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## Economic Perspectives on Health Information Technology

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It is well known even to non-economists that the United States has experienced rapidly rising health care costs and an epidemic of inferior health care quality over the past decade. It is now becoming clear that, to some degree, these two phenomena are closely related to each other. In 2004, the United States spent just short of \$1.8 trillion on health care. Many are seeking ways to reduce health care spending, but given demographic changes in the U.S. population and the ongoing stream of diagnostic and treatment breakthroughs, the real questions may be about how to get more value for what is spent and how to get a more normal market for health care services. Addressing these questions underlies much of the effort by the George W. Bush administration to deal with health care services in general, and health care information technology (IT) in particular.

The mission of the Office of the National Coordinator for Health Information Technology is to execute the actions ordered by President Bush in his April 2004 Executive Order, which calls for the widespread deployment of health information technology within the next 10 years.<sup>1</sup> The backdrop for that is a variety of reports that health care has been very slow to adopt IT. FedEx knows the location of every package anywhere in the world at any point in time, yet a medical record can be very hard for a doctor to find in a timely fashion. The difference is in the use of modern information technology; hence, the administration's efforts to address this issue.

### The Cost and Quality of U.S. Health Care

Consumers bear the real cost of health care through wage offsets or through higher prices for U.S. output. This is obvious enough to economists, but what is obvious to economists may be obscure to others. The United States has enormously high health care costs, but the core issue is that it is hard for economists to demonstrate to the general population the value of what Americans get for those costs compared with what people in other countries can get for their health care spending. Despite obviously superior research and development, obviously superior access to services for those who are in the system, and obviously superior training and development of specialized services and professions, the United States does not necessarily have a superior health care system. Somehow, these core advantages do not translate into population longevity and the quality of life that health care is supposed to bring to our population. In this milieu, the Office of the National Coordinator for Health Information Technology views its role as part of a larger effort to make the U.S. economy more competitive in terms of how well our goods and services perform in a global market, and in terms of Americans' standard of living.

Over the past 10 years, the Institute of Medicine reports have put into the American consciousness the idea that health care does not just go wrong occasionally—it goes wrong all the time. Estimates indicate that up to 100,000 people die each year from inpatient medical errors, and up to two million people are injured annually from ambulatory medical errors. Today, this crisis has become apparent to many Americans—not just as dry statistics, but in the form of their life experiences or the life experiences of their family members—and has brought us into a world where issues of quality and safety resonate with the public. This nation has dealt with some of the small problems of health care, but the topic of health IT has become the catalyst for renewed discussion of big health care policy questions. Health IT is a topic that has captured the imagination of Americans—from the president to the public at large.

### The Role of Information Technology in the Health Care System

It is clear that investments in information technology in many industries other than health care have earned substantial payoffs. Dale Jorgenson

and his colleagues recently updated their work on productivity change and found that from 1995 to 2003, average labor productivity grew by 3.06 percent per year. Information technology alone contributed almost half of this, accounting for 1.45 percent per year (Jorgenson, Ho, and Stiroh 2004, Table 1). Moreover, this robust trend, and the role that investment in information technology played in it, is likely to continue for the foreseeable future.

The trend of IT-driven productivity growth has been led by industries like telecom, which clearly derive scale benefits from investment in technology. But even retail, which is an industry much more like health care in terms of its labor intensity and local customization, has seen substantial benefits. So, why not health care? Why is it that this industry has failed to realize similar benefits? It is because health care is not adopting information technology in a purposeful way. There is good evidence that if the United States were to invest in health care IT, it would realize a substantial payoff. Estimates of benefit range quite broadly, as one would expect, given the size of the health care industry and the extrapolations that these estimates require. It is estimated that savings could range anywhere from 7.5 percent of health care costs (Johnston et al. 2003; Pan et al. 2004) to as high as 30 percent (Wennberg et al. 2002; Wennberg et al. 2004; Fisher et al. 2003a; Fisher et al. 2003b). The low numbers represent the core savings that would arise from a reduction of medical errors. These numbers may seem very large, but take medical errors as one example. A medical error costs, in 2003 dollars, about \$3,700 (Bates et al. 1997), and early studies indicate that somewhere between 70 and 80 percent of those errors could be eliminated (Evans et al. 1998; Bates et al. 1998). Most of these are prescribing errors, whereby the patient ends up getting the wrong drug, the wrong dose of a drug, or the right drug given at the wrong time. Such errors lead to a variety of consequences, including further diagnostic evaluation of the patient and additional treatments. They can also result in serious complications that require additional interventions and may even result in death. Unfortunately, \$3,700 is a lot of money—except in health care, where it buys just a few lab tests and maybe an imaging scan and a half-day in the hospital.

Reducing medical errors can save up to 7.5 percent of our health care expenditures. Going beyond this, up to the 30 percent savings, requires a much more substantial transformation of care delivery that goes beyond

simple error reduction. It requires the industry to follow the best diagnostic and treatment practices everywhere in the nation. For example, cholesterol screening can lead to early treatment, which in turn can reduce the risk of heart disease. Where that has been done, there have been substantial savings on cardiac expenditures. Investments in mammography to detect breast cancer at early stages incur substantial up-front expenditures but realize substantial long-run savings. There are many examples, including asthma, diabetes, and lung disease—some of the major killers of Americans. The transformation of care delivery and the achievement of savings of up to 30 percent represent the potential for what could be realized if health care undertook a large-scale industry restructuring. These are big savings, but they also require remarkable changes in the way the industry operates.

### **Interoperability**

The Center for Information Technology Leadership in Boston recently conducted a study demonstrating that if the health care system were interoperable—that is, if patients' information were shared across health care settings so that personal health information seamlessly followed any patient through various settings of care—\$77 billion would be saved annually (Pan et al. 2005). The methods used in this study were conservative, so this is a lower bound for the economic benefits of interoperability.

Interoperability is becoming increasingly important in a world of increasing health care specialization. In fact, most consumers receive care from multiple different health care organizations: a laboratory, a pharmacy, a physician's office, a specialist, a hospital, and more. But the data are held by each one of these organizations and shared only via the manual exchange of paper. There is no concept of portability of an individual's information. People do not really have longitudinal records unless they, like many Americans, keep their own set of records. And The Kaiser Family Foundation reported recently (The Kaiser Family Foundation, Agency for Healthcare Research and Quality, and Harvard School of Public Health 2004) that 32 percent of Americans carry their own version of a personal health record (for example, from the

Henry J. Kaiser Family Foundation, the Agency for Healthcare Research and Quality, or the Harvard School of Public Health) because when they show up in a clinical setting like an emergency room, they do not want the doctor to rely on guesses for decisions: Why was an ambulatory surgical procedure performed last week? What is this little blue pill? And, why is it taken? These consumers also do not like to report to a doctor's office or hospital and fill out the same form multiple times or run the risk of having clinicians fail to understand allergies or other things that have already been tested for or examined. Currently, as soon as a patient arrives at a hospital, a battery of tests is performed regardless of whether they have been done previously, because clinicians have no way of knowing what has already been done.

Eliminating this inefficiency and frustration through interoperability represents a significant challenge. It does not, however, require magical changes in the business processes or culture of health care to be realized. It is really about obtaining data by calling it up on a computer system rather than waiting for medical records to be delivered.

Imagine the circumstance of a physician trying to deal with a complicated, life-threatening condition (such as immune deficiency) that has substantial turnover of knowledge on a month-to-month basis, and sorting through a banker's box of photocopies of physicians' impenetrable handwriting. This is routine health care every day—for every doctor, for every nurse. Thus, it is no big surprise that there are substantial potential savings from interoperability, because what it stands for is the definition of a standardized record and the hardware and software that enable portability—and \$77 billion in savings.

### Computerized Physician Order Entry

The Center for Information Technology Leadership also did a study on the use of computerized physician order entry (CPOE), which corroborated findings from a number of other studies (Johnston 2003). They estimated that if physicians used computers to order tests in their outpatient practices, our system would save \$34 billion per year. Consider the following reasonably likely chain of events: The physician writes a patient a prescription. The patient goes to the pharmacy, which informs

her that the drug is not in her health plan's formulary, so she will have to pay \$125. She says that she does not want to spend more than \$5 and is sent back to the doctor for a different medication. The doctor gives her a new prescription, but then the pharmacist asks her the magic question that the doctor did not: Is she allergic to this? If she says yes, she has to go through the whole process over again. If they do not ask her, she could have a dangerous episode from a drug reaction, and could be sicker than she was before her treatment. By using a computer to order drugs, a physician can determine which drug is best for the patient, the safe dose of the drug, whether the health plan will pay for it, whether the patient has allergies or potential interactions with other drugs that she is taking, and can transmit the prescription to the pharmacy without handwriting errors—all in real-time while the patient is with the physician.

Prescribing a drug using computerized systems has value. But this is only one example of how value can be realized from the use of information tools in health care. And this value accrues both to consumers, who are safer and less hassled, and to America's employers. The Center for Information Technology Leadership estimates that 89 percent of the economic benefits of computerized order entry accrues to the holder of financial risk for health care—most often the large employer (Johnston et al. 2003). This is why so many large employers are looking at how they can support health IT adoption.

### Barriers to Health Care IT

Now, if health care IT is such a great thing—making lives better, lives safer, saving money—why is it not being done already? Why does the president have to appoint someone in an official role to go out and get this done? Why can't the market address this on its own? And why is it that economists and others have meetings about this? The reason is that health care IT faces a very challenging economic milieu, one aspect of which involves the externalities of quality. The benefits of IT accrue to payers, and not to providers who make health IT investments. This is because our system pays for volume and not for quality. It pays for a doctor's seeing a patient, or a patient's stay in a hospital bed, or the performing of a lab test, or the taking of an image. It does not pay for making lives

better, more pain-free, longer, and more productive. It pays for quantity rather than quality, because the payment system in the United States was developed in the 1960s when it was not possible to measure the final economic or health status value of health care investments. There were no data, and there was no theory of outcomes then. Without any of these pieces, reimbursement focused on the intermediate product, which was: “Did the patient see a doctor?” It did not even pay based on whether the treatment was appropriate for a patient’s condition. It just paid based on whether a doctor did a test or evaluation or procedure of some type. That payment system is still here today, and it actually preserves incentives for poor quality. One example is hospital reimbursement that is based on “diagnosis related groups” (DRGs), a case-mix classification system that groups together patients who are similar in terms of diagnosis, treatment, and consumption of hospital resources. The intent of DRGs in billing was standardization and efficiency. However, DRGs were also seen, when they were invented in the 1970s, as potentially harmful to tertiary hospitals and other referral centers. These hospitals often receive patients with medical conditions that make their cases more complicated than those of the typical patient. These admissions are paid a higher-revenue DRG. For example, rather than a DRG’s paying \$17,000 for a heart attack admission, a complicated DRG might pay \$32,000 for a more complicated situation. There is a catch, however. There is ambiguity in the definition of complication. A hospital gets paid the higher amount for a patient with complications regardless of whether the patient was admitted with the complication or the case became complicated by a mistake that the hospital itself caused. The patient might start out at a hospital with a simple DRG, and if that hospital caused an error, it would be paid an extra \$15,000. This is just one example of how the incentives for quality in our current health care system encourage poor quality.

In today’s health care market, high quality and improved patient health status comprise an externality that is not factored into the profit or margin. To develop incentives for quality, this externality must be incorporated into the cost of health care production. This is why pay-for-performance initiatives, which align what is paid for with the value that is realized, are so important. However, the challenge is that for this to work as it should, health IT must be in place to measure health status, so that

pay for performance can be implemented. On the other hand, there is no incentive for IT investment unless pay for performance or a similar incentive program is in place. This is the core of the market failure for health care. Trying to create the economic milieu to make the IT investments that are needed and, on the other hand, making sure that value is derived from these investments is a very delicate policy effort.

A second challenge to health IT is that there is a negative network effect for early adopters. This situation is similar to that of the adoption of the fax machine. The first person to install a fax machine had no one else to whom to send a fax. The last person to buy a fax machine could connect with everyone else. The electronic health record is very similar. There is a significant first mover disadvantage—there is no one else who can exchange and share data, and there is no infrastructure to which an electronic health record can connect. Only a very few, very large, well-financed, high-market-share health care systems can follow a go-it-alone strategy of health IT adoption. Thus, the policy challenge is to get a critical mass of health IT adoption so that this nation can move forward. The reasoning is that once health IT adoption reaches the 40 to 50 percent range, market forces will take over, because health care IT will become a requirement for doing business. Therefore, network economies can work as these challenges are met.

### **Competitive Threats as a Consequence of Health Care IT**

Those are some of the barriers, and they are very large. This economic milieu creates risk for other adverse scenarios as well. One such scenario is a health IT adoption gap. There is strong evidence that very large health systems are adopting electronic health records, bar-code scanning, data mining tools, and various sophisticated IT applications that are on a par with tools in any other industry in the United States. Large systems—hospitals of more than 400 beds or physician groups with more than 50 physicians—have about a 60 percent chance of putting these technologies in place today. However, small groups and small hospitals have about a 10 percent chance of adoption. So this gap is large, and it is very real.

Today, there are examples of completely automated pharmacy systems that extend from the warehouse to the robotic delivery system on the

floor of a hospital, bar-code administration systems for the caregiver, and prescription systems that transmit prescriptions directly to the pharmacy. These are state-of-the-art supply chain management ideas applied to the very complicated health care industry. It is remarkable, and it is also incredibly expensive. Who is doing it? Large, well-financed health care systems. They are often paid the same way as small hospitals and physician offices, on a volume basis, so they have the same negative pro forma that is endemic in health care. However, they get strategic benefits that small health care systems do not. These strategic benefits include better market position, better control of costs, stronger outreach to consumers and physicians, better negotiations on health plan contracts, and many other forms of market power. Thus, a primary concern is that the adoption gap, whereby large health care systems are adopting IT but individual doctors and small hospitals are not, can lead to substantially new forms of pressure on health care costs that arise from lessened competition and even from the potential abuse of market power. This adoption gap, with its potential for concentrating market power, is a threat to the vision of having IT open up new forms of health care competition around quality, which, for the patient and the economy, would lead to a much better, more efficient allocation of resources in the market.

The other challenge is that information on patients is treated as a proprietary good. While federal law suggests that medical information on a patient belongs to the patient, it does not quite say that: policy is unclear about who owns the data. Patients can clearly have access to their data and see the data at any time; they can see who saw the data; they are entitled to privacy protections; and they are entitled to giving consent at some point in the process of determining when their data are shared. However, on a practical basis, when patients try to move from one doctor to another, their information does not necessarily follow them. It is risky for a patient with ongoing medical conditions to change doctors or to come to a hospital. This issue of treating data as a proprietary asset of the health system (as opposed to an asset of the patient) is at the very root of some of these challenges. This is the basis of the need to create interoperability—the need to establish truly portable data flow. Whether through new policies, new infrastructures, or both, the concept is simple: when patients show up in any location, unless they choose otherwise, their data

should be there, too. This is happening in Indianapolis and a few other areas. When a patient arrives in an emergency room in Indianapolis, with a swipe of a card doctors or nurses can see all the relevant lab data, hospital visit data, and pharmacy data. This is only one of many regional projects underway to share information. These health information exchange projects have remarkable life-saving capabilities, and they are reducing the need for preventable hospitalizations. This is the beginning of true consumer portability that will underlie a real consumer market.

Consumers need that same capacity to measure quality. What happened with Doctor X or Hospital Y? Did they do well with their procedures or not? To have a market built around consumer choice, there must be comparative information so that people can make choices. It is not enough to flip a coin or go to a neighbor to ask which is a good health care system. It is important to examine information on treatments (specifically, treatments for people with similar conditions); it is important to ask how well doctors and hospitals have done on metrics (specifically, on metrics that matter to the patient). If a patient is a diabetic, the physician should know to look at hemoglobin A1Cs<sup>2</sup>—as well as eye exams, foot exams, and kidney functions. If a patient is going to be treated for a heart condition, she or he will want to know about mortality rates and other relevant outcome measures.

Today, only a small fraction of consumers change their behavior based on data. Part of the reason is that the data available today are incredibly abstract and very old. They are not state-of-the-art, current, clinical, useful, timely data. For consumers to make informed choices, they need timely, convenient access to improved data on health care quality.

It is clear that this nation has a lot at stake in terms of keeping the health care market from becoming concentrated and proprietary. The experience of other industries has shown how having detailed production data can change industry power and industry structure. Every consumer should be able to have an electronic health record and know how to use it. There should be financing support for this, and a variety of approaches should be considered to make this a reality: top-down, bottom-up, or lateral maneuvers. Some payers are supporting this effort, but not enough. Interoperability must be put in place so that the market can operate in a natural way—around the free flow of information, as directed by

the patient. The federal government is following suit as well. Today, a huge burden is imposed on the private sector by various federal agencies collecting data from doctors, hospitals, labs, and pharmacies—in the name of public health improvement, bio-terrorism, and the monitoring of adverse events. However, these efforts are piecemeal data collection activities that largely collect the same data over and over again using various different formats and standards. Clinicians and providers should be able to send patient data once, and then the government should figure out all the different uses for which those data are valid and ensure that privacy protections are in place to keep the data from being abused.

There is a long way to go, but a lot is at stake. This issue has great resonance, because it is one of the few things in health care for which there is both a well-defined problem and a well-defined solution. This is why there is bipartisan support and why the president is taking leadership on this: because it is a challenge on which everyone seems to agree that there is something positive that can be done.

There are, however, challenges involved. Let me enumerate and address a few of them. One of the challenges is figuring out how we can enable consumer choice in a meaningful way without imposing undue risk. I have to acknowledge that I do not believe that the presence of IT will magically resolve this. We need to recognize that there are two modalities for the market that will probably live side by side. One is that there are incredibly well-informed consumers who want to have the shackles taken away and want the freedom to make their own decisions. I spend time talking with them, and I marvel at how much more they know about medicine and about their treatment options than any doctor they have ever seen. This small group will probably go out and define what a true consumer market in health care is about. But by no means is this modality a mass-market phenomenon. Health care, and the health care system, is too complicated. I think many people live in denial about health care issues. For the people who do not want to be bothered with health care issues, consumer choice will be expressed through an agency-mediated market, the other modality. One of the things that I very much want to see is primary care physicians' continuing to evolve back to where they were in the 1950s, as agents and advocates for patients who are trying to sort out their options. I think that typical patients need an agent

whom they trust to act on their behalf and help them navigate among the options. Physicians are being nudged back in that direction, and I am very encouraged by that. So I think that these two modalities will be successful. However, the main question ultimately will not concern these modalities. Rather, it will be about what we do to protect those who fall into the crevices of this new, high-risk world of health care. That is a policy discussion that is yet to be held.

Another challenge involves successfully implementing health care IT, so that both the implementation phase and the operation phase are cost-effective as well as effective. In many industries and firms, purchase of IT proved to be a waste of money because the technology was not used effectively—what was implemented was the wrong IT solution, was overly expensive, and left users without a clue as to how to use it. How can this be prevented in health care? This challenge involves picking the right product, contracting for it in a meaningful way, implementing it well, and deriving value from it. This is my simplistic summary of the life cycle of business transformation. Health care fails on every one of these steps. For example, there are 300 electronic health record products on the market that I know of, and that does not include all the home-grown products. Health care providers buy the wrong product virtually all the time. There is no price transparency around products, so, literally—particularly for small practices—you spend a lot more per unit feature than you get back in terms of value added. Physicians do not know how to contract for these technologies, so they almost always take unnecessary risks in their contracts. And they do not know how to implement. More important, in the end, most small hospitals and physicians' practices see themselves as purchasing software rather than as making decisions to reengineer their businesses. Now, those of you who have been to a small doctor's office know that reengineering it probably does not make sense, because it is clear that it was never engineered to start with. But still, by investing in IT, these offices are enabling fundamental changes in how decisions get made, how communication occurs, and how the work flows; and they do recognize the potential. This is one of the reasons that we have been trying to raise awareness that implementing IT is about changing the way care is delivered toward a more team-based, collaborative care environment, where the patient is more involved in decision-making and we are



able to be more forward reaching. This is really what is at stake for most practices, not whether the physician keeps notes on a computer.

A third challenge concerns managing the impact of email on health care costs. If you talk to people in payment policy in the federal government, they will tell you that physician-patient email is one of the new ways that health care is going to lose more money. They contend that if physicians would get paid for those email visits, the patient would come in anyway. In the private sector, however, there is pretty good evidence that there is a good substitution between email visits and patients coming in. Moreover, from the perspective of a physician's office, it is great to do email with patients because they substitute for phone calls. The problem of phone calls is that if somebody calls you, you either stop what you are doing and take the call or call them back. You call them back; then they have to stop what they are doing. Phone calls are synchronous; email is asynchronous: we can collect it and do it at the end of the day when we want to. Moreover, the way most of the email systems work for doctors is that whenever the patient's email pops up, so does his or her medical record, so you have everything you need, right there at your fingertips. I am a very strong proponent of physician-patient email, so long as it is secure: it cannot be just general email. However, we have a way to go in terms of convincing actuaries that, in fact, email is at worst a wash and probably a benefit. But I think that a recent article by Milt Freudenheim in the *New York Times* (Freudenheim 2005) is right: this is a wave that you cannot stand in front of, because it is good for patients and it is good for doctors.

A fourth challenge is how to protect massive databases on patients from the threat of abuse. I have strongly advocated that there not be a central database that can be accessed by unknown people. However, making data available electronically to the doctors, hospitals, pharmacies, and laboratories—to people who have access to the data anyway—is one of the key things that we have pushed forward. Right now, every doctor, lab, hospital, and pharmacy is involved in data exchange about you. I do not know if any of you have ever tracked where your data go, and when and to whom, but it is an incredible, astounding experience to realize how much paper flows around the health care system with your name on it. The point that we are raising is that we need to accomplish

that information flow electronically, rather than on paper. We get much more value from it when it is done electronically, and the process turns out to be more secure. For example, if you went to Kaiser Permanente or any of the other major electronic health record implementations that are now paperless, the front office clerk who registers you and does some of the basic administrative work can see only your demographic data—your name and address and some basics. It used to be that the record was sitting there and they could flip through it and see anything they wanted. Second, doctors who are not treating you cannot see anything. It used to be the case that you could go into the medical records room and see anybody's results any time. Third, there is a log file of anybody who looks at your record electronically. So, when a very famous baseball player was admitted for a rotator cuff repair to a hospital in New York a few years ago—I will not say who it was—that person's test results were looked at 7,000 times. Now, you might say that was a horrible failure of electronic health records, but, in fact, 6,940 people were disciplined and a few people were fired over that, because we were actually able to keep track of who had seen the data. So, I think part of the calculus is showing the American people that keeping paper records is a very bad privacy deal, and that electronics give us a hope in this regard. However, I also think there will have to be more beefing up of the privacy infrastructure. Ultimately, we will end up in a world—and this is just my opinion, not a policy advocacy—where we clearly state: these data belong to you as a person, and you decide who gets to see it and when they see it. The data could be held by a trust or something similar by you; and you could, by swiping a card or going online, make it available to people. We are not there yet, but I think that is where we are going to end up.

A fifth challenge is how to store the data so that we preserve important opportunities for research, while abandoning, for reasons of personal security, the idea of creating a giant, centralized patient database. I think there is a legitimate reason to pull together data that have been rendered anonymous, to enable us to judge the efficacy of practice, or to measure physician or hospital performance. However, the people who hold patient data should be obliged to ensure that data going into research databases be made anonymous before it ever leaves their doors. What I do not want to do is create a new entity in the market, with rights and

responsibilities other than health care, that can decide whether or not your data are private. We want to keep the responsibility for the privacy of patient data at the periphery of the network, with the decision-makers who already have the legal obligation to protect your privacy. If the information leaves them via electronic means, it should be either in order to go to someone who has a legitimate clinical reason for having the data or for a research or evaluation purpose, in which case the data would be rendered anonymous before it ever left. Now, will that work? I think society needs to have that debate, but that is my view. If health care data are not privacy-protected from day one, we cannot even convince ourselves—let alone the American people—that an electronic approach is a safe bet.

A sixth challenge is addressing cultural barriers that are likely to impede the meaningful introduction of IT to the health care system. These barriers exist in different forms among the various stakeholders. Let us look first at doctors. While many other physicians and I are enthusiastic supporters of IT in health care, I can find a great number of my peers who are mystified by computers, who do not want to expose the fact that they do not know how to type or hold a mouse, or who have been ordering the wrong dose of the same drug for 20 years and do not want a computer pointing it out to everybody. I am sorry to say this, but there is good evidence that much of this reluctance is basically age based.

Second, in health care we have enormously complicated environments of production in terms of the number of decision-makers who are involved, the number of processes, and the lack of a well-defined process. No other industry could operate in the United States with such a poor definition of what its output is. Moreover, we have economic free-rider problems in terms of how we are paid. So, I think we have organizational, individual, and economic barriers to making the industry efficient and customer-responsive. In many ways, health IT is just the name we give to the policies and the economic conditions necessary to bring the industry into the twenty-first century in terms of having modern business processes. It is not so much about the IT as it is about the economic milieu of the industry and what that means to its culture.

There is an old saying that I learned at the Wharton School: “Culture eats strategy for lunch.” Well, I think that culture eats policy for lunch, too; and it is very hard to devise policies that push the industry forward

and do not backfire and turn into mandates. IT-based changes will be unprecedented in terms of the complexity of the industry. On the other hand, in a recent global conference in Australia, it was clear that this push towards computerization is happening in every modern health care system in the world; Australia, Britain, Germany, India, Japan, and South Korea are all dealing with exactly the same issues. Some, such as the countries of Northern Europe, are ahead of the United States; some lag behind. However, all countries are going through the same thing because of a tidal wave of consumer awareness about death from preventable errors. Moreover, the sense that we can now deal with it is not just an American phenomenon. Thus, I think there is something that is a root cause of what is happening here and around the world. This gives me some optimism that, just on a cultural basis, health care is now ready to absorb massive structural change.

Finally, there is the challenge of countering the tendency to use health care information asymmetrically to discriminate against high-cost consumers. My view on this is that health care information is already being used asymmetrically. Your health plan knows basically what it needs to know. Most health plans have now started bringing lab values into their stratification and analysis that feed into their actuarial functions. Most physicians who are at risk take into account population characteristics and may select away from certain types of cases to avoid patients who may be a cost or risk burden. I think we live in a world today that is asymmetric, and the reason is that the paper process favors those organizations that can afford to make intelligent use of an incredibly difficult information asset—paper. Those who cannot, that is, the retail consumer or the simple doctor, are disadvantaged. To me, the value of making health care information electronic and standardized is that it can flow more freely, lowering the transaction cost of using the information so that it becomes more widely available to consumers and health care providers. That is, introducing electronic data flow to the health care system reduces asymmetry.

One way or the other, we are well into a world in which access to information is asymmetric, and I think it is going to get a lot worse with large health systems starting to get a leg up in markets as they negotiate rates. One concern is that big health systems will start to raise prices



because they know that they control a large enough network. I think this is a sleeper issue that will start showing up next year. For me as a physician, I see both value and waste in health care. On the one hand, I see fundamental, wonderful innovations that extend people's lives. And let's be honest, health care is the only industry that can make our lives longer. On the other hand, I cannot be proud of the fact that prices and costs are going up in health care because of oligopolistic pressure resulting from someone's now owning a high share of a market, and that is where I think we are headed. That is Asymmetry 101. We will see how it plays out, but I think that if we do not level the playing field for information access, we are going to face serious negative consequences.

■ *This paper is an adaptation of an address delivered at the NABE 2005 Washington Economic Policy Conference at a session sponsored by the Altarum Institute. A similar version appeared in the July 1995 issue of Business Economics.*

## Notes

1. The precise mission statement and executive order may be found at <http://www.os.dhhs.gov/healthit/mission.html>. Accessed October 9, 2007.
2. A test for A1C, also known as glycated hemoglobin or glycosylated hemoglobin, that indicates a patient's blood sugar control.

## References

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