ELECTRONIC PRESCRIBING

HEARING

BEFORE THE

SUBCOMMITTEE ON HEALTH

OF THE

COMMITTEE ON WAYS AND MEANS
U.S. HOUSE OF REPRESENTATIVES

ONE HUNDRED EIGHTH CONGRESS

SECOND SESSION

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CONTENTS

ELECTRONIC PRESCRIBING

THURSDAY, JULY 22, 2004

U.S. HOUSE OF REPRESENTATIVES,
COMMITTEE ON WAYS AND MEANS,
SUBCOMMITTEE ON HEALTH,
Washington, DC.

The Subcommittee met, pursuant to notice, at 1:20 p.m., in room B–318, Rayburn House Office Building, Hon. Nancy L. Johnson (Chairman of the Subcommittee) presiding.

[The advisories of July 15, 2004 and July 16, 2004 announcing the hearing follow:]

ADVISORY

FROM THE COMMITTEE ON WAYS AND MEANS

SUBCOMMITTEE ON HEALTH

FOR IMMEDIATE RELEASE
July 15, 2004
HL–10

CONTACT: (202) 225–3943

Johnson Announces Hearing on Electronic Prescribing

Congresswoman Nancy L. Johnson (R–CT), Chairman, Subcommittee on Health of the Committee on Ways and Means, today announced that the Subcommittee will hold a hearing on electronic prescribing. **The hearing will take place on Thursday, July 22, 2004, in the main Committee hearing room, 1100 Longworth House Office Building, beginning at 1:00 p.m.**

In view of the limited time available to hear witnesses, oral testimony at this hearing will be from invited witnesses only. Witnesses will include representatives from private sector entities to discuss the adoption of electronic prescribing technology and its ability to reduce costs and improve patient outcomes. However, any individual or organization not scheduled for an oral appearance may submit a written statement for consideration by the Committee and for inclusion in the printed record of the hearing.

BACKGROUND:

Electronic prescribing ("e-prescribing"), like other types of health information technology, has the ability to reduce medication errors and costs, and improve health quality and outcomes.

Data transaction standards are already under development in the private marketplace and public sector to fill the gaps in existing e-prescribing standards and to enable the delivery of patient information to physicians at the point of care. In addition, technology already exists for e-prescribing, and some in the private sector are realizing its benefits. But the standards are not uniform, and widespread adoption of this technology has been fractured and limited.

The Medicare Modernization Act (MMA) (P.L. 108–173) requires the Secretary of the U.S. Department of Health and Human Services to develop uniform e-prescribing standards for the Medicare program in conjunction with physicians, hospitals, pharmacies and pharmacists, Pharmacy Benefit Managers, and State boards of pharmacy and medicine. Initial standards which are due in September 2005, would be pilot-tested in 2006. Lessons learned from the successes and failures associated with this testing would be incorporated into final uniform standards beginning in 2008.

The MMA also includes grants to physicians to facilitate the adoption of e-prescribing for Medicare beneficiaries. A safe harbor under the anti-kickback statutes was created by the law to allow plans to purchase hardware and software and to provide technical assistance and education to participating physicians who adopt e-prescribing.

In announcing the hearing, Chairman Johnson stated, "E-prescribing can improve heath care quality, reduce medical errors, and curb costs. This technology is a critical first step towards the adoption of information technology throughout the health care profession. Medicare can both learn from the private sector and lead the way in this area by encouraging greater use of e-prescribing technology."

FOCUS OF THE HEARING:

The hearing will examine the experiences of the private sector in adopting standards and technology for e-prescribing, and the potential of e-prescribing to reduce costs and improve health outcomes.

DETAILS FOR SUBMISSION OF WRITTEN COMMENTS:

Please Note: Any person(s) and/or organization(s) wishing to submit for the hearing record must follow the appropriate link on the hearing page of the Committee website and complete the informational forms. From the Committee homepage, *http://waysandmeans.house.gov*, select "*108th Congress*" from the menu entitled, "*Hearing Archives*" (*http://waysandmeans.house.gov/Hearings.asp?congress=16*). Select the hearing for which you would like to submit, and click on the link entitled, "*Click here to provide a submission for the record*." Once you have followed the online instructions, completing all informational forms and clicking "submit" on the final page, an email will be sent to the address which you supply confirming your interest in providing a submission for the record. You ***MUST REPLY*** to the email and ***ATTACH*** your submission as a Word or WordPerfect document, in compliance with the formatting requirements listed below, by close of business Thursday, August 5, 2004. **Finally**, please note that due to the change in House mail policy, the U.S. Capitol Police will refuse sealed-package deliveries to all House Office Buildings. For questions, or if you encounter technical problems, please call (202) 225–1721.

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1. All submissions and supplementary materials must be provided in Word or WordPerfect format and MUST NOT exceed a total of 10 pages, including attachments. Witnesses and submitters are advised that the Committee relies on electronic submissions for printing the official hearing record.

2. Copies of whole documents submitted as exhibit material will not be accepted for printing. Instead, exhibit material should be referenced and quoted or paraphrased. All exhibit material not meeting these specifications will be maintained in the Committee files for review and use by the Committee.

3. All submissions must include a list of all clients, persons, and/or organizations on whose behalf the witness appears. A supplemental sheet must accompany each submission listing the name, company, address, telephone and fax numbers of each witness.

Note: All Committee advisories and news releases are available on the World Wide Web at *http://waysandmeans.house.gov*.

The Committee seeks to make its facilities accessible to persons with disabilities. If you are in need of special accommodations, please call 202–225–1721 or 202–226–3411 TTD/TTY in advance of the event (four business days notice is requested). Questions with regard to special accommodation needs in general (including availability of Committee materials in alternative formats) may be directed to the Committee as noted above.

*** * * NOTICE—CHANGE IN LOCATION * * ***

ADVISORY

FROM THE COMMITTEE ON WAYS AND MEANS

SUBCOMMITTEE ON HEALTH

FOR IMMEDIATE RELEASE
July 16, 2004
HL–10

CONTACT: (202) 225–1721

Change in Location for Hearing on Electronic Prescribing

Congresswoman Nancy L. Johnson (R–CT), Chairman, Subcommittee on Health of the Committee on Ways and Means, today announced that the Subcommittee hearing on electronic prescribing, previously scheduled for Thursday, July 22, 2004, at 1:00 p.m., in room 1100 Longworth House Office Building, **will now be held in room B–318 Rayburn House Office Building.**

All other details for the hearing remain the same. (See Health Advisory No. HL–10, dated July 15, 2004.)

Chairman JOHNSON. Good afternoon, and welcome to you all. My apologies for this hearing starting a little late. I am pleased to chair the second of two hearings that we have held on increasing the use of information technology (IT) in the health sector. Today we look specifically at one element of technology in health care: electronic prescribing (e-prescribing). Like other health IT, e-prescribing has the ability to reduce medical errors, improve health outcomes, and reduce costs. This technology is a critical first step toward greater use of IT throughout the health care professions.

The technology exists to make e-prescribing widespread, and pharmacists are already capable of handling electronic prescriptions. Some health providers are undertaking investments to implement e-prescribing technology, but widespread adoption has been slow. Our goal today at this hearing is to learn more about what the private sector is doing to advance e-prescribing and to understand how we can encourage more rapid implementation of this important technology.

We took some important strides in the Medicare Prescription Drug, Improvement and Modernization Act of 2003 (MMA) (P.L. 108–173) to promote widespread adoption of e-prescribing. The MMA requires the Secretary of the U.S. Department of Health and Human Services (HHS) to promulgate standards for e-prescribing to encourage the use of the technology in the Medicare prescription drug program. The Secretary must develop these standards in conjunction with physicians, hospitals, pharmacies and pharmacists, pharmacy benefit managers (PBMs), and State Boards of Pharmacy and Medicine. Initial standards are due in September of 2005 and will be pilot-tested in 2006. Lessons learned from the successes and

failures associated with this testing will be incorporated into final uniform standards in 2008.

I am extremely pleased that HHS announced yesterday that it would accelerate development of these standards so that when prescription drugs are available for the first time for our seniors under Medicare, so would e-prescribing. It is very, very exciting to me how aggressively our HHS Secretary Tommy Thompson has pushed forward the information management technology into health care, and, indeed, he has set very accelerated timetables, far more aggressive than the final bill contained, but not as aggressive as the original House bill, because we do feel very, very strongly about the moral obligation of society to provide electronic e-prescribing at the same time we enable the seniors to use so many more drugs and to change the role of medicine in the lives of many of our seniors.

Our witnesses today will provide us with an overview of the steps being taken by the private sector to advance the use of e-prescribing. First we will hear from David McLean, Chief Executive Officer (CEO) of RxHub. RxHub is making e-prescribing a reality by creating a standardized communications framework that links pharmacies, prescribers, PBMs, and benefit plans to enable electronic sharing of information. I look forward to hearing about how RxHub is developing this framework, making it accessible in doctors' offices, small pharmacies, health care providers throughout the country.

Next we will hear from Craig Fuller, President and CEO of the National Association of Chain Drug Stores (NACDS). Through the founding of SureScripts, an electronic network that establishes two-way communications between pharmacists and physicians, NACDS has taken a leadership role in promoting greater use of e-prescribing. We will then hear from a physician who is actively using e-prescribing today. Dr. Thomas Sullivan is a solo practitioner of cardiology who currently processes 95 percent of his prescriptions electronically. I look forward to hearing his perspective on the benefits of e-prescribing and the difference it has made in his practice, in part because the most difficult step in implementing e-prescribing nationwide is going to be to get it in practices of the sort that you represent here today at the table.

Finally, we will hear from Dr. Jonathan Teich of Harvard Medical School. Dr. Teich has written extensively on the use of e-prescribing, and I look forward to his testimony as he provides us with an overview of the benefits of e-prescribing and ideas as to how to promote the greater use of this technology.

As I stated at our last hearing, these are exciting times and interesting times in IT, both in the health care sector and the IT sector, and particularly as they are going to come together in the health care sector in the next decade. I view e-prescribing as an important first step toward the creation of a more robust health IT infrastructure in this country. I look forward to working with all of you as we move forward to improve the safety and quality of our health care system while reducing costs for practitioners, payers, consumers, and taxpayers. I thank you, and Mr. Stark, I would like to invite you to make your opening statement.

Mr. STARK. Madam Chairman, thank you for this hearing, the second one in 5 weeks where we have talked about advances in

health care IT. I have heard that we could save $27 billion if we got this thing all hooked up. I am pleased to hear that we are going to move from 2008 to 2007, but that is an area in which I am not sure I would like to bet much money. I think we could all agree on the benefits, and we can probably all agree on the impediments to seeing this done.

I can remember well over 30 years ago when Visa and Mastercharge were implemented, and that was pretty easy because you couldn't collect money if you didn't play by the rules. So, that was all the incentive you needed. You either follow the rules or you don't get paid. That was pretty easy. I am going to suggest that. I think what we are going to come down to is the basic philosophic difference between you and me, Madam Chair, and that is that I would do this the same way you changed the accounting rules the other day, by saying what we are going to let you deduct or expense regarding options. Now, I learned differently when I studied accounting, but we changed the rules. So, if you just dropped your gavel and said, dammit, next year under Medicare, under the prescription drug bill, under Medicaid, nobody gets paid unless they follow a protocol which we established, then it would get done. It won't be done right. We would have to come back and change it. It will be done just as right as waiting for six different people to figure out how they are going to do it voluntarily and argue about whose plan can talk to the other person's plan.

I really do believe that this is an area in which a little government regulation would get it going. We would have to change it. I make no bones about that. It could get started, and we would have to pay something in extra costs out of the government. I think we would save it in the long run, and I hope that the witnesses and those of us who inquire today can suggest that as an alternative: can we just make the process get started by dropping the gavel and saying, "Let's do it"? I really have a hunch we would save 5 years and a lot of time to get to the place where I know our witnesses want to be, I know you want to be, we want to be. I am just suggesting how to get there.

Chairman JOHNSON. Well, we may not be as far apart as you think, Mr. Stark.

Mr. STARK. That is great.

Chairman JOHNSON. I think the purpose of this hearing is—the pace of change in the private sector has accelerated dramatically in the last year—to learn what has happened and where the holes are and where we most need to work. You and I both recall that we encouraged the private sector to submit their bills electronically, and then we paid them more if they did and we paid them less if they didn't. So, we have some experience with encouraging.

I am pleased that the Secretary has taken very seriously this issue of setting standards so that what we will develop is an interoperable system. Those standards will be out and available in the very near future. I have forgotten whether it is 2 or 3 months. That will certainly be a platform from which we can all assume certain actions and require certain actions. It is a process.

Today we are here explicitly to understand more specifically how much we have accomplished, how many doctors are capable, how many small pharmacists are capable, what does it cost, what are

the benefits. So, Mr. McLean, I welcome you start this panel, and I thank you, Mr. Stark, for your comments because it is of the utmost importance that we accomplish this goal as a national system.

STATEMENT OF DAVID McLEAN, CHIEF EXECUTIVE OFFICER, RXHUB

Mr. McLEAN. Good afternoon, Madam Chairman and Members of the Subcommittee. I am David McLean. I am the CEO of RxHub, and I want to thank you all for the opportunity to present to you today. RxHub is a health care technology company that has developed a nationwide electronic information exchange to enable the routing of prescription and benefit information among connecting prescribers, pharmacies, and PBM. RxHub hopes to connect all key groups involved with writing, dispensing, and paying for prescription medications and has designed its network as a user-neutral platform utilizing a public standard development process and neutral open architecture.

We were founded in 2001 by the then three largest PBMs—Advance Prescription Card Services (PCS), Express Scripts, and Medco Health Solutions. Earlier this year, Caremark Rx purchased Advance PCS and has now taken their seat on our board. RxHub's original mission—and it continues to be the same—was to build the electronic framework that would become a secure standardized communication channel throughout the prescription writing and delivery and payment process. For such a system to effectively meet its twin goals of reducing costs and improving patient safety, all parties in the delivery chain must be efficiently connected, including physicians, pharmacies, technology providers, PBMs, and health plans.

RxHub has developed and implemented a technology called a Master Patient Index which can very accurately identify particular patients without the need for a national patient identifier or a centralized database, which was a major breakthrough not only for RxHub but we believe for the industry.

Through an open public process, RxHub developed standards that did not exist to implement its cutting-edge technology to route what we call the front-end information, including eligibility, benefits, formulary, and patient medication history. RxHub has since become the Nation's leader in the electronic exchange of prescription information, and we continue to expand our network to enable the acceleration and adoption of e-prescribing and ultimately moving to electronic health records, which we all are envisioning. The benefits of such national, systemwide, interoperable communications are significant and are expected to have a dramatic impact on reducing health care costs, creating system efficiencies, and enabling better patient outcomes.

As exciting as this new technology is, significant hurdles remain before the Nation can achieve a health care system that rivals our electronic banking system. I can confidently report to you that the single most important advancement in making the interoperable health systems a reality was the e-prescribing provision in the MMA. On behalf of RxHub and our founders, I would like to thank you particularly, Congresswoman Johnson, and the Committee and

your dedicated staff on your leadership and commitment to this legislation.

The MMA created a comprehensive electronic prescription program for Medicare beneficiaries whose providers and/or pharmacists participate, whether that is voluntarily or through contractual requirements of a chronic care program or health plan. The MMA expanded e-prescribing to require real-time electronic delivery to providers and pharmacists of certain patient-specific information related to eligibility, benefits, drug interactions, warnings, dosage adjustments, medication history, and the availability of generics. This information must be delivered in a secure format that complies with health privacy regulations. As technology has developed and become available for use, there have been several impediments to widespread adoption of e-prescribing systems. Some of these impediments were addressed specifically in the MMA, and others remain formidable challenges.

By far the greatest barrier for technology developers has been the lack of comprehensive uniform national standards under which this interoperable system approach could be developed and instituted. Physicians, pharmacies, and others in the health care delivery industry have been hesitant to invest in systems that may not meet certain State laws or pharmacy board regulations or may become obsolete like the infamous Beta video tapes when standards evolve on a piecemeal basis. In fact, some States previously prohibited usage of available e-prescribing systems. The MMA requires HHS to promulgate standards that are universally interoperable and federally preemptive and establishes aggressive deadlines to require conformity by all users. Preemption is probably one of the most important requirements for a national electronic system of any kind. Trying to conform to a patchwork of State laws over an electronic, sometimes wireless, system results in significant business uncertainty and obviously diminished efficiencies and cost savings.

Another major barrier to e-prescribing and other electronic health systems has been the lack of provider adoption. The standards necessary to meet the requirements under the MMA are not limited simply to data code sets. They must provide the necessary decision support tools and operational protocols that are essential to integrating electronic systems seamlessly into a physician's workflow. Along with the inclusive regulatory requirements, the MMA expands the anti-kickback and start safe harbor provisions to permit plans to provide hardware and software to participating providers and pharmacies to encourage adoption. The MMA also authorizes grant funding for physicians and other providers to take further advantage of available systems.

Presently, the National Committee on Vital Health Statistics (NCVHS) has underway a series of hearings to gather information from key stakeholders, as required by the MMA, in order to develop recommendations identifying the appropriate standards and protocols for the entire Medicare e-prescribing system. Under the MMA, these standards must recognize to the maximum extent possible current industry-developed standards. Because the most current and comprehensive source of medication history now resides with the benefit administrator, such as a PBM or a health plan,

RxHub's network can route such information in a secure, concise, and user-friendly format to providers at the point of care in less than 3 seconds. This is especially important to the health and well-being of obviously our senior population, who frequently visit multiple providers, multiple pharmacies, and obviously take multiple medications. RxHub's network provides similar access to formulary information in real time at the point of care, which is essential to cost savings and patient safety in the Medicare program and the larger health care system in general.

RxHub has connected, through its PBM participants, over 80 percent of the commercially insured lives in the United States. The same can be achieved for the Medicare population to enable the routing of both cost-saving and life-saving information to patients and their health care providers. Consequently, RxHub has provided information to the NCVHS and to HHS and will continue to work diligently to support their efforts under the MMA.

The technology to implement e-prescribing exists today and the benefits, particularly safety, compliance, cost savings, can be achieved in the near term if there is a commitment of the key players and a deployment of resources to get the job done. RxHub and its PBM founders are fully supportive of the e-prescribing effort, including formulation of appropriate standards. RxHub stands ready to provide the connectivity and information exchange among providers and payers in order to achieve the e-prescribing as envisioned in the MMA as soon as the standards are finalized. We encourage the HHS to continue to work diligently to meet or beat the deadlines established in the MMA.

Because the system also must permit the electronic exchange of U.S. Food and Drug Administration (FDA) drug labeling and listing information and will require the future electronic delivery of patient medical history related to the drug on the same standardized system, the national e-prescribing program created for Medicare beneficiaries in the MMA provides the immediate foundation for an electronic system by which patient electronic medical records can be created, maintained, and communicated securely, efficiently, and accurately.

We encourage this Committee to continue its oversight effort of the standard-setting process now underway at HHS. Effective and aggressive implementation by providers and payers of the e-prescribing provisions of the bill is the single most important action that can be taken to improve health care in America in the near term and reduce costs to the Medicare prescription drug program. In conjunction with the establishment of standards, it would be very beneficial for the Centers for Medicare and Medicaid Services (CMS) to clearly define the requirement that e-prescribing be used in the Medicare program in order to achieve the greatest cost savings and health benefits of this health safety tool. Rapid adoption within Medicare will lead to a new standard of care throughout the health system that will result in significant savings to consumers, providers, and payers and will improve quality outcomes.

This is an incredibly dynamic and exciting time in the health care technology industry. It is imperative that the physician-patient relationship be preserved. RxHub's ability to enable informed prescriptions at the point of care in real time can have an imme-

diate and significant impact to improve patient safety and reduce overall health care costs. Thank you for the opportunity to offer this testimony today. I would be happy to answer questions that you may have.

Chairman JOHNSON. Thank you very much, Mr. McLean. Mr. Fuller?

STATEMENT OF CRAIG L. FULLER, PRESIDENT AND CHIEF EXECUTIVE OFFICER, NATIONAL ASSOCIATION OF CHAIN DRUG STORES, ALEXANDRIA, VIRGINIA

Mr. FULLER. Thank you, Madam Chairman. First, I am Craig Fuller. I am the President and CEO of the NACDS. We have submitted a statement for the record, but I would like to make just some informal comments. I am also the Co-Chairman of SureScripts. SureScripts was formed 3 years ago, working with the National Community Pharmacists Association. I Co-Chair SureScripts along with the head of that association. Together, we reach out to all 55,000 pharmacies, both chain pharmacies as well as independent pharmacies, with this e-prescribing platform. We in chain pharmacy fill about 70 percent of the three billion scripts. We at NACDS have been very committed to e-prescribing for some time, and we really do commend your work, Madam Chairman, and the work of the Committee, the entire Committee, in negotiating and inserting into the MMA the provisions on e-prescribing because we think it is very important.

I think your comment that this is a robust first step is an important concept because I think as much as all of us want to see many of the features that I also would commend Secretary Thompson for discussing yesterday, you have to start somewhere. We are very close, as I think we can tell you today, to really giving you the way to jump-start electronic medical records and many other technological advantages that we all would like to see in health care.

The challenge is great. Indecipherable, unclear scripts today lead to 150 million phone calls a year from pharmacists to doctors. It is estimated that 900 million calls were made to clarify the prescription from the pharmacist to the doctor, 500 million calls on refill authorizations, and that is today where 3.1 billion prescriptions are filled each year. We are going to 4 billion prescriptions in 2006.

You have heard before, I know, about how e-prescribing can help reduce or eliminate errors, can improve patient compliance with medication, create a clear record on prescriptions, and it also provides—and some people do not talk a lot about this, but a very reliable authentication of who the prescriber actually was so that you can get at some of the issues of drug abuse that we face today.

We looked at this about 3 years ago and came to the obvious conclusion that if you are going to successfully increase the rate at which e-prescribing was adopted, you had to do the obvious. You had to find a way to connect physicians and pharmacists. Physicians write the prescriptions, and they go to the pharmacy to get filled. We wanted a platform—and that is how SureScripts was created—that would connect all 55,000 of those retail establishments, those stores. Mr. Stark, you are quite right: one of the impediments to this is getting systems to talk to each other. What SureScripts does is allow those 55,000 stores with different managements and

different companies to literally connect to one place where, on the other side of the equation, physician systems, different physician systems, can be connected.

We have set up standards, and I will tell you right now, I want to associate myself with the very fine statement that Mr. McLean made about the important need for standards. We work very closely today with SureScripts on issues related to standards. We have physician systems that are now certified by SureScripts to send prescriptions from the physician through SureScripts to the pharmacy. Those same physician systems are also connected to RxHub because the information that RxHub is making available is very valuable in this system.

I think one of the things that sometimes frustrates us is that the marketplace does not realize today the extent of collaboration that is going on between these two enterprises to make sure that patients and physicians and pharmacists and PBMs are all working together to deliver that script efficiently and effectively to the pharmacy—or, by the way, to the mail-order pharmacy.

You know, we have made great progress, and I think that is the message I really want to bring today. We have today 65 percent of retail pharmacies participating, certified to participate in SureScripts. By the end of the year, we will have 75 percent of the Nation's 55,000 pharmacies. We have physician systems that you are going to hear about in a minute—you are going to hear about one of them in a minute from a doctor who is actually using it. We have these systems that they themselves connect today to about 50,000 physicians, and by the end of the year we believe we will have more of these physician systems connected to SureScripts so that we can have 75,000 or more physicians that have the capability of engaging in e-prescribing.

Madam Chairman, you identified the largest problem to the progress that we all hope to make, and that is the more rapid adoption of these systems by physicians. There is a reason why that adoption is slower. For nearly two—in fact, for over two decades, retail pharmacies, PBMs, payers have been connected electronically. Pharmacies have been automated for two decades. It does not mean they all have the e-prescribing capability, but they have used automation. We have worked with PBMs and payers to move information very effectively through the system. Physicians have not been similarly connected. Small practices have not had some of these systems in place.

Now, there is an investment. I do not think the investment is larger. The physicians will address that. The systems now, with the pharmacy connected, with the connection with PBMs, the systems now are really ready at a very low price for physicians to connect. There is real value for the physician. The physician not only can move the script efficiently; they can get feedback from the pharmacist.

I was visiting with an asthma doctor who said, you know, an asthma physician is the most shocked person around when he finds out he has got a patient in the emergency room. The patient came in, the patient was diagnosed, the patient got the proper medication and went on their way. Well, 30 percent of those patients never pick up their prescription, and today we just put it back on

the shelf because we cannot possibly make millions of more calls on that issue. With e-prescribing, you can provide feedback to the physician. So, you really can improve patient care. You can lower health care costs because if you keep one asthma patient out of an emergency room, you have saved a lot of money.

There is a lot to be done, and as I said, I think the most critical issue here is the setting of standards. It is something we are working on very carefully. We think we have experience to contribute and to participate in that, and we are certainly doing so. I think incentives are important. I think that physicians have seen too many different mousetraps come down the line, and they are skeptical in some cases. I think we can hit a tipping point much more quickly with incentives to physicians to try this, to use it, and as I say, I believe they will find that there are some real advantages.

Finally, it is important to remember there are several hundred thousand physicians in this country, but 30 percent of our physicians fill 80 percent of the prescriptions. Thirty percent of the physicians fill 80 percent of the prescriptions. We are rolling out SureScripts community by community by community, and in every case, with community programs we are working with physician groups and organizations to identify those 30 percent of the high prescribers, and we are going after them first. Not only is it logical to speed implementation, it is logical because they and their offices will get the greatest benefit. I think, again, in terms of incentives, that is another important feature to recall. My time has elapsed. Why don't I stop there. I look forward to answering your questions, and I thank you again for holding this hearing.

[The prepared statement of Mr. Fuller follows:]

Statement of Craig L. Fuller, President and Chief Executive Officer, National Association of Chain Drug Stores, Alexandria, Virginia

Madam Chairwoman and Members of the Health Subcommittee, the National Association of Chain Drug Stores (NACDS) is pleased to submit this statement for the record regarding electronic prescribing. NACDS represents more than 200 chain pharmacy companies that operate nearly 32,000 community-based retail pharmacies. Our members are the primary providers of outpatient prescription drugs in the United States, dispensing about 70 percent of the 3.1 billion prescriptions that are provided each year. The chain drug industry has been in the forefront of using technology to increase efficiency and improve patient care. Virtually all pharmacy payment claims are adjudicated and paid through an online, real time, standards-based communications system.

NACDS recognizes and appreciates the leading role that you and the Subcommittee have played in encouraging the adoption of electronic prescription connectivity. In particular, we want to thank you for your efforts last year in including specific language in the Medicare Modernization Act (MMA) that requires the development of standards for an electronic prescribing program for Medicare prescriptions. These efforts will create efficiencies in the delivery of health care, and provide a safer medication delivery system.

The Benefits of Electronic Prescribing

The current system of handwritten prescriptions and telephone communications between physicians and pharmacists is inefficient, and is ripe for technological solutions. Four years ago, the Institute for Safe Medication Practices (ISMP) published a white paper that urges health care providers to eliminate handwritten prescriptions.[1] ISMP estimates that indecipherable or unclear prescriptions result in more than 150 million calls from pharmacists to physicians asking for clarification. Others estimate that pharmacists must call physicians as much as 900 million times

[1] ISMP, "A Call to Action: Eliminate Handwritten Prescriptions Within 3 Years," *available at http://www.ismp.org/msaarticles/whitepaper.html*.

each year to clarify prescriptions, citing reports that almost 30% of prescriptions required callbacks from pharmacies.[2] In addition, each year pharmacies make approximately 500 million phone calls to physicians for authorization to refill prescriptions. The system becomes even more unwieldy as prescription volumes continue to grow. Currently, about 3 billion outpatient prescriptions are written each year, and this number is expected to rise to 4 billion by 2006.

Since the ISMP white paper was issued, much progress has been made toward the goal of fostering the adoption of electronic prescribing systems that are more efficient and safer than handwritten prescriptions. Paperless prescribing adds new dimensions of safety and efficiency to current practice. Errors can occur at many points in the medication prescribing and delivery system; many of these potential points of error are due to failures in process and communication. Electronically created and transmitted prescriptions streamline this process and reduce the potential for failures in communication. ISMP has recognized that some of the most common medication errors occur when a prescription is ordered or written by a prescriber, and when a prescription is entered into the computer system at the pharmacy. Electronically created and transmitted prescriptions can reduce or eliminate these errors, especially when prescriptions are transmitted directly to a pharmacy's computer system.

Beyond efficiency and patient safety, other benefits of electronic prescriptions include:

- *Better patient compliance.* Electronic prescribing systems help physicians and pharmacists track whether patients are appropriately utilizing their prescribed medications. For example, physicians will know which pharmacy filled a prescription, and whether the patient has picked up the medication.
- *Clearer prescription documentation.* Pharmacies and physicians will have a legible electronic record of what has been prescribed.
- *Reliable authentication of prescribers.* Because electronic prescriptions are received only through trusted partners or agents, electronic prescriptions provide pharmacists a higher level of confidence in the authenticity of prescriptions.

The Federal Government's Role in Fostering Electronic Prescriptions

The federal government has taken the lead in fostering the development and adoption of electronic prescribing. Electronic prescribing has existed since the Department of Defense developed its groundbreaking computer prescription order entry system in the 1980s.

The Department of Health and Human Services has also been at the forefront of encouraging the development of electronic prescribing systems. For example, at an April 2002 press conference attended by Secretary of Health and Human Services Tommy Thompson, Giant Food announced that its 154 pharmacies in the Mid-Atlantic States would be electronically connected to physician offices through the Internet. The system allows physicians to send electronic prescriptions and lets pharmacists send back questions. Secretary Thompson praised the initiative and urged more physicians and pharmacists to use electronic prescribing. The Secretary noted that electronic prescribing would mean "less paper," "fewer errors," and "more time for patients."

NACDS commends Congress for its foresight in pursuing electronic prescribing as a step toward establishing a national health information infrastructure. For example, Madam Chairwoman, you introduced the National Health Information Infrastructure Act of 2003, with the goals of decreasing costs, maximizing efficiencies, and reducing errors.

In 2003 Congress passed the Medicare Modernization Act (MMA), P.L. 107–183, which provides incentives for electronic prescribing. The MMA's incentives will help foster the continued adoption of electronic prescribing. NACDS commends Congress for providing physicians with financial incentives to adopt electronic prescribing. We also support the exemption from the anti-kickback law for physicians who are given access to electronic prescribing systems.

Encouraging physician acceptance and adoption of electronic prescribing remains a central task. However, adoption of electronic prescribing by *every* physician is not a prerequisite to successful development of electronic prescription systems. Instead, when encouraging physician adoption it is important to focus our efforts on the appropriate physicians. It is well documented that each year less than 30 percent of physicians in the United States write 80% of all prescriptions. By focusing efforts to encourage electronic prescribing on this 30 percent of the physician population,

[2] Forrester Research, 2002; Medco Health, via ePharmaceuticals (1/29/03).

we could bring the productivity and patient safety benefits of electronic prescribing to a majority of all prescriptions.

SureScripts: Filling the Connectivity Gap

Cost and difficulty of implementation have been cited as leading obstacles to further development of electronic prescribing systems. However, the greatest hurdle may be the need for global connectivity. Traditionally, many physician offices have not had computerized systems for patient records or for prescription records. Physicians have been reluctant to make capital investments in this technology. Pharmacies have maintained computerized prescription records since the 1980s, and since then pharmacies have taken advantage of automation more than physicians. Virtually all pharmacies have computer systems that help perform clinical tasks such as drug utilization review, and pharmacies are electronically connected to almost all payors. However, these pharmacy systems do not necessarily interface with systems that physicians use.

An effort to bridge the connectivity gap began in August 2001. NACDS and the National Community Pharmacists Association, which represents independently-owned pharmacies, launched SureScripts. The purpose of SureScripts is to develop an engine that will encourage electronic prescription connectivity between physicians, pharmacists and technology vendors. SureScripts was founded to improve the safety, efficiency and quality of the prescription process by promoting the adoption of electronic prescribing. SureScripts is creating an open, neutral, and secure system that is compatible with all major physician and pharmacy software systems.

The national rollout of SureScripts' electronic prescription services began in early 2004 and is currently live in over 12 states today. SureScripts is expected to have active rollouts in local communities in 25 states by end of 2004. Now that the majority of pharmacy software certification and testing is complete, pharmacies all across the country are in various stages of activating their stores for e-prescribing connectivity. Additional markets will continue to go live in 2005 and 2006.

Today, SureScripts is the nation's largest electronic prescription network. Pharmacies and pharmacy software vendors representing 66% of the retail pharmacies in the U.S. have certified, tested, and connected their applications to the SureScripts network. By end of summer 2004, that number will increase to 75% of all pharmacies in the United States.

In addition, physician technology vendors currently representing over 50,000 physician users have signed agreements to connect to the SureScripts network to begin two-way communications with pharmacies for the purpose of electronic prescribing. We expect the physician representation for physician technology companies that contract with SureScripts to grow between 75,000 and 100,000 by end of 2004.

In summary, both pharmacies and physicians are making great progress in connecting to one another. Increased electronic connectivity will help improve both the safety and efficiency of the prescribing process, as well as improve the quality of medication decisions.

The Need for Standards and Industry Collaboration

Wisely, the MMA also requires the adoption of standards for electronic prescribing. NACDS and SureScripts are actively involved in the standards development processes to allow physicians and pharmacies to engage in electronic prescription connectivity. We are working with the HHS National Committee on Vital and Health Statistics (NCVHS) as it prepares to recommend standards to the Secretary for the electronic prescribing program mandated by MMA.

The National Council for Prescription Drug Programs (NCPDP) created SCRIPT, the recognized technology standard for electronic prescriptions. Currently, SCRIPT addresses the electronic transmission of new prescriptions, prescription refill requests, prescription fill status notifications, and cancellation notifications. SCRIPT was developed by NCPDP through a consensus process that included community pharmacies, pharmacy software vendors, database providers, and other stakeholders. Both NACDS and SureScripts are represented on NCPDP's board, and both NACDS and SureScripts are actively engaged in the standards development process at NCPDP work group meetings. SureScripts uses the NCPDP SCRIPT Standard as the foundation for the software used to transmit prescriptions.

The NCPDP SCRIPT standard is a robust national standard that addresses the vast majority of the core functionality required by the MMA. It currently facilitates the bidirectional transmission of prescription information between prescribers and dispensing pharmacies and pharmacists. In addition, the SCRIPT standard has the potential to facilitate the electronic transmittal of information regarding eligibility, benefits and medication history. SCRIPT will likely be among the standards that

NCVHS recommends the Secretary should use as a basis for a broader electronic prescribing system.

The standards development process requires cooperation among industry participants. With the shared goal of improving the health care delivery system, SureScripts and RxHub are in constant dialogue to improve electronic connectivity and to improve physician adoption of electronic prescribing. RxHub's systems and SureScripts' systems are compatible.

To encourage adoption of electronic prescribing, SureScripts has created a Community Adoption Program to work with local community health care leaders and state Quality Improvement Organizations (QIOs). The QIOs will be instrumental in reaching out to health care leaders to make patient safety improvement a top priority in their local markets. Today in Colorado, the CEO of SureScripts, Kevin Hutchinson, is working with the Senior Medical Staff and leaders of the QIOs, working on plans to collaborate with one another for the benefit of patients in each state across the country.

Electronic Prescription Principles

As we continue to help build an electronic prescription system, NACDS is guided by several important principles. The SureScripts certification criteria incorporate these principles, which are important to driving physician adoption and ensuring that electronic prescription systems are efficient and promote patient interests. Our guiding principles include:

Protect Patient Choice of Pharmacy. An electronic prescribing system should not limit patients' ability to have their prescriptions filled by the pharmacy of their choice. Electronic prescription technology should not be used to steer patients to particular pharmacies.

Protect Physician Choice of Medication. Likewise, an electronic prescription system should not be used to steer physicians to particular drugs. Physicians will be more likely to adopt electronic prescribing if they retain their ability to prescribe both "on formulary" and "off formulary" medications.

Protect the Physician-Pharmacist Relationship. Prescriptions are communications between physicians and pharmacists regarding a specific course of pharmaceutical treatment. Electronic prescribing should be used as a tool to enhance, not displace, the pharmacist-physician relationship.

Protect Prescription Integrity. Electronic prescriptions should be transmitted directly from physicians to pharmacies, without being altered by third parties. Alteration of prescribed drug, strength, quantity, allowed refills, or directions could adversely affect patient safety. Physicians and pharmacists must be able to rely on the security of the transmitted prescription information.

Preserve Pharmacists' Valuable Role. Pharmacists are medication experts that collaborate with physicians to enhance overall prescription drug use, and reduce the likelihood of medical errors and adverse drug reactions. Electronic prescribing programs should encourage that collaboration. Physicians will be less likely to adopt an electronic prescription system that requires them to perform pharmacists' traditional duties, such as drug utilization review and checking for medication-related concerns.

Restrict Commercial Messaging. Congress wisely limited the ability to send commercial messages through an electronic prescription system. The MMA calls for electronic prescribing standards to "allow for the messaging of information only if it relates to the appropriate prescribing of drugs, including quality assurance measures and systems."[3] The MMA Conference Report emphasizes that electronic prescribing is not intended to be used "as a marketing platform or other mechanism to unduly influence the clinical decisions of physicians."[4] Physicians will be reluctant to adopt an electronic prescribing system that burdens physicians with extraneous promotional messages.

Implement Incentives for Adoption. The MMA provides for grants to encourage physician adoption of electronic prescribing. The grant money is intended to assist physicians in computer system upgrades and staff training that will enable them to engage in electronic prescribing. There are significant costs associated with the successful implementation of electronic prescribing for pharmacists, too, so incentives should be made available to pharmacists.

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[3] 42 U.S.C. § 1395w–104(e)(3)(D).

[4] H.R. Conf. Rep. No. 108–391 at 456 (2003).

Conclusion

NACDS commends Congress and the Subcommittee for fostering the development of electronic prescribing systems. Enactment of the electronic prescribing provisions of MMA will encourage the further development and enhancement of electronic prescribing. We look forward to active engagement in the development of policies, standards and infrastructure to make widespread electronic prescribing a reality.

Chairman JOHNSON. Thank you very much. Dr. Sullivan, welcome. We do not very often have a doctor available to testify, so thank you.

STATEMENT OF THOMAS E. SULLIVAN, M.D., WOMEN'S HEALTH CENTER CARDIOLOGY, DANVERS, MASSACHUSETTS

Dr. SULLIVAN. Thank you, Madam Chairwoman. It is a real privilege to be invited to be a witness here today. As you pointed out, I am a solo practitioner. I have been doing it for about 9 years. I am a cardiologist, and most of my patients are Medicare beneficiaries so they have lots of prescriptions. Although I am familiar with group practice, I was the medical director of a staff model health maintenance organization for about 11 years and managed quite a few doctors along with my patients, so I know something about incentives to change physician behavior.

I will not read verbatim from my written testimony. I think you can read it as well as I can. I will point out some of the highlights, and the first one is—it says it all right there. I have been taking care of patients for 35 years, and this is a great advance. I have been doing e-prescribing for about a year, so I am a real fan, although I would echo what you said to us yesterday at the National Health Information Infrastructure meeting: don't underestimate how difficult some of this change can be. I will point out a few of those things.

Just to highlight some of the real advantages, I think this does—I have to say, too, without SureScripts and RxHub and the addition of an e-prescribing vendor, I could not be doing this. So, they all had to come together and be able to work together to make what I do a lot easier and more efficient. So, this does require a lot of collaboration.

I have seen some administrative efficiencies in my office. My medical office assistant, she just thinks it has changed her life, the number of refills that we do, quite a few refills on people with hypertension and diabetes and congestive heart failure, those things. It is so much easier now. A refill comes in a screen. We open up the computer and, boom, it is right there, and there is no more handwriting. You do not have to pull a chart. There is not a lot of phone tag and fax tag with the pharmacist trying to call me and speak to me or me trying to call in something else. So, it is really great.

In addition to that, I actually have my little hand-held that I carry around with me all the time. I can write a prescription from anywhere, including here, and do it very quickly. So, all these things have really increased the efficiency in my office. As you pointed out, about 95 percent of my prescriptions are electronic now.

I do not think the costs are prohibitive, but they are there. I will point out an example. When I first started this, it was a pilot program in Massachusetts sponsored by one of the payers who gave me the system free, and I used that for 6 months. Then I saw some other systems, and I saw that they were really a lot more efficient, a lot better. So, I asked the vendor if I could have the data that I have been putting in for 6 months and move it out so I could use it in another system. They said no. I said, "Are you kidding? This is my information on my patients." No, no, they would not give it to me. They thought I would violate some proprietary rule.

So, that made me a little more angry, and since I was President of the Massachusetts Medical Society at the time—I just finished that about 4 weeks ago—I said, I think we are going to endorse an e-prescribing vendor, and we did not pick that one. So, there have got to be some standards of interoperability and, again, the risk that the physician takes. If I had had to pay for that system, I would have been even more angry that I could not switch to a better one, at least take my data out and put it back into a new one.

So, there are costs there, and there do need to be incentives. I clearly believe that and I am not a technology person. I have never had a formal course in any IT, but I have been interested in it for a very long time. I see the advantages of this as well as an electronic medical record. Actually, one of the little problems is I do not use a full electronic medical record because my hospital has a pretty big one and all the labs and that sort of thing and x-rays are in there. I cannot integrate my e-prescribing and notes with the hospital, again, because of the lack of interoperability and there are some costs there also, although my medical society has come up with a proposed solution, a new standard called a continuity of care record (CCR), which I hope you will be hearing about.

In addition, it really enhances patient safety. There are no legibility problems. I could easily pick from a medication list. The drug-drug interactions and the allergy checking are all there. Some systems are more sophisticated than others, but I really like that. I think it benefits the patients not just in terms of quality and safety, but also it reduces some of their hassle with perhaps going to the pharmacy and a prescription might not be there because a phone call was not made. There are a number of ways in which this benefits the patient, too.

I will mention some of the challenges. Again, I already alluded to the fact that we do need some more national standards, and those are underway right now. I have to thank the Secretary and thank actually both sides of the aisle for coming together and seeing that this is a win-win for everyone.

I think you will hear from Dr. Teich some of the technical things about the drug-name conventions which have to be improved and made a little bit more friendly to physicians rather than a pharmacy payment and processing system. That would definitely help, and I think the U.S. Department of Veterans Affairs and the U.S. Department of Defense are working on this, and I would encourage support of that.

The issue of incentives, though, one of the things I am worried about in this pay for performance, I like the idea of paying for performance, but I do not like the idea that this implies that physi-

cians have to be paid to do the right thing. I really resent being referred to as "a businessman," and I do not like the fact that the practice of medicine is becoming more of a business than a profession. It is a real honor and privilege to take care of patients, and I know we have to be paid for it. If Medicare is going to subsidize and incentivize e-prescribing on the one hand, or the government does that, and then punish on the other hand because the sustainable growth rate and every couple years we have to go to Congress and plead for mercy or understanding or something, it is very hard for physicians to understand how subsidies are okay for e-prescribing but now, by the way, we are going to cut your rate by 2 or 4 or 12 percent, or whatever. So, that is one of the concerns I think that physicians have.

In terms of specific suggestions, again, I have alluded to them. We need better standards for electronic transmission and they are there. I am using this today. I am saying I can use this today, but I am not like every physician. Many physician practices are different. You heard that there is a target to the high-volume prescribers. So, my patients, unlike, let's say, a plastic surgeon or a thoracic surgeon, I write a lot of prescriptions and do a lot of refills. So, my incentives in the business case for me is much clearer. I can demonstrate the return on investment to me a lot better than perhaps a surgeon. So, we have to take that into account in terms of the rapidity with which we want this adopted. I guess I will stop there. I know my time is up. I am happy to answer any questions.

[The prepared statement of Dr. Sullivan follows:]

Statement of Thomas E. Sullivan, M.D., Women's Health Center Cardiology, Danvers, Massachusetts

Key Points*:*

Based on 35 years of direct patient care and over one year of ePrescribing, I am a great "fan".

Benefits/advantages of national e-prescribing system*:*

- Administrative efficiency to provider. My Medical Office Assistant loves this system. It's changed her life.
  - Reduced phone calls with pharmacies and no more "fax tag"
  - Reduced chart pulls; and staff can easily enter medications for provider to sign Rx tools are always available, even when on call or out of town (PDA phone and or secure Internet connection)
  - Patients pharmacy benefit information and formulary list also available
  - Decision support
  - 95% of my Rx's are electronic now
- Cost savings to provider.
  - All of the above—improved efficiency saves money. Estimated hardware/software cost $500/yr, not counting Internet access. The range of costs may vary by physician/practice.
  - Training time and learning curve for my assistant and for me was 3–5 days to make it work and 1–2 months to "make it sing."
  - Staff can be put to other use or staff size may be able to be reduced in some cases.
- Better safety and quality outcomes due to clear, printed Rx and real time point-of-care medication history.
  - No more illegible handwriting—a huge patient safety benefit
  - Med list allows drug–drug interaction and allergy checking before writing Rx—another safety plus

- Improved efficiency allows provider to spend more time listening to patient
- Better outcomes with integrated real-time decision support tools.
  - CAQH study showed providers do change med orders based on decision-support alerts
  - Prevent further phone calls from wasting doctors' and pharmacists' time.
- Cost savings to patient—discussion and ability to choose at the point of care/decision, between generic vs. brand and formulary compliance.
  - Real-time information can allow doctor to give the formulary drug in the *first* place, esp. in classes where medications are similar. Without eRx, if patient is doing well on first (non-formulary) prescription or samples, doctor may be hesitant to change to formulary drug.
- Positive impact on provider/patient communication and interaction.
  - Patients like going to pharmacy only once, with medication already there
  - Patients appreciate high-tech, esp. with decision support for savings and safety

Challenges and impediments to physician adoption*:*

- Many physicians are low volume prescribers and will not see early benefits, e.g. many surgical specialties
- Need for national standards that allow for technological advances for both secure electronic transmission of information and decision support tools.
  - We're mostly there now
  - For more widespread adoption we still need:
    - Interoperability (ASTM Continuity of Care Record—CCR) for easier integration with other systems and the Electronic Health Record
    - "Sig" standard (Directions for use) for NCPDP standard (similar to CCR implementation)
    - Drug-naming convention, listed the way providers think of medications. Current use of "example" NDC codes is inefficient. RxNorm is a better emerging standard and should be supported. Government can show the way here, at almost no cost.
- Integration of electronic systems into provider offices/workflow.
  - Need a simple standard to allow data interchange between PMIS, EHR, HIS, and even other ePrescibing systems (CCR). Then the value of any electronic systems will be multiplied geometrically as more physicians use them. The advantage of the CCR is that there is no variability—if a vendor decides to use it, they use it "out of the box" without modification.
- Acquisition of hardware, software and technology training and support requires new thinking on reimbursement and aligning incentives.
  - This is an area where the government could help, especially through "pay-for-performance" programs, grants, loans, etc. We must avoid unfunded mandates, too many, already.
  - A more permanent solution to the flawed Medicare SGR is needed to convince physicians and practitioners that the government will not subsidize with one hand and punish with the other.
- There are some small studies that demonstrate evidence to support cost savings to physician practices/health system and improvements in patient safety/quality outcomes as a result of implementation of electronic prescribing.
  i. CITL Report (quoted in the eHI report): http://www.citl.org/research/ACPOE__Executive__Preview.pdf
  ii. PocketScripts/Tufts Health Plan study in Massachusetts 2003

Going Forward: Suggestions to Committee

- Help to create national standardized electronic transmission and decision support tools to alleviate patchwork of state requirements . . . including controlled substances (DEA)
- Incentives to physicians to accelerate adoption are necessary. Most physicians like other professionals, are not "early adopters" of new technology.

- The technology exists today and is capable of implementing the e-prescribing requirements in the Medicare Modernization Act, with some additional legislative support as outlined above.

Chairman JOHNSON. Thank you very much, Dr. Sullivan. Dr. Teich?

STATEMENT OF JONATHAN M. TEICH, M.D., PH.D., ASSISTANT PROFESSOR OF MEDICINE, HARVARD UNIVERSITY, CAMBRIDGE, MASSACHUSETTS AND PHYSICIAN, BRIGHAM AND WOMEN'S CENTER FOR APPLIED MEDICAL INFORMATION SYSTEMS

Dr. TEICH. Thanks very much, Madam Chairman, Mr. Stark, and Members of the Subcommittee on Health. In Washington and across the country, there has been increasing momentum, particularly this year, for the use of health IT and e-prescribing in particular to improve the quality of health care. However, it certainly has not yet realized its full potential, and it is certainly at least partly in your power to help it get there.

My name is Jonathan Teich. My role here is as a builder, creator, designer, and studier of these systems. I am a professor at Harvard. I am a board-certified emergency physician at Brigham and Women's Hospital and still practice each week. I founded the Brigham and Women's Center for Applied Medical Information Systems in 1992, and my role has been as the primary designer of many of the Brigham's well-known clinical information systems, including the computerized physician order entry system that has been demonstrated to reduce medication errors by over 80 percent. I am also Chief Medical Officer for Healthvision, which is a health care information company that provides interoperability and data exchange across disparate systems in a region and which delivers secure Internet-based clinical, patient, and community systems to about 250 hospitals.

I serve on a number of committees and foundation boards in the health information field. In particular, last year and this year, I was privileged to lead a panel of some 70 experts, including representatives of all of the gentlemen to my right, in producing a white paper entitled "Electronic Prescribing: Toward Maximum Value and Rapid Adoption," published by the eHealth Initiative here in Washington. I recommend that report to you as an excellent reference, and I have drawn from it for some of my remarks today.

We know—and I think you know, given your own remarks—that errors in ambulatory care are common and they are serious, perhaps even more so than the celebrated numbers we see about inpatient care. We have research now that shows that as many as 18 percent of all Medicare patients have a significant adverse drug event (ADE) in any given year. Overall, over 8.8 million ADEs occur every year in ambulatory care, of which over 3 million are preventable.

As an emergency physician, I am also a client. I can expect to see the manifestations of these problems every week. I can expert to find at least one patient every night who is suffering excessive

bleeding or blood clotting because of problems managing Coumadin, a popular blood thinner, at least one patient experiencing medication side effects or drug interactions that could have easily been prevented. I can almost always expect to find at least one patient who did not refill his medications on time and who is now showing up at my door in an ambulance suffering the consequences.

With an e-prescribing system, the computer scans each prescription instantly as it is written, checking for dose problems, allergies, drug interactions, duplicate therapy, and many other conditions. Particularly when integrated within a complete electronic health record, e-prescribing can also promote appropriate drug therapy for chronic conditions, such as issuing a reminder that a patient with heart disease should be taking aspirin and beta-blocker drugs, therefore greatly increasing the compliance of use of these drugs.

It can speed renewals, it can reduce callbacks from the pharmacy and help in many, many other ways. As Mr. Stark mentioned, overall there are studies suggesting that national savings from universal adoption of e-prescribing could be as high as $27 billion. Some of the difficulty comes with to whom those savings accrue.

If there are so many benefits to safety and efficiency and cost, then why isn't e-prescribing simply a routine, universally accepted part of current medical care? Right now, somewhere between 10 percent and 16 percent of all U.S. physicians use it, which is a growing fraction, to be sure, but hardly what I would consider to be common practice. Many of them are leaders and early adopters, such as Dr. Sullivan.

I would like to discuss four specific problem areas and some recommendations for specific remedies. First and foremost are financial issues. Right now the practice and the physician needs to buy and install and maintain the system and go through at least a short initial period of reduced productivity. Again, while there are substantial cost savings to e-prescribing, they accrue primarily over 85 percent to the health plans and payers, while the doctors who are at the front of the process and who must have these systems in place to kick the whole thing off must absorb additional costs currently without any compensation.

To remedy this, the private sector and the government and CMS in particular should support practices through pay-for-performance programs, as outlined in the MMA and which needs the proper specifics; through implementation grant programs; and also through differential reimbursement that recognizes the additional resource value units in a practice that uses e-prescribing.

The second problem area is certainly, as some other folks have alluded to, in standards. Currently, there are many inefficiencies, there are many errors, there are increased development costs, and certainly lack of portability of a patient's record due to incomplete or missing standards. Producers of health technologies have to build the same function over and over again to account for the many different standards, and very often when prescriptions get communicated, they are communicated only as free text, only as the word "amoxicillin," which is prone to many of the same kinds of transcription errors that we had on paper in the first place.

Standards should be required or accelerated in five particular places: a single doctor-level dictionary of medications, such as the National Library of Medicine's RxNorm Project, to ensure that doctor systems and patient systems talk to each other; standards for the "sig," or the dosing instructions in a prescription; standards including drug classes and benefit classes for formulary information so that these can be rapidly exchanged and used; identifiers for health plans so we can understand where a patient matches up against these formularies; and a way to reconcile the widely varying requirements for prescriptions in different States, all of which have essentially the same intent.

The third area is the quality and usability of an e-prescribing system. They should be easy to learn, quick to use, and they must handle all of the typical prescribing workflows. government certification programs should support an aggressive floor of good system features without suppressing independent private innovation.

Fourth, there should be expanded appropriate safe harbor provisions from self-referral and anti-kickback laws. Recent efforts this year have certainly helped that process. Hospitals and health systems have the funds and have the desire, in fact, to purchase and support e-prescribing systems better than a typical small practice can do. They should be permitted to provide technology to physicians who already have an established relationship with the hospital.

Members of Congress, we know the financial costs. We know the increased illness. We know the suffering that happens each day that could be remedied by advanced e-prescribing systems and electronic health records. I hope you will take advantage of the opportunity that you have and that you will consider these recommendations and that you will take the necessary actions so that we can improve the health of so many. Thank you very much for allowing me to speak, and I would be happy to answer questions as well.

[The prepared statement of Dr. Teich follows:]

Statement of Jonathan M. Teich, M.D., Ph.D., Assistant Professor of Medicine, Harvard University, Cambridge, Massachusetts

Chairman Johnson, Ranking Member Stark, members of the Health Subcommittee: thank you for the opportunity to appear before you today. I have spent much of the last fifteen years seeking out and inventing ways to use computer technology to make healthcare easier, better, and safer. In Washington and across the country, there has been increasing momentum for the use of health information technology, and electronic prescribing in particular, to improve the quality, safety and efficiency of healthcare. However, it has not yet realized its greatest value—and it is in your power to help it get there.

My name is Jonathan Teich. I am an assistant professor of medicine at Harvard, and a board-certified attending physician in emergency medicine at Brigham and Women's Hospital. I founded the Brigham and Women's Center for Applied Medical Information Systems in 1992, and I have been the primary designer of many of the Brigham's well-known clinical information systems, including the computerized provider order entry system that has been shown to reduce medication errors by over 80% and adverse medication-related events by 55%. In 1999 I helped found Healthvision, a leading healthcare information company devoted to realizing patient care quality improvement through Internet-based clinical, patient, and community systems, now in use in over 250 hospitals and health systems. I serve Healthvision as senior vice president and chief medical officer.

Organizationally, I serve as the chair of the patient safety steering committee for the Healthcare Information and Management Systems Society (HIMSS), the largest organization devoted to healthcare information technology advancement in this country. I am a member, and a recent director, of the American Medical Informatics

Association, which represents the many engineers and scientists who work to advance the state of the art of healthcare information technology. I also serve on the board of the Foundation for the eHealth Initiative, a nonprofit group here in Washington that is devoted to policy advancement, and that has also facilitated programs to bring expert consensus and practical solutions to key issues in this field.

I have spent a good deal of time on the development of electronic prescribing systems. Last year I was privileged to lead a panel of 70 experts in producing a major whitepaper entitled "Electronic Prescribing: Toward Maximum Value and Rapid Adoption," published by the eHealth Initiative and presented in April at a well-attended meeting that also featured CMS administrator Mark McClellan. That group of experts, from all sectors of the medical and pharmaceutical industry, rendered evidence and recommendations on the promise of e-prescribing, on the barriers that keep it from being fully adopted and realizing its potential, and on ways to break through those barriers. I recommend that report to you as an excellent reference, and I have drawn from it for some of my remarks today.

The problem and the promise

We know that ambulatory care errors are common and preventable, and that electronic prescribing can improve safety, quality, efficiency, and cost. In inpatient care, as I mentioned previously, electronic medication ordering has been shown to have a significant impact in reducing adverse drug events or "ADE's"—that is, not just errors, but errors and other mishaps that actually cause harm to the patient. You are probably aware of the Institute of Medicine findings of 2000, which estimated that adverse drug events—ADE's—may be responsible for 44,000 to 98,000 deaths annually. These numbers came primarily from inpatient data on hospitalized patients. Recent research now shows that ADE's are very common in ambulatory care as well, and can be very serious. We have research that shows that as many as 18% of all ambulatory patients have a significant ADE in any given year. According to the Center for Information Technology Leadership (CITL), more than 8.8 million ADE's occur each year in ambulatory care, of which over 3 million are preventable. Medication errors account for 1 out of 131 ambulatory care deaths.

This isn't surprising to me, because I not only work on prevention of medication errors, but, as an emergency physician, "I'm also a client." In every one of my shifts in the hospital, I can expect to find at least one patient who is suffering excessive bleeding or blood clotting because of problems managing warfarin, a blood thinner. I can expect to find a patient who has problems because her prescribed medications had side effects or drug interactions, many of which could have been prevented. And I can almost always expect to find at least one patient who didn't refill his medications on time, or who doesn't even know what his medications are supposed to be, and who has now been brought to me in an ambulance, suffering the consequences.

Electronic prescribing has presumed value in preventing these errors because it can apply *clinical decision support*: the computer can check each prescription as it is written, either for internal inconsistencies (such as excessive dosage) or for conflicts with the patient's known allergies, interactions with other active medications, duplicate therapy, and many other conditions.

In addition, electronic prescribing can improve quality, efficiency, and reduce cost by several other mechanisms, including:

- actively promoting appropriate drug usage for chronic conditions (preventing "errors of omission")—for example, reminding the physician and the patient that a patient who has had heart disease should be taking aspirin and beta-blocker drugs.
- providing information about health plan formularies and drug coverage, so the patient can understand and make choices about the cost of his medications;
- speeding up the process of renewing medications, and helping making sure that patients and physicians don't miss needed renewals;
- electronically transmitting prescriptions to pharmacies, thus eliminating one more source of transcription error and delay;
- keeping better records of a patient's current medication profile, so that all of a patient's clinical caregivers can treat the patient with confidence.

More than 3 billion prescriptions are written annually. Given this volume, even a small improvement in quality attributable to electronic prescribing would translate into significant healthcare cost and safety benefits if electronic prescribing is broadly adopted. Studies suggest that the national savings from universal adoption of electronic prescribing systems could be as high as $27 billion, some from ADE prevention and the majority from better utilization of drugs, guided by these systems.

Much of the current information on the performance of electronic prescribing comes from the inpatient environment, because this has been studied for a longer period of time and because it is a more controlled environment. There are many studies that show the beneficial effect of electronic medication ordering. My research group published a study in 2000 showing that, before the system went into place, about 2% of all orders for medications called for an excessive dose, possibly injurious to the patient. Immediately after putting in a computerized system, which simply offered recommended doses in a list, that number dropped dramatically down to 0.5% percent. Furthermore, with additional improvements to the system over the years, the number dropped to 0.2%—10 times fewer overdoses than in the non-computerized world. There are numerous other examples of the dramatic impact of relatively simple computer interventions in that study. These are the identical interventions that are being applied in ambulatory-care e-prescribing systems, and we expect that research now in place will show similar impact.

The truth is, many of the things that computerized prescribing systems alert about are things that physicians already learned—drugs to avoid in certain situations, allergies and so on. But in the heat of the moment, when you are trying to give your patient three new prescriptions, renew six other medications, order a dozen lab tests and a CT scan, all at the end of a ten-minute visit slot, it's easy to forget these vital details. Electronic prescribing with clinical decision support can sometimes act like a senior expert, guiding you to the best care plan; more often, though, it acts more like a highly conscientious assistant—who doesn't know as much as the doctor does, but who remembers absolutely everything, and makes sure the doctor remembers the right rule at the right time.

Levels of e-prescribing

Electronic prescribing systems are available in a variety of graduated levels, which we expressed as a pyramid in our report. The levels are:

1. Basic electronic reference only. Drug information, dosing calculators, and formulary information are available, but are not automatically shown while prescribing.
2. Standalone Prescription Writer: search by drug name and create prescription; no long-term data about patient is accessible.
3. Supporting patient data is included (Demographics, Allergy, Formulary, and/or Payer Information).
4. Medication Management: Prior medications are available for renewal, interaction checks, etc.
5. Connectivity between the doctor's office, Pharmacy, PBM and Intermediaries.
6. Full integration with the electronic health record (EHR).

At the first level are simple stand-alone prescription writers, which can create a prescription, and check doses, but which are not connected to any long-term patient information. At higher levels, additional data is available, electronic communication with pharmacies and intermediaries is established, and at the highest level there is full integration with a complete electronic health record.

Some benefit to patients can be seen at all levels. However, systems at the higher levels of sophistication—which may be associated with higher start-up cost and complexity—afford much greater opportunities for quality improvement, reduction in errors, and improved workflow efficiency. A practice with limited resources can and should get into the game at the lower levels today—but the eventual goal is always to approach the highest levels, thereby to reap their higher benefits; thus even basic systems should have the potential for later upgrading.

Barriers to maximum adoption and value

So, we can see that e-prescribing can improve safety. We can see that it can improve costs. We can see that it can promote quality through proactive interventions, improve communication, and keep better overall integrated records. But the fact is, adoption is relatively low—between 10% and 16% of all U.S. physicians, depending on the survey you read. Despite a few well-publicized payer-supported starter programs, e-prescribing hasn't taken off the way it probably deserves. So, why isn't e-prescribing a regular, universally adopted part of medical care?

A number of barriers stand in the way of universal adoption in the practice. These fall into the categories of **cost, time, usability, and standards**.

Cost and time issues

- The doctor may not be able to justify the up-front cost of buying and installing a system, and the continuing cost of connections and upkeep.

- At least initially, while the doctor is learning the system, e-prescribing will take more time compared to paper prescribing; this translates to decreased productivity. A well-designed system should quickly close this time gap, but doctors remain to be convinced.
- There is time needed, and resource value expended, to review the warnings and alerts that the system may generate.
- None of these costs and resource expenditures are reimbursed at present.

Usability and value issues

- Current systems are still on a designer's learning curve: systems must be easy to learn, quick to use, and handle all of the typical prescribing workflows (the eHI report contains a number of recommendations to address this);
- There is a lack of imperative: until safety improvements are demonstrated and fully publicized, and until e-prescribing becomes an expected part of care, doctors do not feel any pressure to make the leap.

There is clearly an issue with misaligned incentives here. I mentioned that e-prescribing can lead to considerable savings overall. However, much of these savings, whether from prevented ADE's or from better medication utilization, accrue to payers and health plans. Pharmacies also see some benefit because of reduced transcribing, reduced time on the phone clarifying orders, and the ability to promote refills; in addition, automated record-keeping is already a mainstay of pharmacy practice. It is the doctors, who must have the technology in place to start the whole process going, who don't see much of the improved economics. Indeed, they may have a negative financial return because of the cost of the technology and, if the system is not sufficiently usable and quick, from lost productivity. There needs to be a way to realign the incentives, so that the technology is desirable to all who need to purchase and use it.

Standards

One more stumbling block is in the area of standards. The eHealth Initiative project identified four standards in particular, that need to be created or enhanced:

- Widely varying state board of pharmacy requirements increase the complexity and cost for a technology company to develop an e-prescribing system. In most cases, these boards all have the same intent; however, one state requires that the prescription must say "no substitution allowed" and must have the provider's DEA number at the top; another requires that the prescription must use the words "do not substitute" and the DEA number has to be at the bottom.
- There is no standard "doctor-level" dictionary of medications. There is a standard for pharmacy packages—the NDC code—but for doctors, different systems will use different vocabularies. This makes it difficult to have consistent clinical decision support rules—for example, different systems may have somewhat different lists of drugs that interact with each other—and it is extremely hard to communicate or transfer information from one system to another, and further increases cost and complexity. There is a government project, the RxNorm project, which is making some headway in resolving this, but it has not been established as a recognized standard.
- The lack of a standard for the "sig"—the basic instructions on a prescription, such as "take one pill three times a day for ten days"—further complicates the ability of systems to communicate with each other, and again makes it hard to standardize and evaluate clinical decision support rules.
- Different health plans express their formularies in different ways, using widely different drug categories, different formulary classifications, and so on.

Potential Solutions

Incentive steps

Combining both high impact and high feasibility as desirable properties, the eHI Incentives Workgroup concluded that three incentive areas held the highest promise:

- Differential reimbursement for utilization of electronic prescribing, or for the information processed (RVU's).
- Pay for Performance programs for both primary care and specialty practice, rewarding both use of technology and the improved chronic-disease management which it facilitates.

These are the most obvious ways to re-align the incentives and get doctors in the game. Government action can play a huge role in these economic areas. If CMS, as

the largest U.S. healthcare purchaser, were to clearly go forward with plans for a pay-for-performance or differential reimbursement program, it is likely that usage of e-prescribing, and electronic health records in general, would increase dramatically, and the entire healthcare system would be able to reap the ensuing safety, quality, and cost benefits.

- Appropriate safe-harbor provisions from self-referral and anti-kickback laws. Hospitals and health systems have the funds, and the economies of scale, to acquire and support e-prescribing systems better than a typical small practice can do, but they are extremely shy about doing so lest they run afoul of these laws. The recent Notice of Proposed Rulemaking published in March of this year helped considerably by providing safe harbors for community health information networks. As the CMS notice itself said, it is unlikely that this extension would have any significant potential for abuse. We think it has great potential for improving care, but there is still considerable confusion about the scope of the new clauses. These should be clarified and carefully extended to ensure that those practices that already have demonstrated significant relationships with a health system should be able to band together and enjoy the economies of scale.

Standards and value steps

Other possible courses of action for the government are in the areas of promoting the most-needed standards, and ensuring that high-value e-prescribing systems are recognized and supported:

- The federal government, through the process that originated with the passage of the Medicare Modernization Act, should work to promote standards-based systems, and rapid development of needed standards and unifications—particularly the four key standards noted above.
- When deciding how to certify an e-prescribing system as one whose use merits incentives, it will be important to include criteria that show that (a) a system has sufficiently powerful clinical decision support features, (b) it can participate in electronic communication and appropriate sharing of information, and (c) it can function as part of a more comprehensive electronic health record. It behooves us to use the momentum generated over the past few years to promote not only electronic prescribing, but interoperable, intelligent electronic health records in general. A task force should be devoted to determining some of these criteria. Government incentives should support a "floor" of good system criteria, and should promote common research and dissemination of best techniques and best practices, without suppressing independent innovation.
- The government should support research into projects that can organize and collect clinical decision support rules, in a more practical way than has happened heretofore. This is necessary so that all system developers can make use of the information, so that research into the effectiveness of these rules can be shared and re-used, and so that healthcare providers no longer have to reinvent the wheel at each location, when determining the best approach to high-value clinical improvement through information technology.
- As the government has accelerated electronic prescribing through legislation, standards, and incentives, so should it consider similar tactics to support the National Health Information Infrastructure and the development of highly interoperable electronic health records.

Summary

More intuitive systems, effective standards, and significant incentives to reconcile financial costs and benefits are all critical to the adoption of electronic prescribing systems throughout the United States. In turn, well-developed and practical clinical decision support and advanced communications functions are vital for those systems to provide maximum value, both clinical and financial. Steady progress has been made in some of these areas, particularly over the last few years. However, we have not yet reached the goal, the point where electronic prescribing is seen as a "must-have" part of healthcare, and as a result, the very large benefits in quality and cost that could be achieved are still some distance away.

The need is now all too clear. Research has proven what we physicians all knew: that increased illness and hospital admissions and even deaths occur every day, due to adverse drug events that could be prevented by advanced electronic prescribing systems. You may have seen these very events happen to yourselves, your friends, or to members of your family. We know that large numbers of Americans do not get the care they need for their chronic conditions, and that electronic health records with e-prescribing and clinical decision support could help make sure that they do. I hope you will take advantage of the opportunity you have, that you will

consider the recommendations I have discussed today, and that you will take the necessary actions that can improve the health of so many.

Thank you for permitting me to speak with you today. I will be happy to entertain questions.

Chairman JOHNSON. Thank you. I am delighted to have Representative Tim Murphy of Pennsylvania here with us. While not a Member of the Committee, he has a bill to provide incentives, and we are glad to welcome him here. Dr. Teich, you say we know the cost. What is the cost? Dr. Sullivan, you may want to chime in, any of you? Now, if you are just a practitioner, let's start first with the high-volume practitioner who is doing this because his payback is going to be faster. I was very interested to read in your testimony that it only took you and your staff a couple of months to get to where you really were making, as you put it, your relationship with technology sing. What does it cost?

Dr. SULLIVAN. I got my first system free, but we like to say—and I am part of the partner system, too, that Dr. Teich is—that free is not cheap enough sometimes because it depends on what the workflow does. If you have to lose productivity for an enormous amount of time, free is not cheap enough. So, about $500 a year are the costs that I and other physicians are looking at in terms of hardware costs. Now, that can vary quite a bit.

Chairman JOHNSON. That is upgrading and maintenance and Internet?

Dr. SULLIVAN. That is talking about a hand-held device and the cost of software to make it work. That does not include an Internet connection, which could be $30 a month or $40 a month. You could do it with dialing up, but——

Chairman JOHNSON. So, for a multispecialty practice, about $500 a doctor?

Dr. SULLIVAN. Yes. Again, it varies quite a bit depending on your specialty. For a surgeon it would be—if they lose productivity and they are not doing a lot of refills, it might be more.

Dr. TEICH. I would come up with similar numbers, Madam Chairman. We have subscription plans, for example, that people use sometimes where they get it on a monthly basis, and those costs, depending on what you are getting, tend to run between $25 and $50 per doctor per month. Again, that is the ongoing cost. As Dr. Sullivan mentioned, there are some start-up costs that are necessary. Probably the biggest cost that people at least anticipate has to do with productivity issues and has to do with the ability to be able to maintain these overtime.

Dr. SULLIVAN. Can I also mention that when I first looked at these systems about 2 years ago, I was quoted about $100 a month to me, so there has been a big change. So, that cost figure is an estimate.

Chairman JOHNSON. I will just ask one more question now and move down the aisle. How does SureScripts and RxHub interact? What types of collaborative efforts have you undertaken? What are some of the differences between the two organizations? What is the overall scope of your reach?

Mr. FULLER. I certainly will start and say that, first of all, today in the system that exists, the prescription comes into a pharmacy, and the adjudication process immediately goes electronically and involves PBMs. So, the relationship that exists today between retail pharmacy and PBMs has been in place for some period of time. As SureScripts—and Dave will speak to RxHub, but as SureScripts and RxHub have evolved, we have tried to be very focused in areas where we think we can offer expertise. We have tried not to get into areas where there is a considerable expertise that others have. We do not have, for example, a specific physician system. We certify a doctor first. We certify several others.

Those physician systems, because they want the kind of information that RxHub can provide—or some of the physicians do—they have a relationship with RxHub to get formulary information or patient information. The fact that that occurs is not a barrier to being certified by SureScripts. In fact, as I said, all of those physician systems that we have certified have a relationship with RxHub, and most of the 10 or 15 we have looked at that will be certified probably this year have relationships with RxHub.

So, in one way, at one level, we are two entities that are serving to accelerate the adoption of e-prescribing where the prescription information flows to the pharmacy with a physician that may be provided with information from the PBM while they are writing the script. Certainly the pharmacy is provided with information from the PBM in filling the prescription because that is in place now.

That is kind of a collaborative effort that is going on in the marketplace today. Not everybody understands that, but, in fact, we even have physician systems that are negotiating with each company worried about telling us when, in fact, we know it and encourage it. So, that is today.

The other area of collaboration is we are both absolutely determined to work through the standard-setting process in a way that is going to produce standards that facilitate the rapid adoption by physicians. It does us no good to have a system that is a little more favorable to pharmacy or a little more favorable to the PBMs if it complicates getting physicians to use the system. In this area, we really are looking at how we can think through what RxHub knows and what SureScripts knows to come to the entities that are looking at standards and say in our best judgment, our combined best judgment, here are the standards we need to bring physicians online more rapidly.

I liken it—I am sorry to go on so long. I am going to stop in a minute. I liken it to trying to suggest to somebody that they really need to use a laptop computer, but to use a laptop computer, you have to know the word processing program, the Excel spread sheet program, and what all you really want to do is e-mail. If we make this too complicated, physicians will not take that first step and begin using the system. We are absolutely convinced at SureScripts that the more experience the physician has, the more they will find features by drilling down to give them better information, to help—to be more responsive to the patient questions. If you go to a physician and right off the bat say, good news, now you are going to be

able to do price comparisons, store comparisons, it is too complicated.

We strongly believe, both of us, that there ought to be formulary information. We strongly believe we ought to be providing information on generic equivalents. That is a very important part of the process. Those first steps have to be—they are very important. They have to be small enough so that we will get adoption and not scare people away.

Mr. McLEAN. Overall, I want to absolutely underline Craig's statement that we are not competitive. We are complementary. From the RxHub point of view, we focus on, when I mentioned in the statement front-end information, it relates to the information that exists with the PBM today, which is a person's eligibility information about a drug benefit, the formulary information, in terms of what drugs are on formulary at what levels, and also then the medication history that is maintained by the payer, in terms of what is in that payment system. One of the analogies I use, and if you go back to 15 to 20 years ago, 15 years ago, I guess, when the last time we in the country had passed a Medicare drug bill that unfortunately had gotten rescinded, one of the benefits that came out of that was what exists today with electronic adjudication in the pharmacy.

So, when you go to the pharmacy today, and your script is adjudicated as you are there, meaning eligibility is checked, formulary is checked, all that happens in the pharmacy today. What RxHub has built is the ability for all of that to be backed up to the physician office. So, what the physician has available, through the various vendors that would participate through RxHub, is access immediately, again, in an automated teller machine-like transaction basis, to the eligibility of that patient, the formulary of that patient and the medication history that that person has had. Now, it is not 100-percent complete. It is what is in the payment system for that particular payer.

So, with that, we are able to provide to the physician office, through the technology vendor that they might choose and, again, our interest is to get the RxHub system connected through any and all vendors that provide services to physician offices, whether those are physician practice management systems, electronic medical record vendors, other hospital systems that provide support services to physicians, but that is our business objective is to make that happen.

So, when I speak about front-end information, it is being able to provide that information to the physician and their office staff. We do not want to see, and the physicians clearly don't want to be in the role of trying to be the administrator on behalf of the PBM. So, that information is provided to those vendors to do that. Again, just to close, I could not be more in agreement with Craig, that between SureScripts and RxHub, we are very complementary in the roles that we take, and the focus that we have had.

Dr. SULLIVAN. Can I mention one more thing about costs that I forgot? The data conversion costs, it is only a one-time cost, but it is substantial. Practice management systems, about 70 percent of physicians have electronic practice management systems.

I figured out a way myself, on my own, to enter the data into the e-prescribing. Now, the other way to do it is to just one-by-one enter data, but I was given a quote of $2,500, a one-time data conversion cost if I wanted to build an interface to this e-prescribing system that I have. For the physicians who are using electronic health records already, there is a bit of an impediment. Again, this data conversion is a bit of an impediment, and to the extent that standards can help that and reduce the costs, I think that will be great. Again, we are working on that.

Dr. TEICH. Actually, there is technology which folks at this table are working on, which may provide some easier answers to that because the big problem is I already have a few thousand patient records. They have their medications on there. How am I going to get them into my system in the first place? One interesting that is possible now or is being developed now from folks over here is the ability to supply that information, to supply that fill history and, from that, to be able to construct a list of the patient's active medications so that that very, very tedious task can go away.

Chairman JOHNSON. So, is RxHub constructing these histories from past purchases?

Mr. McLEAN. That information comes directly from the PBM. So, what we do is we go in—the only data file that we maintain at RxHub is a master patient index, which are five points of demographic information about each individual.

Chairman JOHNSON. So, for example, an employee working for a big company whose prescription drugs are managed by a PBM, that PBM has that whole history and can transfer it to you, and the doctor can call it up. That is interesting.

Mr. McLEAN. That is correct.

Chairman JOHNSON. Mr. Stark?

Mr. STARK. Thank you, Madam Chair. I have a request. My wife noticed, Dr. Sullivan, that back in 1972 you wrote, I presume, an article called, "A Clinic for Male Derelicts," and she would like a copy. I suspect you might send one to my colleague, Mr. Crane, from Illinois. We would find that useful at this point. That caught my eye. I am going to just assume that all of your clients have a computer somewhere in the chain of their drug empires. This is not moving them very far in getting them used to it, but for Dr. Teich's and Dr. Sullivan's colleagues, it is getting them to move.

You talked about $500 a year, but I go back to converting a bank to computers. Unless you do the whole thing, you are only half—then you are in a real mess. You have got paper records, I would guess, and e-prescriptions, and you are probably worse off in a way, but it seems to me that the savings just in office staff in a practice such as yours would be certainly more than $500 a month in time just to pull up, rather than have to sort through a whole roomful of files. I can't——

Dr. SULLIVAN. Are you talking about just e-prescriptions or the whole——

Mr. STARK. The whole thing. It just seems to me that just having prescriptions for a patient is only half a loaf. You are running around with one shoe off and one shoe on.

Dr. SULLIVAN. You are absolutely right.

Mr. STARK. That what we are talking about is getting a paperless—getting an electronic information system in the various practices of medicine, however they are conducted. I would think the advantages, in terms of convenience and time, yes, the conversion and the learning process is a pain in the butt, but once you are done—I remember when we were talking about paying for laser—what do you do with your eye—cataracts, it used to take a guy 5 days off his practice to go learn how to do it. Now, it takes like an hour-and-a-half to run down and learn how to do it, so we never got the fees lowered, by the way, as the learning curve went up. Nonetheless, isn't there an amazing savings in practice expense once the conversion is digested, if you will?

Dr. SULLIVAN. The answer is generally, yes, but—yes, but—and I am sure you hear that a lot. Again, a big difference between a surgical practice and a medical practice. There are a lot of us who are in internal medicine and my specialty, cardiology, who think that IT and electronic medical records is like the new scalpel for doctors who have what they call "cognitive" practices, as opposed to "procedure-oriented" practices.

Mr. STARK. Right.

Dr. SULLIVAN. I know the surgeons don't like that term, but to the extent that you say aren't there a lot of savings, well, it also depends on what kind of an interest and a pediatrician may have, especially an internist taking care of seniors, may have a huge medical record, a huge record; a surgeon's real thin.

Mr. STARK. Then it is less conversion.

Dr. SULLIVAN. Yes, but——

Mr. STARK. If the guy lived after surgery, how many records do you have left?

Dr. SULLIVAN. Right. Right.

Mr. STARK. You send a copy to you and you keep them——

Dr. SULLIVAN. Right, but you are talking about the savings. When you are talking about electronic health records, the full, you are talking anywhere from $5,000 to $30,000 per doctor. I mentioned e-prescribing, $500.

Mr. STARK. Even at that, it just seems to me, as a person just who has converted just financial records, the efficiency, and the savings, and the storage, and the ability to get this history quickly is just so——

Dr. SULLIVAN. If you spend $30,000 on an electronic health record, as some physicians have, and you had the same experience I had with my first e-prescribing vendor——

Mr. STARK. Then have to change.

Dr. SULLIVAN. Yes. You would be really upset, and you wouldn't be thinking about savings at all.

Mr. STARK. I understand, and that happens when you have to change from whatever you have got to Quicken, and you do not start with them in the first place, and you lose everything. That does happen. I was getting back to the requirements. There was a time, a long time ago, when you could fly a private plane and you didn't have to have a radio, and then we said you do or we said you have to have a transponder. I suppose everybody has to have them now, and you do. So, they put them on, and they don't argue it. You go out in the Chesapeake Bay, and you don't have a life

vest on, the people in the boat, the Coast Guard will raise hell with you. So, there are times when it is incumbent on us to say this is the way it is going to get done if it saves lives, not to mention money. How many doctors do you two guys know who don't have a laptop somewhere in their families?

Dr. SULLIVAN. Can I just say that the airline pilots and the boaters don't have the pleasure of knowing malpractice attorneys.

Mr. STARK. Oh, I think that you will find that those operating private companies—companies that operate privately——

Dr. SULLIVAN. Okay.

Mr. STARK. How many doctors do you guys know that don't have a computer, either in their family or in their life?

Dr. SULLIVAN. Not many.

Mr. STARK. A cell phone? You guys—when I was a kid, it was the doctors in the neighborhood who owned cars. They were the first guys in town to get these modern inventions. So, come on.

Dr. TEICH. There is more cost involved between having the laptop that I use for running Quicken and e-mail at home compared to what I have to do to make secure, private, protected transactions along this way. I certainly do want to amplify two things you said about the value. Here, where I work, in an emergency room, I am primarily a consumer of prescribing information. If I were to be able to hook up to a network where I could see what a patient is taking, as we are starting to do now in Massachusetts, it will increase my costs. I don't have a flat way of reimbursing or justifying it. I do have to find a way to justify that.

At the same time, there is no question it is going to make care much better. There is no question that patients that come to me who don't know or who are unconscious are going to get a lot better care for that information now being available. So, it does cost money, but there is no question there is a care imperative. As for the other point you mentioned about the electronic health record, one of the things you will find in the eHealth Initiative Report is a pyramid of greater functions as you go up the ladder of e-prescribing. Once you have that connection, you can do that.

Mr. STARK. Staff just suggested how about if we said no medical malpractice if you use electronic records, and you are only liable if you don't.

Dr. SULLIVAN. I would love to see you have that power. I would love it.

Mr. STARK. I bet you guys would convert overnight, right?

Dr. SULLIVAN. In a flash.

Mr. STARK. All right.

Mr. FULLER. Mr. Stark, if I could just make one comment about the costs associated because I think it is important.

Mr. STARK. I have got to explain—Mr. Fuller understands this—he was with me in suing the HHS Secretary to cut out these cockamamie drug discount cards until he found out how much money you could make in them, and now——

Mr. FULLER. Now I am one.

Mr. STARK. Now they have their own. So, he understands about this stuff.

Mr. FULLER. I do want to just comment briefly on the costs and how this gets paid for because I think, in terms of the path we are

on now, it is important to consider this. I don't, in any way, underestimate the costs that a physician would have to pay, and some of the systems are $30 a month and some are more expensive. The fact is that doesn't cover the costs.

Retail pharmacies investing millions of dollars, tens of millions for some of the individual chains, hundreds of millions overall, we obviously have computers, but as you well know, converting technology to things like this costs a lot of money.

In addition to that, there is a transaction cost involved, and a transaction cost for these scripts is being paid by the pharmacy. So, as we begin filling millions, and hundreds of millions, and eventually billions of prescriptions, while the cost will come down, the electronic transaction rings a little bell and money is being collected from the pharmacy for this.

Now, why do they do this? They do it because of the hundreds of millions of calls I described. They do it because we have 120,000 pharmacists and chain pharmacies today. We are 4,000 short. We need more. We do it because they are very high-paid people. So, I am not suggesting that the investment doesn't have some offset of savings, but there is substantial investmentin this by us by the PBMs, and it is very important to us that the rules are written in such a way that these investments which are being made today don't go like water over the dam because the regulatory environment changes the game on us.

Mr. STARK. Could I throw in my last comment, Madam Chair? Take a page out of physician reimbursement. Don't let us try and work out these details as cost-sharing between the pharmacies, and the doctors, and the surgeons, and the internists. You guys get together and come up with your shell plan of who is bearing what portion of the costs or gets what portion of the savings and come back to us business we will screw it up. There would be too much pressure on us from all sides to do it one way or the other. You guys go into the room and say we are not coming out until the pharmacies, and the physicians, and the PBMs, and the pharma, and all the guys get together and figure out who is going to pay for this or how they are going to share both in the savings and in the costs and then come back, and I am sure the Chair would greet you warmly to say, great, now we can move ahead once you guys put it together. That would move us along very rapidly. Thank you, Madam Chair.

Chairman JOHNSON. Brilliantly spoken, and I must say, especially for an advocate of a national health care system. Mr. Johnson?

Mr. JOHNSON. I don't have any questions.

Chairman JOHNSON. Mr. Crane?

Mr. CRANE. Thank you. This is a question I would like to direct to all of you, and that is what is a reasonable timeline for the implementation of e-prescribing standards and what are the chances that a rush to implement these new standards will result in unintended consequences that could impact patient care or limit access to health care services, especially patients in less-urban or rural communities?

Dr. SULLIVAN. I would like to address that. Again, this is somewhat my personal opinion. I probably would not change the

timeline now. I would change the incentives. By that I mean, if the incentives are there and the safeguards are there, physicians—and I think others—will adopt these far sooner than you want for the timeline, but I am afraid that the incentives and the things that aren't properly aligned just don't make this easy right now. So, I wouldn't change the timeline, but I think I would change the incentives, and that would get these adopted much faster.

Mr. McLEAN. I would say to that the standards that we have established already, whether that is RxHub or SureScripts, particularly related to the connectivity with the payer industry and the pharmacy industry, is that we already are operating today with those standards. So, I would emphasize we don't need to go backward on that. Let us take what is already there and push forward. I think many of the things that Dr. Teich has talked about that still needs to be worked out, that is probably where the remaining effort needs to be spent, but I would certainly encourage CMS and HHS not to redo or take apart what is already there and working.

Dr. TEICH. I would go somewhat the same way. There is an incremental path. You can do something with what we have. You could do a little more with what we could do in 12 to 18 months, and you could do all sorts of things with what we could do in all sorts of time. Of the five items that I mentioned in my testimony, which all are things that we don't have in place right now, you can do adequate work right now, but you don't get a lot of the advantages. The ones that I mentioned could be developed certainly within a 12 to 18 month timeframe, certainly depending on how many people had to be thrown into the mix. Implementation, ideally, could be as soon as possible. Perhaps implementation takes a little longer than development, but these aren't really ones that would be highly controversial to be produced. They just need to be produced and has to have the first advantage out there. Just like the CCR, once something comes out there that is reasonably good, it can be reasonably used while we are waiting for the next great step.

Mr. FULLER. I really am in agreement. I couldn't agree more that we have some very good standards in place now that we have worked on in the private sector. We collaborate with government all the time. We are continuing that collaboration, as they look at new standards. I tend to think, though, that acceleration is a good idea. I think that we are much closer to the proverbial tipping point than some may believe. I think that pushing us forward—and I mean that by encouraging more collaboration the way Mr. Stark did—is a good thing.

We have to be cautious of making wrong moves. As I indicated earlier, I think we have to be cautious that we don't try to accomplish everything everybody wants with a set of standards that makes us too complex for the practitioner to actually use, whether it is a physician, pharmacist or PBM. I think we have got a lot that has been accomplished. Moving up on the timeline that tipping point can greatly accelerate physician adoption, and from there we can add new and more features, which is one of the beauties of this. There really are lots of opportunities, once we get the connectivity that we have been working to achieve.

Mr. CRANE. Yes?

Dr. TEICH. I was just going to say I was one of the ones who testified early in the NCVHS hearings, and certainly they are charged to produce standards, but it is important not to take that task so broadly that they don't stop until they have a few good ones already going.

Dr. SULLIVAN. Also, I actually had to lobby quite a bit this past year to change the law in Massachusetts because we had this handwriting requirement for handwritten signatures. So, if you are going to accelerate the timeline, I think you better be prepared to override some of the tremendous variation from State to State. Now, I will say it is getting better, but it was a very difficult job to lobby the House, and the Senate and the administration in my own State. Everybody saw the win-win for e-prescribing, and so they ultimately did it.

One thing that you could do is help the U.S. Drug Enforcement Administration (DEA) get to be truly electronic. I know that is more on the Administration side, but they have been dragging their feet, in my opinion, for the last 4 years. I have helped the American Medical Association represent them. We are trying to get DEA to be more electronic, in terms of prescriptions for controlled substances.

Mr. CRANE. Thank you. I yield back the balance of my time.

Chairman JOHNSON. Thank you very much. It is impressive that 80 percent of the commercially insured market is connected into RxHub and that, Mr Fuller, you mentioned that 70 percent of the scripts already flow through SureScripts and RxHub. So, we have a lot going on. We have enormous capability. My concern about standards, which you have all emphasized, is that you have done a good job of developing standards for e-prescribing. I think my understanding of what the Administration is trying to do is make sure that those standards end up being appropriate for, in a sense, the building blocks of an interoperable system, including electronic health records. So, we want to be sure that we preserve what you have done, but we build upon it.

This data conversion issue, while formidable for the Medicare population at least, through the billing process, we actually have an enormous amount of e-records. I have people show me electronic health records that are basically government information organized appropriately, but without the detailed notes.

So, this will be a process. It will be a multi-year process, but I appreciate your being here today to help us get a better handle on how we can push it forward. This Administration has been more aggressive than government has ever been in pushing forward the development of electronic capability in any sector of the economy. Normally, it has come from that sector. In this case, the sector is so fractured by millions and millions of small participants that it really does require a public-private effort to achieve the goal that actually Pete was part of achieving in the world of financial management and banking. So, thank you very much. We appreciate your being with us, and we invite you to offer us your thoughts as we move forward and you watch things develop. Thank you very much.

[Whereupon, at 2:33 p.m., the hearing was adjourned.]

[Submissions for the record follow:]

Statement of American College of Physicians

The American College of Physicians (ACP), representing over 116,000 internal medicine physicians and medical students, is pleased to provide written comments on Standards for e-Prescribing. Specific ACP recommendations on e-prescribing are provided beginning on page 8.

E-prescribing's impact will be constrained by the degree to which all health care system players can communicate with each other electronically. Optimal impact will only be achieved when every physician, clinic, hospital, nursing home, laboratory, health plan, and payor can seamlessly transmit medical information electronically in uniform languages and formats. Attainment of this ideal is the very definition of an interoperable health information infrastructure, a goal ACP not only supports along with the Department of Health and Human Services and several legislators, but is also actively pursuing through participation in key demonstration programs such as the Doctors Office Quality—Information Technology demonstration project (implementing Section 649 of the Medicare Modernization Act of 2003).

In furtherance of ACP's advocacy of bringing advanced communications technology to the physician's office, including e-prescribing, the College has recently published a series of three papers * related to this subject. The three papers are listed at the end of this testimony and can be found on the ACP website at: http://www.acponline.org/hpp/menu/med_tech.htm.

Our comments will address the areas of e-prescribing's potential benefits, practical and technical barriers to wide scale e-prescribing adoption, ways to make e-prescribing appealing to physicians without adding to practices' administrative burdens, and the need to assure that e-prescribing medication decisions are not driven by proprietary interests.

1. *E-Prescribing's Potential Benefits*

The many benefits of using e-prescribing, in terms of reduced medication errors, improved quality of care, enhanced administrative efficiency, and lowered costs, clearly justify efforts to expand use of e-prescribing systems.

In the eHealth Initiative's April 14, 2004 report: *Electronic Prescribing: Toward Maximum Value and Rapid Adoption*, there is clear evidence that many untoward drug events are avoided by use of integrated e-prescribing/electronic health record (EHR) systems, averting the associated costs of such drug caused morbidity and mortality. The report indicates that out of 8.8 million adverse drug events which occur each year, over 3 million of these are preventable. Medication errors also account for 1 out of 131 ambulatory care deaths. With over 3 billion prescriptions written each year, the report shows that e-prescribing, if universally adopted in the United States, could save $27 billion annually. Some of these savings would come from prevention of adverse drug events, while the majority of savings would result from better utilization of drugs, through guidance from formulary information included in e-prescribing systems. Any short term start-up costs associated with widespread adoption of e-prescribing technology should be quickly offset by significant cost avoidance related to misadministration of medications. Other potential benefits could be lowered physician malpractice insurance premiums and higher levels of patient confidence and satisfaction.

2. *Practical and Technical Barriers to Wide Scale E-Prescribing Adoption*

a. *Need for a Universally Accepted E-Prescribing Drug Classification and Coding Nomenclature*

For e-prescribing to be adopted on a wide scale, there must first be a universal drug classification and coding nomenclature that is accepted throughout the U.S. health care system.

ACP understands that current day e-prescribing systems can range from the limitations of a stand-alone personal digital assistant (PDA) with basic formulary and prescription generating software, to sophisticated systems which are fully integrated with EHR and clinical decision support software. These advanced systems are potentially able to conduct two way electronic communications with pharmacies, other

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* Three ACP Papers Referenced on Page 1 of Testimony:

(Available on ACP website at: http://www.acponline.org/hpp/menu/med_tech.htm.

[1] *Enhancing the Quality of Patient Care Through Interoperable Exchange of Electronic Healthcare Information* (April 2004).

[2] *The Paperless Medical Office: Digital Technology's Potential for the Internist* (March 2004).

[3] *The Changing Face of Ambulatory Care—Reimbursing Physicians for Computer-Based Care* (March 2003).

physicians and providers, laboratories, health insurers, and pharmacy benefit management organizations. However, at this point in time, two way electronic transmission of patient medication information is a rarity. This is why it is vital that core uniform e-prescribing standards, as called for by the Medicare Modernization Act, be simple and as easy to implement as possible. These standards also need to be easily adaptable from the simplest to most complex of health care settings and must accommodate existing e-prescribing systems without necessitating major software changes, staff retraining, or increased costs. It is also critical that use of e-prescribing systems be transparent to both physician and patient, and enhances rather than distract from the process of patient care.

The current National Council for Prescription Drug Programs (NCPDP) script codes for medications has been accepted as the best available code set available; however, the current NCPDP script codes are not the final solution for bringing simplicity to the identification of medications. In fact, NCPDP has different proprietary codes for every unique product for each pharmaceutical manufacturer, meaning that something as simple as aspirin would have several unique codes due to dosage of each pill and number of pills per package. Another manufacturer of aspirin would have an entirely different set of codes for the same dosages and package sizes, so there is no easy way for a physician to evaluate medications using the current NCPDP script codes.

To try to overcome this unnecessary complexity, the federal government has undertaken a major effort to develop a simplified, unified system of e-prescribing, known as RxNorm. While RxNorm does allow specification of a particular drug's ingredients, dosage, and form (pill, patch, tab, etc.), this new system does not go far enough in allowing a physician to specify critical details of his/her choice of patient medication. Specifically, this includes if a drug should be provided in a compliance packaging form (e.g., certain steroids have to be taken on a strict and reducing dosage regimen), whether certain allergic ingredients such as gluten must be avoided, and what flavoring a child's prescription must have to ensure the child complies with taking the medicine.

There are other gaps in the present NCPDP and RxNorm standards that must be addressed. Standardization of the required data elements ("sig") is necessary to create an electronic prescription. These elements must include the ability to give directions for specific medications in oral or topical form and in various dosing patterns.

There is also a need to standardize specifications of allergy groups, drug interaction groups, etc., so there is consistency as one changes to different applications that use different commercial dictionaries.

Encouragement is needed for unification of varying state regulations concerning the proper format of a prescription as well as unifying standards, terms, and structures used by formulary information service providers.

The resulting standards also need to include a single set of messaging standards that is reconciled with developing HL7 conventions, and can continue to grow and develop to meet future business needs.

In short, ACP encourages the development of a nationwide system expanding upon the efforts of RxNorm to meet the above needs but also avoiding the excessive complexity of NCPDP script codes.

b. *Overcoming Acquisition Cost Barriers and Encouraging Physician Acceptance of Change*

Adoption of e-prescribing technology can best be encouraged by providing the strong financial incentives needed to take the sting out of taking on this new technology's substantial acquisition and start-up costs. The source of these incentives should be the federal government and health plans which will ultimately be rewarded for this investment in the long run as savings are generated by e-prescribing systems. This will be particularly crucial in light of Medicare projections of eight years of physician payment cuts between 2006 and 2013, amounting to a 40 percent pay cut relative to 2005 reimbursement rates. As such, ACP applauds the initiative of health plans such as WellPoint Health Networks, which will soon offer free e-prescribing software to its 19,000 participating physicians.

As more and more physicians make the move to e-prescribing, it will be hard for the rest of the medical universe to resist coming on board, as both doctors and patients clamor for the therapeutic accuracy and quality improvement only e-prescribing can provide.

In addition, standards for e-prescribing must take into account the wide variety of clinical settings and specialties and should be flexible and scalable to reflect a practice's size and prescribing volume. Since universal e-prescribing is likely to precede achievement of a national interoperable health information infrastructure, e-

prescribing standards must allow for basic stand alone electronic prescribing platforms used by smaller practices, as well as more sophisticated integrated EHR/clinical decision support/practice management/e-prescribing systems used by larger group practices and health systems. Most importantly, the physician-patient relationship must be enhanced, not impaired by this new technology.

c. *Careful Pilot-Testing of E-Prescribing to Assure Smooth Operability in All Health Care Environments*

E-prescribing system prototypes should be carefully pilot-tested in a wide array of clinical settings, including small independent community-based physician practices, to ensure e-prescribing works smoothly in all environments. Settings should be both urban and rural, and include the particularly difficult situation where integrated information networks are essentially non-existent and must be developed. The process of development and testing must have the active input of all affected providers and insurers, with cooperative standard setting, and voluntary participation of physicians. Once final standards are decided upon, implementing regulations should provide ample time for those choosing voluntary e-prescribing to come into compliance, avoiding the implementation problems currently experienced with the Electronic Transactions and Code Sets rule under the Health Insurance Portability and Accountability Act.

d. *Compliance with Final HIPAA Security Standards and Drug Enforcement Agency (DEA) Requirements*

Any e-prescribing standards developed must address many issues in the final HIPAA Security standards, due to be implemented in 2005, including what physical safeguards are necessary to guard data integrity, personal authentication, encryption, and patient confidentiality. E-prescribing standards must also address how access to DEA-controlled drugs will be restricted, since many states currently only allow such prescriptions to be written through use of a triplicate (or other special paper) prescription order.

3. *Issues Critical to E-Prescribing Adoption by Physicians*

ACP believes that, for e-prescribing to have widespread acceptance and adoption amongst physicians, this new technology must prove itself as speedy or efficient as filling out a paper script, and hold other advantages not possible with a paper-based system. One absolutely vital component for raising the value of e-prescribing in assuring patient safety and quality is integration with EHR and clinical decision support software. Such an integrated system can help physicians choose the right drug and dose for a patient, based on data already contained in the EHR and patient medication history.

ACP is a leader in the development and dissemination of evidence-based electronic clinical decision support tools, with its Physician Information and Education Resource (PIER), which can be integrated with EHR/e-prescribing software. PIER offers over 300 modules focusing on the diagnosis and treatment of diseases including: a comprehensive, in-depth drug database; a convenient search engine and bookmark features; evidence indicators and standard tables; and the latest clinical information culled from the medical literature. PIER is also available in a PDA format already integrated with some e-prescribing systems presently available on handheld computers. PIER is meant to be a helpful guide to physician decisions and, as should be the case with e-prescribing advice, is never intended to mandate a physician's or patient's final choice of treatment or medications.

ACP fully recognizes that adoption of e-prescribing technology will not be without its growing pains. The vast number of different e-prescribing systems and languages presently in use make interoperable communication among health system components a still distant goal at this time. One ACP member in Maine noted that, although his 25 member group practice had the capability of sending prescriptions electronically to local pharmacies and pharmacy benefit management organizations, virtually no capability exists at the receiving end to accept e-prescriptions and e-signatures. Instead, about 75% of prescriptions must be electronically faxed to the receiving organizations, while the remaining 25% must be printed out as a paper prescription which patients must carry to their pharmacies. The practice estimates printing out prescriptions administratively adds about $1 to the cost of each prescription.

ACP member physicians who previously tried e-prescribing systems also report difficulty with accuracy of formulary information. Many times the formulary information is not kept current with the rapid changes made at the health plan level and physicians' offices remain burdened with phone calls from pharmacies asking for changes because health plan formulary changes have not yet made it through

to the e-prescribing software. Other ACP members say they still believe writing out a prescription by hand is faster than doing it on a computer, so winning converts to the advantages of this new technology will be a major challenge for the medical industry in the years ahead.

ACP believes the following key areas must be addressed to ensure e-prescribing is widely accepted and used by physicians, and does not create new, counter-productive administrative burdens.

a. *Immediate Electronic Access to All Medication and Patient-Specific Information*

To gain the support of the physician community, the e-prescribing system must provide all information a physician requires for reaching a fully informed, optimal clinical decision for the patient, as well as accommodating patient insurance coverage and cost considerations. This means having complete and current formulary information which shows all available medications for a particular condition, including therapeutic substitutions and generic alternatives. Prices for all medications and whether or not a patient's insurance plan provides coverage must also be available online, so that a physician can choose the lowest cost alternative for each patient. This information must be kept up to date and in full agreement with the latest formulary information used by pharmacies and health plans.

The e-prescribing system must also provide a patient medication profile that includes prescriptions from all pharmacy sources and all physicians in a single unified view. The system would provide a list of every individual prescription filled for a given patient by any pharmacy and any physician within a specified timeframe from most recent to least recent and also indicate which prescriptions have been discontinued. In addition the e-prescribing system must be dynamically updated and bi-directionally linked to the physician office medical management system and the most current health plan formularies to eliminate the need for double entry of information such as insurance and demographic information.

b. *Non-Interference in Physician Medication Choices*

It is critical that the e-prescribing system not include elements that would permit payors and pharmacy benefits managers to pressure physicians to prescribe a different therapy or medication than what the physician concludes is best for a particular patient based upon scientific evidence and knowledge of the patient's medical history.

c. *Real Time Online Medication Prior Authorization Adjudication*

One absolutely crucial element of an effective e-prescribing system is inclusion of a real time, online prior authorization adjudication process for physicians with insurers, health plans, and pharmacy benefit management organizations. Physicians will be discouraged from using e-prescribing systems if, every time there is a dispute over coverage/payment for a prescribed drug, they are forced to make a lengthy phone call to get approval, or fill out additional paperwork to override an initial denial. Such tactics intentionally frustrate physicians, forcing them to use the payors' lower cost choices, rather than make the best therapeutic choice for their patients. If the federal government truly wants e-prescribing to have broad acceptance and usage in the physician community, rapid online decisions for prior approval medications must be a cornerstone of all future e-prescribing systems.

4. *Need to Assure that E-Prescribing Medication Decisions Are Not Driven by Proprietary Interests*

To create a universally beneficial e-prescribing system, the drug classification and coding systems, as well as prescribing databases must be free of commercial bias. ACP is concerned that the current multiple drug classification, vocabulary, and database systems in use are often proprietary, designed to optimize profits of manufacturers, pharmacy benefit managers, and health plans rather than provide the medically best and cost-effective drug a patient needs. One major loophole in the Medicare Modernization Act of 2003 is that even though the U.S. Pharmacopoeia is charged with developing a single drug classification system, payors are not required to use it. Payors can consolidate or expand drug classification categories as they see fit, which will allow formulary comparisons and physician prescribing patterns to be inappropriately influenced. Clearly, all parties involved with the manufacture, sale, distribution, and prescription of prescription drugs should work with a consistent classification system free of commercial bias to permit fair, objective comparison of drug costs and benefits.

Summary

The coming revolution in electronic health information technology is one that will benefit all, simultaneously raising health care quality, lowering costs, and expediting the process of care. Accruing evidence shows that e-prescribing has the greatest potential to improve patient care substantially and quickly, which is why it must be a top priority as the nation moves from a fragmented, multi-system, primarily paper-based approach to a unified electronically-based system for handling patient medications. As such, ACP lends its hearty support to this worthy endeavor and is willing to actively participate in e-prescribing and national health information infrastructure pioneering efforts.

ACP e-Prescribing Recommendations

Following is a set of ACP recommendations aimed at encouraging expanded adoption of e-prescribing throughout the U.S. health care system:

1. **There should be a single universal vocabulary and classification system for prescription drug information that must be developed and maintained in a manner that is free of commercial bias so that prescription drugs can be accurately used and compared.**
2. **The health care industry should support the widespread adoption and further enhancement of RxNorm to provide a consistent, easily used, drug vocabulary that includes:**
   a. **a specification system of drug active ingredients, dosage, and route of administration expanded to include inactive ingredients;**
   b. **standardization of required data elements ("sig"), drug dictionaries and state regulations concerning the proper format of a prescription;**
   c. **a single set of messaging standards that is reconciled with developing HL7 conventions that can continue to grow and develop to meet future business needs.**
3. **Due to substantial evidence showing e-prescribing systems have a major and immediate impact on averting adverse drug events and associated costs, first priority in developing a national health information infrastructure should be placed on developing uniform standards for e-prescribing, and providing sufficient federal support and financial incentives to ensure all providers adopt and utilize e-prescribing systems.**
4. **Development of e-prescribing standards and software should be a voluntary, cooperative process between the federal government and health care industry, with the goal of ensuring buy-in of all affected parties to expedite implementation once universally accepted standards are achieved. Standards developed should be easily adaptable to existing e-prescribing systems, with minimal disruption and cost while also having the flexibility to meet future business needs.**
5. **To have maximum impact on quality of care, e-prescribing systems must be designed so they can be easily integrated with electronic health records and clinical decision support software.**
6. **To ensure that e-prescribing systems can work at the national level, they should first be pilot tested in a wide array of health care settings and environments to identify and correct any technical problems that would undermine widespread implementation.**
7. **In designing and pilot testing e-prescribing systems, to win provider support, it is vital that objective data be collected that clearly demonstrates such systems not only avert medication errors, but also save providers time and money over pre-existing systems.**
8. **Even after pilot testing has proven successful, national adoption of e-prescribing systems should not be rushed, giving voluntary providers sufficient time to acquire the necessary software and hardware and communications networks, as well as time to become familiar with and confident in using the new systems. Implementation timelines should allow ample time to make all necessary adjustments and allow sufficient time for training and system testing before going live.**
9. **The physician's responsibility to make patient care decisions and prescribe medications, based on his or her clinical expertise and experience, must be preserved. Electronic health record (EHR), e-pre-**

scribing, and other e-health technology must be designed to facilitate access to unbiased and evidence-based decision support tools.

10. **EHR and e-prescribing systems must dynamically/bi-directionally link to the physician office medical management system, reducing the need for double entry of information such as insurance and demographic information.**
11. **Insurance companies must place clear formulary codes on insurance cards and e-prescribing systems so that formulary checking can be seamless and accurate and up to date with the most recent formulary requirements.**
12. **E-prescribing systems:**
    a. **Must provide a patient medication profile that includes prescriptions from all pharmacy sources in a single unified view. The system would provide a list of every individual prescription filled for a given patient by any pharmacy or physician within a specified timeframe from most recent to least recent and indicate which prescriptions have been discontinued.**
    b. **must be dynamically updated with the most current health plan formularies.**
    c. **must conform to the final HIPAA Security standards, due to be implemented in 2005, and address issues such as what physical safeguards are necessary to guard data integrity, personal authentication, encryption, and patient confidentiality, as well as addressing the impact of e-prescribing on access to DEA-controlled drugs, which can only be provided through a triplicate (or other special paper) prescription order in many states.**
    d. **must not be used as a means for payers and pharmacy benefits managers to pressure physicians to prescribe a different therapy or medication than what the physician concludes is best for a particular patient based upon scientific evidence and knowledge of the patient's medical history.**
    e. **must have a real time online prior authorization adjudication process for all physicians' prescriptions.**

Statement of America's Health Insurance Plans

America's Health Insurance Plans (AHIP) is the national trade association representing the private sector in health care. Our nearly 1,300 member companies provide health, long-term care, dental, vision, disability, and supplemental coverage to more than 200 million Americans.

AHIP and our member companies applaud Congress for enacting legislation encouraging the development of uniform standards for electronic prescribing. We believe that the electronic prescribing initiative authorized by the Medicare Modernization Act of 2003 (MMA) is an important step toward developing an overall health information infrastructure.

The MMA mandated the development of standards for electronic prescribing for the new Medicare Part D prescription drug program. We believe these standards will have a significant impact on the application of electronic prescribing in physician offices, hospitals, and pharmacies. We appreciate this opportunity to provide our views and recommendations on electronic prescribing issues.

According to estimates from the Centers for Medicare and Medicaid Services (CMS), approximately 32.2 million Medicare beneficiaries will be enrolled in Part D beginning in 2006. The electronic prescribing standards will impact the relationship between these beneficiaries and their treating health care providers. It is vital, therefore, that the standards promote the delivery of efficient, safe, and high quality health care. The electronic prescribing standards adopted by the Department of Health and Human Services (HHS) will also strongly influence the development of similar standards for private sector health care.

This statement discusses the experience of some of AHIP's member companies in encouraging the use of information technology for pharmacy benefit activities. It also includes recommendations for electronic prescribing standards that we are submitting to the National Committee on Vital and Health Statistics (NCVHS). The NCVHS is charged with advising HHS on the development of requirements for electronic prescribing standards.

Health Insurance Plan Pharmacy Initiatives

Health insurance plans have taken the lead in building the information infrastructure necessary for translating pharmacy data into better patient care. Many of AHIP's member companies utilize web portals to allow individual members access to their pharmacy-related personal information, including pharmacy claims, benefits information, up-to-date formulary listings, and online search tools to find participating pharmacies by zip code or geographical area. Some health insurance plans also allow members to fill or refill prescriptions online, send questions electronically to a pharmacist about their medications, and purchase over-the-counter medications online at discounted prices.

A number of AHIP's member health insurance plans are working with health care providers to incorporate everything from comprehensive electronic medical record and electronic prescribing programs to handheld devices and other software and hardware prescribing applications for use in provider offices. Health care providers are able to use this technology to view a patient's medication history, diagnosis, formulary information, or allergies at the point of prescribing and can either print the prescription or send it directly to the pharmacy electronically.

These efforts demonstrate our members' commitment to the development of electronic prescribing technologies at the point of patient care.

Practical Considerations for Electronic Prescribing Standards

We have urged the NCVHS to include the following considerations when developing its recommendations for electronic prescribing standards.

Standards Must Allow for Formulary and Benefits Information to be Made Available to the Prescribing Health Care Provider at the Point of Service

It is critical for health care providers and their patients to have all of the information needed to make decisions about health care—including information about cost and benefits coverage for prescription drugs and about potential drug interactions. The MMA specifically requires that the standards inform the prescribing health care professional and the pharmacy and pharmacist regarding "information on eligibility and benefits (including drugs included in the applicable formulary, any tiered formulary structure, and any requirements for prior authorization) . . ." In addition, the standards must provide information about "the availability of lower cost, therapeutically appropriate alternatives (if any) for the drug prescribed."

Consumers need to be able to access information about their covered benefits and financial responsibility *at the time a prescription is written*. This information must include whether a prior authorization is required, applicable formulary information, any reasonably estimated co-payment or cost-sharing amounts that will be the patient's responsibility, and whether less costly, therapeutic alternatives are available. Providing this information allows the prescribing health care provider and his or her patient to discuss the full range of prescription drug therapies available for treatment. In addition, electronic prescribing can improve the quality of care by giving providers information on potential drug interactions and other clinical decisionmaking support. The standards should allow for such functions.

AHIP recommends that electronic prescribing standards provide access to health benefits and formulary information, as well as appropriate decision support, at the point of patient care. This information should include whether a prior authorization is required, applicable formulary information, any reasonably estimated co-payment or cost-sharing amounts that will be the patient's responsibility, and whether less costly, therapeutic alternatives are available. Standards should also allow information about drug-to-drug interactions and other clinical decisionmaking support.

The Standards Process Must Be Flexible

Health care providers and health insurance plans have invested significant resources over the past few years in implementing standards for electronic health care transactions and code sets required by the Health Insurance Portability and Accountability Act (HIPAA). This process has provided a number of important "lessons learned" that are applicable to the development of electronic prescribing standards.

One of the criticisms of the HIPAA standards process is that it applies formal agency rulemaking to standards that may need to be modified to meet a changing business environment. The HIPAA process requires any new standards or modifications to first be approved by a Designated Standards Maintenance Organization (DSMO), then submitted for review by all other DSMOs, then reviewed and approved by the NCVHS. At that point, the standard is recommended to HHS, which

must publish a proposed rule, accept public comment, and after consideration of those comments, release a final rule.

This process requires a significant amount of time before a new HIPAA standard can be introduced or an existing standard is modified. Imposing a similar process for adopting electronic prescribing standards could lead to a number of administrative and operational difficulties because the standards would not keep pace with changing business needs.

AHIP believes that a flexible, streamlined process must be implemented for adoption and modification of the electronic prescribing standards.

Pilot Testing of the Standards is Critical

Another important lesson from the HIPAA experience is the need to submit any standards to rigorous testing before proceeding to implementation. Testing standards under "real world" conditions will help determine if any changes are needed before the standards are implemented system-wide.

The MMA includes a requirement that the new electronic prescribing standards be pilot tested under HHS direction unless there is adequate industry experience with such standards. We believe that pilot testing is critical to the success of electronic prescribing standards and should be required for *all* proposed standards, including those currently in use by some health insurance plans, health care providers, and pharmacies.

The Medicare Part D program establishes a unique set of cost-sharing and other requirements which are not applicable to private sector business. A standard that has been successfully used for the private sector may not satisfy the Medicare Part D requirements. Pilot-testing is necessary to determine whether any proposed standard, regardless of its prior industry experience, will meet the Medicare Part D requirements.

AHIP believes that any electronic prescribing standards must be pilot tested before final adoption of HHS.

Initial Stages: Evaluation of Standards

Incorporating new technology into physician practices requires a significant amount of preparation, administrative resources, and training. In order to encourage adoption, electronic prescribing standards must be kept simple and easy to understand. When possible, existing standards, such as those developed by the National Council on Prescription Drug Progress (NCPDP) or by the American National Standards Institute Accredited Standards Committee X12 (ANSI ASC X12), should be used rather than creating an entirely new standard. In addition, the standards should outline minimum functionally requirements, instead of mandating proprietary formats.

The NCVHS "Work Plan" includes a number of standards requirements for consideration that go beyond those set out in the MMA. While it may be appropriate in the future to include this additional information in the electronic prescribing process (for example, information about prescription drug-to-lab test cross checks), the initial standards should be limited to the MMA's specific requirements. It is more important to get the basic components of electronic prescribing right at this early stage than to impose additional information requirements.

AHIP recommends that the initial electronic prescribing standards developed by the Secretary be limited to the specific information requirements set out in the MMA.

Standards Must be Compatible with Other E-Health Requirements

Health insurance plans and health care providers are subject to the HIPAA transaction standards which set out requirements for basic health care transactions such as claims, enrollment, and payment. Other HIPAA administrative simplification rules govern the security and privacy of information exchanged between health care providers, health plans and insurers, and health care clearinghouses.

The health care community is also engaged in a wide range of initiatives related to the development of electronic health records, interoperability standards, and increasing use of information technology in the delivery of health care. The electronic prescribing standards that the Secretary will eventually adopt should not be considered in a vacuum; they must fully complement these other regulatory requirements and health information initiatives.

AHIP recommends that the electronic prescribing standards be consistent with existing regulatory requirements imposed on health care providers and health insurance plans by the HIPAA standards for electronic health care transactions, health information privacy and security. To the greatest extent possible, the electronic prescribing standards adopted by the Secretary should use, or be based on, existing standards that are wide-

ly accepted in the health care industry. In addition, we believe the Secretary must make sure that the standards that are adopted are compatible with ongoing efforts by the health care community to develop and implement electronic health records and interoperable health information systems.

Conclusion

AHIP and its member health plans and insurers strongly support the development of a uniform set of standards for electronic prescribing for the Medicare Part D program. We believe these new standards will improve the quality and efficiency of health care provided to Medicare beneficiaries and will encourage the development of electronic prescribing processes in physician offices, hospitals, and pharmacies.

Statement of the American Osteopathic Association

The American Osteopathic Association (AOA), which represents the nation's 54,000 osteopathic physicians, would like to take this opportunity to thank Chairwoman Nancy L. Johnson and members of the Subcommittee for holding this important hearing on the adoption of standards and technologies for electronic prescribing. Your commitment to improving the health care delivery system is commendable. The AOA supports initiatives aimed at improving the quality and safety of care available to our patients. E-prescribing offers a unique opportunity to improve the quality of patient care and increase efficiency in the disbursement of prescriptions.

While technology impacts almost all aspects of our daily lives, a number of barriers remain to the utilization of technology in writing prescriptions and ultimately the development of comprehensive electronic health records. Enactment of the "Medicare Modernization Act" (MMA) (P.L. 108–173) served as an important catalyst in the development and utilization of e-prescribing standards and technologies. Adverse events occur each year as a result of drug interactions or illegible handwriting on prescriptions resulting in a patient taking incorrect medication. In light of the technologies currently available and the continual creation of new technologies, there is little reason not to employ such technologies that stand to improve patient care.

As a result of the MMA, the Secretary of the U.S. Department of Health and Human Services (HHS) must develop uniform e-prescribing standards. These standards require that patient and medication information be available at the point of care. Due to this requirement, a number of stakeholders actively became involved in the development of standards and technology. In the end, it is the patient who will benefit from a system that will improve the quality and efficiency of health care. Implementation of e-prescribing will help reduce the occurrence of adverse events and improve the safety and efficiency of medicine. A safe and efficient health care system benefits everyone.

The AOA recently adopted guiding principles on e-prescribing. These principles serve as the framework for the development and adoption of electronic prescribing standards and technology. Specifically, the AOA set forth seven core provisions that we believe should be present in an e-prescribing system. Application of these principles will assist our physicians in providing the highest possible level of care to our patients:

- ***Safety:*** The units used to prescribe electronically should clearly show safety alerts. These alerts should be distinguishable from advertisements. In our opinion, advertisements adversely impact efficiency and offer no clinical benefit.
- ***Privacy:*** Privacy of the patient must be protected. Information on patients' medications should be current, comprehensive, and compliant with standards set forth in the "Health Insurance Portability and Accountability Act" (HIPAA).
- ***Transparency:*** All third party involvement in an electronic prescribing system must be clearly identified.
- ***Design:*** The development of any system must ensure that the physician-patient relationship is protected to ensure that doctors in conjunction with their patients dictate the care, not computer software. In addition, the system must be designed in a manner that ensures that new health care errors are not introduced into the health care delivery system.
- ***Integration:*** Systems should be proven and integrated into existing health information technology. E-prescribing can be an important component of a larger electronic medical record.

- ***Scalability:*** Any standards should be broad-based and applicable to all health care delivery systems.
- ***Timing:*** Standards should be implemented in a manner that allows software vendors and physicians adequate time to become compliant. In addition, we strongly advocate for broad testing of technologies and standards to ensure efficiency and effectiveness.

This hearing furthers an important dialogue. The AOA stands ready to work with you and the members of the Subcommittee to ensure the development of e-prescribing standards and technologies that are designed and implemented to enhance the quality of care our patients receive and assist with the efficiency of delivering health care services. While the AOA agrees e-prescribing increases safety and efficiency and potentially lowers the costs of health care, we do not believe that this should come in the form of additional unfunded mandates on physicians. E-prescribing offers great potential if all interested parties remain part of the process.

Statement of Tom Doerr, Wellinx, Saint Louis, Missouri

An Electronic Prescribing System with Integrated Decision Support Information Substantially Reduces Medication Costs

Thanks for the opportunity to present information to your Committee. My name is Tom Doerr. I am a physician with a part-time Internal Medicine practice that is limited to Medicare beneficiaries. I am also one of the two physicians who founded Wellinx, an electronic prescribing company.

Physicians direct about 70% to 90% of spending in the $1.8 trillion health care sector of the U.S. economy.[1,2,3] As a rough calculation, every thousand physicians makes about $2 billion of spending decisions annually. Yet the information brought to these decisions is often profoundly inadequate. The prices of medications, tests and procedures are not transparent to physicians or patients, nor is adequate information about the relative effectiveness of the alternatives available at the time and point of thought where these decisions are made.

Wellinx was founded to bring context-specific, evidence-based information into physician decision processes. The first application was an electronic prescribing tool. The Wellinx system is diagnosis-driven, meaning that the physician first enters the diagnosis he/she is treating and this then drives the presentation of information relevant to that condition. The Wellinx team of pharmacists and physicians summarizes clinical best practices through reviews of clinical trial results and published, evidence-based guidelines. They then integrate these best practices into the physician's workflow in a convenient, usable way.

In many cases, the weight of the evidence favors selection of older, well-studied drugs, often available in generic form. This evidence-based approach drives measurable improvements in patient outcomes.

The Wellinx Electronic Prescribing System

Wellinx implemented this diagnosis-driven electronic prescribing system at Esse Health, a 70-physician group in Missouri, several years ago. We measured a significant improvement in prescribing behavior in that group.

Thereafter, we studied the impact of this system in a controlled trial that included 38 physicians practicing in an Integrated Delivery Network in Wisconsin. Compared to the control group, the costs for new prescriptions and their refills decreased by 8% ($572 per doctor per month) in the intervention group during the first six months that they used the system. During the next six months of use, the costs to the payer were reduced by 15% ($1,062 per doctor per month) compared to controls. Almost identical improvements were observed after the system was implemented in the control group in that IDN. Overall, the payer in this study measured their return on investment to be around six to one in the first year.

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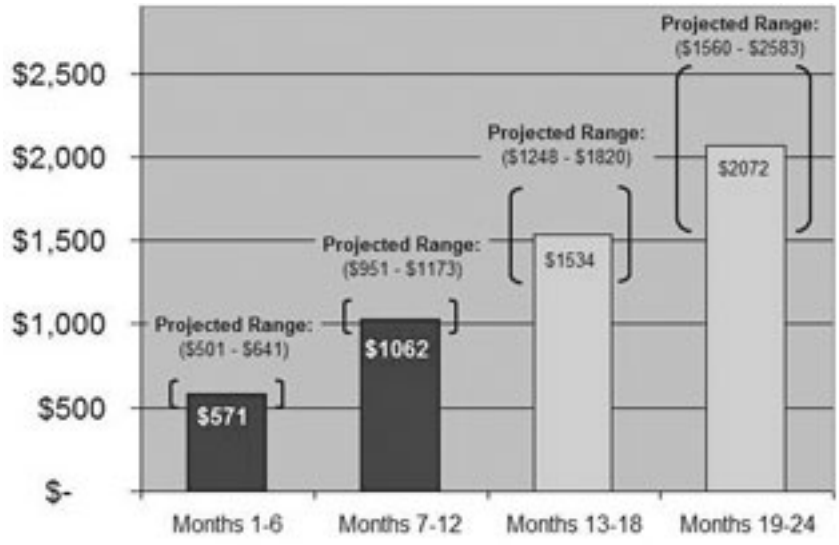
[1] Baker, Michael J. estimated that physicians have 70% of the spending authority in health care in *Pharmacy Benefit Management: A Prescription for Controlling Health Care Costs*, Raymond James & Associates, Raymond James Financial Center, 880 Carillon Parkway, St. Petersburg, FL 33716, December 29, 1999.

[2] Maynard D. Poland published the estimate of 80 to 90% in 1999. http://www.wisconsinmedicalsociety.org/uploads/wmj/poland.pdf.

[3] Diede, Mick L. Diede and Richard Liliedahl estimated that physicians direct 70% of health care spending in Managed Care, February 2002. None of these three sources presented any data to substantiate their estimates.

The results of this study have been accepted for publication by the Annals of Family Medicine and are currently in press. It is important to appreciate that the full impact of the savings in pharmacy costs were probably not realized in the first year of that study. As the system is used for a longer period of time, a progressively greater percentage of patients in that doctor's practice get new prescriptions guided by this system. Refills of these new, more appropriate medications compound the savings. Table 1 shows the measured results and projected savings over a two year period. These results represent the experience of a commercial plan with a 40% market share.

Table 1: Measured and Projected Savings per Doctor per Month for a Payer with a 40% Market Share



We can perform some back of the envelope calculations to estimate the possible impact of this electronic prescribing system on the Medicare system. About 14% of Americans are currently Medicare beneficiaries. According to the 2003 Novartis Pharmacy Benefits Report, medication costs for Medicare recipients were about twice those of commercial populations. Thus, we might expect potential savings per doctor of about ⅔ the magnitude of those measured in the Wisconsin study, if all of a doctor's Medicare recipients were treated with this prescribing system. (14% market share [6] 2 to reflect higher drug costs, versus 40% market share for the sponsoring payer in the Wisconsin study).

The savings resulting from the use of Wellinx could be used to bring the costs of the Medicare Modernization Act back into line with the original CBO estimates. Or they could be used provide incentives to physicians for adopting this technology or as payments for performance. We suspect that it takes tools, such as this Wellinx system, and incentives to optimize physician performance. A detailed analysis of the impact of this system in a Medicare Demonstration Project that includes performance-based financial incentives for physicians is presented in Appendix A.

The results seen in the Wisconsin study have subsequently been replicated over the first nine months in a study of another group of physicians sponsored by a payer in Maine.

All studies of this system to date have been limited by their small size. And they focused on commercial populations because the sponsoring payer has never been CMS. Nonetheless, there is a remarkable consistency of results. Overall, 65% of all prescriptions that are written by physicians using Wellinx are for generic medications. Also of note, these physicians write an average of 15 new prescriptions per doctor per day. This high rate of utilization compares favorably to other systems on the market.

The Esse Health Story

In the mid 1990's, physicians at Esse Health, a 70 doctor group in St. Louis, http://www.essehealth.com became involved in global risk contracting. As part of this effort, they recognized a need for clinical decision support information in their workflow. The doctors collaborated and created annual editions of a medication prescribing guide that was inspired by *Consumer Reports* magazine. By 1999 this was a 140 page book with chapters written by ten physicians and a pharmacist. Esse doctors carried these books around in the pockets of their white coats and used them as a reference source.

In late 1999, Vic Turvey, the president of United Health Care of the Midwest noted that Esse was "one of the top two performing medical groups in all of the U.S." according to UHC's measures of quality of care, patient satisfaction and cost-effectiveness in their Medicare HMO product.

In the late 1990's most medical groups abandoned contracts that put them at financial risk for their decisions. They did not have the data infrastructure or the decision support information to manage risk properly.

In contrast, the Wellinx system has helped Esse Health embrace risk and manage it responsibly. This group of doctors began to self-insure against malpractice in 2004. They also became licensed as an insurance company and launched their own Medicare + Choice managed care plan in June 2004.

Appendix A: Example of a CMS Incentive Program that Combines Financial and Quality Metrics

CMS has proposed the Physician Group Practice Demonstration, a financial incentive program that rewards physician groups based on the demonstration of improved quality and decreased cost.[4]

The following example uses this CMS model, adapted to illustrate the potential value of a shared bonus program related to evidence-based, fiscally responsible prescribing. The results of the Wisconsin trial noted above are used to demonstrate the value to the payer (CMS) and participating physicians.

In the Physician Group Practice Demonstration, changes in medical costs for patients of participating physician groups are compared to those of other physicians in the same geographic region. Each year for three years, the observed growth rate in the control group is used to estimate the expected costs in the study group. If the study group's actual costs are less than their expected costs, the group shares in a portion of these savings. If a loss should occur, these will accrue to the physician group and bonuses will be reduced in subsequent years to cover these losses.

Physician groups have up to three years to generate savings and earn a bonus. If sustained improvements are seen over a three-year period, physicians can earn an additional bonus. If a group leaves the program before the end of the three-year program, they will be required to reimburse the payer the full amount of any bonus payments they have received. Every three years, baseline expenditures are re-calibrated to prevent rewarding physicians for past performance.

The Physician Group Practice Demonstration also contains other important attributes. For example, the intervention and control group costs are corrected for patient mix, high-cost outliers are excluded from the analysis, and there is a minimum threshold value of 2%. In other words, the difference in costs between the intervention and control group must be greater than 2% before any bonus is earned. This may prevent rewarding physician groups for differences that could be due to chance.

Calculating Bonuses and Example Savings

EXAMPLE: In the first year of the Wisconsin trial, the average cost per prescription increased by 4.5% in the control group. Based on this growth rate, the expected cost per prescription in the intervention group would be $48. During the study period, patients treated by physicians in the intervention group filled 40,000 prescriptions but their average cost was only $42. The difference between the expected cost ($48) and the actual cost ($42) represents savings of approximately $240,000 or $12,630 per physician.

Of this $240,000, the Physician Group Practice Demonstration model would put 60% ($144,000) into the program's bonus pool: 70% of the bonus pool ($101,000 or $5,300 per physician) would be paid solely for financial performance and 30% ($43,000 or $2,300 per physician) would be available for quality bonuses. The actual

[4] A detailed description of the Physician Group Practice Demonstration was published in the *Federal Register*, September 27, 2002: 67:61116–29. It is available online at http://cms.hhs.gov/healthplans/research/927FRN.pdf.

amount of quality bonus earned would be determined by the percentage of indicators on which the group received a satisfactory score. For example, a group that satisfied only four of eight quality indicators would receive 50% of the maximum quality bonus, and the payer would retain the other 50%.

In addition, the remaining 40% of the total savings ($96,000) would be retained by CMS. Half would be kept by CMS as guaranteed savings, and the other half would be temporarily held to insure against potential losses in subsequent years. If no losses were incurred over the three-year period, physicians would be eligible for an additional 20% bonus.

In summary, we believe the Physician Group Practice Demonstration model is a well-designed incentive program that provides adequate financial incentives for physicians, while also protecting the interest of CMS.