Governance in a Consumer-Centric Health Care Ecosystem

Monograph Series

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CENTER FOR HEALTHCARE GOVERNANCE™

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New Contexts

Imagine a health care consumer who dictates his or her own health goals, tracks progress with a wearable medical device or two and who consults provider and social media contacts for advice about interventions, side effects and choices affecting his or her health that could be rewarded financially via insurance policy incentives.

The new mantra of Britain's National Health Service illustrates the centrality of the consumer in the emerging health care environment: for consumers, there will be "no decision about me without me."[1] This paradigm requires a new expertise and accountability from patients, health care organizations and physicians as health care delivery becomes more personalized.

The collaborative approach to care for the empowered consumer has redefined a *health care ecosystem*. Better than the notion of one monolithic "health care system," the term "ecosystem" captures the multi-dimensional and multi-directional relationships among health care users, providers, payers, pharmacies and a host of other entities including pharmaceutical companies, medical equipment manufacturers, researchers and community partners. Importantly, the notion of an "ecosystem" emphasizes mutual benefits and sustainability over zero-sum competition.

Hospital Leadership at the Crossroads of Transformation

Hospitals in the new health care ecosystem face new government mandates and more stringent quality metrics at the same time they are subject to competition from non-traditional players. Service—and business thinking—must consider the new realities outside of the four walls of the hospital to meet these new pressures.

According to the Pew Internet Project, one in five Americans has consulted online reviews and rankings of health care service providers and treatments. This percentage is expected to rise as Americans increasingly see themselves as empowered consumers of health care, not merely its passive recipients.

Effective delivery of consumer-centric health care will require a transformation in the governance and leadership mindset, education and skills—including insight into how to finance and deploy the innovative technologies discussed below. Hospital trustees need to anticipate this shift, ensuring their organizations are tailoring their information analysis and sharing, customer service and financing models to the new consumer-centric, value-focused health care ecosystem. This monograph is meant to help boards perceive how an analytics-driven approach affords a deeper understanding of and appreciation for the consumer experience.

In one of these areas, information and data analysis, health insurers are leading health care providers: payers have been the earliest adopters of Big Data—the ability to organize, catalog, reconcile and pattern-match vast quantities of data from a variety of sources—especially for business analytics. Broadly speaking, health care providers and caregivers have yet to fully embrace Big Data, perhaps due to the misconception that it diverts time and resources away from clinical care—or the notion that it is only useful for cutting costs. Several of the areas in which data analytics shine, however, can translate directly into better patient outcomes. From improving adherence to prescriptions to optimizing surgical equipment locations in a hospital to determining which interventions keep specific populations healthy, Big Data can improve the experience of health care for consumers by arming clinicians and administrators with greater knowledge, better tools for collaboration and higher overall efficacy.

People—caring physicians, informed consumers, invested staff across the health care industry and forward-thinking leaders—are the lifeblood of the health care ecosystem. Data provides those people with the vocabulary for speaking about individual and population health in meaningful ways. The only way to glean wider and deeper knowledge about population health, a key milestone along the journey toward delivering greater value in health care, is through information sharing. The new health care ecosystem must integrate providers, payers, pharmacies, home health agencies and myriad others to coordinate care and advance understanding of what works. Indeed, perhaps the most important source and destination of information are patients themselves. This integration requires the use of sophisticated, new-generation technology including medical devices that provide real-time data, algorithms that analyze those data automatically and the system interfaces that present the resulting information in a digestible form.

This monograph will discuss the major business and technological transformations underway, to help hospital boards and leaders become familiar with and prepare for the changes that soon will be at their doorstep. A three-year roadmap at the end of the monograph organizes the relationships between necessary resource allocation, technology implementation and expectations for return on investment into a sensible, achievable chronology.

Ultimately, the most crucial piece of the puzzle is a new leadership mindset: hospitals will soon need to think of themselves as retail and technology enterprises instead of solely as locations for health care delivery. To develop genuine expertise in consumer behavior, they will have to perceive their stakeholders anew and think of consumer preference and patient health as simultaneous, equal and interactive experiences.

Consumer Empowerment Takes Shape

Consumer access to data has changed entire industries. Almost every form of media is consumed and paid for differently than it was just a decade or two ago: travel, banking and transportation now supply consumers with in-depth account information and industry context through a variety of channels; and citizens are using datasets from the government's www.data.gov for everything from identifying alternative fuel stations to streamlining the permitting process for small businesses.[2] Stimulated by advanced connectivity and unprecedented access to information across sectors, consumers' expectations are rising, and they are demanding more information and services from the health care value chain. As they deal with ever increasing out-of-pocket expenses, too, people are becoming more discerning shoppers of health care services. This phenomenon is driving a larger business model shift from business-to-consumer (b2c) to consumer-to-business (c2b).

This shift has a place in a wider context of health care improvement initiatives. As early as 2001, the Institute of Medicine (IOM) broached the topic with *Crossing the Quality Chasm*, calling for patient-centered health care as one of six key areas for improvement. According to the IOM, patient-centered care "is respectful of and responsive to individual patient preferences, needs, and values, and ensur[es] that patient values guide all clinical decisions."[3] But decisions about how to contact, motivate, reward and track people—decisions that fall outside of the clinical space, strictly speaking—must also be respectful and responsive. (Insurance providers already understand this, although they may not always act perfectly in concert with that knowledge.)

It is helpful to think of consumer-centric health care as related to but distinct from patient-centric health care. Hospital leaders must perceive that they will need to gear all aspects of care, including non-clinical experiences such as wait times, reminders and follow-up communications, to the people they serve.

Semantics are important here, too: should all the participants in the health care system be thought of as "patients" or as "consumers"? While the financial or business connotations associated with the latter may cause some to balk, the term also denotes a greater degree of choice and autonomy—and underscores the heightened cost-consciousness that Americans have recently developed.

News about varying prices for the same procedure is partly responsible for sparking this awareness.[4] For instance, the Centers for Medicare & Medicaid Services (CMS) released data in 2013 comparing the average charges for the 100 most common inpatient services at more than 3,000 hospitals nationwide[5] as well as the average charges for 30 selected outpatient procedures.[6] These data were made available to the public in raw and spreadsheet form, with a key to the abbreviations used.[7] While this is obviously a step in the right direction, the form of the data is still less useful than it should be for average consumers: notably, consumers still will have to do some data "slicing and dicing" if they want to know where in their region they could go for the least expensive procedure with the best typical outcome. Recognizing that consumers are looking for guidance, the *Wall Street Journal* has a dedicated page devoted to "How to Research Health Care Prices."[8]

More powerful even than exposés about price variability is the pocketbook factor. Everyone—from long-time employees to the newly insured—is being asked to pay more of their health care costs. With this newly visible expense comes new scrutiny. Drawing on the portals and interfaces used routinely in other industries, providers and payers alike will need to share data with consumers who, more than ever, will participate in their own health care, lifestyle improvements and financial options. Hospital leaders will have to provide data tailored to the questions consumers are likely to ask.

How the Affordable Care Act Fits In

The Affordable Care Act (ACA) was conceived in part to bring down costs, improve quality and outcomes and create a new "wellness paradigm." Its many contributors notwithstanding, the legislation seeks to target consumers directly: the Department of Health and Human Services' (HHS) "About the Law" section opens with a direct appeal to individual citizens—and, notably, terms these individuals "consumers": "The Affordable Care Act puts consumers in charge of their health care. Under the law, a new 'Patient's Bill of Rights' gives the American people the stability and flexibility they need to make informed choices about their health."[9]

While the shift is meant to improve care and keep costs down, what it means for hospital trustees is a shift of market risk. Moving from a fee for service-volume to a capitated-value approach ultimately transfers risk from payer to provider.

How should hospital leaders adjust practices to grapple with this new business context?

Providers must invest in technology not only to perform more and more sophisticated clinical procedures but also to improve patient satisfaction by improving care, safety and service. While quality care and patient safety are the linchpins of hospital culture across the country, customer service has yet to be truly integrated.

With the ACA's twin emphases on greater choice and broader access to care, consumers will be presented with a broader range of options for obtaining care. These options include traditional hospital competitors such as urgent care and ambulatory care clinics as well as newer ones such as the clinics in Walgreen's and CVS. In this crowded marketplace, hospitals will have to find and exploit their advantages— physician expertise, cutting-edge tools and concentric levels of immediately available

care (to deal with unforeseen complications, for example).

This effort is made more difficult by the ACA's mandate that people's health information, from routine check-ups to insurance claims, must be portable for the individual and shared across companies. In the recent past, information, equipment and other resources resided largely within the four walls of the hospital. Now, however, information must be shared across the ecosystem—and leaders must find ways to put that information to use for the benefit of the consumer. Fortunately, there now are some simple ways to achieve patient-level access.

Rapid Innovation Across the Continuum of Care

A large number of other participants and stakeholders will play important roles in the new health care ecosystem, and must adapt to its new consumer-centric imperative in concert with one another. Medical device companies, home health enterprises, employers, pharmacies, pharmaceutical companies and many others will need to be connected and exchange data seamlessly (see Figure 1 on page 8.) The success of this massive new undertaking will clearly hinge on continuous advances in data intelligence.

The Importance of Community in Individuals' Health

Just as health care must be understood as an interdependent ecosystem, a single individual's health must be understood in a broader context of his or her community. All people participate in a larger community in ways that influence their lifestyle and health choices. From payers to pharmacists, the health care ecosystem's stakeholders need to understand these linkages.

According to research published in 2013, "More than 70.0% of deaths in the United States and about 75.0% of health care spending costs [between 2002 and 2009 were] attributable to chronic diseases," and

"the roots of the chronic conditions that are the leading causes of morbidity and mortality can be traced to lifestyle factors—principally smokin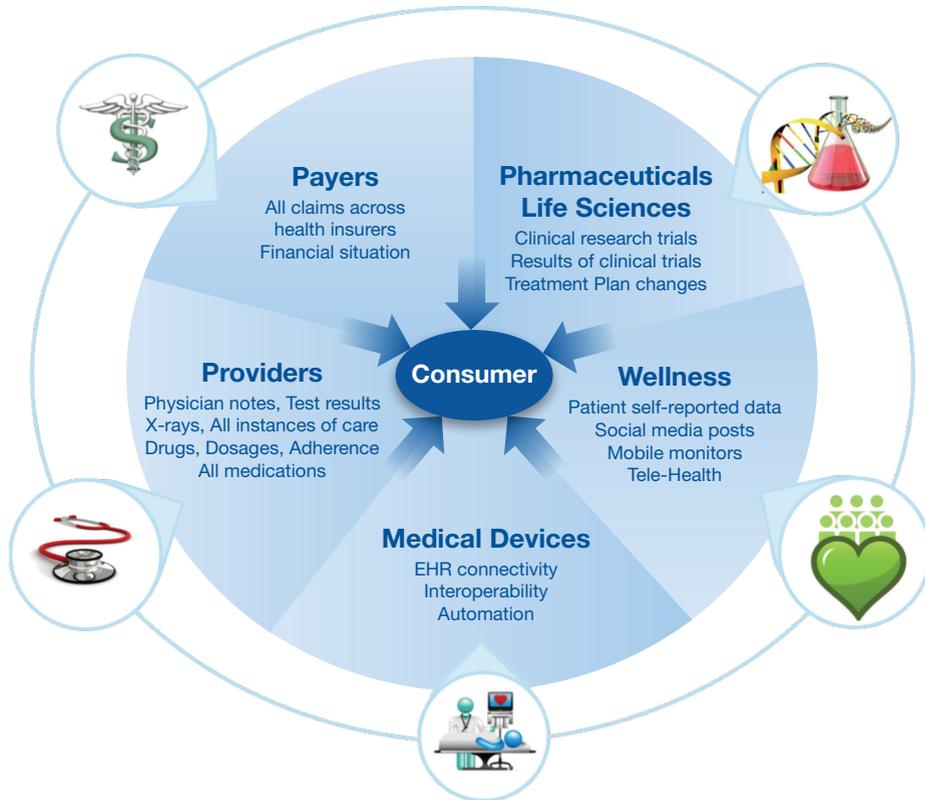g, diet, and physical activity."[10] Zeroing in on those lifestyle factors, data analytics can be used iteratively to improve population health and increase customer satisfaction: information must flow *in* so that community traits and lifestyle decisions can be analyzed; and information must then flow *back* to those communities to encourage the healthiest options.

It may seem paradoxical, but the best way to achieve individualized health care is to think in terms of *population* or community health. "Communities" can comprise groups with similar incomes, socioeconomic status, or environmental circumstances; each of these factors is linked to probabilities about lifestyle, health status and outlook for populations. Health care leaders must adopt this 360-degree view of their consumers, as well as the analytical power and technology to support that view.

Understanding that consumers' health is influenced by many factors outside the walls of the hospital, providers and payers alike must experiment with interventions that address individuals within the contexts in which they function. With encouragement from health care providers and incentives from payers, consumers may in fact tackle some of the greater public health issues facing Americans today.

For example, armed with real-time, network-enabled wearable biomarker trackers, easier access to care on their terms and the information to effectively prevent disease, consumers could optimize their lifestyle choices according to incentives both financial and personal. For better outcomes as well as for competitive advantage, hospitals must reach out to their constituents—via the channels and on the terms that consumers prefer. This last point is important because the new health care consumer is not solely motivated by cost. Lower price points are

Figure 1. Integrated Data and Technology Across the Health Industry Value Chain

Payers
All claims across
health insurers
Financial situation

**Pharmaceuticals
Life Sciences**
Clinical research trials
Results of clinical trials
Treatment Plan changes

Providers
Physician notes, Test results
X-rays, All instances of care
Drugs, Dosages, Adherence
All medications

Consumer

Wellness
Patient self-reported data
Social media posts
Mobile monitors
Tele-Health

Medical Devices
EHR connectivity
Interoperability
Automation

Providers
Health care providers communicate information through electronic health records (EHRs), which include physician notes, test results, X-rays and all matters of care across locations. Medication information appears here; Big Data could help identify adverse reactions, set better dosage standards and improve patient adherence.

Payers
Because of the mandatory sharing of electronic health records, payers can access claims from any health insurer, which lets them understand consumer demand and motivations. Using analytics, payers could identify effective interventions according to demographic data, and set financial incentives that would prompt beneficial behavioral and lifestyle changes.

Pharmaceuticals & Life Sciences
Promoting access to clinical research trials, Big Data will help clinicians apply those results to optimizing treatment plans and translating scientific studies into better patient outcomes.

Wellness (Lifestyle/Behaviors)
Consumers can comb social media posts for self-reported data and gather peer-to peer intelligence, comparing those sources with information from mobile monitors and telehealth metrics to learn more about pathologies and health among distinct populations.

Medical Devices
Medical devices are true drivers of the overall paradigm shift: connectivity and interoperability are crucial to a fully contextualized electronic medical record. Here is where government regulation has major influence (think of CMS's "meaningful use," for instance).

(Source: UST Global)

crucial, but they aren't the only thing that will draw individuals to a given hospital—individualized analysis based on insights into community health; appealing interfaces and smartphone apps; and updated forms of responsiveness can all influence consumers toward or away from the hospital. Put simply, hospitals must adapt to living in an Amazon-, Netflix- and Yelp-influenced world, where consumers expect their preferences to be both respected and anticipated.

Business Responses

Consumer-centric, Retail-oriented and Technology-driven: The New Care Delivery Business Model

Due to new contexts, including legislative and regulatory requirements as well as increased consumer choice, the paradigm shift toward personalization and automation will be more complete in health care than in other industries. The closest analogy may be retail, an industry that has personalized rapidly and is naturally consumer-driven. Retailers have diversified their channels so that consumers can interact with products and services in the way or ways that best suit them; telehealth is a good example of retail wisdom migrating to the health care sector. The basic mindset that health care should meet consumers on their terms will be necessary going forward. Hospitals' business models must reflect that recognition.

Data will continue to accelerate the market forces involved in transforming the health care system into an "ecosystem"—and health care data are more sensitive, more varied, and more unstructured than in other industries. Technology is key to this effort. With the expected increase of wearable medical biotracking devices as well as traditional medical technologies made "smarter," data are on the rise, and so are new ways to analyze them. From new knowledge about lifestyle choices and even newer understandings of how best to influence them, (and, on the provider side,

increasing transparency about procedure costs and outcomes) performance-measured accountability will gain prominence in all of health care's communities.

Accountable Care Organizations

To find new means and methods to ensure that patients are better cared for and that outcomes are improved, hospitals must endogenously transform care delivery models. Health plans, health systems and proactive care management are being brought under one roof and are designed and tasked to keep their patient populations as healthy as possible.

Accountable care organizations now have to bend the cost curve through improved outcomes. This will depend partly on how well they share data at the point of care and use longitudinal data to manage their population's health. Value-based networks that aim to deliver lower cost to consumers for highest quality providers; value-based benefits, such as holding the consumer responsible for health care choices; and clinical integration are all critical to making ACOs work. Furthermore, their bottom line depends on meeting or exceeding certain markers of health for their participants, including savings from their demonstrated performance within five "quality domains" (see the sidebar below).

Sidebar

Five Quality Domains

The five quality domains that can help ACOs earn savings:

- **Patient/caregiver experience**
- **Care coordination and transitions**
- **Patient safety**
- **Preventative health**
- **Effective treatment of at-risk populations**

Absolutely critical to an ACO's success is its ability to understand and measure the relationship between the quality of care and cost of care using reliable metrics derived from health information technology.

Payers must reorganize and reinvent themselves to become more retail-oriented and technology-driven as well. This new orientation will see insurance companies offering customized policies that take into account specific patient health conditions and incentivize certain behaviors. As care management changes, payers will offer incentives for members to go through wellness programs and adopt more healthy diets, and they will reward compliance with premium reductions. Care teams will connect to their "members" to monitor drug compliance, exercise and physical therapy programs, and myriad other health maintenance regimens.

Structuring and Integrating Data: "No one works alone"

One of the primary obstacles to realizing the benefits of this new ecosystem is interoperability. It is a huge challenge to access and integrate patient data from the multitude of records residing on multiple databases. Further, some 80 percent of all health data today remain unstructured, the majority of which are comprised of images and multimedia. Though Picture Archiving Systems (PACS) continue to evolve and provide more value to providers, the technology to mine these unstructured data is not fully developed, whereas textual data from medical transcripts, physician notes, various EHR fields and other data can be and are mined and analyzed currently.

But capability is only the first step. What to mine, what to share and how to hand data over to consumers are also big questions. Across the health care continuum and at every level there is an acute need for new and adept strategies to mine data, change behavior for optimum patient compliance and make evidence-based research more effective at a lower cost.

The bottom line is that even the most game-changing insights into patient health—or into consumer behavior—are worthless unless they can be communicated to decision-makers. Hospital trustees and executives need to understand the range of platforms and services available in order to adopt the technologies that will improve care, yield better returns and evolve with the organization. The next section discusses a few of the specific platforms that can help hospitals thrive in the new ecosystem.

Managing Technology Growth: Shared Platforms and Software-as-a-Service

How can hospital trustees support the organization's growth strategy without overburdening it with capital expenses? Big Data analytics, patient engagement platforms and other key forms of software-as-a-service (SaaS) are some crucial answers.

SaaS is a software licensing and delivery model in which software is licensed on a subscription basis and is centrally hosted by an organization's technology provider. It has become a common delivery model for many business applications these days because it helps hospitals avoid making huge investments in hardware, software and ongoing maintenance and support costs.

Tailored SaaS should be utilized to keep hospitals competitive in the new ecosystem: these platforms are necessary for meeting new regulatory and reporting demands; maintaining and attracting consumers; and improving clinical outcomes. They can be incorporated into a hospital's operating budget without weighing down its capital budget, yielding a quick return on investment while avoiding any threat to a health care organization's bond rating.

Shared platforms are an efficient avenue for improving care and saving money, and they harness other sectors' expertise—in software design, platform upgrades and support resources—to meet the needs of the

organization. These shared service platforms are Health Insurance Portability and Accountability Act (HIPAA) compliant and integrate with a provider's electronic medical record (EMR) system.

Here are some of the areas where shared software platforms and advanced data analytics are poised to make a tangible difference in how health care is financed, managed, delivered and accessed.

1. Patient Engagement

Effective patient engagement platforms can significantly reduce hospital readmissions, which potentially cost the hospital money—if Medicare does not cover the readmission reason, for instance—and certainly decrease customer satisfaction. Instead of the black hole that spans the patient's release to his next admission, hospitals need to cultivate continuous engagement with consumers, offering them useful information and signaling that the hospital is a partner in their health.

Patient engagement platforms serve several purposes:

- they create communities for patients with the same diseases, such as chronic obstructive pulmonary disease or congestive heart failure, through which experiences can be shared and care treatment plans discussed;

- they facilitate communication between the patient and the physician team, offering a convenient avenue of communication for post-release questions and support;

- they capitalize on the Web-based medium to stream instructional videos that convey disease management and treatment plan instructions that patients can access when and as many times as they wish; and,

- they give payers and providers a way of checking in to make sure that patients understand the directions they were given at the hospital and, critically, whether or not they are following those directions— and why.

Each of these aspects of continuous patient engagement figures into a meaningful feedback loop. Data about patients' experiences with specific illnesses and treatment plans can be mined to discover unexpected complications, identify typical stumbling blocks in the after-care period and capitalize on strategies patients themselves practice. Those insights can be added to instructional videos and streamed to people just joining a patient community; and either payer or provider care coordinators can then assess how well those videos are communicating the necessary information based on direct contact with patients. Each step requires more engagement on all sides—and more accountability. But with that added effort come better health outcomes and better insights into how patients are doing. The goal is to replace the black hole of post-hospital release with a charted, connected continuum of Web- and data-driven services.

2. Payer/Provider Collaboration

The new watchwords of the payer/provider relationship are *shared control* and *transparency*—both of which require access to shared information in real time. Much has been written about payer/provider collaboration, but that's because it is one of the most critical relationships in the new ecosystem due to these entities' size, influence and regulatory burden. If payers and providers do not work together to deliver value jointly, they will appear too out-of-date and out-of-touch to the new health care consumer—making both even more vulnerable to quicker, nimbler competition.

Together, payers and providers are tasked with taking on new populations and making them healthier. Targeting the largest existing costs in the system, such as chronic care, payers and providers must use newly available data to incentivize consumers to comply with care management pathways (regular screenings, various forms of monitoring, adherence to prescription drug regimens and even lifestyle changes). When patients with chronic issues follow treatment

plans correctly, providers can glean important *clinical* data that can improve treatment—and then feed that information back in to the payers' selection of consumer incentives. Data integration and interoperable systems are necessary to effect this kind of feedback.

Prescription adherence offers a good snapshot of how this collaboration could work. According to the partnership Prescriptions for a Healthy America (PHA), half of all patients fail to take their medications as prescribed, and adherence is actually lowest among patients with chronic illnesses.[11] PHA places the cost of non-adherence at roughly $100 billion per year.[12] With remote and online data collection mechanisms capable of assessing prescription adherence, however, care coordinators—who may be employed by *payers*—could be dispatched both to educate members about the detriments of non-adherence, but also to listen to the factors keeping them from taking the medicine. Gathering information about adverse interactions with other medications or lesser known side effects, these coordinators can take the insights gained from individuals to hone a population-based view of health: in this case, uncovering adverse reactions that impede adherence. In this way, data analytics transform a costly and dismaying fact of the health care system into more responsive, actionable, consumer-minded knowledge.

3. Payment Reform
The new model of health care is pay-for-performance rather than pay-for-service. Factor in the evaluation of ACOs and the implementation of various forms of incentives, and the need is obvious: new forms of payment—as well as heightened threats to privacy—require new systems to handle them. Under the umbrella of "payment reform," significant software and workflow renovations are needed in order to fulfill government mandates, retain certification, and meet patient health information and financial privacy demands.

One of the most important features of such software is fraud detection. In a context of decreasing margins and with the vital goal of improving care, hospitals should not go to such lengths to save money on the one hand while losing it to fraud or abuse on the other. Ever more sophisticated analytics are aimed at eliminating fraud, waste and abuse from hospitals' payment systems.

Payment reform requires cost, price and incentive transparency—for the hospital CFO especially, who will be instrumental in strategizing how to incentivize effective care management.

4. Population Health Management
Intelligent population health management relies on predictive modeling tools that can incorporate and analyze vast amounts of data; these tools work both in the financial and clinical realms. Platforms in this realm can also facilitate contracting insights concerning population identification and risk assessment. Finally, this type of software can help identify and track how high-risk patients are faring in the hospital's case management and disease management programs. An example appears in the sidebar on page 13.

Hospitals are facing too many pressures to add software design, upgrades and maintenance to their plate. Software-as-a-service solutions allow hospitals to:

- meet government mandates to share data while protecting privacy;

- hone the care they provide by analyzing population health for gaps, problems and opportunities; and

- connect patient communities and engage with individual consumers in the ways that are most beneficial and convenient for them.

Improving Critical Care Outcomes

To understand how shared platforms might work in this context, take as an example the population of patients in the most immediate danger, those in the critical and intensive care units (CCUs and ICUs). Hospitals can now access world-class platforms that harness data analytics and information sent from "smart" medical devices to save lives in this population—in this case, the "Visensia" index, a platform drawn from algorithms created by UST Global partner company Oxford Bio Signals (OBS). OBS had been working with Rolls Royce to better monitor their airline engines, monitoring them for warning signs of negative events using data sent from several continuous monitoring devices in real time ("data fusion"). Part of the 2006 Trent 900 development program for the Airbus A380, the OBS multi-sensor data fusion system "learns" the characteristics of proper engine operation and instantly recognizes when an engine varies from normal function. OBS then applied these same principles to the hospital ICU. Taking the current system of single parameter vital sign monitoring used in ICUs and CCUs, they created an index called Visensia that similarly recognized variances from the norm in those settings to warn nurses and physicians of impending critical life threatening events. Once implemented, this monitoring resulted in a 60% reduction in serious instability, and no unexpected deaths during the eight weeks of Visensia monitoring—in contrast to six unexpected deaths in the eight prior weeks—and in two years of Visensia monitoring, no patient had an unexpected fatal cardiac event.

New Models of Leadership

Developing Retail-oriented and Technology Savvy Leaders

Very few hospitals today are currently profitable. Health care organizations need chief executives and physician leaders who recognize and acknowledge the diminishing share of the health care market that hospitals will enjoy—and then invent and implement new business models that will best respond to and perhaps even alter that trajectory.

Clinically integrated organizations also should invest in technologies for connecting patients. Patient electronic engagement—via patient portals and secure messaging—is a requirement under Stage 2 Meaningful Use. Beyond the requirements, organizations should explore patient portal and personal health record technologies for involving patients more deeply in clinical programs.

The CEO's new job description. Trustees need to seek out CEOs who know what's possible with new technologies and the retail orientation to see through extraneous technology to what consumers will truly value (see Figure 2 on page 15). Hospitals are becoming less central to quality care delivery as cost- and outcome-effective alternatives proliferate. To retain customers, they need to adapt their service offerings and create tangible, measurable value propositions for the health care ecosystem and its myriad stakeholders.

CIOs and CFOs. These two positions are discussed together because this relationship must be strengthened before a hospital can realize its delivery system and concomitant economic goals. Just one instance of this need: the menace of the quarterly statement. CFOs want to "close the books"—accurately and on time—every quarter, but they are often still dependent on manual, error-prone systems. With the advent of real-time integrated data services, they have all the financial and performance information at the ready. But it's still not enough. Instead of painful "extraction" processes, CFOs need the data "pushed" to them in an actionable form. It is a simple question of resource allocation: either enterprises can spend operating money on retrieving the data, or they can spend money on using it.

Of course, financial insights only emerge through clear metrics and ordered information, namely, real-time systems that can track trends and stay on top of managed cost—and quality—of care. The CIO should create a data dashboard that enables the CFO to measure trends in health care costs and assess how well interventions work. Without a CIO who understands how to derive and present information, the CFO cannot perform optimally.

Sample Categories for a CFO/CIO data dashboard include:

- Real-time individual case tracking
- Historical case data, including care plans and re-admission statistics
- Reimbursement status that is rapidly queried and easily maintained
- Vendor and supplier overview including delivery times, inventory control and utilization
- Security and cyber-security audits that maintain tight access control over sensitive information
- Patient-facing services like wellness, appointment scheduling and even

hospital-based pharmacy refills that can dramatically lower costs and provide superior care coordination

A crucial piece of data-driven leadership is communicating the relevant insights, both to the front-line caregivers and to the board room. The last step for CFOs and CIOs, then, is to share a simplified version of the metrics, data and the resulting decisions they propose with both physician leadership and hospital trustees, all of whose buy-in is necessary for organizational changes or adjustments. Clear, actionable data will facilitate discussion and conclusions about the hospital's performance, and should help align leadership with the board on major matters. Clear data will also make it possible for trustees to evaluate and validate the choices—and their execution—made by the CEO, CFO and CIO.

The Crucial Role of Physicians

The physician's role in managing patient wellness and clinical risk in this new connected ecosystem cannot be overstated. Physician leaders need to be key participants in technological strategic planning and investing, beginning with development of a health information exchange to connect ambulatory electronic medical records, the hospital EMR, lab, pharmacy and other information systems, including those from both independent and employed physicians. This exchange will allow physicians, nurses and others across the entire ecosystem to track patient care through longitudinal records and provide their insights.

Looking Ahead

New generations of health care consumers want their clinical services to be as easy, reliable and durable as any other aspect of their network-enabled life. They want services on-demand, smartphone-enabled, reviewed by people they trust and easily replaced in

Developing Retail-oriented and Technology Savvy Leaders

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Hospitals need CEOs who know what's possible with new technologies and the retail orientation to see through extraneous technology to what consumers will truly value.

case a superior provider emerges. They are as likely to find the closest 24-hour pharmacy with immunizations as they are to call their local hospital, make an appointment and get the vaccines. As in the case of banking, these consumers are adamant about convenience and access.

But health care consumers are not just ordinary consumers. They have high expectations of privacy when it comes to their health care providers, and at the same time they are more likely to share information with caretakers and family members. The complexity of the system today requires multi-faceted access, and presents a terrific opportunity—clinically and economically— to homogenize and simplify the data streams consumers receive.

Still, hospitals will need to earn their market share by approaching their "markets" as individuals in a community context, each with specific needs, obstacles and strengths. Only by walking with people—whether through a Web-based portal or by explaining incentives for lifestyle changes or interacting with them in new care coordination

positions—will hospitals demonstrate that they are invested in patients' health for the long term and that they are genuine partners with people in wellness. There are many non-technological forms of engagement, of course, including community partnerships. But more and more, consumers today see technological ease and multi-channel access as indicators of how much an organization understands their needs. As discussed above, smooth interfaces, quick response times and modern communication channels can please consumers—and, just as important, their absence can be frustrating. These facts must permeate any business model for it to achieve profitable growth. The job of the hospital in the new ecosystem is to gain consumers' mindshare, not just market share.

Three-Year Road Map

Successfully transitioning to a consumer-centric, technology-enabled focus on community health and wellness requires careful planning and sequencing of the steps necessary to achieve this goal. Actions and outcomes that should occur over a three-year period are discussed below.

Year 1: Accumulating Data

Year 1 focuses heavily on the shift to consumer-centric processes, including patient engagement outreach. While consumer engagement is the foremost goal in Year 1, hospitals have to ensure competency and education for leaders to learn and apply the attributes that drive and sustain that outreach. This is the year chief executives must assume *consumer-centric*, *retail-oriented* and *technology-driven* leadership.

Concrete steps for Year 1 include implementing an operational dashboard, launching a personalized digital experience for every consumer, building platforms for population health data analytics and addressing new reimbursement strategies.

- *Implementing an operational dashboard* (it may be surprising, but several major hospitals are still running their operational metrics manually using spreadsheets). Data-driven operational metrics should be developed for each area of operation: clinical, emergency room, pharmacy, etc. This dashboard can be deployed with Web-enabled technology for quick access to all stakeholders in the value chain.

- *Launching a patient portal to deliver a 360-degree, personalized experience to every individual.* The portal must bring together a collective view of the patient's health insurance data, health benefits, personal health records and wellness plan. This is also the place where instructional videos mapped to care management pathways can be delivered and patient feedback solicited and gathered.

- *Implementing a data analytics framework for population health management and care management initiatives.* Analytics should also help manage quality-of-care and cost-of-care metrics across the board.

- *Defining new proecesses.* Payment reforms primarily address the gaps and process changes needed to implement new reimbursement strategies. The episode bundling initiative will implement a new reimbursement methodology that sets a single global payment for an episode of care. New processes have to be defined to manage the distribution of funds among the providers rendering services within an episode.

Year 2: Engaging Others Through Data

In Year 2, hospitals must engage and integrate other external entities such as pharmacies, primary-care clinics, community-based clinics and home health agencies as an extension of their health system. Health care organizations that already participate in these types of relationships can seek opportunities for deeper engagement that can achieve strategic goals.

Hospital decision-makers also must be transparent about how the organization is motivating people and keeping them healthier through various interventions, clinically and financially. To achieve this transparency, hospitals should develop patient-facing systems to offer a comprehensive view of integrated care delivery.

This year will call for a structural transition from capital to operating expenditures and development of a comprehensive roadmap to information technology transformation.

As hospital staff get accustomed to thinking about service and performance from the customer's standpoint, including the financial side of the organization (where population health management and payment reform reside), the retail mindset will gradually grow.

This stage of the journey should focus on the following key areas: developing a comprehensive financial transition plan from capital to operating expenses for technology-led transformation, rolling out shared service platforms to link the multiple roles and entities across the care continuum and establishing the management model for enhancing the consumer experience through an integrated care delivery system.

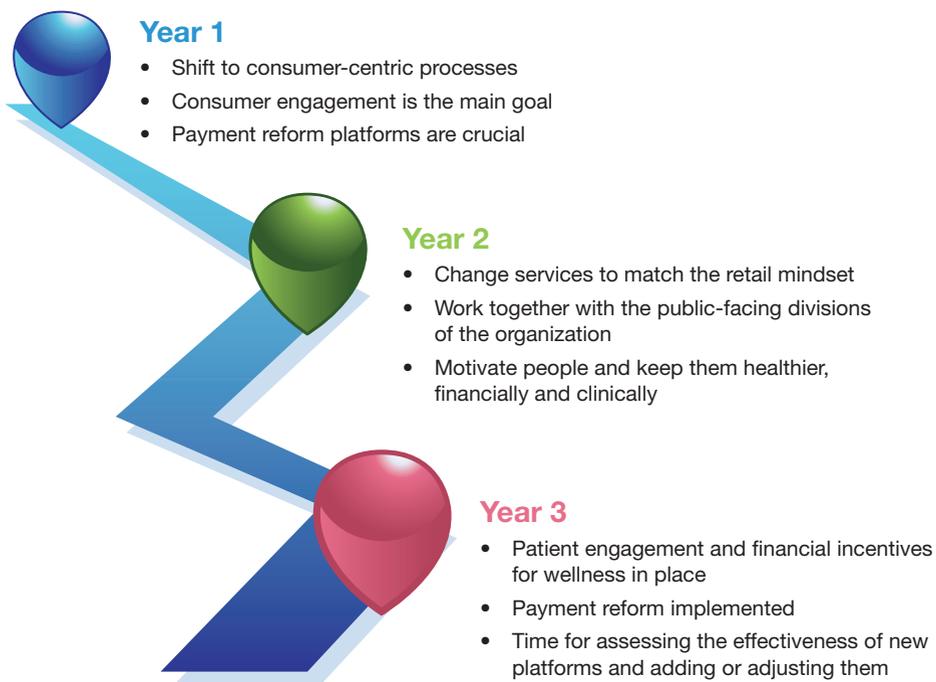### Year 3: Evaluating Performance And Realizing ROI

This is the year of continuous improvement on benchmark data, where organizations should evaluate performance at all levels. With patient engagement and financial incentives for wellness in place and payment reform implemented, the return on investments should be visible in this year. In year three the focus should be on achieving congruence among the clinical model, management model and technology model to drive increased efficiency, transparency and cost savings. The data gathered in years one and two enable the hospital to build models for population health management. Assessing the care provided to populations (patients with asthma, for instance, or diabetes) using data analytics—and the patients' own feedback—can produce better health outcomes and help drive costs down when certain quality milestones are met.

Year 3 is also the time, now that the organization has become accustomed to the new technology and retail mindset, to adopt a high-performance culture. Dedication to continuous improvement is absolutely critical for keeping up with accelerating changes, increasing consumer demands and higher standards of care. Figure 3 outlines activities over the three-year period discussed above.

Conclusion

Hospitals face daunting challenges in the years ahead, and many are already feeling the once-stable ground shift beneath them. Those that do not adapt to the new realities of patient-centered care, consumer access to alternative services, performance measurement and accountability and modern reimbursement frameworks will have a difficult time staying viable in an increasingly competitive market.

Figure 3. Three-Year Road Map

Year 1
- Shift to consumer-centric processes
- Consumer engagement is the main goal
- Payment reform platforms are crucial

Year 2
- Change services to match the retail mindset
- Work together with the public-facing divisions of the organization
- Motivate people and keep them healthier, financially and clinically

Year 3
- Patient engagement and financial incentives for wellness in place
- Payment reform implemented
- Time for assessing the effectiveness of new platforms and adding or adjusting them

Does this mean that hospitals are doomed to obsolescence? No. In fact, there are tremendous opportunities for them to become the "gold standard" of health care service. But this will involve a dramatic change in the mindset of health care boards and senior leaders, re-alignment of values and mission and active engagement with stakeholder communities: clinicians, payers and above all patients.

This monograph has discussed three large forces that are moving not just hospitals, but the entire health care ecosystem to a more consumer-oriented platform. First and foremost, the relentless move toward patient-centered models of care, including health information exchange and access. This has resulted in a second major force—a more "retail-oriented" mindset among competing providers, which is already beginning to take root in the form of better transparency and superior service. Last but not least, the ability of health care technologies—from remote services to personal health record exchanges to cloud-based monitoring of chronic care conditions like diabetes—to continue to improve outcomes and lower costs.

Patient portals, operational dashboards and migration to cloud-based services are lowering the barrier for renovation of health information technology services. Concrete benefits such as fine-grained, real-time performance visibility, predictable financial modeling and rapidly responsive service creation will prove irresistible to all health care stakeholders. As hospital boards and leaders extricate themselves from the unsustainable burden of nine-figure capital expenditures to seven-figure operational choices, they will discover a whole new world of socially desirable and beneficial opportunities to improve patient and community health in ways that are both profitable and sustainable.

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