Unlocking Information

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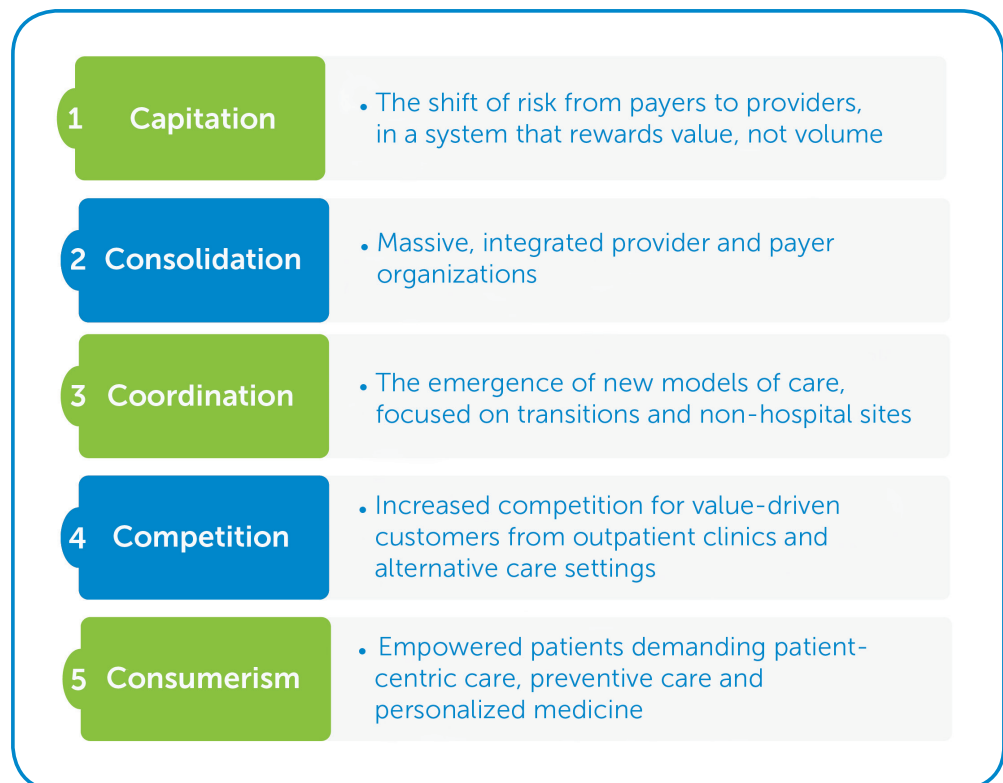
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It is hard to imagine any industry under more urgent pressure to change than healthcare. The sources of this pressure are, by now, well understood. There is a troubling lack of access to healthcare for people that need it most. Globally, the quality of care is wildly inconsistent. And the costs of providing healthcare, both privately and publicly, have risen so dramatically over recent years that the economies of entire nations are under threat.

At the center of this crisis is the hospital. Complex, dynamic and absolutely essential to communities around the world, hospitals and major medical centers have always been crucibles of change in healthcare. So it's not surprising that today's hospitals are at the forefront of the massive transformation of the healthcare industry. Though early still, the characteristics of this transformation are beginning to take shape, driven by five powerful, industry-wide trends: capitation, consolidation, coordination, competition, and consumerism (see Exhibit 1).

Exhibit 1

Key Healthcare Industry Trends

1	Capitation	• The shift of risk from payers to providers, in a system that rewards value, not volume
2	Consolidation	• Massive, integrated provider and payer organizations
3	Coordination	• The emergence of new models of care, focused on transitions and non-hospital sites
4	Competition	• Increased competition for value-driven customers from outpatient clinics and alternative care settings
5	Consumerism	• Empowered patients demanding patient-centric care, preventive care and personalized medicine

Every stakeholder will approach healthcare transformation from a different perspective. But common to all approaches will be the central role of healthcare information technology. "Nearly every other industry in the world uses sophisticated information technology to regularly inform the business by marrying operational and financial data, and closely monitoring efficiency and outcomes," says Dr. Andrew Litt, Chief Medical Officer at Dell. "The time has come for the healthcare industry to do the same, so that hospitals can clearly see the effect operational improvements can have on patient health."

But it is not enough to simply adopt technology. Hospitals must approach information technology thoughtfully, align it with the strategic aims of the organization, and ensure measurable return all along the way, to patients, payers and providers. They must also secure the information they capture, and relentlessly protect the privacy of patients. In short, adopting healthcare information technology requires a plan. At Dell, we call this the path to **Information-driven Healthcare**, and it consists of four, clearly-defined steps:

Information-driven Healthcare

Build Future-ready IT Platforms

IT systems should be capable of adapting to change, scaling, and achieving maximum efficiency.

Unlock Information

Data must be free from the shackles of paper and from digital silos, with secure access when and where it is needed.

Empower Caregivers

Caregivers need technology and process, including real-time clinical decision support and operational insight.

Unleash Innovation

Strengthen cash flow, drive organizational improvement, and reallocate resources to improve patient care.

In this whitepaper, we will explore the power of **Unlocking Information**, a critical step that paves the way for analysis and collaboration that will drive healthcare transformation. In other whitepapers in this series, we demonstrate how technology and digital information can be used to **Build Future-ready IT Platforms**, **Empower Caregivers** and **Unleash Innovation**, the ultimate goals of information-driven healthcare. Because when hospitals have better information, they manage their operations more efficiently, improve access to their services, and make better decisions about patient treatment. And when they share that information within their own organization, or with others, we all together deliver better care and outcomes.

Unlocking information

For centuries, medical information has been stored on paper, stuffed into filing cabinets, and stacked in basements around the world. And to this day much of these hand-written charts sit, collecting dust, more legal liability than clinical asset.

The digital age brings with it the potential for medical information to transform the entire healthcare industry. Meaningful use of patient data not only saves time by putting critical information into the hands of physicians at the point of care, it also allows for the efficient movement of that data between doctors, labs, pharmacies, insurers and patients. It allows care organizations to track and analyze patient outcomes, and reward physicians based on the results of their care, rather than volume of services they deliver. And it opens the door to advanced population health analytics, disease prediction, and personalized medicine. This is the evolution of healthcare delivery, and it is being made possible by information technology (see Exhibit 2).

Exhibit 2
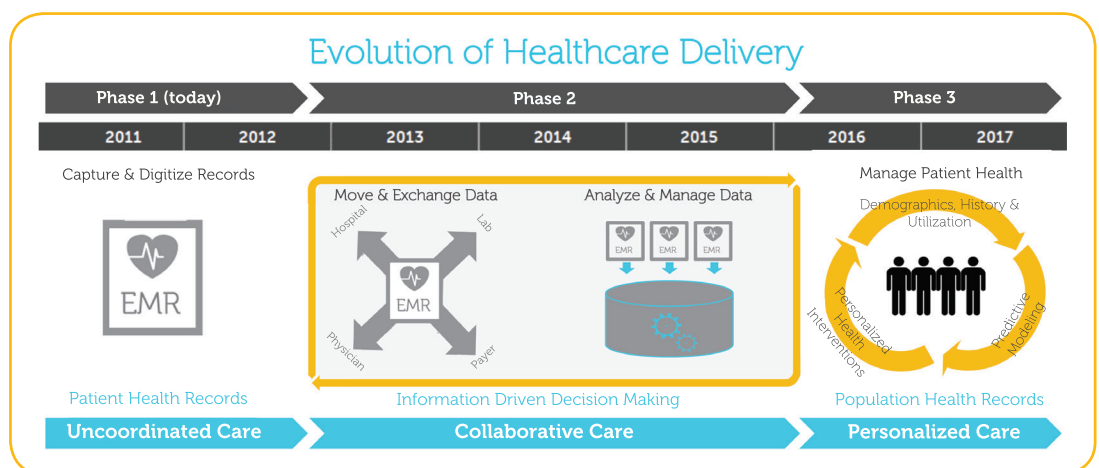
Before any of this can occur, however, all of the critical data that hospitals use – from patient data to financial and operational data, from medical images to lab results -- must first be digitized, protected, and exchanged. We call this process "Unlocking Information," and it is the foundation of the future of healthcare.

When done right, unlocking information leads to important changes in the way that hospitals operate, collaborate and deliver care

The foundation of better care

The most visible symbol of unlocking information is the electronic health record. Much like the bar code enabled a new era of insight in the retail industry, the EHR holds the key to unleashing the full potential of medical information for the healthcare industry. It is the basic building block of information-driven healthcare, and most hospitals are well on their way to meaningful use.

But digitizing information and extracting value from it are very different things. By now, adopting EHRs is a prerequisite for healthcare organizations that intend to survive. But only those that allow the power of digital information to transform the way they deliver care will thrive in the new healthcare landscape.

"EHR adoption is much more than simply digitizing paper-based information," says David Zirl, Ph.D., and Vice President of Solution Sales for Dell Healthcare and Life Sciences, noting that when EHRs are aggregated across networks and analyzed, the data can be mined to see broader patterns across entire populations. "It's about understanding what is possible with digital medical records, and redesigning clinical workflows and our entire healthcare system to not just accommodate those possibilities, but to capitalize on them."

Four years ago, Oakwood Healthcare, an award-winning healthcare network in southeastern Michigan, was like many other medical networks, suffering from debilitating inefficiencies in its clinical workflow. Considerable time was spent tracking down paper-based medical records across the vast system of four hospitals, 60 primary and specialty care sites, and a staff of more than 1,300 physicians. This was a severe waste of time. But more importantly, the lack of readily available patient information was hampering the workflow and affecting the quality of care.

Today, Oakwood is working to complete the second phase of a digitization effort that includes comprehensive EHRs, tablets, barcode scanners, digital dictation microphones and workstations on wheels. Together, the system collects, integrates, and protects information on patients from throughout the region. Using a patient wristband system and Smart IV pumps, doctors and nurses can ensure patients get the right medication, at the right time, in the right dose. And the system facilitates real-time communication across every member of the patient care team.

"The easier it is to communicate, the better," says Eliezer DeLeon, M.D., Medical Director of Care Management at Oakwood. "You can dictate your recommendations and the care team can actually communicate at the same time." The new system is also a boon to Oakwood's efforts to manage the privacy and security of its patient data. For example, each staff

> Digitizing information and extracting value from it are two very different things

member has a different level of security clearance, and can access only the patient data necessary for their line of work. Passwords change frequently, computers log themselves off after a short time, and all information resides off-site, and is only accessed by the client devices.

The big picture

Medical information is not limited to electronic health records, however. And it can be trapped by more than just paper. For example, medical images from CT scans, MRIs, ultrasounds and more play a critical role in the diagnosis and treatment of disease and injury. While today most of these images are digital, they are often stored using different standards, on different archiving platforms, in different locations. They require tremendous storage capacity, secure data centers, and a costly routine of hardware maintenance, upgrade and expansion. And these technological obstacles can often interfere with the delivery of care.

Ten years ago, Naples Community Hospital, a 450-bed facility in Naples, Florida, was struggling to maintain a dedicated storage facility, stuffed with stacks of film from radiology. It could take hours or days to retrieve historical images for comparison studies. But today, the NCH Healthcare System — which consists of two hospitals and an alliance of more than 500 independent physicians and medical facilities in dozens of locations throughout southwest Florida — is 100-percent digital, sharing images freely across the network.

NCH collaborated with Dell to implement a unified, cloud-based clinical archiving system that securely stores four years of medical images onsite, and serves them up to physicians anywhere within the network. The system also stores older images in the cloud, and automatically replicates to two separate data locations throughout the country, simplifying their backup and disaster recovery plan. And NCH is no longer on the costly technology upgrade treadmill, saving money and time that can be reallocated to improving care.

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>
> — *Jim Bates*
> *Director of Radiology*
> *Naples Community Hospital*

"The benefits of a system like this go well beyond the cost savings," says Jim Bates, Director of Radiology at Naples. "Getting the images into the hands of physicians quickly, that's the key. It's changed the way we work. And I don't think there's any doubt that we are more efficient and more accurate now."

In fact, Bates installed PACS terminals all over the hospital and the regional medical network, rather than just in the radiology department. The result has been real-time collaboration between patient-facing physicians and radiologists, looking at the same image at the same time. And Naples has seen an increase in the number of older images being pulled up for comparison studies from the archives. "These are things we just weren't

able to do before, and it all has a very direct impact on the way we deliver care across our network," says Bates. "But it all starts with digitizing critical medical information."

A look ahead

Digital medical data is just the first step in unlocking information in healthcare. When done right, it leads to important changes in the way that hospitals operate, collaborate and deliver care. When combined with the operational data from a hospital, it can reveal important insights about which processes are most efficient, and which treatments achieve the desired outcomes. And together with other kinds of data – such as genomic, pharmaceutical, and health monitoring information – it can be aggregated and analyzed on a regional or national scale, predicting disease and guiding therapeutic approaches, even making the vision of personalized medicine a reality.

"The first step is to have electronic health records," says Dell's Dr. Litt. "The second step is to link that EHR system to other parts of the healthcare organization, and affiliated groups in the region. And the third step is to have the analytic capability to be able to ask "what if" questions. That's when you start to understand whether nurses are spending enough time with the sickest patients. Or in which situations patients are re-admitted to the hospital. In other words, information becomes insight."

Healthcare transformation is a complex challenge. There are no simple answers and there is no single path ahead. In fact, adopting IT is the easy part. Analyzing medical and operational data, creating a vision of what's possible, and leading with purpose; that's true information-driven healthcare. We encourage you to share this white paper, and the companion pieces — Building Future-ready IT Platforms, Empowering Caregivers and Unleashing Innovation — with others in your field. And share your stories of information-driven healthcare with us on Twitter by following and engaging with @DellHealth using the hashtag #DoMoreHIT. Because when we unlock information and share it across traditional boundaries, we are building the foundations of information-driven healthcare.

See how Dell's integrated solutions create information-driven healthcare to improve patient care, enhance efficiency and reduce costs at **dell.com/discoverhealthcareIT**