Customer experience in the New Health Economy: The data cure
Heart of the matter

An in-depth discussion

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US health leaders say that building a better customer experience for patients is a top priority. Yet, despite spending millions of dollars on the administrative aspects of healthcare such as online billing, digital communication tools and facility improvements, a gap remains between where companies need to be and where they are today. The primary reason for this gap is that the US health industry is not able to reap the full potential of data being generated about American health consumers.

With the advent of digital technologies, consumers are generating reams of data that are being collected by various players across the health industry and beyond. Uniting these data will be crucial for delivering an outstanding customer experience that can increase brand strength, grow market shares of profitable business lines, enhance margins and improve health outcomes—all crucial for value-based care.

In the New Health Economy, patients are consumers first, with the freedom and responsibility that comes with making more decisions and spending more of their own money. The health industry has made strides in shifting from the business-to-business to the business-to-consumer mentality that other service industries such as retail and banking adopted long ago. But health companies still lack a complete view of their customers because they lack data. In an HRI survey, 64 percent of health insurance executives and 88 percent of provider executives said having insufficient information about customers is a barrier to meeting their expectations.

Industry outsiders already have been disrupting the customer experience in healthcare. But there is evidence some of these new entrants are doubling down on their efforts. A flurry of recent announcements signals that new entrants to the health industry are poised to disrupt the customer experience in healthcare using technology and data. Amazon, JPMorgan Chase & Co. and Berkshire Hathaway announced in January 2018 they are forming a company to reduce employees’ healthcare costs, likely relying on the use of technology. Days earlier Apple said users would be able to access and store personal health records from different providers through its Health app. CVS Health CEO Larry J. Merlo announced in December 2017 the company would acquire national health insurer Aetna in a move to “remake the consumer health care experience,” while citing Aetna’s strength in analytics.

Health companies should start connecting data about not just the patient encounter but also the preferences and social circumstances shaping everyday health and healthcare-related purchasing decisions. They should use that information to provide a more seamless and customized experience and be able to stay connected to customers in the “white space” of health. “We interact with people as a set of transactions, but people are on journeys,” said John Glaser, senior vice president of population health at Cerner, a North Kansas City, Mo.-based technology company and a leader in the inpatient electronic health record market, in an interview with
HRI. “We need to understand the journey the patient is on, where they are on it and how do we help them.” Consumers know what they want. Grasping the nuances of their experience priorities and addressing them can generate a return on investment in the New Health Economy.

For this research, PwC’s Health Research Institute (HRI) interviewed 25 executives from US health insurers, pharmaceutical companies, health systems, technology companies and academia and analyzed data from its consumer and executive surveys.

All told, HRI found that a customer experience transformation is underway. Forty-nine percent of provider executives surveyed by HRI said revamping the customer experience is one of their organization’s top three priorities over the next five years. Eighty-one percent of insurer executives surveyed by HRI said their organizations are investing in technology to improve the member experience. Insurance executives surveyed by HRI understand that they need to work with providers to tailor care to consumers’ needs. Pharmaceutical companies are beginning to use value-based contracts, which often hinge on whether a patient achieves a specified outcome. Thirty-six percent of pharmaceutical executives surveyed by HRI said that remote monitoring and smart devices represent the greatest opportunities for their companies to improve the customer experience.
HRI’s research also found:

American consumers can help the industry define modern measures of customer experience

The metrics being collected in traditional satisfaction surveys are not timely and do not capture what healthcare customers value most. Ninety-seven percent of provider executives surveyed by HRI said that new ways to measure customer experience will become important in a value-based care environment. To measure which experiences matter most to American consumers, HRI devised a survey to evaluate the relative importance of 47 healthcare experience features. HRI surveyed 1,500 consumers and found 12 highly-valued features common to all consumer segments. Above all, consumers want their preferences and circumstances understood, shared decision-making, clear communication and convenience.

A healthy dose of consumer preference, lifestyle and behavioral data can yield a return on investment

The most sophisticated health companies will be able to segment their customer populations in ways that appreciate demographic differences and critical clinical, behavioral and preference differences. These companies will do a better job of determining which interventions are worth trying and which will result in higher returns on investment. But 50 percent of insurance executives and 85 percent of provider executives surveyed by HRI said customer segmentation is difficult.
The data to revamp customer experience are scattered or hiding

Customer data are collected throughout the healthcare ecosystem but no single stakeholder has the complete picture. Data sharing is limited. Some important data are not being collected at all. For example, patient and caregivers hold critical data about the customer experience that are not captured consistently anywhere, presenting untapped opportunities to push customer experience higher.

Industry stakeholders offer different data capabilities

Payers and pharmaceutical companies have the technical capabilities to work with large data sets and perform advanced analytics. Payers are more heavily invested in artificial intelligence compared to providers and pharma companies, according to HRI research. Clinicians and community organizations, such as patient advocacy groups, enjoy high levels of patient trust and are well-positioned to collect patient data and increase engagement. But they’re falling short on sharing or leveraging that trust to fill data gaps.

Health companies will need to find ways to connect the data and hardwire them into employee workflows so that customer experience becomes a core focus of working rather than an added burden. Gary Christensen, general manager at InterSystems, a database, interoperability and healthcare solutions company based in Cambridge, Mass., told HRI that more data doesn’t equal better care. Rather, Christensen said, the impact comes from “what can be learned through the data that can drive activities—gaps in care, understanding risk parameters, impactability parameters.”

With consolidation heating up in the healthcare market, renewed pressure from healthcare’s new entrants and increased scrutiny on drug value, stakeholders don’t have time to waste. They will need the customer on their side to remain competitive in an uncertain, rapidly changing market where resilience is key.
Traditionally, providers have built their customer experience efforts around the Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS), and with good reason. According to Press Ganey Associates, a leading patient satisfaction survey firm, US hospitals have, on average, $850,000 at risk every year directly tied to their HCAHPS results. For insurers, a five-star rating from the Centers for Medicare and Medicaid Services serves as a ringing endorsement in an increasingly competitive market.

But the metrics collected in satisfaction surveys fail to capture what healthcare customers value most, what they prioritize and what motivates them toward healthy behaviors and purchasing decisions. For example, many traditional surveys ask about wait times. As Dr. Felix Horng, medical director of Orange County, Calif.-based Hoag Urgent Care, told HRI, “the real issue isn’t wait times—it’s wait perception.” The HCAHPS questionnaire, for example, cannot discern that people may have different views on wait times for primary care appointments as compared to visits to the emergency room. A study published in the journal Health Affairs found that the topics most strongly correlated with the sentiment of Yelp hospital reviews—including compassion and kindness of staff, cost of care and billing—were not measured by HCAHPS.

Ninety-seven percent of provider executives surveyed by HRI said that new ways to measure the customer experience will become important in a value-based care environment. Under the Medicare Access and CHIP Reauthorization Act (MACRA), the law governing clinician payments for Medicare services, provider reimbursements will be based, in part, on patient engagement efforts such as promoting self-management and coaching between visits.
Researchers have recommended a broader array of customer experience metrics such as doctor-patient communication, psychological well-being and active participation of patients in their care plans. Pharmaceutical companies increasingly have been focused on understanding quality of life as a measurement of experience for patients taking their drugs. Some health companies are starting to trace how experience correlates with customers’ actions over their lifetime, such as whether they stay in a single provider system for all their care or recommend the company to a friend.

Measuring the experience requires more information than can be gathered from a patient satisfaction survey administered after treatment. The New Health Economy provides the health industry with incentives to gather customer feedback in real time to continuously learn about the customer and cycle that information back to clinicians and other staff. For example, an Arizona-based nonprofit health system—Banner Health—took lessons about rising consumer expectations from retail and adopted the inMoment tool, which gives providers real-time information about customer needs and complaints. In an interview with a health technology website, Dave Kriesand, vice president of the consumer experience center at Banner Health, said that this information is more immediate and actionable than traditional satisfaction surveys.

In its consumer survey, HRI found 12 features that are highly valued across all consumer segments and can be satisfied by using data. (see Figure 1). These features fall into five main categories: convenience, quality, support, personalization and communication.
Figure 1: The features that American health consumers value most fit into 5 pillars of customer experience

- **Convenience**
  - Getting appointments sooner
  - Convenient location/hours
  - Convenient scheduling
  - Easy check-in
  - Online bill payment, registration, etc.
  - Wait times communicated for urgent care
  - Nontraditional care sites/options
  - Getting test results without seeing doctor
  - Viewing my health information in one place
  - Automatic scheduling for follow-up visit
  - 24/7 access to care provider
  - Options for holistic or non-traditional medicine

- **Quality**
  - Test/Rx/procedures only when necessary
  - Clinicians using latest research
  - Strong reputation of healthcare organization
  - Drugs with proof of good outcomes, few side effects
  - State-of-the-art facility; most modern technology
  - Clean/comfortable facility

- **Support**
  - Assistance in navigating the healthcare system
  - Help managing my medications
  - Self-service to navigate the health system
  - Support/guidance for me while I care for a loved one
  - Social support
  - Help resolving insurance claim issues
  - Financing options
  - Lower-cost care options
  - Providers with community partnerships
  - Easy transportation to appointments
  - Receiving services in the home
  - Video games that help me manage my health

- **Personalization**
  - Staff attentive to my needs and preferences
  - Realistic care plans that consider my quality of life
  - Provider sharing my linguistic or ethnic background
  - Communication based on my preferences
  - Help with daily health management
  - Remote monitoring of my condition via device
  - Medication refill reminders
  - Predictions about services I may need

- **Communication**
  - Deciding treatment options with my doctor
  - Knowing what to expect at appointments and procedures
  - Communicating with patience
  - Upfront explanation of out-of-pocket costs
  - Online portal for health management
  - Understanding over-the-counter vs. Rx options
  - Knowing my care team and their role
  - Not having to repeat my information

Note: HRI found features highlighted in red to be of high importance across all customer segments. Clean/comfortable facility also ranked as a top feature but was excluded from the analysis since it was not considered data-relevant.

Source: PwC Health Research Institute Analysis
Finding #2
A healthy dose of consumer preference, lifestyle and behavioral data can yield a return on investment

Health companies can strengthen their brand, increase revenue and manage cost by focusing on what matters most to their customers. For example, provider executives from organizations that use customer feedback to inform their customer experience investments report realizing economic benefit from those investments, according to an analysis of HRI survey data. By looking at consumer preferences by segment, companies can do a better job of figuring out which interventions are worth trying and which will result in higher returns on investment. The most sophisticated health companies will be able to segment their customer populations in ways that acknowledge demographic differences and critical clinical, behavioral and preference differences. Some retail models are illustrative. “How does Amazon categorize?” asked John Glaser, senior vice president of population health for Cerner. “Is he a thorough shopper or an impulsive shopper? Does he just get the product or compare prices and features?”

Increasing the precision of their segmentation exercise allows companies to predict individual behavior based on unique motivators and preferences. It also allows companies to estimate the value of changing that behavior, such as getting consumers to increase adherence, switch providers or renew insurance policies. Being thoughtful and prescriptive to unearth meaningful consumer insights is key to population health management and driving wellness. It also could lead to improved clinical outcomes, which are the lynchpin of value-based reimbursement initiatives, and help healthcare players reap the financial benefits of market differentiation (see Figure 2).

Figure 2: In the New Health Economy, the health sectors will benefit most from customer experience strategies that address consumer pain points, generate economic value and drive behavioral change

Source: PwC Health Research Institute Analysis
HRI previously identified seven consumer segments for care in the US: healthy skeptics, healthy enthusiasts, healthy families, mental health, frail elderly, chronic and complex chronic (see Appendix A for detailed descriptions of each segment). Consumers in each segment have distinct needs and preferences. Many of these needs and preferences are not medical in the traditional sense. These consumer segments, when surveyed about which customer experience features they value most, varied in their responses. Even the top 12 features overall elicited varying degrees of enthusiasm from different segments (see Figure 3).

**Figure 3: HRI’s seven healthcare segments differ in the intensity of preference for top customer experience features** *(for entire heat map, see Appendix B)*

### Feature:

<table>
<thead>
<tr>
<th>Consumer segments:</th>
<th>Chronic Disease ($5.6k per capita, 54% of pop.)</th>
<th>Complex Chronic ($15.6k per capita, 8% of pop.)</th>
<th>Frail Elderly ($16.4k per capita, 2% of pop.)</th>
<th>Healthy Adult Enthusiasts ($1.5k per capita, 8% of pop.)</th>
<th>Healthy Families ($1.0k per capita, 21% of pop.)</th>
<th>Healthy Adult Skeptics ($1.0k per capita, 1% of pop.)</th>
<th>Mental Health ($3.1k per capita, 3% of pop.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communicating with patience</td>
<td>Dark</td>
<td>more intense</td>
<td>less intense</td>
<td>Dark</td>
<td>more intense</td>
<td>less intense</td>
<td>Dark</td>
</tr>
<tr>
<td>Lower-cost care options</td>
<td>Dark</td>
<td>more intense</td>
<td>less intense</td>
<td>Dark</td>
<td>more intense</td>
<td>less intense</td>
<td>Dark</td>
</tr>
<tr>
<td>Staff attentive to my needs and preferences</td>
<td>Dark</td>
<td>more intense</td>
<td>less intense</td>
<td>Dark</td>
<td>more intense</td>
<td>less intense</td>
<td>Dark</td>
</tr>
<tr>
<td>Deciding treatment options with my doctors</td>
<td>Dark</td>
<td>more intense</td>
<td>less intense</td>
<td>Dark</td>
<td>more intense</td>
<td>less intense</td>
<td>Dark</td>
</tr>
<tr>
<td>Convenient location and hours</td>
<td>Dark</td>
<td>more intense</td>
<td>less intense</td>
<td>Dark</td>
<td>more intense</td>
<td>less intense</td>
<td>Dark</td>
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<tr>
<td>Getting test results without seeing doctor</td>
<td>Dark</td>
<td>more intense</td>
<td>less intense</td>
<td>Dark</td>
<td>more intense</td>
<td>less intense</td>
<td>Dark</td>
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<tr>
<td>Test/Rx/procedures only when necessary</td>
<td>Dark</td>
<td>more intense</td>
<td>less intense</td>
<td>Dark</td>
<td>more intense</td>
<td>less intense</td>
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<tr>
<td>Getting appointments sooner</td>
<td>Dark</td>
<td>more intense</td>
<td>less intense</td>
<td>Dark</td>
<td>more intense</td>
<td>less intense</td>
<td>Dark</td>
</tr>
<tr>
<td>State-of-the-art facility; most modern technology</td>
<td>Dark</td>
<td>more intense</td>
<td>less intense</td>
<td>Dark</td>
<td>more intense</td>
<td>less intense</td>
<td>Dark</td>
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<tr>
<td>Drug with proof of good outcomes, few side effects</td>
<td>Dark</td>
<td>more intense</td>
<td>less intense</td>
<td>Dark</td>
<td>more intense</td>
<td>less intense</td>
<td>Dark</td>
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<tr>
<td>Upfront explanation of out-of-pocket costs</td>
<td>Dark</td>
<td>more intense</td>
<td>less intense</td>
<td>Dark</td>
<td>more intense</td>
<td>less intense</td>
<td>Dark</td>
</tr>
<tr>
<td>Not having to repeat my information</td>
<td>Dark</td>
<td>more intense</td>
<td>less intense</td>
<td>Dark</td>
<td>more intense</td>
<td>less intense</td>
<td>Dark</td>
</tr>
</tbody>
</table>

Legend: Top to bottom indicates broader to more narrow appeal. Dark to light indicates less intense preference for the feature.

Note: See Appendix B for a heat map of all 47 experience features.

For example, HRI’s research indicates that community partnerships have narrow appeal for a large portion of the population. But, for the frail elderly, they matter a lot. Seventy-three percent of provider executives and 50 percent of payer executives surveyed by HRI said their organizations have implemented or are implementing partnerships with allies in local communities, such as schools, grocery stores and churches. But unless these partnerships are targeted at groups that care a lot about them, they may be a waste of time and resources.

Consumers with chronic or complex chronic illnesses value modern healthcare technology to treat their conditions. Sending these customers to lower-tech facilities may reduce trust and prompt them to switch providers. But, it may be possible to treat consumers in other segments with standard medical technology without adversely impacting their perceptions of the quality of the treatment they received or their satisfaction with the experience.

Health companies have an increased interest in data about their customers’ lives outside of the doctor’s office. “Unless we understand our members better and the conditions they live in, we will never optimize the health of our members,” said Dr. Bechara Choucair, chief community health officer at Oakland, Calif.-based Kaiser Permanente, in an interview with HRI. A recent study published in The New England Journal of Medicine found that social and environmental factors—such as residential neighborhood and exposure to air pollution—account for 20 percent of premature deaths.\(^1\) PwC estimates that health disparities account for $102 billion in direct medical costs annually.\(^1\)

Better understanding of a patient’s life can allow health systems to determine the root cause of the problem and support patients with customized care plans (see Figure 4). A more targeted care plan may reduce the overall cost of care from the health system. “As we look at patient experience, we’re also thinking about the impact of emerging technology such as artificial intelligence, 3D printing and virtual reality on community health,” Choucair said. “We are placing an equity lens as we look at these investments.”
**Figure 4: Some health companies are using data to address the social determinants of health and other barriers to care**

<table>
<thead>
<tr>
<th>Sector</th>
<th>Who</th>
<th>What</th>
<th>Result</th>
<th>Customer experience priorities addressed</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Payer/provider</strong></td>
<td>Kaiser Permanente (Oakland, Calif.)</td>
<td>Gathers information directly via “life situation forms” and assigns patient navigators to help overcome obstacles to care. In process of making curated database of community resources available in EHRs in all of KP’s 8 regions. Incorporated tool into EHR to screen members for social needs in 7 categories.</td>
<td>In a partnership with Hunger Free Colorado, KP has screened pediatric and senior members for food insecurity and connected 6,709 members to food banks between 2012 and 2017.</td>
<td>Staff attentive to my needs and preferences</td>
</tr>
<tr>
<td><strong>Academic medical center and university system</strong></td>
<td>The Univ. of Texas System (Austin, Texas)</td>
<td>Convened more than 200 community organizations to work together to bridge gaps in care to address high rates of diabetes in Brownsville, Texas. Data hub aggregates data from wearables, EHRs, monitoring devices, screening data, and patient and provider mobile application and web access points so that data can be shared across care and support settings.</td>
<td>Raised awareness about diabetes risk, lowered HbA1c of patients with diabetes, and reduced inpatient and ER readmissions among heavy users.</td>
<td>Staff attentive to my needs and preferences Not having to repeat my information</td>
</tr>
<tr>
<td><strong>Physician</strong></td>
<td>Dr. Minda Gold, Full Circle Direct Primary Care (Damariscotta, Maine)</td>
<td>Uses the comparemaine.org app to help patients find the least expensive medical facility to have a breast ultrasound.</td>
<td>Plugging a zip code in the app, she can show the patient that it would cost $346 to $495 at local hospitals but $104 at a freestanding facility farther away.</td>
<td>Lower-cost care options Deciding treatment options with my doctors</td>
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<tr>
<td><strong>Health advocate/navigator</strong></td>
<td>Accolade (Plymouth Meeting, Pa.)</td>
<td>Uses machine learning to continually learn about a patient and to produce a personalized journey that factors in the patient’s unique circumstances.</td>
<td>Assumptions can be drawn from this information about other patients with similar characteristics in the absence of a complete profile.</td>
<td>Staff attentive to my needs and preferences</td>
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</tbody>
</table>
Finding #3
The data to revamp customer experience are scattered or hiding

Masses of data are being collected throughout the health ecosystem, but companies rarely share the data with each other and no single company has a complete view of its customers (see Figure 5). Claims and grievances data sit with payers, clinical information remains with providers, while community organizations and retailers own shopping, personal preference and lifestyle data. Drug and device manufacturers and technology companies are beginning to gather drug adherence and real-time biometrics through apps and wearables.

**Figure 5: Patient and customer data are housed in different parts of the healthcare ecosystem; no single stakeholder has the complete picture**

<table>
<thead>
<tr>
<th>Type of data</th>
<th>Drug and device companies</th>
<th>Health systems</th>
<th>Clinicians</th>
<th>Insurers</th>
<th>Community organizations</th>
<th>Patient advocacy groups</th>
<th>Consumer health technology companies</th>
<th>Retail pharmacies</th>
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<tbody>
<tr>
<td>Clinical and family history</td>
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<td>Benefits/medical and Rx claims</td>
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<td>Call center</td>
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<td>Appeals, grievances, complaints</td>
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<td>Cost of care</td>
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<td>Real-time monitoring</td>
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<td>Clinical trials and reported incidents</td>
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<td>Preferences, expectations</td>
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<td>Motivators, lifestyle, personality, behavior and habits</td>
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<td>Caregiver data</td>
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<td>Social determinants</td>
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<td>Patient-reported outcomes</td>
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<td>Social media</td>
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<td>Drug adherence</td>
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Source: PwC Health Research Institute Analysis
Few clinicians collect patient lifestyle information beyond basic demographics and tobacco and alcohol use. These types of socio-economic and environmental data are collected by community organizations and patient advocacy groups. Other health sectors can address the gap to understand the lives of patients by partnering with these organizations. Only 25 percent of provider executives surveyed by HRI strongly agree that they know enough about their patient populations to engage with patients outside of the clinical setting in their daily lives. Seventy-eight percent of provider executives surveyed by HRI say they lack the data to identify patients’ social needs.

The gaps are having a business impact. Sixty-two percent of provider executives surveyed by HRI who were dissatisfied with their ability to lower costs in value-based care models cited challenges with population data and analytics. “The big challenge for the providers is...they only have access to the clinical information,” said Kara Trott, founder and CEO at Columbus, Ohio-based Quantum Health, a company that specializes in helping consumers navigate their healthcare journeys. “They can’t solve for problems relating to family situations, transportation issues, claim challenges or financial limitations.”

Patients and caregivers themselves are primary sources of very critical information related to daily prescription management, quality of life and caregiver stress levels, yet no formal mechanism has emerged in the industry to regularly obtain data from them. An untapped market may exist for collecting and selling this information to health companies.

Gaining access to data and analyzing them will be critical for matching patients with the services they want and need. Yet the industry is still in the early days when it comes to using this information to improve the patient experience. “It’s a lot of hard work to make sure you are dealing with the same person when you collect data from various sources,” said Lee Pierce, chief data officer at Salt Lake City-based Intermountain Healthcare, in an interview with HRI.

“The big challenge for the providers is...they only have access to the clinical information. They can’t solve for problems relating to family situations, transportation issues, claim challenges or financial limitations.”

– Kara Trott
Founder and CEO
Quantum Health
Finding #4

Industry stakeholders offer different data capabilities

HRI found that industry stakeholders have varying abilities to obtain, integrate, analyze and manage data (see Figure 6). Data sharing and strategic partnering are paths to seamlessly piece together critical patient experience information. Clinicians and community organizations, such as patient advocacy groups, enjoy high levels of patient trust and are well-positioned to collect patient data and increase engagement. But they’re not sharing or using that trust or other resources to fill data gaps. Thirty percent of clinicians surveyed by HRI said they fail to share patient data within their own practice or health system. Only 13 percent of clinicians responding to an HRI survey said that they use community data sets such as state inpatient and emergency department databases, public health data warehouses and disease registries to fill in the blanks.

Figure 6: Industry stakeholders have varying abilities to obtain, integrate, analyze and manage data

<table>
<thead>
<tr>
<th>Sector</th>
<th>Data sets</th>
<th>Data management, governance &amp; integration</th>
<th>Analytics capabilities</th>
<th>Leverage with patients</th>
<th>Customer segmentation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health systems</td>
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<tr>
<td>Clinicians</td>
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<td>Pharmaceutical and life sciences</td>
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<td>Payers</td>
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<td>Community organizations</td>
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<td>Third-party aggregators</td>
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<td>Consumer health technology companies</td>
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<td>Health information exchanges</td>
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<tr>
<td>Pharmacy</td>
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<tr>
<td>Medical devices</td>
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Source: PwC Health Research Institute Analysis
Even with the data they have, providers often lack the analytical capabilities and resources to make the best use of the massive amount of data encountered on a daily basis. Seventy-nine percent of provider executives surveyed by HRI think that the lack of analytical tools is a barrier to effectively segmenting their patient population. Forty-four percent say they are using their EHRs to warehouse their data even though EHRs were not effectively built for integrating disparate sets of data.\(^\text{24}\)

Insurers, meanwhile, have a hard time getting their members to tell them sensitive personal lifestyle information. Eighty-three percent of payer executives surveyed by HRI cited lack of consumer engagement and trust as barriers to better meeting consumer expectations. As Trott told HRI: “Payers are in a tough position. They are perceived as being very scary to people that are on a healthcare journey. Institutional trust is at an all-time low.”

Pharmaceutical companies garner more trust with their consumers, but their data collection efforts are highly fragmented since they are focused at the brand level.

Payers and pharmaceutical companies do have the technical capabilities to work with large data sets, such as existing member data and clinical trial data, and perform advanced analytics. Seventy-three percent of payer executives surveyed by HRI said their organizations have invested to build out their data analytics capabilities; 22 percent said their organizations are considering doing so. Compared with executives at providers and pharma companies, payer executives report being more heavily invested in artificial intelligence, according to HRI research.

“Payers are in a tough position. They are perceived as being very scary to people that are on a healthcare journey. Institutional trust is at an all-time low.”

– Kara Trott
Founder and CEO
Quantum Health
Recommendations

Based on interviews with industry executives, an examination of successful efforts and industry surveys conducted over the past year, HRI has identified three high-value customer experience initiatives for health companies.

Choose the data cure for customer experience

Health executives are beginning to realize that they cannot revamp the customer experience on their own and that data sharing and strategic partnership are cornerstones for building their organization’s success, according to HRI’s provider, payer and pharmaceutical executive surveys. But direct data-sharing partnerships are not the only way to go. The health sectors are beginning to find different data strategies for revamping the customer experience including using or becoming data hubs or aggregators and commercializing their own insights (see Figure 7).

Figure 7: Health companies have four main data plays to enable their customer experience strategies

<table>
<thead>
<tr>
<th>Data play</th>
<th>Description</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Create data hub or contract with data broker</td>
<td>A data hub connects disparate sets of data and makes information accessible to member organizations.</td>
<td>The University of Texas System convened more than 200 community organizations to work together to bridge gaps in care to address high rates of diabetes in Brownsville, Texas. Data hub aggregates data from wearables, EHRs, monitoring and screening data so that data can be shared across care and support settings. Great Lakes Health Connect, based in Grand Rapids, Mich., which relies heavily on membership fees, announced that it has surpassed 1 billion health information transactions annually, achieved a critical mass of 1,000 medical practices using its closed loop referral application and soon will have 1,000 provider practices linked to its state immunization registry. Community-level data is also shared.</td>
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<tr>
<td>Work with data aggregator</td>
<td>A data aggregator houses multiple sets of disparate data and removes identifying information, appealing to health players wanting to partially sidestep the thorny task of grassroots data collection.</td>
<td>OptumLabs, owned by Minnetonka, Minn.-based UnitedHealth Group, includes clinical and claims data on 150 million individuals gathered from partners including co-founder Mayo Clinic, based in Rochester, Minn. HealthCore, the outcomes-research subsidiary of Indianapolis-based Anthem, Inc., maintains a database of medical, pharmacy and lab data covering nearly 65 million individuals. Medisafe, a personalized medication management platform, announced in 2016 that its new feature, “Import from Pharmacy,” can integrate a Medisafe user’s full prescription list and schedules from multiple provider and pharmacy data sources with the user’s health profile to help improve drug management and adherence.</td>
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<tr>
<td>Data play</td>
<td>Description</td>
<td>Who</td>
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<tr>
<td>Pursue direct data</td>
<td>Organizations may want to build their data collection efforts on a smaller</td>
<td>In 2017, CVS MinuteClinic, CVS Pharmacy and Cleveland-based Cleveland Clinic announced they would collaborate to make communication</td>
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<tr>
<td>partnerships</td>
<td>scale, for a specific purpose (e.g., a specific therapeutic area or</td>
<td>more efficient and coordinated using EHRs for medication related e-alerts and for sharing treatment plans between doctors and</td>
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<td>population health program).</td>
<td>pharmacists.</td>
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<td>In 2017, CVS MinuteClinic, CVS Pharmacy and Cleveland-based Cleveland Clinic announced they would collaborate to make communication</td>
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<td>more efficient and coordinated using EHRs for medication related e-alerts and for sharing treatment plans between doctors and</td>
</tr>
<tr>
<td></td>
<td></td>
<td>pharmacists.</td>
</tr>
<tr>
<td>Commercialize insights</td>
<td>Invest in proprietary data and tools to generate insights and sell them to</td>
<td>In 2015, Rochester, Minn.-based Mayo Clinic and Cleveland Clinic, announced they would share algorithms and predictive models with</td>
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<td></td>
<td>other industry players. Largely characteristic of integrated delivery</td>
<td>the industry on Chicago-based Apervita’s analytics platform.</td>
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<td>networks that already invest in research and data infrastructure. Some</td>
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<td>insurers with strong analytic abilities looking for opportunities to</td>
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<td>diversify into nonregulated lines of business are commercializing their</td>
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<td></td>
<td>insights.</td>
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</table>

These options will likely grow with more vertical consolidation expected in the market, such as Woonsocket, RI-based CVS Health’s pending acquisition of Hartford-based health insurer Aetna and as other nontraditional players enter the healthcare space looking to generate insights to improve the customer experience. Some companies are skilled at analyzing and integrating data passively through web usage and wearables once they have consumer consent. “One of the reasons social networks and companies that collect data for targeted marketing are effective is because they’re not asking people to tell them something,” Paul Eddy, executive vice president and chief information officer at Wellmark Blue Cross and Blue Shield based in Des Moines, Iowa, told HRI.

“One of the reasons social networks and companies that collect data for targeted marketing are effective is because they’re not asking people to tell them something.”

— Paul Eddy

Executive VP and Chief Information Officer
Wellmark BCBS, Des Moines, Iowa
Make customer experience second nature for staff

Providing staff—clinical and administrative—with the appropriate tools and training can enable them to spend less time looking for and reviewing data and more time having meaningful conversations with patients (see Figure 8). Many physicians see small return from the portion of their day spent navigating scroll-down menus and clicking on boxes to feed EHRs. Only 32 percent of provider executives surveyed by HRI said they are offering clinician tools and support as part of their customer experience initiatives. HRI found that payers and pharma companies see value in providing these tools to clinicians.

Digital platforms and automation likely will become important. At Arlington, Texas-based Texas Health Resources, Winjie Miao—who also is responsible for enterprise transformation—told HRI that the health system’s patient education system was implemented to allow patients to be more active in their care and to reduce the burden on nurses. But simply offering the tool without a clear plan on how to integrate it into hospital workflows was insufficient to drive the change through the organization. Miao said they saw more success when tools were embedded within clinical care models.
### Figure 8: Some leading health companies are hardwiring customer experience into staff workflows

<table>
<thead>
<tr>
<th>Sector</th>
<th>Who</th>
<th>What</th>
<th>Result</th>
<th>Customer experience priorities addressed</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Payer</strong></td>
<td>Humana (Louisville, Ky.)</td>
<td>Humana implemented a triage model in its call centers, using artificial intelligence to predict the likely needs of callers and direct them to the appropriate associate.</td>
<td>As of December 2016, issue resolution increased 6%, average handle times dropped by 7 seconds, agent engagement increased 60%, and net promoter score improved.</td>
<td>Staff attentive to my needs and preferences, Not having to repeat my information, Communicating with patience</td>
</tr>
<tr>
<td><strong>Provider</strong></td>
<td>Dartmouth-Hitchcock Medical Center (Lebanon, NH)</td>
<td>Dr. Corey Siegel surveyed patients to understand their preferences during treatment for ulcerative colitis.</td>
<td>Found patients were more concerned about complications of the condition than side effects of medication, which invalidated the doctor’s hypothesis and changed his approach to treatment.</td>
<td>Deciding treatment options with my doctors, Staff attentive to my needs and preferences</td>
</tr>
<tr>
<td><strong>Provider</strong></td>
<td>Cedars-Sinai Medical Center (Los Angeles)</td>
<td>Integrated recommendations from the Choosing Wisely initiative into physician alerts via their EHRs to help physicians cut down on extraneous treatments.</td>
<td>Cost savings of $6 million in the first year with evidence of improved clinical outcomes such as fewer complications and shorter length of stay.</td>
<td>Communicating with patience, Test/Rx/procedures only when necessary, Lower-cost care options</td>
</tr>
<tr>
<td><strong>Pharma</strong></td>
<td>Genentech (San Francisco)</td>
<td>Built a big-data platform capable of analyzing volumes of patient data in seconds. Analyzed data of patients previously diagnosed with cancer to understand the outcomes of different patient subtypes and treatment regimens.</td>
<td>Revealed effects of different biomarker alterations and how different treatment patterns affect clinical outcomes in real-world settings, which may impact drug development.</td>
<td>Deciding treatment options with my doctors, Drug with proof of good outcomes, few side effects</td>
</tr>
<tr>
<td><strong>Payer/provider</strong></td>
<td>Geisinger Health System (Danville, Pa.)</td>
<td>Developed the Open Notes (Our Notes) system with protocols to promote information-sharing between physicians and patients. Patients document questions before the visit, the physician must answer them and the patient signs off on the notes.</td>
<td>Improved medication adherence by bringing patient’s agenda to the forefront and facilitating shared decision-making.</td>
<td>Deciding treatment options with my doctors, Staff attentive to my needs and preferences</td>
</tr>
</tbody>
</table>
Unwire the experience

Digital technologies can enable consumers to get care when and where they need it, often at lower costs than through traditional channels (see Figure 9). Consumer demand for convenience and cost-effectiveness makes this a promising area for investment. HRI’s consumer survey revealed that patients place high value on convenient location and hours, the ability to see a provider quickly and lower-cost care options.

The proliferation of digital health technologies means that the care experience is no longer tied to the physician’s office. Telemedicine has been implemented by 47 percent of provider organizations. An additional 24 percent are in the process of implementing it, according to an HRI survey of provider executives.

Remote monitoring tools such as WiFi-enabled scales, mobile health apps for diabetes tracking and wireless biometric sensors are projected to save the US healthcare system up to $27 billion by 2018 and likely will make telehealth more effective. Studies have shown that remote monitoring may reduce acute care utilization and improve survival rates for patients with chronic conditions. Jon Zimmerman, vice president and general manager of value based care solutions at GE Healthcare Digital, told HRI he envisions a future in which data about a person, their genomics and clinical experience are continuously scanned with “things like monitors and bots.” The goal, he explained, is to get to an interactive healthcare experience where “my digital health assistant is watching out for me.”

Pharmaceutical companies are turning the corner toward a new era of remote technologies. Twenty-three percent of pharmaceutical companies offer digital product support and educational tools like mobile apps, according to a survey conducted by HRI. Ninety-one percent of pharmaceutical and life sciences executives surveyed by HRI said patients will increasingly manage their health at home over the next 10 years through pharma patient engagement services such as drug adherence programs and health management apps.

“As a physician, I need a framework so that I’m not putting more burden on my patient to use yet another device or take yet another action,” said Dr. Ivor Horn, chief medical officer at Accolade, a healthcare advocacy solution for employers, health plans and their members. “We have to consider how we can use tools that fit into the life flow of the consumer, in a way that works for them and creates an experience they want. It shouldn’t be about how the consumer fits into our process. The consumer has to come first.”
**Figure 9: Some health companies are leading the way in broadening the customer experience beyond the transaction**

<table>
<thead>
<tr>
<th>Sector</th>
<th>Who</th>
<th>What</th>
<th>Result</th>
<th>Customer experience priorities addressed</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Payer</strong></td>
<td>Humana (Louisville, Ky.)</td>
<td>Analytics predict fall risks for seniors living at home and target interventions. Also alerts someone immediately if a member does fall.</td>
<td>The program gives members “mobility and much needed sense of security,” said Vipin Gopal, enterprise vice president of clinical analytics.</td>
<td>Staff attentive to my needs and preferences</td>
</tr>
</tbody>
</table>
| **Pharma** | Pfizer (New York City) | Implemented device/app combinations that gather patient data and help manage symptoms for conditions including hemophilia, lupus and depression.  
43 | Goal is to improve data capture by collecting it in real time. Current paper method is cumbersome and often inaccurate as patients may not remember all the symptoms on the day of their appointment. | Not having to repeat my information  
Remote monitoring of my condition via device |
| **Provider** | Roanoke Chowan Community Health Center (Ahoskie, NC) | Remote monitoring program alerted the staff to an unusual rise in a patient’s blood pressure occurring every Wednesday morning. | After discovering that the patient ate dinner at the same restaurant every Tuesday night, a case manager suggested more heart-healthy dishes on the menu. Program improves patient’s knowledge of their condition, empowering them to take charge of their own care.  
44 | Staff attentive to my needs and preferences  
Convenient location/hours  
Getting test results without seeing doctor |
| **Payer** | Oscar Health (New York City) | Launched clinician dashboard that collects scattered data and provides a comprehensive look at a patient’s health journey. The tool generates alerts and also integrates claims data to allow the clinician to see what a treatment procedure would cost. | Minimizes time spent tracking down information, reduces duplicative testing; eliminates need for patients to carry their entire medical history.  
45 | Test/Rx/procedures only when necessary  
Not having to repeat my information  
Upfront explanation of out-of-pocket costs |
Appendix A

In a previous report, HRI analyzed the Medical Expenditure Panel Survey and identified seven consumer segments for care in the US: frail elderly, chronic disease, complex chronic disease, mental illness, healthy adult skeptics, healthy adult enthusiasts and healthy families.46

**Frail elderly** are over the age of 75, living at home and facing health issues related to falls or dementia and suffer generally poor health. At $89 billion in healthcare spending annually, these retirees are not the health system’s most expensive but they are the heaviest utilizers of care services and prescription drugs—with an average of 15 visits and 39 prescriptions fills—and have the highest per capita spending. About 5.4 million consumers, or 1.7 percent of the American population, meet the definition of frail elderly.

**Consumers with chronic disease** have problems affecting a single body system such as hypertension and require uncomplicated disease management. Because of their sheer numbers, these consumers rank first in total spending at $959 billion each year, however their per capita spending of $5,600 is much less than that of consumers in the complex chronic disease market. They average eight care visits each year and fill 13 prescriptions. About 173 million Americans, or 54 percent, fit this description and are the wealthiest of the consumer markets.

**Consumers with complex chronic disease** live with one or more chronic diseases affecting multiple body systems and requiring complicated disease management. These individuals account for $397 billion in total spending each year, with $16,000 in per capita spending, the second-highest among the seven consumer groups. On average they interact with the health system 15 times and have 34 prescriptions filled. About 25 million Americans, or 8 percent, are dealing with complex chronic disease.

**Consumers with mental illness** face depression and mood disorders, post-traumatic stress disorder, addictions and suicidal ideations as their primary health issue. These patients spend $34 billion on care each year and have an average of $3,000 in per capita spending. They have six touchpoints with the system and fill seven prescriptions. About 11 million, or 3 percent, of Americans have a mental illness as their primary health issue.
Healthy adult skeptics generally avoid interacting with the health system and are less likely to have health insurance than other consumer groups. This market is approximately 12 million strong with $7 billion total and $600 per capita spending. Individuals in this market make visits to the emergency room and are admitted to the hospital at nearly the same rates as healthy adult enthusiasts, but they go to the doctor less often.

Healthy adult enthusiasts value a regular physical and wellness/coaching services. They get recommended screenings. These consumers spend approximately $37 billion on healthcare services annually, average $1,500 in per capita spending and interact with the health system one or two times throughout the year. About 24 million Americans form this group.

Healthy families are households with healthy dependent children under the age of 18. There are 69 million people living in healthy families in the US and they spend $70 billion on healthcare each year. They interact with the health system at about the same frequency as “healthy enthusiasts”—mainly for vaccinations and the occasional cold or sinus infection—but have lower spending per capita at $1,000.
Appendix B–Heat map

Top to bottom indicates broad to narrow appeal. Dark to light indicates higher to lower intensity of preference for the feature.

### Consumer segments:

<table>
<thead>
<tr>
<th>Feature</th>
<th>Chronic Disease ($5.6k per capita, 54% of pop.)</th>
<th>Complex Chronic ($15.6k per capita, 8% of pop.)</th>
<th>Frail Elderly ($16.4k per capita, 2% of pop.)</th>
<th>Healthy Adult Enthusiasts ($1.5k per capita, 8% of pop.)</th>
<th>Healthy Families ($1.0k per capita, 21% of pop.)</th>
<th>Healthy Adult Skeptics ($1.0k per capita, 1% of pop.)</th>
<th>Mental Health ($3.1k per capita, 3% of pop.)</th>
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<tr>
<td>Clean/comfortable facility</td>
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<td>Communicating with patience</td>
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<td>Lower-cost care options</td>
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<td>Staff attentive to my needs and preferences</td>
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<td>Deciding treatment options with my doctors</td>
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<td>Convenient location and hours</td>
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<td>Getting test results without seeing doctor</td>
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<td>Test/Rx/procedures only when necessary</td>
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<td>Getting appointments sooner</td>
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<td>State-of-the-art facility; most modern technology</td>
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<td>Drug with proof of good outcomes, few side effects</td>
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<td>Upfront explanation of out-of-pocket costs</td>
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<td>Not having to repeat my information</td>
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<td>Viewing my health information in one place</td>
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<td>Provider with community partnerships</td>
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<td>Realistic care plans that consider my quality of life</td>
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<td>Online portal for health management</td>
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<td>Clinicians using latest research</td>
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<td>Self-service to navigate the health system</td>
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<td>Online bill pay payment, registration, etc.</td>
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<td>Strong reputation of healthcare organization</td>
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<td>Help with daily health management</td>
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<td>Knowing what to expect next on my treatment plan</td>
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<td>Options for holistic or non-traditional medicine</td>
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<td>24/7 access to care provider</td>
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<td>Understanding over-the-counter vs. Rx options</td>
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<td>Support/guidance for me while I care for a loved one</td>
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</table>
Appendix B–Heat map (cont’d.)

Top to bottom indicates more narrow appeal. Dark to light indicates lower utility (i.e. less intense preference for the feature).

<table>
<thead>
<tr>
<th>Feature</th>
<th>Chronic Disease ($5.6k per capita, 54% of pop.)</th>
<th>Complex Chronic ($15.6k per capita, 8% of pop.)</th>
<th>Frail Elderly ($16.4k per capita, 2% of pop.)</th>
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<th>Healthy Families ($1.0k per capita, 21% of pop.)</th>
<th>Healthy Adult Skeptics ($1.0k per capita, 1% of pop.)</th>
<th>Mental Health ($3.1k per capita, 3% of pop.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowing what to expect at appointments and procedures</td>
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<tr>
<td>Medication refill reminders</td>
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<tr>
<td>Receiving at home services</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
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<tr>
<td>Help managing my medications</td>
<td></td>
<td></td>
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<tr>
<td>Getting social support</td>
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<td>Video games that help me manage my health</td>
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<td>Remote monitoring of my condition via device</td>
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<td>Easy transportation to appointments</td>
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<td>Wait times visibility for urgent care</td>
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<td>Nontraditional care sites/options</td>
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<td>Automatic scheduling for follow-up visit</td>
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<td>Predictions about the services I may need</td>
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<td>Assistance in navigating the healthcare system</td>
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<td>Communication based on my preferences</td>
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<td>Knowing my care team and their role</td>
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<td>Provider sharing my linguistic or ethnic background</td>
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<td>Help resolving insurance claim issues</td>
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<td>Convenient scheduling</td>
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<td>Financing options</td>
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<td>Easy check-in</td>
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Note: Top to bottom indicates broader to more narrow appeal. Dark to light indicates less intense preference for the feature.


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46 PwC Health Research Institute, “Primary care in the New Health Economy: Time for a makeover.”
About this research

HRI conducted phone interviews with 25 executives representing health insurers, pharmaceutical/life sciences companies, health systems, academia and technology companies from June 2017 to January 2018 and analyzed findings from its clinician survey and payer, provider and pharmaceutical/life sciences executive surveys conducted in 2017.

HRI also conducted a consumer tradeoff survey for this report in October 2017. HRI had respondents screen a list of 47 experience features to choose their top 25 preferences. The respondents also selected between different combinations of features multiple times. Based on the respondent’s choices, HRI calculated a utility score for each feature to serve as a measure of the relative importance of that feature to the respondent. HRI then combined the screening and utility score results to calculate an overall value score for each feature.

About the PwC Health Research Institute

PwC’s Health Research Institute (HRI) provides new intelligence, perspectives and analysis on trends affecting all health related industries. The Health Research Institute helps executive decision makers navigate change through primary research and collaborative exchange. Our views are shaped by a network of professionals with executive and day-to-day experience in the health industry. HRI research is independent and not sponsored by businesses, government or other institutions.
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