8 The Early Promise of Health 2.0 to Enable Wellness, Improve Care, and Reduce Cost in Support of Population Health Management

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CONTENTS

INTRODUCTION

The United States must transform its costly, fragmented healthcare system to a new paradigm of healthcare delivery—one that is integrated, takes accountability for the sickness of individuals as well as their wellness, and provides better value for patients, providers, and payers. Care providers of all types are already working to redesign care models, improve quality, and slow the rise in costs in their centers of care, but these changes will only go so far to change the current model. The transformation we are talking about will require changes beyond what's happening in the provider realm alone—it requires changes in how patients and their family and friends participate in their care (when sick) and in their overall wellbeing (when healthy).

165

This chapter will explore this cultural transformation and the emerging role of Health 2.0—healthcare with a renewed participatory role for patients—in making change possible. We will start by examining why change is needed in the healthcare industry.

We then move to a discussion of the fairly significant shifts that are taking place in care delivery, with an emphasis on the need to engage patients more actively in their health. The remainder of the chapter explores the potential of Health 2.0 in supporting behavior change to help people become more able to manage their health, including some results of early Health 2.0 efforts.

THE CASE FOR CHANGE—WHY BOTHER?

A Crisis of Volume and Cost

"Fee-for-service" has been the dominant financial dynamic in the U.S. healthcare system for decades, whereby providers are reimbursed for the quantity of visits, tests, or procedures that are performed, often without adequate regard for the cost of the interventions relative to patient outcomes. This focus has arguably fueled incredible advances in medical devices, diagnostic tests, pharmaceuticals, and other innovations. Dr. Atul Gawande, MD, surgeon and author, describes how far medicine has come since the days before penicillin, when convalescence in the shelter of a hospital was the best of only a few treatment options and, therefore, "when what was known you [as a doctor] could know. You could hold it all in your head, and you could do it all."[1] The surge in the number of diagnoses and treatments that physicians have access to today is transforming their profession from a field of autonomous craftsmen wielding basic tools to what Gawande suggests should be like race-car pit crews that together can deliver on the scientific promise of 4,000 medical and surgical procedures and 6,000 drugs.[2] This is a double-edged sword, as the autonomous mentality on which the field developed is now often at odds with the machine-like functioning expected of an effective and efficient pit crew. Together with the fee-for-service incentive structure, these realities have collided in a perfect storm propelling tremendous growth in healthcare spending characterized by fragmentation and high volume, high cost per episode, and inconsistent quality. We are now witnessing the costly "failure of success" from focusing so heavily on sick care while ignoring well care to keep individuals and populations healthy from the start.

The Failure of Success

As a result of what we have just described, healthcare now makes up 17 percent of the U.S. gross domestic product.[3] Other industrialized nations achieve the same or better health outcomes at a significantly lower cost per capita—for example, the $8,362 spent per capita on health in the United States in 2010 was more than twice what was spent in the United Kingdom ($3,503).[4]

International benchmarks aside, one could argue that the extra cost is worthwhile if it produces great outcomes. Unfortunately, this is not the case. A recent study of chronic care patients in the United States showed that, while regions ranked in the highest fifth of spending were providing as much as 60 percent more care than regions in the lowest fifth of spending, the increased outlay resulted in negligible improvement of outcomes or patient satisfaction.[5] It is no wonder that a 2012 Commonwealth Fund report concludes, "The findings make clear that, despite high costs, quality in the U.S. healthcare system is variable and not notably superior to the far less expensive systems in the other study countries."[6] This expense competes with other national priorities, yet the Congressional Budget Office expects the cost of Medicare and Medicaid to continue to rise rapidly as a percent of gross domestic product (GDP), while other programs except Social Security will shrink. (See Table 8.1.)[7]

As the U.S. population ages, numerous forecasts agree that Medicare and Medicaid will rise sharply in the coming decades and, together with Social Security, will consume nearly all annual federal revenues. At the current rate, our healthcare spending will come at the cost of other public

TABLE 8.1
Spending and Revenues as a Share of GDP
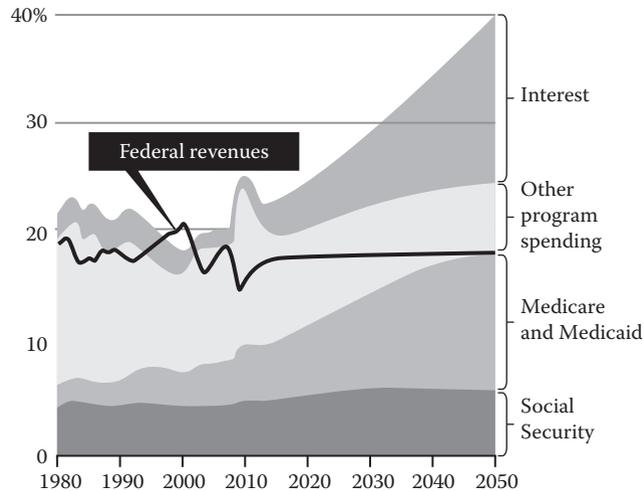
Source: Center on Budget and Policy Priorities. Spending and revenues as a share of GDP.
Congressional Budget Office. http://www.cbpp.org. 2012.

goods like education, infrastructure, and security. Even if problems of sustainability feel too far off in the future to worry about today, we know that employers and families are already clamoring for greater value for their healthcare dollars.

According to a recent poll of U.S. corporate executives conducted by the staffing company Adecco, 55 percent named healthcare benefits as their biggest current business challenge, up from 35 percent in 2007.[8] The 2012 Employer Health Benefits Survey by the Kaiser Family Foundation and the Health Research and Educational Trust found that employer-based family health insurance premiums had risen for the thirteenth consecutive year. Premiums have increased nearly 100 percent in the last decade, growing faster than wages (up 33 percent) and overall inflation (28 percent).[9,10] For the time being, employers continue to serve as the primary vehicle through which average Americans receive their healthcare coverage, and we have heard business leader after business leader say "enough is enough." At a recent strategy retreat, we heard a sampling of what we know is happening in boardrooms across the country. The health system's board members—many prominent businesspeople in the region—demanded lower cost, better outcomes, and more choices for their employees.

These challenges have been brewing for decades and, despite a number of attempts to correct the course, waste remains a huge problem—in the forms of duplicative testing, lost results, medication errors, inefficient processes, poor care coordination, etc. PricewaterhouseCoopers' Health Research Institute estimates the waste at $1.2 trillion of the $2.2 trillion spent nationally—more than half of all health spending.[11]

All of these issues have culminated in a problem that feels big enough and with potential consequences that are real enough to promote widespread change across the industry. Numerous experiments are underway to reduce cost and increase quality and safety—and, in so doing, to create greater value for patients and their families, and for the providers and payers who have traditionally masked individuals' own "skin in the game" by footing most of the bill. Many of these experiments, such as Accountable Care Organizations are inviting providers across the country to make care more efficient and less costly—but how?

IDENTITY SHIFTS IN HEALTHCARE ORGANIZATIONS

FROM SICKNESS TO HEALTH—POPULATION HEALTH MANAGEMENT

An identity shift is taking place in hospitals and health systems across the country in response to the challenges we have described above. Organizations and their leaders who have spent decades honing their skill at providing acute inpatient care services are being asked to think very differently about the business that they are in and their role relative to other parts of the continuum of care (i.e., preventative outreach, outpatient care, etc.). Physician authors David Asch and Kevin Volpp suggest—and we agree—that the U.S. healthcare industry is moving from the business of "sickness" to the business of "health."[12]

Asch and Volpp posit that many ailing companies have a fatal misunderstanding of the industry that they are in as that industry seemingly shifts beneath their feet.

- Recently bankrupt Eastman Kodak failed to realize that, after 131 years, they were no longer in the film and camera business but rather were in the image business. Digital cameras made film practically obsolete in the consumer market, but Kodak did not adapt its offerings accordingly.
- The eclipse of railroads resulted from the view that they were in the railroad industry rather than the transportation industry, competing not simply with other railroads, but with trucking and airlines.

Asch and Volpp propose that these leaders missed some key signals to the broad changes taking place in their industries and urge healthcare leaders to take heed of similar signals. Payment systems that promote holistic health and that will not reimburse for poor-quality outcomes (like preventable readmissions) are increasing in prominence in both the public and private sectors. Moreover, we are slowly taking to heart the fact that social factors are significant determinants of health and illness. In fact, McGinnis et al. find that traditional healthcare delivery determines as little as 10 percent of a person's overall health. (See Table 8.2.)[13]

If we believe we are focusing on better health and our current healthcare delivery system only contributes 10 percent to health, what must we do to influence some of the other 90 percent? We face

TABLE 8.2
Determinants of Individuals' Overall Health
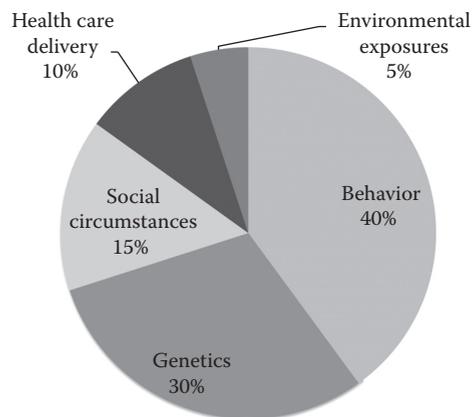
Source: McGinnis J.M., Williams-Russo P., Knickman J.R., *Health Affairs* 21, 2, 2002.

a significant shift in bridging the gap between how things work today and a system that can reliably deliver comprehensive health.

What Is "Health"?

What do we even mean when we say "health"? The 1978 International Conference on Primary Health Care in Alma-Ata (now Almaty, Kazakhstan) provides one of the most succinct if not sophisticated definitions we have found. The conference conceptualized health as "a state of complete physical, mental, and social wellbeing, and not merely the absence of disease or infirmity."[14] Those gathered at Alma-Ata sought to advance primary healthcare to the forefront of international efforts, a task that is still underway more than 30 years later. The work the conference produced to define "health" remains a noble aim and is taking on new relevance today as health systems across the United States take up this challenge within the frame of population health management. How, then, do we move from an understanding of health within each individual to something that is more collective?

What Is Population Health Management?

The Care Continuum Alliance, an alliance of stakeholders across the continuum of care, is working precisely toward the goal of improving the health of populations. They espouse a detailed set of principles and a model of "population health management." It can be summed up, in the broadest sense, as the care provider community, in partnership with patients and their families, conducting proactive and collective monitoring of the patient's healthcare quality, adherence, access, and outcomes with the goal of improving the health of an entire patient population. As such, population health management stresses wellness and prevention through lifestyle and disease management and complex case management to remove the gap between zero care and costly chronic or emergency care. It emphasizes the full spectrum of needs from prevention and wellness to keeping healthy people and at-risk people healthy, to better manage the care of those with chronic conditions, and to still be ready to provide emergent or acute care services. In most cases, it also includes the involved providers taking on accountability for the financial risk and quality of care provided.[15]

We have been working with administrative and physician leaders across the country to grapple with what it will mean to actually foster valuable population health management in the different communities they serve. It is clear that this is a new paradigm and that the years of experience and training that have brought them to where they are today may not have sufficiently prepared them for what is to come. It requires a well-coordinated and complete continuum of care, with new metrics and advanced analytics. As one might expect, while clusters of resistance to the idea remain, most have flung themselves into learning mode and are beginning to act their way into new thinking. However, we also see a big risk in powering ahead without revisiting the role of a key stakeholder group—patients and their families, whose experience and perspective are often left behind, but whose actions will have a profound effect on the future success of population health management efforts.

FROM PATIENT TO PARTNER—A NETWORKED APPROACH

As one of our clients has said, "This population health management stuff is great, but how in the world are we going to get enough of our patients to do the right thing—especially when so many of those choices are deeply entrenched in their culture?" While there is an incredible amount of work to do to build out fully functioning, well-coordinated systems of care that focus on both illness and wellbeing, population health management can only go so far without enabling patients to more actively engage in their own health. If we are asking our health system to become more accountable for the overall health of populations, should we not also ask the populations in question to become more accountable for their own health? If we do, how will they do it, and what is their motivation?

Patient Behavior and Lifestyle Choices Drive Cost

We focused earlier on the rising cost of healthcare in the United States and the tremendous amount of waste represented in that cost. We have not yet considered the similarly mind-numbing role that disease brought on by behavior-mediated causes plays in these numbers. Numerous studies suggest that upwards of 50 percent of health problems in the United States can be attributed to lifestyle issues, from high stress and smoking to sedentary activity and improper nutrition (leading to excess weight and obesity), to name a few.[16]

Safeway chief executive officer Steven Burd, like many employers, has been feeling the pinch of ballooning healthcare costs. Several years ago, he embarked on a mission to engage his employees in programs designed to curb those costs. Citing numerous studies, he focused on two key statistics to highlight the role that behavioral choices contribute to the problem:

- 70 percent of all healthcare costs are attributable to behavioral choices (like reaching for an extra slice of pizza rather than a salad)
- 74 percent of all healthcare costs are related to four chronic conditions (i.e., cardiovascular disease, cancer, diabetes, and obesity), all of which, at least to some degree, can be attributed to behavioral or environmental factors[17]

If this is the case, then we have a lot of work to do to influence those behavioral choices in the service of promoting health.

We know that changing individual behavior is not easy. Even with the best of intentions, launching a change to behavior is much easier than sustaining those changes over time. For example, many smokers attempt to quit by themselves over and over again, most to no avail—the American Cancer Society has estimated the success rate of smoking cessation without medicines or other help as 4 to 7 percent.[18] Individuals with weight problems struggle to keep the pounds off, even when they have successfully reduced their weight. Given how important we believe it will be to help large-scale populations become more engaged in and accountable for their health, and knowing how difficult it will be to do so, we set out to answer the question, "What might make it easier for people to take greater ownership of their health so they can successfully transform from passive patients to active partners?"

The day-to-day social networks in which individuals live out their lives hold an important key to this behavioral change. In the book *Connected*, Professors Nicholas Christakis of Harvard University and James Fowler of the University of California (San Diego)[19] study the relationship between people's social networks and their health, happiness, wealth, tastes, and beliefs. They observe that smoking decreased from 45 percent of U.S. adults to 21 percent in the past 40 years. Interestingly, they found that people tend to quit successfully together—in effect, as a community of friends and acquaintances. Social ties have an impact on obesity as well. They suggest that behaviors like weight gain might be seen as "contagious" in that they can spread from person to person in a network. Furthermore, these calculated changes in risk of "contracting" weight, happiness, depression, etc., can travel to indirect acquaintances within the network—as far as friends of friends of friends— posing even more value for interventions aimed at measurably improving the wellbeing of entire communities than previously anticipated.[20] With reports estimating that upwards of 43 percent of adults in the United States will be obese by 2018, adding nearly $344 billion to the nation's healthcare costs, the potential to curb the obesity epidemic through more social network channels looks promising.[21]

We have summarized what is behind the growing healthcare cost crisis in the United States, including the resulting shift from a focus on "sickness" to a focus on "health" and the critical role of individual behavior and lifestyle choices. Next, we shall explore Health 2.0 as a promising subset of interventions that promote healthier individuals through healthier populations and vice versa.

AQ2

WHAT IS HEALTH 2.0?

> Health 2.0 is participatory health care. Enabled by information, software, and community that we collect or create, we the patients can be effective partners in our own health care, and we the people can participate in reshaping the health system itself.
>
> **Dr. Ted Eytan, Director, Permanente Federation, LLC[22]**

Health 2.0's potential lies in enabling, catalyzing, and sustaining changes in the practice of healthcare. Dr. Ted Eytan, a nationally recognized proponent of digitally enhanced patient care with a particular interest in preventive care, has blogged the above "declaration of health care independence," which we will use as our own working definition of Health 2.0.[23] We see Health 2.0 as a human space defined by engagement, aided by technology, in which information and accountability can flow between individuals and their care teams and between individuals and their social networks.[24]

The "practice" of healthcare can be understood as a set of "behaviors" that becomes embedded in daily life, plus the "supports" that provide the appropriate resources to achieve the desired outcomes. Thus, changing a current practice (in pursuit of a different outcome) requires enabling the behavior you want to encourage by providing the necessary supports to make it happen. Health 2.0 has made new supports available for people to embed health-seeking behaviors and sustain practices that increase their involvement in their own health.

Consider this chapter's case model. ShapeUp, Inc., an international employee wellness company, uses Health 2.0 technology to utilize what they describe as a "social approach to wellness that drives maximum engagement, outcomes, and return on investment." ShapeUp has incorporated the social network research of Christakis and others as the basis of an innovative approach to wellness. They use proprietary software as a support that combines social networking, social gaming, and financial incentives to make wellness fun, drive behavior change, and help employers cut their healthcare costs. With clients like Cleveland Clinic, Highmark Blue Cross Blue Shield, and Sprint witnessing unparalleled voluntary employee engagement in these programs, and some projecting savings in the millions of dollars, ShapeUp's forays into population health management offer a promising glimpse into the future of healthcare. ShapeUp provides a vehicle to lead a set of effective wellness strategies, engage targeted participants, and motivate action to achieve desired results—for both the participants and their employers.

AQ3

CREATING PULL—HOW HEALTH 2.0 WORKS

When we work with organizations, we help them "create pull"—develop and implement a strategy for identifying, developing, and building out the supports that need to be in place to change organizational behavior and practices. In this chapter's case model, ShapeUp creates pull by nurturing a (virtual) community and providing the rewards of peer support with the discipline (and transparency) of social accountability to guide exercise participants toward better health outcomes.

Creating pull—rather than trying to "push" a new behavior—begins with understanding the interests of each person at the table. The health and wellness interests of individuals are particularly difficult to work toward, not least because people tend to dismiss the importance of their wellbeing and become invested in these interests only upon becoming acutely ill (a noticeable loss of wellbeing). Even when the risks and benefits are communicated effectively, complying with lifestyle regimens without immediate results remains difficult. Health 2.0 can aid in the shift from hierarchically prescribing patients a treatment plan and hoping for long-term compliance, to interesting patients in taking small, incremental actions on their own behalf—in effect, having them convince *themselves* of the benefits and making it easier to take those actions. The goals are to have the patients seek effective tools to better manage their own care and to ensure that such tools are made available. This new paradigm can be described as creating pull for each individual to become an engaged partner in one's health.

Based on what we know about what it takes to influence and support behavior change, the following are four tips for creating pull, with examples of Health 2.0 programs and software applications that show why they work.

1. Fill a void—for people in need of a service that they do not have access to
2. Triangulate—to mobilize the group with the most interest in change to influence other players
3. Remove barriers and engage patients—to increase buy-in
4. Enlist a critical mass—so that others can join an already-winning effort

FILL A VOID

Target people in need of a service that they do not have access to. Perhaps the best way to create pull for a new practice is to offer a solution to a problem that a group has been struggling with. For example, the demand for mental health services far surpasses what providers can handle, and access to mental healthcare is often complicated by meager insurance coverage.[25]

One particular diagnosis in the *Diagnostic and Statistical Manual of Mental Disorders*, 4th edition (DSM-IV-TR),[26] post-traumatic stress disorder (PTSD), affects 7.8 percent of Americans, and approximately 30 percent of those who have been in combat.[27] Treatment for the condition usually consists of cognitive behavioral therapy and prescribed anti-depressants, which require in-person visits. Although the current administration has authorized the hiring of a significant number of staff for psychiatric treatment at Department of Veterans Affairs hospitals, there are additional barriers to seeking treatment—in a 2009 study, 29 percent of U.S. Army soldiers reported embarrassment as a factor in their decision to forego mental health treatment.[28] This indicates high potential for patients to privately take ownership of their care.

Virtual solutions alone are unlikely to suffice for acute mental health conditions, but people are beginning to find some help for PTSD through mobile software applications (or "apps"). The Veterans Affairs website itself features one such app, *PTSD Coach*, which helps veterans in ways that are confidential and convenient. Veterans can assess their PTSD symptoms and learn techniques to alleviate them. Having this resource available can pull people to seek treatment who might not otherwise do so, because it provides free information on the disorder and suggests small, manageable steps for addressing symptoms. In other words, it contributes to filling the void of convenient, accessible, timely mental healthcare in a private setting.

TRIANGULATE

Mobilize the group with the most interest in change to influence others. The previous strategy for creating pull relies on someone assessing a need and gravitating toward a resource that addresses that need. Triangulation operates on a similar principle—having people pulled toward fulfilling their own needs—but it incorporates the need to change other people's behaviors as well. For instance, while some reforms in population health will depend on patients changing their own practices (e.g., lowering sodium intake), other innovations will depend on groups, such as payers and providers, making changes. Triangulation creates change by having the group that will benefit the most do the legwork.

Medical errors are a well-documented issue and a ripe area for changing providers' practices. A 2001 study of seven Veterans Affairs medical centers estimated that, for roughly every 10,000 patients admitted to the subject hospitals, one patient died who would have lived for three months or more in good cognitive health had "optimal" care been provided.[29] Preventing medical errors is in the best interest of everyone involved, from payers who are less likely to have to cover the cost of follow-up treatment, to providers who want to ensure high-quality care for their patients as part of their own professional identity—and can avoid litigation and negative effects on their reputation. In the end, however, the patients clearly benefit the most from preventing harmful errors.

If, as we said, triangulation creates pull by activating the group most interested in attaining the new outcome, triangulation works in preventing medical errors by mobilizing patients and their families to change provider behaviors. Campaign Zero, an organization that "delivers safety strategies to patients and their family-member advocates to prevent medical errors," is guided by this principle. Campaign Zero has created online resources, such as checklists, to educate patients and their families on specific ways that they can contribute to avoiding hospital-acquired infections and other medical errors. While educating patients and their families about preventative measures is important, the checklists also provide encouragement for changing behaviors that get in the way of actually preventing medical issues, like a family member's anxiety about overstepping bounds with providers. The checklists contain information about simple elements of monitoring the care of a family member, such as detecting early signs of bed sores, as well as context for what a family member can let nurses know and what they can ask them to do. The checklist becomes a tool for creating pull by encouraging specific actions and doing so in a way that helps normalize the behavior—reminding the family member of their agency and their responsibility in preventing medical errors, even if it means telling a provider something that he or she should already know.[30] The combination of having a motivated clinical partner in the family member, and the supports in place in the form of a checklist with information and encouragement, creates the conditions for triangulation to succeed.

AQ4

Remove Barriers and Engage Patients

Increase patient buy-in. Patients are not the only group that has been frustrated by the lack of information in the current healthcare system, or that could benefit from having more evidence-based insights on practices that work. Providers know that patients have clear reasons to help identify interventions that work, but providers often find it difficult to meet all of the requirements and commitments needed for outpatient trials. They also may experience resistance to following regimens because trials do not usually take patients' ideas about their own care into account. Providers are beginning to create pull for patients to partner in their own care by using Health 2.0 techniques that remove previous barriers to sharing information and create a collaborative space for problem solving.

In the traditional healthcare system, patients with comparatively rare diseases and their providers often have trouble finding evidence-based interventions and solutions. Knowledge sharing across providers can be irregular, may happen through journals and association conferences, and may depend on projects that do not necessarily link closely to one another. Some providers have taken the lead on innovating ways to share data and stories about clinical methods that work, reaching out to patients to source specific data in ways that are convenient for the patient. At least one online community has taken this further: to actively engage patients in suggesting interventions to study on themselves.

The Collaborative Chronic Care Network is a virtual partnership of more than 300 pediatric gastroenterologists dedicated to advancing remission rates of chronic conditions like inflammatory bowel disease. Their first step into the online space was to create a network where they could share information and advice on interventions. They realized that mobile capabilities like texting could help them gain more insight into what was actually working for their patients by setting up systems for patients to report daily on specific questions about efficacy of certain treatments via text message. This worked because it removed barriers for patients to participate—patients did not have to be available at a certain point in the day for a call and spend time on the phone, nor did they have to come into an office to fill out questionnaires or have interviews. It was also more precise to have daily submissions because, as one physician put it, "when you have chronic symptoms, every day blurs." And yet, remission rates were not dropping as significantly as expected.[31]

The network of physicians soon realized that they had an opportunity to create more pull for the program by involving patients in decisions about which interventions would be studied. At this point, the Collaborative Chronic Care Network shifted its focus from answering physicians' questions

about treatment to listening to patient's ideas about paths to explore. Eliciting the patient's voice in the projects has been successful to date, and the network now has 6,800 registered patients at 33 care centers participating. Physicians in the network are cautiously optimistic that these mini-trials, targeted to levers that patients perceive as significant, will lower remission rates further over time by creating pull for patients to participate and for providers to share what works more efficiently.

Enlist a Critical Mass

Show that others can join an already winning effort. We know that people reach out to one another in times of crisis, benefiting from support and advice from peers, and that in times of illness people seek others who have been through similar ordeals. Just as the Internet has made it possible for providers to collaborate more closely and constantly, patients are seizing on Health 2.0 to create online communities based on shared experience. The Collaborative Chronic Care Network established a community of practitioners and has built a platform where patients can share information on interventions and give each other a sense of community and emotional support. Patients are also taking the lead in creating these online communities, which are especially powerful for those with rare diseases and who would have had less of a chance of speaking with others in their situation in the traditional healthcare era. Patients then had few ways of meeting one another or sharing information from their perspective about symptoms, procedures, medications, workarounds, and providers.

The Internet is beginning to make a dramatic impact on the lives of people suffering from obscure and more prevalent conditions alike, through a kind of snowball effect. PatientsLikeMe is a social-networking site that connects people who are battling the same illnesses, while also encouraging openness of medical information to understand outcomes and drive at solutions more quickly.[32] It puts the data in patients' hands and gives them a platform to discuss it. When patients meet, they can create pull for change together by doing things as simple as communicating about interventions that work, sharing their own medical data and results, or launching larger undertakings, such as lobbying the government to fund research for their condition or convincing pharmaceutical companies to develop drugs that have a life-saving impact on a relatively small number of worldwide sufferers.

HEALTH WEBSITES AND APPS—NOT JUST A FAD

Information technology may have arrived slowly into clinics and insurance companies, but the pace of innovation and adoption in consumer electronics today is astounding (and accelerating). Devices are quickly penetrating every facet of our lives in the form of laptops, smartphones, tablets, and beyond. Thousands of health and wellness websites and software apps already exist, and we believe their role will become increasingly important in healthcare. Some are crucial elements of health organizations' programming, such as the online platform that ShapeUp used to manage its business functions. Many are stand-alone tools without an organization or programming per se—e.g., apps for counting calories, monitoring glucose levels, or tracking sleep. Are websites and applications effective means of engaging individuals in their own health? And if so, what separates the good ones from the bad ones?

A 2009 meta-analysis of web-based smoking cessation programs found the pooled quit rate for participants to be 14.8 percent after follow-up conducted three months out, and 11.7 percent after six months out.[33] These figures are an improvement over the rate of people attempting to quit without any help or resources, as previously cited. From our own study of health websites and applications, we are beginning to see that high-quality digital resources share many characteristics with effective products and services in the physical world. They create pull by engaging users via explicit reward structures. They enable teamwork and foster social accountability. Their content is interactive, informative, and often individualized. Their use is intuitive, convenient (e.g., accessible via the Internt on a laptop or tablet and by smartphone mobile apps), and even effortless to the user (e.g., automatically collecting, synchronizing, and analyzing information).

The fragmented world of websites and applications is not without its problems. In today's app market, the void that many websites and applications fill is not necessarily in the best interest of health consumers, and the quality of their products or services is often questionable. We see such issues as a reality of any market in its early stages. We are optimistic, however, that greater consultation with medical professionals, greater investment and competition among health organizations, and improved regulation can help this new market mature into an indispensable virtual ecosystem of resources for health-seeking individuals.

EARLY RESULTS FOR HEALTH 2.0

Despite the growth in Health 2.0 interaction over the past few years, we still see Health 2.0 as being in its infancy relative to the potential it holds for engaging patients in managing and being more accountable for their own health. There is further hard evidence that its strategies are already improving patients' quality of life, expanding providers' expertise, and helping health systems and payers financially. (Sprint estimated more than one million dollars in savings for a challenge that lasted only twelve weeks.) If Health 2.0 can, as we have discussed, enable people to reduce smoking, become more fit, and more actively participate with their providers in the management of chronic disease, we posit that these factors combine to result in a better sense of health and wellbeing for those involved. One would logically conclude that these kinds of interventions result in fewer interactions with the healthcare system, an issue that Harrison et al. tackled in a study from 2012 that was published in *Population Health Management*.[34] It looked at the relationship between self-reported individual wellbeing and future healthcare utilization and cost. They found that higher self-reported wellbeing was associated with fewer hospitalizations, visits to the emergency room, and use of medications. Overall, the authors concluded that improving wellbeing (or what we would refer to as a perceived sense of health) holds tremendous promise in reducing future use of healthcare services and the costs associated with that care. We see Health 2.0 as an effective way to enable people to improve their wellbeing and suggest that its impact will continue to grow over time in terms of better outcomes and reduced cost.

AQ5

Health 2.0 offerings are looking at a variety of ways to measure their impact beyond cost and quality. The Collaborative Chronic Care Network, for example, is reporting on number of participants, response rates via text, and pilot projects undertaken, but not yet on the clinical or financial impact of its patient partnerships. Even well-known companies, such as PatientsLikeMe, are not currently reporting their specific impact on influencing organizations and institutions to drive toward standards of care and other cost-reduction solutions in healthcare—rather, they are reporting their impact on individual lives, through testimonials on the power of connection. Their vision of results rings true for many components and actors in Health 2.0:

> We envision a world where information exchange between patients, doctors, pharmaceutical companies, researchers, and the healthcare industry can be free and open; where, in doing so, people do not have to fear discrimination, stigmatization, or regulation; and where the free flow of information helps everyone. We envision a future where every patient benefits from the collective experience of all, and where the risk and reward of each possible choice is transparent and known.[35]

This description does not mention economics, but it also does not mention illness. We know that clients of companies like ShapeUp are working in the background to compile their own estimates of the savings that these programs and other interventions are likely to have on their healthcare costs. This is the kind of data that will "triangulate" out to other organizations and help build momentum for Health 2.0.

As we shift from a system that addresses sickness to one that promotes health, we may experience that the more interesting promise of Health 2.0 is less about economics and more about accelerating a sweeping cultural shift that focuses our collective and individual energy on wellness. We know that tools alone—the supports that can help catalyze behavior change—will not be totally

responsible for the change in outlook, but the tools and other supports in Health 2.0 will serve as some of the key catalysts, ushering in a new era that foregrounds prevention, wellness, and better management of chronic disease, and works to reduce the economic burden on health systems, governments, and individuals themselves.

CONCLUSION

The promise of Health 2.0, while substantial, has yet to be realized on a large-scale basis. New technology, programs, and apps are being introduced to the market on a daily basis, yet we know that these technologies are not accessible to all who need them, and it can be difficult to evaluate their effectiveness. We read one study that looked at a diabetes group on Facebook, where nearly one-third of the posts were related to some type of promotional activity for non–FDA-approved natural products[36]. With examples like this, it is important to be clear that we do *not* see Health 2.0 as a substitute for physicians or other members of the care team.

Instead, we view Health 2.0 as a currently under-utilized enabler to more effectively engage patients in understanding how they can take greater ownership of their own health. Reaching back to the beginning of this chapter, Health 2.0 has the potential to help patients become part of the "pit crew" that Gawande describes. This would enable tighter coordination among individuals and their care providers and support networks in scalable ways that promote wellness at great value (in terms of health gains per dollar spent). When considering the potential for behaviors to spread in social networks, the influence that some aspects of Health 2.0 could have seems particularly potent. We envision a day when Health 2.0 spreads from somewhat grassroots programs targeting segments of populations to an industry-side, organization-driven paradigm where Health 2.0 is simply part of effective population health management.

CASE MODEL 1

ShapeUp Inc. is an employee wellness company, founded in 2006 by two entrepreneurial doctors, that uses social networking and friendly competition to incentivize healthy behaviors including weight loss, increased physical activity, conscientious eating, and preventive care.[1] ShapeUp's online social networking platform was built on research showing the link between achieving and sustaining positive behavior change like losing weight or quitting smoking and significant help and support from social networks. ShapeUp's health interventions have been clinically shown to improve the health of employee populations and have been used by more than 200 employers internationally.

To use ShapeUp, employees form teams but log on individually to enroll and participate in the wellness program online. There they can track individual and team progress for up to three daily metrics: steps walked (as measured by a provided pedometer), minutes of exercise, and weight. At its core, the program is structured around social accountability to encourage reporting on a regular basis and to deter misreporting (i.e., inflating numbers). While metrics are generally tracked on an honor system, the platform also offers integration with fitness devices, such as the Fitbit, that directly submit data.

Participants are able to add each other as "supporters" to create a larger, more engaging wellness network, beyond the team structure. Encouragement and suggestions can be exchanged within these networks via a team chat tool; through one-click options to send motivating emails and reminders to track data; and even by virtual "high fives" to recognize individuals who have done a great job. In addition to the team goals and overall rankings, participants can invite one another to perform spontaneous "quick challenges"—for example, challenging a friend to do 30 sit-ups today.

Sprint is one of the largest American telecommunications companies, with 40,000 national employees working in more than 1,000 retail stores across the country. Sprint sought a wellness program that would excite and engage a diversified, tech-savvy workforce while providing measurable outcomes and return on investment.

To that end, Sprint partnered with ShapeUp in 2012 to run a 12-week fitness challenge that asked employees to form teams and see which teams could walk the farthest, exercise the most minutes, and lose the most weight. Individuals were asked to track their daily fitness activities through the ShapeUp platform, enabling co-workers across the country to virtually connect with one another with a common goal in mind. This online support encouraged participants to stay engaged in the program and in their exercise and weight loss plans.

The results:

- Sprint enjoyed a 40 percent engagement rate for the program, involving 16,000 employees.
- Participants completed nearly 22,000 minutes of exercise, logged almost 4.8 billion steps, and lost over 40,000 pounds over the 12-week challenge.
- Sprint estimates that the total healthcare cost savings as a result of the program is over $1.1 million.

CHECKLIST

As we have discussed, the shift in focus from sickness to health can be enabled by providing supports for the behavior change that will drive population health management. Our research shows that elements of infrastructure and support, or strategies to "create pull," rarely work alone—any tool or process requires a few of these elements to work in tandem to be successful. Whether you are using mobile applications and online communities, or engaging patients in using Health 2.0 resources, here are some ways to think about whether a platform will help foster the change you need.

CHECKLLIST 1:	Yes	No
Fill a void	o	o
Does it meet an expressed or tacit need to keep people healthy?		
Does it do something that's never been done before for prevention, care, or wellness—or just do it better?	o	o
Track progress and results data	o	o
Does it automatically show people what they have accomplished?		
Does it motivate people through tying their progress to results and reasons to achieve them?	o	o
Remove barriers	o	o
Does it remove issues and problems—technical, emotional, logistical, communicative, or other—that keep people from making the behavior change?	o	o
Pilot patients' ideas	o	o
Does it gather new ideas about symptoms, treatment, side effects, outcomes, and other experiential measures from first-hand accounts?		
Does it involve the patient in decisions?		
Triangulate	o	o
Does it mobilize the people who will feel the biggest impact, and who have the most incentive to make the change happen?		

Enlist a critical mass		o
Does it help people to form coalitions and share information to gain headway on developing and allowing access to clinical information or procedures, pharmaceutical options, or governmental processes?	o	
Create accountability		
Does it create expectations for self-reporting, ask people to compare their progress to others,' or otherwise drive accountability?	o	o
Provide social support	o	o
Does it create a community of common experience or provide mechanisms for peer support?		
Give people an incentive	o	o
Does it reward people economically, or through respect and recognition?		
Ensure ease of use	o	o
Is it fairly easy and intuitive for people to adopt?		

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AQ6

AQ7

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