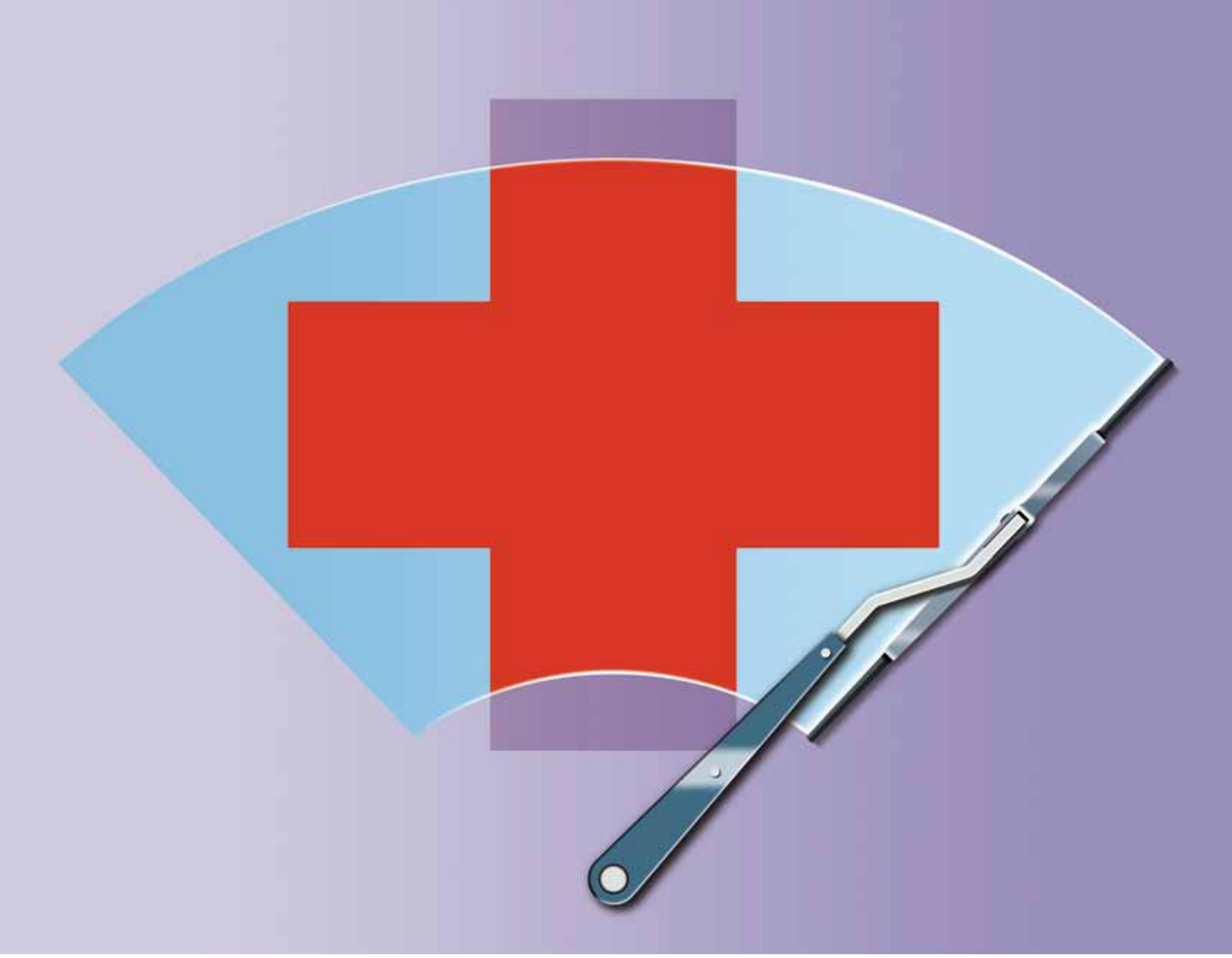

Transparency — the most powerful driver of health care improvement?

Transparency about performance may be a key precondition for improving service delivery and productivity in health care.

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"Information is power and, by sharing it, we can deliver modern, personalized, and sustainable public services." So said British Prime Minister David Cameron recently when he announced a raft of new initiatives that, if delivered, will amount to the boldest adoption of transparency as a driver of public service reform anywhere in the world. Cameron pledged that the National Health Service (NHS) will make publicly available comparative performance and prescribing data for individual primary care practices and anonymized patient-level data to permit scrutiny of clinical teams in hospitals. The initiatives also cover other key public services, including education and criminal justice.

The British are engaged in an experiment that is likely to have lessons for countries around the world: using data transparency to encourage substantive changes in public and professional behavior. Transparency is a comparatively new tool for public service reform, having originated in theories of civic responsibility developed in the 1980s. Its use in the public and health care sectors has increased gradually since then (in part, as technical implementation has become less expensive), but it is not yet widely utilized in most countries. The problem has usually not been data availability (most health systems in the developed world have ample data that could be made transparent), but rather political concerns — disclosing outcome variations remains controversial. Even in the United States, where health care data is abundant, political and commercial considerations have hindered attempts to use public reporting to drive outcome improvements.

Nevertheless, interest in public-sector transparency is growing. The governments of 46 countries recently joined together to form the Open Government Partnership, committing themselves to promote fuller sharing of information. Their rationale is simple: evidence is emerging that transparency may be a key precondition (in some cases, the most important one) for service improvement and productivity.

The overarching concept behind transparency — that data sharing between a company and its customers can lower costs and improve quality — is well-established in other sectors. For example, data sharing (including e-ticketing) has enabled the airline industry to improve productivity, reduce costs, and increase passenger satisfaction; the industry estimates that it is saving more than $18 billion each year as a result.[1] Banks and retailers have similarly reaped benefits (e.g., increased sales and improved customer satisfaction) by making data available to customers online.

Another reason for the emerging interest in transparency is the growing recognition that public data assets are inherently valuable and could stimulate innovation and economic growth. The McKinsey Global Institute has forecast that European governments could derive value (in cost savings or new revenue) of up to €250 billion annually by making better use of their public data.[2] This forecast may be conservative.

This article, based on a wide-ranging review of the use of transparency in a number of sectors, considers the impact that it has had, or could have, in six domains: accountability, choice, productivity, care quality/clinical outcomes, social innovation, and economic growth. Our primary focus is on the use of transparency in health care, but the concepts we discuss apply to other public service environments.[3]

[1] IATA. Simplifying the business. IATA website. 2011.
[2] McKinsey Global Institute. Big data: the next frontier for innovation, competition, and productivity. May 2011.
[3] Most of our examples are drawn from the United Kingdom and United States, simply because those countries currently have the greatest experience with health care transparency.

What lessons can be drawn from the NHS's experience with transparency?

The English National Health System (NHS) is, in some respects, the most open health system in the world. For example, it is still the only system that routinely publishes comparative outcomes for all hospitals in the country. However, introducing transparency was not easy for the NHS. Four important lessons can be drawn from its experience:

Start small – don't wait for perfect data

Although the NHS is a national system, it had never developed a standardized, linked administrative data set that could be used routinely in all the care contexts. And given current economic circumstances, it is highly unlikely that it will do so anytime soon.

However, the NHS did not permit the absence of perfect data to prevent it from introducing transparency. It began with the data it had, even though it knew that the information was somewhat inconsistent and, in some cases, of poor quality. (In some instances, fewer than 50 percent of the data fields were coded correctly.) The introduction of transparency has helped improve data quality tremendously. For example, once the NHS made anonymized data publicly available, coding accuracy dramatically improved.

Political bravery may be required

Transparency can be introduced into health systems only if the move is strongly supported by the political elite. In England, all prime ministers since the mid-1990s have

The impact of transparency

To date, most efforts to increase transparency have mined the administrative data sets that all health systems and their constituent organizations (payors and providers) maintain, and it is these efforts that are currently having the greatest impact on most of the domains discussed below. However, some health systems are collecting and mining patient feedback data on the services they deliver, and a few systems are making personal data available directly to patients.

Accountability

Emerging evidence indicates that transparency can be a powerful driver of accountability – in particular, by holding health regulators to account. For example, recent news stories based on publicly reported data revealed that between 1997 and 2010, the number of elderly people dying from dehydration (a preventable cause of death) in the United Kingdom had doubled and the number killed by so-called "superbugs" (another preventable cause) had risen sevenfold.[4]

In light of these and similar reports, the government launched an inquiry into the standards of care delivered in NHS-funded care homes. It is also reviewing the ways it inspects and regulates those homes.

In 2009, Dr Foster (a private infomediary) analyzed public data and found that a hospital in Stafford, England, had unusually high mortality rates. The NHS's Care Quality Commission then initiated an investigation, which revealed poor clinical practices.[5] Two subsequent inquiries concluded that transparency was the key factor that led to the investigation — and that lives had been saved as a result. Both inquiries emphasized that greater use of routine data and user feedback data would have prevented the poor practices from persisting for so long.

Choice

In competitive industries, transparency is a well-known driver of choice. For example, the availability of comparative information about

[4] Briscoe S. Deaths from malnutrition — the missing ONS data. Byline Data in the News website. February 1, 2011.
[5] The Mid Staffordshire NHS Foundation Trust public inquiry. 2010-2011.

supported the concept of an open NHS, even when the idea was politically controversial and the results revealed variations in performance.

Public concerns must be addressed at all stages

Although a primary goal of transparency is to empower the public, patients and their care givers may not be the key drivers of change during the first stages of implementation. More typically, it is health professionals who use the data initially to compare performance and drive improvement through peer review.

Nevertheless, it is very important that public apprehensions, especially privacy concerns, are addressed at every stage of policy development. The NHS, for example, made a point of reassuring the public that all data would be fully anonymized before it was made available for analysis.

Professional engagement is paramount

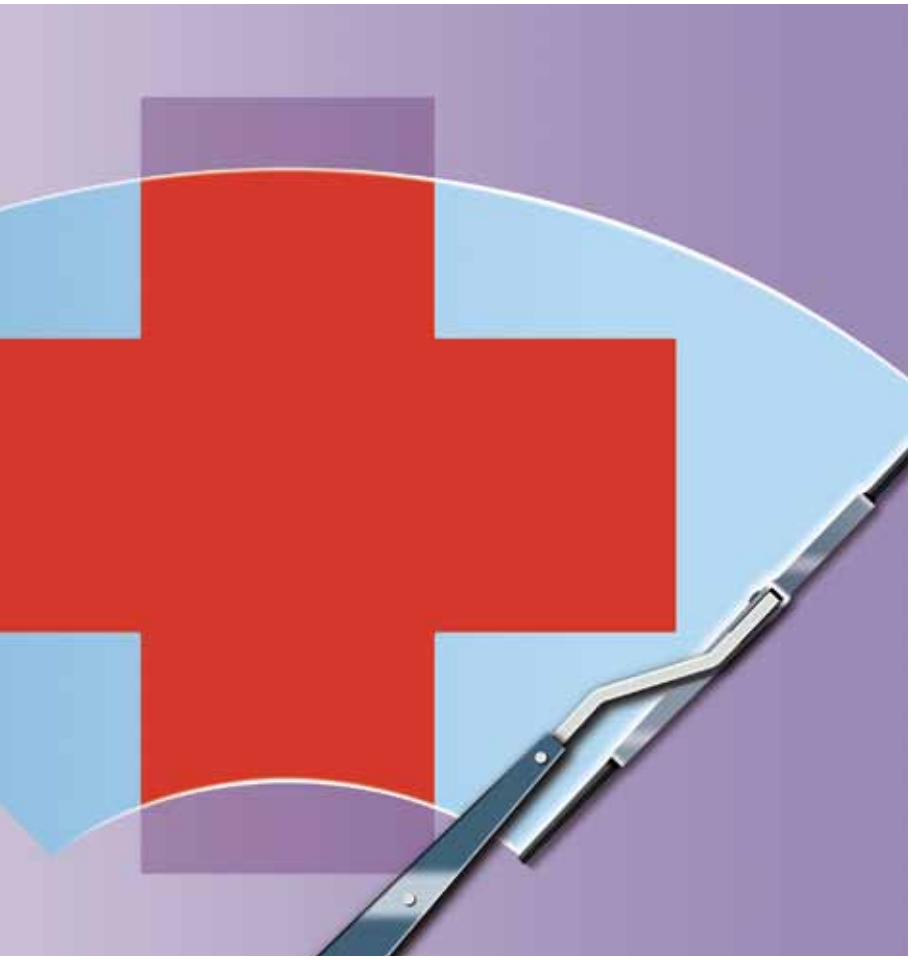
Perhaps the most important lesson the NHS learned is that any attempt to introduce transparency will be sustainable only if frontline health professionals understand the benefits of the effort. Health professionals must also be involved in designing the program's rollout. In England, for example, clinicians led the effort to identify which key metrics, such as cardiac mortality, would be assessed first.

energy suppliers and service plans has encouraged more than 100,000 UK households to switch suppliers or plans each week; customers report saving up to £200 per year by switching.[6]

Research suggests that many people would like greater choice in public services, and evidence indicates that choice can be an effective way to improve standards in many areas.[7] How often patients are using the available data when making health care decisions is not clear, though. For example, after cardiac surgeons in New York State began publishing outcomes data for coronary artery bypass grafting (CABG) in 1989, the state's CABG mortality rates fell by more than 40 percent; furthermore, the hospitals with better outcomes saw growth in their market shares.[8] Yet when former President Bill Clinton needed to undergo CABG in 2004, he selected a New York hospital with a relatively high mortality rate – an example widely cited as showing that transparency does not always produce the expected result.

"Research suggests that many people would like greater choice in public services, and evidence indicates that choice can be an effective way to improve standards in many areas."

[6] Confidence Code can help energy consumers get a better deal. Consumer Focus. December 10, 2010.
[7] Allen R, Burgess S. The future of competition and accountability in education. London: 2020 Public Services Trust at the RSA. 2010.
[8] Shekelle PG et al. Does public release of performance results improve quality of care? London: The Health Foundation. 2008.



There is better evidence that transparency influences choice in England. In Barnsley, for example, the local NHS payor gave quality awards to 14 general practices (about 40 percent of the area's general practices) because they met certain professional standards. Since 2008, when the awards were introduced, about 4,500 patients (out of a total population of approximately 75,000) have changed their registration to the practices with quality awards.[9]

In 2007, the English NHS launched a public website, NHS Choices, to publish comparative data on local services; the site currently has more than 8 million unique users per month (roughly 15 percent of England's population). Preliminary evidence suggests that the site is changing patient behavior, especially by reducing the number of unnecessary primary care visits.[10]

In some cases, however, communities have actively resisted making choices even when data has shown that the quality of local services is poor. In Truro, England, residents ran a high-profile campaign to keep a local surgical service open even after published results showed that it had an above-average death rate.

Productivity

Much of the most powerful evidence for the value of transparency as a public-policy lever comes from efforts to publish comparative productivity data. The availability of such data typically prompts organizations to deliver services more cost-effectively, regardless of whether the information is disseminated internally within the organizations or shared more broadly with the general public. The reason is simple: studies have shown that the possibility of scrutiny by peers is sufficient on its own to incentivize behavioral change.[11] Wider publication of the data often promotes further productivity improvements.

The benefits of comparative data sharing have been proved in public services. In 1999, for example, the city of Baltimore implemented a real-time comparative data tracking system called Citistat. The system was originally designed to reduce absenteeism among public employees but was soon expanded to provide a wide range of performance information about city government services. Productivity improvements ensued so rapidly that Citistat saved Baltimore $13.2 million in its first year

[9] Quoted in UK Cabinet Office paper, July 2011.
[10] Nelson P et al. NHS Choices Primary Care Consultation Final Report. London: Imperial College. 2010.
[11] Quoted in a UK Cabinet Office paper. For example, Ariely et al (2009) found that charitable donations increased if they were publicized. Burnham and Hare (2007) demonstrated that when subjects were watched by a robot with eyes, their voluntary contributions to a public-good campaign increased significantly.

"Public data reporting is as effective an incentive as financial rewards in convincing providers to improve their clinical performance."

of operation, despite its start-up costs.[12] By 2007, total efficiency savings had reached $350 million.

A growing body of literature from around the world supports the impact of comparative data sharing on productivity in health care. For example, hospitals in a number of countries, including Canada, Sweden, and Denmark, must now post their average wait times for services online. While it is not yet clear how extensively patients are using this information, evidence is emerging that wait times often decrease once the data must be posted because the hospitals take steps to improve their performance.

In several leading Canadian hospitals, internal publication of comparative data about clinician performance led to both improved productivity and better care quality.[13] The doctors whose performance was shown to be furthest from best practice tended to migrate to the average fairly quickly, and the top performers tended to improve as well (because they wanted to maintain their status as top performers). Transparency also encouraged dissemination of best practices at those hospitals. Within a few months of the data's release, average length of stay decreased by more than 30 percent, and unexpected re-admissions declined by more than 20 percent.

In England, Royal Bournemouth and Christchurch Hospitals Foundation Trust initiated a service re-design after discovering that its average length of stay for orthopedic surgery patients was twice that of other similar institutions. The re-design reduced length of stay in the orthopedic department by half and saved the Trust £1 million per year.[14]

Quality and outcomes

As some of the examples cited above have demonstrated, transparency can increase care quality. Similar results have been obtained elsewhere. For example, British heart surgeons began voluntarily publishing outcome data in 2005. By 2010, their risk-adjusted mortality rates for CABG and aortic valve replacement had fallen by more than one-fifth and one-third, respectively. Sir Bruce Keogh, medical director of the NHS, has estimated that since publication of the mortality data began, up to 1,000 lives have been saved in the United Kingdom each year.[15] A study published in the *New England Journal of Medicine* has shown that public data reporting is as effective an incentive as financial rewards in convincing providers to improve their clinical performance.[16]

Opponents of transparency sometimes claim that its effect on care quality is overstated because doctors indulge in "gaming" — they actively select the patients most likely to have good outcomes to improve their reported results. However, most studies suggest that gaming rarely occurs in practice. No evidence has emerged, for example, that British surgeons have used gaming to improve their mortality data.[17]

[12] Perez T, Rushing R. The Citistat model: How data-driven government can increase efficiency and effectiveness. Center for American Progress. April 23, 2007.
[13] Aina M, Kocher B. Achieving better patient outcomes today. *Health Int*. 2008;7:30-41.
[14] Dr Foster's Intelligence. Real time monitoring (RTM). Enabling providers and commissioners to benchmark and monitor clinical outcomes. 2011.
[15] Speech given by Sir Bruce Keogh, NHS medical director. July 7, 2011.
[16] Lindenauer PK et al. Public reporting and pay for performance in hospital quality improvement. *N Engl J Med*. 2007;356:486-496.
[17] Boseley S. UK heart operation death rates fall after data published. guardian.co.uk. July 29, 2009.

Making transparency real: How NHS regions are driving innovation

Until recently, public reporting in the English National Health Service (NHS) was largely limited to hospital data. However, a number of regions are developing strategies to extend public reporting to all care contexts. Two regions that have been at the forefront of this effort are NHS London and NHS South West. Their initiatives – the first of the kind in England – could be helpful models for health regions around the world.

Both initiatives take advantage of new, cloud-based Internet technologies and aim to fundamentally change the relationship between patients and their doctors. For example, both regions want to make it easier for patients to compare a wide range of information, from opening hours to outcomes achieved. They also seek to make it easier for patients and providers to engage with each other outside of traditional venues, such as doctors' offices and hospitals.

London's primary care program

NHS London is creating an online portal that will enable patients to easily access a wide range of information about local general practitioners (GPs). The portal, which is scheduled to launch before the end of 2011, will include standardized practice information, such as phone number and address; opening hours; the number of doctors in the practice; the GPs' names, qualifications, and special interests; and other information (e.g., extra services and clinics available).

In the future, the portal will allow patients to book appointments and renew prescriptions online; to access their medical records; and to have an e-consultation with their doctor. In addition, the portal will allow patients to view quality indicators for their GP (at the practice level) and other local doctors. Patients will also be able to give feedback and see the comments written by others.

The ability of transparency to improve clinical outcomes without gaming has also been demonstrated in other countries. In Sweden, public reporting of mortality data for myocardial infarction patients prompted the lowest-performing hospitals to institute major improvement programs; within two years, they had cut their mortality rates in half.[18] In Germany, Helios (a large chain of hospitals and rehabilitation clinics) voluntarily began to report clinical outcomes more than a decade ago. The chain has since seen significant improvements in a wide range of outcomes; for example, its mortality rate following aortic aneurysm repair has been reduced by more than one-quarter.[19]

Social innovation

In retail financial services and other industries, giving customers online access to their own records has been shown to drive down administrative costs and improve consumer satisfaction. There is no reason to assume it would not produce the same results in health care. Indeed, we believe that giving patients access to their own records is one of the key ways through which the full benefits of transparency will be achieved. At present, however, transparency's potential to transform the relationship between the health care organizations and patients — or the general public — is only beginning to be felt, because comparatively few patients have been given full access to their records.

Nevertheless, initial results are promising. For example, EMIS, a vendor that provides software to about 60 percent of the UK's general practitioners (GPs), has launched an online service that is currently used by about 400,000 patients per month.[20] The service enables them to book and cancel appointments online, obtain prescription

[18] Larsson S et al. From concept to reality: Putting value-based health care into practice in Sweden. Boston Consulting Group. November 2010.
[19] Data obtained from Helios Klinikum.
[20] Data obtained from EMIS.

NHS London has found that clinical leadership and collaboration have been essential for the portal's development. Local GPs played a central role in its design and functionality; for example, they insisted that the site allow them to publish information for themselves and to respond to patients' comments. The GPs also made sure that local care organizations and charities could put information on the portal.

According to NHS London, the resources required to set up the portal and operate it on an ongoing basis are modest. Once the portal is launched, NHS London plans to use the same approach to increase transparency into its maternity services.

South West's stroke and dementia program

NHS South West decided to focus its initial transparency efforts on stroke and dementia services, because the region has a relatively high proportion of older people.

Like NHS London, it will provide patients with comprehensive information about local service providers, as well as comparative metrics (previously available only to clinicians) about care quality.

After conducting consumer research, however, NHS South West discovered that what older patients in the region and their care givers wanted most from the new site was information about what to expect if someone had a stroke or developed dementia. Thus, that type of information will be a core part of the site. Visitors to the site will also be able to learn what local health and social services are available at each stage of the stroke and dementia care pathways, what types of assistance they should ask for, and where they can go for additional help.

NHS South West is planning to launch the site this fall. It will then develop similar sites for other clinical areas.

renewals, send secure messages to their doctors, update personal details, and review summaries of their medical history. EMIS reports that the service has increased the extent to which patients participate in their own care; at the same time, it has improved GP productivity by reducing their administrative burden and increasing the time they have available for patient care. Similar benefits have been reported by other systems that give patients online access to their records, such as the US Veterans Health Administration.

Another lesson that can be learned from other industries is the value of publicly available user feedback. TripAdvisor, for example, has been a major driver of customer service improvements in the leisure industry; evidence is emerging that user feedback could provide similar benefits in health care. Even comments posted to online forums can be used to help improve care delivery. About a year ago, for example, a patient with substance abuse problems posted a comment about how difficult it was to get prescription renewals filled on Fridays; he complained that the lack of a refill increased the risk he would re-offend over the weekend.[21] The response from the local substance abuse agency was swift: it made sure that in the future none of the prescriptions its doctors wrote would need to be refilled on Fridays.

Economic growth

As the recent McKinsey Global Institute report made clear, the increasing availability of large sets of public data is likely to lead to significant economic growth throughout the world because it is opening up a host of opportunities for private companies, as well as for governments and their constituent organizations. Some companies are investing to develop the tools

[21] Why do we end prescriptions on Fridays? Patient Opinion website. November 2010.

"Transparency has the potential to enhance accountability, productivity, and quality of service delivery; increase patients' involvement in their own care; and drive economic growth."

and applications needed to ease the use of the available data. Others are mining the data to develop ideas for new products and services or to improve the efficiency of their current operations.

In health care, private infomediaries are already helping doctors and patients utilize the data and, in some cases, are translating it into more understandable terms. Some pharmaceutical and medical device companies are beginning to mine the data to better understand where unmet medical needs exist, improve the design of their clinical trials, and search for evidence that their products are more cost-effective than their competitors' products are. Private health insurers (as well as public payors and regulatory agencies) are also starting to analyze the data to evaluate the cost-effectiveness of various treatments and thus what the appropriate reimbursement for those treatments should be.

Some providers (both public and private) are mining the data to spot disease trends, improve their supply chains, and better understand future demand for their services. Innovative companies are using the data to develop completely new products, such as automated approaches for analyzing diagnostic images and better decision-support tools for doctors and patients. We anticipate that the number of new product ideas will continue to expand as more data becomes available.

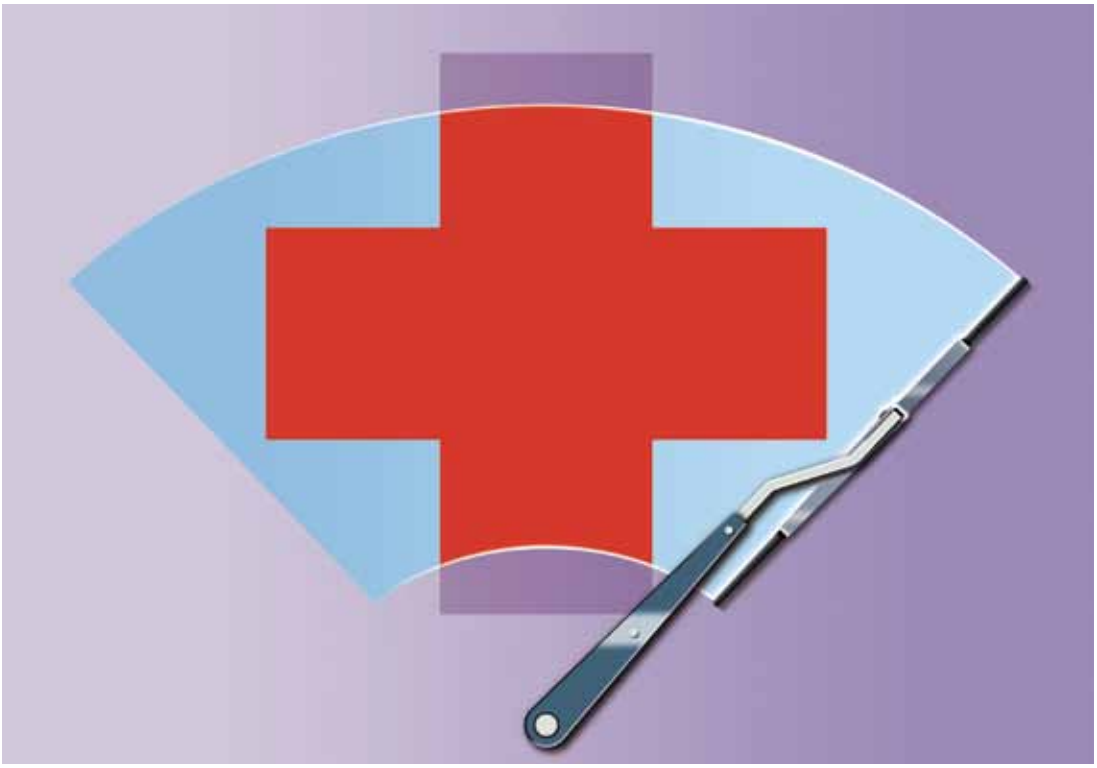
The McKinsey report estimates that the United States alone could derive more than $300 billion annually in new value through such health care-related activities. Other countries could also obtain substantial new value through public data reporting.

The risks of transparency

As valuable as the impact of transparency could be, it is worth remembering that data sharing is not without risks — and these risks need to be carefully mitigated before a transparency program is implemented. Some critics have argued, for example, that the publication of large quantities of anonymized data opens up the possibility that individual patients could be re-identified. Although there are no known cases in which re-identification occurred, the theoretical risk remains.

Publication of anonymized patient data is essential to the analysis of comparable outcomes in health care and therefore needs to be undertaken with appropriate levels of independent governance. Modern techniques of pseudonymization, which are being increasingly used, make re-identification impossible.

Another risk of transparency arises from the quality of the underlying data. Clinicians often object to the publication of performance data because they fear (or know) that the data sets that will be reported are of variable quality.



It is therefore important that when results are first published, they are accompanied by appropriately cautionary notes so that users can understand the limits of the data. Over time, transparency can help improve the quality of existing data.

Possibly the most common concern about transparency, particularly among medical professionals, is that it might incentivize behaviors that are actively against a patient's best interest. For example, surgeons could bias their reported results by treating only the patients most likely to obtain good results, not the patients who most need their services. As discussed above, however, there is no evidence that this type of gaming has occurred.

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Data transparency has already transformed a wide range of industries. We believe that it could well have the same effect in health care. Transparency has the potential to enhance accountability, productivity, and quality of service delivery; increase patients' involvement in their own care; and drive economic growth. Even if it achieves only some of these goals, it will significantly improve health system performance.

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