

Policy Forum ■

The Federal Role in the Health Information Infrastructure: A Debate of the Pros and Cons of Government Intervention

The Practice of Informatics

JAMIA

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Abstract Some observers feel that the federal government should play a more active leadership role in educating the medical community and in coordinating and encouraging a more rapid and effective implementation of clinically relevant applications of wide-area networking. Other people argue that the private sector is recognizing the importance of these issues and will, when the market demands it, adopt and enhance the telecommunications systems that are needed to produce effective uses of the National Information Infrastructure (NII) by the healthcare community. This debate identifies five areas for possible government involvement: convening groups for the development of standards; providing funding for research and development; ensuring the equitable distribution of resources, particularly to places and people considered by private enterprise to provide low opportunities for profit; protecting rights of privacy, intellectual property, and security; and overcoming the jurisdictional barriers to cooperation, particularly when states offer conflicting regulations. Arguments against government involvement include the likely emergence of an adequate infrastructure under free market forces, the often stifling effect of regulation, and the need to avoid a command-and-control mentality in an infrastructure that is best promoted collaboratively.

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At the 1995 Annual Meeting of the American Medical Informatics Association, the American College of Medical Informatics organized its second, biannual debate, which once again brought the meeting to a close. Edward Shortliffe, Past-President of the American College of Medical Informatics, organized the debate and served as moderator. Each debater offered a prepared statement of up to six minutes and, after an opponent's statement, a rebuttal of up to three

minutes. What follows is an edited transcript of that debate, including some of the comments and questions from the audience that followed the formal presentations and rebuttals.

Introduction

Dr. Shortliffe

Resolved: Free market forces, unfettered by federal government intervention or regulation, are adequate for providing appropriate deployment of the national information infrastructure in support of health and healthcare.

The topic of this debate is self-explanatory. It was selected because of frequent discussions in the informatics community regarding barriers to effective deployment of the National Information Infrastructure (NII) in support of health and healthcare. Some observers feel that the federal government should play a more active leadership role in educating the medical community and in coordinating and encouraging a

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more rapid and effective implementation of clinically relevant applications of wide-area networking. Others argue that the private sector is recognizing the importance of these issues and will, when the market demands it, adopt and enhance the telecommunications infrastructure that is needed to produce effective uses of the NII by the healthcare community.

In favor of the resolution, are Mr. Chris Caine, Director of Public Affairs for IBM Corporation, and Dr. Howard Bleich, Co-Director of the Center for Clinical Computing at the Beth Israel Hospital and Harvard Medical School. Opposed to the resolution are Dr. Don Simborg, Founder and President of KnowMed Systems, and Dr. Dan Masys, Director for Medical Informatics at the University of California, San Diego.

Opposing Statement

Dr. Simborg

Today's problems in deploying the NII in support of healthcare exist because we have had too little government intervention, not too much. Therefore, I oppose this resolution. This debate is not about whether the national information infrastructure in healthcare will be run, funded, and operated by private industry. It surely will be, and it surely should be. This debate is also not about whether the federal government can make mistakes. It surely can. This debate is about whether the federal government, and only the federal government, can play a selective but critical role in achieving our goals. Dr. Masys and I will outline for you five areas in which the federal government not only can play such a role but must play such a role if our shared vision of the role of the NII in support of healthcare is to be achieved in a timely fashion. Without these critical areas of intervention and regulation we will miss a historic opportunity. Free-market enterprise, left totally to its own resources, cannot fill these needs. These five areas are: first, developing standards; second, providing funding for research and development; third, ensuring the equitable distribution of resources, particularly to places and people considered by private enterprise to provide low opportunities for profit; fourth, protecting rights of privacy, intellectual property, and security; and lastly, overcoming the jurisdictional barriers to cooperation, particularly when states offer conflicting regulations.

This debate could pivot on one's interpretation of the term adequate as used in the resolution, for certainly, even if the federal government avoided any involvement in NII deployment, something would emerge that our opponents might call "adequate." There are antigovernment ideologues who would say that anything is better than having the federal government in-

involved. However, we could not have a reasonable debate today if we took such an approach. On the other hand, if we could all simply agree that there are some minimum requirements that we need to impose on this information infrastructure, capabilities that would at least allow us to exchange patient-related data across the country for purposes of patient care, then even that minimum begs for federal intervention.

First, let us consider the topic of standards. I believe that my worthy opponents would agree that we are not meeting even the minimal vision of the NII's potential role in healthcare. This minimum requires, first, that we have the ability to identify an individual person uniquely and consistently. If we have any hope of connecting electronic records safely and effectively across institutions, we need a national personal health identifier that will stay with each of us from birth to death. Only the federal government can give us such a national identifier, and that point alone probably ends this debate.

But for data exchange among hospitals and providers, we need more than the creation of a simple identifier. The data exchanged must also have a consistent meaning across institutional, regional, and state boundaries. I think many of the audience are aware of my own personal role in creating HL7 and supporting other standards for health data exchange as well. All of that work was accomplished without federal intervention. Five years ago, I think I would have been on the other side in this debate. I, of all people, do not want the federal government to define standards for healthcare. But, friends, at the rate we are going, we are not going to get there in our lifetime or in our children's lifetime. We simply are going too slowly. It is time for the federal government to intervene as only the federal government can intervene—not to overturn the good work done by private, voluntary industry, but to get us past those last, incorrigible barriers of professional parochialism and proprietary vendor self-interest. The needed intervention is not for the government to set the standards but, rather, for them to convene the key players and to mediate. It is through the impetus of our federal government, providing its nonproprietary encouragement, influence, and funding, that we are likely finally to come together as an industry. That approach would provide our best assurance that the federal government would not need to act as a standard setter.

I mentioned funding. Surely our opponents do not want us to stop the critical role that the federal agencies have played by funding basic research and development, including in the area of information systems. We need more of that funding, not less. But let

me tell you, as an entrepreneur and vendor, I have never been as impressed as I was recently when the federal government provided demonstration dollars that required us to cooperate. Suddenly I saw vendors come together and cooperate with one another. Such funding is not just sending unconstrained money to industry; it is a leveraging tool that has been shown to be very effective.

Today's debate is not about government control. No one wants that. Private industry will build the information infrastructure. But we do need the federal government if we are to overcome the barriers to its equitable and effective use. This debate is about what will work. What works is a balance between the government and private industry. I have touched on only two of the five areas I outlined earlier, the standards and the funding. Before we are finished, Dr. Masys is going to speak on the important areas in the regulatory arena as well.

Rebuttal to Dr. Simborg's Statement

Mr. Caine

Let us reflect a little bit on what you have said. The resolution says, "Are market forces adequate to develop and deploy a national information infrastructure on behalf of, and in support of, health and health-care?" It seems to me that we already have a national information infrastructure today. The NII exists, and it is not something that has to be created. You make it sound as though it is going to be created next year or in two years and that it will be created properly only if the government is involved and leading the charge. The dilemma with that perspective is that the resolution is not talking about an NII that is perfect but rather about an NII that is adequate. This is not to say that we should not strive for perfection, but the last time I checked, the government does not do very many things perfectly.

You also talk about the need to achieve a minimum vision. What precisely does that mean? You mentioned five issues that the government needs to help us address: standards, funding, equitable distribution, privacy rights, and jurisdictional barriers. When we talk about standards, we need to talk about who is best able to bring people together to agree on what is in their interest, since the development of standards is a consensus-building process. I would personally prefer to have all stakeholders sitting around the table with equal voting rights than to have the government playing a federal mediation role while they simultaneously have the final say on whether the Health Care Financing Administration uses one form versus another form. I think that the real question is whether

you want dominant, robust standards that bubble up from the marketplace, with the government being no more than an interested observer.

Let me emphasize that what we are talking about is not perfection but adequacy. The audience needs to keep that in mind. We have an infrastructure that exists today in early form, and there are many people who are interested in making it better. Thus, the real question is whether private-sector participants will produce an enhanced national information infrastructure faster if they are given the opportunity to work on it in response to market forces and creativity.

Supporting Statement

Dr. Bleich

Let us talk about the difference between a free market and a government-regulated market. I will define a free market as one in which consenting adults may buy and sell goods or services under any circumstances to which they mutually agree. Unless their transaction affects some third party, in a free market there is no role for government in the transaction. In contrast, in a regulated market, certain transactions to which the consenting parties agree are banned by the government.

The free market is not perfect. Your car could break more than mine, even though you take much better care of yours than I do of mine. A free market is not fair. Life is not fair. In many cases there is nothing we can do about that. But I would argue that, on balance, the free market does a better job at protecting the quality of the goods and services at affordable prices than does any other mechanism known, and certainly better than government regulation.

Regulation is not new, and before we introduce more I think we should examine our experience. What is the history of regulation? Moses dictated respect for one's parents, and he banned murder, stealing, adultery, perjury, and coveting. Notice the strong moral basis for each of his commandments. Moses wrote these commandments (along with four others) in 173 words. The Lord's Prayer has 79 words. The Sermon on the Mount has 143 words, and the Gettysburg Address, 286. Jefferson, in disobeying a major law that said you cannot rebel and secede from British rule, not only had to justify violation of this law by appeal to natural law, but he also elected to categorize the sinful and oppressive behavior of the king. Yet he wrote the Declaration of Independence in only 1,322 words.

Today, we do not have Moses ben Amram, Jesus Christ, Thomas Jefferson, or Abraham Lincoln writing

our regulations, nor do we have people who write civil codes derived from moral truths. Rather, we have federal regulations that, with few exceptions, seem to serve special interests rather than the public interest.

For example, we have a regulation that bans the sale of potatoes produced in five Western states in the East Coast market when these potatoes are less than a certain size. The preamble of that regulation states that it would be important for restaurants on the East Coast to preserve the reputation of these five Western, potato-producing states by serving potatoes of adequate size. Now, I would agree that when an overweight, cigar-smoking tycoon sits down in an expensive Boston or New York restaurant, it would be suboptimal if he had to eat a small potato. But I do not see why the federal government has to get involved. What are the effects of this regulation? Number one, the small farmer, who cannot afford the automatic machinery needed to sort potatoes by size, is effectively out of the East Coast potato business. The big farmer, who can afford the expensive machine, now facing less competition, can charge higher prices for potatoes, which you and I have to pay. And poor people, who would have had the time to peel the low-cost, small potatoes, now go hungry.

Federal regulations for the sale of cabbage exceed 100 pages, not counting 23 new regulations that have just come out. The Americans with Disabilities Act takes 66 pages to define what is meant by a disability. It takes the Pentagon 14 pages to specify what they mean by a fruitcake. The specifications for the C5A cargo plane weighed 3½ tons. It has been said that an elephant is a mouse built to government specifications. The Internal Revenue Code, the rules and regulations that direct our income tax payments, takes more than 1,000 pages. There are 480 forms plus another 280 forms that explain how to fill out the 480 forms. The code has tricky arithmetic and complex instructions. Few people have read it, and I doubt that anybody can understand it. According to ABC news, the IRS has 115,000 employees and spends \$7 billion a year. It takes American citizens 8 billion hours at a cost of \$140 billion just to comply with these regulations. As a nation, we spend more time filling out our income taxes than we spend to build every car, van, and truck made in the USA.

This would all be fun if government regulations did not have serious consequences. There are 52 major government regulatory agencies. In 1993, the new rules and regulations, published in the Federal Register, numbered 68,688 pages, weighed 250 pounds, and stood 16 feet tall. According to David Lipmann of the Manufacturers National Bank, in 1990 the cost

of these regulations was \$562 billion, mostly in the form of higher prices for goods and services. That is about \$5,934 per household. And some people want more!

Rebuttal to Dr. Bleich's Statement

Dr. Simborg

That was very entertaining. I like your small potatoes argument. It is small potatoes! So what that there are 500 pages of this and 200 pages of that? I hear that the Beth Israel Hospital computer system took 10 million lines of code. Those statistics are not what we are talking about here today. We are talking about what needs to be done to meet the minimum chance of success. Our federal government does some things wrong. But those in private industry are also far from perfect. Is our tobacco industry perfect? Have we ever made some mistakes with drugs? Obviously, there is no perfection on either side. Just as we are not looking for perfection, I hope you are not looking for purity.

We have a problem that is unique to healthcare. Healthcare is the biggest industry in our economy. Yet, if you look at current NII strategies of IBM, Microsoft, Hewlett-Packard, Sun, the telephone companies, AT&T—all the big players—although they all have healthcare on their lists, it is not their dominant concern. Typically it comes third, fourth, or lower on the list, certainly behind entertainment (also a big industry). Or finance. Or manufacturing. Why is that? Because healthcare is not simply a sleeping giant, it is a moribund giant! We must get off the dime, we need to demand a role in the evolution of the NII, and we need the unique stimulus of the federal government. Regardless of how many lines of text it takes. I think Dr. Bleich's data provided a specious argument. Even Moses, by the way, needed some help.

Opposing Statement

Dr. Masys

I would like to extend and complement Dr. Simborg's remarks by discussing three additional areas where government intervention and regulation are appropriate and necessary to deploy fully and effectively a national information infrastructure in support of healthcare. As you have heard, infrastructure is more than wires, fiber, and telecommunications services. I would argue as my first assertion that we need to overcome a set of jurisdictional barriers. As an example, let me focus on the procedural infrastructure for medical licensure. When medical care was naturally constrained geographically, when all that we might ask of a healthcare system was a competent and

caring general practitioner and perhaps the occasional need for a local general surgeon or obstetrician at a community hospital, the certification of competency as a component of medical licensure was also naturally constrained geographically. But emerging telemedicine technologies, which are critically dependent upon an advanced information infrastructure, offer the promise of access to the most expert medical services in a manner that is distance-independent. As second opinions and remote consultation via interactive telemedicine technologies become routine, the existence of state boundaries and heterogeneous licensing criteria becomes a historical anachronism. The community of professional medical expertise transcends state and even national boundaries. The Internet has shown us the promise of a global village, a world mind if you will, defined by our common interests, experience, and needs to establish standards which permit both interstate sharing of medical knowledge and services and the export of American medical expertise in a global telemedicine marketplace. I would assert that we need someone to play a role that naturally falls to the federal government.

My second assertion is an economic one that relates to the absolutely predictable behavior of unfettered industries to attempt to form monopolies and cartels to the benefit of the corporation and the detriment of the consumer. You may recall the apocryphal quote from a Chairman of the Board of General Motors who is rumored to have said, "There is a misconception in this boardroom that General Motors exists to make cars. General Motors, gentlemen, exists to make money." In our context, in how many boardrooms of the future will this be stated as, "There exists a misconception that the healthcare information infrastructure exists to support healthcare. The healthcare infrastructure exists to make money." When the goal of an industry, any industry, is not service but profit making, then a wide array of profit-making strategies take precedence over the creation of improved products and services.

I offer two examples, one historic, and one quite personal and recent. The historic example is to ask you, Which American city had the most highly developed public transportation system in the 1930s? Most people who are not students of American business will be surprised to learn that it was none other than Los Angeles. It is not my intent to pick on General Motors, but history records that a corporate consortium, led by General Motors and including oil companies and tire companies, acquired the management and oversight of LA's extensive light rail and trolley system. Then they systematically dismantled them so that local residents would be forced to buy automobiles.

I offer a more relevant and contemporary anecdote from my personal experience. As you know, in the time since the breakup of AT&T, local phone service markets have been open to largely unregulated competition among literally hundreds of no-name phone companies. I was recently traveling on the Eastern Shore of Maryland and went to a random pay phone to make a credit-card call back home to California. Imagine my surprise, a month later, to see on my phone bill that, in addition to my \$6 AT&T long-distance charge for a seven-minute phone call, I had also incurred a \$7 local-access phone charge from a local phone company whose name I did not recognize and whose services I did not even know I had used. Would I have placed that call if I had known? Certainly not. Was this company levying usurious telecommunications charges based on the fact that consumers simply did not know what they were buying? Certainly yes, because they had carved out a silent and unregulated monopoly on the pay phones in that little town in Maryland. My wallet tells me that establishing and maintaining the ground rules for fair and open competition of a privately deployed NII will require government involvement and regulation.

My third and last assertion is also an economic one and it is simply that, in a free market economy, services that are not profitable are not made available. The U.S. Surgeon General issued a report on injuries in the workplace several years ago which documented the most dangerous occupation in America, the activity which has the highest risk of the need for medical services, the highest incidence of death and serious injury in the workplace. Know what it is? Farming! The isolation of rural communities makes farmers well-documented second-class citizens with respect to access to healthcare services. The segments of American society most in need of infrastructure for telehealth and telemedicine are often located in the economically least attractive areas for deployment of high-speed telecommunications. The implementation, for example, of the current ubiquitous voice telephone infrastructure recognized this principle in the establishment of the common-carrier model, where service providers were given a limited monopoly covering all subscribers in a region subject to review and approval by public utility commissions in exchange for their commitment to provide services to everyone, not just those in areas where geography and population density made it profitable. In a completely unfettered marketplace, we see an accelerated Darwinian social model where, by selective access to health services via the NII, the rich get healthier, and the poor get sicker and stay sicker in a way that amplifies the class divisions that we already experience in America. I appreciate this as a philosophical argument, which asks

whether the American conscience is more attuned to the biblical invocation that I am my brother's keeper or to P.T. Barnum's observation that there is a sucker born every minute. The deployment of the NII for healthcare will tell us where, along the spectrum between these points of view, we as a society wish to live.

Rebuttal to Dr. Masys's Statement

Dr. Bleich

Nicely done. I agree with you about the problems but not about the solution. You mentioned the jurisdictional quagmire that makes it so difficult to deliver medical care, but you did not mention that it was government at various levels that created that jurisdictional and licensure quagmire. If you propose that the federal government step in to ban regulations that federal, state, and local governments have imposed on the delivery of healthcare, I would support that. But what I hear you proposing is more regulation to deal with the problems created by regulation.

You mentioned General Motors, and I agree with you about what they have done. But it is our local governments that give monopolies to transportation agencies, thereby preventing others from coming in with jitneys or taxicabs or other forms of competing transportation. In most places, you are not allowed to compete with the local bus company. Big government cooperates with big business to give us our inadequate, expensive public transportation. The consequences are particularly devastating to the poor.

I am sorry about your telephone bill, but I think all would agree that telephone services are cheaper now because we have had deregulation of a portion of the telecommunications industry. The same is true with airlines—more choices and cheaper flights than prior to partial deregulation.

Historically, with few exceptions, it is only with the assistance of government regulation that monopoly can be sustained. For example, when our government finally permitted Japanese auto makers to sell in the United States, they quickly broke the near monopoly of our big-three auto makers. The results were smaller, better cars and lower prices. With rare exception, there has not been a sustained world-wide monopoly or a large monopoly within a country without government-sponsored regulatory, or other, protection.

Supporting Statement

Mr. Caine

It is time for a reality check. It is the debate resolution that defines our topic today, not some of the points

about "perfection" that are being offered by our worthy opponents. Since our colleagues have conceded the adequacy point, the real question is to define what role the government should play, if any, in the creation and deployment of the national information infrastructure. The corollary question is whether the government wants to be a part of this information revolution. Furthermore, can government be a part of a free market and not act as a counterproductive force either by dictating market behavior or by creating market-entry barriers that suppress innovation and participation by other stakeholders in the health-information infrastructure? I believe the answer is that the government can function as a market participant only if it acts in ways that it has not been able or willing to adopt over the last 30 years. The government must pursue a new course, as a collaborative partner to the market, instead of following its typical behavior as a command and controller.

There are lots of examples of situations where government has chosen the path of command and control versus the path of being a collaborative partner with other stakeholders and a value-added change agent. It needs to enable change in a productive way, just as other large healthcare purchasers and providers are doing. It can do this only if it decides to re-engineer itself. Now, we have heard a lot from the Clinton-Gore administration about government reinvention and re-engineering. But let us consider what re-engineering really is, since a number of the industrial parties that our opponents have maligned are themselves going through re-engineering and transformation themselves (as is my own company). Re-engineering is painful or you are not doing it right. Someone suggested that it is like setting your hair on fire and putting it out with a hammer. That takes a lot of courage! And when was the last time you saw politicians with enough courage to pick up that hammer to hit themselves on the head?

If the government should decide to work with free-market forces in development of the health-information infrastructure, it could embrace an enlightened and important role as a collaborative stakeholder supporting a successful outcome. If, on the other hand, the federal government should choose to pursue intervention in the NII as a regulator or as a command and controller, it will pervert the market from developing a value-driven, economically accountable health information infrastructure that is dynamic (since the world is changing rapidly) and able to adapt to the needs of patients, consumers, and healthcare providers.

Although my colleague Dr. Masys suggests that people in business are concerned only about money, peo-

ple are actually in business to deliver something of value to people who happen to be purchasers. And in healthcare, we are all consumers and patients at the same time. If government pursues a role of intervention as a command and controller or as a regulator, it will further slip into a relationship with its constituencies that could be characterized as benign ineptness. It is not news that the government's standing with the American population is far from high at present. As a matter of fact, I think even business currently has a higher standing with most Americans than does the government. So the government really has no realistic choice. If it is going to pursue the obligations and the missions it has accepted, which are to provide healthcare to certain constituencies and to pay for healthcare for other constituencies, it really has to act as an enfranchised and informed purchaser. Not as a payer. Not just, "Tell me what it costs and I will pay it; I will not think about the economic consequences; I know we can build this thing called a health-information infrastructure, and there is no need to worry about what its economic benefits or implications are because we will just print more money." The last time I checked, the government is broke, and it expects to be broke for quite some time. We all backstop the government, and if we want we can choose to come up with more money so the government can continue to pay for bills that it does not currently have funds to cover. But the government really has no choice but to be a competitive provider when necessary. Its obligation is to be a healthcare provider and to be a purchaser of healthcare, not simply a payer.

Rebuttal to Mr. Caine's Statement

Dr. Masys

Reality check, indeed. Let us do a reality check! The assertion that the government is incapable of moving in a manner that is other than "command and control" is actually provably refuted by the existence of the very infrastructure that we are talking about today. Look at the history of the Internet, which began not only with government seed funding for the development of the technical standards that underpinned the ARPAnet, but also with government subsidy and the rather czar-like influence of Bob Kahn and the staff of ARPA which governed its early deployment. A second phase of the Internet's deployment was then its subsidy of the wide-area-network infrastructure by the National Science Foundation. Only this year, then, has the government fully withdrawn from the funding of what has become a true national information infrastructure resource. Was this command and control? Yes, at one point in its evolution it was. Is it also an example of a modern gov-

ernment that can see new roles and partner with private industry? Certainly it is, and probably the most spectacular example of this, for it not only has catalyzed economic development in this country, created vast new markets and entirely new ways that we think about doing virtually every economic activity, but it has spanned the globe and created a "global village." It has helped to define a set of standards that is so easy to implement and so economically attractive that it now is binding in excess of a hundred countries together in this nascent world mind.

Thus, collaborative roles are more the rule than the exception in the particular arena about which we are talking. The issue is whether one side or the other can do all of it together. In a sense, Dr. Simborg and I have an unfair advantage, because our opponents plead that if we have a private sector and a public sector, the public sector should simply and necessarily be excluded because everything they do they do badly. We say that, in fact, there have to be collaborative roles for both public and private sectors, and we have seen positive signs in our own industry—our industry being that of computing and telecommunications as applied to healthcare—that suggest that the collaborative roles of government and industry are alive and well and will grow in the coming years.

Audience Comments and Questions

Dr. Shortliffe

The instigation for this debate topic has been lively recent arguments that the government ought to be playing a more active role to encourage and facilitate the use of the national information infrastructure in support of health and healthcare. The federal government is playing a limited role presently, and while some observers have encouraged government health agencies, particularly the Department of Health and Human Services, to become more involved, other individuals have questioned whether that would be wise. Many members of today's audience have participated in those discussions. I would therefore like to welcome brief comments or questions from members of the audience.

Comment by Prof. W. Edward Hammond, Duke

I am uncertain about the motivation for private industry to take steps for the welfare of the population in general. I have generally been impressed that most companies are interested in promoting the interest of their own organization and its value to their stockholders. If some of the goals that we are discussing are fundamentally for the good of all the populace instead of for a particular company, especially if the

proposed action might be damaging or at least limiting to a given company, how can we assume that the private company will be motivated to take that action? It is not clear what shared interest will bring the companies together.

Response by Mr. Caine

Since I work for one such company, I will take first crack at this question and Dr. Bleich can support me after I stumble. The fact is that people have to be in business both today and tomorrow; if they make stupid decisions and narrow-minded decisions today—ones that are shortsighted—they will not be in business tomorrow. Companies are also part of their communities. No one who works in a business is not part of the country and of the community in which he or she resides. As people, we all have an obligation, regardless of the organization for whom we may work, to do what is socially and morally right. If a company does the right thing as a component of civilized society, and if at the same time it provides a product and a service that society accepts and embraces, it will be successful. It is shortsighted, narrow-minded, and ultimately a defeatist strategy to assume that you are going to be able to go out and maximize profits and to be able to sustain that behavior over time without an open society calling you to account for your actions.

Comment by Naomi C. Broering, MLS, Georgetown

I think we are seeing the development of a whole new industry—the knowledge industry—and it is going to change America radically. Thus, the issues we are discussing today are not merely important to the information brokers, the telecommunications industry, and the government, but they will affect all of us. If we look at this issue from the perspective of the birth of a new industry, one that is going to be with our children and their children, I think it is important to hear the panelists talk positively, from the perspective of the public, about how we could come up with an approach to implementing the NII that might work for the delivery of healthcare in our country. Can we move beyond arguments that blame one side or the other?

Response by Dr. Simborg

Ms. Broering, I agree with your comment and appreciate the concerns you have expressed. Two excellent examples of on-line knowledge bases for use in healthcare are the National Library of Medicine's tool for literature search, Medline, which has allowed you,

Dr. Bleich, to create Paperchase, a beautiful example of collaboration between federal government and private initiative. The only real database that we have (not a particularly good one, but the only one) is the MedPar database that emerged from a collaboration between the Health Care Financing Administration and the insurance industry. I am not going to defend MedPar as a good database, but we really do not have any other such dataset yet. Thus, the best models we have are collaborative models between the government and industry.

Response by Mr. Caine

I agree with your comment as well, Ms. Broering, and I think that it goes to the heart of a societal transformation that is evolving every day. Information technology and instantaneous communication are enabling information to be accessed by all of us, including organizations and institutions, in such a dispersed and facile way that there really has been no parallel in history to what we are experiencing. Institutions today are often created as gatekeepers and collectors of information. If that information is viewed as wisdom, it is often sought by constituencies or people who think that the institution providing the information is relevant to their life, whether it is Georgetown University Medical Center, IBM, the federal government, or some other entity. It does not matter whether it is a public- or private-sector institution, a family unit, or a social organization. So we are all groping for the right balance in determining how to come together on a totally new set of fundamentals, an era in which (for example) I may have more information than the expert in the Commerce Department about what is really going on in the export of high-technology equipment around the world, not just from the United States but also from France to some other country whose economy happens to have implications for the United States or one of its corporate entities.

As another example, just think about how difficult it is for parents in today's world to control the information that their children receive. At one point in time, parents were information gatekeepers who could very easily control what their children were going to see. Our society is adapting, since this is no longer the case.

Comment by Prof. T. Allan Pryor, U. Utah

Our opening plenary speaker in this conference, Brent James, talked about some of the principles of quality in healthcare. If we reflect back on one of the basic Deming principles with respect to that subject, he ar-

gued that the more you increase quality, the greater your profits are going to be. My question, therefore, is, If the winners in healthcare information technology really are going to be determined based on quality, where does this play out in defining the role of federal regulation? How does the government regulatory role, while providing certain protections and stimuli, at the same time continue to promote the quality issues and the self-improvement that Dr. James defined for us as crucial?

Response by Dr. Masys

On our way to this auditorium today, Mr. Caine used a very telling metaphor regarding possible government roles: the idea of a foot race among competitors where, in a new marketplace, the government simply holds the starting gun and watches the runners head off to the finish line. By this analogy, it is the marketplace, driven by quality, that determines who finishes first. My observation is that the problem in some foot races is that you start the gun and some people run for the finish line while other people run over the top of other runners. I believe that the government role can actually be very complementary to the idea of quality which is still propelled in the marketplace, but the idea of equitability has to be a function of a public good, of a public conscience, and that seems to reside most appropriately in a government and not in a private company.

Comment by Dr. Daniel J. Essin, U. S. Cal.

I also wanted to recall the remarks of the opening speaker. The examples that were cited by Dr. James had to do with the differing behaviors among surgeons from the same institution. One could characterize our hospitals and healthcare organizations as being similar to surgeons who are trying to perform operations for the same indications but are getting widely varying outcomes. Perhaps this desire for external regulatory guidelines is related to a human being's inability to keep more than about four or five variables in mind at one time. It is easy and safe to decide simply to follow regulations when they exist.

While I am not a big fan of regulation, some is necessary. The search for national standards may result because people want to limit the number of variables with which they have to cope so that they can do a better job of refining their operations.

Response by Dr. Bleich

There is another good example of the perils of government regulation: namely, that of taxicabs. In the District of Columbia, almost anyone can go into the

taxicab business. All you need is a used car, a driver's license, a hacker's license, and a can of paint. As a result, in Washington, D.C., taxi fares are low, cabs are plentiful, and poor and uneducated people can get into this part of the labor force. In contrast, in New York City, government regulation restricts entry into the taxicab business by requiring a medallion. Service is worse, and taxi rides are more expensive. The history of government intervention in business has been to favor the special interests at the expense of the public interest, and particularly at the expense of the poor.

Comment by Dr. Elliot Siegel, N.L.M.

Actually, Dr. Bleich, in the case of Washington, I suspect that the cab fares are low because of the unusual zone system, created by government, rather than because of excess capacity and a lack of regulation.

But seriously, are there specific instances where the government has impeded the deployment of a national information infrastructure by virtue of its presence? I am wondering if we are debating a problem that is truly serious.

Response by Mr. Caine

Yes, I can give you at least one example—the issue of encryption regulation. One of the most important enablers for the health information infrastructure is approaches to help ensure the privacy of confidentially obtained patient-record information. That is not primarily a technological problem but rather a public policy dilemma. Currently, the federal government has a policy that limits the use of encryption methods for fear that the National Security Agency and other agencies of the federal government will be denied the key they would need in order to “tap” or otherwise understand communications between computers and over networks. Thus, the government has stifled the development of encryption technology for use in the electronic world, and that is having a detrimental effect on the robustness of the health-information infrastructure.

Closing

Dr. Shortliffe

Time requires that we bring the discussion to a close, and I thank the debaters and discussants for their comments. The text of the debate will later appear in the *Journal of the American Medical Informatics Association*, and that will allow all interested parties, including those who were unable to attend today's event, to consider the merits of the arguments that have been offered on this important question. Thank you for your participation.