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Health & Life Sciences

THE PATIENT-TO-CONSUMER REVOLUTION

HOW HIGH TECH, TRANSPARENT MARKETPLACES, AND CONSUMER POWER ARE TRANSFORMING U.S. HEALTHCARE

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HEALTHCARE'S TURN

> About 40 percent of the $3 trillion the United States spends on healthcare each year could have been avoided.

These days, the surest sign that an industry is about to undergo wrenching change is a sudden influx of tech entrepreneurs backed by venture-capital investment. Travel, retail, journalism, and media have all been the target of their own tech attacks in recent years. The process has created immense value for consumers but has been brutally hard on the companies that traditionally dominated those sectors—at least those that failed to respond quickly and well.

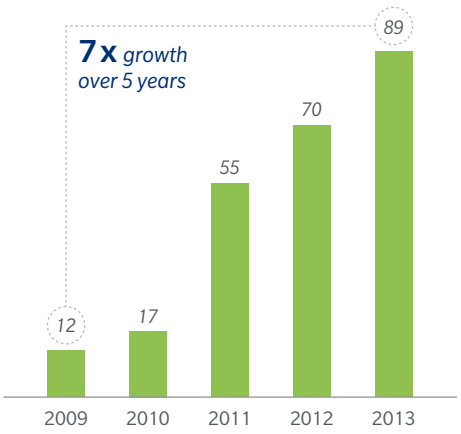
For decades healthcare has largely been exempt, despite serious runs by market leaders in financial services, consumer technology, software, and beyond. But it now seems this vital industry's turn has come at last. Over the past five years, tech startups and VCs have been targeting health and healthcare at a rapidly accelerating pace, urged on by regulatory reform, a crisis in costs, and value-starved consumers. While perhaps not highly visible (yet), the tech sector has been quietly working on the next generation of our healthcare market: Health Market 2.0.

Why wouldn't they? Healthcare providers and insurers in the U.S. may be efficient and effective in their individual roles, but the system as a whole, hamstrung by regulation and dysfunctional fee-for-service economics, is not. By most estimates, about 40 percent of the $3 trillion the U.S. spends on healthcare each year could have been avoided. That represents an enormous pot of potential profits for companies that successfully disrupt the system. The U.S. may not deserve to be ranked dead last in healthcare compared to our peer nations, as it was in a recent report from Commonwealth Fund. But considering that most of those peers spend less than half what we do, there are clearly issues of value. And in a time of rising consumer expectations, the user experience of healthcare is falling behind. Particularly when compared to Uber for personal transport, Amazon for shopping, or Open Table for picking a restaurant and making a reservation. In healthcare, nearly everything is inconvenient, slow, confusing, and opaque. It is hard to determine which doctor to see and even harder to know if they are following evidence based guidelines, taking a holistic approach to medicine, or are priced in line with the market.

And so the tech entrepreneurs are doing what they do best, redefining the rules and tipping value their way, creating magnetic new products and services that eliminate hassles and delight consumers. Some provide general health information (such as Greatist or WebMD), help consumers prepare healthy meals (Zipongo), or even provide live, video-based personal training sessions (Wello). Others drive personalized engagement by aligning consumer actions and behaviors with incentives and rewards (Welltok), offer primary care based on a whole new model (Iora Health), or enable consumers to find doctors, make appointments, and identify low-cost opportunities (Castlight and ZocDoc).

And of course there are the apps for smartphones and tablets, tens of thousands of them, to count your steps, track your blood sugar, connect you to a community of patients with similar concerns, provide health

HEALTHCARE SOFTWARE AND APPS COMPANIES EARLY STAGE FUNDING
NUMBER OF ROUNDS OVER $2 MILLION IN VALUE, 2009-2013



Source: Oliver Wyman analysis

information, or let you compete with your friends on who burns the most calories.

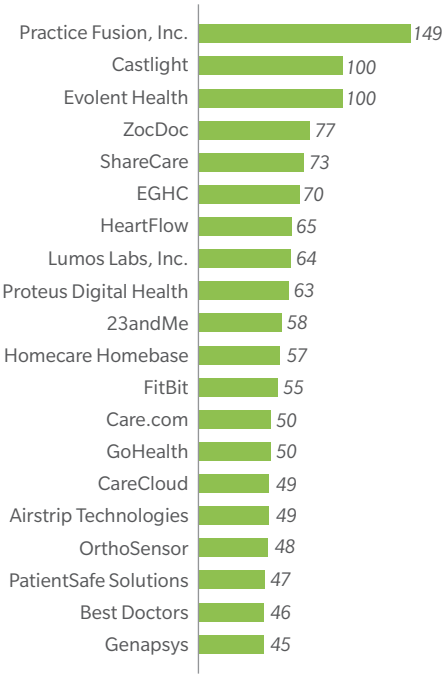
Consumers have responded. WebMD attracts 180 million unique visitors each month to its network of websites. Jawbone's Up band, one of the leaders in fitness tracking, recently registered its trillionth step. There are between 50,000 and 100,000 health and fitness apps, mostly monitoring for exercise and eating, some tied to wearable sensors or biometric devices. According to the research firm Research2Guidance, the top 10 health and fitness apps generate up to 4 million free and 300,000 paid downloads each day. The top-ranked, MyFitnessPal, says it has more than 40 million registered users.

And where there is accelerating consumer demand, there is investment. In 2010, the year the Affordable Care Act was signed into law, only 17 healthcare-focused software companies attracted seed or Series A investments of $2 million or more. In 2013 the number was 89, and according to Rock Health, total VC investment in digital health was just under $2 billion, doubling the figure from just two years before.

Just as important as venture capital are the investments incumbent technology firms are plowing into health-related projects. Google, in addition to developing a "smart" contact lens that measures blood glucose levels, funding 23andMe, and launching Calico, a biotech R&D company, has invested in a dozen health, wellness, and life-science startups through Google Ventures. More important, it has hired two world class leaders: Arthur Levinson, chairman of Apple and Genentech, to head Calico and Ray Kurzweil to develop cognitive computing to compete with IBM's Watson technology. IBM recently announced it would invest $1 billion into the new Watson Group, including $100 million toward venture investments to support start-ups who are building cognitive apps through the Watson Developer Cloud. In early 2014, Intel bought Basis, a health-related smartwatch company, for somewhere between $100 million and $150 million. Samsung has introduced Simband, an open hardware reference design intended to encourage third parties to develop smartwatches with advanced biosensors. WebMD launched a new program in its iOS app Health Target that integrates not just activity from a Fitbit or Jawbone UP band but also data from health devices essential to those with chronic diseases (e.g. glucometers and wireless scales). And then there's Apple, which made a series of announcements in September 2014 positioning the company to broadly expand their consumer relationships into health. The much-anticipated Apple Watch provides both a real time and longitudinal view to physical activity. One Morgan Stanley analyst predicts when it arrives in early 2015, it will outperform the iPad, generating sales of $17.5 billion in its first year.

All in all, the past two or three years have seen an outpouring of innovation and investment in health and healthcare that is simply remarkable, and all the more so for its pace—easily ten times faster than anything healthcare

DIGITAL HEALTH COMPANIES BY FUNDING RAISED SINCE 2011
IN $ MILLIONS



Source: Rock Health

has seen before. If this tech attack results in nothing more than a stream of useful products and services to enhance health and remove a few of the consumer hassles, it would be a notable step forward.

But in fact the tech attack is far more. It is both the symptom and driver of a much larger and more significant change sweeping through U.S. healthcare. The consumer tech companies are making valuable contributions, but they are making them in the context of a fundamental redrawing of industry lines that puts the consumer in charge and sets the foundation for Health Market 2.0. The tech entrepreneur developing a new app may not realize it, but he is helping to create the infrastructure of a new, more powerful way of delivering healthcare. The consumer who loads it on her smartphone just because it's cool is contributing in a tiny way to a cultural shift that is changing the way we think about health.

As Health Market 1.0 gives way to Health Market 2.0, we expect to see an industry dramatically different from today's: 24/7, convenient, enhanced by technology, holistic and personalized, with prediction and prevention making us much less reliant on cures. We will use hospitals less, clinics and telehealth more. The line that has long separated healthcare from retail will be more and more difficult to see as retailers, wellness coaches, pharmacies, tech companies, and others start to play a far more significant role in keeping us well—and, in the process, capture a trillion dollars or so of annual healthcare expenditures.

The creation of a new model of health and healthcare is the greatest single business opportunity of our lifetimes, and we expect it to be accompanied by profound and lasting cultural change. In this paper, we will paint a fuller picture of the new consumer-driven Health Market 2.0. We will describe the Patient-to-Consumer Revolution we see taking place today. And we will point out some of the threats and opportunities awaiting those who wish to (or must) participate in it.

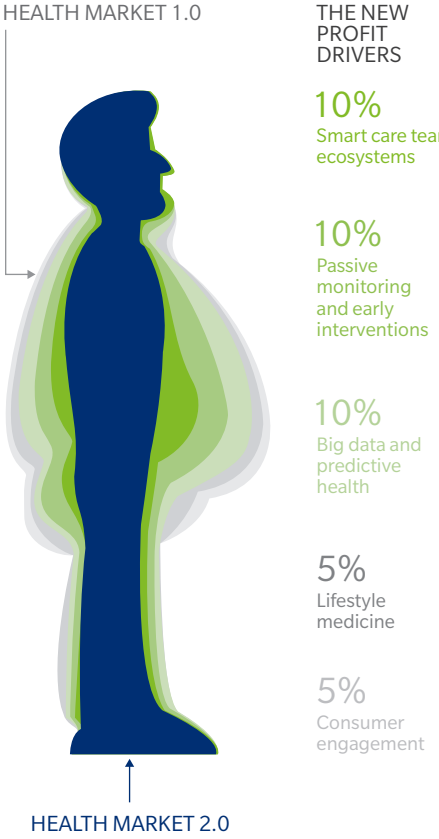
THE ELEMENTS OF HEALTH MARKET 2.0

For many people, the word "consumer" sounds out of place in a discussion of healthcare. And indeed some of the woes of our system arise precisely from our (mostly ineffective) effort to keep commerce away from medicine. We thought we were protecting the autonomy of physicians, but inadvertently we created a system that rewards waste and failure and makes it difficult to deliver optimal care.

We need to flip that around and create a healthcare market that rewards success and penalizes failure, where no one benefits unless the patient does, and in which competition leads to falling costs and rising quality. That is not just a business aspiration but a cultural and ethical one as well, and it recognizes both the ambitions of healthcare professionals and the centrality of health in all of our lives.

We'll talk extensively about what that entails. But first, let us think about our starting point—healthcare today. Meet today's patient, Fred 1.0.

UNDERSTANDING THE NEW PROFIT LEVERS THAT UNDERLIE POPULATION HEALTH MANAGEMENT AND SMART CARE TEAM ECOSYSTEMS
THE 40 PERCENT OPPORTUNITY



Source: Oliver Wyman analysis

My name is Fred. I overheard my doctor call me a HONDA—a hypertensive, obese, non-compliant, diabetic adult—and I guess I am. Most days I feel lonely. I'm embarrassed by my weight and physical appearance and angry about my diabetes. I hate to admit I even have the disease. I know I would feel better if I took better care of myself, but I hate sticking my finger to check my blood sugar and never really understood what I'm supposed to do with the information anyway.

For a few weeks, I haven't been able to sleep well because my feet burn at night. I read online that I might have a circulation problem or something called neuropathy, so I finally made a doctor's appointment. It took a while to get in to see him, and when I did I never really got a chance to talk about the burning.

I registered in the office and waited with the other patients until my name was called. I went into a cold exam room, where I undressed, got weighed, had my blood pressure taken—and sat feeling embarrassed in my paper gown. I hated it. I think the nurse was judging me. After about 20 minutes my doctor came in, said hello, and started reading my chart, barely looking at me. I started to tell him about the numbness, but he interrupted me and talked about my blood pressure. I think he was mostly worried about my circulation.

There's so much I want to tell him—that I'm depressed, lonely, unable to change. I never feel healthy. I worry that I'll die young. I wish I had the energy to play with my grandkids. I don't know how to tell him.

"Fred the burning sensation in your feet is because of poor circulation. We are going to increase your BP meds and that should resolve the problem. If you have more symptoms just come back in for a visit." He turns and walks out.

I get dressed, feeling relieved about fixing the burning sensation in my feet, but knowing deep down my doctor barely scratched the surface and that I would be back to see him or have a trip to emergency room very soon.

While driving to the pharmacy to pick up my meds I felt depressed, alone, and a little scared. And I wondered about the irony of my doctor thinking he had a near perfect visit with me, solving my immediate problem while not even considering the train wreck that I worried was about to occur.

To a traditional healthcare provider, Fred 1.0 is a reliable revenue stream who bounces in and out of the health system every time he has a diabetic "flare-up" or related problem. He costs the system nearly $25,000 a year, and no one is happy about him: not his employer or his insurance company, not his doctor, definitely not Fred himself. If someone could help Fred live better and be healthier, he would be happier, and his care would cost less than $10,000 a year. The $15,000 difference between those figures—the price of a few visits to the emergency department (ED)—is the basis of a new profit model.

There are a lot of Freds out there. It's estimated that patients like him make up 15 percent of the population and generate 60 percent of total healthcare costs: There are Freds with diabetes, Freds with chronic obstructive pulmonary disease or asthma, Freds with cardiac disease, Freds with all of these conditions. If we did nothing more than keep them out of EDs and hospitals, the potential savings—and the potential for investment and profit—would be enormous.

"There are a lot of Freds out there. It's estimated that patients like him make up 15 percent of the population and generate 60 percent of total healthcare costs."

But if $10,000 is a reasonable price for keeping Fred engaged and healthy, what's the best way to spend it? What combination of traditional medicine, biometric monitoring, coaching, nutrition, medication management, and early intervention programs will produce the best results? And what kind of healthcare system do we need to deliver it?

Part of the answer lies within the proven healthcare innovation of the past decade: The patient-centered medical home (PCMH) model has been successfully tested with many different populations; nearly 30,000 clinicians work in more than 6,000 practices recognized as PCMHs. Medicare Advantage, whose acuity-adjusted fixed payments to private insurers sparked some of the more successful population health managers over the last decade, enrolls almost 16 million Medicare beneficiaries (30 percent of the total) through private insurers—up from 10.5 million in 2009. The number of accountable care organizations (ACOs) have grown from 32 "pioneers" in 2011 to more than 500. More than two-thirds of Americans live in a primary care service area served by at least one ACO, and 40 percent in a community with two or more.

These developments in population health management are important. They take away some of the pressure providers feel to constantly increase the volume of services they deliver, and they better align the interests of patients and physicians. In some cases, though arguably not enough, they have enabled significant steps toward better coordination of care. We have seen numerous examples that persuade us that value-based healthcare can cut the cost of care by about 20 percent while improving quality and patient satisfaction. But just as important, these developments lay the foundation for ongoing competition based on cost and quality of care, which will ultimately lead to further improvements.

A 20 percent improvement in costs would be a major social good. But is it the best we can hope for? Increasingly, innovative healthcare leaders tell us they've raised their sights. They see a path that leads to value improvements more on the order of 40 percent—with further improvements in quality and outcomes. The more we study the data they are looking at, the more we are persuaded they are right.

Health Market 2.0 is well underway and holds the promise of 40 percent better and ten more good years of living. But to achieve these ambitious and highly desirable goals, we need some new resources: the resources of Health Market 2.0.

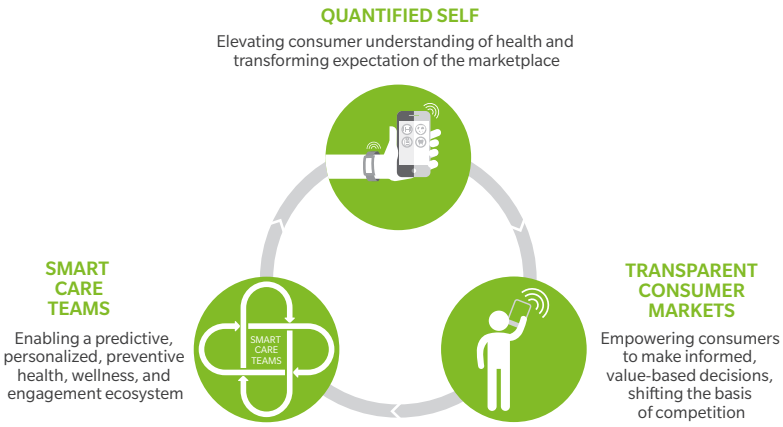
FROM SUPPLY TO DEMAND

Why have tech attacks been so irresistible in so many industries? There are many reasons: Tech companies move blazingly fast and have learned the skill of failing quickly and moving forward. Their innovations tend to produce value disproportionate to the investment they require. (The newspaper needs printing presses and trucks; the online news site needs a data line.) They exploit a commodity we now have in bounteous supply—information. They are not just global in outlook, but nearly geography-free. But perhaps most important of all, at least in the instances we've seen so far, they don't just fulfill needs, they create demand. Only a few years ago, who would have thought to want to carry a whole music collection in a pocket-sized device, or access data from multiple gadgets anywhere in the world, or send a photo to hundreds of friends instantly? If consumers can do all of those things today, it is largely because tech companies taught them to want to.

Demand creation reshapes industries, which is why we look to the healthcare tech attack as the driving force behind the creation of Health Market 2.0. Healthcare has long been a supply-oriented industry, in which consumers are driven to scarce resources by disease and injury—conditions they feel they don't control. To the extent that they make choices, they are working within provider networks defined for them by health plans, and they have little or no information about cost and quality. In Health Market 2.0, they will pursue perceived value, seeking resources that will give them control over their own health.

We see the new market emerging in the form of three distinct movements, each well under way and each being enabled and accelerated by the tech attack:

HEALTH MARKET 2.0: AN INTEGRATED, POWERFUL, VIRTUAL CYCLE OF INNOVATION



> That consumers carry their entire music collection in their pockets or access their data across multiple devices or share photos instantly is largely because tech companies taught them to want to.

The **quantified self** movement will raise consumers' understanding of their health status in real time, aided by the growing availability of personalized apps, wearable sensors, and social networks that encourage "life logging" and behavior change. It will also create context, rewards, and relevance for how consumers shop, help shift social/cultural values, and give smart care teams the tools to take personalization to the next level. The old entitlement mindset of "I'm broken, fix me" is giving way to "I want to stay out of trouble"—by changing lifestyle and behavior for the better. Numerous tech watchers have proclaimed 2014 "the year the 'quantified self' goes mainstream" (although that is more Silicon Valley's perspective than healthcare's). Apple CEO Tim Cook predicts that the "whole sensor field is going to explode."[1]

Transparent consumer markets will shift the basis of competition from reputation and referrals to price, value, and outcomes—while leveling the playing field through crowd sourcing. Amazon-style public and private exchanges, along with shopping tools like Castlight and ZocDoc, are already sparking consumer choice for healthcare providers. Retail clinics and "focused factories" are redefining how consumers shop for and access health services, and where they spend their dollars. Social networks and crowd-sourcing tools connect consumers to a wealth of new information validated by "the crowd." With real-time quantified-self data and competitive exchanges, consumers are building personal markets and making multiple in-year healthcare decisions, far beyond the annual choice for a health plan. Retail marketplaces are moving healthcare away from B2B and toward B2C. High-value, smart care teams will be rewarded, and first-generation ACOs and PCMHs will be forced to innovate.

Smart care teams will create a new model for delivering healthcare. Their focus will be helping consumers to stay healthy and avoid expensive hospitalization and sick-care interventions. Their toolkit will include big data, predictive modeling, personalized evidence-based medicine (EBM), and real-time biometric and clinical feedback. They will deliver care, advice, education, and coaching with teams consisting not just of physicians and nurses but an array of supporting professionals, all trained in how to motivate consumers to stay healthy. The data, models, and analytics the smart care approach requires are well beyond the resources of a single practitioner or even a PCMH-style care team, so we expect that this is a model that will have to be practiced at a larger-than-traditional scale.

Together, these three movements create a virtuous cycle. An innovation that builds value in one will tend to build value in the others. If a Fitbit or Jawbone UP band alone creates value, a mobile app that automatically tracks your progress adds more value. Make your personal scorecard available to a social community and your health engagement jumps up a level—providing more value. Take your health and wellness data and implant it in a transparent marketplace that lets you choose the payer and

1 P. Elmer DeWitt, "Apple's iWatch: The killer apps may be in hospitals, not health clubs," Fortune, Feb. 3, 2014.

a smart care team best suited to track your condition, motivate healthy behavior, prevent acute events, identify risks, and generate strategies for more problem-free years. The interconnected and real-time nature of these movements continuously encourage innovation, change the basis of competition, and contribute to better, higher value results.

With that in mind, let's look at the three tech-enabled transformational movements in more detail.

THE QUANTIFIED SELF

CHANGING THE CONVERSATION—AND BEHAVIOR

Consumers have long tracked activities relevant to their health, keeping diaries and logs of exercise, calories, and the like. But over the past few years, the "quantified self" movement has taken the practice to a new level, using electronic sensors to track a variety of metrics that can then be digitally processed, interpreted, and shared in databases with other people's information. The popular devices created by Fitbit and Jawbone let us track steps, activity, and sleep. Soon though, we will also be able to track metrics on calories consumed and burned, blood pressure, glucose, oxygen levels, heart rate, and cholesterol. Consumers at last will have access to a set of relevant numbers regarding their health, just as they have had numbers to track their finances.

Already 95 million Americans are using mobile phones for health information, according to Manhattan Research. Most are tracking a single health indicator, such as weight, diet, exercise routine, or symptoms. Consumer tools such as Greatist (general health information), Zipongo (nutrition), and Wello (fitness) allow consumers different entry points to improve their "health IQ"—and resources to help change long-term behavior.

Consumers have never had access to this kind of data before. Neither, for that matter, have their doctors (except in the ED or ICU). Physicians tend to look at electronic health records (EHRs) only when patients are symptomatic—a few times a year (or decade)—and the records are mostly limited to clinical information. But we're approaching a time when the EHR will incorporate real-time data on multiple metrics, and the conversation between doctor and patient will have the intensity of an ICU consultation, but backed by insight gleaned from the patient's daily living information.

It makes eminent sense that a population health manager like Iora Health would support and pay for predictive, preventative, personalized, real-time engagement that could help consumers live without many acute health events. Already, companies from BP to San Francisco startups are giving their employees Fitbits to track exercise and sleep, figuring

that knowledge is power and can help to reduce healthcare spend while increasing productivity.

The quantified-self movement will set the stage for long-term behavior change by engaging consumers and activating social networks. By encouraging the silicon players, retailers, and consumer-health companies to enter the market, the movement will catalyze the rise of a consumer market, tipping it from supply to demand, from wholesale to retail. And once consumers have experienced health and wellness in a connected, social/mobile, 24/7 retail setting, they will inevitably come away with higher expectations for service, access, personalization, and speed from their care teams.

> “Could a company like Apple persuade a substantial number of consumers to open up their medical records, share their biometric data, and treat their iPhones as their main point of contact with care, then persuade them it’s fun and cool?”

Group engagement through social and family networks will further fuel long-term behavior change. Imagine Fred’s 25-year-old son connecting his dad to a Fitbit and encouraging a friendly competition. As the wellness conversation expands to new demographics—far beyond the barriers of the sick-care system—the ecosystem for diet and exercise will spread beyond the Whole Foods aficionados and exercise fiends who have been the early adopters of wellness information and products.

Finally, imagine the impact when trillions of personal data points are connected to a big-data analytical engine that can perceive patterns and dispense advice. Consumers will soon have access to IBM’s Watson computing system for personalized advice on health and wellness. Welltok’s integrated CaféWell platform connects health plan members to a wide range of health improvement programs, devices, health and lifestyle information, and applications in a single consumer interface. With its Watson partnership, it is creating “CaféWell Concierge,” delivering a uniquely personalized experience and advice based on the information gathered by Welltok and processed by Watson’s big data computing capability.

Greater awareness based on real-time metrics, of course, is just the first step toward better health. Long-term behavior change requires social support, coaches, and tangible rewards. And that is the emerging health and wellness market. “We’re creating personalized health itineraries, aligning actions and behaviors with incentives and rewards,” says Jeff Margolis, CEO of Welltok. “Devices, apps, wellness programs, condition management, content and social networks are all part of the new benefits stack, and the data from consumer activities is a rich new source of analytical data for population managers.”

This convergence of big data and consumer social data—or whole population data and individual data—suggests how the supply side and smart care teams will be able to radically improve prevention and care in Health Market 2.0, in addition to providing another pathway to higher consumer expectations.

"What if the more important market—the one that's ripe for disruption and big enough to warrant Apple's attention—is people for whom things like pulse oximetry are a matter of life and death?" asks Philip Elmer-DeWitt, long-time Apple watcher and online columnist for *Fortune*. He goes on to add, "Real-time triage. Long-term observation. Correlation with hospital records. With the baby-boom generation about to move en masse into government-subsidized health insurance programs, nursing homes, and hospice care, those are serious growth markets. If a generation of young, healthy joggers could be trained to watch for trouble signs before—not after—they get sick, we'd all be better off."

And remember, many life-preserving and life-enhancing activities don't actually require the intervention of doctors. Could a company like Apple persuade a substantial number of consumers to open up their medical records, share their biometric data, and treat their iPhones as their main point of contact with care, then it persuade them it's fun and cool? In many ways that sounds like Health Market 2.0 in a nutshell. In a few years, consumers will look back and realize how antiquated the medical system used to be: Measure a handful of numbers (HDL, LDL, triglycerides, glucose, A1c) every 12 to 18 months, hear a few admonitions about diet and exercise, and forget them without any follow-up or coaching. Is that really how we did things? Why didn't we think to demand more?

TRANSPARENT CONSUMER MARKETS

PERSONALIZED, DIGITAL, RETAIL

Until recently, consumers had almost no ability—and little incentive—to shop for healthcare on value. Most were passive, unaware, with a sense of hopeful entitlement—"when I'm broken, fix me." Employers bought their insurance with tax-free dollars. Pricing was opaque and seemingly random, with prices for the same procedure within the same zip code varying by as much as a factor of ten. And it didn't matter, because insurers usually paid up.

Over the last 15 years, however, more and more consumers have been pushed to take a more active role in shopping for care. In some cases, it's because their employers have shifted a larger share of the cost of care onto them through increased deductibles or co-payments. In other cases, they are insured through consumer-directed health plans and need to decide how they will allocate their own healthcare dollars. Public and private exchanges, of course, encourage customers to make tradeoffs between cost and coverage. And thanks to government transparency requirements and the emergence of companies like Castlight that offer transparency as a service, it is increasingly possible to make meaningful distinctions between in-network providers.

> The consumer-driven health market will change how providers compete and will fundamentally disrupt health plans. Neither wins unless the consumer does.

One goal of price transparency is to help drive down costs. And there is some evidence that under the right circumstances this can happen even today. In California, for instance, the California Public Employees Retirement System (CalPERS) set a $30,000 reference price for joint-replacement surgery. Members could have their surgery where they chose, but they were responsible for any additional charges. The next year, prices charged to CalPERS for joint-replacement surgery declined by 26 percent, as hospitals above the $30,000 price point began to move prices down. We expect to see similar events elsewhere, especially as pricing information starts to become available in a form consumers can actually use and compare, unlike today's system, in which information about a simple procedure such as a colonoscopy may contain eight or ten separate procedure codes with eight or ten separate prices.

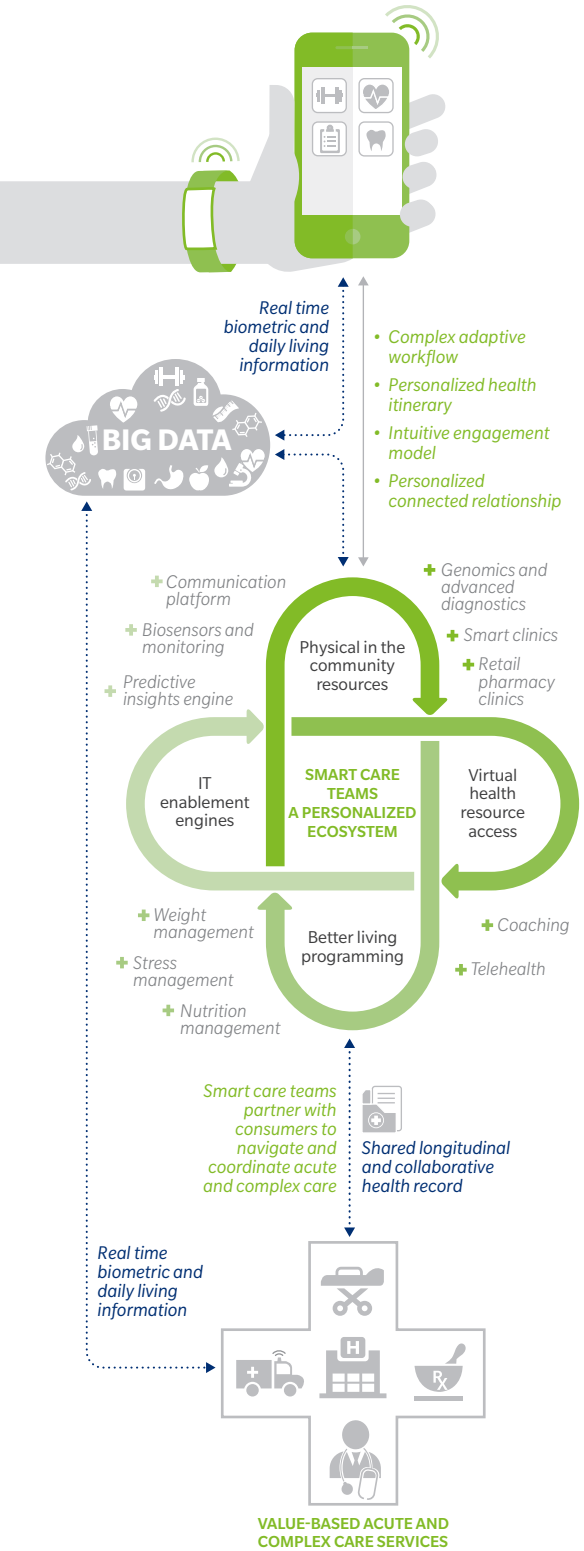
If transparency did nothing more than rationalize prices for surgical and diagnostic procedures, it would generate enormous savings. Procedures account for about 30 percent of healthcare delivery costs, and our study of 10 different procedural categories indicates that if all prices for a range of basic procedures were capped at the median, overall savings in the procedural market would be in the 18 to 27 percent range, while any one individual can find savings up to 90 percent.

The path ahead is clear: Price-takers will morph into price-seekers, then value seekers. A seller's market will become a buyer's market. But the change will not stop there. Price/value transparency in healthcare should also lead to consumers being able to create personalized markets.

In Health Market 2.0 consumers will no longer be restricted to one-size-fits-all solutions—designating a deductible level and then selecting plan designs and provider networks. Instead, they will personalize their health benefits at the time of enrollment, using apps to optimize choices between benefit plans and health delivery models, and making tradeoffs between engagement commitments, risk preferences, and the realities of the household budget.

During the plan year, consumers will be able to shop initially for convenient care as well as diagnostic and procedural services based on price, quality, access, and service (with crowd-sourced input). Eventually this level of comparison will be applied to more acute and condition-based care. By making more economical purchase decisions they will earn rewards that will help "stretch" their healthcare dollars. Additional discounts and rewards will be offered for engagement—walking 7,500 steps per day or keeping glucose levels in range, for example. In Health Market 2.0 consumers will shop for health and wellness services with four interchangeable sources: benefits, flex dollars, rewards, and cash/debt.

The consumer-driven health market will change how providers compete. No longer can providers win through smart contracting or the age-old referral network. Now they can only win when the consumer wins too. Health plans will be disrupted as well. No longer will they arbitrage the provider price/



contracting spread. Instead they will share value with consumers via the shopping market. Even more significant, consumer rewards for better living will begin to erode the long-standing underwriting and risk profit engine.

Transparent markets, in combination with quantified self, will truly tip the market from supply to demand. Quantified self will heighten consumer awareness and expectations, while transparent markets will enable consumers to shop on value leveraging crowd sourcing, and earn rewards for smart decisions. Together transparent markets and quantified self will change the basis of competition for providers (accelerating the rise of smart care teams). Health plans then will either enable transparent consumer shopping—the new PPO—or be by-passed by a consumer tech company that will.

SMART CARE TEAMS

CARE DESIGNED AROUND THE CONSUMER

Smart care teams are "smart" because they no longer react but prevent and predict. Infused in their approach is extensive use of information and insights—specifically big data, predictive models, real time daily living and clinical data—all backed by adaptive work flow within a coordinated ecosystem. And, while PCMHs are designed around the patient; next-generation smart care teams are designed around the consumer. Given relatively few organizations have fully realized the benefits of becoming PCMHs yet, we believe the smart care teams will overtake them. Indeed, if a healthcare provider hasn't yet begun its transformation to value-based healthcare, we encourage them to skip directly to the smart care team model.

Over the next five years, we expect smart care teams to evolve into sophisticated information businesses, using configurable resource models to adapt to a wide range of patient needs. They will still rely on physicians but will leverage them in a more effective way as architects and expert resources; where today a physician-to-patient ratio of 1 to 2,000 is common, in a smart care team, 1 to 6,000 will be more the norm, and in doing so helping to resolve the PCP shortage. That doesn't mean less contact for patients, because the team will be filled out with physician assistants, nurses, social workers, coaches, and more, all of them empowered to act. Because the organizations will operate as risk-based population health managers, they will focus intently on matching each patient to the most appropriate health itinerary and the optimal level of care team support. Workflow will be designed to flex around the patient's needs. For example, at Cornerstone, a 375-doctor group in North Carolina that has shifted from volume-to-value healthcare, patients are risk-stratified into categories—such as healthy

ALIGNING POPULATION SEGMENTS TO SPECIALIZED SMART CARE TEAMS

Generally healthy

- Affordable acute care options
- Rewards and incentives
- Social/mobile health tracking tools

Chronic with social needs

- Caseworker embedded in care team
- Dedicated coach focused on nutritional and mental health needs
- Personalized pharmacy support

Early chronic at-risk

- Dedicated health coach focused on fitness and nutrition
- Attention to behavioral health
- Rewards for meeting health goals

Poly-chronic/complex

- Dedicated "Extensivists"
- Remote monitoring
- Specialty clinics
- Integrated behavioral health
- Personalized pharmacy support

Severe behavioral

- Dedicated psychiatric NPs/MDs
- Bio-monitoring of Rx adherence
- Dedicated social worker, pharmacist, and PCP

End of life

- Palliative care experts
- Support for caregivers
- Hospice centers
- Legal/financial advisors for family

adults, healthy adults with risk factors, adults with early chronic conditions, and adults with complex chronic conditions. Care models are optimized by patient segment and the specific condition, such as congestive heart failure or cancer.

Smart care teams will extend their reach, capacity, and convenience by partnering with an array of brick-and-mortar and virtual providers to create a care ecosystem (as the recent Rite Aid and Cornerstone partnership exemplifies). Retail pharmacy clinics, using nurse practitioners and low-cost point-of-care diagnostics, will be a smart choice for diagnosis and treatment of simple conditions such as strep, sinusitis, and ear infections. Smart care teams are already integrating telehealth consultations into their workflow and will contract with telemedicine kiosks like HealthSpot. The ecosystem approach—easy access, multi-skilled team, virtual—enables smart care teams to move beyond responsive sick care to focus on proactive whole person care, including diet, engagement, social context, and motivation. And as the explosion of wearable health-tech goes mainstream, smart care teams will integrate the remote monitoring and real-time feedback in a way that enables a step-change advancement in connection, personalization, prediction, and prevention.

Thanks to improved predictive modeling and big data, smart care teams will be able to create highly personalized care plans for individuals. And because all members of the care team will be connected by a seamless network, it will be possible to deliver this care with great consistency, even when, for instance, part is delivered through a PCMH care setting, part in a series of clinics, and part through telehealth. With biometric monitoring, mobile apps, and coaching, it will be possible to largely eliminate avoidable acute disease manifestations and to replace expensive ED visits with low-cost early interventions. With better processes and technology, prevention will become increasingly effective, decreasing unnecessary utilization. Over a lifetime, the integration of wellness, prevention, nutrition, and mental health will improve the consumer's trajectory of health by reducing known risk factors like obesity, high blood pressure, depression, alcohol dependence, and loss of social relevance. Smart care teams can slow the gradual downward spiral as people age.

Today's innovative PCMHs have shown they can drive the cost of care delivery from a dollar to 80 cents with improved care delivery across a population. We believe the early adopters are correct: Next-generation smart care teams will soon deliver a dollar's worth of care for 70 or even 60 cents by expanding their focus to encompass lifetime wellness and prevention for an entire population—and helping the healthy to remain so for as long as possible.

BLURRING THE LINES

We describe Health Market 2.0 as a health market rather than a healthcare market for a very important reason. As consumers take more control over their health, and as technology builds linkages between everyday life and medical advice and care, the boundaries that have traditionally walled off healthcare from the rest of the economy will blur. Certainly, there will continue to be licensed physicians delivering care—though in many cases different sorts of care, and delivered with the help of a team rather than personally by the physicians. There will be hospitals—though perhaps not as many of them. But there will be many activities and services that will be hard to classify as healthcare or not healthcare. For instance, a consumer buying a pedometer is making a fitness or lifestyle choice. But if the data it produces feeds into an electronic medical record system and is used in predictive modeling, monitoring, and health planning, it becomes a part of healthcare. Buying groceries is a private decision, but if it is an integral part of managing blood sugar levels or key to a weight loss program, and you share the information with your smart care team—and if good choices earn you rewards—the lines begin to blur.

“Health Market 2.0 will be a space where new kinds of companies offer combinations of services we have not seen before, redrawing industry lines and engaging consumers in new ways.”

Think of our noncompliant diabetic, Fred. A traditional health plan would be unwilling to pay for wellness services, medication management, social engagement, coaching, or guidance on better meals for him. But it is exactly services like this that potentially reduce the cost of treating him from $25,000 a year to $10,000 a year. That kind of spread makes it easy for the population health manager or smart care team to invest, say, $2,000 of the $10,000 in keeping Fred well. Moreover, Fred will have value-based benefits. If he uses a social/mobile app to improve control of his blood sugar, lose 25 pounds, or lower his lipid levels by eating better (using consumer dollars), he may get his insulin for free or get a lower renewal rate or just earn coupons at Whole Foods—again blurring the lines between Fred as patient and Fred as consumer.

In recent years across other industries, we have seen the power of convergence in supporting innovation and value creation. Perhaps the most famous example is the way Apple wove together consumer electronics, telecommunications, music, and publishing to create a seamless whole experience. Something similar is beginning to happen in healthcare as traditional and new players work out new ways to combine healthcare, wellness, retail, technology, and employee benefits. Health Market 2.0 will not just be about new ways to shop for traditional services. It will also be a space where new kinds of companies offer combinations of services we have not seen before, redrawing industry lines and engaging consumers in new ways.

BUILDING NATIONAL BRANDS

TIPPING THE BALANCE FROM SUPPLY TO DEMAND

The cornerstone of traditional medicine is the idea that all healthcare is local. Certainly that was once largely true. But is it anymore? We know the tech attack on healthcare recognizes no geographic boundaries, and most consumer hassle maps are similar regardless of where they live. We know that national retailers like Walgreens have figured out the power and genius of global scale and local nuance. We know there is massive waste when hundreds of health plans and thousands of health systems all try to solve the same problems separately.

> "I think it's likely somebody is going to spring up and revolutionize healthcare. I think it's unlikely that the traditional players, tied as they are to their business models and assets, will be agile enough. Look at Amazon and bookstores. Where did Facebook and Google come from?"
>
> Charlie Martin, former CEO of Vanguard Health System

And so we expect to see the emergence of national health brands. "I think it's likely somebody is going to spring up and revolutionize healthcare," says Charlie Martin, former CEO of Vanguard Health System, which was bought by Tenet Healthcare in 2013 for $1.8 billion. "I think it's unlikely that the traditional players, tied as they are to their business models and assets, will be agile enough. Look at Amazon and bookstores. Where did Facebook and Google come from?" And how much of healthcare do you think can be done through online and information-based business designs?

We're all familiar with the simplest form of a national healthcare brand: the institution (or even the physician) that attracts patients from a nationwide or global pool the way Mayo Clinic does. Traditionally this sort of institution builds its brand on the highest possible quality standards and the availability of treatment that cannot be found elsewhere. But that is not the only value proposition an institution can create. For example, price-seekers from around the U.S. and Canada have discovered the Surgery Center of Oklahoma, which publishes fixed prices for a range of procedures online. "What we've discovered is healthcare really doesn't cost that much," says Dr. Keith Smith, who co-founded the center (with Dr. Steven Lantier) 15 years ago, and started publishing prices four years ago.

"When we first started we thought we were about half the price of the hospitals," Dr. Lantier told KFOR TV reporters in the same story. "Then we found out we're less than half price. Then we find out we're a sixth to an eighth of what their prices are. I can't believe the average person can afford healthcare at these prices." Says Dr. Smith: "Patients are holding plane tickets to Oklahoma City and printing out our prices, and leveraging better deals in their local markets."

Today, Walmart, Lowe's, PepsiCo, and other corporations are making deals with national centers of excellence (Cleveland Clinic, Johns Hopkins, and a few others) for standardized pricing for procedures. As medical tourism to India and Mexico is replaced or supplemented by tourism to Oklahoma, Ohio, and Maryland, and as an industry once dominated by local monopolies with a veil over prices is de-localized and even de-regionalized,

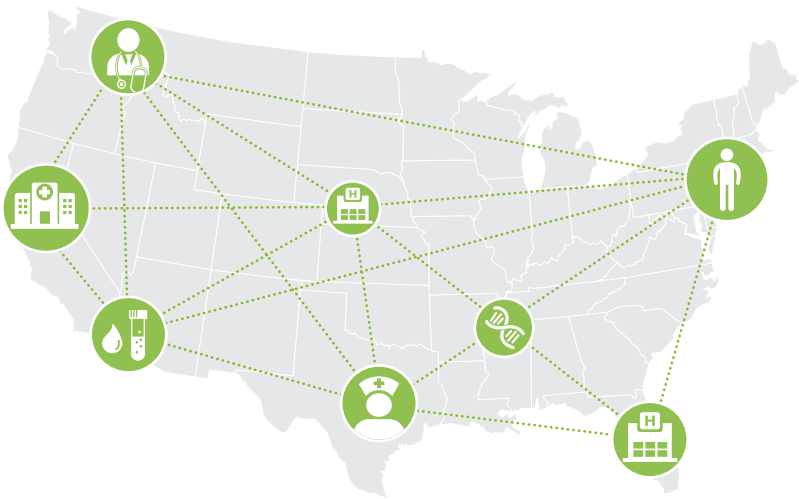
consumers will begin searching for value healthcare the way they search Kayak for flights. Why not fly a couple of hours and spend a couple of nights if you can save $10,000—and come out whole?

Meanwhile, companies could create a "global scale and local nuance" business design. Companies like Walgreens already use their expertise in process, technology, merchandising, and consumer insights giving consumers the best of both. Why not extend the model to healthcare? Procedural business models lend themselves to efficiencies of scale and standardization, as AmSurg, Surgical Care Affiliates (SCA), and United Surgical Partners International (USPI), three leading ambulatory surgery and diagnostic-procedure companies, have learned. If one or more of them goes national with full price/value/experience transparency, it could change the procedural marketplace overnight. These companies have already figured out how to leverage global or scale-based insights to enhance local business designs. In many ways they have already done the hard part.

> "The rise of brands and the fall of geography will enable new business ecosystems to emerge that are integrated and consumer centric."

And that is still just the beginning of the possibilities. With the rise of virtual care, many healthcare services no longer have to be delivered in a fixed location. It is easy to imagine scenarios in which a diabetic patient traveling to Denver uses his phone to transmit his blood sugar readings to a health record system in New York, where a rules engine sends an alert to his smart care team back in Los Angeles, whose EHR system in turn directs a health coach in Minneapolis to reach out to him with additional questions and advice.

The rise of brands and the fall of geography will enable new business ecosystems to emerge that are integrated and consumer centric. As national health brands gain recognition, providers and payers will create "best of" offerings, such as: "Join this health plan, and you will have primary care from Iora Health, organ transplant from Mayo, advanced rare-cancer treatment at Memorial Sloan Kettering, free online consultations through Teladoc, and preferred access to Walmart's in-store clinics." In other cases, consumers will shop for themselves, assembling their own network of health coaches, from a menu provided by the health plan or chosen on their own.



The new consumer health ecosystems will weave together the health and wellness assets required to solve the consumer hassle map, meeting the consumer where he or she is, and dramatically changing consumer engagement through personalization. In some cases multiple, high-quality brands will work together; like MD Anderson for cancer care and Walgreens for convenient care. While in other cases new brands will emerge displacing the predecessors. Consumer savvy leaders already know in Health Market 2.0 brand equity mostly will be built through quality of the consumer experience. Crowd sourcing and social media will work together to give brand power to the consumers. Good experience equals good brand. Health Market 2.0 players will have a chance to solve the consumer hassle map and create demand.

"This idea of care delivered by a virtual team of companies is extremely powerful. And in healthcare, some of the most interesting scenarios are partnerships that involve one of the national pharmacy chains as a key player."

INNOVATING THROUGH PARTNERSHIPS

BUIDING POWERFUL NEW CONSUMER HEALTH AND WELLNESS INSTITUTIONS

This idea of care delivered by a virtual team of companies is extremely powerful. And in healthcare, some of the most interesting scenarios are partnerships that involve one of the national pharmacy chains as a key player. Health Market 2.0 demands in-store clinics, high-touch coaching, integrated pharmacy, merchandising, and use of big data. Thus it is hard to imagine a Health Market 2.0 scenario that does not include a national pharmacy chain as a key player. Walgreens, CVS, Rite Aid, Walmart, and multiple national chains are more than toe-dipping in consumer health and wellness.

Take for example the value promised as Walgreens partners with Theranos for low-cost, in-store diagnostic testing: a finger pin-prick to draw a few drops of blood (1/1000 the typical draw), transparent pricing at less than half of Medicare's reimbursement rate, in pharmacies across the country, with results in hours, not days. As Theranos Wellness Centers roll out nationally in Walgreens pharmacies, expect similar announcements from other players.

But the range of possible partnerships is wide. Here are two possible scenarios suggesting how a national disruption might happen:

SCENARIO #1 – INCUMBENT HYBRID

A new consumer health and wellness company (imagine Florida Blue, Walgreens, DaVita HealthCare Partners, and Watson)

We usually think of smart care teams partnering with pharmacy-based clinics in order to delegate the simple convenient-care episodes that pharmacies can handle at a lower cost. But with the help of consumer technology, pharmacies might be able to initiate alliances that would upend that model, turning the pharmacy into the gateway of the health and wellness market.

> In an incumbent hybrid scenario, a new consumer health and wellness company emerges through a combination of players—smart care teams, telehealth, passive monitoring, retail pharmacy, and big data.

Pharmacies are consumer centric, with thousands of locations and tremendous daily foot traffic. Retail clinics are already putting the pharmacist out in front of the counter to act as an advisor, and adding health coaches to help consumers (especially high-need chronic patients) navigate the system to meet their needs.

But picture what happens if a retail pharmacy starts partnering to gain additional scalable medical resources. For example, Walgreens could contract with IBM to use Watson to support care teams and consumers in translating symptoms into a diagnosis into a preferred treatment plan. Walgreens could also add telemedicine kiosks, like HealthSpot, which provide a quick, virtual connection to a physician. To create a boutique environment, Walgreens might also redesign store layouts to create a better flow, improve the consumer experience, and even integrate branded programs for fitness, diagnostics, nutrition, or weight loss.

Or we can imagine a three-way partnership between smart care teams, retailers, and payers, with retail clinics as the hub. A firm like DaVita HealthCare Partners or Iora Health would staff retail clinics with nurse practitioners, physician assistants, physicians, and other health professionals, benefitting from free or low-cost space. What better way to solve providers' brick-and-culture conundrum? Consumers would benefit from 24/7 access to health professionals, both in person and through telehealth offerings. And pharmacies would be happy with the surge in consumer traffic.

A progressive payer such as Florida Blue could wrap insurance policies around a retail network of smart care teams inside pharmacies with a full e-health offering, along with Watson to enable personalized medicine. A Florida Blue could also offer bundled services with shopping rewards and built-in financial incentives for consumers who want to actively manage and improve their health. To that end, the retail pharmacy would stock Fitbits, UP bands, and Livongo wireless glucometers.

For consumers, it could be a compelling offering: low-cost (perhaps 25 percent less than a typical high-deductible PPO plan), convenience, and added features such as passive monitoring, social communities, telehealth consultations, proactive health coaches, and full health and wellness merchandising. And, by the way, it's a national product, available wherever you travel.

SCENARIO #2 – PURE DISRUPTOR

A mobile iHealth dashboard (imagine IBM Watson, Apple, and Aetna)

Big data in healthcare is exemplified by IBM's Watson supercomputer. IBM will enable micro-segmentation, then individualization, while re-norming the marketplace around evidence-based medicine, improving treatment plans, and drastically reducing unwarranted variation. We expect consumers to have 24/7 access via an Ask Watson app, and a link to e-health through a provider like Walgreens.

IBM's Watson, with its high public profile, has the potential to become a category killer for big data in healthcare, in much the way that "Intel inside" helped create a 90-percent-plus market position in semiconductors or Bloomberg became the gold standard in financial trading. It is not hard to imagine scenarios in which medicine is unthinkable without the power of "Watson inside," providing a guarantee of complete access to relevant data plus diagnostic sophistication beyond normal human capacity. Bloomberg charges $15,000 per year. Why couldn't IBM charge $15,000 to $30,000 (or a share of savings) based on its value to health professionals, the massive cost of replication, and the rapid rate of improvement in the system?

Now add an Apple smartwatch to the mix. When Apple created iTunes it put all the songs in the world in the palm of your hand. It can do the same thing in health and wellness, and has already started down this path with its HealthKit, which allows apps that provide health and fitness services to share their data with the new Apple Health app and with each other. Ultimately consumers could have a smart phone health dashboard (wirelessly connected to an iWatch) for personal health data, external data on pricing and outcomes, and even add a button for Watson. Apple (Watch, Health app) and Google (smart contact lens, 23andMe) could easily redefine mobile, personalized diagnostics—hold your phone up to your ear, for example, to diagnose an ear ache. Imagine Watson's natural-language processing skills combined with Siri's voice to walk you through a series of treatment choices.

"Imagine Watson's natural-language processing skills combined with Siri's voice to walk you through a series of treatment choices. Then imagine a dynamically priced marketplace (like Amazon) for health and wellness goods and services."

Apple's combination of elegantly designed devices and software to bundle apps, along with its skills in building a vast consumer centric ecosystem, make it a powerful contender to integrate the coming Internet of Things—with a focus on healthcare. Wireless wearables, biosensors and biofeedback, social networks and crowd sourcing, digital shopping and health system navigation, telemedicine and remote monitoring, diagnosis and disease management, wellness advice and rewards—who is better positioned than Apple to create order out of chaos, to corral all the single-point solutions into one channel to the consumer?

Imagine a dynamically priced marketplace for health and wellness goods and services. Conceivably a company like Amazon could identify spot markets to enable sellers to fill excess capacity (for diagnostics, like MRIs or CTs) and enable shopping with complete price/quality transparency and crowd-sourced reviews.

Consider young, tech savvy working parents. From their perspective, information is delivered in a language they know on a device they have. They can track the whole family's needs, along with health finances, including rewards. There's just one problem: For regulatory reasons, the consumer-tech players might need to bring in a healthcare incumbent, perhaps a company like Aetna. The big payers need to pivot toward consumers, even while they tend to their employer customers. Why wouldn't Aetna partner with Apple to create a brand new consumer health and wellness product—integrating the Health mobile dashboard product with a network of specialized care models for complex care?

Smart care teams without Watson, disconnected from the Health app, or without integrated retail partnerships, video health, and convenient diagnostics will lose relevance and cede market share to the next generation of digital health players. In this development, the disruptive innovators of the incumbent scenario are themselves disrupted.

EMBRACING DISRUPTION

Surviving creative destruction

Neither of these scenarios is likely to unfold exactly as reported here. The odds are there will be multiple models from fast-moving disruptors. The "gazelles" could be VC-fueled startups or incumbents hungry for a new profit/growth opportunity. But each will provide integration to a chaotic and siloed industry, paving the way for population health to scale and replace fee-for-service, putting the consumer in the driver's seat, converging the health and wellness markets, and shifting to a demand-driven marketplace.

> "Every other industry has gone through a similar phase of creative destruction, which left incumbents struggling to keep pace before dropping out of the race."

Every other industry has gone through a similar phase of creative destruction, which left many incumbents struggling to keep pace before dropping out of the race. Companies like Apple and IBM have been left for dead before, and reinvented and re-engineered themselves to compete in a dynamic, fast-moving market. The speed of change in Health Market 2.0 is something the healthcare industry has never had to imagine or manage through before. If hospitals and insurers want to survive, they need to step on the gas.

THE INCUMBENT'S DILEMMA

HEALTH SYSTEMS OPTIONS PALETTE

PROTECT THE CORE

National or regional hospital company
- Own the sustainable inpatient and campus based business
- Compete on scale, efficiency, and market clout
- High asset intensity
- Significant price/margin risk
- High risk – low return on capital business model
- Considerable 10-year risk driven by big data, wearable(s), nano-technology, and genomics

Protect the franchise, manage asset intensity

Regional integrated patient-centered care company
- Defensive play with offensive options
- Compete on market power
- Leverage the integrated systems to support gradual changes in the business model
- Continue to feed the inpatient engine
- Significant price/margin risk
- High risk – low return on capital business model (maintain the inpatient assets while shifting the care model to prevention and wellness)

Focused factory redefining procedural medicine from surgery to invasive diagnostics
- Offensive play – redefining the procedural market
- Compete on value
- Compete in increasingly retail market
- Lead the way on defining bundles and price/value transparency
- Medium asset intensity
- Significant growth/value runway

Series of disease-specific centers of excellence with regional/national scope
- Offensive play – redefining key disease-centered businesses (oncology, gut diseases, neurological and brain disease)
- Leading edge of science, integration of Watson (big data), shift to whole person approach, use of biosensors, telehealth, and social/mobile technologies
- Compete on value
- Lead the way on transparency
- Medium to high asset intensity
- Significant growth/value runway

Lead the way on transparency
- Offensive and transformational play
- Driving thought leadership, building unique brand
- Pivoting fully into the consumer health, wellness, prevention business
- Shifting into the information intensive, high growth, and high return businesses
- Building five + new high growth businesses to offset expected declines in the core inpatient business
- De-risk the portfolio and improve overall risk-adjusted returns
- Increase execution risk

Pivot into the high growth value migration consumer market

INNOVATE INTO HEALTH AND WELLNESS

A funny thing happens when an industry is disrupted. Prices plummet, incumbents lose market share and value, but overall, the market actually grows, because newcomers bring significant new value to the consumer. PC's didn't just replace minis, they gave users and consumers much more and changed the nature of demand and consumer expectation. The same thing is true with smartphones and tablets. If healthcare follows the same trajectory, the sum value of a declining Health Market 1.0 plus Health Market 2.0 could be much greater than Health Market 1.0 ever was.

But while healthcare innovators are building national, consumer-focused services, the leaders of incumbent healthcare institutions are mostly focusing on the near term. They understand that the U.S. healthcare system is moving toward value-based care, and they are taking some steps in that direction. But they are moving much too slowly, caught up in the incumbents's dilemma—the nearly unbreakable inertia of the existing franchise. For many over 70 percent of their strategy is playing defense: for example consolidating hospitals and acquiring medical groups to increase market power. Soon, as many as half of all medical groups may be owned by hospitals. The stated goal is to coordinate doctors better and redesign underlying patient care models; but most health-system consolidators are just playing at the margins of improving consumer value.

This picture—health systems buying health systems and raising prices while ignoring the innovators running past them—should seem familiar. It's a replay of a half dozen recent disruptions in the American economy: big steel pricing up to automakers while losing share to newcomers, department stores pricing up while losing share to discounters and web retailers like Amazon, and PC companies focusing on efficiencies while smartphone and tablet companies swept the field. Meanwhile, health plans are focused on meeting new ACA-driven regulations, participating in public and private exchanges, building narrow networks, and managing down costs.

The question is not whether these moves are needed—they are— but the level of focus must flip. Shifting the formula to 70 percent offense and 30 percent defense is an integral part of unlocking the incumbent's dilemma. Otherwise short-term strategies risk incumbents landing on the wrong side of the biggest value migration of contemporary times.

VALUE MIGRATION

NEW PLAYERS, NEW MODELS

Today's health industry is dominated by four business models: hospitals, medical groups, insurers, and pharma companies. Only one, pharma, is global. Health Market 2.0 will have many business designs, many of them new and most of them global. We expect the marketplace to add more than a million new jobs—practice extenders (coaches), home care specialists, genetic advisors, software engineers, and information analysts. And we expect new players and new business designs to capture about $1 trillion of the $3 trillion U.S. healthcare market.

> Health Market 2.0 will have many business designs, most of them new and some global. We expect the marketplace to add more than a million new jobs. And we expect new players and new business designs to capture about $1 trillion of the $3 trillion U.S. healthcare market.

And that means that value will migrate away from traditional healthcare business designs. Our models project a 20-30 percent decline in utilization of traditional healthcare services in the first wave of population health, followed by another 10-20 percent decline as big data, biosensors, smart care teams, and genomics interact to reshape healthcare. We estimate that:

- Inpatient hospital utilization will decline by 25 percent, then 40 percent, as higher-cost treatments move to lower-cost ambulatory settings and smart care teams mostly eliminate avoidable acute events, mastering prediction, prevention, and early intervention
- Most procedural services (surgeries and diagnostic procedures) will migrate to convenient lower-cost outpatient settings, and competition will reduce prices by as much as 50 percent
- Traditional diagnostic services will be massively disrupted by the next generation of low-cost broad-spectrum and highly accurate diagnostics. Expect 85 percent of diagnostics to move to retail, prices to fall by 50 percent, and accuracy to improve
- Specialized smart care teams will displace traditional single-specialty practices and significantly reduce the need for responsive interventions as smart care teams excel at chronic disease management, prevention, and early non-acute interventions
- Twenty-five percent of traditional primary care services will be provided through the care team rather than by the physician, then 60 percent, as care teams evolve into ecosystems and include social, mobile, and retail options

As the primary providers of responsive and chronic/acute clinical services, hospitals and specialists will be hit hardest, unless they move to counteract and harness the prevailing forces—transparent pricing, reduced variation, new care models, and a focus on prevention and early intervention. We estimate that hospitals' roughly $900 billion in revenues will decrease by 30 percent and, as revenues sink, margins will fall below the break-even point. Specialists' $385 billion annual revenues will decrease by 10-20 percent. Why would consumers pay more when they have an alternative: smart care

teams that treat them holistically and help them actively manage their health to avoid preventable events and symptomatic exacerbations?

Where does the value migrate? While hospitals and specialists see a decline, smaller and newer parts of the market will grow significantly over the next five-plus years. Existing healthcare businesses will scale by building more national brands, while existing national tech and retail firms will launch new health and wellness businesses. The huge influx of investment capital will support the growth of hundreds of startups. The result? By 2020 we estimate that:

- Smart care teams will actively manage most of the population health pyramid—growing from 4 percent of spend to 12 percent, from $120 billion to $600 billion, through growth and by taking on risk
- Information analytics will grow from 2 percent of spend to 8 percent, from $60 billion to $400 billion
- Retail pharmacy clinical, coaching, and diagnostics will grow from $250 billion to $400 billion (or more, depending on participation with smart care teams and risk)
- Next-generation diagnostic tools, health tech, and wireless wearables will increase from $2 billion to $150 billion globally
- Genomics will emerge from the edge of the radar to generate $50 billion globally

“Overall, we expect that by 2020 the traditional healthcare industry will shrink by 40 percent and medical trend will level off to the growth rate of the overall economy. The health and wellness markets, meanwhile, will converge, creating a new combined marketplace worth $5 trillion or so.”

Overall, we expect that by 2020 the traditional healthcare industry will shrink by 40 percent and medical trend will level off to the growth rate of the overall economy. The health and wellness markets, meanwhile, will converge, and traditional healthcare players, technology companies, retailers, and other new entrants will create a new combined marketplace worth $5 trillion or so. Needless to say, the different players will have very different revenue shares, returns on capital, and growth rates.

The value-migration patterns won’t be smooth. Radical, systemic changes may be masked by short-term defensive schemes, such as consolidation, pricing up, or regulatory maneuvering. Thousands of small innovations will chip away at the traditional model—eventually leading to multiple full-scale, game-changing plays that alter the course of the industry—making it bigger, more dynamic, and (like its customers) healthier.

NEW BUSINESS MODELS

PATHS FORWARD FOR PAYERS AND PROVIDERS

Health Market 2.0 means a new economic model for incumbents. Those that want to avoid the "default future," as Cornerstone's CEO Grace Terrell refers to the endgame for Health Market 1.0, or the "death spiral of bricks and sticks," as former Vanguard CEO Charlie Martin describes the predicament of hospitals, need to rethink their organizations. "Hospitals are driven by increasing volume and pricing; every expense is someone else's revenue," says Martin. "I think that game is up." Similarly, the days when health plans can simply pass along rising costs to employers are gone. They need to construct a role that lets them create value in new ways.

Hospitals of the future. Capital-intensive health systems have long been the nucleus of community-based healthcare. Hospital leaders have attracted the best and brightest physicians, designed campuses around major services lines (organized mostly by body system), and competed on world-class operating theaters and ICUs. But in Health Market 2.0, it is easy to imagine scenarios in which a dollar invested in prediction and prevention returns five to ten times as much as a dollar invested in an operating theater. As that happens, hospitals and health systems will need to exploit the doctor's new high-tech toolkit and new consumer engagement models to create better business models.

Under the current model, hospital systems need moderate sustained volume growth to reduce unused capacity and moderate margins to fund ongoing capital expenditures. Health Market 2.0 will provide neither. Care

BUILDING THE NEW PATIENT-CENTERED GROWTH ENGINES
CONSUMER-CENTERED HEALTH AND WELLNESS VALUE MIGRATION AND GROWTH ENGINE:
SMART CARE TEAMS AND POPULATION HEALTH MANAGEMENT

	Procedural services (surgeries and diagnostics) with full value transparency	Commercial smart care team ecosystems	Frail elder smart care team ecosystem	Polychronic smart care team ecosystem	Population health campus	Personalized medicine
	Shopping marketplace	*Exchange-based products*	*Cornerstone for MA product*	*Cornerstone of all risk-based products*	*Patient-centered, high-value acute and complex care*	*Genomic sequencing, biomarkers, big data*
Consumers served (as an example)	100,000[1]	100,000	100,000	100,000	100,000	100,000
Economic model	$3,000 per procedure	$4,500 PMPY	$20,000 PMPY	$12,000 PMPY	$500 PMPY	$1,000 per test
Projected revenue	$300 MM	$450 MM	$2 BN	$1.2 BN	$50 MM	$100 MM

1 Illustrative given there is not a 100% incidence rate for procedural services

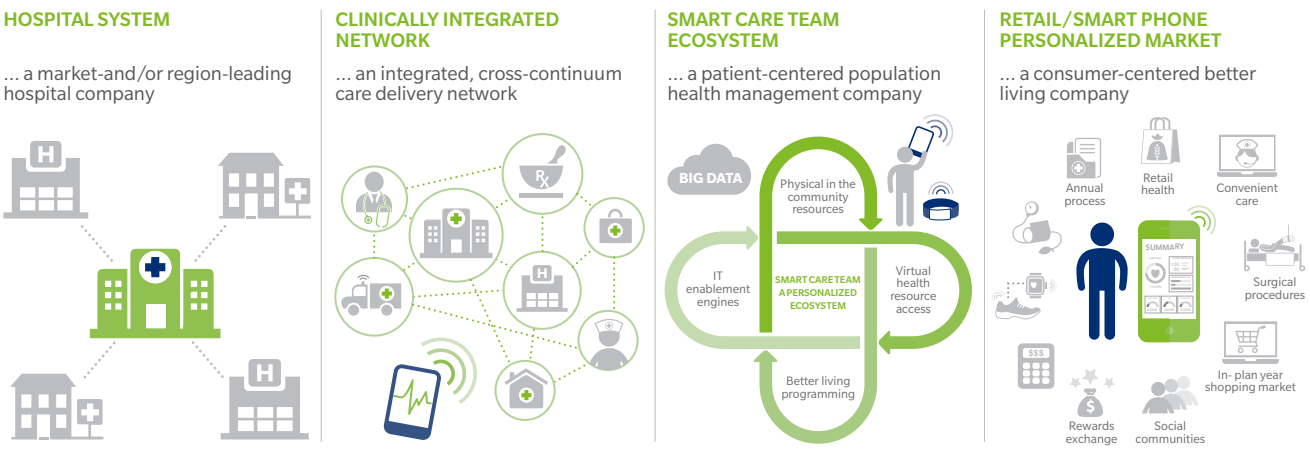
Source: Oliver Wyman analysis

teams focused on prevention, coordinated care, and hospice will reduce hospital utilization—and keep on reducing it. Meanwhile, new demand-based economics will drive transparent pricing, eroding already thin margins, and stimulating value-based competition, and a new paradigm of consumer expectations.

Hospitals have traditionally operated as one-stop shops for a wide range of services, but in Health Market 2.0, that becomes a difficult model to sustain. True, world-class repair-care will continue to play an indispensable role in our broader healthcare system, but only the true value leaders are likely to thrive. Total demand for repair care will be reduced by smart care teams. Nearly every hospital will need to launch a series of new growth businesses to offset declining inpatient revenue. And the good news is that hospitals have at least a starter set of the new competencies required for population health. Focusing on one or more different patient-centered population health businesses is a great place to start: for example, frail elder medical homes, focused factory for ambulatory surgery and diagnostic services; or a diversified health/wellness smart population-health campus. Indeed, in Health Market 2.0, the hospital campus may no longer be the hub of the system. It could be some combination of a smart care team, retail pharmacy, and iWatch/smartphone.

Payers of the future. Most health plans have built their business models around employers and the sponsored-benefits marketplace. For decades, health plans have thrived in a B2B world by managing costs through benefit designs, volume-based provider contracting, and health and wellness programs. Profits have come from smart underwriting, stop-loss insurance, administrative services, a la carte programs, and interest income on reserves.

HEALTH SYSTEMS: WHAT IS THE CENTER OF YOUR NEW BUSINESS MODEL?



Ask yourself what business you are in. Who is the customer? And how do we add value?

Source: Oliver Wyman analysis

In Health Market 2.0 many elements of underwriting and risk management will shift from health plans to providers and population health managers. But that doesn't mean health plans will be out of the insurance business; even with global budgets health plans will own some risk that falls outside the norms. It does, however, mean that health plans will gain new business opportunities in helping smart care teams and population health managers manage global budgets.

Health plans are in a great position to be "market makers," redefining both supply and demand elements of the market through the consumer's lens. They are perhaps the best positioned of any of the current players to reinvent health and wellness as a transparent, consumer-driven marketplace that enables shopping based on value. They can play a significant role in designing new networks and health and wellness models that integrate virtual visits, kiosks, use of big data, wearable devices, and even healthy foods. And of course they will need to reinvent their own business, developing health plan offerings that let consumers build their own solutions through configurable benefits, risk exposure, care model choices, and level of engagement in order to optimize value and work within family budget constraints.

"Health plans are in a great position to be "market makers," redefining both supply and demand elements of the market through the consumer's lens."

Some health plans will emerge as consumer health companies, partnering with consumers to help them live better and to get the most value from their health and wellness benefits. Others are likely to invent new consumer insight and engagement businesses (biometric monitoring, coaching, etc.) to support the next generation of population health managers. Health plans have the opportunity to take the lead in creating the new consumer health and wellness marketplace. Will they build new value quickly enough to retain and deepen their customer relationships? One thing is undeniably true—other insurers are no longer their chief competitors.

UNLOCKING CONSUMER VALUE

When an industry is hit by a transition like the one facing healthcare, incumbents don't usually survive. The exceptions are rare and worthy of note: IBM made it from tabulating machines to mainframes to minicomputers to PCs to outsourcing to big data. Apple went from computers to smart phones to personalized streaming to active lifestyle management (dashboards, shopping, etc.) to dynamic social communities. And Amazon made it from online book distribution to the world's "everything store" to personalized digital media to cloud computing for small businesses.

What will it take for healthcare incumbents to survive?

First, we think incumbents need to understand how the new entrants are redefining consumer expectations of value, and then consider participating

in a redrawing of the landscape in which both can win by creating new magnetic offerings for consumers. External innovators are lithe and well-funded. They know consumers but not healthcare. They are unlikely to displace the incumbents, with their risk reserves, actuarial science, contracted networks, medical licenses, and power to save lives.

ACOs or value-based health systems are moving in the right direction, but they are moving slowly, weighed down by fee-for-service economics, physician-centric cultures, and inflexible assets. Most have a toe in Health Market 2.0 and a foot in Health Market 1.0. They know patients, but not consumers. They live in the sick-care market, not the health market. Most bring less than half of what they need to create competitive advantage in the new marketplace.

> "To seize the $1 trillion at stake, incumbents and new players will have to partner, taking the best of both with no false loyalties to the past and a shared unrelenting commitment to consumer value."

It seems both necessary and inevitable for traditional and new players to converge in disruptive, effective, profitable new models that go beyond repair or underwriting. Given the $1 trillion or so at stake and the massive scale of unmet consumer need, there's an unprecedented opportunity to create value. But to seize it, incumbents and new players will have to partner, taking the best of both with no false loyalties to the past and a shared unrelenting commitment to consumer value. What is required? Shifts in roles, courageous shared leadership, blended cultures, and a willingness to stay the course. Little else matters if both sides don't start with a clear focus on maximizing value for consumers.

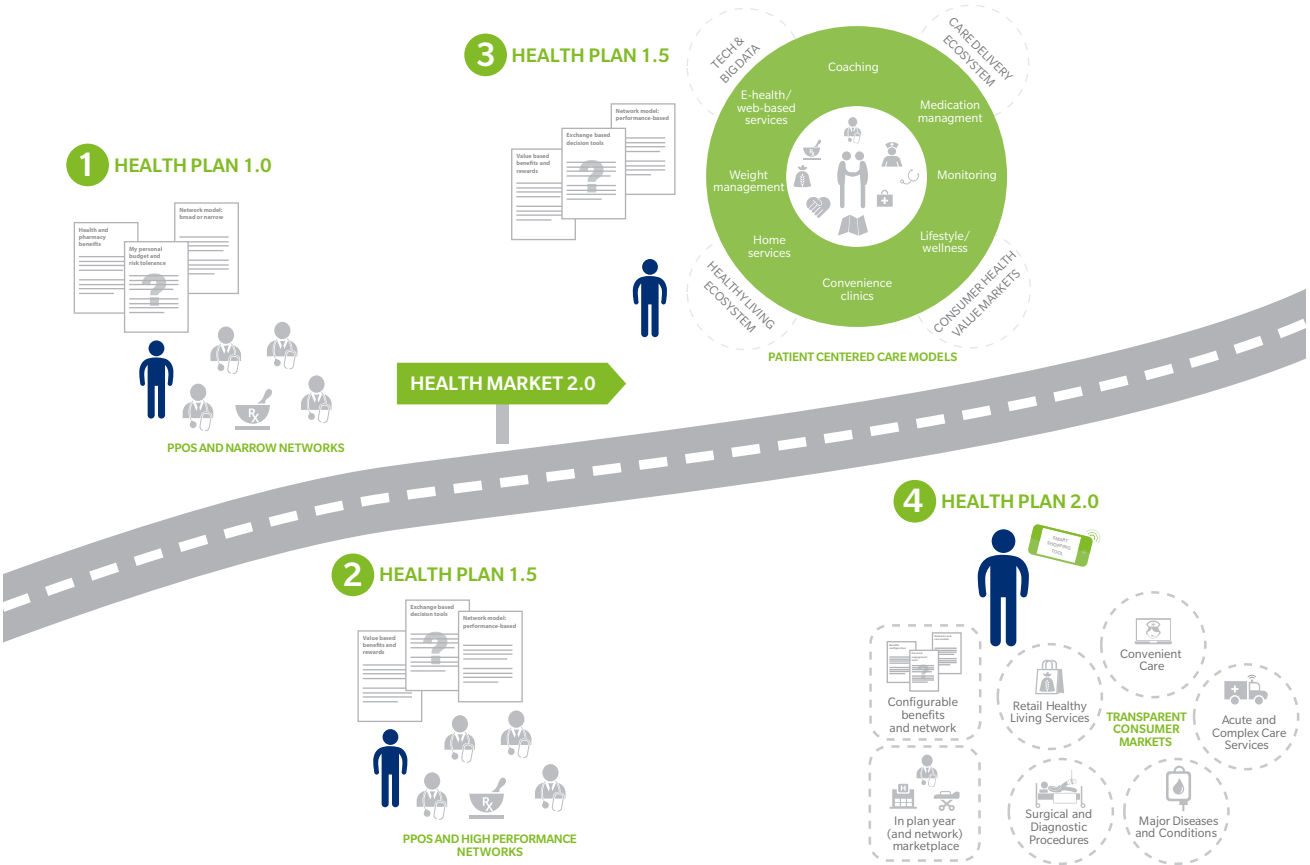
For incumbents, the first priority is to be honest about what they bring to the table and what parts of their legacy business models may play a lesser role going forward. Leaders need to understand the relationship between value creation, strategic control, and the new profit zones. Value capture, in particular, is highly sensitive to strategic control. Too many organizations do the heavy lifting required to create competitive advantage, then fail to fully capture the value. Many ACOs, for example, reengineer their clinical models to improve patient cost and quality—then give the profits away by remaining in fee-for-service arrangements. There's almost no better way to leak profits and damage brand than implementing a powerful new business design using yesterday's value-capture models.

Unlocking the incumbent's dilemma is no easy task. The rate of failure far exceeds that of success—and in most recounts of industry transformation the incumbents end up as a footnote. Through in-depth, leadership discussions with incumbents and innovators and careful study of non-healthcare success stories, we found the following six insights to unlocking the incumbent's dilemma:

1. **Change your frame of reference.** Health Market 2.0 combines health and wellness, includes retail, and shifts the market from supply-led to demand-led. It also breaks the "healthcare is local" paradigm through web services, mobile apps, big data, and telehealth. If you are operating your business within a Health Market 1.0 frame of reference, you have almost no chance to thrive in Health Market 2.0.

2. **Be aware of your place on the value ladder.** Thinking you are best-in-class and an industry standard while you are about to be commoditized by a better value alternative is a peril of markets undergoing transformational change. What happens when Amazon or WebMD replace PPOs with transparent markets? Or Walmart redefines the convenient care market? Or Theranos cuts the cost of diagnostics in half while improving the value by 10 times?
3. **Know it is not a level playing field.** Many of the new players in Health Market 2.0 are consumer web service companies competing at silicon speeds, in a global marketplace, using ecosystem thinking, and constantly innovating. For these companies five cents of capital produces a dollar of revenue—compared to many of the incumbents where it takes a dollar of capital to produce a dollar of revenue. Not surprisingly capital markets favor the new players. Partnering then allows incumbents to participate in that capital market advantage.
4. **Run skip generation plays.** Continued improvements on the current business model are required but not sufficient. Getting better at sick care or offering lower cost health plan products is great in the short run, but won't drive a winning position in the new race for consumer value. Why not build a Health Market 2.0 playbook—introducing big

HEALTH PLAN SKIP GENERATION PLAYS
INCREMENTAL IMPROVEMENTS ON THE CURRENT BUSINESS MODEL ARE NOT SUFFICIENT; SKIP GENERATION PLAYS THROUGH STRATEGIC PARTNERSHIPS ARE ESSENTIAL IN HEALTH MARKET 2.0



Source: Oliver Wyman analysis

data, passive monitoring, and retail pharmacy integration as part of the patient-centered medical home strategy. Or partnering with a consumer-transparency company to transform PPOs into shopping markets? After all, we know linear Health Market 1.0 playbooks are the recipe for the incumbent's dilemma.

5. **Don't go it alone.** Bridging health and wellness, becoming a consumer company, redefining personalization, and deploying big data, complex adaptive workflow, and passive monitoring to prevent most acute events—these are massive changes. When you take a careful look at most incumbents through the Health Market 2.0 readiness lens you realize there is a long list of missing competencies. When you look at the new players you realize you don't have to build it on your own—and the capital markets are already doing the heaving lifting. Partnering is required to unlock the incumbent's dilemma.
6. **Leadership is the scarcest commodity.** The vision for Health Market 2.0 is clearly in focus. The capital markets have already placed their bets. The new players have demonstrated what is possible. Consumer traction is on the rise and unstoppable. Market receptivity to consumer innovation and value improvement is off the charts. While it feels less risky to focus on current business model innovations and improving the "today return picture"—history tells us unmistakably that even the very best run incumbents hemorrhage value as markets transform. Incumbent leaders focused primarily on refining their current business models are already on the highest risk path.

> "Together, the three movements of Health Market 2.0 create a virtuous cycle. An innovation that builds value in one will tend to build value in the others."

The three fundamental movements of Health Market 2.0—quantified self, transparent consumer markets, and smart care teams—are underway. They are integrated and create a powerful, virtuous circle of innovation, diffusion, and value. The end result will be a consumer health and wellness market with unforeseen levels of value—measured not just in profits but in years of good living. For today's generation and the next, incumbents and new players have the financial opportunity and some would say moral obligation to embrace Health Market 2.0. To that we say viva the patient-to-consumer revolution!

AFTERWORD

The transformation of U.S. healthcare is the biggest business opportunity of our lifetime. For traditional health plans, hospitals, and health systems, it also presents enormous risks. We see far too many leaders of healthcare organizations who still believe they are preparing for continued growth in volume, as baby boomers age into chronic and complex diseases. They are raising capital to build new wings, worrying about how to win market share from traditional competitors, and invading each other's businesses.

These executives are falling into a familiar trap; they know the world is changing, but they believe they are an exception and can continue doing what they've always done because their communities need them to do so. Ask them why they don't rush to take advantage of new opportunities or build new capabilities designed to replace inevitable losses on the current inpatient business, and they'll answer by saying something about quality and excellence of care.

And many of these institutions do deliver excellent care. They even deliver excellent results if you judge them by the standards of "sick care." But collectively they fail to optimize value for consumers. The current system does not permit that. If traditional healthcare leaders can't be persuaded to change for business reasons, perhaps they will be won over by this fact: The new healthcare world we are entering is not about limiting access or offering price-discounted care. It is about putting together the pieces in a way that lets healthcare professionals actually accomplish their most important goal: keeping people well and giving them more years of productive, good life.

What would that look like? Let's return to Fred, this time in his role of Fred 2.0.

> I've had a rough 10 years dealing with doctors and pills and feeling lousy most of the time. But things are getting better.
>
> It started when I changed to a new doctor's office—a medical home, they call it. The people are great. Mary, the social worker, came to our house and had a long talk with my wife and me. She wanted to know about everything—kids, grandkids, job, vacations, diet, exercise, retirement plans. She laid out some ideas on how to improve my health, and really started to change my thinking. She asked if I wanted to meet with her team.
>
> So I went. First time, I was there for two hours. Sure beats 15 minutes of one-way conversation while you're naked. I met a bunch of people, including a nutritionist and a health coach—he coached baseball before he coached health. They had ideas on how I could lose some weight and some exercise I could do at home. They even set me up with a personal trainer over the internet. My coach gave me a Fitbit to keep track of how active I was. At first, I was shocked at how little I moved—3,000 steps a day when the goal was 10,000. Now I move more, take stairs when I can.
>
> I told the doctor I was sick of taking blood pressure meds. She said I could experiment with no meds but she wanted me to wear a gadget that tracks blood pressure. I can read it, and they get a wireless read at the medical home. So far, so good.
>
> Well, actually, one day there was a spike and the nurse called. We did a FaceTime chat to talk about diet. She told me about a few resources, including an internet group of people with similar problems. It was helpful. I found out that it doesn't take all that much to change weight and blood pressure. I still have diabetes, but I'm not as afraid of it anymore. It's just something I need to deal with, and I'm starting to feel confident that I can. Some people with diabetes get their feet amputated or go blind. Some die. That isn't going to happen to me. No way.

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ABOUT OLIVER WYMAN

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Oliver Wyman's Health & Life Sciences practice serves clients in the pharmaceutical, biotechnology, medical devices, provider, and payer sectors with strategic, operational, and organizational advice. Deep healthcare knowledge and capabilities allow the practice to deliver fact-based solutions. In 2011 Oliver Wyman launched a Health Innovation Center (OWHIC) dedicated to promoting positive change in healthcare. OWHIC champions innovation by disseminating proven innovations; envisioning market-based solutions to today's and tomorrow's challenges; and establishing a cross-industry community of thought-leaders to share and shape ideas.

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