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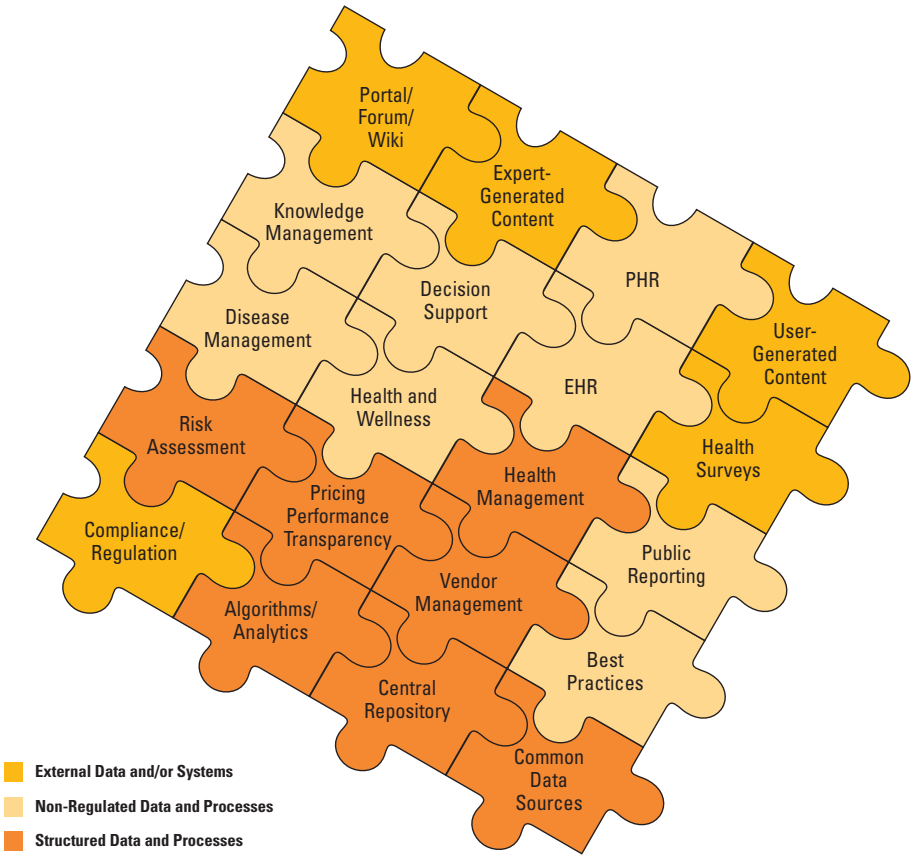
insight

Trusted Transparency in Healthcare Informatics

Organizations Must Ensure that Greater Access to Information Will Benefit Their Constituents Rather than Confuse Them

By Richard Findlay, Anwer Khan, Tom Weakland, and Weijia Yao



The healthcare providers, patients, employers, and other decision-makers who rely on healthcare information face an overwhelming jigsaw puzzle of clinical data and processes. What's the right way to approach healthcare informatics so that each constituent can put the pieces together in the way that best suits their particular needs?

Executive Summary

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Greater access to information is generally a good thing, but too much information in the realm of healthcare can actually increase costs, create confusion, and lead to bad decisions. To make matters even more challenging, the volume of healthcare information is expanding exponentially across two dimensions: the depth of clinical data and the sophistication of data analytics. The effect of this massive growth varies considerably based on your perspective. For example, employers are leveraging data analytics to help model the effect of various plan profitability. Physicians are seeking access to clinically rich data to make point-of-care decisions that improve the quality of care and lower costs. Consumers are looking online for reliable reports to help them choose the right caregiver.

These kinds of demands make clear that information will be central to sustaining and creating competitive advantage in the healthcare arena. Furthermore, information has the potential to lower the costs, increase quality, and expand access to healthcare. Healthcare companies such as Humana and Aetna, and new entrants including Google and Microsoft, have started to recognize and calculate the true value of the information being produced by their business models.

Reaching those objectives profitably requires what we call "Trusted Transparency"—the efficient interpretation and optimized delivery of healthcare data to specific key constituents and their exact information needs. In practice this entails helping the right people receive the right information at the right time, and at the right cost.

The companies that get it right—those which become providers of trusted, transparent information will have mastered six critical factors:

- **Focus**—Addressing the specific needs and interests of various constituencies, be they pharmacologists interested in sharing state-of-the-art research developments or aging baby boomers seeking information on arthritis relief;
- **Currency**—Determining the most valuable and timely information so that doctors, business leaders, and consumers will have the knowledge they need to make informed and actionable decisions;
- **Education**—Helping consumers and other stakeholders manage their healthcare knowledge, and guiding them in the search for the most relevant data among oceans of information;
- **Calibration**—Analyzing and defining requirements for various constituencies and using the right tools and techniques to collect and group data appropriately;
- **Analytics**—Enabling payers and providers to analyze and integrate care delivery and research results in ways that ultimately improve the quality of care; and
- **Accessibility**—Filtering and disseminating information over the Internet in ways appropriate for each stakeholder and in line with privacy and security concerns.

As companies master these six critical factors they will be capable of launching new products faster, differentiating themselves from competitors, and positioning themselves for long-term success in a consumer-directed healthcare market. In turn, they will help the entire healthcare industry use information to lower costs, while simultaneously improving quality and increasing access.

The Current Situation

Healthcare is a balancing act (Figure 1). Tradeoffs have typically been made between cost of care, quality of care, and access to services. Efficient healthcare systems have traditionally achieved success in two of these areas, but at the expense of the third. For example, the Canadian universal healthcare model requires few out-of-pocket costs (beyond taxation) and offers high-quality care—but access is an issue because of significant waitlists for common procedures.

Today, there is a growing consensus that healthcare data has the potential to lower costs, improve quality, and increase access. Major participants in the healthcare market (Aetna, Active Health, United Healthcare, Wellpoint, and Humana) have launched plans to achieve such benefits from their captive data. Outsiders to the industry, most notably Microsoft and Google that have leading brand images in data technology, are now trying to leverage their subscriber base to create a service around Personal Healthcare Records (PHRs). This activity indicates that information will be central to sustaining and creating competitive advantage.

The Healthcare Balancing Act

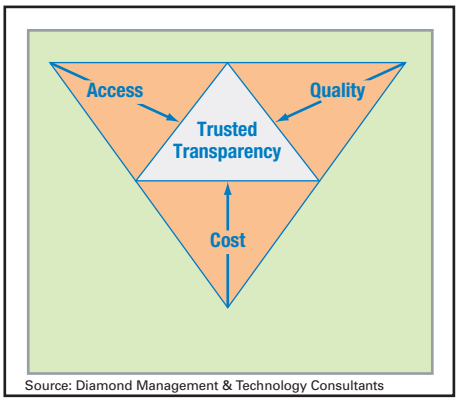


Figure 1

Putting Information into Practice

Imagine a healthcare system based on what we call "Trusted Transparency" which provided the efficient interpretation and optimized delivery of healthcare data to specific key constituents and their exact information needs. In that system the physician, patient, and payer can instantly review an entire set of organized records, receive evidence-based treatment recommendations for common diagnoses, and be presented with comprehensive treatment alerts. Healthcare organizations and their partners could reduce costly medical errors, treat a greater volume of patients more efficiently and effectively, and allow informed patients the freedom to receive care regardless of location.

But while Trusted Transparency has many benefits, too much data can definitely be harmful. Constituents can quickly become overwhelmed with vast amounts of information.

Consider the information needed by a patient or physician about a particular disease. Each constituent requires a different set of data, but without properly aligning their specific needs to the proper data feed, initiatives that promote transparency will be inefficient and unnecessarily costly. The solution lies in an efficient distribution of information so that the right people have access to the right information at the right time, and at the right cost.

"A Long Way to Go"

The following is excerpted commentary from Former House Speaker Newt Gingrich, Founder of the Center for Health Transformation who shared his thoughts on the present and future of healthcare informatics:

"There is no doubt that more and more information is available and we are generating an incredible amount of new knowledge every day with medical knowledge doubling every eight years. The most effective way for both providers and patients to harness all of the new knowledge is through information technology. The human mind is simply incapable of gathering and understanding everything we're learning, so we need technology to assist us. This is impossible to do with paper…we can embed the most cutting-edge practices into an electronic health record. … tools like Google Health, HealthVault, or an insurer's personal health record can organize it so it's more effective. Given the very low rates of patients and providers using health information technology, we obviously have a long way to go.

The Solution: Trusted Transparency

Enabling greater access to information across the healthcare spectrum is a popular idea but executives must tread cautiously, as mismanaged demands for information will lead to system inefficiencies. Successful investments in healthcare information technology should enable Trusted Transparency—that is the efficient interpretation and optimized delivery of healthcare data to specific key constituents and their exact information needs. This suggests that in essence trust is predicated upon and relegated to those that have the ability to provide the right information to the right people at the right time.

So, how do stakeholders navigate through the plethora of information available across the healthcare industry to find exactly what they are looking for? And how can one have faith that the information is valid and trustworthy?

Patients, for example, now have access to an unprecedented amount of medical information through the Internet. For the first time, the knowledge gap between patient and physician has been noticeably reduced. At the physician level, evidence-based practice is more crucial than ever, with analytics providing a strong case for directing prescription behavior.[1]

Management must develop a framework for solving the problem of creating a targeted environment to distribute better information. The sticking point is that "better" information varies with each type of end-user. The focus should be on defining the key users being served and determining what analytics can be used to filter data so it may have a real impact in improving healthcare.

Based on our client experience and research, Diamond has developed an approach to help companies in the healthcare arena deliver Trusted Transparency.

The concept of Trusted Transparency is based on the idea that informatics can be viewed along two dimensions—the depth of clinical data and the sophistication of data analytics. The priorities of employers, members, and providers will inevitably vary along the two dimensions. For example, employers focus more on the analytical sophistication of data which will help them model the cost of employee healthcare to their bottom line.

Providers focus more closely on clinically rich data which will enable them to provide point-of-care decision support and lower the cost of healthcare to both patients and themselves. As shown in Figure 2, traversing to the outermost layer of the frontier for each constituent requires more sophistication and greater depth of data. Payers and providers that can help constituents conquer each layer will achieve the maximum benefit.

Proper information management is essential in addressing the needs of each constituent. How does the patient ask the right questions? How does the physician stay up-to-date on the best treatment practices? How effective are various disease management programs in improving health? The key to these questions is streamlining the data from end-to-end to help deliver the proper information most efficiently from both an analytical and decision support perspective. Streamlining helps constituents scale the layers and reach the optimum balance of analytical sophistication and clinical data depth.

Six Factors Must be Considered in Providing Trusted Transparency

There are six critical factors to consider in providing Trusted Transparency for any constituent: focus, currency, education, calibration, analytics, and accessibility. The effective understanding, incorporation, and integrated alignment of these factors will foster more accurate aggregation and dissemination of core data.

Focus

Evidence-based practice (EBP), which emerged in the 1990s, is based on two main approaches to broader problems in healthcare: "to reduce the *complexity and volume* of evidence by integrating all research on a given topic into a single, meaningful whole," and "to transform knowledge through a series of stages to increase meaning to the clinician and utility in clinical decision making."[2]

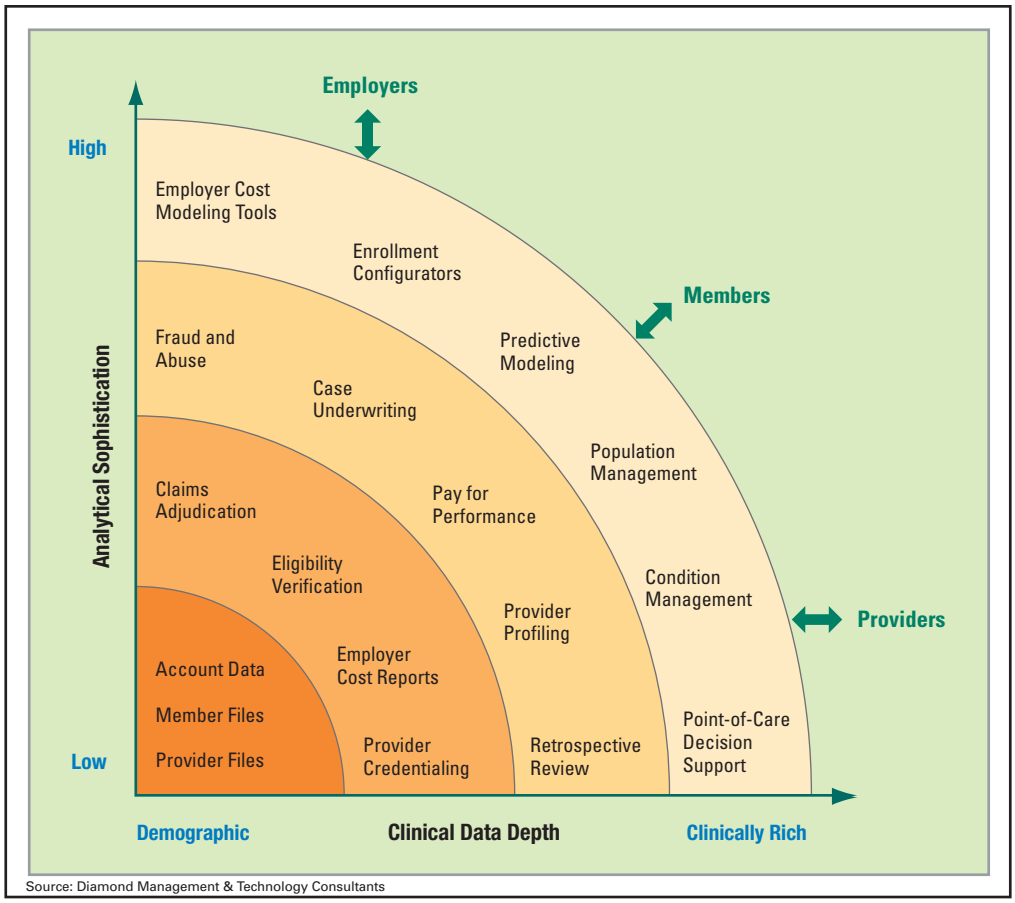
Those are lofty goals, considering that providers need to stay current on over 10,000 diseases, 3,000 medications, 1,100 lab tests, and the 400,000 articles added to the biomedical annals each year. With medical institutions' growing use of the Internet, clinicians can incorporate EBP at the point-of-care and access the best available clinical content when making treatment decisions.

EBP incorporates knowledge from various sources, such as research evidence, experience, authority, trial and error, and theoretical principles. It is focused on clinical content, which forms the backbone of the care delivered to patients. But EBP does not take full advantage of today's Web-based tools in a way that allows users or groups with common specialty interests to share state-of-the-art research developments or real-life experiences.

Case in Point: Allscripts, which provides electronic health records (EHR) and other Web-based information and connectivity solutions to 40,000 U.S. physicians, has developed a system to provide them with information appropriate to their area of specialty, including the latest scientific and clinical information about drug therapies and established best practices at the point of care.

With built-in clinical guidelines, physicians who document patient encounters in real-time using the EHR are automatically presented with the appropriate documentation template based on the type of patient and chief complaint. The system then utilizes a comprehensive database

Informatics Across Two Key Dimensions



Source: Diamond Management & Technology Consultants

Figure 2

Many of the traditional and evolving impacts of informatics can be clustered by their degree of clinically rich data and their degree of analytical sophistication. Informatics is not the collection of these tools. Rather it is the use of these various tools by employers, members, and providers to support their unique healthcare decisions.

of best-practice guidelines to automate the ordering of appropriate medications and tests, and to print out patient education materials appropriate to the diagnosis and treatment. Moreover, during the prescribing process the EHR alerts physicians to FDA drug recalls and potentially unsafe drug-to-drug interactions, dosages, or patient allergies.

The Web-based Allscripts system thus helps to automate EBP in support of safe and effective clinical decisions, providing just-right, just-in-time information at the point of care, whether in the clinic, at the hospital, or remotely. Later this year, Allscripts will take EBP to the next level by introducing a capability within the EHR to notify physicians about the potential eligibility of a patient for clinical research trials based on a patient's clinical profile, in real time, at the point of care.

Currency

The amount of research generated by scientific and business communities each year is staggering; even the most dedicated physicians and executives cannot keep up with it all. Yet providers and administrators need the most relevant and up-to-date information—often in real time—to reduce costs, improve access, and increase quality. The winning approach to Trusted Transparency will be capable of determining the most valuable and timely information so that doctors and business leaders will have the knowledge they need to make informed and actionable decisions.

How can stakeholders be confident they are getting the right information? Confidence is generated by carefully addressing the following questions:

- Can the information be clearly differentiated between clinical and non-clinical data?
- How strong is the evidence behind the data, and is it rated?
- Is the data comprehensive?
- Is the information filtered to focus on information that actually addresses the relevant medical outcome being searched?
- How current is the data? Are the sources regularly updated?
- Can the data be filtered based on role (e.g., payer, physician, nurse, patient)?

Case in Point: The Asklepios Group, which operates hospitals and highly specialized rehabilitation clinics in Germany and the U.S., had access to a large network of specialists, but they were not all collaborating with each other. Asklepios built a knowledge management system to support a community from the network that would share knowledge and improve the quality of medical service provided to its customers. The system uses "push" technology to deliver cutting-edge news and information selective to their specialty. Transparency within the network was a key factor in the systems success; practitioners had complete, free, and uninhibited access to resources and knowledge within the network.

Education

Patients certainly have more access to healthcare information today than ever before, but are they smarter consumers of healthcare services? With more health information available, a greater prevalence of certain diseases, and health plans that put the onus on subscribers to maintain a level of good health, consumers of health services are increasingly becoming consumers of health information. Portals such as WebMD, iVillage, Benefitfocus, and Healthline provide a plethora of information about diseases and ailments. They can also provide ratings and user comments on providers and hospitals.

But while greater access to information is certainly a step in the right direction, the challenge is that the wrong information can send consumers down a dangerous path. At best, misguided patients who come to the physician with a preconceived diagnosis can cause inefficiency in the system. At worst, patients can put their health at risk because the information they gather from Web sites and reports lacks the proper context and "know-how" available from skilled, highly trained individuals and teams.

Any healthcare information system that aims to educate stakeholders—particularly consumers—must help them manage their healthcare knowledge, and guide them in searching for the most relevant data among the ocean of information available for every medical ailment, procedure, disease, and cure.

Case in Point: The European Union is underwriting the Semantically-Enabled Knowledge Technologies (SEKT) project to build a framework for semantic web-based software that can intelligently parse the sea of healthcare information from nations across Europe and make it available through an intuitive interface to the general public. The goal of SEKT is to use semantic technology to create an information-centric approach versus today's typically document-centric approach. This means that many current healthcare search engines will have to enhance their "natural language" driven capabilities when aggregating and presenting information against unstructured and perhaps more nebulous constituent requests.

Calibration

How much information is enough—or too much? Arriving at that answer requires skill in a process called information calibration. Simply stated, information calibration is a means of evaluating what information to provide in the context of what information is available and how that information will be used. When a concerned parent searches a Web site for information when their child complains about a stomach ache, the information provider strikes a balance.

How much information can a consumer really absorb? How often must that information be updated? What does it cost to provide that information? The answers to these questions will be far different if the person relying on the information provider is a gastroenterologist.

Government policymakers and regulators will have their say in how information is calibrated, but those actually producing the information—payers, providers, and benefit administrators—must take the lead. Many metadata utilities will help monitor usage, volumetrics, and traceability, yet in the end it will be the informatics leaders who will need to create a custom calibration model for the information they produce and share.

Of course, there's a cost/quality tipping point at which the user will be overwhelmed by the cost or volume of information. Informatics providers looking for an optimal cost/quality point will need metrics and mechanisms for monitoring how much and to whom information is sent through various channels. Additionally, it will force the discussion of balance or perhaps define a true break-even intersection between how much information is needed to make effective clinical and business decisions and how much is superfluous or even confusing.

Company IT leaders and informatics experts will need to create a series of inflection points by analyzing and defining standards for each constituent group and then using the chosen techniques and tools to collect and group the data, as well as compare volumes against known benchmarks.

Analytics

More than 60 percent of healthcare-related companies now offer some type of disease management program, including the extended use of evidence-based medicine and advanced analytics (technologies and methodologies). Data on the presence of a particular diagnosis, the prescription of certain drugs used to treat a disease, and referrals by physicians who treat many patients with that disease, are enabling payers and providers to help integrate care delivery and research results that improve understanding of disease and ultimately improve quality of care.

The underlying premise is that when aggregated and normalized information and the right informatics tools, experts, and equipment are applied to a particular cohort or targeted disease state, then costs can be minimized in the near term, or resources can be provided more efficiently. The objective is then to ease the disease path via more streamlined and proven clinical protocols. Applying analytics to push selective information transparency toward the patient and provider integrates this relationship into an overall disease management system.

Disease management would largely concern itself with common conditions such as coronary, kidney failure, hypertension, heart failure, obesity, diabetes, asthma, cancer, arthritis, and depression. The prevalence of these diseases provides sufficient data for selective informatics.

Various research summaries (Figure 3) show that effective disease management systems are having a significant positive impact across key disease management metrics.

The Positive Impact of Disease Management Systems

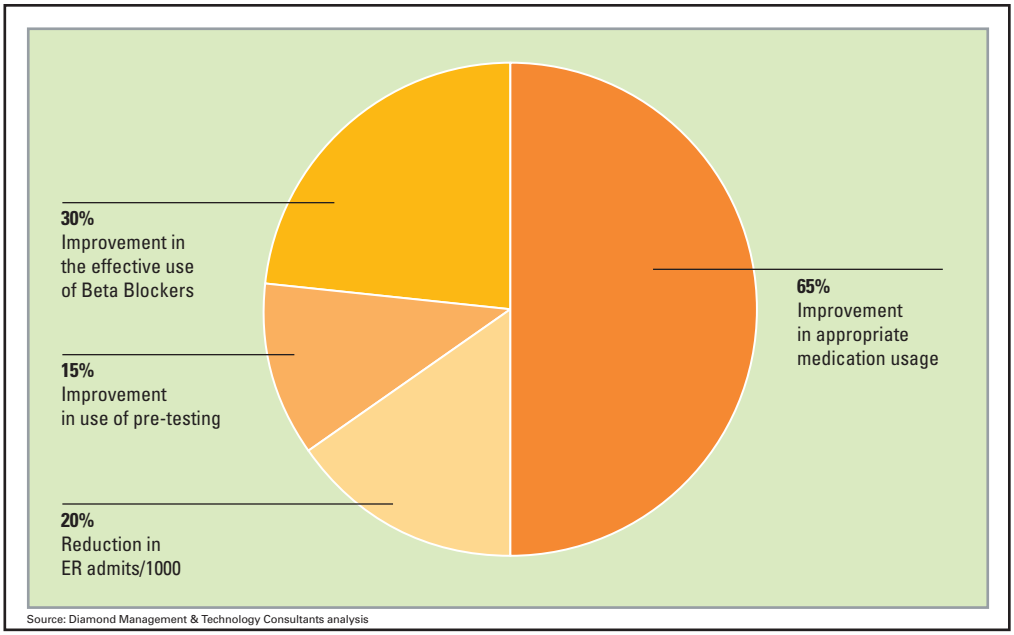


Figure 3

Case in Point: Aetna's disease management programs and acquisition of ActiveHealth has resulted in proactively identifying members whose care can be improved, as well as significant cost savings for the Payer in the short and long-term across various care initiatives. Some basic results include:

- Identification of medical errors—nearly one for every 20 members;
- 8 percent fewer hospitalizations;
- Average of $5.50 per member per month saved; and
- 2 percentage-point decrease in the cost trend among members meeting criteria for disease management interventions.

Case in Point: UnitedHealth Group created Ingenix, a health informatics, research, and services company. Already recognized as a leading analytical engine, Ingenix is providing UnitedHealth Group with detailed information and trends about member health status and cost patterns. Further, it has become a revenue-producing subsidiary that provides valuable information to a host of new customers.

Accessibility

The way in which data is disseminated and filtered through the Internet will be a major factor in the success of any system-wide informatics initiative. Today's Web portals are not static pages that characterized the "brochureware" of the late 1990s. Dynamically built Web pages can now be customized by end-users and can connect to multiple sources to aggregate data based on end-user requests.

The Web 2.0 phenomenon has ushered in the new dimension of user-generated content. Forums such as The Health Care Blog and Wellness Wiki allow individuals to research user experiences with specific diseases, medical procedures, and recovery. Online forums provide a platform for end-users of services to voice their opinions and experiences in the healthcare world, which provides transparency to service that could not be available directly through the service providers. Payers such as AETNA, CIGNA, and UnitedHealth Group are also utilizing the Web to promote consumerism with increased transparency to medical and claims histories and data to providers, employers, and employees.

In conclusion, Trusted Transparency—the efficient interpretation and optimized delivery of healthcare data to specific key constituents and their exact information needs—holds tremendous potential for society and the companies that master that capability. Trusted Transparency is not easy to achieve, but it starts by addressing on six critical factors: focus, currency, education, calibration, analytics, and accessibility.

"None are as Siloed"

Peter Neupert, Corporate Vice President, Health Solutions Group at Microsoft Corporation believes that while the current state of healthcare informatics is rife with problems, putting people at the center of the healthcare system and giving them control of all of their health information can foster tremendous progress.

"Few industries are as information-dependent and data-rich as healthcare. And none are as siloed. Every visit to a doctor, every test, measurement, and procedure generates more information. But each clinic, hospital department, doctor's office, and pharmacy has its own data systems for storing that information, and most of these systems don't talk to one another or share the data they do have with the patients from whom it was generated… but once consumers see how online health management tools like HealthVault work, experience them personally, and understand the applicability to their own lives and health situations, patient-managed health records will be as commonplace as online bank accounts."

The Impact of Trusted Transparency

Trusted Transparency capabilities are already improving clinical practice, increasing operational efficiency, and changing the economics of healthcare delivery.

Clinical

Increased data accuracy and transparency will help health plans refine their predictive modeling capabilities. Improved evidence-based, targeted efforts to monitor and manage high-risk and chronic disease members will support a more proactive approach to medical management.

The cost-effective targeting of lifestyle initiatives to members will expand medical management beyond monitoring only those who are chronically ill or have multiple co-morbidities. Lifestyle management has the potential to drastically reduce future medical bills and hospital stays by preventing acute episodes of many chronic diseases. By collaborating with physicians to implement these lifestyle programs, members will become educated from multiple vantage points. Computerized physician order-entry tools will assist providers in implementing targeted, evidenced-based, clinical guidelines at the point of care.

Case in Point: Horizon Blue Cross/Blue Shield recently partnered with Medmined, CVS/Caremark, and software vendor Prism MD to reduce infections within the provider setting, to encourage e-prescribing, and to extend Web-based management to physician groups. These relationships will likely improve Horizon's outcomes and the payer's ability to meet the needs of providers. That success, however, doesn't come easy. Even though much of the responsibility now rests with third parties, the oversight and maintenance of those partnerships places new demands on Horizon management.

Operational

Areas of automation could include member self-service and enrollment tools, rules-based routing of calls, and cases based on system protocols. Implementing a member-centric software platform that provides a single source for member data could decrease the complexity of retrieving data from multiple sources.

Case in Point: Allscripts has developed for pharmaceutical companies a new service offering that retrieves data from multiple sources to match patients to potential clinical trial participation. The service fills a critical need for clinical trial sponsors who struggle to find enough qualified patients to meet their enrollment targets.

The Allscripts RecruitAssist service leverages the company's network of more than 1,100 physician investigators who use the Allscripts EHR in matching patients for clinical trials together with other EHR-enabled practices from across the country. Clinical trial sponsors can access the aggregated de-identified patient profiles derived from the network's combined medical records to quickly and easily locate practices with appropriate patient populations for their studies. As a result, participating patients receive access to the latest treatments in the pipeline, and trials can be completed in shorter timeframes at lower costs, speeding the delivery of needed medications to the market.

Financial (Personal, Enterprise-wide, and System-wide)

Efficient deployment of informatics will allow health plans to better coordinate human and technical resources to increase efficiency and reduce administrative costs. Health plans will use their tools to better match the most cost-effective, proficient resources

with given needs and empower those people with relevant decision support tools.

In 2007, Diamond analyzed the business opportunities being created by seismic shifts in the health/wealth landscape[3]—terrain being created as the fault lines between the financial services and healthcare industries converge. We identified a $6.2 billion market over the next 10 years in providing consumers with access to trusted financial planning and decision support services.

Financial services firms are expanding their capabilities to become trusted advisors on matters pertaining to paying and saving for healthcare costs. Many health plans want to strengthen customer relationships by helping members make informed health/wealth decisions. The companies that thrive will excel at Trusted Transparency by aggregating historical data about pricing and service quality and turning it into usable information for individuals, employers, and healthcare providers.

Case in Point: Blue Cross/Blue Shield of Tennessee used targeted modeling to reduce case manager workloads, increasing average monthly savings per case manager from $116,000 to $291,000, and decreasing manager attrition by 10 percent.

Case in Point: Active Health, Aetna's medical management subsidiary, is continuously defining, designing, and building a strategic platform for hosting consolidated data and producing external-facing reports for its customers. The company has developed sophisticated, proprietary algorithms to improve quality and reduce costs by preventing adverse clinical events.

On a quarterly schedule, more than 1,500 automated reports are currently generated, thus reducing the effort and resources involved in report generation; improving the quality and consistency of reports; and enabling ActiveHealth to produce and deliver reports in a timely manner.

Finally, it is worth noting that Trusted Transparency is changing the relationships between healthcare organizations, government agencies, and individuals. Individuals inevitably will have unprecedented visibility into the performance of their healthcare providers and the management of their own health. Accordingly, organizations will have to redefine their short- and long-term data strategies to incorporate transparency.

"Meaningful Choices"

Carol McCall, is Vice President of Research & Development at Humana, Inc. a Fortune 500 company that markets and administers health benefit consumer services to over 11.5 million members across the U.S. She sees trust and transparency as core to the company's information consumer-driven healthcare strategies:

"Giving people meaningful choices, transparency of information about those choices, and the independence to choose what's right for them is at the core of everything we do," said McCall. "And getting people engaged in these choices—financially, emotionally and clinically—will require instilling trust in the information that we provide."

Call to Action

While the healthcare industry abounds with initiatives to use data to address the issues of cost, quality, and access, there are serious risks that the people who need the right data at the right time and at the right cost will be overwhelmed. Companies that intend to compete on the basis of their information assets must act decisively to ensure that their initiatives are a cure for the industry, not a curse upon its already burdened constituents.

Diamond has developed an approach to help companies with the efficient interpretation and optimized delivery of healthcare data to specific key constituents and their exact information needs, or what we call Trusted Transparency. The focus is on mastering six critical factors: focus, currency, education, calibration, analytics, and accessibility. The work emphasizes maximizing the current effectiveness of payer and provider healthcare informatics as well as building new competencies that will increase the value of a company's information assets.

When defining a strategy to compete in the healthcare informatics arena, organizations need to start by answering the following fundamental questions:

1. What is it that our constituents want to know?
2. What information do they truly need?
3. How do we measure Trusted Transparency?
4. What is the value of transparency to our organization?
5. What is the most effective way for our constituents to use our information for their own analysis? For which constituents?
6. Who will regulate the data we share?
7. How could Trusted Transparency capabilities affect our competitive position?
8. How does the information provide a link to actions that will lower the cost and raise the quality of healthcare?

Endnotes

[1] Abbott, Bill, Alex Mannella, Kyle McNamara, and Amaresh Tripathy. "Predictably Irrational Customers: Optimizing Choices for How People Really Buy, Not How We Think They Buy." Diamond Management & Technology Consultants, 2007.

[2] Center for Health Transformation. "Paper Kills: Transforming Health and Healthcare with Information Technology." Edited by David Merritt, with Introduction by Newt Gingrich. CHT Press, Washington, D.C., 2007.

[3] Baig, Aamer, Andrew Rocklin, and Srinivas Velamoor. "Seismic Shifts in the Health/Wealth Landscape." Diamond Management & Technology Consultants, 2007.

About Diamond

Diamond (NASDAQ: DTPI) is a management and technology consulting firm. Recognizing that information and technology shape market dynamics, Diamond's small teams of experts work across functional and organizational boundaries to improve growth and profitability. Since the greatest value in a strategy, and its highest risk, resides in its implementation, Diamond also provides proven execution capabilities. We deliver three critical elements to every project: fact-based objectivity, spirited collaboration, and sustainable results. To learn more visit www.diamondconsultants.com.

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