

Improving Efficiency in Healthcare

How healthcare providers are realizing efficiency gains through the use of technology that liberates data, improves collaboration, and provides a connected approach to patient care.

White Paper

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Learn from the examples of other healthcare providers, including how to:

- Leverage existing technology and familiar tools to connect the currently fractured pieces of the healthcare ecosystem
- Turn health data into information that reduces costs and boosts patient satisfaction
- Make data connections to reveal and help resolve seemingly intractable problems
- Use collaborative technologies to coordinate members of health teams, to provide timely services and improve quality of care

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Executive Summary

- As healthcare providers face soaring costs and are pressured to improve care, they are turning to existing technology platforms that leverage familiar tools to facilitate interdepartmental data sharing, data analysis, and caregiver collaboration.
- Efficiencies are realized when data is easily shared across service lines and among caregivers throughout the healthcare chain, including administrators, insurers, general practitioners, specialists, and patients.
- Interdepartmental data connections help to reveal the causes of many hidden problems, such as high infection rates and long emergency room waits.
- Fast results through tactical milestones are important, but these results need to feed into a strategic, enterprise-wide view that incorporates a culture of information.
- Business intelligence, portals, and caregiver collaboration help to save time, reduce costs, and improve quality of care through the automation of routine tasks, streamlining of processes, creation of operational efficiencies, and the ability of health professionals to access and share information quickly.
- Multidisciplinary teams consist of doctors, nurses, pharmacists, therapists, social workers, health payers, and others in healthcare. Through unified communications, caregivers can collaborate on providing timely services, thereby helping to improve patient outcomes.
- Providers that have realized the benefits of data sharing and caregiver collaboration include, University Hospitals Bristol NHS Foundation Trust in the United Kingdom; Annatomie in The Netherlands; Fukui Saiseikai Hospital in Japan; and Intermountain Healthcare, Children's Hospital of Philadelphia, and Washington Hospital Center in the United States.

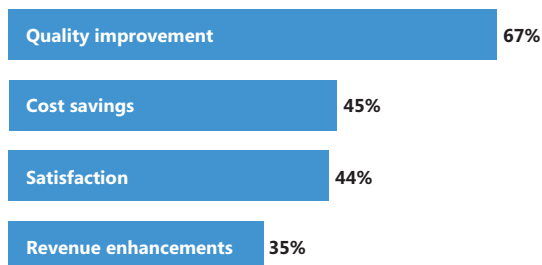
Sharing and Analyzing Data in the Healthcare Chain

Healthcare providers embrace the concept of patient data, but too often their efforts in this area have resulted in information that is not easily used or analyzed. With the pressures of the economic downturn, soaring costs, and a growing demand for better care, healthcare providers are developing a new approach to healthcare IT that drives greater efficiency by deploying easy-to-use tools to enable collaboration and data sharing throughout and outside of the organization.

The Many Benefits of Sharing Data

Quality improvement is the top benefit cited by healthcare providers that make use of data for secondary purposes. *(Secondary use of data is defined as clinical, financial, administrative, and self-reported data that is aggregated, analyzed, and presented in a concise, actionable format for the purposes of identifying trends, predicting out comes, and influencing patient care, drug development, and therapy choices.)*

Percent of Respondents



Base: 480 healthcare providers

Source: PricewaterhouseCoopers' Health Industries Group

Figure 1

The upshot of this approach is lower costs and higher quality care by connecting data that has traditionally been isolated in individual service lines. The goal is to share data that is generated by everyone in the healthcare chain, including administrators, insurers, general practitioners, specialists, and patients. In fact, even less obvious departments—such as housekeeping—should be connected to help improve overall organizational efficiency (see Figure 1, “The Many Benefits of Sharing Data,” at left).

Such an approach requires the use of familiar tools that leverage an established computing platform. This platform will help connect currently fractured healthcare systems, liberate data, and allow caregivers to perform at higher levels. This transformation will help generate the following results:

- Improved operational efficiency by gaining insight from data through business intelligence
- Enhanced caregiver coordination through content management, portals, and unified communications

This efficiency approach focuses on short, fast milestones that are aimed at streamlining routine tasks so workers can concentrate on fewer but more important tasks that yield more dramatic outcomes. For example, the 7,000 employees at University Hospitals Bristol NHS Foundation Trust in the United Kingdom had no good way to

communicate across several different intranet sites. The existing intranet was underused, and it required intensive user training and dedicated support from the IT team. With a solution based on Microsoft® Office SharePoint® Server 2007, the Trust has rolled out a new intranet where users can create sites and workgroups and edit content independently. Staff members have faster access to up-to-date information, while the IT team saves eight hours per week and has time for value-added tasks elsewhere. The results: improved collaboration, better-informed decisions, and improved quality of health services.

Tactical Moves, Strategic Outlook

Although organizations may start with tactical approaches, they know that the true benefits come when they have a strategic, enterprise-wide orientation to improving information sharing. This approach is in addition to the expectation of connecting data silos, service lines, and the many parties involved in the healthcare ecosystem.

"The visionary companies begin with a tactical problem but a strategic orientation," says Glenn Drayer, Practice Principal, Health Providers & Public Health, Business Intelligence Solutions at HP, which works with many Fortune 500 pharmaceutical and healthcare organizations. HP also operates a Health Centre of Excellence (HCoE) in Oslo, Norway, in partnership with Microsoft and other technology companies. "Organizations need to look three, five, or eight years down the line, thinking about the capabilities they want to have across the facilities even as they work to solve the problems of today," he says.

Those "problems of today" are enormous and far ranging. According to a new study by PricewaterhouseCoopers' Health Research Institute, some \$1.2 trillion of the \$2.2 trillion that the United States spends on healthcare is wasted (see *Figure 2, "Wasted Health Dollars," at left*).

Other problems arise from inadequate or inefficient data sharing, including the inability to quickly adapt to new compliance measures and economic realities.

Unlocking Insights

The new approach to healthcare IT looks to build upon existing technology rather than than "rip and replace." Business intelligence (BI), health portals, and caregiver collaboration complement existing technology and result in the following benefits: time savings by automating routine tasks and streamlining processes; cost reductions by creating operational efficiencies; and increased quality of care and services by allowing health professionals to access and share information quickly. They also help improve financial margins by better managing and forecasting resources, budgets, and organizational performance.

Many health organizations have found that efficiency depends on making performance management an integral part of their culture. They want to gain insights across organizational boundaries by aggregating performance information from separate teams, departments, and even other organizations.

"Let's not repeat what we found with ERP [enterprise resource planning], when we thought that simply having all the data would be nirvana," says Steven Pratt, Managing Practice Principal, Health & Life Sciences, Business Intelligence Solutions at HP.

In one instance, HP worked toward releasing the full power of data for a health association that includes an anchor hospital and a number of clinical facilities and physician networks.

Wasted Health Dollars

More than half of the money that the United States spends on healthcare is wasted. Here are just a few of the actions that, collectively, waste \$1.2 trillion a year:

- Over-testing: \$210 billion
- Processing claims: Over \$210 billion
- Ignoring doctors' orders: \$100 billion
- Ineffective use of technology: \$88 billion
- Hospital re-admissions: \$25 billion
- Unnecessary ER visits: \$14 billion
- Prescriptions written on paper: \$4 billion
- Hospital-acquired infections: \$3 billion
- Over-prescribing of antibiotics: \$1 billion

Source: PricewaterhouseCoopers' Health Research Institute

Figure 2

“They made the conscious decision to allow the cornerstone hospital to create a BI system to collect a lot of claims data from each of the participating facilities and run analytics against the data to find patterns,” HP’s Drayer says. As a result, the health association discovered a higher than normal infection rate at one unit and was able to trace it back to a scrubbing procedure. By providing more training for that shift, the infection problem was eliminated, more than paying for the cost of the BI solution.

Healthcare IT hinges on these types of quick, powerful wins while also preparing a foundation that enables the technology to spread widely throughout the organization in the future. Doing so can help providers avoid some of the major barriers to sharing data (see Figure 3, “Barriers to Using Data,” at left).

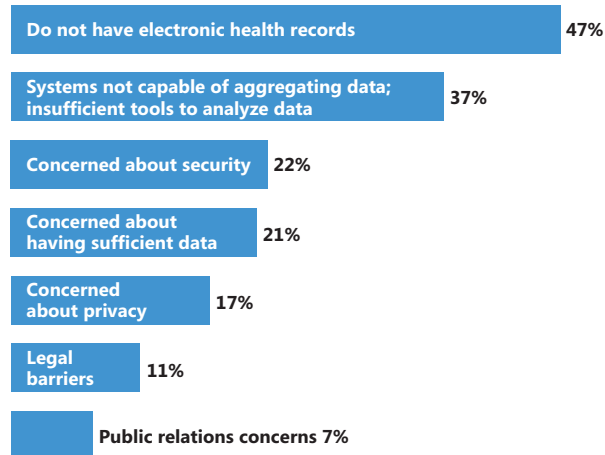
“One CIO is in the midst of an electronic medical records implementation, but he’s figuring out the business intelligence part at the outset because he knows if he doesn’t, it might not be there when he needs it,” Drayer says. For example, data on smoking cessation might be in the form of unstructured data, such as physician notes. The CIO wanted to architect for the use of unstructured data but also drive change to electronic medical records and operational workflow to improve the capture of quality structured data to enable BI analytics.

Christopher Wasden, Managing Director in the Healthcare Strategy and Innovation practice at PricewaterhouseCoopers, says the starting point for a healthcare IT initiative is to select from among the scores of pain points currently endured by healthcare professionals. The key, he adds, is to not look at these initiatives as “IT solutions” but as “strategic decision support tools driven by the C-level management team. Until the C-suite demands these tools and uses them everyday to run their healthcare organizations, BI will never realize its potential,” Wasden says.

Barriers to Using Data

Healthcare providers cite many reasons for not using secondary data.

Percentage of Respondents



Base: 480 providers

Source: PricewaterhouseCoopers' Health Industries Group

Figure 3

A Culture of Information

In a study completed in 2008, Aberdeen Group found that top-performing healthcare organizations (as determined by such measures as patient satisfaction) were almost twice as likely to develop enterprise-wide information cultures as average-performing healthcare organizations. The best performers use BI because of pressures to:

- Manage rising costs (top driver cited by 80 percent)
- Improve medical outcomes (46 percent)
- Boost patient satisfaction (30 percent)

David White, an Analyst with Aberdeen Group, notes that in this "best-in-class organizations" example, 66 percent of the best performers have the capability to monitor and identify the "left without being seen" (LWBS) rate in emergency rooms, compared with only 54 percent of the average health organizations.

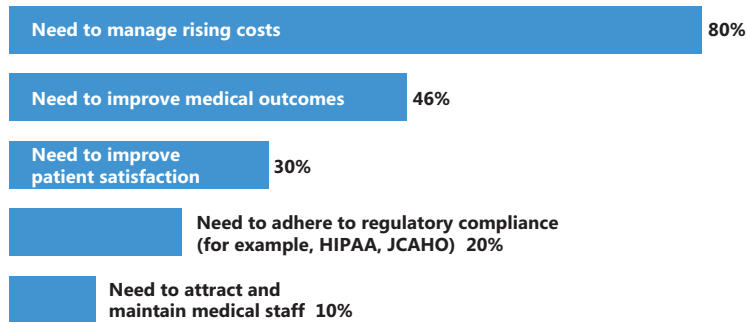
“We looked at one hospital that had a high LWBS percentage, and they determined the reason was because housekeeping wasn’t cleaning beds fast enough,” White says. “They were only able to identify the problem after deploying a BI system.” This information was important because the emergency room is the pipeline to inpatient beds, White explains. “If there are no inpatient beds free, patients can’t move out of the ER, and the ER gets backed up. That’s what drives people to leave the ER without being seen.”

Making those types of interdepartmental connections is essential for the efficiency gains that healthcare organizations need. They also fuel the exploding interest in BI (see *Figure 4, “Healthcare BI Manages Rising Costs,”* at left).

Healthcare BI Manages Rising Costs

Healthcare organizations noted that cost savings were the main pressure causing them to focus on BI.

Percentage of Respondents



Source: Aberdeen Group, 2008 survey of 95 healthcare providers

Figure 4

BI is the key to connecting data that is isolated in individual departments to promote greater efficiency. More and more, these connections must extend throughout and outside of the organization, to the multidisciplinary teams involved in the healthcare chain.

“CEOs who see a profitability decline within one department or practice or across the whole organization can use the business intelligence tools to do a cause analysis,” PricewaterhouseCoopers’ Wasden says. He gives the example of an under-performing cardiovascular unit. With BI, the CEO can drill down to a particular hospital or an individual surgeon. “They could find, for example, that the decrease in profitability is due to the fact that the surgeon is using a stent that the insurer has lowered the reimbursement on. In five or six mouse clicks, you can find the root cause of the problem and then go negotiate with the payer,”

he says. This approach is not science fiction, Wasden adds. It is exactly what is being accomplished at a clinic in the United States today.

In the case of Washington Hospital Center—a network of eight hospitals with roughly 900 beds in Washington, D.C., which is now a part of MedStar Health—unlocking patient information translated directly into better care, higher patient satisfaction, and lower costs. In its effort to reduce emergency room wait times, the center discovered that medical teams spent only 16 percent of their duty time treating patients and an astonishing 60 percent digging data out of myriad data applications. Lab results, X-rays, live data, and patient records were simply not connected. According to one participant in the project, it was like “having parts of every patient’s anatomy scattered throughout the hospital.”

The solution was to centralize that information, using Microsoft Amalga™ healthcare software, thereby enabling doctors to focus on treatment.

The results: A reduction in ER wait times from eight hours to two hours; an increase in ER patients from 30,000 to 70,000; a decrease in lost records, images, and scans from 1,600 to 70 per annum; a reduction in requests for hard copies of records from 20,000 to 200; and a vast improvement in patient satisfaction. All of these benefits directly translated into better revenues.

Using Familiar Tools

Achieving greater data liquidity comes from using familiar tools that leverage an established and robust IT platform and connect the disparate information and departments found in a provider's healthcare system. This approach helps improve the user experience and liberate data currently trapped in application silos.

Take the Children's Hospital of Philadelphia (CHOP), a leading pediatric hospital based in Philadelphia that wanted to improve the data analysis and operational management processes in its department of Pathology and Laboratory Medicine. Over the past decade, the number of specimens that needed to be collected and analyzed for outpatient visits and inpatient admissions has doubled.

"CHOP had disparate methods for processing specimen collection," says John D'Alesandro, Healthcare Practice Leader at USC Consulting Group, a Microsoft partner that provides consulting services. "There was variation in the way specimens were handled in every step, from doctor's orders to results in the chart. Some were put together in batches; some were handled individually. The compounding effect of variation in every step and every handoff injected avoidable delay throughout the process."

To drive out variations and improve efficiencies, CHOP implemented a new solution—called Lean Information Control System (LINCS)—that uses business intelligence and active process management. LINCS provides the department of Pathology and Laboratory Medicine with automated mechanisms to monitor and manage the processing of specimens across the entire operation. Lab technologists and pathologists use Microsoft SQL Server® database software to view scorecards, which display interactive charts containing updated lab result data.

The new system has allowed the department to gain more insight into its data and to automate reporting processes, thereby helping reduce laboratory results turnaround times by 50 percent. "Doctors are getting lab tests back faster, and that means they're more efficient. They can treat individual patients more quickly and, ultimately, accept more patients as a result. That will have a great impact on the hospital's productivity," says Dr. Bryan Wolf, Pathologist-in-Chief, Chair, and Professor of Pathology and Laboratory Medicine at CHOP.

The system is also easy for employees to use because it is partially based on a program they are already familiar with: Microsoft Office Excel®. "Because of that familiarity, our employees can easily extract and use the data they need," Wolf says. "They can easily store and share data as well as collaborate on projects."

Now technologists and pathologists can more easily communicate with one another and with supervisors, and they can better understand which stage the specimen process is in. "We never knew if lab technicians were productive," Wolf says. "Now, a supervisor can look at the data every day to see if turnaround times were slower than they were on the previous day. The supervisor can also see why those times were slower and can talk to a technologist about that."

“Forcing staff to learn new technology is a backward approach. Since Microsoft Office system applications such as Word and Excel are already in wide use throughout the hospital, we believe using Office SharePoint Server 2007 and other Office system products was the right decision.”

– Masa Takeuchi,
Fukui Saiseikai Hospital

Familiar tools also encourage more widespread use among employees, which leads to greater results. Intermountain Healthcare, a non-profit health system based in Salt Lake City, realized this truth when it switched from a cumbersome enterprise content management (ECM) system to one that required very little training because it was intuitive to use. With its former ECM and portal solution, it required 15 to 20 mouse clicks and up to 30 minutes to post a single piece of content; a mere 200 employees took part in sharing information.

Intermountain switched to Office SharePoint Server 2007 because users could easily create Team Spaces where members could check documents in and out, share calendars, assign and track tasks, and manage other team activities. Because of this ease-of-use, more than 3,000 Team Spaces have been created and are being used by the far-flung staff in the 21 hospitals and 100 clinics that span two states.

“We haven’t held any formal user training to get employees up and running on Team Spaces,” says Jeff Johnson, Director of Internal eBusiness at Intermountain Healthcare. “We simply put together a 13-minute video that walks users through the process. Nurses, administrative assistants, and literally any other employee can create a Team Space in minutes.”

Indeed, Intermountain’s various efforts to improve efficiency have brought it international recognition. [President Barack Obama specifically noted Intermountain’s combination of high quality care at low cost.](#)

Connecting Multidisciplinary Teams

Fukui Saiseikai Hospital, a comprehensive medical facility for the Hokuriku region in Japan, has taken numerous steps to improve efficiency. Among them is the Saiseikai Quality Management System, an organizational operating system that incorporates the Balanced Scorecard (BSC) management method. As the staff grew from 500 to 1,000, sharing information became more difficult. To enhance the BSC, the hospital deployed a new online portal based on Office SharePoint Server 2007 that allows the medical staff to share information and collaborate more easily.

“What’s important is the ability to instinctively use it at first glance,” says Masa Takeuchi, who works in the Business Planning Section at Fukui Saiseikai Hospital. “Forcing staff to learn new technology is a backward approach. Since Microsoft Office system applications such as Word and Excel are already in wide use throughout the hospital, we believe using Office SharePoint Server 2007 and other Office system products was the right decision.”

One of the most widely used functions of Fukui Saiseikai Hospital’s new online portal is the distribution of Saiseikai Hospitality Reports, which inform staff about strong performance at the hospital. There are three different types of Hospitality Reports: “reports of appreciation,” which profile staff members who provided service that was highly appreciated by patients or other staff members; “good idea reports,” which share outstanding ideas from staff members; and “best staff reports,” which profile outstanding individuals.

Healthcare Efficiency Pioneers

The following organizations have improved efficiency and outcomes by unlocking patient data and improving collaboration via easy-to-use technologies.

Provider	Efficiency Example
Children's Hospital of Philadelphia	Decreased laboratory test turnaround time by 50 percent.
Intermountain Healthcare	Reduced time to upload portal content from 30 minutes to a couple of minutes.
Washington Hospital Center	Reduced emergency room wait times 75 percent; increased ER patients from 30,000 to 70,000; decreased instances of lost records, images, and scans from 1,600 to 70 per annum; and reduced requests for hard copies of records from 20,000 to 200.
University Hospitals Bristol NHS Foundation Trust	Reduced IT support time by eight hours per week.
Fukui Saiseikai Hospital	Enabled effective sharing of hospital performance data as staff doubled in size.
Annatommie	Made appointments and patient data available via a few mouse clicks vs. manually.

Source: Microsoft case studies

Figure 5

"In the case of e-mail, you might skip reading the report and be done with it. But by posting it on the portal, more people see it—even if they don't want to," says Tetsuya Saito, Section Manager of the Business Planning Section at Fukui Saiseikai Hospital. "With 'good idea reports,' staff ideas are judged not only by direct superiors but by all staff members, including executives and the hospital director. This enables a process in which we can all learn new information from each other, and that leads to spontaneous action."

Teamwork today does not just take place among medical staff, however; high-quality healthcare must be delivered by multidisciplinary teams that consist of doctors, nurses, pharmacists, therapists, social workers, health payers, and others. And it often requires coordination with and among caregivers who work in the community and in patients' homes. But such teamwork can lead to fragmented communications, information, and work processes that put quality at risk and may result in duplication of patient records, unnecessary tests, or prolonged hospital stays. Technology can enhance caregiver collaboration by making it faster and easier for caregivers and interdisciplinary teams to communicate. As a result, they can collaborate in real time to provide timely services and improve patient outcomes.

Annatommie, an orthopedic diagnosis, treatment, and rehabilitation center in The Netherlands, has achieved such results. The organization's existing appointment scheduler

and limited electronic patient data became immediately accessible through Microsoft SharePoint® Online. This step made these business-critical systems centrally and reliably accessible to all employees, and it enabled physicians to access patient data with a few mouse clicks while reviewing their day's appointments.

Using Microsoft Office Communications Online, Annatommie clinicians and administrative staff can instantly see the whereabouts of colleagues to get fast answers or hold quick meetings. They use Microsoft Office Live Meeting for weekly staff meetings, where doctors share patient files and review documentation together. Because e-mail messages, patient data, appointments, and other business data is accessible from their Web browser, the medical staff no longer spends time driving back to their offices to access this information.

Multidisciplinary communication cannot be an afterthought; it has to be recognized as a key to efficiency and cost effectiveness.

Conclusions and Recommendations

Around the world, economic pressures and the drive for better care are causing healthcare providers to strive for greater efficiency. Certain organizations have already taken major steps to improve their operational efficiencies (see Figure 5, "Healthcare Efficiency Pioneers," on page 11).

The providers that have succeeded in improving efficiency while maintaining or improving outcomes share certain characteristics. Primarily, they have developed cultures of information, where performance management is embraced and instilled by liberating data. They have also given workers the means to share information and insights easily and quickly. Multidisciplinary communication cannot be an afterthought; it must be recognized as a key to efficiency and cost effectiveness. To achieve these results, the following steps are recommended:

1. Begin with a tactical solution for your greatest pain point, but at the same time keep a strategic orientation that plans for widespread growth of the technology in the future
2. Aim to streamline routine tasks so workers can focus on the most important work
3. Develop multidisciplinary communications across the entire health ecosystem
4. Incorporate information from business systems and diverse clinical systems
5. Make performance management a cultural initiative; be sure to gather top-level support
6. Realize that efficiency and cost effectiveness depend on a software platform for multidisciplinary communications
7. Spur adoption by using familiar tools and interfaces that require minimal instruction

For More Information

The Information Technology & Innovation Foundation's

"Explaining International IT Application Leadership: Health IT"

<http://www.itif.org/index.php?id=291>

PriceWaterhouseCoopers'

"Transforming Healthcare Through Secondary Use of Health Data"

http://pwchealth.com/cgi-local/hregister.cgi?link=reg/secondary_health_data.pdf

Microsoft for the Health Industry

www.microsoft.com/industry/healthcare

Microsoft for Healthcare Providers

www.microsoft.com/industry/healthcare/providers

HealthBlog

<http://blogs.msdn.com/healthblog>

University Hospitals Bristol NHS Foundation Trust

<http://www.microsoft.com/emea/partnersolutionmarketplace/CaseStudyDetail.aspx?casestudyid=4000002421>

Anatommie

http://www.microsoft.com/casestudies/Case_Study_Detail.aspx?CaseStudyID=4000003679

Fukui Saiseikai Hospital

http://www.microsoft.com/casestudies/Case_Study_Detail.aspx?casestudyid=4000003822

Intermountain Healthcare

http://www.microsoft.com/Casestudies/Case_Study_Detail.aspx?casestudyid=4000004149

Children's Hospital of Philadelphia

http://www.microsoft.com/casestudies/Case_Study_Detail.aspx?CaseStudyID=4000001805

Washington Hospital Center

http://www.microsoft.com/casestudies/Case_Study_Detail.aspx?CaseStudyID=4000001424