THE DEFINITIVE GUIDE TO CONNECTED HEALTH 2016

10 TRENDS YOU NEED TO KNOW
According to a Commonwealth Fund study, the average patient in the United States only visits the doctor four times a year. This limited frequency makes it critical for healthcare organizations to engage with patients outside the traditional care setting to help them maintain their health and wellness.

Healthcare organizations, both providers and health plans, continue to feel the pressure to expand access to care, improve quality, and reduce costs. Increasingly empowered patients and members are intensifying this pressure through demands for price transparency, mobile access, and personalized experiences. To meet these demands, it is critical for healthcare organizations to shift their focus to understanding, engaging, and empowering the healthcare consumer.

In this guide we look at the top 10 Connected Health trends for 2016 and provide insights to help healthcare organizations not only survive – but thrive – in the age of consumer-driven healthcare.
10 CONNECTED HEALTH TRENDS FOR 2016

1. The Year of TeleHealth
2. Market-Driven Patient Engagement
3. Meaningful Use is Dead; Long Live Outcomes-Based Care
4. Health Plan Mega Mergers Impact Member Experience
5. Patient-Centered Activity Monitoring
6. Increased Ownership of Data by Patients
7. Refining the Patient as a Consumer Data Story
8. Return in Importance of the Clinician Experience (MU release)
9. Internet of Things and Mobile Health Impact Data Security
10. High-Touch Digital Care
TREND 1

THE YEAR OF TELEHEALTH
In Cincinnati, a man boards a MegaBus bound for Chicago twice per month. Unlike the business travelers sitting next to him, he’s not lured by the promise of free Wi-Fi and power outlets. Rather, this Cincinnati native sits on a bus for a 12-hour round trip ride so that he can have access to a particular physician that specializes in treating his illness.

In rural Pennsylvania, a middle-aged woman is diagnosed with Stage 4 glioblastoma multiforme. Her doctor gives her three-to-six months to live, but the closest hospital is a one-hour drive from her home. Not wanting to spend her remaining days in a hospital room so far from loved ones, her family takes shifts around the clock to provide her care during her battle with cancer.

In California, a self-employed young man is dealing with the pressures of providing for a young family given tough economic circumstances. His family is self-insured under a high-deductible plan, and he finds it difficult to make room in his busy schedule to sit in a waiting room for a preventive care visit or to correctly manage his diabetes protocol.

These three real-life stories bring us to the very heart of Connected Health, defined as:

A MODEL FOR HEALTHCARE DELIVERY THAT USES TECHNOLOGY TO PROVIDE HEALTHCARE REMOTELY.
Connected Health has enjoyed an upward swing in investment over the past couple of years, and innovations in healthcare technology are being used to provide new treatment options for the individuals described and millions more like them.

The swing will begin to dominate this year as telehealth vendors gain traction by way of partnerships with both health plans and healthcare providers and reimbursement policies continue to mature. In order to be ready for this adoption of telehealth we need two key things:

1. **Digital transformation within healthcare organizations that allows patients and clinicians to come together in the design and maintenance of care programs.** At the very heart of “healthcare everywhere” we find digital transformation. In fact, a healthcare organization’s readiness for “healthcare everywhere” can easily be mapped against the digital transformation maturity curve. This requires an examination of seven attributes: 1) Patient/Member Insight, 2) Strategy, 3) Design Process, 4) Enabling Technologies, 5) Measurement, 6) Operations, and 7) Culture. With insights from these seven attributes, an organization’s readiness for healthcare everywhere can be assessed and a realistic plan for future adoption can be created.

2. **Adoption of interoperability and data exchange standards.** Digital transformation helps map out the use of digital technologies across the care paradigm. These innovations then place demand on both the electronic health records (EHR) and health information exchange technologies, which will unquestionably benefit from interoperability. The many data collection devices required for telehealth need to be tied together with bi-directional standardized messages. The future of interoperability is to bind together a wide network of real-time, life-critical data that not only transforms healthcare, but becomes the new way of providing care altogether.
The advancement of telehealth technology is breaking down barriers around the world, and can reduce rising medical costs as a result. Telehealth can provide our Cincinnati traveler with the ability to share medical data with his Chicago physician remotely. Virtual visits give him a way to meet with his physician without the long commute. Remote patient monitoring has proven extremely effective in treating cancer and in helping reach vulnerable populations. Telehealth can also help our busy father care for his chronic diabetes and get the necessary preventive care he needs to be in optimum health. For these reasons, and many more, the industry’s biggest shift in 2016 will come in the way of telehealth.

“Digital transformation is a more fundamental change in human behavior. It goes beyond networks, devices and content.”

- Derren Sequeira, Head of FCG UK for Facebook

7 MILLION patients will be using telehealth services by 2018. - IHS Technology
Success Story

KAISER PERMANENTE

IMPROVING ACCESS TO HEALTHCARE AND REDUCING COSTS

Kaiser Permanente, one of the nation’s largest not-for-profit health plans, wanted to reduce the cost-per-contact for nurses and other professionals by automating processes and making care more accessible to a growing number of patients. We implemented a self-service symptom checker solution that sends incident reports to the nurse practitioner if a patient can be treated via an online interview. Cases needing review are laid out in a clear format and can be processed more quickly than if the nurse were on the phone with the customer. More than 90% of patients said they liked the online form and would use it again. Automating the first protocol alone will save the client more than half a million dollars per year.
TREND 2

MARKET-DRIVEN PATIENT ENGAGEMENT
In the wake of the “Ghost of Meaningful Use Past,” patient-centric healthcare technology has left much to be desired. The reason is simple: the number one decision-making criterion for patient portal implementation under Meaningful Use was ease of integration with EHR. We built it, and we waited for them to come.

As shown in a study by Whiteman et al, healthcare technologists often assume that patients have “unlimited enthusiasm” to engage with their health information. That’s a very faulty assumption. When we think of the technologies in our lives for which we truly have unlimited enthusiasm, we would not likely find systems integration at the root core of their purpose. Why do these technologies actually engage us? Because they were built from us. They considered all of the patterns that are embedded within our everyday lives, they take our motivations into account, and they were built within an experience that then became habit forming for us. In other words, these technologies worked because they were “market-driven.”

— E-PATIENT PETITION TO THE ONC

65% OF CONSUMERS ARE EASILY FRUSTRATED BY COMPANIES UNABLE TO PROVIDE A CONSISTENT AND ENGAGING EXPERIENCE

ACCENTURE

NOTHING WOULD RESULT IN IMPROVING THE HEALTH OF THE POPULATION (AND DECREASE HEALTHCARE COSTS) MORE THAN HAVING GREATER INVOLVEMENT/ENGAGEMENT BY INDIVIDUALS IN THE HEALTHCARE PROCESS.
With Meaningful Use out of the way, we need to move away from prescriptive checklists and towards market-driven concerns that have patient engagement at the core. The two most notable are: 1) bending the cost curve, and 2) improving pay-for-performance outcomes. In both we can use technology to motivate and incentivize healthcare consumer behaviors to meet market-driven goals.

At the central core of this trend we find a shift away from the Meaningful Use checklist and towards design thinking in healthcare. What is design thinking? Design thinking flips traditional technology solution development upside down. Under the old paradigm we came up with an idea (e.g., Meaningful Use), and solutions were spun around it.

Before we start throwing technology at patients, we need to understand how to deliver solutions to those with limited enthusiasm for that engagement. Doing this requires an organization to step back and think strategically. Some healthcare organizations, like Florida Blue and Marshfield Clinic, were market-driven well before their time. They had user research as the very foundation of their solution development. They utilized research efforts that helped them understand what their consumers actually wanted instead of throwing a solution at them and telling them it is what they need.

As a result of strategic solution development like this, engagement improves and consumers begin bending the cost curve on their own behalf because they have been provided with the technological tools they need in order to do so.

**USING THE DESIGN THINKING METHOD, THE IDEA IS TO FIRST IDENTIFY THE USERS’ NEEDS AND THEN SPIN OFF TECHNOLOGY SOLUTIONS FROM THAT POINT.**

TREND #2: MARKET-DRIVEN PATIENT ENGAGEMENT
Success Story

HEALTH SYSTEM

A PRESCRIPTION FOR AN AILING WEBSITE

Our client’s public facing website was dated, difficult to navigate, and unengaging. Perficient developed a digital strategy which included a new website. The new responsive website has enhanced search capabilities, SEO-friendly URLs, and flexible site navigation. The site is dynamic, engaging, and provides a seamless and optimal viewing experience across desktop computers, tablets, and mobile phones.

- Promotes brand awareness and fidelity, and drives specific user behavior and engagement
- Allows the company to effectively engage mobile users and deliver content to a wide range of devices
- Provides advanced publishing workflow capabilities that broaden the pool of content authors and alleviate a reliance on technical users
- Delivers an improved, interactive experience
- Serves as a communication vehicle to engage patients, prospective patients, and the community
- Acts as the “digital front door” to help convert unknown consumers into patients
TREND 3
MEANINGFUL USE IS DEAD; LONG LIVE OUTCOMES-BASED CARE
The end of Meaningful Use brought with it the birth of new trends that will take its place (or perhaps, more accurately, its mind space and investment dollars). However, the end of Meaningful Use also allows us to shift focus to trends that were already in existence but which will grow in prominence due to their more long-term approach to managing patient wellness. Such is the case with outcomes-based care and the longitudinal and patient-centric care plans that are inherent to it. It just so happens that this evolution will end up leaving a strong mark on the patient portal of the future.

Proper care coordination that meets outcomes-based goals rests on the power of a longitudinal care plan. This is the plan that all members of a care team, including the patient, can both view and contribute to. As mentioned by Chilmark Research, in the current state, the long-term care plan only exists in theory. As it currently stands, these plans are siloed between facilities and still largely live on paper and within phone discussions. As such, patients have little opportunity for participation in such a plan.
At the heart of a care plan lies an important goal. We want to capture data across an episode of care and, eventually, beyond its typical confines of the brick and mortar and into the “observations of daily living.” This will provide a complete picture of a patient’s wellness and the path needed to maintain and improve wellbeing over the long term. This plan will be represented in two parallel paths that will eventually merge: interoperability and the digital care plan and connecting the patient via a portal.

This trend will be with us for a few years to come as these digitized patient-centric care plans evolve. However, in the meantime we can look at health systems that are succeeding at consolidating patient data across the care paradigm and, in tandem, invest in increasing digital engagement with patients. Examples include New York Health & Hospitals, which has made tremendous investment in understanding their patient data story, and Hospital Corporation of America, which has beaten the odds and created a patient portal for a diverse group of patient populations across the country.

INTEROPERABILITY AND THE DIGITAL CARE PLAN
There are currently, and will continue to be, plans under way to integrate data across the care paradigm. This is not an easy task, since the mergers and acquisitions of the past few years have brought with them a rather complicated mix of data systems. However, over the next few years there will be an effort to digitize the care plan so providers can coordinate electronically across an episode of care.

CONNECTING THE PATIENT VIA PORTAL
The promise of outcomes-based care brings with it the ideal of the patient being the most important member of the care team. It is challenging when the patient is not able to contribute to the longitudinal care plan in their own right. We are moving towards a new wave of patient digital engagement seeped in the principles of outcomes-based care. This is one where the care plan lives electronically across the care paradigm and, eventually, becomes attached to the patient experience by way of the patient portal.
Success Story

HEALTHCARE SERVICES PROVIDER

ENHANCED PATIENT PORTAL PROVIDES A SEAMLESS AND PERSONALIZED EXPERIENCE

The nation’s largest provider of healthcare services needed a patient portal to meet regulatory requirements and improve the overall patient experience. We implemented a solution that delivers a single patient experience, integrates data from a variety of clinical systems and allows patients to manage their health from anywhere. A middleware caching solution built on RESTful APIs improves response time and the overall patient experience with features like find a doctor, schedule an appointment and bill pay. In addition to meeting an important patient satisfaction goal, the patient portal also helps to meet a major requirement of the federal government’s ongoing Meaningful Use criteria around electronic record keeping, access, and transmission.
TREND 4

HEALTH PLAN MEGA Mergers Impact Member Experience
In 2015 much was written on the topic of the new world of health insurance. Big news on this front was the industry consolidation under a string of potential mergers. We saw Aetna and Humana, Anthem and Cigna, and UnitedHealthcare all perusing their options. However, this story is not limited to the world of big health plans. Smaller and mid-size plans are also moving with this consolidation trend.

From a Connected Health standpoint, we want to know how the health insurance mega merger will impact the member experience. Many are postulating on what this will mean from a cost-of-health-plan standpoint. Some feel that the mega merger will improve the negotiating power of a now smaller group of insurers and, therefore, increase the cost of health plans. Others believe that the cost reductions resulting from mergers will actually decrease the cost of health plans. Fewer are keeping their eye on the barriers of entry into the marketplace and the possibility for the “Geico for healthcare” entering the health insurance world. We are interested in the changes that will occur beyond the mechanics of the health insurance exchange. What impact will this mega merger have on the actual member experience?

We can make some assumptions about investments in member experience slowing or, in some cases, halting. In the short term there will be a hesitancy to invest until merged systems can be combined. In the meantime, this reluctance by big health insurance is leaving the door open for new entrants. If it takes an extended amount of time for these mega mergers to unite their systems we may see new entrants join the health insurance market. If these new companies can create a better member experience, we could see some dramatic shifts in the marketplace.
Given that in the post-Accountable Care world many insurance products look very similar, health plans need to look for differentiation strategies that keep members engaged in their care as well as help them make sound choices from a cost of care perspective now that more of the decision-making power is in their hands. Here are a few options:

**WELLNESS STRATEGY**
One differentiating strategy that is gaining traction is the wellness strategy. Here we find insurers, like Humana with its HumanaVitality wellness program, creating digital tools to enable member health. Humana recently announced two new weight loss-focused partnerships with Weight Watchers and Kurbo Health to extend this strategy.

**MEMBER 360 STRATEGY**
Taking a page from the retail industry playbook, insurers are using the volumes of health plan data and tying them together in a consumer-centric data warehouse that can be used to unify the member experience across all touch points, identify and focus on loyalty programs for the most valuable members, target members through personalized offers, create predictive analytics programs to enable cross-sell/up-sell, and, in the end, create closed-loop analysis and continuous optimization.

**TELEHEALTH**
The industry finds itself in an interesting place from a telehealth perspective. While healthcare providers are finding difficulties around reimbursement, health insurance companies are offering telehealth programs in order to increase revenues and decrease care costs in instances where members would typically use urgent care or the emergency department (ED). Last year, health plans such as UnitedHealthcare and Horizon Blue Cross Blue Shield of New Jersey were some of many insurers increasing their telehealth investments.

Regardless of the strategies used to improve member experience the truth of the matter is that member experience will be in sharp focus in 2016.
Success Story

LARGE HEALTH PLAN

MEMBER PORTAL UPDATED TO SUPPORT DEMANDS OF ONGOING INDUSTRY REFORM

Driven by changes in healthcare reform and changing consumer expectations and markets, one of the largest health plans in the southeast needed major updates to its member portal. Following our design, architecture, and delivery work, members now get personalized services and contextual delivery. Key features include SSO, analytics, surveys, social media, enhanced commerce capabilities, and capture of click streams for better troubleshooting. Success metrics include a unique visitor increase of 3x, 100% uptime, 17% decrease in shopping-cart abandonment, and 11% sales conversion rate for mobile sales.
TREND 5

PATIENT-CENTERED ACTIVITY MONITORING
The ability to measure activity is growing. At the heart of telehealth’s call for “healthcare everywhere,” we find increasing enablement of real-time and continuous monitoring of activity through the use of wearables, multimodal smartphone tech, ambient sensors, and biometrics. With this comes the advantage of treating disease with better information. As more activity data is gathered within the context of a care plan, the ability to use objectively captured data for early prediction can have a profound impact on care delivery.

For example, in a 2014 study from the Mayo Clinic, cardiac rehab patients who used smartphone apps to record weight and blood pressure lowered cardiovascular risk factors and 90-day readmissions. According to the study, 20 percent of the app-user patients experienced readmission compared to 60 percent of patients who completed rehab only. Mobile health also provides tremendous opportunity to care for vulnerable populations at a decreased cost.
It comes as no surprise, then, that the National Institute of Health built mobile health (mHealth) into its recent list of fourteen goals accordingly:

“PROVIDE RIGOROUS EVIDENCE THAT MOBILE TECHNOLOGIES CAN ENHANCE HEALTH AND PREVENT DISEASE”

With this in mind, as we continue to work with leading healthcare organizations on their mobile connection to the patient population, the following trends, as catalogued by mobihealthnews, are at the forefront:

**MOBILE APPLICATIONS FOR MEDICATION ADHERENCE**
We have worked with healthcare organizations to strategize on creating digital patient care while also keeping their innovations in mobile medication adherence in the fore. This trend will receive another boost this year from the use of sensors to collect confirming data (e.g., breath analysis, urine sampling, etc.).

**CONVERSATIONAL THERAPIES**
The conversational interface on mobile devices is maturing by way of advances in voice recognition and artificial intelligence. These advances can have a powerful impact when incorporated into “high-touch digital care” by way of interactive systems for outpatient education, for example.

**MOBILE MEETS PREDICTIVE ANALYTICS**
Health plans have been using predictive analytics for a while, and momentum is growing in the healthcare provider space as well. With this comes the ability to visualize data, and these capabilities will have a tremendous impact when merged with mobile health.

**LONGITUDINAL DIGITAL CARE PLANS**
As discussed in an earlier trend, the march towards digital care plans across the care paradigm, and then connected to the patient by way of portal, will be our reality over the coming years. Now, just imagine how much easier it will be to gain patient compliance on that protocol when it is synched to the patient’s everyday life by way of mobile technology. Something as simple as a text messaging program can have a tremendous impact on outcomes-based care.
However, there are some hurdles ahead:

**DATA INTEGRITY**
Much in the world of mHealth currently relies upon the self-reporting of data, which brings with it data validity challenges. To help with this challenge, keep your eye on the development of biometric apps over the next couple of years.

**USABILITY**
Early mHealth and telehealth pilots in the industry, such as The Scripps Translational Science Institute, are showing that by and large, we are neglecting the patient experience when it comes to onboarding into these new healthcare everywhere experiences. In order to gain adoption and data validity, we need to ensure that patients are informed along the journey. Cynthia Deyling, MD, Cleveland Clinic says that “some readmissions are clinically appropriate and necessary. Cleveland Clinic, like many other hospitals and health systems, is focused on “reducing preventable readmissions through improved patient education, follow-up, communication and care coordination.”

**INTEGRATION**
Until recently, the telehealth story has largely lived between medical device and integration with EHR. That story is about to get more complicated, which will also create more complex integration and interoperability challenges.

**DATA SECURITY**
As we will discuss, the increased use of mHealth and the Internet of Things require an increased vigilance in cyber security.

The mobile health path before us is both long and varied. But one thing is certain: in order to be truly effective, the mobile health applications of the future must be patient-centric and grow beyond the meaningful use checklist and marketing window dressing we see in current applications.
Success Story

PRESBYTERIAN HEALTHCARE SERVICES

TRANSFORMING THE PATIENT AND MEMBER JOURNEY WITH A PERSONALIZED, DIGITAL EXPERIENCE

Presbyterian Healthcare Services, a private not-for-profit health care system and health care provider, wanted to provide a “One PHS” experience for their patients and members. Perficient is leading the transformation of every facet of the digital channel patient and member experience including responsive websites, mobile applications, health plan shopping tools, and an integrated portal. From UX strategy to platform implementation and integrated experience design, the promise of “One PHS” is becoming a reality.
Success Story

OHIOHEALTH

REIMAGINING THE PATIENT EXPERIENCE WITH A DYNAMIC NEW ONLINE BRAND

OhioHealth, a not-for-profit system of hospitals and providers, was looking to enhance the digital experience for their patients and asked Perficient to lead their digital transformation. We began by helping OhioHealth develop a two-year strategic, digital roadmap and are helping to design and roll out new websites, mobile experiences and enhanced online capabilities. As the lead digital strategy, design, UX and technology partner for OhioHealth’s consumer-facing digital brand, Perficient is helping to transform the patient journey with a connected health experience.
TREND 6

INCREASED OWNERSHIP OF DATA BY PATIENTS
The healthcare industry is guardian of some of the world’s most important data. The patient data guardianship story will get more interesting in 2016 as shifts in power dynamics and healthcare consumer trends make way for the increased ownership of data by patients.

In the wake of Meaningful Use, patients, in theory, have a right to obtain their data. However, a few shifts in the marketplace, including some movements within the legal and regulatory world, are making it clearer that patients should have more access and ownership over their healthcare data.

At the core of this trend is the Affordable Care Act (ACA), which, as it has taken root, caused a shift in power dynamics throughout the industry. Under old paradigms of care, the “power players” were the healthcare providers and health plans and the power players held much sway over the data. However, the ACA is leading to some industry disruption, and healthcare consumers are emerging as power players in their own right.
Healthcare providers know that they need to engage consumers to motivate and incentivize them to manage their wellness instead of their sickness. Health plans know they need to motivate and incentivize cost-savings behaviors. There are a great deal of quality metrics and dollars at stake if the patient does not respond to the call, and this is what, in essence, is shifting the dynamic. In order to answer the call, the healthcare consumer is going to have increasing expectations of their relationship with their healthcare providers and health plans, and expectations for increased ownership over their data.

How do we respond to the new healthcare consumer? We are beginning to see this call for data in action. At the start of 2016, Health and Human Services (HHS) issued new guidelines due to a significant number of complaints received from healthcare consumers who were frustrated throughout the process of exercising their right to obtain their records. These guidelines stated that providers cannot require patients to state a reason for needing their records and they cannot deny access out of general concern that patients might be upset by the information. However, there are more proactive ways to respond that will give the patient population the information it needs to manage its wellness.
At the foundation of answering the call of this trend we find the patient digital experience ripe with consumer-focused health management tools, products, and services. Fortunately, we can glean some interesting insights from a mobile health study designed by New York University and published in the *Journal of Medical Internet Research* in 2015. The study included more than 1,600 mobile phone users, assessed across sociodemographic characteristics, health app use history, reasons for use of health apps, and the status of their overall health. The study found that while mobile health app usage was extensive across the population, there are a vast number of people not engaging with those applications. What was the reason for the decrease in engagement? These apps were not meeting the healthcare consumers’ needs. So what are they looking for? They were looking for their own data.

The study found that these healthcare consumers wanted:

**IMPROVED COMMUNICATION WITH PROVIDERS**
Fifty-seven percent of respondents were interested in apps capable of making an appointment or directly connecting to physicians. More than 60% wanted an app to access their medical records.

**BETTER HEALTH MANAGEMENT TOOLS**
Going beyond the “full access to my health records” study, participants asked for tools that would help them “jot down symptoms that are ailing me….so I could send them to my doctor” and “graphs showing my health as time passes.”
While there is great opportunity when it comes to accommodating the wants of the healthcare consumer, there are also some difficult—but not insurmountable—challenges to consider:

**MAKE AN APPOINTMENT WITH MY DOCTOR**
Doctors use a myriad of systems. Even clinics owned by a hospital use different scheduling systems than acute care hospital settings. This makes creating a digital platform for appointment creation a challenge. While there are a number of third-parties trying to solve this problem, it remains a challenge. However, many healthcare providers are succeeding in creating interim patient journeys that tie a digital “Make an Appointment” form with call center processes that are already in place.

**LOOK AT MY HEALTH OVER TIME**
The challenge here is that the underlying data is not currently captured in such a way as to create these views. In our current state, we often expect patients to be a manual ETL (extract, transform, load) process for their data across systems. While such a feature is not impossible, its solution demands a robust data warehouse or Big Data lake and will require merging records from both hospitals and clinics.

With these data challenges in mind, it is interesting to see the advantages that the unsuspecting health plans have in meeting these consumer data demands. As a central point of access, health plans are the owners of the most complete patient data story. As health plans become increasingly consumer-centric, it is likely they will be the ones more apt to create such data-centric solutions.
Success Story

KAISER PERMANENTE

DIGITALLY TRANSFORMING THE HEALTHCARE EXPERIENCE FOR PATIENTS AND PARTNER COMMUNITIES

Kaiser Permanente is one of the nation’s largest not-for-profit health plans, serving more than nine million members. Perficient helped Kaiser, an integrated managed care consortium, transform the way its members and caregivers seek, receive and pay for care. We were engaged to implement the architecture necessary to enable portal and mobile solutions for patients and partner communities. We built new features and functionality for the portal that include access to medical records, an online pharmacy, appointment scheduler, the ability to interact with providers, an improved shopping experience, and additional self-service functionality. With a streamlined, omni-channel experience, Kaiser’s My Health Manager is enabling and empowering members to access care whenever, wherever and however they want.
TREND 7

REFINING THE PATIENT AS A CONSUMER DATA STORY
If you haven’t noticed by now, 2016 is a year when the patient data story will become increasingly complex. Patient data has been addressed throughout this trends guide:

**INCREASE IN OWNERSHIP OF DATA BY PATIENTS**

**INCREASE IN PATIENT-GENERATED DATA BY WAY OF MOBILE DEVICES**

**CHALLENGES AROUND THE SECURITY OF DATA IN THE GROWING WORLD OF THE INTERNET OF THINGS AND MOBILE HEALTH**

Next, we bring an interesting twist to the patient data story. As investments in quality and population health data have grown, so have our abilities around using those data insights to effect real change. As we are already aware, the benefits around using data to impact health are truly countless. However, as healthcare continues to take cues from the retail industry, we can also expect the use of data as a means to attract loyalty and motivate and incentivize cost-savings behaviors by way of comprehensive data linked to marketing platforms. We first brought this trend to you last year in our white paper, “The Real Retail Strategy for Healthcare.” Here we find this trend in the next leg of its journey.
As discussed in the white paper, a retail tactic that has been largely neglected until now is the use of data insights to motivate and incentivize changes in consumer behavior. We see this in retail each time we swipe our loyalty cards. Healthcare has an extreme advantage over retail. Connected Health solutions are, in and of themselves, streams of valuable information that can be mined and analyzed to achieve strategic aims. Healthcare organizations are recognizing that understanding consumer data is at the heart of driving loyalty and improving consumer health and wellness decision-making. Establishing a single source of truth with consumer data enhances the consumer experience and generates insights to determine the next best patient digital experience. Objectives include:

- UNIFY EXPERIENCES ACROSS ALL TOUCH POINTS
- IDENTIFY AND FOCUS ON IDEAL BEHAVIORS AND USE DATA TO MOTIVATE AND INCENTIVIZE THOSE BEHAVIORS
- TARGET INDIVIDUALS WITH PERSONALIZED OFFERS THROUGH MULTIPLE CHANNELS
- LEVERAGE PREDICTIVE ANALYTICS TO FORECAST AND PREDICT JOURNEYS
- UTILIZE CLOSED-LOOP ANALYSIS AND CONTINUOUS OPTIMIZATION

Health plans, and soon healthcare providers, are realizing that understanding consumer data is at the heart of driving loyalty as well as encouraging healthful and cost-conscious healthcare consumer decision-making.
TREND 8

RETURN IN IMPORTANCE OF THE CLINICIAN EXPERIENCE (MU RELEASE)
The end of Meaningful Use has impacted several trends that we’ll witness in 2016 and beyond. Among these trends are an increased focus on the clinician experience. Andy Slavitt, Acting Administrator at the Centers for Medicare and Medicaid (CMS) announcement was filled with sentiments such as:

“...frustration levels are real. Done poorly, measures are divorced from how physicians practice and add to the cynicism that people who build these programs just don’t get it.”

“...we are committed to building a program that is flexible and adapts around the goals of a provider’s individual practice and population…”

“We need to introduce a new field of practice improvement science and care delivery science. We need to educate in team-based ways, rather than solitary…”

“We need to offer providers the ability to customize their goals so tech companies can build around the individual practice needs…”

What Slavitt is pointing to is something we have come to realize in the wake of Meaningful Use: If we cannot gain provider adoption of a technology, we will not achieve patient adoption either. Developers of technology solutions must understand that it takes more than meeting a list of business requirements (or Meaningful Use requirements) for a solution to succeed. A solution can have every feature we ask it to have, however, the solution is not successful if it fails the user. It is as simple (and as difficult) as that.

IF WE CANNOT GAIN PROVIDER ADOPTION OF A TECHNOLOGY, WE WILL NOT ACHIEVE PATIENT ADOPTION EITHER.
At the center of all Connected Health trends you will find organizations that struggle to provide care and services across care paradigms and organizational silos. For that reason, there will remain great demand within the healthcare enterprise for collaboration tools that can be used to unite communities of clinicians that must work efficiently in an environment where complex tasks meet arduous clinical and business processes. Enter the bedrock of clinician experience: a singular gateway into a clinician’s digital work by way of a habit-forming and user-centric enterprise portal.

In light of the ongoing evolution in clinician experience, enterprise collaboration technologies can be used to help employees interact, form relationships, make decisions, and accomplish synchronized work in real-time. These actions drive innovation and the likelihood for success in the new world of healthcare.

Within the connected enterprise, care and education take on fluid new forms that are not confined to geographic boundaries. At their core, you find a focus on not only business requirements but also the stakeholder communication needs across the organization as well as the clinician experience that will provide a foundation for effective two-way communication across the enterprise.

---

INTERNATIONAL DATA CORPORATION (IDC)

25% of an employee’s time is spent looking for information

\~25% of a knowledge worker’s work day is spent on searching information

50% of searches return useful information

48% of employees use the wrong information to make decisions
Success Story

LARGE MEDICAL CENTER

STANDARDIZING AND IMPROVING COLLABORATION EFFORTS ACROSS THE ORGANIZATION

This medical center had a vision to create a scalable, enterprise-level solution for workgroup collaboration to facilitate document sharing, social feeds, and group/community interaction. We developed a strategic roadmap that included comprehensive communications and ongoing training plans. We also led the planning, design, installation, and configuration of the solution which provides the medical center with the tools necessary to improve workforce collaboration throughout the organization.
TREND 9

INTERNET OF THINGS AND MOBILE HEALTH IMPACT DATA SECURITY
We are increasingly seeing Connected Health trends make friends with technology solutions. Such is the case, for example, with the digitized longitudinal care plan that relies upon both business intelligence and interoperability to, in time, connect the patient to their care plan. However, just as some medications create side effects that require other medications, it is sometimes the case that Connected Health solutions have side effects of their own that require prompt attention. Data security is a side effect of the Internet of Things and mobile health.

First, some definitions:

**MOBILE HEALTH (mHEALTH)**
The use of mobile and wireless devices to improve health outcomes, healthcare services, and health research.

**THE INTERNET OF THINGS (IoT)**
An environment where everyday physical objects are connected to the internet and are able to identify themselves to other devices
Recently, the FBI issued an alert to healthcare organizations specific to the cyber threats that mHealth and IoT presents to the industry. The devices in question include obvious suspects like pacemakers and insulin dispensers, along with some not-so-obvious ones like HVAC remotes and Wi-Fi cameras. The FBI specifically underlined the risk to unprotected devices used for remote patient medication dispensing. Vulnerabilities of these devices include:

- **Exploitation of the Universal Plug-and-Play Protocol to Gain Access to These Devices**
- **Taking Advantage of Default Passwords to Transmit Malicious and Spam Emails or Swipe Personal and Financial Data**
- **Overloading Devices and, Effectively, Rendering Them Inoperable**

As care becomes increasingly digital, healthcare organizations need to create strategies that control how data flows throughout all of the vulnerable IoT gateways. As mobile health platforms continue to be deployed, healthcare organizations need to give ample attention to securing them digitally. This goes beyond mere encryption and towards application hardening and providing clinicians with the training necessary to protect digital device data.

Perficient clients, such as some of the Blues health plans, have undergone complete cyber security reviews. Now is certainly the time to ensure that you understand the security threats of mHealth and the Internet of Things.
TREND 10

HIGH-TOUCH DIGITAL CARE
Over the past year the terms “digital clinic” and “outpatient hospital” have grown in popularity. The momentum around digital therapeutics is taking us towards a future where in the next ten years doctors will be prescribing digital programs to treat depression, insomnia, kidney stones, and lower back pain via a completely immersive digital experience. The CEO of AthenaHealth has even been quoted as saying that “the lion’s share of routine healthcare will be ... managed online. I’m sure of it.”

The growing popularity of Connected Health tells us that care is increasingly occurring outside of the brick and mortar. This offers opportunities to both decrease the cost of care, increase the quality of care, and afford patients the comfort of not having illness completely alter their lifestyle. However, care outside of the brick and mortar brings some obvious challenges.

**HOW DO YOU TAKE AN INDUSTRY THAT, UNTIL RECENTLY, EXISTED LARGELY ON PAPER AND CREATE AN INFRASTRUCTURE THAT OFFERS A GOOD BEDSIDE MANNER REMOTELY? ENTER THE WORLD OF “HIGH-TOUCH DIGITAL.”**
There are many tactics that a health system can employ in order to increase high-touch care by way of digital device. Here are three that can be employed as a low-cost accompaniment to any digital health program:

PHONE THERAPY
We start here in order to demonstrate that high-touch digital care need not be complicated or expensive. Therapies provided over the phone, and also virtual visit by way of the patient portal, allow healthcare providers to treat the anxieties of some of the most vulnerable patient populations. For example, a study conducted by Wake Forest University included 141 people over the age of 60 living in rural counties in North Carolina who were experiencing excessive and uncontrollable worry due to generalized anxiety disorder. The participants had up to 11 phone sessions between January 2011 and October, 2013. Half of them received cognitive behavioral therapy, which focused on the recognition of anxiety symptoms, relaxation techniques, problem solving and other coping techniques. In the other study participants received a less-intensive phone therapy in which mental health professionals provided support for participants to discuss their feelings but offered no suggestions for coping. The researchers found that severity of the symptoms of anxiety and depression decreased in both groups, but the patients receiving cognitive therapy had a significantly higher reduction of symptoms from generalized anxiety disorder and depressive symptoms.

The challenge with phone therapy is that we still face reimbursement barriers in the world of digitized medicine. Medicare has stringent requirements for eligibility for phone therapies. However, this tide will continue to shift as more evidence, such as was found in this study, show that phone therapy provides a good alternative to drugs that are often prescribed for anxiety and depression but can make seniors sleepy and disoriented and lead to injuries.
TEXT MESSAGING PROGRAMS
Text messaging programs have offered an effective means to decrease diabetes patients’ reliance on the emergency department (ED) as a primary method of care, increase maternal health education throughout pregnancy and through to the first year of new life, increase the effectiveness of smoking cessation programs, and significantly reduce readmissions for the “sickest of the sick” post-op heart care patients. More importantly, text messaging programs offer the opportunity to bridge socioeconomic groups, as the wins are even higher among low-income groups.

SOCIAL MEDIA AS A POPULATION HEALTH TOOL
Not long ago you would have been hard-pressed to find healthcare organizations with active social media investments. Times have changed. Social media is now sitting in its rightful place as a population health tool, not just a public relations vehicle. Marshfield Clinic, Forest Health, Cedars Sinai and others have realized that social media can sit at the heart of an organization’s drive towards better population health by converting unknown consumers into patients and using social media as a means to disseminate health education.
At Perficient we are not just technologists, we believe Connected Health can transform healthcare delivery and address inefficiencies in workflow management, chronic disease management and treatment compliance. From reducing the cost of providing quality care to the chronically ill to creating more efficient, convenient, and potentially more cost-effective methods for care delivery, Connected Health solutions at Perficient aim to maximize healthcare resources and provide increased and flexible opportunities for healthcare consumers to engage with their care.

Our core Connected Health solutions:

**DIGITAL STRATEGY**

**PATIENT/MEMBER/ENTERPRISE PORTALS**

**WEB CONTENT MANAGEMENT**

**MOBILE HEALTH & TELEHEALTH**

**SOCIAL MEDIA & ENTERPRISE SOCIAL**

**MARKET INTELLIGENCE**

WANT TO LEARN MORE?

Contact Jessica Knowles, jessica.knowles@perficient.com to set up a meeting with one of our Connected Health strategists.
ABOUT THE AUTHOR

MELODY SMITH JONES
Manager, Connected Health, Perficient
Melody Smith Jones leads Connected Health solutions for Perficient. She has more than 13 years of experience integrating technology solutions into marketing and loyalty strategies, and has specialized knowledge in the implementation of collaborative technologies, business intelligence, and CRM. Melody has an MBA from Xavier University in Business Intelligence and Marketing.

ADDITIONAL GUIDES

You may also be interested in our 7 Features of a Market-Driven Patient Portal guide. In this guide, we identify seven features that move beyond the Meaningful Use checklist and can transform your patient portal into a powerful engagement tool.
END-TO-END IS JUST THE BEGINNING

Our digital agency is purpose-built to help companies who believe customer experience is the defining strategic imperative of our day. We dream big, build beautiful, measure confidently, and optimize obsessively.
ABOUT PERFICIENT

Perficient is the leading digital transformation consulting firm serving Global 2000® and enterprise customers throughout North America. With unparalleled information technology, management consulting and creative capabilities, Perficient and its Perficient Digital agency deliver vision, execution and value with outstanding digital experience, business optimization and industry solutions.

PERFICIENT.COM/BLOGS
TWITTER.COM/PERFICIENT
FACEBOOK.COM/PERFICIENT
PERFICIENT.COM/GUIDES