

The Future of Consumer Health Engagement in Pharma Enabled Through the Cloud

JANE SARASOHN-KAHN, THINK-HEALTH

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Patients are morphing into healthcare consumers, and healthcare providers and suppliers face a tighter reimbursement landscape. The Triple Aim is the operating beacon to help the industry deal with this challenging operating environment. How will pharma and life science companies manage? By bringing data together from inside and outside of the traditional healthcare system, and quickly delivering solutions via a new generation of Enterprise Health Clouds.

Patients: The Demand Side

Consumers have become primed for convenience, nearly-instant gratification, and immediate access to information via search engines and e-commerce sites. Everyday, people are managing life-flows on multiple channels and screens, increasingly via mobile platforms. That's what modern life looks and works like in retail, banking, entertainment and travel.

In healthcare? Not so much.

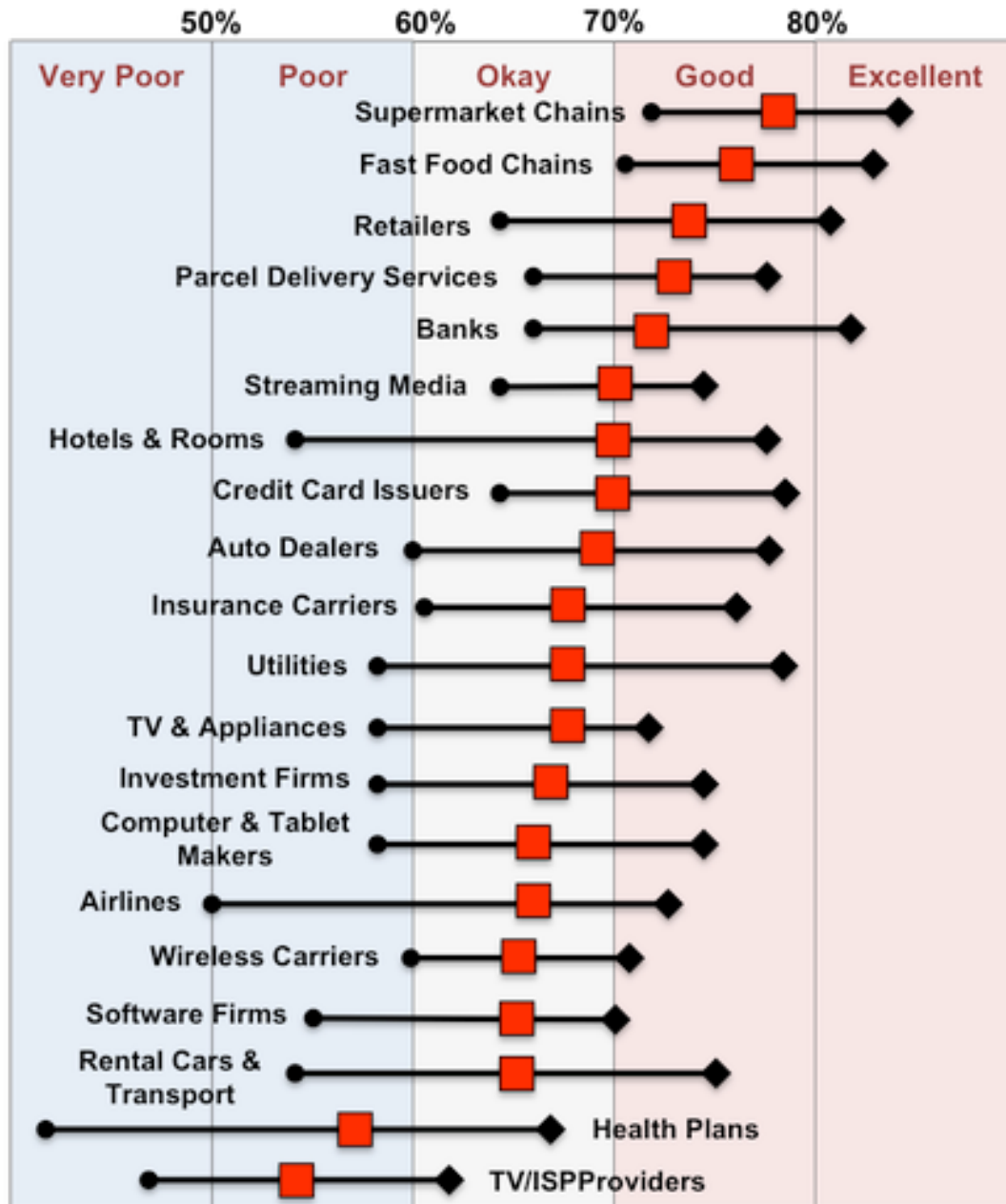
“The empowered consumer is using information technology to shift the balance of power away from sellers and toward themselves, allowing unprecedented choice and price control,” [the World Economic Forum has recognized](#). Consumers are now makers in their own lives: people are highly informed, mobile, loyal and hands-on. Nine in ten smartphone owners keep their devices within arm's reach, Nokia learned. Thus, it should be no surprise that [mobile devices dominate total minutes spent online](#).

These personal financial and technology trends are reshaping patients, who are morphing into health consumers taking on greater financial risk via high-deductible health plans; paying more out-of-pocket costs for services, prescriptions and supplies; and, seeking greater transparency and engagement. The more patients assume their consumer persona in healthcare, the more people seek choice, control and information to optimize their clinical and financial decisions.

People expect a consumer experience from their healthcare providers, plans and suppliers akin to experiences in other aspects of their lives. The healthcare industry must deal with the fact that consumers' last great shopping experience drives their personal expectations for the next encounter, [IBM retail researchers have learned](#).

In healthcare, those experiences fall far below peoples' encounters in retail, grocery stores and restaurants. Based on these last-best consumer benchmarks, health consumers' experiences are sub-par. [The 2017 Temkin Experience Ratings](#) found that most health insurance plans are delivering a service akin to those delivered by cable TV, Internet service providers and rental car companies—the lowest service levels quantified by Temkin's consumer study.

2017 Temkin Experience Ratings (TxR), Range of Industry Scores



Low Score Industry Average High Score

Base: 10,000 U.S. consumers

Source: Temkin Group Q1 2017 Consumer Benchmark Survey

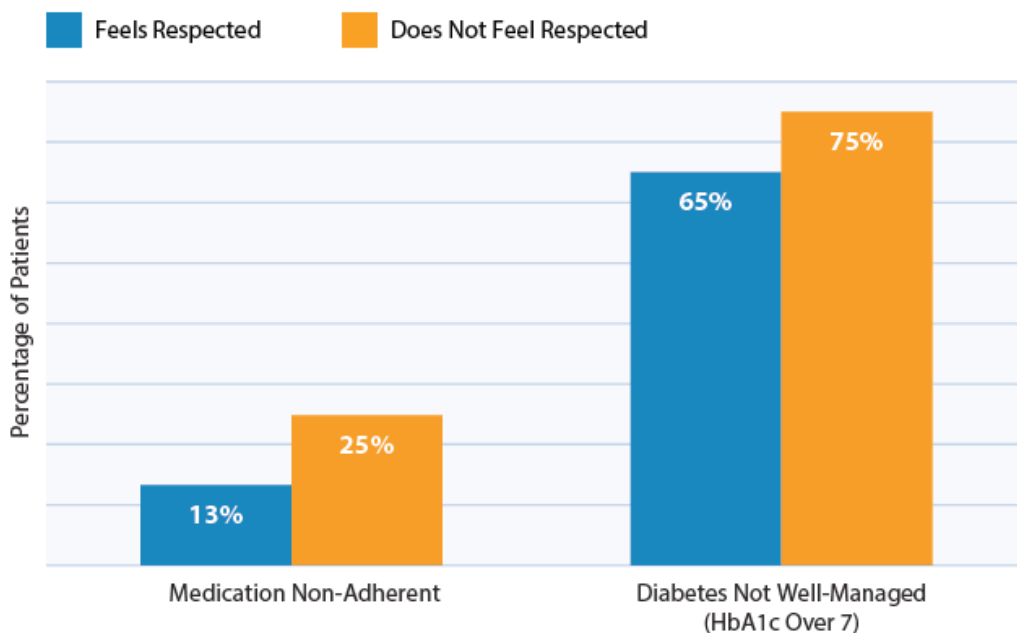
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Peoples' poor perceptions of service in healthcare can negatively impact their health literacy and adherence to prescriptions and clinical instructions. Many health consumers (including 40% of lower-income people in poorer health) don't feel well-respected by the healthcare system. These patients are less likely to follow therapeutic regimens, based on a [consumer study](#) by the Altarum Institute and Oliver Wyman, funded by the Robert Wood Johnson Foundation.

FIGURE 14.

Feeling Disrespected Linked to Medication Non-Adherence

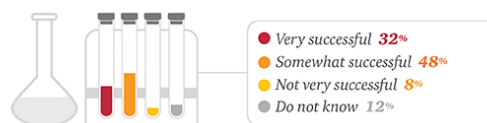


NOTE: Medication non-adherence $p < .001$; HbA1c difference is not significant, but statistical power is limited by the small number of people in the disrespected diabetic group ($n=53$). Both comparisons control for age, gender, and income. Variables include Q73 and Q77 by Q80.

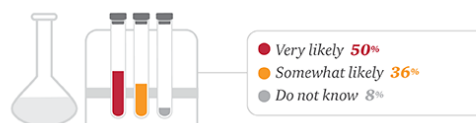
Source: Altarum Institute

This finding is especially impactful for pharma and life science companies given the healthcare industry's need to take on value- and outcome-based payments: [a growing number of companies](#) are taking on financial risk for the performance of new therapies, PriceWaterhouseCoopers (PWC) found. But these contracts have had various levels of financial success. This should be a dramatic call-to-action to pharmaceutical manufacturers and medical device companies.

How successful have your value-based drug contracts been?

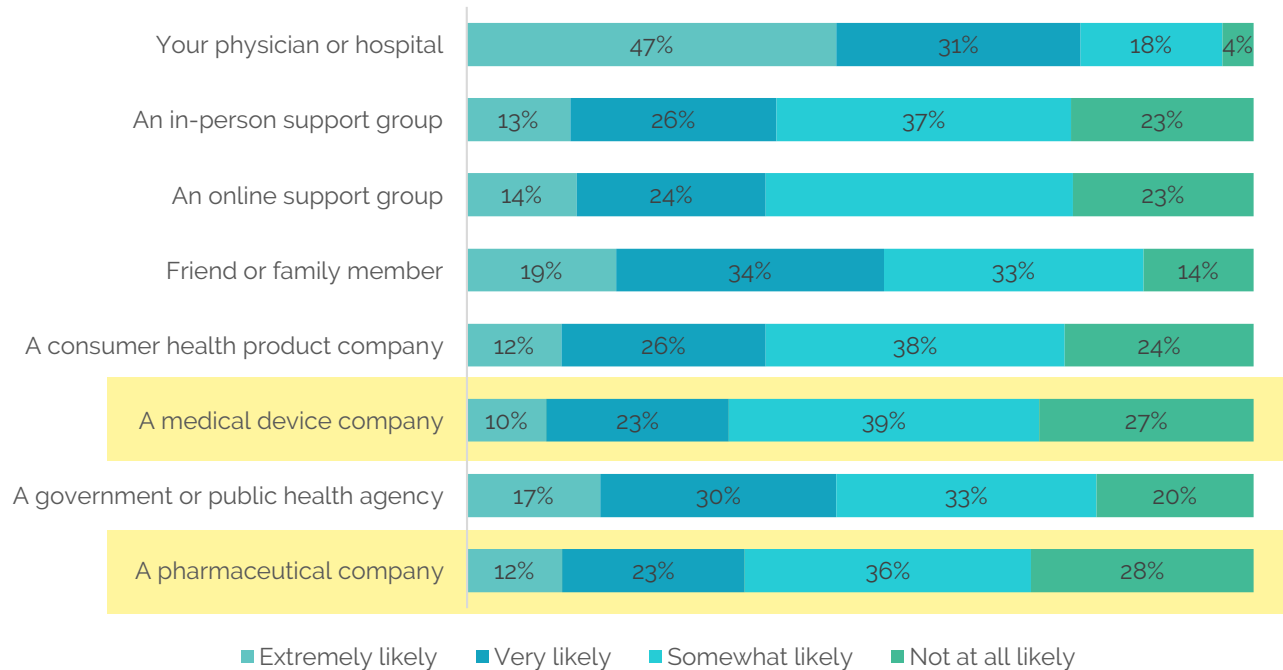


Will you seek to renew current value-based contracts or sign new ones, based on your past experiences?



Source: PwC Health Research Institute pharmaceutical executive survey, 2017

Furthermore, patients don't look to pharma as a trusted source of health information compared with other channels, [based on a survey from dotHealth](#). Pharmaceutical companies ranked last on the list of consumers' favored sources to turn to for health information after physicians and hospitals, support groups, friends and family, consumer health companies, medical device suppliers and government agencies.



This metric demonstrates a key aspect of the pharma-patient centricity gap.
Source: dotHealth LLC

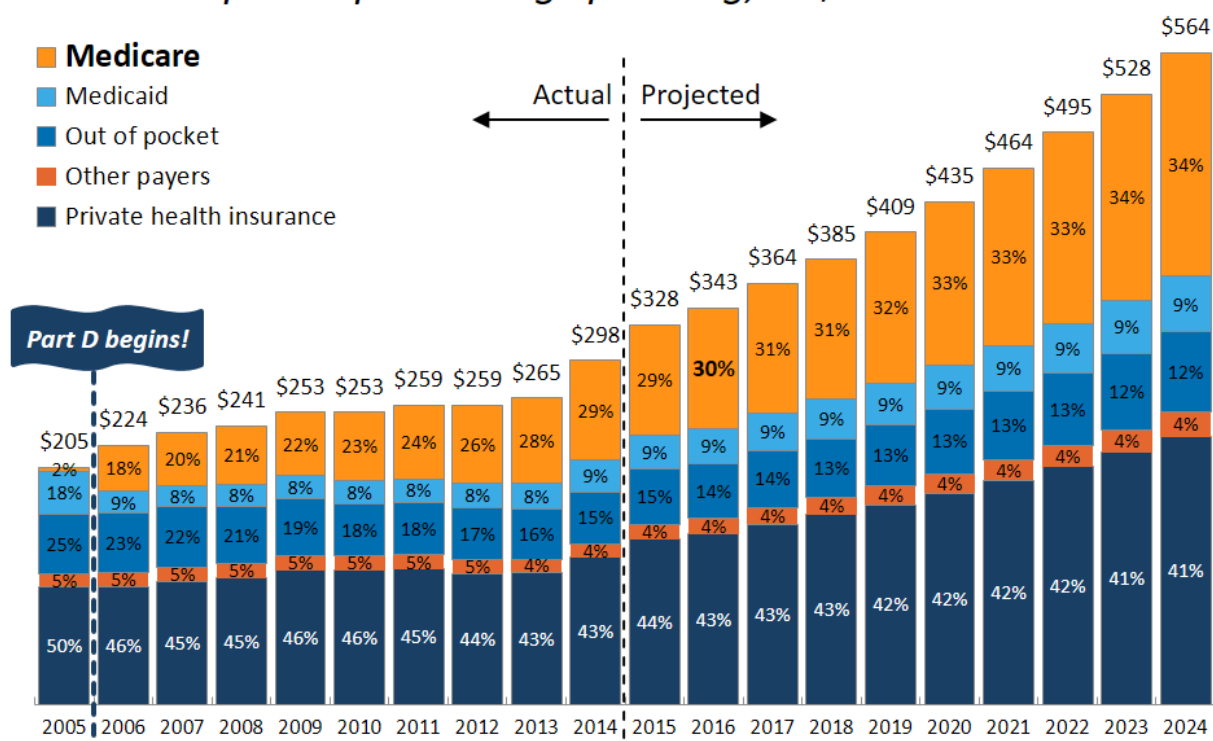
The Healthcare Industry : The Supply Side

As in other industries like retail and financial services, the rise of consumerism is likely to lead to a sea change in how business is conducted in every segment of the healthcare industry, impacting hospitals, physicians, health plans and pharma alike.

On the supply side, providers, payers and suppliers face an increasingly fiscally-constrained environment. As Dr. Delos “Toby” Cosgrove, CEO and President of the Cleveland Clinic, [said](#), “There’s going to be a continual drumbeat of taking costs out of the healthcare delivery system.” That translates into a shift from volume to value, an operational mandate to drive better health outcomes using fewer resources, and to lower the costs, per capita patient, of labor and capital.

The consultants at Oliver Wyman have quantified this future, calculating that by 2020, the U.S. healthcare market will shrink by 40% and the medical trend will level out to the growth rate of the overall economy. The [growth rate of drug spending](#) has not gone unnoticed by policymakers and consumers alike, with intense media coverage of [EpiPen pricing](#), [Martin Shkreli](#), or [CAR-T therapy](#), as just a few examples.

Total U.S. prescription drug spending, in \$ billions:



NOTE: Medicaid prescription drug spending accounts for rebates.

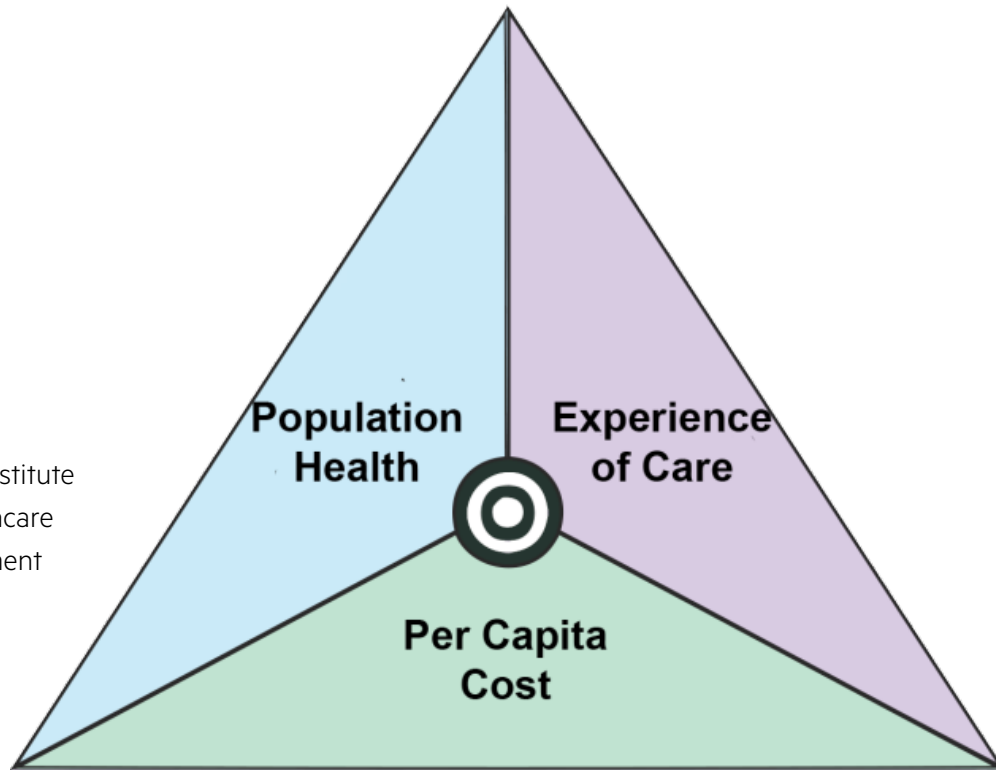
SOURCE: Kaiser Family Foundation analysis of CMS National Health Expenditure Data for Historical (CY2005-2014) and Projected (CY2015-2024) Retail Prescription Drug Expenditures, 2013-2024.



The convergence of growing consumer expectations and a dramatically constrained economic environment for healthcare system stakeholders makes the imperative of the Triple Aim even more compelling. This is the push to:

- Enhance the patient experience of care;
- Improve the health of populations; and
- Reduce the *per capita* cost of health care.

Source: Institute
for Healthcare
Improvement



IHI Triple Aim

The Triple Aim can't be realized without the engagement of patients in their own care and participation in clinical research. But the healthcare industry has organized and aligned for the payer/provider business-to-business relationship. The evolving health financing landscape requires a shift to a business-to-consumer orientation where health industry stakeholders must re-orient around the patient across the value chain, from research through to medication adherence. Competition among health insurers, providers and pharmaceutical companies compels healthcare players to treat their patients and members as customers, often for the first time.

The winning players in this new consumer-facing healthcare world will be healthcare suppliers that “flip” their orientation to deliver patient-centric innovation across peoples’ individual healthcare journeys. A new-new approach requires personalization, accessibility, and relentless person-centered design using data residing in and beyond providers’ and plans’ electronic health records, claims systems and researchers’ databases.

Data Beyond the Obvious Suspects

Health data has traditionally proliferated in healthcare encounters in doctors' offices, inpatient hospital beds, outpatient clinics, clinical labs and retail pharmacies. Increasingly, data that's relevant to addressing population health is emerging from employer-sponsored wellness programs, patient-generated data via wearable technology, social networks and retail data. Data generated "in real life" in consumer tracking apps and social networks can be especially useful for informing and bolstering population health and screening for and managing social determinants of health risks.



Source: Validic

With the growing penetration of connected Internet-of-Things devices in smarter homes, even more useful bits of daily living can mash up with traditional sources of healthcare data to build a picture of a person's health behaviors. The ECHO was Amazon's biggest-selling electronics product in the 2016 holiday season. Developers are ramping up healthcare applications calling on Alexa's support. Alexa and similar connected voice-first devices are fast-emerging as pioneering digital health assistants to assist people at home managing medications, mental health and aging-in-place, among a growing list of DIY health supports.

The challenge is how to corral, mash up, analyze and feedback useful insights informed by all these data types and sources on the backend, while designing engaging tools that consumers want to use to maintain and improve health on the frontend.

The Enterprise Health Cloud Opportunity

The convergence of financial, technological and consumer forces drives the opportunity for the enterprise health cloud (EHC). Health clouds yield many benefits in consumer-health/financially constrained environments, including:

- Simplifying interoperability, liberating data to be “liquid” and smoothly move into applications
- Allowing healthcare organizations to deliver engaging consumer experiences by leveraging pre-built application services
- Freeing developers to focus all their energies on the app and user experience, not infrastructure or middleware
- Lowering the risk and cost of app delivery by conserving scarce IT labor for highest-and-best use
- Streamlining development which allows new apps to quickly get into patient care workflow and clinical trials

Forrester released its Wave™ report on Enterprise Health Clouds in Q3 2017, naming Progress Kinvey, the foundation for Progress Health Cloud, a leader and top ranked current offering. Progress Kinvey scored higher than any competing company’s current EHC offering, with a perfect “5” for systems integration, patient engagement and developer platform. Progress Health Cloud also garnered top rankings for price transparency, vision, alliances and customer acquisition and retention.

The Progress Health Cloud provides a fully-integrated application development and delivery platform that enables mobile, tablet, web and connected device app developers build engaging applications quickly. The serverless cloud backend provides development accelerators and easy access to EHR and other enterprise systems to deliver fulfilling user experiences 75% faster and at much reduced TCO, upwards of 60% lower cost.

The Primacy of Privacy in Healthcare

Health engagement is underpinned by consumer and patient trust, and trust is enabled through the assurance of privacy. HIPAA, the Health Insurance Portability and Accountability Act of 1996, baked privacy and security into Americans personal health information (PHI) that is captured by health care providers, payers, pharmacies and other so-called covered entities under the law. When the law was promulgated, there was no such thing as a smartphone or mobile apps: the iPhone entered the market in 2007, a decade after HIPAA was written.

Mobile apps pose challenges for protecting e-PHI. However, HIPAA-covered entities that fail to comply with HIPAA may be putting consumers' personal data at risk, potentially incurring the [high financial costs of noncompliance](#) and [reputation risk that healthcare data breaches can cause](#).

A HIPAA-compliant cloud addresses security rules, safeguards and specifications required by the law. Progress Health Cloud ensures a HIPAA-compliant cloud application service and underlying cloud infrastructure backed by a business associate agreement with a cloud provider to cover the infrastructure: computing, storage, network and other cloud services. As an added assurance, the Health Cloud also has pre-built security features such as data storage encryption on the mobile client—in motion on the network and at rest in the cloud.

Using Patient Reported Outcomes and Real-World Evidence for Patients with MS and IBD

[Research from Judith Hibbard on patient activation](#) has demonstrated that the more engaged a person is in their own healthcare, the better their outcomes and more optimal the costs of treatment. In addition, [patient-reported outcomes can improve](#) communication, diagnosis and treatment.

With that understanding, Squint Metrics developed health apps to engage patients managing Multiple Sclerosis (MS) and Irritable Bowel Disease (IBD). It was mission-critical for the projects to work on Progress' HIPAA-compliant cloud platform, ensuring security for data storage, user authentication, data at rest and communications, along with high performance content delivery for the user.

How a patient feels and functions are key to people managing IBD, making patient-reported outcomes crucial to helping people diagnosed with this condition live full lives. The Gut Check app captures patient-reported outcomes for Crohn's and ulcerative colitis, along with patient support tools like bathroom finders and social engagements. Patients can gauge GI distress, use the Crohn's Disease Activity Index, track fatigue, and record activities of daily living. Clinicians can access the IBD PRO app to keep track of patients' progress and improve clinical guidance with real-world input from patients' daily lives.

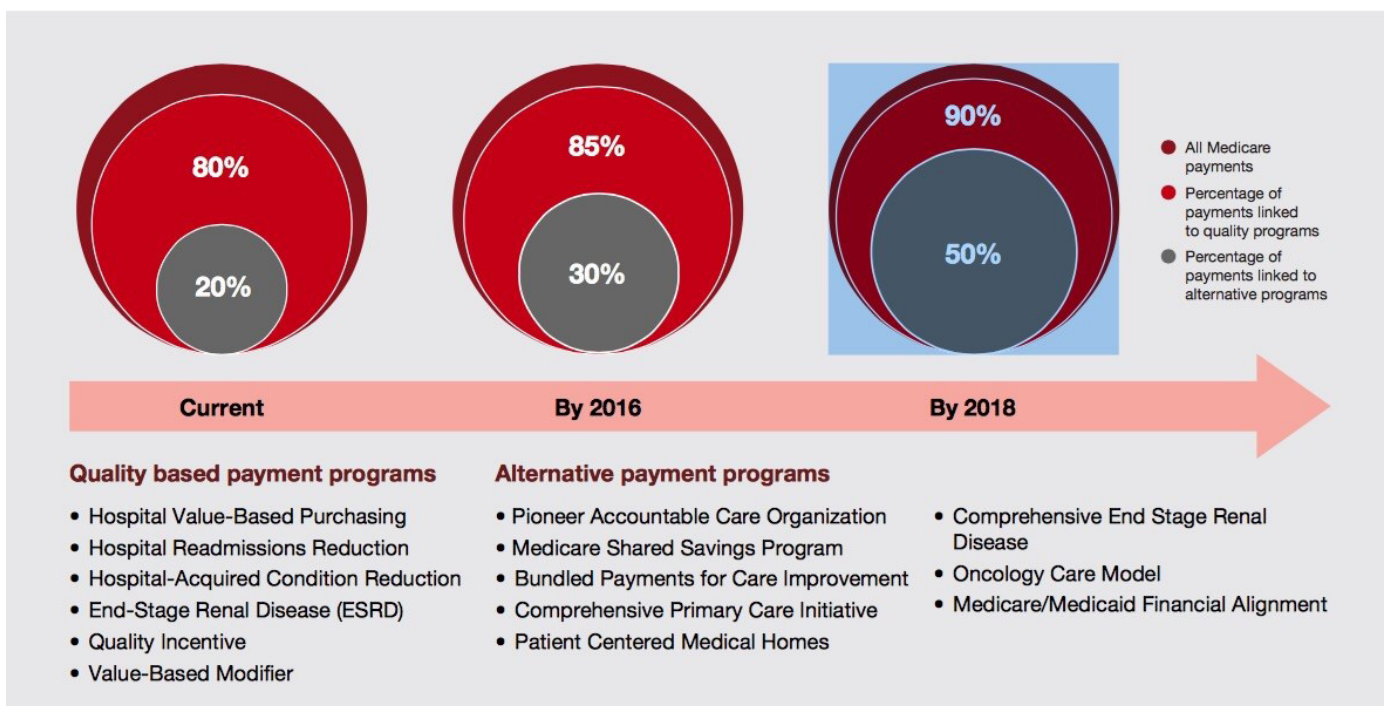
The MS Care Connect app supports patients managing MS in tracking daily symptoms, activities, mental health, diet, and exercise, along with providing games and tests to assess function and benchmark with other patients using the platform. With MS PRO, providers can view data that support shared treatment decisions and conversations, as well as filter data based on variables such as diagnosis, disease severity and demographics.

Conclusion and The Way Forward

The Healthcare Transformation Task Force, an organization of major providers, purchasers and patient advocates, [announced their collective goal to commit](#) to putting 75 percent of their business into value-based arrangements focusing on the Triple Aim by 2020. This group includes six of the largest U.S. health systems and four of the largest health insurance plans.

CMS Payment Changes 2015-2018

Medicare's commitment towards quality-based payments grows.



Source: Centers for Medicare and Medicaid Services

In the public sector, the Centers for Medicare and Medicaid Services (CMS) also plans to move 50 percent of payments to value-based programs by 2018.

Demonstrating value, driving patient outcomes, and collaborating with healthcare providers and patients will be cornerstones of success in this constrained payment environment. Going forward, pharma and life science companies should be highly motivated to become consumer-centric. At the same time, more data sources (from traditional research sites and patient-generated) will become available to better inform providers and patients, and drive medication adherence at the point-of-care: in peoples' hands and homes. This will bolster shared decision-making and self-care outside of walled provider settings and pharmacies.

The Triple Aim requires the engagement of patients, consumers and caregivers in daily life where people live, work, play and learn. The future for digital health is a person-centered experience that delivers:

- Health support and guidance in real time, where and when a person wants and needs it
- Personalized, data-rich content from private and public sources
- Consumer-patient retail-grade interactions
- Intelligent, predictive and collaborative engagement
- Internet of Healthy Things (IoHT) connectivity
- The assurance of end-to-end security and compliance with HIPAA and consumers' own values of privacy

Ultimately, success will be measured by positive patient and population health outcomes, better healthcare quality and lower costs.

About Progress

Progress (NASDAQ: PRGS) offers the leading platform for developing and deploying mission-critical business applications. Progress empowers enterprises and ISVs to build and deliver cognitive-first applications that harness big data to derive business insights and competitive advantage. Progress offers leading technologies for easily building powerful user interfaces across any type of device, a reliable, scalable and secure backend platform to deploy modern applications, leading data connectivity to all sources, and award-winning predictive analytics that brings the power of machine learning to any organization. Over 1,700 independent software vendors, 100,000 enterprise customers and 2 million developers rely on Progress to power their applications.

Learn about Progress at www.progress.com or +1-800-477-6473.

About the Author:

Jane Sarasohn-Kahn is a health economist, advisor and trend weaver to healthcare stakeholder organizations. She is principal consultant with THINK-Health and writes the Health Populi blog.

Worldwide Headquarters

Progress, 14 Oak Park, Bedford, MA 01730 USA

Tel: +1 781 280-4000 Fax: +1 781 280-4095

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