more careful prescribing for 120 or so medications. The use of genetics-directed chemotherapy is increasing. Prenatal care and genetic counseling are also active areas of value.

In long term, the business and population health impact of genomics medicine will be substantial. Researchers, life science companies, healthcare providers, and consumers variously will require genomics raw sequencing data, analysis and recommendations from sequencing data, results

integration with EHR system and therapy selection support. Information exchange is needed among scientists, providers, patients, and families for collaboration and counseling. Increasingly, medication prescribing will be based on the presence or absence of enzymes suggested by genetic testing. Disease diagnosis and advising patients on managing health risks will rely more and more on genetic analysis. New genetic markers are constantly being discovered, requiring frequent reanalysis of patients' sequencing data.

Benefit Rating: Transformational

Market Penetration: 1% to 5% of target audience

Maturity: Emerging

Sample Vendors: 23andMe; ActX; Ancestry; Eurofins Genomics; Illumina; NantHealth; Quest Diagnostics; Sarah Cannon (Genospace); Seven Bridges

Recommended Reading: "Prepare Your Healthcare Delivery Organization for the First Wave of Genomics"

"Introducing the Healthcare Consumer Engagement Hub Architecture for Healthcare Providers"

"Business Drivers of Technology Decisions for Healthcare Providers, 2018"

"Healthcare Provider CIO Guide to the Industry's Technology Megatrends"

Sliding Into the Trough

Cloud for Healthcare Payers

Analysis By: Mandi Bishop

Definition: Cloud for healthcare payers tracks the adoption of enterprise cloud strategy by healthcare payers, which is inclusive of new solution implementations as well as cloud migration opportunities for legacy applications. Cloud computing provides internet-based scalable and elastic, IT-enabled capabilities as a service to external customers via public (shared), private (single organization) and hybrid solutions. Cloud benefits include economies of scale and sharing of resources that can reduce costs and increase choices of technologies.

Position and Adoption Speed Justification: Cloud services are a top three investment area for CIOs in 2018, who express growing interest in expanding the use of cloud services beyond limited application deployments. In addition to conventional drivers such as vendor choice and cost, payers are developing cloud-enabled platform business strategies in response to market pressure to orchestrate health-value across the health ecosystem. Key barriers to adoption are fading. There is an evidence basis supporting cloud's strong security. Industries and businesses spanning the spectrum of focus, size and sophistication have embraced the cloud. In fact, we expect cloud computing as a whole to reach mainstream adoption within two to five years.

Cloud's elasticity and agility facilitates digital member engagement via Internet of Things (IoT) devices and consumer engagement hub components. Application programming interface (API) enablement fuels real-time cross-enterprise transactions. Cloud-based analytics environments reduces the time-to-value of "big data" environments while reducing upfront investment and IT support. Ultimately, cloud technology is foundational in enabling innovation, and Gartner expects accelerated adoption to arrive at mainstream for payers in three or four years.

User Advice: First and foremost, have an enterprise cloud adoption strategy — one that includes overcoming any remaining objections that increasingly represent cultural issues more than true risks. All payer CIOs should articulate to the business and update position on cloud, including its security, appropriateness for the enterprise, implications for existing data center investments and other benefits over on-premises solutions. Most solution spaces in the payer sector include vendors that either are cloud-native or have migrated to a true cloud deployment model. Unless there are constraints such as regulatory or data use requirements that stipulate on-premises deployment, any vendor that does not offer a cloud deployment option as part of their response to a competitive bidding process should be discounted.

Net new development efforts and vendor engagements should be hosted in the cloud. Modernization initiatives should include an evaluation of whether cloud migration would be a more cost-effective and efficient option than continuing custom development and data center investments. Ultimately, the decision on whether to use cloud services will vary widely based on where the workload is in the application stack, what the business requirements of the use case are (e.g., data use restrictions) and how much control over SLAs is needed. However, cloud should be the preferred deployment option, going forward.

Business Impact: Compared with on-premises solutions, cloud brings advantages in elasticity and agility that enables real-time broad health ecosystem participation. Digital platforms instantiated in the cloud and connected by APIs power shared data and insights across all healthcare constituencies. Additionally, the analytic services provided by cloud vendors create a plausible path to short-term AI value realization. Provider, member, business partner, government agency, employer, broker, community and other stakeholders all benefit from increased alignment facilitated by improved information access and collaboration capabilities. It's essential to execute a cloud strategy to meet these stakeholders' changing expectations of the payer value, and to be prepared to compete with digital native market entrants. Organizations approaching cloud solutions reactively and piecemeal, rather than taking an enterprisewide strategic view will soon be struggling for competitive parity.

Overall, a cloud strategy will support the drive toward a new IT operational model that will thrive in the emerging payer landscape. Although cloud technology can — and typically does — save costs, don't assume that the total cost of ownership will be lower in all payer use cases. Similarly, while cloud providers will have more resources to defend against outside threats, the humans managing the cloud will continue to introduce vulnerabilities that CIOs must actively govern. Weigh cost, effectiveness, solution speed-to-market and new capability delivery opportunities against business goals, compliance requirements and IT budget in the decision process.

Benefit Rating: High

Market Penetration: 5% to 20% of target audience

Maturity: Adolescent

Sample Vendors: Amazon Web Services; Google; IBM; Microsoft (Azure); Oracle Cloud Platform

Recommended Reading: "IT Key Metrics Data Highlights U.S. Healthcare Payer CIOs' Need to Transform"

"2018 CIO Agenda: A U.S. Healthcare Payer Perspective"

"Healthcare Payer CIOs — Cloud First, Cloud Now, No Excuses"

"An Overview of Enterprise Cloud Strategy Approaches and a Pragmatic Template for Setting Your Cloud Use Policy"

"Solution Path for Developing Enterprise Hybrid Cloud Strategies"

Next-Generation Core Administrative Systems

Analysis By: Mandi Bishop

Definition: Next-generation core administrative processing systems (CAPS) enable payers to manage their fundamental enrollment, premium billing, claims processing and payment operations more nimbly and flexibly than legacy counterparts. These solutions leverage service-based architectures with cloud deployment options and simplify integrations with payer IT and third-party applications. Vendors are reducing customizations with business-friendly configuration capabilities, and actively applying automation for efficiency and effectiveness gains.

Position and Adoption Speed Justification: Next-generation CAPS combine traditional core plus differentiating capabilities to form a suite of cloud-ready administrative applications that are configured to be more responsive to changes in payer strategies, regulatory requirements and customer demands. As these technologies are not new, impediments to mainstream adoption are based on business priorities and costs — and the relative risk tolerance of executives. Payer CEOs, CFOs and CIOs have all heard too many horror stories of core administration system replacement projects gone awry: significant cost overruns, dysfunctional system integration and delayed go-live dates resulting in last minute manual workarounds.

However, the rationale to improve underlying technology capability and lower transactional costs when compared to legacy systems is strong. Payers spend more than 83% of their IT budgets on operations rather than capital initiatives. Modernizing CAPS is a strategic imperative with the goal of achieving significant, if incremental, operational improvements through increased efficiency and accuracy that will free funds for innovation. Thus, these technologies are approaching the Trough of Disillusionment and are expected to become mainstream within five years. Next-generation core administrative systems vendors must help drive wider adoption by addressing risk concerns upfront.

User Advice: CIOs should choose vendors whose approach best supports the organization in transforming IT and the business environment. Consider whether licensed applications, SaaS or business process outsourcing (BPO) solutions will best fit the organization's future-state technology roadmap. All next-generation core administrative vendors offer SaaS or cloud-based solutions in response to the growing "as a service" economy and pricing models. In fact, many no longer offer on-premises applications. These "pay as you go" systems make it possible for payers to define and redefine rent arrangements as their needs or business models evolve. Additionally, look for next-generation CAPS that offer modular components and interface libraries for best-of-breed complementary solutions, which can be easily integrated with existing administrative applications. Consider your future trajectory and identify solutions that can be readily expanded to evolve with new payer business models and value propositions.

When shaping the core administration vision, it is critical for CIOs to address the diminishing resource pool available to support legacy systems, and the skills required to implement and integrate the payer ecosystem with next-generation solutions. Many payers are rapidly approaching a tipping point at which operations resources are retiring faster than their skills can be replaced. To attract and retain new talent, payers must migrate to updated technologies that will entice job candidates with a clear career path using current and emerging skills.

Business Impact: Core administration is a business-critical function for payers. These "source of truth" (or "system of record" in Gartner's pace-layered application strategy terminology) next-generation CAPS offer high business benefits. These benefits include lowered transaction costs and the ability to focus IT resources on applications closer to the customer that support innovation and market differentiation.

Next-generation vendors are focused on emerging industry trends such as consumerism and value-based payment arrangements. Meeting the challenge of these disruptive trends requires payers' agility, use of real-time data analytics, robotic process automation, machine learning and algorithmic processes. Vendors deliver solutions as modular applications or components that can integrate with payer or third-party applications using APIs and web services, and many offer end-to-end payer operations business process as a service (BPaaS). In this way, next-generation systems create improved seamless, coordinated services and a more holistic solution than legacy core administration.

Benefit Rating: Moderate

Market Penetration: 20% to 50% of target audience

Maturity: Early mainstream

Sample Vendors: Health Solutions Plus (HSP); HealthEdge; Mphasis Eldorado; PLEXIS Healthcare Systems; SKYGEN USA; Virtual Benefits Administrator (VBA)

Recommended Reading: "IT Key Metrics Data Highlights U.S. Healthcare Payer CIOs' Need to Transform"

"Healthcare Payer CIOs, Use Cost Optimization to Drive Administrative Modernization"

"How U.S. Healthcare Payers Can Optimize Costs by Choosing the Best Core Administration Vendors"

"Modernizing Healthcare Administration Systems Primer for 2018"

Clinical Data Integration

Analysis By: Mandi Bishop

Definition: Clinical data integration for payers is the acquisition of patient clinical data from an electronic health record (EHR) system or health information exchange (HIE), and the integration of that data with payer-owned systems and business processes. Typical data formats addressed by these technologies include HL7 admit/discharge/transfer (ADT), observation results unsolicited (ORU), continuity of care documents (CCD), legacy continuity of care records (CCR) or customized formats.

Position and Adoption Speed Justification: Clinical data integration (CDI) is an urgent issue for U.S. healthcare payers in 2018, garnering the attention of payer CEOs, government policymakers and health information technology (HIT) vendors alike. The state of CDI today is highly fragmented as payers don't typically acquire and process it with any consistency. Technical challenges are still substantial but decreasing. However, the business challenges regarding provider data-sharing agreements as well as change management across HIT vendors, provider IT departments and payer IT departments continue to represent significant barriers.

Gartner believes that adoption in the next two years will be dominated by point-to-point tactical solutions that are only partially automated and deliver only incremental value. However, we see an upward trend in strategic planning initiatives to establish CDI as a core capability. Efficient, enterprisewide solutions with transformative value propositions will emerge in the three to seven-year time frame.

User Advice: Payer CIOs should prioritize their CDI efforts by assessing the business objectives that would benefit most from clinical data enrichment and what types of data would be valuable. CIOs should then evaluate whether an internal IT effort or a vendor solution can deliver value most effectively. In conjunction with setting the CDI technology strategy, assess the cultural and business barriers between the payer and provider that would prevent success and develop a strategy to address them. For example, providers may not trust that the data shared will be used only for agreed-upon purposes. Additionally, providers may not have the IT resources or funding to support new interface development, licensing and maintenance.

Each of these barriers must be addressed to implement and scale CDI. Identify the degree to which data sharing is financially beneficial to both the payer and provider organizations (often included in value-based contracting terms). Where there is substantial business and cultural alignment, embrace a multipronged approach to clinical data integration in the short term (two years), focusing on the most urgent use cases (risk score accuracy and quality measurement). Thoroughly substantiate any claims made by vendors regarding capabilities in clinical data exchange, analytics enablement and insight delivery. Begin to plan and potentially invest in a consolidated,

enterprisewide solution. Be sure to place sufficient emphasis on normalization and integration of clinical data, not just the acquisition of the data.

Business Impact: The acquisition of clinical data is a critical capability for U.S. healthcare payers with high, near-term business impact. The two most urgent use cases from a payer perspective are:

1. Risk Score Optimization — Increasing documentation of medical risk such that it is accounted for in the risk adjustment mechanisms of certain lines of business such as the Hierarchical Condition Categories (HCCs) submission in Medicare Advantage and public exchanges.
2. Quality Measurement — Improving the Healthcare Effectiveness Data and Information Set (HEDIS) and Medicare stars measures by supplementing administrative data with data from EHRs.

These use cases have a direct, large, short-term impact on revenue in the fastest-growing lines of business in the payer industry. CDI will deliver value to payers in two ways: (1) by increasing the "lift" of supplemental clinical data by acquiring more data and more complete data, and by extracting more meaning from that data; and (2) by decreasing the administrative, often manual, burden of acquiring and interpreting clinical data.

Benefit Rating: High

Market Penetration: 5% to 20% of target audience

Maturity: Adolescent

Sample Vendors: Diameter Health; Halfpenny Technologies; IMAT Solutions; InterSystems; Linguamatics; PNT Data; Pulse8; Redox; Verinovum

Recommended Reading: "U.S. Healthcare Payer CIOs Should Avoid Data Lake Mistakes With Clinical Data Integration"

"U.S. Healthcare Payers and Providers Must Digitally Collaborate to Advance Value-Based Care"

"The Current State of Clinical Data Integration for Healthcare Payers"

"Healthcare Payer CIOs Should Use a Simple Framework to Make the Case for Enterprise Clinical Data Integration"

"Best Practices for Healthcare Provider CIOs to Select the Right Patient Data Interoperability Platform"

Retail Analytics for Healthcare Payers

Analysis By: Jeff Cribbs

Definition: Retail analytics for payers is the practice of enabling key customer-level measures of business outcomes that are mature in other retail industries, in the context of the highly complex

health insurance business model. Examples include member lifetime value, member profitability, cost of sale, cost of support, likelihood of churn, win-back rate and next best action.

Position and Adoption Speed Justification: Although interest in retail analytics remains high, adoption continues to increase only slowly, primarily due to these barriers:

1. **Complexity of payer profitability —** The factors that determine profitability are much more complex in the payer industry than in industries where retail analytics is most advanced.
2. **Lack of regulatory clarity —** Complexity is also subject to enduring legislative and regulatory uncertainty. This uncertainty has made it difficult to monitor and predict performance even at an aggregate level, but especially at the member level.
3. **Siloed data and legacy IT systems —** Extracting and integrating data from internal and external systems have been resource-prohibitive.
4. **Other investment priorities —** Payer technology budgets have been consumed by more urgent needs, often relating to regulatory compliance, value-based payments or relationship management functions.

While some of these healthcare-specific barriers are becoming more manageable, the broader cross-industry trend toward intelligent and coordinated digital interactions with customers is accelerating. This has reinvigorated the efforts by payers and the vendors who sell to them to enable retail analytics. In the last 12 months, this has been accelerated by the implementation of CRM systems (principally Salesforce) and payer-specific solutions that configure and drive the intelligence of CRM systems (like Zipari).

In 2018, adoption is uneven among the various metrics that make up retail analytics for healthcare payers. Retrospective measures that require only one or two data sources are relatively mature (for example, member churn can be calculated from year-over-year enrollment files, and little else). Predictive measures that involve many data sources, such as member lifetime value, are rare. The retail term "next best action" is in prevalent usage among healthcare payers when speaking of their members today.

For the purposes of this Hype Cycle, we track retail analytics as an aggregate of the maturity of the underlying metrics to assist clients in understanding the advancement of this important competency for healthcare payers. In this profile, a payer is considered to have adopted retail analytics when the metrics listed in the definition above appear pervasively in workflows across the enterprise, as they do in other direct-to-consumer industries. While we expect retail analytics to reach mainstream adoption in two or three years, the accuracy and sophistication of the metrics will continue to evolve well beyond that time frame.

User Advice: Payer CIOs, IT leaders and analytics/informatics leaders must take a bimodal approach to retail analytics. Mode 1 operational efforts should focus on enabling and deploying metrics that can be readily derived from a small number of high-quality data sources. Retrospective measures in these areas exist for most payers, but are often confined to the marketing department and need to be effectively deployed to operational areas. Relatively simple analytics tools and

techniques can be utilized to build predictive models that anticipate these same metrics (predicting likely quality gaps rather than reporting past gaps, for example).

Mode 2 innovation efforts will require a data science and machine learning platform, proper data science talent, unstructured and nonstandard data sources, an agile development process and, eventually, deployment through a decision hub. In their early iterations, these efforts may lack the precision and accuracy to drive operations. However, payers that lead now, learn and adjust will gain significant competitive advantage.

Business Impact: Retail analytics is an essential capability in enabling a healthcare payer to orchestrate member health-value through intelligent operations. In an environment of increasing commoditization of payer functions, retail analytics may well prove to be a primary competitive differentiator between those who thrive and those who fail across markets. The business impact of payer retail analytics will initially be greatest in lines of business where annual, individual, multicarrier purchasing decisions are made — namely, the public marketplaces, the multicarrier private exchanges, Medicare Advantage and, in some cases, managed Medicaid.

Benefit Rating: High

Market Penetration: 5% to 20% of target audience

Maturity: Adolescent

Sample Vendors: Affine Analytics; Genpact; Insightin Health; NextHealth Technologies; Salesforce; Softheon; Zipari

Recommended Reading: "Developing the Healthcare Enterprise Analytics Strategy Primer for 2018"

"Leveraging IT for Effective Healthcare Consumer, Member and Patient Engagement Primer for 2018"

"Payer Analytics Put Health-Value Intelligence at the Core of Industry Transformation"

Health Value From Self-Service Mobile Apps

Analysis By: Bryan Cole

Definition: Health value from payer self-service mobile apps is a payer's technology and business strategy to not just implement member-facing mobile services, but also integrate and expand them to deliver the highest possible health value. Self-service apps allow members to conveniently access their health services via a smartphone or tablet, and may also provide customer support via chat, FaceTime or click-to-call features.

Position and Adoption Speed Justification: Many payers have already implemented the basic functionality of member mobile apps. This includes an electronic member ID card, benefit coverage information (such as cost-sharing responsibility and accumulator data), provider directory and drug formulary search, claim status, access to health records, and health account balances. However,

these apps — often disconnected from each other, as well as the internal IT systems used by payer staff to administer benefits — lag in member adoption and ultimately do not meet the high bar members set for modern digital interactions.

This technology profile highlights the ways in which payers can accelerate the adoption of next-generation mobile tools and integrate them to deliver new health value. A smartphone by itself is, after all, only a channel. Health value comes from tying two-way member communications to payer care management or member service actions using an underlying digital business ecosystem. Poor integration between front-end apps and back-end IT systems makes it difficult to provide a seamless experience for members using the customer support functions, such as click-to-chat. The emerging technology of healthcare consumer engagement hubs will significantly ease integration issues, and allow self-service mobile apps to live up to their promise. In the meantime, the combination of payers' business results from member apps and members' generally poor experiences using those apps combined with only incremental payer progress in 2018 place this technology category close to the Trough of Disillusionment.

User Advice: Members have historically only interacted with healthcare payers when there is a need surrounding a healthcare event or claim. Thus a member's ongoing, health improvement focused relationship with a payer using mobile is a new concept. CIOs must restrain business leader expectations of short-term return on investment and engagement metrics from mobile application as payers' health-value-oriented business models are just starting to take hold across the industry.

Payer CIOs should start by defining strategic goals for member self-service mobile apps with business leaders. CIOs should next create a plan to build additional functionality with the highest health value impact. Examples of features that payers and members value include those that:

- Coordinate data, workflows and interactions across various payer business areas with providers and partners, such as visit scheduling, telehealth, wellness events, pharmacy refills and access to health accounts.
- Integrate digital care management, incentive tracking and member devices.
- Facilitate member plan selection, enrollment and premium payment.
- Enable easy-to-use navigation of plan features and real-time accumulated cost-sharing information.
- Allow for two-way communications to address service and appeal issues.

Finally, every mobile app added to a member's health ecosystem increases the number of opportunities that payers, providers and health-related services have with members. Primary payer business areas that must work together to coordinate the design and delivery of self-service mobile apps are sales and marketing, member services, wellness, and care management. Payer IT areas that support distribution (communication, enrollment and payment systems), member services (CRM, care outreach and benefits administration), and data privacy and security must also align with business leaders to develop data management practices for the housing and allocation of information derived from and distributed through self-service mobile apps.

Business Impact: Well-designed, well-integrated mobile applications offer an opportunity for payers to fundamentally change their interactions with members and orchestrate new health value for all consumers. Immediate results include direct financial returns through reduced calls to customer service. Longer term results accrue to improved HealthCare Effectiveness Data and Information Set (HEDIS) quality scores and member health outcomes. However, the bigger gain is in long-term consumer engagement and population health management. Failing to coordinate the design and use of self- service mobile apps across the payer business areas and IT can result in missed opportunities for effective and satisfying coordination of care and customer engagement.

Benefit Rating: Moderate

Market Penetration: 20% to 50% of target audience

Maturity: Early mainstream

Sample Vendors: 3PHealth; Benefitalign; Diversinet; Kony; MicroStrategy; Newgen Software Technologies

Recommended Reading: "Best Practices for Healthcare CIOs Driving Improved Consumer Engagement"

"Introducing the Healthcare Consumer Engagement Hub Architecture for Healthcare Providers"

"U.S. Healthcare Payer Best Practices for Medicare Advantage and Managed Medicaid Mobile Consumer Engagement"

Climbing the Slope

Private Exchange Technology

Analysis By: Mandi Bishop

Definition: Private exchange technology provides a self-service, web-based portal solution through which employers, employees, brokers or individuals can shop for, enroll in and pay for a health plan (and related products and services) from a single health insurance carrier. Self-service tools personalize the plan selection process. Private exchange technology must support a single carrier (i.e., payer sponsored but may also support a multicarrier use case, for example, broker hosted) private exchange.

Position and Adoption Speed Justification: Private exchange technologies are experiencing renewed market interest as payers evaluate their existing solution against an evolving vendor landscape with an increased focus on enhanced customer experience and faster, less costly implementations. Many of these solutions are now incorporating advanced analytics to assist consumers in comparing and choosing a suitable health plan based on factors such as health risk, financial risk tolerance, current physicians and experience preferences. By establishing analytics as a new core competency, these technologies have absorbed Smart Health Plan Selector Tools

technologies we previously separately profiled in the "Hype Cycle for U.S. Healthcare Payers, 2017."

Through modular offerings, integration libraries with best-of-breed adjacent solutions (such as CRM and core administrative processing solutions) and decision support analytics, emerging players are pushing innovation across the landscape. These new market entrants are gaining ground on established vendors by providing more flexible solution configurations at a lower cost with faster time to value.

While these innovations have the opportunity to substantially improve the value proposition of these technologies, it will take time for early adopter results of differentiated capabilities to warrant an increase in the benefit rating — or the definition of a new Hype Cycle profile. Private exchange technology as a whole is approaching mainstream adoption, which we expect to reach the plateau within two years.

User Advice: Payers that launched private exchanges to support the Affordable Care Act market faced challenges of high implementation costs, unexpected integration complexity and relatively low end-user adoption. These issues are now compounded by ongoing regulatory uncertainty that threatens the disruption of individual and group markets, driving demand for flexible and agile systems that can quickly and easily implement policy change. As vendor solutions shift to address these concerns and expand their scope to include more lines of business, CIOs should revisit existing vendor agreements and issue an RFI or RFP. Identify offerings that provide value beyond fulfilling quote-to-card processes designed for the health insurance exchange (HIX) individual plans.

Seek solutions with the following characteristics:

- Strong CRM capabilities for complete sales cycle enablement and renewals management, including workflow integration with product configurators and large group underwriting applications (if needed).
- Fully automated plan selection, payment and fulfillment, with data-driven user decision support that captures and applies members' behaviors, predilections and experience.
- Easy integration with public exchanges as well as adjacent-function payer IT and third-party applications, such as core administrative processing systems, with configuration options that reduce reliance on custom interface development.

Focus on improving purchaser alignment for individuals, employers, brokers and agencies by emphasizing customer journeys, ease of use, and analytic capabilities. CIOs should also assess how the vendor's private exchange solution will lower administrative costs and increase per-member ROI by providing value-add functions such as integrated member portal capabilities. Consider vendors that support multiple lines of business (including ancillary services by providing cross-sell and upsell recommendation engines) and strongly demonstrate regulatory compliance.

Business Impact: CIOs, IT leaders and sales and marketing executives who own the administrative process of enrolling new members all have a stake in this technology. These leaders are seeking to

streamline and enhance the shopping, enrollment, payment and onboarding processes of their members, groups and brokers across all lines of business.

The most common business lines that private exchanges support are small groups (whose employees may be eligible for a qualified health plan that can only be purchased through a public exchange) and individual consumers, along with the brokers supporting these two member populations. Use with Medicare Advantage products and in retiree groups continues to expand, however, and new market entrants have recently introduced automated large group setup and onboarding.

CIOs are also looking across their administrative operations for redundant or siloed applications that, if consolidated, would lower the cost of ownership and streamline disparate applications and IT resources. CIOs can expect the implementation of private exchange capabilities to support their application rationalization efforts.

Benefit Rating: Moderate

Market Penetration: 20% to 50% of target audience

Maturity: Early mainstream

Sample Vendors: Benefitfocus; Colibrium; Connecture; GetInsured (Array Health); HealthPlan Services; Healthx; Online Insight; Softheon; Vlocity; Zipari

Recommended Reading: "U.S. Healthcare Payer CIOs Must Revitalize Private Exchanges"

"Introducing Purchaser Alignment, U.S. Healthcare Payers' Transformative Customer Relationship Model"

"2018 Top Actions for Healthcare Payer CIOs: Summary and Retrospective View"

Entering the Plateau

Payment Integrity Solutions

Analysis By: Mandi Bishop

Definition: While payment integrity is most often used to describe fraud, waste and abuse (FWA) detection, it truly denotes a program of sound payment practices. These solutions enable payers to process claims accurately with minimal payment leakage, addressing contracts and services, eligibility, payment accountability and FWA. Many of these solutions are incorporating established tools such as claims editing and offering complex clinical review. Retrospective, prospective and pre-emptive solutions are available for payment recovery and cost avoidance.

Position and Adoption Speed Justification: Payment integrity solutions mitigate a broad range of potentially improper claims payment activities spanning revenue integrity, payment accuracy, payment recovery as well as FWA prevention, detection and recovery solutions. Almost all payers

have some form of payment integrity scanning in place today, although its use across lines of business and technology varies considerably.

Improper claims payment is a pervasive and expensive problem. According to CMS, in 2017, Medicare paid improperly 9.5% of the time. Currently, between three and seven percent of all healthcare claims are paid inaccurately. The total cost of fraud alone is estimated to be $200 billion in the U.S. Rising claims complexity due to factors like specialty drugs, medically complex patients and value based payment arrangements requires more sophisticated payment integrity solutions.

These technologies are rapidly approaching the Plateau of Productivity due to the mainstream adoption of retrospective (post-payment) capabilities. However, in response to market forces and payer demands, many payment integrity solutions are broadening their capabilities to incorporate social analytics, predictive modeling, machine learning and contextual computing to facilitate cost avoidance in conjunction with payment recovery. Vendors increasingly make analytics available to payer enterprise applications using ecosystem-enabled platforms with application programming interfaces (APIs) that allow for integration and self-service. Additionally, leading vendors are focusing on deepening their competency in clinically complex areas such as provider bill audit and complex clinical review for extended patient stays. These advanced capabilities, enabling prospective (pre-pay) and pre-emptive (pre-claim submission) payment integrity, are forming a new enterprise class of solutions that Gartner is monitoring.

User Advice: It is unrealistic for payers to expect to eliminate 100% of improper claim payments and related abusive behaviors. However, many payment integrity solutions can identify and address a significant percentage of payment errors before they occur, preventing provider conflict resulting from expensive investigations and clawback actions. When improper payments do occur, a payment-integrity solution that offers in-depth market expertise, professional services and smart software applications will result in optimal protection for payers.

Payer CIOs must seek payment integrity vendors whose solutions address improper payments, beginning before a claim is ever submitted for payment and continuing after — long after, if necessary — a payer claims department improperly pays a provider. In addition, payers should expect vendors to root out defective processes and shore up inexpert resources that are partly responsible for the occurrence FWA and add to payers' administrative costs.

Payers must strive to reduce overpayments with increased detection and analysis. This includes a 360-degree view of member, provider, claims, relationships and event data. Payment integrity solutions should also alleviate the payer's dependency on internal IT to solve payment integrity problems. Vendors can replace a payer's internally developed and poorly performing methods with simple-to-use solutions that provide end users with greater flexibility and decision-making capability. The combination of software tools, use of data and professional expertise provides the strongest protection against improper payments.

Finally, look for vendors that excel at both "detection and prevention" and "discovery and investigation" to provide full protection against improper pre and post claim payment risks and behaviors.

Most vendors offer a share of savings payment option that reduces acquisition costs for payers. Vendors are also increasingly offering their services on second or even third pass basis. Combining these concepts means payers can leave their current vendors in place for a primary scan and then use a different vendor for a secondary scan of claims to find additional payment integrity opportunities. Gartner recommends this approach as a low-risk method to test vendor capabilities with the goal of eventual consolidation using a leading vendor.

Business Impact: Payment integrity solutions address the problem of improper payments across the payer's entire payment life cycle, beginning before a claim is submitted and following through after (in some cases, up to five years) a claim is paid. Vendors work closely with payer's provider network management and compliance teams tackling inaccurate provider, benefit and coding data, as well as deficient processes and inexpert staff. Payers with formal special investigative unit (SIU) resources may utilize the software applications and tools of a vendor to automate, monitor, manage, eliminate or recover improper payments, but choose to outsource analytical, investigative and legal services to the vendor's professional personnel. Payers can expect a 1% to 2% savings on claim expense for implementing a full-cycle payment integrity solution depending on current approach and willingness to disrupt some provider relationships.

Benefit Rating: High

Market Penetration: More than 50% of target audience

Maturity: Early mainstream

Sample Vendors: Burgess; Change Healthcare; Cotiviti; Equian; FraudLens; HMS; Optum; Truven Health Analytics; Verscend

Recommended Reading: "U.S. Healthcare Payer CIOs Must Adopt Prospective Payment Integrity to Thwart Improper Claims Payment and Fraud"

"Top Pain Points and Solutions for U.S. Healthcare Payer CIOs in Government Programs"

"Business Drivers of Technology Decisions for Healthcare Payers, 2018"

Generation 1 Medical Shopping Transparency Tools

Analysis By: Jeff Cribbs

Definition: Generation 1 medical shopping transparency tools are applications that support the consumer practice of considering two or more alternatives for receiving a certain medical service. They provide comparisons of price at a minimum, but may also include measures of quality, convenience and consumer satisfaction. This is in contrast to the historical practice of obtaining services from the provider or facility suggested by the health plan, referring providers or others (such as family or friends) without considering alternatives.

Position and Adoption Speed Justification: Generation 1 medical shopping transparency tools are likely making their last Hype Cycle appearance in 2018, as payers and policymakers adjust their expectations of this generation of technology. While a majority of insured consumers have access to

a medical shopping tool, consumer adoption remains the primary limitation on value. A 2017 JAMA article found fewer than 10% of consumers with access to the tool and the incentive to shop, actually did so.

While payers continue to express ongoing dissatisfaction with the capabilities and execution of the current solutions, the data exchange challenges and worst functional gaps (like real-time integration with benefits accumulator data) have been significantly abated. Where there is advancement in adoption of these tools, it is driven by these factors:

- An increased percentage of membership with the financial incentive to shop for providers. After three consecutive years with near-zero growth, high-deductible health plans (HDHPs) reached 29% adoption among employees in 2016 and remained steady in 2017. Greater than 51% of members insured through their employers have annual deductibles of more than $1,000 (see The Kaiser Family Foundation "2017 Employer Health Benefits Survey, Summary of Findings").
- Integration with call centers, care management or, in its fullest realization, payer "medical concierge" services. Many of the early studies of price transparency that drove early enthusiasm included a telephonic interaction. There has been a broad realization that many consumers will need to be individually educated to shop effectively and have confidence in making a final decision on their own.

User Advice: Healthcare payer CIOs and technology leaders who must deliver on medical shopping requirements in the near term should communicate the limitations of current-generation medical shopping products to business stakeholders. In the midterm and long term, they should connect strategic planning around medical shopping transparency to business efforts in consumer experience transformation, and especially initiatives aimed to deliver "concierge" levels of member service to commercial populations.

Payer CIOs selecting a medical shopping transparency vendor in the short term should prioritize open architectures and a clear vision on the convergence of medical shopping with other components of consumer navigation of healthcare. This includes enrollment, wellness programs, medical banking, incentive management, self-triage and treatment decision support.

To plan for the long term, convene a solution team to analyze next-generation medical shopping transparency capabilities.

Business Impact: Exposing consumers to the cost of healthcare services can, in some cases, accomplish what many other current health initiatives cannot — removing medical costs from the system. Consumers with high deductibles can immediately realize the savings of choosing a lower-cost option. In the long term, medical shopping tools, with a cohesive consumer experience, will enable new value streams. These streams include open-network provider bidding, increased utilization of telemedicine, reduced administrative expenses and a positive consumer association of technology with the payer brand. Because the tools include other comparison points — such as quality, satisfaction and experience measures — consumers will also gain the engagement that comes with informed choice. In the short term, however, the lack of consumer adoption and limitations of this generation of tools sharply limits this value, resulting in the low benefit rating.

Benefit Rating: Low

Market Penetration: 20% to 50% of target audience

Maturity: Early mainstream

Sample Vendors: Alithias; Change Healthcare; ClearCost Health; Healthcare Bluebook; HealthSparq

Recommended Reading: "Payer CIOs Must Enable the Next Generation of Medical Shopping Transparency"

"2015 Top Action for Healthcare Payer CIOs: Check the Box on Generation 1 Transparency and Go Beyond"

Risk Adjustment Management Systems

Analysis By: Bryan Cole

Definition: Payer risk adjustment management systems (RAMS) identify and prioritize member claim records with potential underreporting of condition severity or the omission of additional conditions. Many also track cases and schedule provider visits for members as part of a coding gap closure campaign. Complete RAMS include — or are assembled from components by integrating — analytics, case management and reporting to government agencies, major commercial group purchasers or providers paid on a value basis.

Position and Adoption Speed Justification: RAMS are not new, and virtually all Medicare Advantage payers have a risk adjustment optimization program in place today. These run the gamut from simple medical record tracking and desktop reviews through very sophisticated vended solutions that apply a combination of advanced analytics, artificial intelligence and clinical medical record reviews. This technology profile tracks complete solutions leveraging coordinated workflows, electronic medical record capture and advanced analytics. The technology's slow progression on the Plateau of Productivity is due to payers' hesitance to replace incumbent vendors with newer technology due to the fear of decreasing risk score, and the continued fragmentation of IT systems across lines of business. Complete RAMS solutions will address these issues through improved:

- Scope — deployment of complete IT system capabilities and the application of shared processes in support of Medicare Advantage, managed Medicaid, Affordable Care Act (ACA) and other risk adjusted business lines, along with provider and regulatory reporting.
- Capability — use of learning algorithms, natural-language processing and artificial intelligence technology to make risk adjustment management systems more effective at finding member cases with medical coding gaps, as well as more efficient in obtaining clinical information to support revised coding.

CIO oversight of the purchase, integration and maintenance of RAMS is a relatively recent development. Previously, payer finance teams purchased risk adjustment management systems

with little IT involvement. However, risk adjustment management systems are much more complex today, creating a new governance and technology monitoring role for IT.

User Advice: The risk adjustment optimization vendor space is highly fragmented, making selection more complex for payer CIOs. A large number of firms, ranging from small startups to major names, offer both point and complete end-to-end solutions. Vendors sell applications, as well as offering outsourced services with a range of payment models. In addition, payers have few ways to validate vendor claims of incremental risk score improvements over an incumbent vendor or approach. Payers must concentrate efforts in two areas in which vendor differentiations exist and offer meaningful risk score improvement:

- Analytics and AI — combining natural-language processing of unstructured text and clinician notes in medical records with learning algorithms to find more potential cases with coding gaps and increase success rate with each.
- Clinical data integration — obtaining medical records in a faster and more efficient manner to lower overall campaign cost and make follow-up on cases with smaller coding gaps more cost-effective through integration with provider electronic health record systems or tools to obtain clinical information digitally.

Finally, payers should seek vendors that distinguish themselves through:

- Development — building a platform for future innovation and expansion, with a clear capability development roadmap in place for upcoming product enhancements.
- Integration — linking data and workflows with risk assessment tools, population health, care management and quality applications to improve member medical management outcomes and organization-wide quality improvement goals.
- Compliance — flagging of potential overcoding and issues likely to be raised by CMS during a Risk Adjustment Data Validation (RADV) audit.

Business Impact: Revenue enhancement opportunities from risk score optimization are substantial in Medicare Advantage and ACA commercial lines, and growing in managed Medicaid. Payers investing in improved risk adjustment management systems will see enhanced competitiveness and financial returns due to one or more of the following strategies:

- Identifying more cases with potential coding gaps, especially gaps that are less obvious and can only be found through a vendor's analysis of massive datasets across multiple payers to determine industrywide trends and patterns
- Better prioritizing cases for additional intervention, such as provider home visits
- Improving the throughput and efficiency of the overall risk adjustment campaign
- Lowering transaction costs for chart acquisition and clinical coding review
- Combining quality improvement processes and vendors with RAMS

- Leveraging risk adjustment processes to complement large group underwriting, payment integrity and value-based provider contracting

Benefit Rating: Moderate

Market Penetration: 20% to 50% of target audience

Maturity: Early mainstream

Sample Vendors: Blue Health Intelligence; Health Fidelity; Indegene; Inovalon; Optum; Pulse8; Tessellate; Verscend; VitreosHealth

Recommended Reading: "Encounter Data Management Best Practices for U.S. Healthcare Payer CIOs"

"U.S. Healthcare Payer CIOs Must Seize Risk Adjustment Opportunities"

"Top Pain Points and Solutions for U.S. Healthcare Payer CIOs in Government Programs"

Member Incentives for Wellness

Analysis By: Jeff Cribbs

Definition: Member incentives for wellness are the techniques used to encourage wellness among healthcare plan members by providing direct monetary benefits such as reduced employee contributions to premiums or additional contributions to a health savings account. Incentives can be tied to participation in wellness programs (such as attending a webinar or speaking with a health coach) or to verifiable wellness outcomes (such as achieving biometric thresholds or physical activity levels).

Position and Adoption Speed Justification: Our placement of member incentives for wellness reflects a combination of the prevalence of the practice (relative to total insured membership) and the size of the incentives being used (relative to the maximum allowed by law). By those dimensions, this category is likely to enter mainstream adoption and graduate from the Hype Cycle next year.

Under the U.S. Affordable Care Act (ACA), an employer may offer monetary incentives up to 30% of the overall cost of the policy to promote participation in wellness programs and the achievement of wellness outcomes. For these amounts to be put in perspective, in 2017, an employee who met incentive qualification criteria could save about $2,007 on an employee-only policy, relative to his or her nonqualifying peers (using average 2017 policy costs). Surveys continue to indicate that a growing number of employers use these types of wellness incentives today. It is most prevalent among large employers, where over 40% provide financial incentives for completing health assessments, completing biometric screenings or participating in wellness programs. Those that do, generally keep the monetary amounts far below the levels allowed by current legislation.

Adoption has advanced incrementally over the last several years. Several important cases have been decided in the past three years that have the net effect of assuring employers who advance

incentive programs that they will not fall afoul of the Equal Employment Opportunity Commission (EEOC). One very notable exception is a December 2017 ruling that challenges the assertion that incentives of the size described above could be considered "voluntary," especially for lower income individuals. As this continues to work its way through the courts, it will likely provide a moderating force to the extent of these incentives, but is unlikely to upset the mechanism as a whole, since most employers, as stated above, remain well below allowable incentive limits. In government sponsored lines of business, we are seeing increased flexibility. For example, 2015 Medicare Advantage rules allowed for higher reward values that could be achieved in smaller increments. A similar line of thinking may filter into "personal responsibility provisions" in Managed Medicaid programs. Our 2017 payer prediction anticipates this trend: "By 2020, three states will save 5% of Medicaid capitation spend by requiring beneficiaries to use a web-enabled health engagement tool." Taken together, these trends suggest member incentives for wellness will graduate the Hype Cycle next year.

User Advice: Member incentives for wellness have the potential to benefit plan sponsors, members and innovative payers. Payer business and IT leaders should adopt an approach with clients that is flexible and consultative. On one hand, they must ensure they have the technology and services in place to support a wide range of requirements for wellness programs and value-based plan designs. Plan sponsors (and the benefits consultants that often guide their activities) think of incentive programs as one of only a small number of levers they can access to design programs tailored to the unique needs of their membership. On the other hand, payer business and IT leaders must be intentional about analyzing these incentives, establishing best practices, learning quickly from both successes and failures and presenting these findings to clients. In many cases, the payer brand will be as exposed as the employer's brand when these incentives are introduced. Thus, it is essential that both parties avoid the perception and reality of nefarious motives or incompetent execution.

Business Impact: Member incentives for wellness are often positioned as mechanisms to improve population health or generate sustained member engagement with a one-time financial reward. The evidence on those two points is inconclusive. However, payers that wish to build a brand around concepts of wellness, personal choice, empowerment and shared accountability can use wellness incentives to put actual financial incentives behind these themes. While it is true that many legal questions have been settled in favor of the practice, these incentives will continue to be controversial. Some see these practices as a fairer, merit-based way to distribute medical costs; others see them as ineffective, an infringement on privacy or, worse still, a means of discrimination. Payers that lead in bringing these offerings to market will undoubtedly find themselves in some amount of controversy, and will need to clearly and transparently communicate the opportunities, safeguards and success stories of their programs. As this category reaches mainstream, the emerging category of "Healthcare Consumer Persuasion Analytics" points to the future — applying behavioral economics and sophisticated outcomes measurement to fill in the vast evidence gaps that exist today in implementing incentives effectively today.

Benefit Rating: Moderate

Market Penetration: 20% to 50% of target audience

Maturity: Early mainstream

Sample Vendors: ChipRewards; Finity; NovuHealth; Sharecare; Virgin Pulse; Vitality; Welltok

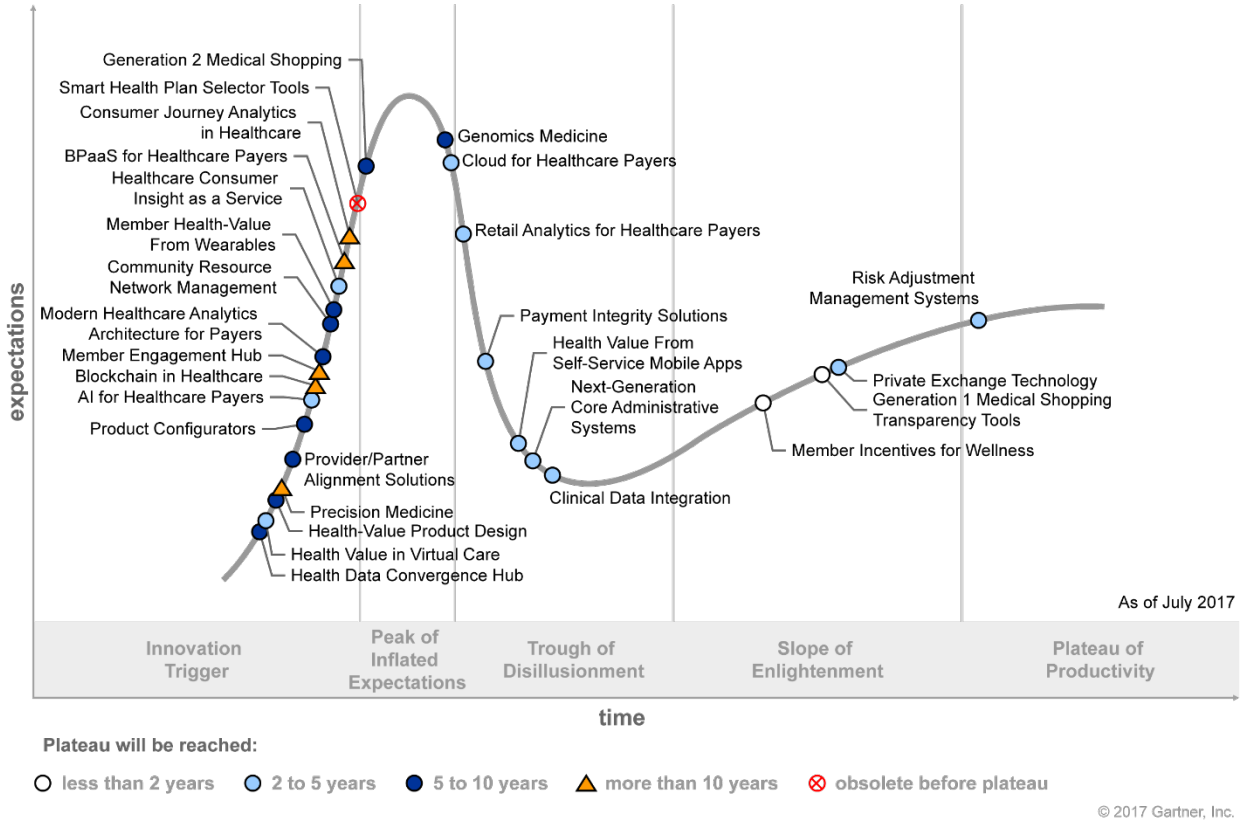
Recommended Reading: "Healthcare Business Driver: Emerging Consumer Power"

"Leveraging IT for Effective Healthcare Consumer, Member and Patient Engagement Primer for 2018"

"Predicts 2017: U.S. Healthcare Payer CIOs Make Bold Moves to Survive Healthcare Realignment"

Appendixes

Figure 3. Hype Cycle for U.S. Healthcare Payers, 2017



Source: Gartner (July 2017)

Hype Cycle Phases, Benefit Ratings and Maturity Levels

Table 1. Hype Cycle Phases

Phase	Definition
Innovation Trigger	A breakthrough, public demonstration, product launch or other event generates significant press and industry interest.
Peak of Inflated Expectations	During this phase of overenthusiasm and unrealistic projections, a flurry of well-publicized activity by technology leaders results in some successes, but more failures, as the technology is pushed to its limits. The only enterprises making money are conference organizers and magazine publishers.
Trough of Disillusionment	Because the technology does not live up to its overinflated expectations, it rapidly becomes unfashionable. Media interest wanes, except for a few cautionary tales.
Slope of Enlightenment	Focused experimentation and solid hard work by an increasingly diverse range of organizations lead to a true understanding of the technology's applicability, risks and benefits. Commercial off-the-shelf methodologies and tools ease the development process.
Plateau of Productivity	The real-world benefits of the technology are demonstrated and accepted. Tools and methodologies are increasingly stable as they enter their second and third generations. Growing numbers of organizations feel comfortable with the reduced level of risk; the rapid growth phase of adoption begins. Approximately 20% of the technology's target audience has adopted or is adopting the technology as it enters this phase.
Years to Mainstream Adoption	The time required for the technology to reach the Plateau of Productivity.

Source: Gartner (July 2018)

Table 2. Benefit Ratings

Benefit Rating	Definition
Transformational	Enables new ways of doing business across industries that will result in major shifts in industry dynamics
High	Enables new ways of performing horizontal or vertical processes that will result in significantly increased revenue or cost savings for an enterprise
Moderate	Provides incremental improvements to established processes that will result in increased revenue or cost savings for an enterprise
Low	Slightly improves processes (for example, improved user experience) that will be difficult to translate into increased revenue or cost savings

Source: Gartner (July 2018)

Table 3. Maturity Levels

Maturity Level	Status	Products/Vendors
Embryonic	■ In labs	■ None
Emerging	■ Commercialization by vendors ■ Pilots and deployments by industry leaders	■ First generation ■ High price ■ Much customization
Adolescent	■ Maturing technology capabilities and process understanding ■ Uptake beyond early adopters	■ Second generation ■ Less customization
Early mainstream	■ Proven technology ■ Vendors, technology and adoption rapidly evolving	■ Third generation ■ More out-of-box methodologies
Mature mainstream	■ Robust technology ■ Not much evolution in vendors or technology	■ Several dominant vendors
Legacy	■ Not appropriate for new developments ■ Cost of migration constrains replacement	■ Maintenance revenue focus
Obsolete	■ Rarely used	■ Used/resale market only

Source: Gartner (July 2018)

Gartner Recommended Reading

Some documents may not be available as part of your current Gartner subscription.

"Understanding Gartner's Hype Cycles"

"Business Drivers of Technology Decisions for Healthcare Payers, 2018"

"Predicts 2018: U.S. Healthcare Payer CIOs Must Step Up to Seize the Advantage in a Disrupted Healthcare Ecosystem"

"Healthcare Payer CIO Guide to the Industry's Technology Megatrends"

"Industry Vision: Health-Value Management, the Next-Generation Healthcare Payers' Transformation Strategy"

"2018 CIO Agenda: A U.S. Healthcare Payer Perspective"

"IT Key Metrics Data Highlights U.S. Healthcare Payer CIOs' Need to Transform"

Evidence

Gartner interacts regularly with healthcare payer clients. Their observations, challenges and successes inform complementary insight and analysis. Additional evidence was obtained from vendors in this space, industry inquiries, previous Gartner research, public sources and direct experience.

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