

THE VOLUME-TO-VALUE REVOLUTION

REBUILDING THE DNA OF HEALTH FROM THE PATIENT IN

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INTRODUCTION

Most industries compete on value. US healthcare does not. But that is about to change.

Healthcare innovators are already redefining healthcare value, putting patients first and inventing with little regard for current constraints. They have ignited a powerful, self-funding upward spiral by focusing first on healthcare's big opportunities, transforming the value equation, generating large savings, and fueling smart reinvestment in the next wave of innovation.

The changes the industry faces will be neither smooth nor linear. A period of intense turbulence will produce more losers and winners than any industry transformation of recent memory. Cross-industry competition (healthcare versus retail versus technology versus others) will erase traditional boundaries and generate exciting new value propositions for patients, payers, and physicians.

Consumers, long passive, will have a new role. Employer incentives, retail access, and new technology options will encourage them to engage, demand information, and push for value. Baby boomers reaching the age of peak healthcare need will kindle the fire and Millennials focused on nutrition and fitness will keep it burning. The industry's metamorphosis from a supply-driven market to a more dynamic one driven by demand will happen more quickly and erratically than we expect. Inevitably, mental models will lag market reality, and conventional organizations will fight a rearguard battle, hampered by collapsing margins and eroding market share.

Multiple market shifts will converge and redefine healthcare value and competition. That's why it's timely for both industry leaders and new entrants to ask:

- Will our current business model be obsolete? How will the rules change?
- How big will the changes be, and how fast will things move?
- What will be the new basis of competition, and who will the competitors be?
- How much market capitalization will shift/be lost?
- What business designs will win in the future?

This white paper, the first of an ongoing series on innovation in healthcare, describes healthcare's already-launched volume-to-value revolution and charts the path to 2025. The paper is based on research conducted by Oliver Wyman's Healthcare Innovation Center and includes interviews with 25 industry leaders along with extensive discussion with the center's advisory board. The next paper, on Healthcare 2025, will be published in spring 2013.

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WHAT'S BEST FOR THE PATIENT?

In 2008, when physicians from CareMore, an independent medical group based in Cerritos, California, heard news reports of a brutal heat wave, they began contacting their elderly emphysema patients. Physicians worried that the scorching heat would drive their at-risk Medicare Advantage patients to the emergency room. So when patients said they had no air conditioner, the physicians purchased units for them. The theory was that the roughly \$500 cost paled in comparison to the cost of an emergency-department admission. As it happened, this non-medical “intervention” kept CareMore’s patients out of the hospital. But if they had needed to go and lacked transportation, CareMore would have offered a free ride.

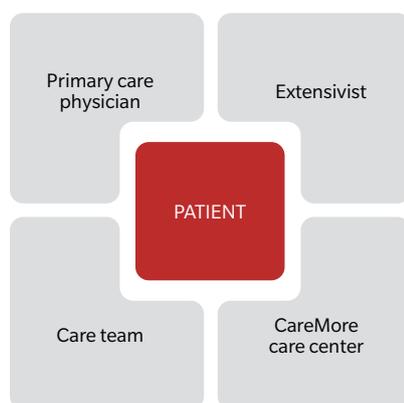
CareMore has an expansive, counterintuitive approach to healthcare. The group fends off falls by providing patients with regular toenail clipping and by removing shag rugs—a common household risk for the elderly. Patients engage in iPhone conference calls with healthcare professionals and are remotely monitored with devices that feed data automatically to doctors; for example, patients with congestive heart failure are given a wireless scale that reports their weight on a daily basis—a key step in preventing hospitalization. They have singing pillboxes that chime when it’s time to take medications.

These unusual tactics produce enviable outcomes: CareMore’s hospitalization rate is 24 percent below average, hospital stays are 38 percent shorter than average, and the amputation rate among diabetics is 60 percent below average. Overall member costs are roughly 18 percent below the Medicare average.

CareMore is relatively small (54,000 members), but its patient-centered medicine—characterized by coordinated care, a focus on highest-cost cases, upstream prevention, electronic records, and clinical protocols—is being deployed in various forms by organizations of all sizes: Camden Coalition (with 1,000 members) in New Jersey; ThedaCare (150,000) in Wisconsin; Scott & White (223,000) in Texas; Geisinger (270,000) in Pennsylvania; Intermountain (500,000) in Utah and the mountain West; Healthcare Partners (700,000) in three states; and Kaiser Permanente (9 million) in nine states and the District of Columbia, to name a few.

These innovative providers have shown they can improve outcomes by 20 to 60 percent and cut costs by 15 to 30 percent. This is true for very different populations—Medicaid and Medicare, poly-chronic and major episodic, urban and rural. These “first-generation disruptors” have demonstrated how to break through clinical and economic barriers to build market share and a durable profit center. Dr. Sheldon Zinberg, who founded CareMore in 1993 (and later founded Nifty After Fifty exercise centers), coins what could be a motto for a modern healthcare system: “If you put the patient first, the patient will profit, and you will profit.”

CAREMORE BUSINESS MODEL



Source: CareMore website

“

The current system is stuck on fee-for-service, and it's a barrier to a better healthcare model. But I think we're at a historic time, with a growing consensus that it's time to move away from fee-for-service. Once freed from that tyranny, creativity is unlocked. ”

George Halvorson
chairman and CEO
of Kaiser Permanente

Today's volume healthcare is provider-centric, driven by fee-for-service payments. The emerging value healthcare is patient-centric—and, increasingly, population-centric—driven by global payments. The patient-centered leaders will win patient loyalty while transforming the quality and value of healthcare they provide. Make no mistake, the leader-laggard gap is widening as the pace of innovation accelerates.

Patient-centered care models with coordinated care teams are called patient-centered medical homes (PCMH); the patient has one place considered “home,” rather than having to navigate the fragmented system on his own. With a focus on prevention and early intervention, PCMHs have the potential to significantly reduce per-person spending, especially in higher-need patient populations.

“Medical homes are making a difference and achieving savings gains of five percent to 15 percent,” says George Halvorson, chairman and CEO of Kaiser Permanente, the \$44 billion insurer-and-provider that introduced the concept of prepaid medical services in the 1930s. “The current system is stuck on fee-for-service, and it's a barrier to a better healthcare model. But I think we're at a historic time, with a growing consensus that it's time to move away from fee-for-service. Once freed from that tyranny, creativity is unlocked.”

Imagine patient-centered care improving value enough to offset the impact of aging baby boomers, keeping aggregate healthcare spending roughly constant. If, in fact, spending were to remain flat, it might appear that little has changed in the industry beyond cost containment. In fact, the \$2.6 trillion we would spend tomorrow under that scenario won't remotely resemble the \$2.6 trillion we spend today—nor will the industry. The disruptive new care models and relentless pursuit of improved health value will drive transformational changes to the U.S. healthcare market:

- **Patient-centered care and the shift to value** will eliminate \$500 billion in low-value-add activities and begin to flatten the cost curve to 3 percent (a hair above inflation)
- **New patient-centered population health models** will cause more than \$1 trillion of value to rotate from the old models to the new and create more than a dozen new \$10 billion high-growth markets
- **Extra-industry players from the retail and technology sectors (fueled by private capital)** will enter the market on their own or partner with the health innovators. The last decade saw the convergence of the technology, telecommunications, media, and consumer electronics value chains. New industry players transformed the value proposition to the consumer, and multi-chain players blew by single-chain players who clung to old and sometimes irrelevant value stories. We expect to see a similar movement in healthcare. And once convergence starts, incumbents will be hard pressed to catch up and keep up. This cross-industry convergence will blur traditional borders, redefine healthcare competition, and accelerate the pace of innovation.

Don't be surprised to see healthcare mirror the technology industry, where consumers get more bang for their buck with each new generation of technology.

More than 25 population-health management companies shared their stories with us and revealed in clear terms how it is possible to improve patient value while keeping a lid on total spending. They have accomplished this over the past decade, and they think we are just at the beginning of the largest industry transformation in the past century.

Indeed, healthcare organizations from California to Florida have found ways to shatter today's economic and clinical barriers, igniting a volume-to-value revolution in healthcare delivery that produces better outcomes. The novelist William Gibson once noted, "The future is already here—it's just not very evenly distributed." After talking to today's disruptors, we think the same can be said of the future of healthcare.

Steve Jobs used to "think different" and ask, "What's best for the consumer?" The leaders of the remarkable healthcare trend-benders also "think different" and ask, "What's best for the patient?" That simple question shifts the point of business design and leads to incredible patient health improvements and better value.

Healthcare's value equation is headed in the wrong direction—prices increase and value erodes every year. But, as new population-health managers come of age, the healthcare market converges with information technology, and consumers join the game, don't be surprised to see the healthcare value equation more closely mirror that of the technology industry, where consumers get a lot more bang for their buck with each new generation of technology.

HEALTHCARE'S VOLUME-TO-VALUE REVOLUTION



The burgeoning revolution is occurring in three waves. Each wave establishes a foundation for the next wave, and the rate of innovation accelerates across the waves.

WAVE 1: PATIENT-CENTERED CARE (2010-2016)

Healthcare providers focus their care model on patient needs. Physicians break the cycle of transactional patient visits that generate a diagnosis and a standardized, non-personal treatment plan. Physicians shift from a one-size-fits-all approach to a population-health approach, aligning care-team resources to meet the needs of different patient segments (e.g., healthy, urgent care need, chronic disease or multiple chronic diseases). Patients with different needs are treated by care teams designed to meet the unique needs of the patient—this is the essence of population-health management.

With an eye toward engaging patients in improving their own health, care teams expand to include care coaches, social workers, nutritionists, and fitness trainers. Patient-centered care is personalized to the patient, integrates sickness and wellness, and is broadly available every day, around the clock.

As population-health managers transform the care model, they will inevitably reduce the use of hospitals, eliminate unneeded emergency department visits, prevent aspects of specialty care, and reduce potential overuse of advanced diagnostics. High-need patients will experience better outcomes and a dramatically improved patient experience. As Wave 1 matures, population-health management will begin to compete on value, build brand, promote transparency on performance, and specialize around specific patient populations.

If we simply mainstreamed today's best-in-class models of patient-centered population-health management, the U.S. health system would eliminate nearly \$350 billion of low-value-add activity and shift another \$600 billion from provider-centered care models to patient-centered care models.

WAVE 2: CONSUMER ENGAGEMENT (2014-2020)

Imagine consumers shopping for the best patient-centered population-health manager to meet their health needs. Think about new patient-centered businesses competing on price, value, and outcomes with a consumer scorecard. Imagine crowdsourcing services like Yelp for providers and mobile apps that support consumer health decision making.

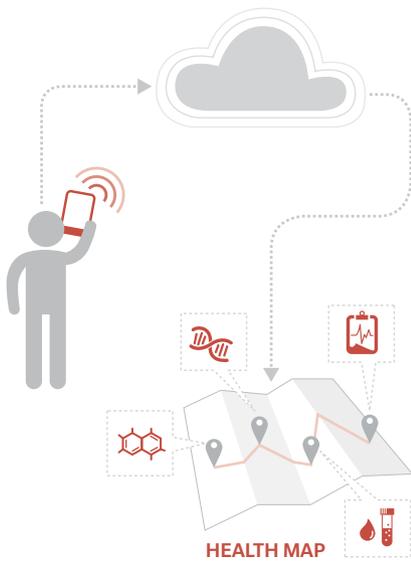
As the retail consumer market builds via public and private exchanges, consumers will use their healthcare dollars to actively vote for better care. Wave 1 population-health managers will invite extra-industry players into the market to improve their value proposition to the consumer and to increase points of engagement. Some extra-industry players will barge in with disruptive (and much more valuable) models, as we have already seen with convenient-care models in pharmacy chains.

With the convergence of electronic health records, personal health records, cloud computing, health kiosks, personal genomics, mobile apps, and home-based monitoring, consumers will expect and demand personalized real-time access to health services. Wave 2 will be driven by pent-up consumer demand from aging baby boomers and tech-savvy Millennials. Players like Rite Aid, Wal-Mart, Walgreens, IBM, and tech/social media companies are already entering the healthcare value chain.

"Healthcare is an information-dependent industry. The science is better, the practice is better, care is better—with data. It's essentially an information-dependent service," says Kaiser Permanente's Halvorson.

Given technology's power to scale, the maturing base of population-health managers, and the added impact of consumer demand for value, the rate of change in Wave 2 could easily double that of Wave 1. In Wave 2, another \$150 billion in low-value-add activities is squeezed out, while \$400 billion of additional value will rotate to the new retail value chain.





WAVE 3: THE SCIENCE OF PREVENTION (2018-2025)

Given a mature retail health market with fully functional population-health managers, national brands, and fully integrated Web 2.0, expect viral health innovation adoption curves. Imagine holding a mobile device up to your child’s ear and transmitting the relevant biometric information to the retail health cloud for an immediate diagnosis and treatment plan. Imagine a \$100 saliva-based genomic-sequencing test at a walk-up kiosk—available in 50,000 retail health stores—along with a personalized health plan and a mobile app or avatar to help navigate your personal health profile. The industry is already on pace to deliver. Will we be ready to understand and manage the implications of our personalized genomic sequence?

Wave 2 will help Wave 1’s great population managers become even more effective and will devastate provider-centric players who have lagged the market. Wave 3 will make the most highly evolved and adaptive population-health managers more powerful and will significantly constrict the Wave 1 players who don’t continue to accelerate innovation.

WAVE 1: PATIENT-CENTERED CARE

TOP OF THE PYRAMID

Frail Elder, Poly-chronic, Urban Poor

Imagine a pyramid representing subsets of Americans based on their health status, and beside it an upside-down pyramid representing the healthcare costs related to each subset or layer in the pyramid.

Five percent of Americans account for 45 percent of healthcare spending—\$1.2 trillion. These 15 million unhealthy Americans at the top of the healthcare pyramid are at the heart of the near-term healthcare affordability crisis and the unfortunate victims of our fragmented, illness-focused healthcare system.

“We talk as if we have to overhaul the entire healthcare system, but that’s not quite correct,” says Alan Hoops, former chairman of CareMore Medical Enterprises, which also owns CareMore Health Group, the insurance component of CareMore. “The biggest problem—and opportunity—lies with the part of the system that serves our highest-risk populations.” Problem or opportunity—what do you think?

In the near term, the only way to improve healthcare value while making it more cost effective is with a new approach to the very sick at the top of the pyramid. That’s where substantial Wave 1 gains will kick in. Over the long term, the only way to flatten the healthcare spending curve is by investing in wellness and prevention at the bottom of the pyramid—preventing the next generation of at-risk and poly-chronic patients. That comes in Wave 2.

“Everyone mouths the words, ‘One percent of the population spends 30 percent of the money, 5 percent spends 50 percent.’ But operating models and financing plans ignore this fact,” says Charlie Baker, former CEO of Harvard Pilgrim Health, now with venture capital firm General Catalyst.

Taking a patient-first approach to the population at the top of the pyramid is the first step toward change. Below, we describe two healthcare providers focused on distinct populations that have overcome today’s barriers to improve outcomes and reduce costs. Both of these organizations have taken out low-value-add activities while improving the patient experience and clinical outcomes.



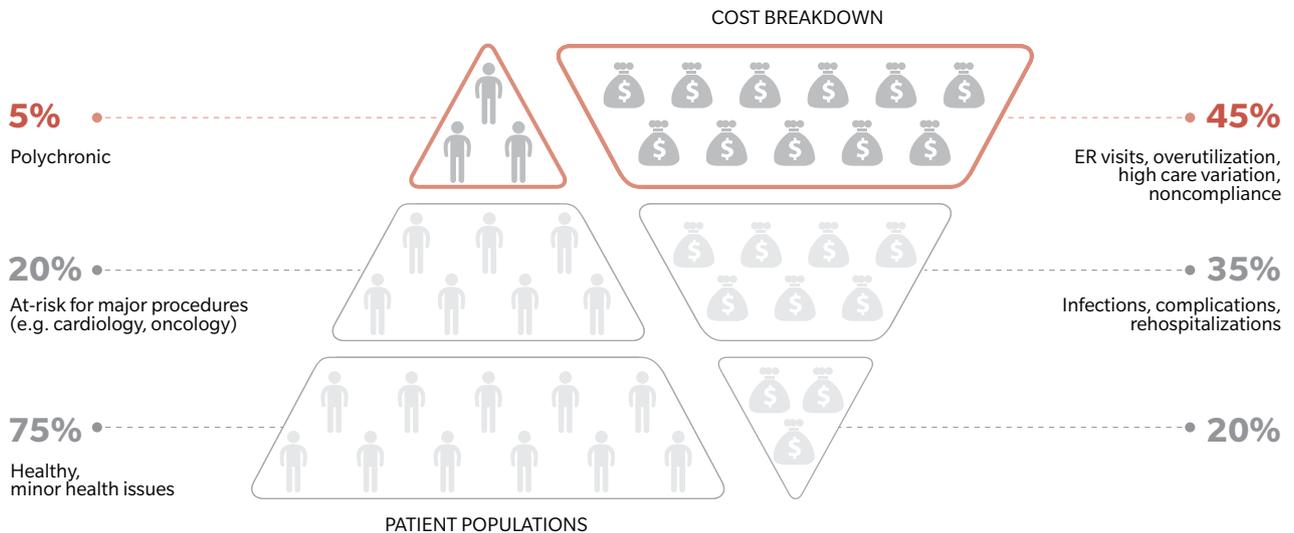
A health provider for frail elders reduces costs by heading off hospitalizations

CAREMORE: Rebuilding healthcare for frail elderly patients

CareMore exclusively serves a Medicare Advantage population, focusing its resources on the 15 percent of its patient panel that generates 60 percent of its healthcare costs. These are the frail elderly who are at risk of falling and breaking a bone or diabetic patients facing a potential amputation.

Medicare Advantage and risk-adjusted global payments helped to make CareMore’s patient-first business design really work. Fee-for-service cannot easily fix the problems in the top two layers of the pyramid because providers have no incentive to streamline care or cut costs. By receiving an age- and health-adjusted payment for its full patient panel, CareMore can allocate resources to provide the most overall value. In one case, as we’ve seen, that translated to buying air conditioners for frail elders during a heat wave.

The upside-down pyramid (Today): Cost by clinical segment



CareMore's patient-first business design required a total rethink of the patient relationship, the health model, and the care team.

CareMore's patient-first business design required a total rethink of the patient relationship, the health model, and the care team. At the heart of the CareMore model is a clinical care center where patients can come (or are brought) for health or nutrition education, a fall-prevention clinic, and toenail clipping or wound-care management. While a physician leader coordinates patient care, the care team includes social workers, nurse practitioners, fitness trainers, nutritionists, pharmacists, and care coaches.

Frail patients, even those with congestive heart failure (CHF), are offered exercise and strength-training programs. Each pertinent chronic condition has its own holistic treatment plan, including a personalized care program. For example, when CareMore patients with congestive heart failure step on their digital scale, their weight is automatically transmitted to their care manager. Weight gain is an early warning sign of fluid retention, which is manageable if detected early and treated proactively. Without an early intervention, CHF patients can experience shortness of breath and end up taking an unnecessary trip to the emergency department.

"CareMore has carefully developed more than 30 needs-based, intensified-care platforms," says Dr. Arnold Milstein, director of the Clinical Excellence Research Center at Stanford University. "These platforms are customized to serve both diagnosis- and non-diagnosis-specific needs of patients at highest risk of costly health crises."

Over the past 15 years, CareMore has continued to refine the model across five markets in three states. CareMore earns top-five-percent scores in clinical quality and patient satisfaction every year. The leadership team believes the pace of innovation and degree of value improvement is about to jump to the next level. CareMore has already developed population analytics ahead of the market, designed their entire health model around the patient, integrated the diverse care team culturally and through information systems, and deployed simple low-tech solutions to make early versions of home-based biometric monitoring affordable. CareMore doesn't see barriers – it sees opportunities.



Camden Coalition of
Healthcare Providers

A community coalition targets "train wreck" patients in a poor, urban Medicaid population

CAMDEN COALITION: Redesigning healthcare for an urban Medicaid population

Camden Coalition (in Camden, New Jersey) focuses on the 1 percent of Medicaid patients responsible for 30 percent of the city's medical costs and the 5 percent responsible for 60 percent. This "hotspotting" tactic (founder Dr. Jeffrey Brenner is known as "Dr. Hotspot") is a way to head off "train wreck" patients before their chronic conditions lead to an unstoppable downward spiral.

Located in one of the nation's poorest cities, where many don't have insurance or a doctor, Camden Coalition is an organization of physicians, nurses, social workers, hospitals, health-service organizations, and clinics that serve Medicaid patients. Rather than a classic medical group, Camden Coalition functions more as a community facilitator that engages multiple stakeholders to solve a major civic problem.

Camden Coalition's aggressive management approach has reduced hospital admissions by 40 percent and Medicaid spending by 56 percent.

Camden Coalition identifies at-risk patients and neighborhoods by geo-mapping hospital data and provides local community clinics with outreach nurses and social workers whose job is to build patient relationships—using home visits, counseling, and free transportation as part of their toolkit. This aggressive management approach has reduced hospital admissions by 40 percent and Medicaid spending by 56 percent.

Bringing a patient-first business design to this previously ignored population was bound to create big improvements. Focused patient-centered care is more cost effective than no care at all or charity care at the emergency department. “Better care for people is disruptive change,” says Dr. Brenner.

As CareMore and Camden Coalition have demonstrated, poly-diseased, poor, aging, and high-risk patient segments are underserved in today's fragmented healthcare system and represent an opportunity to substantially improve the quality of care while eliminating or preventing unneeded costs. These patient-first business designs are generating 30 percent cost reductions with improved patient engagement and better outcomes.

The population-health management principles and business designs pioneered by CareMore and Camden Coalition apply equally well to middle-of-the-pyramid patients with chronic diseases or complex conditions like diabetes or cancer.

MIDDLE OF THE PYRAMID

Integrated Healthcare

The middle of the pyramid includes nearly 60 million Americans who face a chronic disease, cancer, or an acute clinical event like a heart attack. The middle of the pyramid includes diabetes, congestive heart failure, breast cancer, high-risk maternity, etc. There are many \$10 billion healthcare markets tucked inside this \$910 billion middle layer—creating lots of opportunity for patient-centered innovation within or across these clinical marketplaces.

We examined four patient-first organizations that understand the twofold opportunity in the middle layer—improving value and health status, which stems the flow of patients to the top of the pyramid.



Evidence-based protocols reduce variation in care, improve outcomes, and cut costs

INTERMOUNTAIN HEALTHCARE: Improving healthcare for patients with a single chronic disease

Evidence-based medicine (EBM) offers a surefire way to increase quality and lower costs in diseases such as coronary artery disease (CAD), diabetes, congestive heart failure, and tumor-based cancers. A leader in implementing EBM is Intermountain Healthcare, a medical group based in Salt Lake City, Utah, with more than 900 physicians serving 23 hospitals and 500,000

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Dr. Brent James
 chief quality officer of
 Intermountain Healthcare

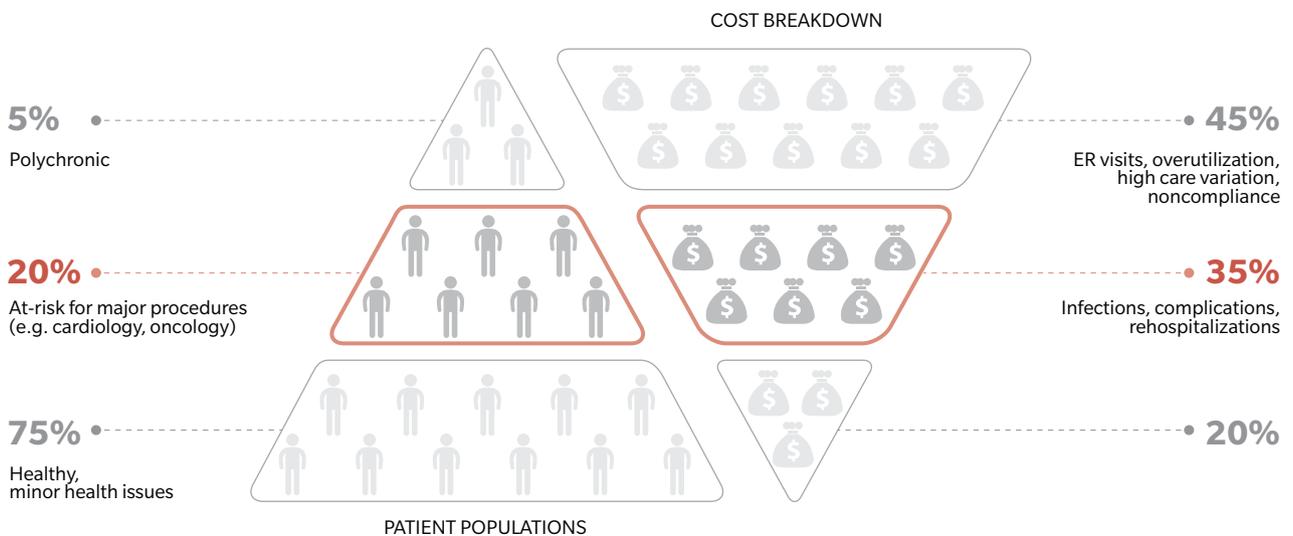
members. Working with an extensive database of electronic health records (which the company has used since 1986), Intermountain has developed 50 step-by-step EBM protocols that it electronically delivers at the point-of-care.

“We learned early on that narrowing variation improves clinical outcomes,” says Dr. Brent James, chief quality officer, who began instituting protocols in 1990. “We do the right thing, even if it drives cost. But we demonstrated that quality drives savings.” For example, evidence on five classes of medications for heart-disease patients led to nurse-discharge protocols that include a medication checklist. Appropriate medication compliance increased from 57 percent to 98 percent, and both mortality and readmission rates declined among these patients.

Another protocol Dr. James introduced in 2001 was based on evidence that babies electively induced before the 39th week of pregnancy were much more susceptible to respiratory ailments and death. As the number of early elective inductions drops, the incidence of complications and death drops from 2 percent to close to zero. “Much of this is applying basic modern industrial management techniques to healthcare,” says Stanford’s Milstein. “But the task of convincing healthcare professionals to execute half as systematically as NFL professionals is non-trivial.”

Intermountain has 14 development teams, each focusing on a different disease. Teams led by a physician leader develop “patient-centered care process models” and work with patients and the clinical team to promote adoption of the new model. For example, the diabetic care-management model is designed to produce consistent treatment and results across the whole Intermountain system. When a patient with diabetes is identified,

Today: The upside-down pyramid: Cost by clinical segment (Middle of the pyramid)



everyone on the patient's care team is made aware through the patient's health record. Doctors educate patients during visits and through mailings; care managers make regular outreach phone calls to ensure regular tests and screenings; and diabetes education centers attract 20,000 visits a year. Patients who skip regular screenings or fail to fill prescriptions are flagged by a case manager. More Intermountain diabetic patents—90 percent—have their blood sugar tested annually than the national average. And fewer—22 percent—have blood-sugar control issues.

Over the past decade, Intermountain has spent \$2 billion on information technology. The money could have gone for new facilities, operating rooms, ICU beds, high-end diagnostics, or surgical robotics, all with proven near-term returns. Instead, leadership chose to invest in the infrastructure required for value-based care delivery, breaking through the information barrier and changing the leadership paradigm. The result is integrated and proactive chronic-care programs that put the patient first.

GEISINGER

REDEFINING BOUNDARIES*

*Best practice models (and flat fees)
for major acute events lead to a
higher standard of care*

GEISINGER: Improving patient care through protocols and an integrated approach to acute episodic surgery

Geisinger, a medical group in northern Pennsylvania with 660 physicians, three hospitals, and 55 offices serving 270,000 members, implemented electronic health records in 1995. Patients can access their own records, and, with permission, those of their elderly parents. But Geisinger is best known for its approach to acute major events—with a determined time frame from diagnosis through rehabilitation and recovery.

Since 2006, Geisinger has recommended a best-practice model with 40 steps for surgeons performing coronary bypass graft operations. Surgeons adhere to protocols at a 99.95 percent compliance rate; costs have fallen from \$112,000 to \$88,000.

Geisinger charges fixed prices for complex procedures and surgeries that are typically fragmented among multiple physicians and surgeons. Its ProvenCare bundled pricing includes the first physician visit, all hospital costs for surgery, and related care for 90 days after surgery, including cardiac rehabilitation. If costs exceed the fixed price, Geisinger absorbs the loss, incenting itself to perform and get patients back on their feet faster.

This bundling of multiple services applies to hip replacement, cataract surgery, obesity surgery, and an 11-month package that covers childbirth from pre-natal care to six weeks post-delivery. Price bundling has also been extended to the most common chronic diseases—diabetes, coronary artery disease, congestive heart failure, and kidney disease.

Instead of optimizing fee-for-service revenues, Geisinger chose to change the model and create a higher standard of care—putting the patient first. As a result, Geisinger has significantly improved the value equation for patients experiencing acute episodes of care and has become the brand leader in the region. Geisinger is now developing a new services business by packaging

Geisinger's bundled pricing includes the first physician visit, all hospital costs for surgery, and related care, including cardiac rehabilitation.

their offering to other health systems. Geisinger's approach is a prime example of how to accelerate the volume-to-value revolution by dramatically shortening the innovation and adoption cycle.



SCOTT & WHITE Healthcare

Making it easy for patients to navigate the system, and allowing them to focus on getting better

SCOTT & WHITE: Building a coordinated care business design to improve patient care for patients facing major conditions

Scott & White, a medical group in Central Texas with 900 physicians, 12 hospitals, and 60 clinics serving 223,000 members, is a master of patient-centered coordinated care. The group's patient-centered business design integrates care across multiple conditions and simplifies health management for the patient.

For example, Scott & White applied its patient-first thinking to women with breast cancer, designing an integrated care team including critical physician collaborators (tumor board) to better meet the patient's needs. Scott & White removes navigational complexity and helps patients focus their energy on treatment and recovery. Depending on the case, the integrated care team can include medical, radiation, and surgical oncologists, diagnostic radiologists, pathologists, and geneticists, as well as plastic surgeons, nurses, and nutritionists. This breast-cancer ecosystem is available under one roof—but thanks to electronic health records, patients can choose to receive treatment at regional locations.

Without a patient-first mindset it would be very difficult to build such an integrated oncology ecosystem. Scott & White broke the fragmented provider-centric model in oncology, redefining roles and redistributing clinical and financial contributions.



Same-day appointments, outcomes-based compensation, and a relentless focus on productivity

THEDACARE: Bringing Toyota-like efficiency and intense patient focus to a PCMH

ThedaCare, affiliated with Touchpoint Health Plan and serving 150,000 patients in Northeast Wisconsin, modeled its proprietary improvement system on the Toyota Production System. Since the introduction of electronic health records in 1997, ThedaCare has used the Toyota model to achieve continuous cost reductions and improved outcomes. (*Hospitals & Health Networks* magazine has ranked ThedaCare among its "100 Most Wired" hospitals for 10 straight years.) ThedaCare offers same-day appointments with extremely fast processing and short waits, and its Fast Care clinics are open nights and weekends. Last year, the radiation oncology department improved productivity by 30 percent and reduced the time from patient referral to treatment by 44 percent.

ThedaCare follows a PCMH model, with physician-led collaborative care teams (including a case manager), which are compensated based on outcomes. "In a fee-for-service world, if we make a mistake in a knee replacement and the patient comes back with an infection, we get paid a

“

In a fee-for-service world, if we make a mistake in a knee replacement and the patient comes back with an infection, we get paid a second time for going in and cleaning it out. With bundled payments, every mistake or correction is done on our dime.”

Dr. Dean Gruner
president and CEO of ThedaCare

HealthCare Partners.

With a diverse population of patients, HealthCare Partners uses predictive modeling to target care

second time for going in and cleaning it out,” says Dr. Dean Gruner, president and CEO of ThedaCare. “With bundled payments, we get paid once. Every mistake or correction is done on our dime. Bundling essentially aligns payment with desirable outcomes.”

ThedaCare’s outcomes are impressive. Its average pneumonia patient costs \$10,000 compared to a state average of \$16,500 for the same outcome. With the introduction of telemedicine in combination with home visits by registered nurses, 30-day readmission rates for patients with congestive heart failure decreased from 15 percent to 4 percent.

THE CHALLENGE OF WAVE 1

Getting to Scale

Wave 1 of the volume-to-value revolution is well under way. But to achieve widespread success, these remarkable patient-centered, value-based modes of delivery need to be practiced at scale, across broad populations. Is that feasible? Can a local or regional innovator replicate the model elsewhere? That is still an open question, but there is encouraging evidence in the story of two of the nation’s largest value providers: HealthCare Partners, based in Southern California, and Kaiser Permanente, headquartered in Northern California.

HEALTHCARE PARTNERS: Large ACO at 80 percent risk

HealthCare Partners is one of the country’s largest physician groups with more than 700,000 patients in Southern California, Nevada, and Florida. (In May 2012, DaVita Inc. bought HealthCare Partners for \$4.42 billion; when the deal closes later in the year, the new firm will be called DaVita HealthCare Partners, Inc.)

HealthCare Partners uses a method similar to CareMore’s, but with two significant differences:

1. It has a much broader range of patients, mostly commercial but with a significant Medicare Advantage panel as well as a Medicaid panel;
2. It is not connected to an insurer (although it has partnered with Anthem for specific programs). The vast majority of its patients (80 percent) are under a risk contract, covered by global payments. Most doctors are on salary, but can earn 20 to 30 percent more by meeting quality goals.

To better utilize resources, HealthCare Partners uses predictive modeling of patient data to focus attention and resources on the sickest and most complex cases, such as those with chronic obstructive pulmonary disease or congestive heart failure, while reducing spending on healthier patients. “If we could identify patients most at risk and then match them with the providers that are the most efficient and have the best outcomes, that would be the Holy Grail,” says Dr. Brett Myers, director of clinical systems strategy.

“

If we avoid a hospital day, we save \$3,500. You give me somebody with five chronic conditions living in a bad home situation, and we can make a heck of an impact, which an individual doc in his office with no infrastructure can't.”

Dr. Bob Margolis
founder and CEO of Healthcare Partners



KAISER PERMANENTE

The largest value-based provider has state-of-the-art informatics, a PCMH model, and 9 million patients

“You get the tipping point, where the physicians go, ‘Wow, life is a whole lot better,’” says Dr. Bob Margolis, founder and CEO of HealthCare Partners. “‘You know, I only have to see 20 patients a day and I go home at night and I feel like I really helped them’—as opposed to, ‘I saw 45 patients, worked until 10 o’clock because I had to then do all my paperwork, I’m tired and I can barely pay the bills because Medicare and the commercial insurers are cutting back on my reimbursement.’”

Once identified, high-risk patients are directed to comprehensive care centers, staffed by multidisciplinary teams. A home-care team of nurse practitioners and social workers visits homebound patients. Electronic health records insure continuity of care between specialists and primary care physicians. After two years, the comprehensive care center program has led to a 20 percent drop in hospitalizations, yielding savings of \$2 million a year for every 1,000 members.

“If we avoid a hospital day, we save \$3,500,” says Margolis. “We run an advanced model of a full-risk accountable care organization (ACO). You give me somebody with five chronic conditions living in a bad home situation, and we can make a heck of an impact, which an individual doc in his office with no infrastructure can’t.”

Bob Margolis has practiced managed care in a variety of settings for more than 30 years. Leaders like him know how hard it is to break down clinical and financial barriers. But a focus on outcomes engages physicians—and their patients prosper.

KAISER PERMANENTE: Building scale in multiple populations and regions

Kaiser Permanente has 36 hospitals and 15,000 physicians serving 9 million people in California, Oregon, Washington, Colorado, Hawaii, Virginia, Maryland, Ohio, and Washington, D.C. Kaiser has been practicing prepaid medicine since its founding in the 1930s, first to serve workers building the Los Angeles Aqueduct, then workers building the Grand Coulee Dam.

In the last decade, Kaiser has developed state-of-the-art health informatics along with a PCMH model. Nine million patients can now access their own electronic records using mobile devices, a first step toward consumer engagement and personalized healthcare. In 2011, Kaiser led the nation among Medicare health plans with a number-one ranking in 9 out of 37 measures of effectiveness of care. Kaiser has cut in half the number of broken bones in seniors, by targeting those most at risk, and prescribing a course of action with follow-up by a coordinated team. It has cut the death rate from HIV to half the national average, by treating HIV as a chronic condition with a 12-item checklist. In Colorado, it is credited with reducing deaths from coronary disease by 73 percent, thanks to an innovative program that uses electronic health records and a clinical care registry to link coronary patients to teams of pharmacists, nurses, primary care doctors, and cardiologists.

“

You cannot re-engineer pieces of care, but you can re-engineer packages of care using the right electronic tools. When you are selling packages, connectivity becomes a supporting tool and unleashes creativity.”

George Halvorson
chairman and CEO of Kaiser Permanente

“You cannot re-engineer pieces of care, but you can re-engineer packages of care using the right electronic tools,” says CEO Halvorson. “When you are selling packages, connectivity becomes a supporting tool and unleashes creativity. Once we built the infrastructure and got the new culture in place, the pace of innovation accelerated. With as much progress as we have already made, we are just at the beginning.”

Kaiser, the largest value provider, is spawning innovations. One recent initiative is the Care Connectivity Consortium (CCC), just launched by Kaiser, Geisinger, Mayo Clinic, Intermountain, and Group Health Cooperative. The effort aims to connect the electronic-records databases of these industry leaders—much as Visa did with banks in the 1950s—to improve data flow between provider groups.

“Kaiser is burning health-insurance fuel at least 8 percent more efficiently than a run-of-the-mill PPO,” says Stanford’s Milstein. “This is about a third of what’s possible, given what we know today about the lowest-cost paths to above-average clinical outcomes. I think Kaiser could get to 30 percent if they were pushed by stronger competitors.”

When Wave 1 is complete, patient-centered population-health managers will be commonplace, as will reimbursement through global payments (as opposed to fee-for-service). The rate of innovation and value improvement will accelerate as health and information technologies converge; and the leader-to-laggard gap will expand. Over the course of Wave 1, population-health managers are poised to eliminate \$350 billion in waste and rotate \$600 billion from fragmented response systems to integrated health systems.

A NEW VALUE MODEL TAKES SHAPE

Most Americans know the innovators in technology (Jobs, Bezos, Zuckerberg, et al.), but few know the innovators in healthcare. Yet they are just as important, or even more important, to the country’s future. Zinberg, Hoops, James, Brenner, Halvorson, Margolis, and others have cracked the code and invented the kind of healthcare we all need. We should get to know CareMore, Camden, Geisinger, ThedaCare, HealthCare Partners, Intermountain, Kaiser, and others as well as we know iPhone, iPad, Kindle, and Facebook.

These leaders have pioneered the first generation of patient-centered care and have found avenues to global capitation and other forms of shared savings that enabled them to benefit from eliminating unnecessary or low-value activities. “If the rest of the healthcare industry followed the example of these innovators, and savings were captured mostly by patients and consumers, who ultimately fund healthcare either directly or indirectly, U.S. healthcare spending would likely drop by 20 to 30 percent,” says Stanford’s Milstein.

Skeptics can write off these successes by pointing to a specific rationale that might not hold in all cases. It’s true that CareMore and Camden are small

These Wave 1 success stories are more than green shoots. They are time-tested proof that patient-centered business designs and clinical models produce results.

“

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Arnold Milstein
Stanford University

factories focused on unique populations (Medicare Advantage and Medicaid). Kaiser, Geisinger, Intermountain, and Scott & White are relatively closed-loop systems that own or are affiliated with payers and hold a dominant regional position. With 700,000 and 9 million patients, respectively, HealthCare Partners and Kaiser have a critical mass that gives them an advantage in negotiating contracts and replicating networks in other states.

All this is true, especially the fact that a closed-loop, integrated delivery and finance model simplifies a move toward value. But that line of thinking overlooks a common set of population-health management principles proven across multiple organizations and markets. (See “Population Health Principles” on page 17.)

“Make no mistake. This is not yesterday’s capitation from 15 years ago, with yesterday’s high-performance networks,” says David Cordani, CEO of Cigna. “This is taking targeted clinical information and adding care extenders and either physically or virtually embedding them in the physician’s practice. This is identifying those physician groups that will take a much more comprehensive ownership of a portfolio of individuals and be held accountable for the aggregate value of their service.”

These Wave 1 success stories are more than green shoots. They are time-tested proof that patient-centered business designs and clinical models produce results. The level of activity, the amount of capital funding, and the level of innovation across the top two layers of the pyramid are staggering.

But who is worrying about the 225 million Americans at the bottom of the pyramid? A growing number of Americans are overweight and pre-diabetic, have high blood pressure, poor eating habits, pursue relatively inactive lifestyles, and face depression. Unless we change these bottom-of-the-pyramid trends we are sitting on a ticking time bomb. Imagine if 20 percent of Americans (rather than today’s 5 percent) were at the top of the pyramid—aggregate healthcare costs would more than double.

Fortunately, consumers are beginning to wake up and take more responsibility for their health. And some employers are creating accountable retail health markets for their employees with financial incentives and consequences for poor health habits. Wave 2 is primarily about improving overall health and increasing consumer engagement at the bottom of the pyramid, with some new technology-driven care models for chronic and poly-chronic patients in the middle and top layers.

Just as information technology has moved from mainframes to minis to PCs to tablets to smartphones, healthcare is moving along a similar continuum toward the personal and virtual—from the hospital to retail clinics to home to video to mobile. And it’s none too soon.

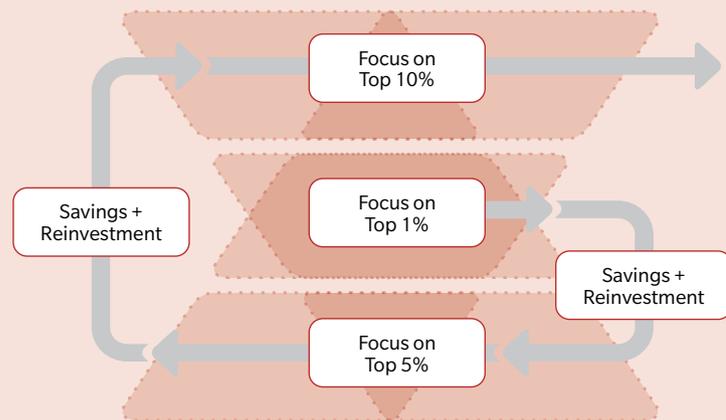
WAVE 2: CONSUMER ENGAGEMENT

We are sitting on a ticking time bomb if we do not address the growing number of Americans who are generally unhealthy. Imagine if 20 percent of Americans (vs. today's 5 percent) were at the top of the pyramid—aggregate healthcare costs would more than double.

Population Health Principles

- Initiate a self-funding upward spiral of improvement. Focus first on high-need and high-cost patient segments that represent the best opportunity to improve health and lower costs—then use those savings to generate resources to fund further investments in coordination and prevention

An upward spiral of improvement



- Redefine the care team to include nurse practitioners and care coaches—nutrition, depression, and alcohol dependency are often a hidden part of underlying health problems
- Build early intervention systems (e.g., home-based monitoring) to catch and solve problems before they escalate; offer easier access through expanded office hours, care-coach call centers, and e-health services
- Embrace informatics—electronic health records, shared treatment plans, evidence-based guidelines, quality-assurance lists, biometric feeds; empower consumers with information and encourage their active engagement
- Create the four-way win: better outcomes, lower costs, better patient experience, better physician experience (a satisfactory professional experience, relative income stability during a time of disruptive change, and a sustainable work style); enthusiasm from consumers, providers, and payers will prove contagious

Consumers have been spoiled by information technology. They are used to immediate interaction and information—and particularly the ability to personalize their interactions. Conversely, they are tired of one-size-fits-all medicine, waiting months for appointments, gaps in information, the absence of crowdsourcing tools like Yelp, and a lack of any real performance or value transparency. As consumers engage, they will transform wholesale, supply-side healthcare into a retail, demand-driven industry. Aging baby boomers and tech-savvy Millennials are poised to lead the charge. They have the motive, clout, money, and power to move the market.



“The missing leg of the stool has been consumer engagement and getting the consumer actively engaged in knowing what they’re supposed to be doing.”

Jeff Margolis
executive chairman of WellTok

AN INDUSTRY WAKE-UP CALL

Consumers Shopping for Value

By 2014, as many as 85 million consumers with \$600 billion in purchasing power may be shopping for their own healthcare on public and private exchanges. Many will be making their own decisions about coverage for the first time. Consumers will shop not just for insurance, but also for their preferred population-health manager and stand-alone services, such as basic procedures and retail clinics.

“The missing leg of the stool has been consumer engagement and getting the consumer actively engaged in knowing what they’re supposed to be doing,” says Jeff Margolis, executive chairman of WellTok, a social media platform to drive consumer engagement in their own health. “Given their direct consumer touch, I’m quite sure the Krogers, the Walgreens, the Wal-Marts, and so forth have the chance to do something very influential and game changing when exchanges are created. Whether healthcare reform stays intact or not, in all states or some states, it doesn’t matter. The game is on.”

Today, without a real retail healthcare market where informed consumers make daily choices about cost and value, there is limited demand for the top-value performers. A consumer considering a doctor or hospital has little way to know in advance whether she is getting a “Toyota” or “Yugo.” Customers lack the most basic information: How much does it cost to stay in the hospital, to get a colonoscopy, or to have coronary bypass surgery? What outcomes should you expect?

Historically, consumers with employer-sponsored health insurance haven’t had to worry too much about costs; they’ve been insulated from the total cost picture as their employers have paid the majority. Even as consumers are asked to pay more for their own care, healthcare pricing is not transparent, and benchmarks for measuring value or clinical outcomes are scarce or nonexistent. The market is a long way from having a *Consumer Reports* on oncologists specializing in breast cancer, for example, or Yelp for neighborhood primary care physicians.

But that day is coming, as recent changes indicate. NewChoiceHealth.com, for example, lists the costs for 18 common procedures in 32 cities; a check on arthroscopic rotator cuff surgery in Greater Boston turns up 71 hospitals with costs ranging from \$7,900 to \$44,800! Blue Cross Blue Shield of Florida has a “Know Before You Go” database that allows members to compare provider costs. In June 2012, *Consumer Reports* published an article called “Many Common Medical Tests and Treatments Are Unnecessary,” with an explanation about financial incentives for doctors to prescribe them.

“Information transparency in healthcare is a driving force behind today’s new models,” says Cigna’s Cordani. “An opaque industry is increasing transparency around value creation and clinical quality, and as consumers get better information they become much smarter shoppers on value and choice.”

EMPLOYERS WHO “THINK DIFFERENT” ARE DRIVING THE SHIFT TO RETAIL



Of the 250 million Americans who have health insurance, 144 million—roughly 55 percent—are covered through employers. This means employers have real leverage to change the system, working with payers and providers at the contractual level and with employees on a daily basis. And many larger employers are doing just that—creating their own retail healthcare market for their employees and dependents.

“The only way that we can really change the trajectory of the cost curve is to keep people as healthy as they can be—to reduce the demand for healthcare,” says Tom Cigarran, co-founder and chairman emeritus of Healthways, a population health and wellness provider that contracts with health plans, governments, and employers to improve the wellbeing and productivity of their subscribers and employees.

Employers are creating early consumer markets for their employee populations through plan design changes and programs that cause employees to make healthcare value choices. No surprise, financial and social incentives change consumer behavior. For example, when Johnson & Johnson offered employees a \$500 discount on premiums if they completed a health risk profile, participation in the program jumped from 26 percent to 93 percent. At Safeway, 76 percent of employees asked for more financial incentives to reward healthy behaviors.

These employer-driven incentives are the precursor of a more robust retail marketplace where financial incentives and rewards will heighten consumer engagement and give consumers an extra reason to get healthy. Aligned consumer incentives, and behavior-change models are two important elements of a new preventive health market.

One big question in Wave 2 is whether financial incentives for critical health risk improvements will be enough to stem the upward flow of populations into the middle and top layers of the pyramid. How important is behavioral science? And what about changing societal norms?

When Johnson & Johnson offered employees a \$500 discount on premiums if they completed a health risk profile, participation in the program jumped from 26 percent to 93 percent.

Safeway’s initial results are impressive: 43 percent of patients who did not qualify for a 2009 blood pressure discount improved and received a rebate in 2010; 17 percent who did not qualify for 2009 weight discount improved their body mass index by more than 10 percent and received a rebate.

To make employees more aware of healthcare costs and more responsible for them, Safeway employs a “doughnut-hole” payment plan that makes employees pay for medical expenses between \$1,000 and \$2,000. Safeway helps by encouraging price transparency, allowing employees to check by zip code for prices on a given procedure. (In one California county where Safeway operates, prices for a colonoscopy range from \$700 to \$7,000!)

Employer-driven incentives are the precursor of a more robust retail marketplace where financial incentives and rewards will give consumers an extra reason to get healthy.



Some companies take an approach similar to Camden Coalition's, using data to "hotspot" chronic/high-risk employees. Boeing, for example, ran an intensive outpatient care program pilot, employing predictive modeling to identify and target the "sickest 15 percent" and connect each patient to a medical home with team care. In the pilot program, Boeing reduced per-patient medical costs by 20 percent and absenteeism by 56 percent; meanwhile, physical function scores improved by 15 percent and mental function scores by 16 percent. In a variant of the Boeing model, Lowe's is participating in a pilot that directs the 20 percent of its sickest employees with chronic conditions to the highest-quality providers, essentially rewarding value-based medicine while lowering its healthcare costs. In addition, Lowe's has launched mobile biometric screening stations at 1,300 locations.

Employers can also play a strong role as consumer advocates, helping to give the consumer a voice in this early stage of retail market development. When Virginia Mason, a high-quality medical home in Seattle, was threatened with exclusion from Aetna's network for high prices on some procedures, chief of medicine Dr. Robert Mecklenburg (now medical director of Virginia Mason's Center for Health Care Solutions) asked for a meeting with Starbucks, one of the employers that had complained. Benefits manager Annette King said back pain was a major issue for her employees, and the cost of treatment was sky high. Mecklenburg had his spine clinic do some testing, which showed that "90 percent of what the hospital was doing was of no value." As it turns out, the best way to treat most back pain is with physical therapy. That insight led to new processes, including same-day visits (as opposed to 31-day waits), reduced use of imaging tests and prescription drugs, and the addition of psychological support. Within three months, 94 percent of Starbucks employees with back-pain complaints were back at work within a day.

As employers, payers, and providers experiment with new plan and program design, it's possible to imagine the emergence of new health-plan products, such as a "wellbeing network," or a "poly-chronic network." Both would be supported by PCMHs. Already, some retail clinics offer coaching, along with health and wellness plans. While retail clinics certainly don't compare to full-fledged medical homes, they fill a critical void for routine care services and health coaching. They are likely to solve at least part of the primary care capacity problem and allow stretched primary care physicians to focus on population-health management at the top two layers of the pyramid.

RETAIL CLINICS

Bringing Care Closer to the Consumer

In response to a clear consumer need and a major gap in the current service model, retail clinics invested risk capital and have won over consumers tired of subpar transactional services and the high cost of primary care. The



success of retail clinics is a wake-up call for primary practices—a call to heed the consumer.

Since the first retail clinics opened in 2000, CVS, Walgreens, Target, Rite Aid, Kroger, and Wal-Mart have opened more than 1,000 clinics. “It may not be a traditional player who carries healthcare past the inflection point,” says Dr. Ido Schoenberg, chairman and CEO of American Well, a telehealth provider (see below). “It could be someone like Wal-Mart.” Some clinics are associated and co-branded with providers such as Mayo and Geisinger; Lowe’s, for example, has opened a Geisinger Careworks clinic. In Florida, Blue Cross Blue Shield is opening retail clinics.

Patient satisfaction at retail clinics is very high. Clinics are open late at night and on weekends, when the only other option is emergency room or urgent care centers. Walk-in appointments are the norm, and costs are lower than in doctors’ offices. Prices for procedures are listed, so consumers can see—for the first time—what doctors charge. Staffed by nurse practitioners or physician assistants, the clinics offer a menu of services that includes basic ear, nose, and throat; urinary tract and skin infections; and physicals and immunizations. For many, clinics are an entry point to the healthcare system that replaces the ER.

“Forty percent of the people who are being seen in these retail clinics don’t have a primary care physician,” says Dr. Jeff Kang, CMO and senior vice president for health and wellness solutions at Walgreens, which has 350 TakeCare clinics. “But, in theory at least, a nurse practitioner at a retail clinic can handle most patients, at about half the price of a doctor’s office.”

Primary care physicians have been fighting this consumer innovation to protect their bread-and-butter profit zone—the low-acuity 10-minute visit—but retailers are hungry for growth and are adding innovative services to win over consumers. Primary care practices should realize they are fighting the wrong war. They should let the routine care go and move faster to build patient-centered population health.

“Thirty to 40 percent of a primary-care physician’s practice is routine, acute, episodic care,” says Dr. Grace Terrell, CEO of Cornerstone, an independent provider group in North Carolina that is transitioning to value and risk. “It’s a necessary profit center because chronic care is not well paid [under the fee-for-service model]. However, the viral illnesses that can be managed by telehealth or in a lesser setting pay the overhead for more serious ailments. As payment systems shift, we should transition clinical care away from high-cost doctors’ offices to self-care/mini clinics without sacrificing the need for communication and continuity of care between different providers and points of service.”

As Wave 2 matures, imagine 50,000 retail clinics, one in every pharmacy, open 24 hours a day and seeing 50 patients a day. At scale, a national clinic infrastructure could effectively manage nearly all 900 million routine care

“It may not be a traditional player who carries healthcare past the inflection point.”

Dr. Ido Schoenberg
chairman and CEO of American Well

Imagine 50,000 retail clinics seeing 50 patients a day. At scale, a national clinic infrastructure could manage nearly all 900 million routine care visits per year.

visits per year. When PCPs in medical homes are able to devote more of their time to patients with complex needs, the use of hospitals and specialists will be reduced at an accelerating pace. As retail evolves toward higher-value functions (kiosks, telehealth, diagnosis, basic coordination, etc.), PCP capacity will be freed up for even higher-value medical practice, enabling them to more effectively manage poly-chronic patients.

Similarly, outpatient ambulatory care will take business from hospitals, as consumers choose the lower-cost, better-value, and often closer-to-home option. By focusing on fewer procedures, and without the high overhead of a hospital, ambulatory surgery centers can charge roughly half what hospitals do for the same service.

TELEHEALTH

Remote Doctor-Patient Consultations

Getting to a doctor's office is not always convenient or even feasible—but online video connections can be. "Now, 40 percent of our dermatology visits are online, via camera," says Kaiser's Halvorson. "Patients and primary-care physicians love it, and so do we, because we get more expertise out of our dermatologists."

American Well, a Boston-based health-technology provider, has developed a telehealth platform (Online Care) that allows patients and providers to interact through video, text, and phone. American Well contracts with insurers such as WellPoint, OptumHealth, and Blue Cross Blue Shield of Minnesota and Hawaii, which in turn offer providers the ability to connect virtually with patients. Through a partnership with Numera, American Well allows patients to track their own biometric information and transmit it directly to provider systems, as well as its own Online Care software. "Medicine has traditionally been driven by geography—go to the doctor's office and wait," says American Well's Schoenberg. "We're breaking the geographic limitation, while offering better choice, accessibility, and quality."

Rite Aid and OptumHealth have introduced Online Care in their NowClinics, offering customers real-time access to Optum doctors and nurses through private consultations over the Internet. Online Care captures an electronic customer record to share with the patient's primary care provider. Conversations with nurses are free, and a 10-minute consultation with a doctor costs \$45. (Medical boards in some states, however, place severe restrictions on telehealth.)

"Telemediated healthcare delivery is quickly getting better and cheaper, and in some cases it is actually better than in-person care," says Stanford's Milstein. Historically, physicians have been hesitant to engage in phone calls with patients because of the difficulty of fee-for-service reimbursement.



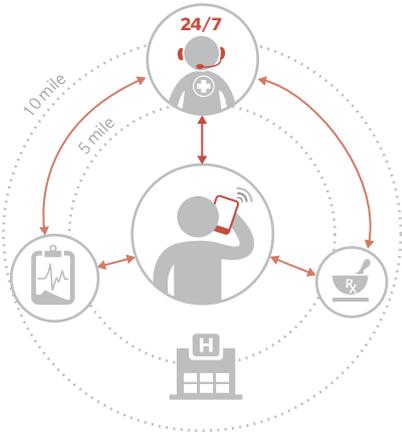
Because telehealth reduces delays and enhances continuity of contact, it will amplify the positive impact of the best care-delivery models.

Under a system of global payments, however, phone and video consultations are part of the overall value package to maintain health and keep people out of doctors’ offices and hospitals. Because telehealth reduces delays and enhances continuity of contact, it will amplify the positive impact of the best care-delivery models.

As care moves further from doctors’ offices and hospitals, the next growth market may be home treatments, which offer greater convenience for patients. Home-based respiratory therapy and IV or infusion therapies are already in place; home-based dialysis and chemotherapy are on the horizon. Such IT-enabled, less-invasive therapeutics, along with biometric monitoring, may eventually lead to home diagnostics.

Home healthcare companies realize that consumers (patients) do better at home and value in-home service. Hospital at Home, a private equity-backed startup developed at Johns Hopkins Bayview Medical Center in Baltimore, Maryland, provides home-based acute care to eligible Medicare patients. A multidisciplinary team consults with physicians, who receive biometric data feeds, via video. Hospital at Home focuses on patients who require acute hospital admission for exacerbation of chronic obstructive pulmonary disease, congestive heart failure, cellulitis, or community-acquired pneumonia. Hospital at Home is now deployed at seven Veterans Affairs medical centers in six states, as well as Presbyterian Health Services in Albuquerque, New Mexico.

HEALTH IT Personalizing Healthcare



Just as the retail push is bringing new players into the healthcare supply chain, so is the move to develop better HIT solutions. “Venture capitalists are ramping up their investments in healthcare startups,” says Matt Hermann, senior managing director at Ascension Health Ventures (part of Ascension Health), which makes about four to six venture-capital investments a year. “Private capital is flowing like it’s 1999 again, mainly into HIT systems.”

Consumers will push for personalization, demanding real-time information access, Web tools, and dramatically better value. The integration between insurer WellPoint and IBM’s Watson supercomputer, as well as Memorial Sloan-Kettering and Watson, lays a foundation for personalized “big data.” In the long run, such high-level IT integration could deliver a bigger impact than retail clinics.

At a recent demonstration of its medical prowess, Watson was fed information about a fictional patient with an eye problem. As more clues were unveiled—blurred vision, family history of arthritis, Connecticut residence—Watson’s diagnoses evolved from uveitis to Behcet’s disease to

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Matt Hermann
senior managing director
of Ascension Health Ventures

being 73 percent sure the cause was Lyme disease. Watson suggested the antibiotic doxycycline, then switched to cefuroxime when told the patient was pregnant and allergic to penicillin. “You do get eye problems in Lyme disease, but it's not common,” Dr. Herbert Chase, a professor of medicine at Columbia University, told a reporter from *USA Today*. “You can't fool Watson.” (Seton Healthcare Family, a Health Ministry in Ascension Health, was the first provider to use IBM's Watson.)

With such pinpoint diagnoses, consumers will begin to expect and demand up-to-date electronic health records across practices, and real-time point of care answers from physicians and Watson or Watson-like computers. As electronic health records migrate to the cloud, despite obvious concerns about patient privacy, the cost of installing EHRs will decline dramatically, lessening the need for a full in-house IT team—and opening the door for personalized evidence-based medicine. For example, NewMentor, a California-based healthcare information company, is working to connect patients' electronic records to evidence-based protocols delivered to the point of care, so that providers can make adjustments in therapy based on a patient's other conditions or prescriptions.

Electronic records also capture data needed for clinical insights at the population and disease levels. Kaiser Permanente, for example, learned through population-level analytics that the rate of autism was three times higher in children whose mothers took antidepressants in the first trimester of pregnancy. Without patient- and family-level clinical information, “We couldn't have possibly discovered the mother and child linkage driving higher rates of autism in children,” says Kaiser's Halvorson. “We're on the verge of a golden age in medical research because of the rich longitudinal clinical data we are aggregating from electronic health records. There's no logistical barrier, but the tools are not widely used.”

As healthcare players utilize big-data to aid providers and payers, major consumer-product companies, such as Intuit, Apple, and Nike, as well as unknown startup tech companies, are beginning to focus on meeting consumer health needs. Frank Moss, former director of the New Media Medicine group at the MIT Media Lab and president of Strategic Software Ventures, imagines bandages that monitor cuts for infection and bathroom mirrors that calculate heart rate, blood pressure, and oxygen levels.

Most current healthcare apps are fitness, nutrition, and wellness tools to track weight, sleep, and eating patterns, but some focus on access to healthcare. The iPhone app iTriage, for example, allows you to enter a symptom or procedure, locate doctors and hospitals by zip code, and view the average price of treatment in the region. The Web site Patients Like Me connects 100,000 people facing the same medical issues and allows them to share information and counsel, either privately or publicly. As consumerism in healthcare explodes, so will the demand for mobile apps—perhaps a new \$20 billion market.

“

What we need if we're going to really take care of people is to connect with them differently, and today that means through a smartphone.”

Robert Henkel
president and CEO of Ascension Health

“What we need if we're going to really take care of people is to connect with them differently, and today that means through a smartphone,” says Robert Henkel, president and CEO of Ascension Health. Ascension piloted a program with Best Buy to sell biometric home-monitoring devices that were installed in homes by Geek Squad. An increase or decrease in blood pressure or blood glucose triggered an alarm directed to a nurse at an Ascension call center. The connecting of biometric apps to 24/7 care teams is key to unlocking value. Only when the care model shifts to coordinated teams focused on wellness and prevention will the full impact of these promising HIT tools be realized.

With Wave 1's new clinical infrastructure in place, and Wave 2's vibrant retail consumer market taking shape, the Web will enable faster and faster innovation cycles. Consumers will reward high-value performers. Providers without retail and social-media components—and a strong brand identity—will fall behind. The awakening consumer and the growing retail market will ready the playing field for major scientific and medical breakthroughs in genomics and stem-cell research. And aging baby boomers are sure to reward innovators.

The healthcare industry by 2025 will begin to resemble today's IT industry, where the fast pace of innovation is rewarded by savvy consumers, and laggards lose market share and market value. New healthcare and wellbeing companies with roots in retail, e-health, social media, and genomics will emerge, much as Google, Apple, and Amazon have cut through industry barriers to create multi-chain ecosystems linked through the cloud.

WAVE 3: THE SCIENCE OF PREVENTION

Unlike Waves 1 and 2, which are rolling in and breaking, Wave 3 is but an offshore swell—backed by lots of capital and an array of powerful scientific breakthroughs that will fuel the next generation of the health and wellbeing marketplace. Wave 3 game-changers include big advances in basic science, disease prevention, predictive and preventive diagnostics, gene therapy, and stem cells—all leading to increased personalization. Massive information technology convergence will redefine how we think about price, value, and availability.

Whereas Waves 1 and 2 innovate with new forms of healthcare delivery, Wave 3 will be driven by science. Baby boomers will line up to buy new-science cures as they become available and use their financial and political clout to accelerate the pace of development—and Millennials will fuel adoption of new technologies.

The core of Wave 3 is commercialization of personal genomics, which sequences an individual's DNA, for the consumer market. Complementing genomics will be the related sciences of proteomics, which describes personal cell proteins, and microbiomics, which describes the trillions of microorganisms (viruses, bacteria, etc.) in every human body. The impact of

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Medicine will shift from being heavily trafficked on the treatment side to the prevention side, rooted in science-based predictions.”

Dr. David B. Agus
The End of Illness

Recently, genome sequencing cost \$10,000; today, it is roughly \$6,000; and in ten years it will cost less than \$100 and be available at a retail kiosk.

these breakthrough sciences is difficult to predict, but they certainly will inform new personalized approaches to prevention, diagnosis, and treatment.

“Medicine will shift from being heavily trafficked on the treatment side to the prevention side, rooted in science-based predictions,” writes Dr. David B. Agus, in his best-selling book, *The End of Illness*. “What will make this possible is the universal embrace of complex systems medicine, which blends biology, computing, engineering, and a layer of rationale from the physics world to try to understand the behavior of a ‘whole.’”

Personal genomics—the ability for individuals to sequence their genome and make calculated predictions about potential diseases and how to treat them—is already feasible but expensive. Within several years personal genomics will reach a broader market. Recently, genome sequencing cost \$10,000; today, it is roughly \$6,000; and in ten years it will cost less than \$100 and be available at a retail kiosk.

Fast forward: Imagine walking up to a Rite Aid or Walgreens kiosk and getting your genome sequenced—for \$100. And then making it part of your electronic health record, which you and your doctor can view on a mobile device. This is the volume-to-value revolution in Wave 3.

Already there is a lower-cost alternative. For just \$299, 23 and Me, a California-based company, offers a DNA genotyping kit: You spit into a tube, send it to the lab, and receive an analysis of your DNA, listing genetic variants you have that might be associated with a certain disease or condition. (Genotyping does not provide the diagnostic clarity that sequencing does.)

Advances in genomics and proteomics mean that previously invasive tests will be handled through blood and saliva tests. By studying proteins from a drop of blood—and particularly the way genes interact with proteins—future diagnosticians will be able to determine whether you have polyps on your colon or early-stage colon or ovarian cancer. This testing is clearly less invasive than colonoscopies or needle/knife biopsies.

Further analysis of your genes and proteins will determine which drugs will or will not be effective and what side effects might be expected—for you, not for the general population. Genetic tests already on the market show how people with different DNA respond to drugs. “The genomic disruption is at the personalized individual health level,” says Cornerstone’s Terrell. “Population health management in the past has been based on simple algorithms and statistics. The key to genomic medicine being a significant economic force in population health is in its ability to make exception management far more robust.”

“I think by 2020 there will be personalized drug treatment options for all pathology,” says Jim Hudson, CEO of HudsonAlpha Institute for Biotechnology, a leader in genomic research and an incubator for spin-off businesses. Hudson was the founder and CEO of Research Genetics, Inc.,

“

I think by 2020 there will be personalized drug treatment options for all pathology. You'll be able to take one test, either blood- or saliva-based, for everything—your immune system, any infectious agent, any cancer.”

Jim Hudson

CEO of HudsonAlpha Institute
for Biotechnology

an integral partner in the Human Genome Project coordinated by the U.S. Department of Energy and the National Institutes of Health.

“You know, ‘I’ve got a heart condition, but my DNA determines which statin I should take or whether I should even take a statin.’ I think such analysis will be true for all chronic diseases by 2020. I also think you’ll be able to take one test, either blood- or saliva-based, for everything—your immune system, any infectious agent, any cancer.”

Now that would be disruptive to the healthcare industry, because a saliva test is a lot cheaper than a surgical robot or imaging device, and the choice to buy is in the consumer’s hands. Indeed, an analysis of genomics’ potential impact on today’s business designs is a sobering exercise. Many current activities will lose much or most of their value. Will today’s leaders be ready for that shift?

The push for wellness includes nutrition and vitamins, which are now prescribed at a population level. But what’s good for you may not be good for me. The way an individual processes food and extracts nutrition, digests, and metabolizes is a function of his or her microbial cells. The emerging field of microbiomics—each person houses about 100 trillion microbes, 10 times the number of cells—promises to personalize nutrition just as the study of proteins will help to personalize drugs. “It’s common to categorize people by blood type, or in some cases by ethnicity,” says author Agus. “In the future, we’ll also begin to type people by ‘bug’—by the prevailing bacteria that inhabit their digestive tract. The diversity of bacteria in the body is akin to a rain forest.”

Kaiser CEO Halvorson has described healthcare as fundamentally an information business. This reality is already evident in Wave 1; it will hit with a vengeance in Wave 2 as health information moves from its paper-based periphery to center stage; and it will take on a whole new level of meaning and power in Wave 3. As “not knowing” is drained from the system, extraordinary achievements for patients and for organizations will become possible.

THE PATH TO HEALTHCARE 2025

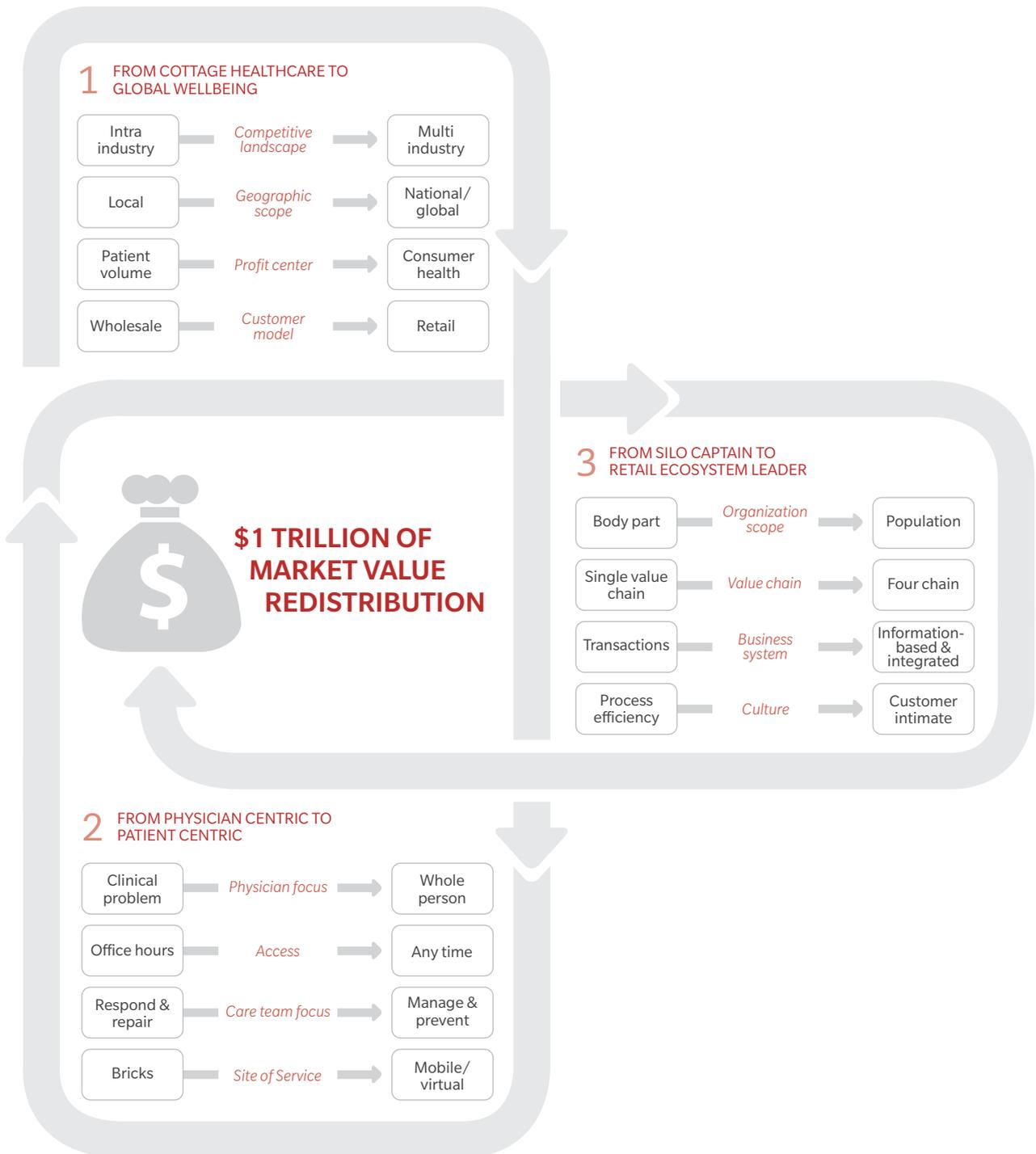
Information technology, retail clinics, knowledgeable consumers, doctors promoting prevention rather than repair, hospitals treating diseases rather than providing an uncoordinated series of special services, new players from different industries, private capital—the many flanks of the volume-to-value revolution all promote better outcomes and lower costs, reversing healthcare’s decades-long downward economic spiral.

These radical shifts will help to invert a system that is now upside down, heavily weighted toward repair rather than earlier intervention, prevention, and wellness. “I think we’ve been doing this backwards for a long time, building up muscle and strength in the specialist field with high-tech hospitals, and starving the part of the system that has the most capacity to help us manage the future, which is primary care and community-based care,” says General Catalyst’s Baker. “If you flip the paradigm you can do

Market progression

Expected shifts in the mix of healthcare resources

The market progression from physician-centric to patient-centric and then to consumer impact represents a profound change—a virtual earthquake that shakes healthcare and drives material shifts in capital, value, resource focus, and profits. The \$1 trillion of market value redistribution found in this shift is described below:



“

I think we've been doing this backwards for a long time, building up muscle and strength in the specialist field with high-tech hospitals, and starving the part of the system that has the most capacity to help us manage the future, which is primary care and community-based care.”

Charlie Baker
General Catalyst

some amazing things.” The key, of course, is to flip the paradigm without eroding or badly damaging the U.S. healthcare system’s strength in deep campus-based clinical competencies.

Flipping the paradigm will certainly entail massive disruption, especially to hospitals and some sub-specialties. Demand will grow as the population continues to age and the currently uninsured gain access to coverage—but not enough to offset the impact of revenue and profit redistribution for some players. Wellness, triage, prevention, active management, coaching, care coordination, home monitoring, and HIT sectors will grow faster than the overall healthcare market. Together, these forces will help reduce utilization of inpatient beds and the number of needed cardiologists, endocrinologists, and radiologists by 20 to 30 percent. To compete, hospitals and providers will need to develop growth strategies that attract private capital. Whatever the disruption, the upside will be a dramatic shift in the clinical resource mix.

With the potential for 15 to 30 percent cost reductions—plus reduced demand for care thanks to more focused upstream hotspotting, wellness programs, and increased use of end-of-life quality hospices—it’s not hard to see how \$500 billion could be squeezed out of the \$2.6 trillion U.S. healthcare system in a decade. When the acceleration to value begins, that number might even turn out to be conservative.

“If we focus on the right people, the chronic conditions or the at-risk patients, we can keep the cost curve at the rate of inflation or lower, like other developed countries,” says Kaiser’s Halvorson. “The trend upward is not the inevitable answer. We have two choices—ration or re-engineer. I’d rather compete on re-engineering than compete on rationing.”

WHAT’S IN OUR PLAYBOOK?

Given the large-scale forces buffeting healthcare today, it’s clearly time to take the proven innovation on the market and accelerate its adoption. Medicare and Medicaid are on life support. Obesity and diabetes are the new smoking and lung cancer. Doctors are stretched so thin trying to repair preventable diseases and conditions they don’t have the resources to promote health and shrink the numbers and costs of tomorrow’s top of the pyramid.

If today’s healthcare players don’t innovate, extra-industry retail and technology players, along with an awakened consumer, will spark and accelerate change—and capture much of the value in a \$2.6 trillion industry.

Healthcare was once a single-chain, supply-side, wholesale industry; it is edging toward becoming a hyper-competitive, multi-chain, demand-driven industry. Healthcare has long been a high-touch business; a decade hence, healthcare will be a 24/7, location-independent, information-based business.

Thriving throughout the fast-paced volume-to-value revolution while playing offense and defense at the same time seems like a tall order for any leadership team. You need to ask what's in your playbook?

For healthcare players, it's time to lead or follow fast. That means embracing patient-first thinking and moving to a patient-centered business design—now. It means becoming a population-health manager and moving to new methods of payment based on outcomes.

Patient-centered business designs require transformational changes. Population-health managers will build integrated health ecosystems with larger poly-skilled care teams working together to do “what’s best for the patient.” They will partner with retail clinics to accelerate the movement of routine care to lower-cost, more-effective care settings as they embrace e-health. Population-health managers will still provide repair services, but they will invest in prevention, monitoring, and early intervention in order to keep their patients healthy and avoid unnecessary and expensive trips to the emergency room—and quite possibly stemming the flow of high-cost patients into the top layer of the pyramid.

Thriving throughout the increasingly fast-paced volume-to-value revolution while creating the optimal strategic hedge positions—playing offense and defense at the same time—seems like a tall order for any leadership team. While most observers would agree the stakes have never been higher, the reward potential has never been better. It is time for health leaders to ask, what is in our playbook?

KEY QUESTIONS FOR YOUR PLAYBOOK

- Have we thought past Obamacare, and do we have a long-term view of the market?
- In virtually all prior industry transformations, leaders (in terms of share and financial metrics) lagged the market (in innovation) by several years. In the health industry’s transformation, is our company’s mental model:
 - Two to five years ahead of the market?
 - At market?
 - Two to five years behind the market?
- It has been said that “when the rate of change outside exceeds the rate of change inside, the end is in sight.” Is our business design evolving:
 - Slower than the market?
 - At market rate?
 - Faster than the market?
- Given the non-linear evolution of the industry, what major new value have we provided to our customers in the last five years? What will it be in the next five years? The most forward-looking companies are also asking themselves what new value will we provide:
 - In the next 10 years?
 - In the next 20 years?



If today's healthcare players don't innovate, extra-industry retail and technology players, along with an awakened consumer, will spark and accelerate change—and capture much of the value in a \$2.6 trillion industry.

- Given the emergence of cross-industry competition, is there a clear picture of how value rotation will affect our business model—and when?
- Have we developed a new industry map and evaluated potential scenarios—new market boundaries, competitors and collaborators, intensifying competition from neighboring value chains, etc.?
- Do we have the capital and cash-flow strength needed to survive the market changes and fund the organizational repositioning?
- Do we understand what it means to compete on a patient-centered business design; do we have a population-health management strategy?
- Are we prepared for the consumer market, the integration of Web 2.0, and retail healthcare?
- Is our business design prepared to capitalize on the disruption that will be brought on by genomics?
- Are the offensive aspects of our playbook in scale with the pace and magnitude of market change—the volume-to-value revolution?
- Is our strategy clear and have we developed the organizational transformation roadmap to get there?

The risks, changes, and rewards have never been greater. Nor have the opportunities to do a great job for patients, and to help most of us avoid becoming patients in the first place. The race to value is on.

ABOUT THE AUTHORS

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ABOUT OLIVER WYMAN

Oliver Wyman is a global leader in management consulting. With offices in 50+ cities across 25 countries, Oliver Wyman combines deep industry knowledge with specialized expertise in strategy, operations, risk management, organizational transformation, and leadership development. The firm's 3,000 professionals help clients optimize their business, improve their operations and risk profile, and accelerate their organizational performance to seize the most attractive opportunities. Oliver Wyman is a wholly owned subsidiary of Marsh & McLennan Companies [NYSE: MMC], a global team of professional services companies offering clients advice and solutions in the areas of risk, strategy, and human capital. With 52,000 employees worldwide and annual revenue exceeding \$10 billion, Marsh & McLennan Companies is also the parent company of Marsh, a global leader in insurance broking and risk management; Guy Carpenter, a global leader in risk and reinsurance intermediary services; and Mercer, a global leader in human resource consulting and related services.

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.

Oliver Wyman has recently launched a Healthcare Innovation Center (OWHIC) dedicated to promoting positive change in healthcare. OWHIC will champion 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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