

Top health industry issues of 2014

A new health economy
takes shape

December 2013
Health Research Institute

At a glance

As implementation of the Affordable Care Act reaches its peak in 2014, innovative companies are empowering healthcare customers with new solutions and forcing the entire industry to rethink the way it does business.

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Introduction

As the Affordable Care Act (ACA) proceeds into 2014, new norms and opportunities are rapidly reshaping the \$2.8 trillion US health sector. Healthcare organizations must adjust to empowered consumers, rapid innovation, and most notably increasing competition from non-traditional players.

Newcomers such as big box retailers and consumer electronics companies pose a mounting threat to the status quo with their low price points and expertise in customer behavior. At the same time, technologies are coming together to create new business models better able to coordinate care and offer greater value to purchasers.

In the past year, the ACA's 51 health exchanges sputtered to life amid significant technical woes and a bruising budget battle in Washington that brought the federal government to a standstill for 16 days. Despite the turmoil, much of the health industry has accepted that reform is here to stay.

Forward-looking executives are making decisions based on a post-ACA landscape that has altered the provision of private insurance and the delivery of care—especially in how both are paid for. Government and employers are shifting the way they pay for healthcare, placing greater control in the hands of consumers to manage their medical costs.

While the political turmoil around the ACA continues, a new health economy is taking shape. Long walled off from the dictates of consumerism, healthcare is finally undergoing a customer-centric transformation that many other industries long ago embraced.

Consumers are no longer passive patients, but rather engaged—and more discerning—customers wielding new tools and better information to comparison shop. The year ahead will be marked by how well the industry responds to this shift. Organizations that fail to adapt will risk declining revenues as consumers turn elsewhere to have their health needs met.

Even the most established healthcare organizations must change to meet the demands of this evolving environment. Competition will intensify in 2014 as firms from more customer savvy industries such as retail and technology invade the health space.

These newcomers are rolling out innovative products and services that cater to the modern-day patient and caregiver. Already, mobile and remote technologies have replaced many traditional approaches to managing health and improving outcomes. In some instances, doctors are now prescribing health and wellness apps in place of prescription drugs.

Customer experience is slipping in healthcare

Please rank each industry on how well they serve you as a customer

■ 2013 ■ 2012



Source: *HRI Consumer Survey*, PwC, 2013

Each fall, PwC's Health Research Institute (HRI) polls 1,000 consumers and interviews industry experts to identify the top health industry issues for the coming year. Key findings for 2014 include:

- » Price-sensitive consumers are distinguishing high-quality care from high-cost care. A significant majority of consumers (66%) said that they do not believe that expensive medical treatment means better quality. Sixty-three percent indicated that the effectiveness of a treatment was very important when making decisions about care, compared to 54% that said out-of-pocket costs were very important.
- » Providers and consumers are increasingly adopting mobile health technologies. Over one-quarter of consumers indicated that they use mobile apps to schedule healthcare appointments, up from 16% a year ago. Demographics play a large role in use of mobile technologies. Not surprisingly, the 25-44 age group uses mobile technology to communicate with providers almost twice as much as those age 45 or older—a population that uses medical services more frequently.
- » New entrants might have to overcome a skeptical public as they compete for market share. Twenty-one percent of consumers indicated they were very likely to purchase a health plan from a traditional commercial health insurance company compared to 10% who said they were very likely to buy insurance from a new start-up. Even existing provider
- organizations that are reinventing themselves as insurers may have a slight leg up on newcomers to the field. Fifteen percent of consumers said they were very likely to purchase a health plan run by a hospital or health system.
- » Employers are actively adjusting their benefit strategies as private health exchanges become more popular. Companies are increasingly sending retirees and active employees to these online marketplaces in the hopes of reducing administrative burdens while providing workers more choices. The idea may be gaining traction. Twenty-seven percent of consumers indicated they strongly prefer that employers offer a choice of 3 to 5 health plans compared to 14% who strongly preferred to be offered a single plan.

Businesses in tune with the needs and desires of customers will catapult ahead of the rest in 2014. Convenience, choice, access, and affordability have become the mantra of educated consumers as they shop for insurance, choose care providers, and weigh treatment options. But serving today's diverse group of customers presents challenges.

Companies eager to succeed will need to dig deeper, using powerful analytic tools to understand the sophisticated segments of consumers and what drives them to choose goods and services. This year's top issues report sketches out the shifting healthcare landscape and offers insights on how to survive rising expectations and tough competition.

Fiscal pressures, sweeping regulatory changes under the ACA, and an industry-wide shift to consumerism have given rise to a new health economy. In the new economy, money will move differently as consumers exercise greater control over spending and more companies compete for a piece of the healthcare dollar. To succeed in this rapidly changing market, healthcare organizations ought to consider reinventing themselves.

For many, this means controlled experimentation in the form of strategically investing in new partnerships and business models. In 2014, insurers especially will feel the urgency to both manage costs and meet the needs and expectations of their members, some of whom will be entirely new to the formal health system. Many insurers now see greater oversight of the delivery system as a primary way to control spending.

EmblemHealth, one of New York's largest insurers, is moving down this path. In 2013, EmblemHealth formed AdvantageCare Physicians, a 400-member practice comprised of four medical groups in the New York metro area.¹ Physicians are incentivized to meet certain metrics, follow set treatment protocols, and invest in electronic health records.

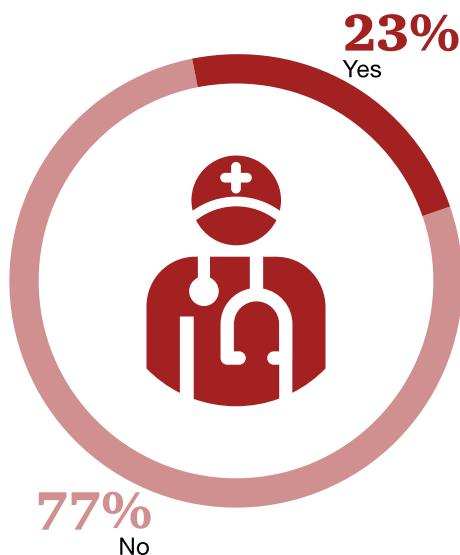
The move not only helps EmblemHealth control delivery system costs, but also provides ownership over the customer experience. "Patient experience is the most important way to create 'stickiness' to the practice and to the health plan," said William Gillespie, MD, CMO of EmblemHealth and President and CEO of AdvantageCare Physicians.

Some established provider systems are now entering the insurance business themselves. The shift is a natural progression for an industry that is feeling increased financial pressure to accept pre-negotiated payments for care, instead of charging for every service. It's also a way to compete for healthcare dollars that were previously reserved for insurers.

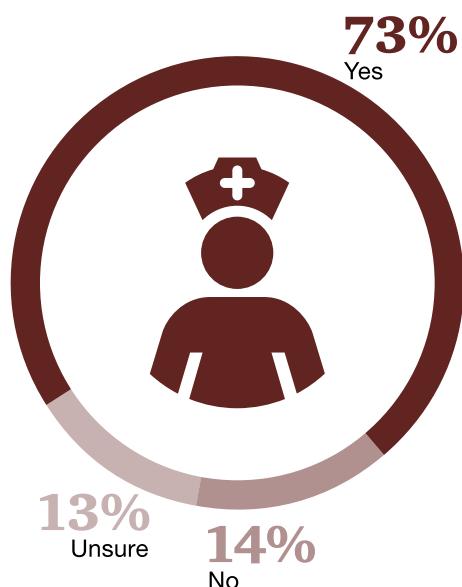
Sacramento-based Sutter Health received its health maintenance organization (HMO) license in 2013, partly as a way to compete against integrated insurer/provider Kaiser Permanente.^{2,3} Kaiser Permanente captured 34% of California's \$111 billion health insurance market in 2011, according to one analysis by the California HealthCare Foundation.⁴

As healthcare goes retail, there's room for growth

Have you (or someone in your household) ever sought healthcare treatment in a retail clinic?



Would you (or they) go to a retail clinic again in the future?



Source: HRI Consumer Survey, PwC, 2013

Retailers are also claiming their piece of the action. Walgreens is expanding its product and service offerings and investing in a major overhaul of its stores. It has rebranded itself to focus on its health and wellness services, and it has extended its retail clinic services to include diagnosis and care management for chronic diseases such as asthma and diabetes.^{5,6}

CVS Caremark, meanwhile, is now accepting all forms of Medicaid in its 28 South Carolina retail clinics.⁷ The company has over 720 clinic locations across the US, and it continues to rapidly expand its retail care business, posting an 18% growth in revenue over the previous year.⁸ Evidence suggests these retailers and other new players are stealing business away from traditional care providers, potentially irrevocably shifting the flow of healthcare dollars.

Implications

- » Organizations should make big bets in crossover areas, but tread lightly. Although companies should be aggressive in seeking out opportunities to expand their footprint, they should first make certain they have carefully considered potential impacts on their current business.
- » Companies should take calculated risks, but have a "fail fast" mentality. Early problem identification is key. Companies should be ready to pull the plug if initial indicators point to trouble.
- » Healthcare organizations should consider building service businesses. UnitedHealth has successfully built the Optum brand around its population health services. Creating a separate service brand can also insulate the core business brand.

When entrepreneur Steve Worland and a group of California scientists went looking for backers for their cancer drug start-up, eFFECTOR, they piqued the interest of traditional venture capital firms along with the venture arms of three pharmaceutical giants: GlaxoSmithKline (GSK), Novartis, and Astellas.

In May 2013, the San Diego-based eFFECTOR announced it had raised \$45 million from traditional and corporate venture firms, with executives from Novartis and SR One, GlaxoSmithKline's venture arm, sitting on its board. "People are cranking away in the labs," said Worland, eFFECTOR's president and CEO. "It's very exciting."

As traditional venture firms pull away from funding life sciences start-ups, corporate capital will pick up the slack in 2014. Corporations are launching venture arms; they are involved in a growing share of healthcare deals. In recent years, corporate venture firms bet almost one in three dollars on life sciences' newcomers, investing more money in biotechnology than any other sector except software.¹

In one quarter of 2013 alone, the venture arms of Astellas, Johnson & Johnson, Fidelity Investments, GlaxoSmithKline, Novartis, and Intel pumped millions into start-ups developing cancer drugs, healthcare software platforms, and medical equipment for overactive bladders, among others.²

New and unusual marriages are occurring between corporate cash and traditional venture capital, injecting not only money but fresh innovative thinking and industry insights. Take the alliance between GlaxoSmithKline and Avalon Ventures. In 2013, the pair announced they plan to fund and launch up to ten early-stage life sciences start-ups. GSK will provide up to \$465 million and its expertise; Avalon is putting in \$30 million and its valuable connections to the biotech community.³ Expect more such pairings in 2014.

Twenty years ago, this kind of corporate venture investment was virtually unknown. In 1993, 86 corporate venture arms invested just \$108 million in life sciences companies. By 2012, almost 300 had invested \$2 billion.⁴ This occurred amid pullback from venture capital firms, which raised 11 life sciences funds in 2012, down from 28 in 2008, and about the same as 15 years ago.⁵

Instead of guiding molecules from bench to bedside solely in-house, corporations increasingly are happy to make bets on healthcare start-ups. For start-ups, corporate arms offer cash and other benefits—regulatory expertise, industry connections, reimbursement know-how, and marketing muscle.

These marriages can benefit all parties. Seeking early-stage funding, Worland initially spoke to 50 venture firms before settling on 10 truly interested in supporting his company so early. The three corporate participants—Astellas, Novartis, and SR

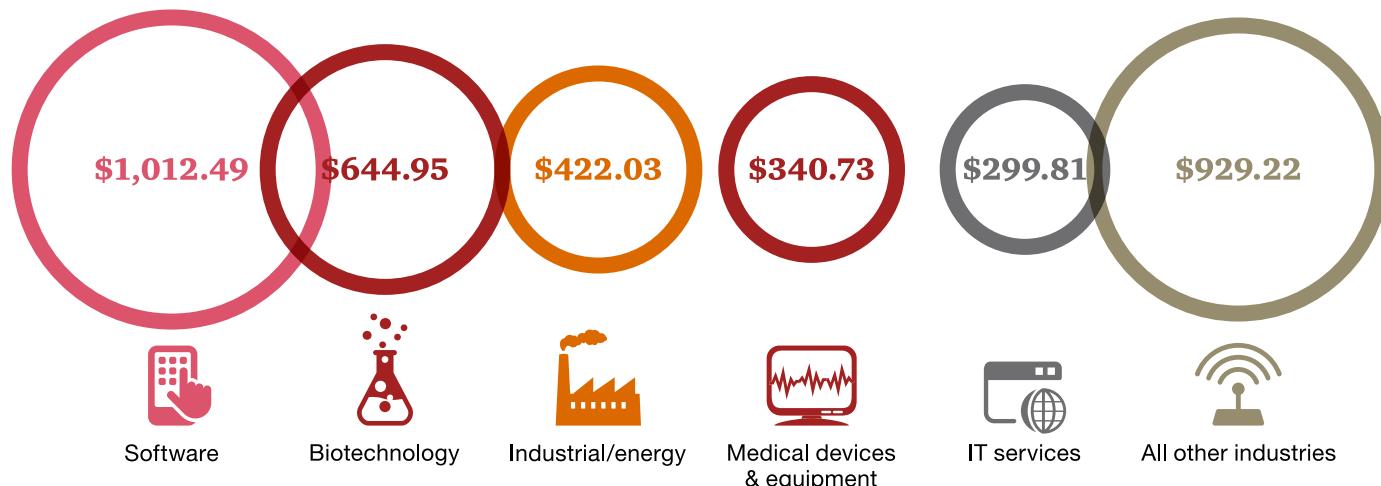
One—brought with them not only cash, but also talent, experience, and connections that could prove pivotal as eFFECTOR develops its therapies in the form of small molecules aimed at cancer cell disruption.

Implications

- » Start-ups should consider seeking corporate partners, which often offer longer investment horizons, industry connections, managerial expertise, skill navigating regulatory and reimbursement minefields, and marketing prowess. For smooth marriages, start-ups should consider how involved the new partners will be and how involved they want them to be.
- » Corporations should nourish healthcare product pipelines with corporate venture arms, which also will expose them to fresh ideas and talent. Through partnerships with traditional venture firms, corporations broaden their reach into start-up communities and increase innovation without having to grow it all in-house.
- » Traditional venture firms should contemplate partnering with corporations or their venture arms, which provide complementary benefits alongside cash. These assets could prove critical to the survival and success of start-ups and ultimately to traditional venture firms' own survival.

Biotech ranks in top five for corporate venture capital investments

Money invested by corporate venture capitalists (in millions)



Source: PwC/National Venture Capital Association *MoneyTree™* report; data: Thomson Reuters, data pertains to: 01/01/2012–06/30/2013

As the nation's attention is fixed on the rollout of the ACA's state exchanges, private exchanges are drawing their own spotlight as a new way to provide employer-based health benefits.¹ Although the market is in its infancy, surveys indicate that private exchanges are rapidly reshaping the employer benefits landscape, drawing high-profile converts such as IBM, Walgreens, and Sears.

The growing buzz regarding private exchanges is the result of a perfect storm of economic, legislative, and technological currents. Employers, looking for relief from the burden of rising health costs, see private exchanges as a step toward "defined contribution" benefits.

The approach can provide budget certainty and fewer administrative headaches. The ACA's exchanges offer a template that can be adapted to the private market, in which lower-cost health plans can compete. Technological advances have eased the way for comparison shopping and enhanced customer support.

Today, more than 156 million Americans receive health insurance through the workplace.² But employers in 2014 are casting for more creative, more affordable ways to provide that benefit. At its core, a private exchange is an online marketplace for

employers to send active or retired employees to shop for medical and other benefits with an employer contribution. What began as a retiree model is now morphing into a mainstream strategy for employee benefits.

Private exchanges have some similarities to the state exchanges. Typically, consumers can choose from multiple levels of health plans, often from several insurers. Digital communications and personalized information are critical to helping individuals make informed choices. For some, the experience could be compared to shopping online for a flight.

However, no two private exchanges are the same. The early exchanges include a range of target markets, financing, coverage offered, customer care, and provider networks. Many offer dental, vision, or other types of insurance to create customized benefit packages. A diverse universe of organizations has jumped onto the playing field, including broker/consulting firms, insurers, and technology companies.

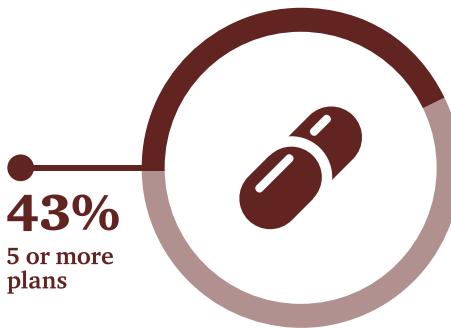
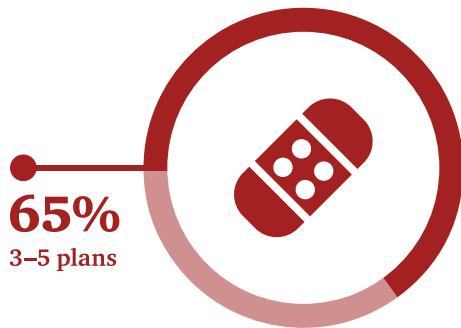
Still to be determined is whether private exchanges will truly reduce healthcare costs or simply redirect the bills. The year ahead will shed light on whether more employers will migrate to private exchanges, whether those that have already transitioned will stay with the approach, and how employees will react.

Implications

- » Employers should evaluate all their options, from continuing to offer employees limited health plan choices to evaluating private exchanges. Businesses should also consider the longer-term prospects of directing some employees to the state exchanges in future years.
- » Employers should note that benefits brokers and consultants are embracing private exchanges as a new and alternative business model to better lock in and expand future revenue sources. They are assuming functions such as plan design and administration that have historically been the purview of employers and health plans.
- » Health insurers and new entrants are becoming more aggressive and discerning by participating in private exchanges, sometimes serving as the general managers of private exchanges of their own.
- » Providers may see more patients with less robust insurance as employees and retirees opt for less expensive coverage with higher out-of-pocket costs, narrower networks, and stronger health management.

Employees prefer some choice in health insurance plans

I prefer that my employer offer me...



Source: HRI Consumer Survey, PwC, 2013

4 Picking up the pace of price transparency

The idea that a person should be able to comparison shop for medical care based on price and quality has intrigued some in the health industry for decades, though it has yet to fully deliver on that promise.

That's poised to change in 2014. An employer-led effort to empower workers to make better informed choices will continue to have a cascading effect throughout the US health system. Businesses are striking arrangements with providers for high-value care.¹ And in the spirit of transparency, the federal government has opened its books on what hospitals bill for relatively common treatments.

What has historically been a piecemeal effort is coming together. Along with it comes a crop of new players that specialize in turning opaque cost and quality data into something much more user-friendly. During a three-year span, more than \$400 million in venture capital has flowed to start-up companies eager to jump into the transparency business.²

This new cottage industry built around pricing gives employers tools to steer workers to higher-value, lower-cost providers. Nearly 44% of employers are considering shifting to only offer high-deductible health plans—a move that would more than double the number of businesses that currently offer them as the only option.³

Other businesses see the use of limited or tiered health plan networks as a viable way to reduce costs. And on a third front, employers are experimenting with “capped” payments for procedures with wide variation in costs.

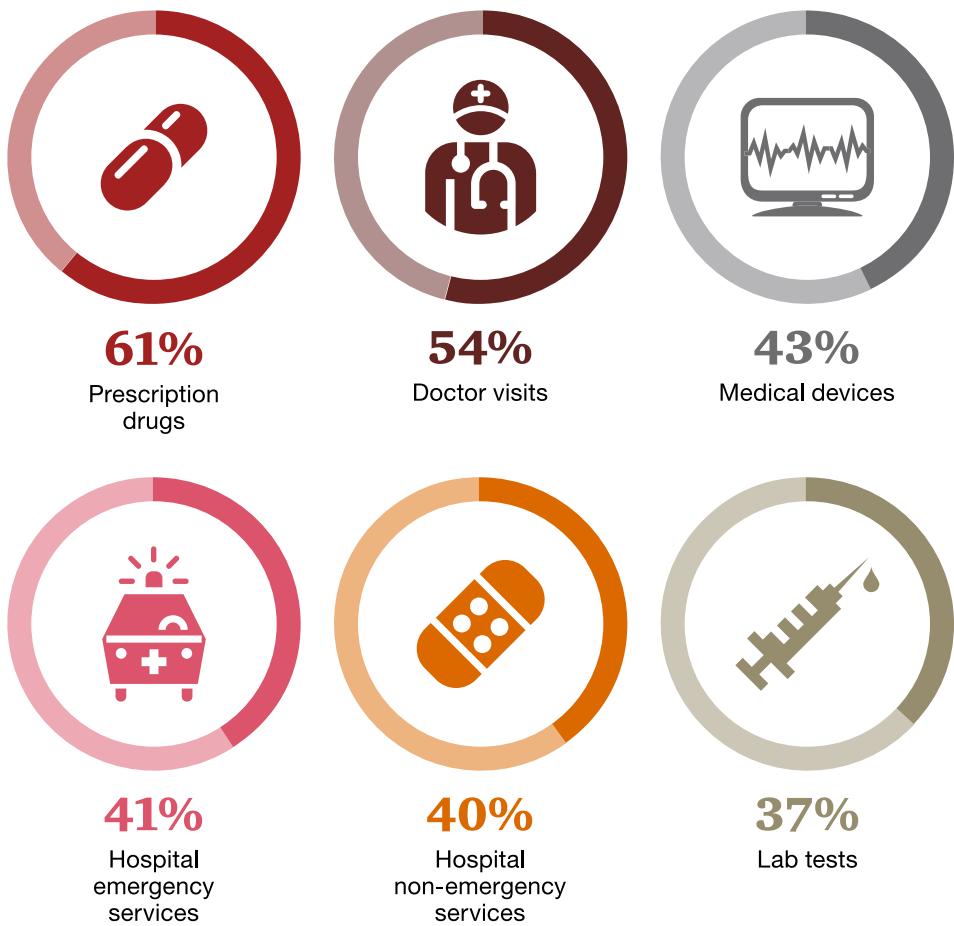
Previous efforts to make prices more transparent have had fits and starts.

The desire was there, but the data was not. Buzzwords such as “consumer-centric healthcare” played well with policymakers, but they failed to translate to average Americans. And key sectors of the industry, including hospitals and insurers, were slow to join the effort. Many favor greater transparency, but they have fretted over the loss of competitive advantage.

The push this time around is different. As families pay more for their care, the demand for transparency—and lower costs—has risen. Some providers are responding. In Boston, one hospital lowered its fees for routine procedures when a number of patients threatened to go to less expensive suburban facilities. And in Washington, a major health system lost significant money after the state's top employers redesigned employee benefits to favor lower-cost providers.

Hospital prices remain a mystery for a majority of consumers

I have enough information on prices for the following types of medical care



Source: *HRI Consumer Survey*, PwC, 2013

Implications

- » Employers looking to reduce costs are playing hardball. Businesses will increasingly make transparency a top factor in negotiations with insurers and providers. Employers may consider shunning non-disclosure agreements that prevent negotiated prices from being shared.
- » New health insurance exchanges will fuel the transparency push. As both state and private exchanges take root, those who shop for plans will demand clearer pricing information. While consumers can comparison shop for plans base on out-of-pocket costs, health plans may compete on price by limiting provider networks.
- » As prices are disclosed, providers will feel the pinch. Consider the CalPERS example. When the health benefits plan for California's retirees said it would pay no more than \$30,000 for hip or knee replacements, its members changed how they selected providers and medical treatment. They could see higher-priced providers under the plan, but it would cost them more. Providers responded by dropping their prices to compete. CalPERS saved \$5.5 million in the program's first two years, and the price of the procedure dropped 26%, or about \$9,000.⁴

In recent years, the retail, banking, and real estate industries have all combined social, mobile, analytics, and cloud technologies to offer an unprecedented level of customer service, fostering a new generation of empowered consumers who now expect the health industry to follow suit. In 2014, the trend has the potential to fundamentally alter how health organizations interact with patients and one another to deliver care and manage health while keeping costs down.

While the health industry has dabbled in social, mobile, analytics, and cloud technologies during the past few years, many organizations have failed to connect them to the major information systems they use to run their businesses—electronic health records (EHRs), research and development systems, and member and sales management systems used by insurers and retail pharmacies.

Despite the potential of these systems, a lack of integration has resulted in information gaps. Industry leaders must make sense of data from many different sources or they will never see the big picture.

For example, even though many device manufacturers have created smartphone apps that patients use to monitor themselves and send data to their care providers, a recent HRI survey of medical device executives found that only 18% of companies are maximizing the use of these new technologies to integrate patient data into clinician workflows and EHRs. Just 12% believe they are doing a good job of integrating this data with their research and development systems to drive innovation.¹

However, some companies are making strides. Aetna has linked its mobile health app iTriage to its member management system. While any consumer can use iTriage to search for a doctor, Aetna members can go a step further and find a doctor who is in network.² Partners Healthcare's Center for Connected Health has integrated the health system's home monitoring systems with its EHR system, and it will next connect decision support and analytic tools.³

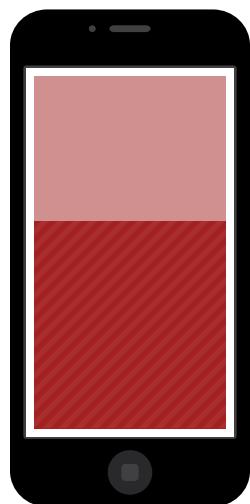
Some industry watchers envision a future in which providers integrate the patient data in their EHRs with the information patients share with them via social media tools such as Facebook, Twitter, and Foursquare to reach their patients where they "live".⁴

The future of healthcare is mobile



Today, only **27%** of physicians are encouraging patients to use mobile health applications.

But **59% of physicians and insurers** believe that widespread adoption of mobile health applications in the near future is unavoidable.



Source: Economist Intelligence Unit mHealth Survey (commissioned by PwC), 2012

The business models of yesterday will be inadequate to satisfy growing industry and consumer expectations for value and convenience. Social, mobile, analytics, and cloud technologies are the underpinnings for creating new business models in which organizations will be paid based on value rather than volume. But to succeed in this new digital world, health organizations will first need a strategy that connects modern technologies to their primary systems.

Implications

» Under increasing pressure to keep costs down, providers should promote technologies that help manage patients' health outside of costly care settings. Today, just 27% of physicians encourage patients to use mobile health applications, even though 59% of physicians and insurers believe that the widespread adoption of mobile health is inevitable in the near future.⁵

- » Assuming more financial risk for their healthcare (e.g., via high-deductible plans), consumers may be increasingly willing to pay for social, mobile, analytics, and cloud technologies to help manage their health.
- » Drug and device companies should enhance their understanding of what drives consumer behavior and satisfaction as consumers become more brand-aware through their interaction with smartphone apps and social media sites.
- » Insurers should consider paying for non-traditional ways to reduce medical costs. Some insurers are reimbursing chronic disease management in the form of prescribed smartphone apps. WellDoc recently won FDA approval for BlueStar, its diabetes management app, after the company proved its users lowered their blood sugar levels more so than patients receiving traditional drug therapy. The app costs one-third to one-half less than branded drugs.⁶

With ACA implementation in full swing, the US health system is undergoing a transformation fueled by millions of new customers, the rise of quality-based payments, and more discerning consumers. An influx of up to 25 million newly insured patients over the next nine years and an aging population will exacerbate caregiver shortages if the medical profession does not alter how it does business.¹

In response, healthcare organizations are adopting technology to redefine how medicine is practiced. This changing landscape requires new workforce capabilities that stretch beyond traditional clinical roles into more convenient, consumer-focused technologies.

Leading health systems are embedding social, mobile, and analytic technologies successfully used by other industries to extend and supplement the existing workforce. In East Baltimore, Johns Hopkins HealthCare is using customer relationship management (CRM) software developed for the retail industry to improve population health.

"We see a lot of promise in applying this technology to increase consumer engagement," said Regina Richardson, Director of Care Management. "Our goal is to use this technology to better communicate with those individuals who need the most help managing their care."

Health organizations are applying mobile and online technologies such as telemedicine to extend their service area, provide real-time screenings, and connect with patients regardless of their geographic location. Health Partners, a Minnesota-based health system, developed the "Virtuwell" technology that uses algorithms to help diagnose and customize treatment plans for more than 40 routine conditions online—at a cost of \$40.²

Health systems are also investing in data analytics to extend the reach of their workforce, reduce costs, and improve quality. Bon Secours St. Mary's Hospital in Richmond, Virginia is using a predictive analytics model to determine a patient's likelihood for hospital readmission, enabling clinicians to focus on the patients at highest risk. To capitalize on these strategies, health systems need a workforce experienced in information technology and online communications.

Implications

» Technology may be used to extend workforce communication reach. Consumers want to connect with their health providers. HRI's survey found that 69% of consumers are willing to communicate with doctors and nurses using email, 49% via online web chat or portal, and 45% using text messages.³ Healthcare organizations should use technology to extend care and build a workforce that is skilled at engaging digitally with patients.

- » Healthcare organizations should deploy their people and technology closer to consumers. Affordable and convenient care alternatives are growing in popularity. For example, the use of retail clinics increased 133% between 2007 and 2013, according to HRI consumer research.⁴ A community-based workforce requires local knowledge and the cultural skills to understand and cater to patients in these alternative care settings.
- » Healthcare organizations should draw from a new workforce well to meet consumer expectations. Mine the unique expertise of fields outside of healthcare such as technology, retail, and hospitality, to enhance the consumer experience and master care coordination. Tap the skills and training of healthcare workers—such as displaced pharmaceutical representatives—who understand customer service and integrate them into new roles.⁵
- » Providers should reduce barriers to working at full capacity. Physician assistants, nurse practitioners, and pharmacists can help the newly insured get convenient primary care access. States should continue to reassess and standardize their scope of practice laws to ensure that these clinicians can operate at full capacity by giving them the authority to make primary care diagnoses and prescribe drugs.

Consumers turn to technology to communicate with providers

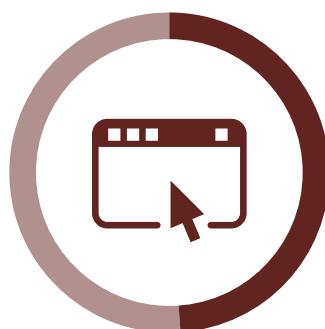
How willing would you be to communicate with your doctor, nurse or caregiver in the following way?

Respondents that cited "very willing" or "somewhat willing"



69%

Email



49%

Online chat or
web portal



45%

Text message



40%

Mobile health
applications

It's hard to argue with 50 years of scientific achievements. The randomized, double-blinded, placebo-controlled clinical trial has had a remarkable run as a cornerstone of therapeutic and diagnostic development.

In 2014, as the industry comes under increasing pressure to replenish its product pipeline faster and with fewer dollars, drugmakers must rethink their research methods. Alternative approaches that use consumer-generated data, adaptive design, and remote sensing technology will become more common.

In the year ahead, research insights drawn from consumer-generated data will play a bigger role in clinical trials. Eight recent studies used data collected from FitBit, the digital gadget consumers use to measure real-time physical activity.¹ Efforts such as National Institutes of Health's PROMIS and the Health Data Exploration Project provide tools to increase consumer-generated data usability for research. The latter aims to preserve data quality and patient confidentiality, two barriers to making consumer-generated data a widely used tool for clinical research.² Researchers are also conducting retrospective studies to examine insurance claims, hospital records, and previous trials.

This year, more than 50% of all trials will be conducted outside the US, requiring sponsors to better understand different cultures, foreign infrastructures, and evolving regulatory requirements.³ Remote and geographically dispersed trials are easier today because of text messaging, remote monitoring, and at-home diagnostics.

Some drugmakers are now recruiting patients, securing electronic consent, and shipping trial medications directly to patients' homes, drastically shrinking trial start-up times. Incorporating the right technology into trials has the potential to reduce trial costs by 47%.⁴ Qu Biologics uses the Twitter handle @QuCrohnsTrial to enhance trial recruitment, disseminate information, and raise awareness through widespread digital outreach.

Adaptive designs, which allow researchers to make modifications as data becomes available, account for 20% of clinical trials today, and they are expected to grow significantly.⁵ They hold the promise of speeding up trial results, uncovering more information, allowing for "fast failure," and reducing trial costs. One drugmaker reports saving more than \$70 million each year since it has adopted adaptive trial design.⁶

Patient registries that contain long-term observations about populations can also form the basis for quicker trials and answer new research questions. A recent clinical trial used existing registry data to reevaluate a widely accepted cardiac procedure. The trial cost \$300,000, or \$50 per participant—low by industry standards. The results downplayed the value of the commonly used procedure, forcing some cardiologists to rethink their clinical practices.⁷

Advances in precision medicine are also helping companies find new ways to recruit patients, a particularly time-consuming and costly process. Researchers can now pre-screen trial participants for certain biomarkers to reach a targeted population, excluding patients unlikely to respond to a therapy.⁸

Genentech partnered with 23andme to use genetic analysis to quickly identify patients for a recent cancer study.⁹ Virtual models and simulations of human biology identify potential risks, outcomes, and biomarkers that can increase the likelihood of a match between patients and treatments.

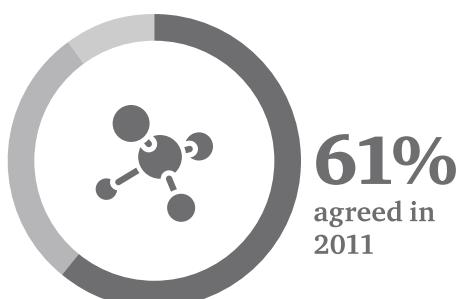
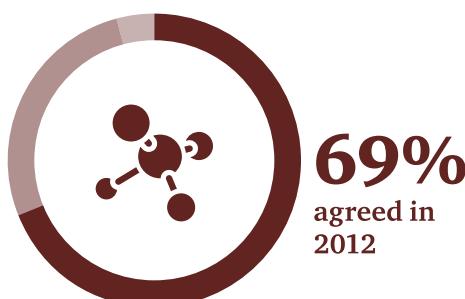
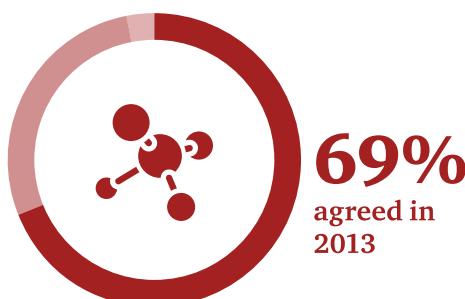
Engaged consumers are critical for research success. Only 3% of cancer patients participate in clinical trials, suggesting a significant opportunity for companies to increase participation.¹⁰ A recent HRI consumer study revealed that 52% of consumers would be willing to participate in a clinical trial if they were given key information such as risks, benefits, eligibility, and trial results.¹¹ Focusing on what's meaningful to patients and making participation easier could be a new factor in trial success.

Implications

- » As new trial methods take shape, companies will increasingly need personnel who can design studies that evolve over time, incorporate new data, coordinate remote studies, and model outcomes.
- » Nearly 70% of consumers surveyed by HRI agree that biomedical research is an important economic growth engine, but they are unsure of their role.¹² Trial sponsors must make trial participation less taxing, more transparent, and convey better information about trial options, results, and how patients can participate.

Research and development remains an economic engine in the eyes of consumers

Do you agree that pharmaceutical and biomedical research is important for economic growth?



Source: HRI Consumer Survey, PwC, 2013

While public dollars will remain scarce in 2014, healthcare companies will need to heighten the pace of innovation in a new health economy that demands greater value and convenience. Federal budget cuts, new penalties for hospital-acquired conditions, and increased competition from non-traditional players mean healthcare organizations need a better way to bring innovative products, services, and business models to market. The focus will shift from how much money companies spend on innovation to how they manage the innovation process.

In a recent PwC survey, only 27% of health executives¹ said their companies formally manage innovation, which is critical to achieving breakthrough results.² Medical technology executives were least likely to say their companies manage innovation this way (14%).

One of the greatest tensions in any organization is running the business of today while creating the business of tomorrow. The process for achieving breakthrough innovation is entirely different from a company's day-to-day operations in terms of money and staff.

Many companies find it challenging to establish an innovation engine that creates a rapid learning environment predicated on the concept of fast, frequent, and frugal failure. A recent HRI survey found that 77% of industry executives believe it is important to foster an environment in which failure and risk are tolerated.³

A few leading health organizations are embracing failure instead of running from it. They are applying different logic, infrastructure, management style, and measures to support innovation. They are separating innovation from the company's core operations so they can test innovative ideas in a sandbox. For example:

- » GE committed \$6 billion to Healthymagination, a corporate incubator that explores new trends and develops pilot programs without disrupting GE's core business activity.⁴ When an idea is deemed commercially viable, Healthymagination plans to transfer it to GE business units, which use their scale and resources to bring the idea to market.⁵
- » Medtronic created the Hospital Solutions group in Europe to be its incubator for business model innovation and study how the device maker can improve the efficiency of technology delivered at the point of care. The group devised an approach that stretched Medtronic beyond

selling pacemakers to sharing risk with hospitals to improve efficiency and patient outcomes in coronary care. Medtronic has saved its partner hospitals an average of 20% to 25% in costs associated with coronary care, and it has improved patient satisfaction by offering services such as patient referral programs, supply chain management, surgical supply kits, and cardiovascular information systems.⁶

- » Kaiser Permanente's Garfield Innovation Center offers mock-up versions of patient rooms, operating suites, nursing stations, and patient apartments so employees can experiment with and simulate ideas before the health system makes a major investment. While testing a new way to distribute medicines, employees realized that the new process would actually lead to costs and security risks they had not anticipated. They quickly abandoned the concept and redirected their efforts.⁷

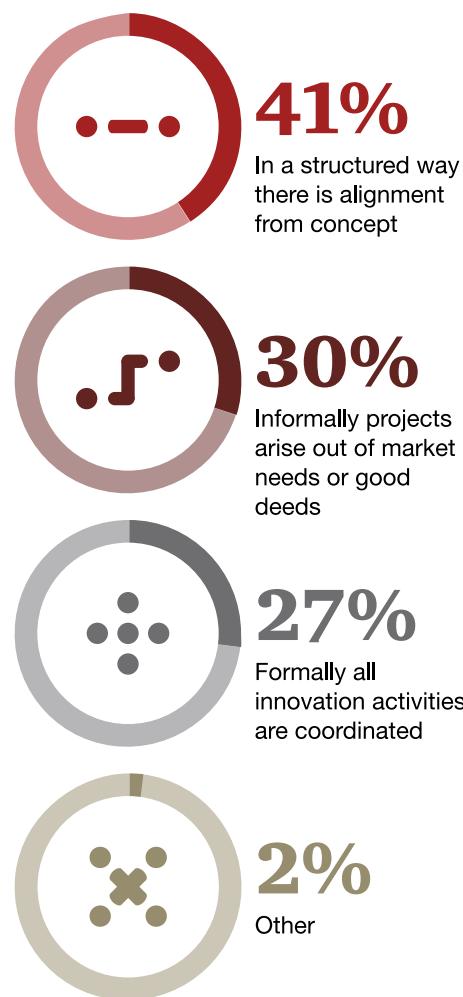
By fostering an innovative culture that brings more rigor to the process and views failure as a means to an end, companies can achieve high-impact innovations in less time and at lower cost, which is what healthcare purchasers and consumers increasingly demand.

Implications

- » Organizations should introduce time and money constraints that force experimentation and failure so they can learn quickly and improve their chances of creating better innovations faster.
- » Innovative companies should look beyond traditional research and development units to customers, partners, and even competitors to widen the funnel of ideas and get more in tune with customer needs.
- » Existing healthcare companies should be ready to compete or partner with consumer electronics, telecommunications, and retail companies, all of which have entered the health field and have a track record of consumer understanding, agility, and innovation success.
- » Executives should engage finance teams and insurers early and often in the innovation process to determine the right metrics to track progress and determine who will pay for innovations with the potential to achieve better patient outcomes.

Few companies manage innovation for maximum efficiency and breakthrough results

Which of the following best describes the way that your company manages its innovation process?



Source: Global Innovation Survey, PwC, 2013

Ten years ago, only eight states had a Medicaid managed long-term care program. In 2014, that number is expected to climb to 26 as states grapple with looming costs driven primarily by an aging population.¹ The shift toward managed long-term care is an opportunity for insurers and providers to add new customers—but it's not without risk.

The number of Americans age 85 and older is projected to triple by 2050 to nearly 18 million people.² As life expectancy in the US continues to inch up, more Americans are requiring a complicated array of long-term care services that do not come cheap.

Few people are financially prepared for these expenses. According to HRI's 2013 consumer survey, only 25% of respondents said they think they will have enough money to pay for long-term care should they need it. A majority said they have not purchased long-term care insurance or didn't intend to do so.³

As a result, about four million people currently rely on Medicaid to help pay for their long-term care needs, costing the program more than \$130 billion annually. Much of that goes toward caring for the “dual-eligible” population—individuals who qualify for both Medicare and Medicaid.⁴ Currently, long-term care accounts for 65% of Medicaid spending on dual-eligibles.⁵

States can see the financial tsunami approaching and are turning to a familiar tool they have used to stem the tide of overall rising costs: managed care. In the past, states have been hesitant to place elderly and frail patients into managed care; acquiescing to concerns that utilization management tools could impede access to care. But with mounting cost pressures and greater emphasis on coordinating services, states are increasingly embracing managed long-term care.

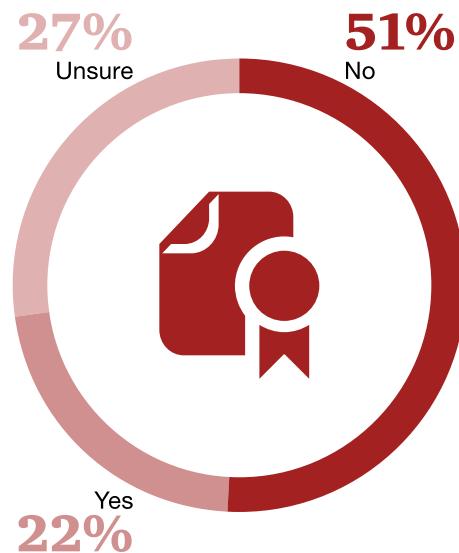
Each state may enact different requirements when setting up a managed long-term care program. Some states may voluntarily enroll beneficiaries into a health plan, while others may use mandatory enrollment. States may choose to enroll only parts of their Medicaid population into managed care, such as individuals that have been admitted into a nursing home.

Implications

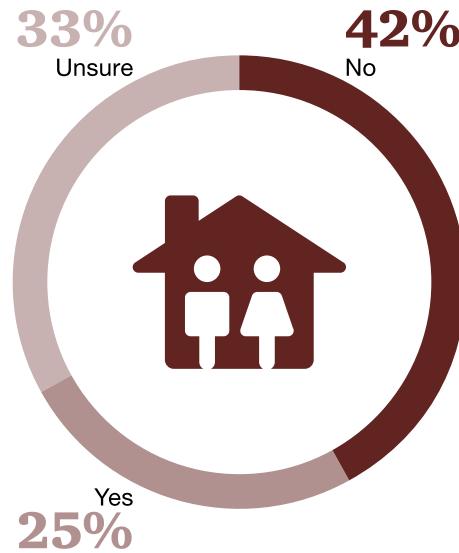
- » Companies should explore new opportunities under the ACA. Thirteen million people are expected to enroll for the first time in Medicaid during the next ten years.⁶ At the same time, the federal government is giving states new flexibility to experiment with managed care through waivers and demonstration projects. An initiative targeting dual-eligibles seeks to improve care coordination and align payments between Medicare and Medicaid. Two-thirds of states are pursuing these integration initiatives, which could eventually cover two million beneficiaries.
- » Companies eyeing the managed long-term care space should consider the unique health needs of this patient group and the complexities that come with managing their care. This may be unfamiliar territory for some, but those with strong care coordination programs will be best positioned to succeed.
- » States should focus on community-based care. The greatest savings will come from health plans that can keep people from entering institutions. The median annual price for a semi-private room in a nursing home is \$75,405. Home- and community-based services, however, can range from \$19 per hour for a home health aide to \$65 per day in an adult day center.⁷
- » Health plans need to expand their networks to include new partners such as non-profit, community, and faith-based organizations that provide non-medical services such as transportation. At the same time, providers should prepare for an influx of patients likely to arrive via the plans they contract with. Providers not used to dealing with insurers may have to overcome a learning curve, especially when negotiating rates.

Consumers know they are unprepared for long-term care costs

I have purchased or plan to purchase long-term care insurance



I believe I will have the money I need to pay for my long-term care needs



Source: HRI Consumer Survey, PwC, 2013

For nearly ten years, drugmakers selling products in California have been preparing for sweeping new statewide regulations aimed at eliminating counterfeit medications in the drug supply chain. Now a new federal law has changed the scope of the effort and imposed a tight timetable on implementing the first step toward a nationwide “track and trace” system to document the journey of prescribed medications from manufacturer to patient.

Consumers are well aware of the potential risks posed by counterfeit medications, which can sometimes have deadly effects. In one of the worst cases, a contaminated blood thinner, heparin, was linked to 149 American deaths between 2007–2008.¹ According to HRI’s 2013 consumer survey, 66% of respondents said they are somewhat or very concerned about the safety and quality of the drugs they take.²

In 2004, California’s legislators addressed this concern by passing a law targeting counterfeit medicines. The law—which was scheduled to take effect in January 2015—was the most far-reaching of its kind in the nation, requiring the pharmaceutical industry to electronically track prescription drugs throughout the supply chain. This looming law in a state that has long been a trend-setter in the US health system helped raise awareness about the need for policing the national drug supply chain. Congress responded in late 2013 with a nationwide “track and trace” system that will supersede the California law and extend the new requirements to every state.

The Drug Quality and Security Act, which passed Congress with bipartisan and widespread industry support, will be phased in over 10 years, culminating in an inter-operable, unit-level drug tracing system for the entire country. The law requires manufacturers to begin tracking prescribed drugs in “lots”—a group of drugs packaged together—starting in 2015. In 2017, the industry must begin assigning serial numbers to individual “saleable units,” such as pharmaceutical products bought by pharmacies, before they are dispensed to individual patients.

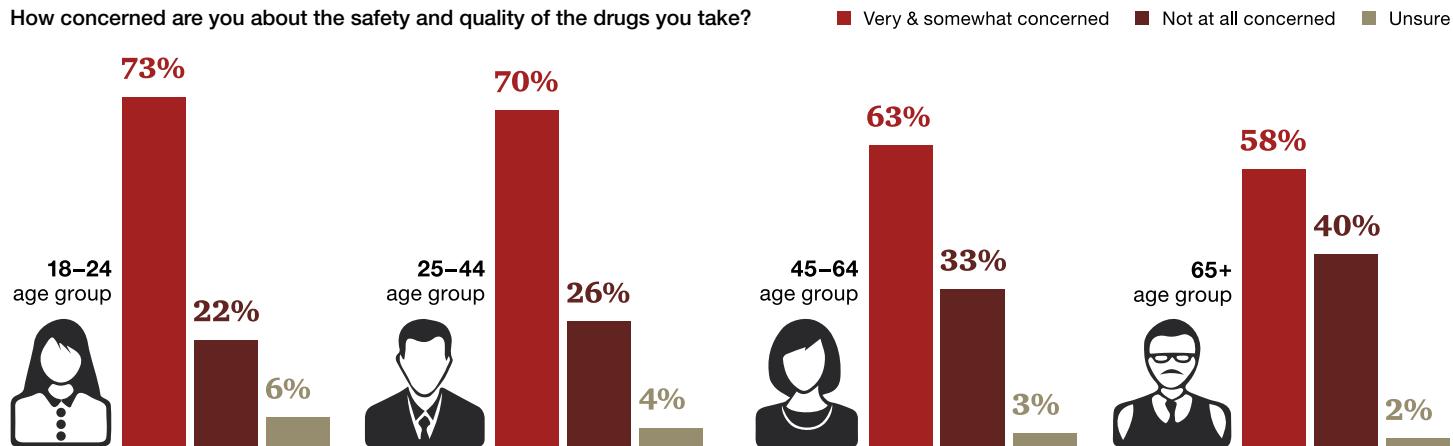
Within a decade, manufacturers will be required to use those serial numbers to provide an “electronic pedigree,” or product history, that traces the path of each saleable unit. Once the legislation is fully implemented, there will be a comprehensive record of how each drug prescribed in the US entered and exited the national supply chain. But before that can happen, the FDA must further define key details before unit-level tracking is possible, such as data standards and format. For now, manufacturers should focus on the requirements set to take effect in 2015 and 2017.

PwC estimates that the program will cost drugmakers \$10 million to \$50 million per manufacturer, depending on the size of the company and the complexity of its supply chain. Global firms will incur additional costs to comply with upcoming international standards. While Turkey, China, and India already enforce drug serialization laws, South Korea and the European Union will implement similar regulations between 2015 and 2017.

Implications

- » To meet upcoming regulations, manufacturers should work closely with distributors and develop an open dialogue with regulators to guide and monitor changing requirements. This will be particularly important during the first year of the federal law’s implementation to enable a clear understanding between manufacturers and distributors about the content and transmission of information about the drug products that pass through their hands.
- » Serialization and track and trace regulations in the pharmaceutical industry continue to be a global regulatory issue with local implications. Pharmaceutical companies will need a global, holistic strategy that they can also implement locally.
- » Pharmaceutical and biotech manufacturers should consider establishing executive-led governance structures focused on supply chain security and regulatory compliance. They should convene strong program management teams that will head up the initiative and engage key leaders across the organization to maintain a global focus on evolving regulations.
- » Manufacturers should consider the additional time afforded by the US law not as an opportunity to delay or defer any action, but as valuable time needed to learn global requirements, develop the right strategy for their companies, and commence implementation.

Younger consumers are more concerned about the safety and quality of their medications



Source: HRI Consumer Survey, PwC, 2013

Endnotes

1: Companies rethink their roles in the new health economy

- 1 Crain's Health Pulse, "EmblemHealth creates mega-practice," February 22, 2013
- 2 Chris Young, "Should Hospitals Become Health Insurers?" *US News and World Report*, November 5, 2013
- 3 Robertson, Kathy, "Sutter Health has HMO license ready to go," *Sacramento Business Journal*, May 10, 2013
- 4 California HealthCare Foundation, "California Health Plans and Insurers: A Shifting Landscape," March 2013; Based on total revenues from DMHC-regulated carriers and CDI California direct premiums reported by CDI for the "Accident and Health" line of business
- 5 Walgreens presentation to PwC, October 2013
- 6 Ishani Ganguli, "Chronic care at Walgreens? Why not," *The Boston Globe*, April 22, 2013
- 7 PR Newswire, "South Carolina DHHS Director Tony Keck Visits Columbia MinuteClinic," April 5, 2013
- 8 18% growth in revenue for Q3 2013, compared to Q3 2012; CVS Caremark Q3 2013 earnings call transcript

2: Armed with cash and know-how, corporate venture capital picks up the slack

- 1 National Venture Capital Association, "Patient Capital 3.0: Confronting the Crisis and Achieving the Promise of Venture-Backed Medical Innovation," 2013; http://www.nvca.org/index.php?option=com_content&view=article&id=268&Itemid=103 (accessed November 12, 2013)
- 2 Moneytree Thomson Reuters data analyzed by PwC and National Venture Capital Association
- 3 Avalon Ventures press release, "Avalon Ventures Enters Strategic Collaboration with GlaxoSmithKline to Fund and Launch Up to Ten Life Science Companies," April 23, 2013; <http://online.wsj.com/article/PR-CO-20130423-908397.html> (accessed November 11, 2013)
- 4 Moneytree Thomson Reuters data analyzed by PwC and National Venture Capital Association
- 5 National Venture Capital Association, "Patient Capital 3.0: Confronting the Crisis and Achieving the Promise of Venture-Backed Medical Innovation," 2013; http://www.nvca.org/index.php?option=com_content&view=article&id=268&Itemid=103 (accessed November 12, 2013)

3: Employers explore new options with private exchanges

- 1 A key distinction between private and public exchanges is that federal subsidies to assist qualifying individuals buy insurance will be limited to products bought on the public exchanges
- 2 Employee Benefit Research Institute, "Sources of health insurance and characteristics of the uninsured: Analysis of the March 2013 Current Population Survey," issue brief no. 390, September 2013; http://www.ebri.org/pdf/briefspdf/EBRI_IB_09-13.No390.Sources1.pdf (accessed December 2, 2013)

4: Picking up the pace of price transparency

- 1 2013 Health and Well-Being Touchstone Survey, PwC
- 2 CB Insights, "Within Digital Health, Healthcare Cost Transparency is an Increasingly Hot Area Among VCs," September 2012; <http://www.cbinsights.com/blog/trends/healthcare-cost-transparency> (accessed November 11, 2013)
- 3 PwC Health Research Institute, "Medical Cost Trend: Behind the Numbers 2014"; <http://pwchealth.com/cgi-local/hregister.cgi/reg/medical-cost-trend-behind-the-numbers-2014.pdf>
- 4 Chad Terhune, "Hospitals cut some surgery prices after CalPERS caps reimbursement," *Los Angeles Times*, June 23, 2013; <http://articles.latimes.com/2013/jun/23/business/la-fi-mo-calpers-hospital-surgery-prices-20130623> (accessed November 12, 2013)

5: Pulling it all together: Social, mobile, analytics, and cloud technologies prime health industry for new business models

- 1 PwC Health Research Institute, "Medtech companies prepare for an innovation makeover," October 2013; <http://pwchealth.com/cgi-local/hregister.cgi/reg/pwc-medical-technology-innovation-report-2013.pdf> (accessed November 12, 2013)
- 2 PwC Health Research Institute, "Open for business: Insurers prepare for new consumer market," September 2013; <http://pwchealth.com/cgi-local/hregister.cgi/reg/pwc-HIX-payer-report-health-exchanges.pdf> (accessed November 12, 2013)
- 3 InformationWeek Healthcare, "Partners Integrates Home Monitoring Data With EHR," June 28, 2013; <http://www.informationweek.com/healthcare/electronic-medical-records/partners-integrates-home-monitoring-data/240157431> (accessed November 12, 2013)
- 4 Manish Nachnani, "Social Media + Electronic Health Records = Social EHR Systems," *Corporate Wellness Magazine*, April 6, 2012; <http://www.corporatewellnessmagazine.com/article/social-media-electronic-health.html> (accessed November 12, 2013)
- 5 Economist Intelligence Unit mHealth Survey (commissioned by PwC), 2012
- 6 Zina Moukheiber, "Trailblazer WellDoc To Sell First Mobile Prescription Therapy," *Forbes*, June 14, 2013; <http://www.forbes.com/sites/zinamoukheiber/2013/06/14/trailblazer-welldoc-to-sell-first-mobile-prescription-therapy/> (accessed November 5, 2013)

6: Technology is the new workforce multiplier

- 1 Congressional Budget Office "Updated Budget Projections: Fiscal Years 2013 to 2023," May 2013
- 2 Courneya, Patrick T., Palattao, Kevin J., Gallagher, Jason M., "HealthPartners' Online Clinic For Simple Conditions Delivers Savings Of \$88 Per Episode And High Patient Approval," *Health Affairs*, 32, no. 2 (February 2013): 385-392
- 3 PwC Health Research Institute, *Top Issues Consumer Survey*, 2013
- 4 PwC Health Research Institute, *Top Issues Consumer Survey*, 2013
- 5 Whalen, Jeanne, "Drug Makers Replace Reps With Digital Tools," *The Wall Street Journal*, May 10, 2011; <http://online.wsj.com/news/articles/SB10001424052748703702004576268772294316518> (accessed November 11, 2013)

7: A new lens on clinical trials

- 1 Search performed on clinicaltrials.gov on October 16, 2013
- 2 Health Data Exploration Project; <http://hdexplore.calit2.net/> (accessed November 12, 2013)
- 3 Clinical Trials.gov; <http://clinicaltrials.gov/ct2/resources/trends> (accessed November 12, 2013)
- 4 EL Eisenstein et al., "Sensible approaches for reducing clinical trial costs," *Clinical Trials*, 5, no. 1 (February 2008): 75–84
- 5 Tufts Center for the Study of Drug Development, "The Adoption and Impact of Adaptive Trial Designs," 2013
- 6 Ibid
- 7 M. Lauer and RB D'Agostino, Sr., "The randomized registry trial—The next disruptive technology in clinical research?" *N Engl J Med*, 369, no. 17 (October 2013): 1579–1581
- 8 US Food and Drug Administration, "Guidance for Industry: Enrichment Strategies for Clinical Trials to Support Approval of Human Drugs and Biological Products"; <http://www.fda.gov/downloads/Drugs/GuidanceComplianceRegulatoryInformation/Guidances/UCM332181.pdf> (accessed November 12, 2013)
- 9 Nosta, John, "Spit Happens! Genentech And 23andMe Team Up To Advance Genomic Testing In Clinical Trials," *Forbes*, August 7, 2013; <http://www.forbes.com/sites/johnnosta/2013/08/07/spit-happens-genentech-and-23andme-team-up-to-advance-genomic-testing-in-clinical-trials/> (accessed December 4, 2013)
- 10 P. Lara Jr. et al. "Evaluation of Factors Affecting Awareness and Willingness to Participate in Cancer Clinical Trials," *Journal of Clinical Oncology*, 23: 36 (2005): 9282–9289
- 11 PwC Health Research Institute, *Top Issues Consumer Survey*, 2013
- 12 Ibid

8: A new mantra for healthcare innovation: Fail fast, frequently, and frugally

- 1 Excludes health insurer executives
- 2 *Global Innovation Survey*, PwC, 2013
- 3 PwC Health Research Institute, "Medtech companies prepare for an innovation makeover," 2013; <http://pwchealth.com/cgi-local/hregister.cgi/reg/pwc-medical-technology-innovation-report-2013.pdf>
- 4 Healthymagination, "A shared commitment to creating better health for more people"; <http://www.healthymagination.com> (accessed November 12, 2013)
- 5 PwC Health Research Institute, "Medtech companies prepare for an innovation makeover," 2013
- 6 Ibid
- 7 California Health Care Foundation, "Reinventing Health Care Delivery: Innovation and Improvement Behind the Scenes," September 2009; <http://www.chcf.org/~media/MEDIA%20LIBRARY%20Files/PDF/I/PDF%20InnovationCenters.pdf> (accessed November 12, 2013)

9: Medicaid's march toward managed long-term care

- 1 Truven Health Analytics, "The Growth of Managed Long-Term Services and Supports (MLTSS) Programs: A 2012 Update," July 2012, prepared for the Centers for Medicare and Medicaid Services; http://www.medicaid.gov/Medicaid-CHIP-Program-Information/By-Topics/Delivery-Systems/Downloads/MLTSSP_White_paper_combined.pdf (accessed November 12, 2013)
- 2 United States Census Bureau, 2012 National Population Projections
- 3 PwC Health Research Institute, *Top Issues Consumer Survey*, 2013
- 4 *US Commission on long-term care: Report to Congress*, September 2013; <http://www.ltccommission.senate.gov/Commission%20on%20Long-Term%20Care%20-%20Final%20Report%20-%209-18-13.pdf> (accessed November 12, 2013)
- 5 The Kaiser Family Foundation, "Issue Brief: Medicaid's role for dual eligible beneficiaries," August 2013; <http://kaiserfamilyfoundation.files.wordpress.com/2013/08/7846-04-medicaids-role-for-dual-eligible-beneficiaries.pdf> (accessed November 12, 2013)
- 6 Congressional Budget Office, Estimate of the effects of the Affordable Care Act on health insurance coverage, May 2013; http://www.cbo.gov/sites/default/files.cbofiles/attachments/44190_EffectsAffordableCareActHealthInsuranceCoverage_2.pdf (accessed November 12, 2013)
- 7 *Genworth 2013 Cost of Care Survey*; https://www.genworth.com/dam/Americas/US/PDFs/Consumer/corporate/130568_032213_Cost%20of%20Care_Final_nonsecure.pdf (accessed November 12, 2013)

10: Pharmaceutical supply chain security: Combating counterfeit drugs

- 1 "Bad medicine: The world's drug supply is global," *The Economist*, October 13, 2012; <http://www.economist.com/node/21564546> (accessed October 21, 2013)
- 2 PwC Health Research Institute, *Top Issues Consumer Survey*, 2013

Acknowledgements

About this research

This annual report discusses the top issues for healthcare providers, health insurers, pharmaceutical and life sciences companies and employers. In fall 2013 PwC's Health Research Institute commissioned an online survey of 1,000 US adults representing a cross-section of the population in terms of insurance status, age, gender, income, and geography. The survey collected data on consumers' perspectives on the healthcare landscape and preferences related to their healthcare usage.

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