

# Saving Lives and Reducing Costs in Healthcare

Policymakers, healthcare professionals and industry leaders examine the benefits of advanced technologies in healthcare



MASSACHUSETTS  
TECHNOLOGY  
COLLABORATIVE



New England Healthcare Institute

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New England Healthcare Institute

#### **The Massachusetts Technology Collaborative**

MTC is a quasi-public economic development agency based in Westborough. The agency works to strengthen the state's high-tech industry clusters and specializes in assembling professionals from industry, academia and government to create new economic opportunity for the Commonwealth.

#### **The New England Healthcare Institute (NEHI)**

NEHI specializes in identifying innovative strategies for improving health care quality and reducing health care costs. NEHI conducts independent, high quality research that supports evidence-based health policy recommendations at the regional and national levels. Member representatives from the academic health center, biotechnology, employer, medical device, payer, pharmaceutical, hospital, provider, and research communities bring an unusual diversity of talent to NEHI's work. We collectively address critical health issues through action-oriented research, education, and policy initiatives.

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\* As of the publication date, several participants did not submit written testimony.

## Executive Summary

When we improve care, reduce waste, prevent errors and improve health status, we strengthen our economy.

*Ronald Hollander,  
President,  
Massachusetts  
Hospital Association*

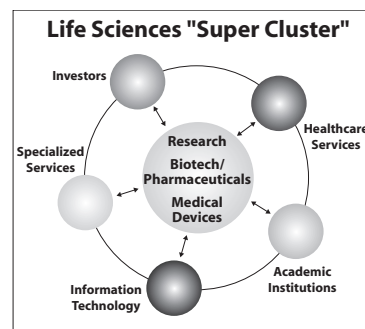
Implementing advanced technologies in healthcare holds enormous promise to improve the quality, safety and affordability of healthcare while also enhancing the competitiveness of current businesses and leading to new high tech jobs in Massachusetts. These were the conclusions drawn by experts testifying at a special legislative hearing on health technologies.

Two joint legislative committees visited the Massachusetts Technology Collaborative's offices in Westborough for a field hearing in May 2005 to examine the benefits and opportunities to expand the use of advanced technologies in healthcare.

The hearing, "Saving Lives and Reducing Costs in Healthcare," was led by the Joint Committee on Healthcare Financing Co-Chairs Senator Richard T. Moore and Representative Patricia A. Walrath, and the Joint Committee on Economic Development and Emerging Technologies Co-Chairs Senator

people and contributes \$26 billion annually to the state's economy, supporting implementation of advanced technologies in healthcare could lead to new job creation and product development in our high tech companies.

Business leaders Richard Lord of the Associated Industries of Massachusetts and Christopher Anderson of the Massachusetts



High Technology Council cited the rising costs of healthcare as among the top concerns of companies. They agreed that making the healthcare delivery system more efficient through technology will improve the competitiveness of businesses across industry sectors in Massachusetts. Technology-based solutions in healthcare should also be part of a long term economic growth strategy for Massachusetts.

Much of the testimony focused on cutting-edge computer applications including electronic health records, e-prescribing and computerized physician order entry (CPOE). A report by the Massachusetts Technology Collaborative and the New England Healthcare Institute found that patient safety and the quality of patient care could be vastly improved if physicians used specialized computer systems to order



Pictured left to right: Rep. Bosley, Sen. Hart, Sen. Moore, Rep. Walrath and Rep. Scibak

Jack Hart and Representative Daniel E. Bosley, as well as Representative John Scibak.

It was clear from the testimony that improving healthcare has far reaching implications on our quality of life as well as on the strength of the state's economy. Given that the Massachusetts life sciences "super cluster" employs more than 600,000

There are advanced technologies which can dramatically lower health care costs and improve quality. The technologies are proven. The associated benefits are known. But there are barriers in the system, which impede their implementation. We can change that.

*Mitchell Adams, Executive Director,  
Massachusetts Technology Collaborative*

medications, lab work and other diagnostic tests for patients.

Currently, 70% of hospitals in Massachusetts, or 46 institutions, have not implemented the CPOE technology. Some of the reasons frequently cited for this failure include high capital costs of the equipment, inadequate payment systems, and cultural resistance to change.

"It's clear that technology in healthcare can save both lives and money," said Senator Moore. "State government has a role to play as a catalyst for improving healthcare by being a key partner with health providers in making sound investment in cost-effective care."

Micky Tripathi, the President and CEO of the Massachusetts eHealth Collaborative, talked about the need for widespread adoption of modern information technology in clinical settings and focused on expansion of electronic health records. With a \$50 million commitment from Blue Cross and Blue Shield of Massachusetts, clinical IT demonstration projects are underway in Brockton, Newburyport and North Adams to learn the most effective means to establish a statewide electronic health information infrastructure.

Steven Simon, MD, MPH, assistant professor of ambulatory care and prevention at Harvard Pilgrim Health Care and Harvard Medical School noted that fewer than 20% of U.S. physicians use electronic health records. Strong research indicates these records can reduce costs and improve the quality of care.

"Massachusetts remains a national leader in the healthcare technology industry," stated Senator Hart. "I'm pleased to listen to

innovative ideas developed by important business and government leaders."

"In order for us to make costs more manageable yet still serve the demands of all the people served by our healthcare system, we need to take advantage of new technologies", said Representative Bosley. "It is vital that we have a system that is efficient and reliable, and one that benefits both providers and patients alike."

"The insatiable demand of healthcare spending in Massachusetts is beginning to eat into every area of state spending," said Representative Walrath. "After paying for skyrocketing healthcare costs, there is very little money left over to restore cut programs and make new investments. I hope that collaboration will lead to real savings in healthcare spending and ease some of the mounting strain on the state budget."

Potential Annual Savings

Emerging Technology	Projected Net Annual Benefit (Assuming 75% Adoption Rate)
Electronic Patient -Physician Communication	\$ 167.8 million
E -Prescribing	\$ 140.7 million
Ambulatory CPOE	\$ 290.3 million
Inpatient CPOE	\$ 966.0 million
Disease Management	\$ 710.0 million
Regional Data Sharing	\$ 23.8 million
E-ICU	\$ 177.4 million
<b>Total</b>	<b>\$ 2.48 billion</b>

The price tag for implementing life-saving computer systems in Massachusetts hospitals that do not have them is approximately \$210 million, which would be offset by projected net savings of \$275 million annually. More importantly, these systems could save as many as 500 patient lives each year.

Each time we make a medication error such as ordering a drug that should not be combined with other medications, it costs an average of \$6,000. We can avoid harm to patients and reduce costs.

*Wendy Everett,  
President of the  
New England  
Healthcare Institute*



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## Testimony of Mitchell Adams

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Hearings before the Joint Committees on  
Health Care Financing

And

Economic Development and Emerging Technologies

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Massachusetts Technology Collaborative

Westborough

May 5, 2005

Thank you all.

Our health care system is challenged with very significant problems of quality and cost. Reports of the Institute of Medicine have indicated that between 50,000 and 100,000 Americans die annually due to preventable errors. Every year over 200,000 patients are harmed and nearly 7,000 die due to medication errors that we could prevent. Costs are high and continue to rise at double digit levels, consuming ever greater portions of the budgets of companies and of governments. Data show that of seventy metropolitan areas in the United States, the cost of health care is highest in Boston, with the single exception of Anchorage, Alaska.

Our health care system is complex, and there are a number of ways these challenges might be addressed. One of the most powerful tools we have is advanced technology. The Massachusetts Technology Collaborative and the New England Healthcare Institute have done concentrated work over the last two years in examining advanced technologies that combine two characteristics – 1) they reduce costs, and 2) they improve quality. Our report of almost two years ago “Advanced Technologies to Lower Health Care Costs and Improve Quality” showed that there are seven technologies which, if implemented in Massachusetts, would improve quality and safety in our health care system, and reduce costs \$2.5 billion on an annual basis. The report was based on the real, proven capability of known technologies. It identified the barriers impeding implementation, and presented an agenda for addressing the barriers in order to speed adoption. There is no question that we have a huge opportunity here, if we pursue this agenda.

I'd like to take a minute now to present a vision for Massachusetts. It is a future in which Massachusetts has become the nation's leader in the adoption of the technologies which can improve quality and patient safety, and lower cost at the same time. In all practice settings in the state, all physicians' offices, large and small, all clinics and in all inpatient facilities, there is an electronic medical records system with imbedded clinical decision support. All locations are equipped with computerized physician order entry systems which interconnect with pharmacy all the labs and ancillary facilities. Moreover, all these systems are interoperable. They talk to one

another freely. By all measures of safety and quality Massachusetts stands out in the nation, and is the envy of other states. Our health care system has become increasingly efficient, and the cost of health care in Massachusetts has declined in comparison to other urban centers. In addition, that part of the state's high tech industry which provides these advanced technologies and services to the health care industry-the IT sector, hardware, software and systems, medical devices, and specialized services, and many others, has become a leader in national and international markets. Having grown at a rapid pace for years, it has become a vibrant economic cluster one of the most critical contributors to the state's strong innovation economy.

This is not a pipe dream. Massachusetts has already taken a leadership role in the advancement of these initiatives that are coming to be called "e-Health".

There is significant activity in every one of the seven, exciting technologies identified in our report. The Massachusetts e-Health Collaborative, which Micky Tripathi will address, is a broad based initiative of stakeholders that has formed to pursue the goal of wide-spread electronic medical records in all practice settings, and has made stunning headway. It has the commitment of key leadership in all sectors and is made possible by the leadership of Blue Cross and its significant financial support of \$50million. The Hospital CPOE Initiative has been organized by the Mass.Technology Collaborative and the New England Healthcare Institute. With funding of \$1.2 million from a state appropriation and MTC's funds, and led by the Mass. Hospital Association, the Mass. Council of Community Hospitals and other key stakeholders, it has undertaken to install computerized order entry systems in all the state's hospitals that don't now have them – and to get this done in a four year period. The costs of the project are expected to be about \$210 million, and the project has an expected payback of about eight months, because projected savings are \$275 million annually. Beyond these initiatives there has been groundbreaking success in a number of other areas; the Mass. Health Data Consortium's MassShare effort with its MedsInfo project, e-Prescribing and disease management initiatives. The rest of the country is looking on with keen interest and expectation.

What is the reason for all this success? With a health care system as complex, decentralized, and multi-faceted as ours, achievements like these can only come about by concerted, collaborative action. And that is what has developed in Massachusetts over the last several years. With leadership from the administration, the Legislature, the payers, and in particular Blue Cross, the providers, and associations, the key stakeholders have formed collaborative efforts to do together in concerted action what can't be done in any other way. All we need is a continuation of this extent of energy and commitment.

Thank you for your vision and leadership on this issue which is so important to our state for two reasons; 1) the health and well-being of our citizens, and 2) our economy. The life sciences super cluster has at its heart the health delivery system which is itself fed by a wide range of high tech companies which are an integral part of the cluster. Thank you.



Testimony of Wendy Everett, Sc.D.

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Hearings before the Joint Committees on  
Health Care Financing  
And  
Economic Development and Emerging Technologies

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Massachusetts Technology Collaborative  
Westborough, MA  
May 5, 2005

Good morning, and thank you for the invitation to speak to you today. My name is Dr. Wendy Everett and I'm the President of the New England Healthcare Institute, a non-profit health policy research organization based in Cambridge, Massachusetts.

Mitchell Adams has spoken eloquently about our ability to have Massachusetts lead the nation in health care. I'm going to speak to you from a personal perspective. Two years ago this summer, my 84 year old aunt was out playing golf with her husband on a Wednesday afternoon. Her name was Elizabeth Everett Keetch, and she was a native Bostonian: very lively, opinionated, sociable and healthy, with the exception of some moderate hypertension.

On the following Saturday afternoon, she died in the emergency room of her local hospital, the victim of a drug-to-drug interaction that could certainly have been avoided. Hers is counted among the more than 50,000 unnecessary deaths that the Institute of Medicine attributes to medical errors.

I'm not here today because my aunt died under these circumstances, but because I believe so strongly in the power of technology to help us avoid preventable medical errors and improve the quality of care that patients receive. I began using computers in patient care at the Harvard Community Health Plan in 1975 and have never stopped since. Computer assisted medical technologies exist to alert us to adverse drug events, but thirty years later, few physicians, and even fewer hospitals, use them. The benefits of Computerized Physician Order Entry, or CPOE, Systems are substantial: They save lives and they save money. The Brigham and Women's Hospital reduced their serious medication errors by 55 percent using a CPOE System.

Each time that we make a mistake and order a drug that a patient is allergic to, or that causes a bad reaction when combined with another drug, it costs us an average of \$6,000. In Massachusetts, we could save over a billion dollars a year if all of our hospitals used these systems to identify events that could be harmful to patients, and to stop them before they happen.

Medical technology is not limited in any way to clinical information systems, but has the ability for us to improve the quality of care and reduce the cost by changing where and how patients get care, especially for chronic diseases. The New England Healthcare Institute works to speed the adoption of technologies that are very valuable to patients. We have recently done research on the benefits of using a remote monitoring system to prevent heart failure patients from having to be re-hospitalized, and on a glucose monitoring system that helps diabetic patients control their disease by providing continuous information and an ability to change their insulin dose to match their blood sugar levels.

Every one of us involved in health care tries to “do no harm”. Given our high standards and the superb quality of our medical institutions in the Commonwealth, we need to do everything in our power to enable the adoption of these innovative technologies so that our patients get the best possible care, at a reasonable cost. Change is difficult, but the stakes are too high for all of us **not** to put the weight of our collective abilities behind improving patient care.

My Uncle and I thank you for your attention to these issues today, and for your leadership in helping us improve care for all patients.



**Testimony of Micky Tripathi**  
**President and CEO, Massachusetts eHealth Collaborative**

Good morning. I'm Micky Tripathi and I'm the President and Chief Executive Officer of the Massachusetts eHealth Collaborative. I'm delighted to participate in these hearings with such a broad array of distinguished leaders. It's especially fitting that you'll be hearing from so many leaders today because the initiative I'm here to tell you about represents the collective efforts of many of the speakers who will follow me this morning.

The Massachusetts eHealth Collaborative is a non-profit company which brings together 34 leading Massachusetts institutions who have a shared vision: to improve the quality, safety, and affordability of health care through widespread adoption of modern information technology in clinical settings. Our origins lie in a physician-initiated effort, spearheaded by the state chapter of the American College of Physicians, to promote universal adoption of electronic health records by all physician practices in the commonwealth. This ambitious and admirable effort became truly ground-breaking when the ACP got together in this effort with MA Blue Cross and Blue Shield, which had itself come to a similar conclusion regarding electronic health records, and the Massachusetts Technology Collaborative, which was embarking on a similar campaign focused on hospitals.

Recognizing that such an ambitious effort would require cooperation among a broad array of stakeholders, a coalition was built bringing together physicians, nurses, hospitals, insurers, businesses, academics, and patient advocates. That coalition became the Massachusetts eHealth Collaborative.

I would be greatly remiss if I didn't acknowledge that the eHealth Collaborative follows in a proud tradition of non-profit collaborative initiatives that make our state quite unique in the country. The Massachusetts Health Data Consortium, led for so many years by our dearly missed colleague Elliot Stone, has been the convener of diverse

stakeholders and the incubator for many of the initiatives that exist today, including the New England Health EDI Network or NEHEN, which is a community-based platform for health care transactions, and MA-SHARE, which will create a state-wide grid or backbone for taking information that is generated within communities and transporting it between communities across the state. The MA eHealth Collaborative, which I lead, is focused on the last mile – getting technology into the hands of clinicians, and providing a way for them to exchange clinically relevant information with their colleagues within their communities. So while the Collaborative is unique and ground-breaking in its own right, I want you to know that we're also standing on the shoulders of giants.

Let me focus now on the Collaborative. By pooling the resources, ideas, and talent of this broad array of stakeholders and by working collectively toward sustainable solutions, the Massachusetts eHealth Collaborative seeks to overcome barriers that have prevented widespread adoption of modern information technology up until now, barriers such as lack of capital, misaligned economic incentives, and immature technology standards.

As you may know, we will be funding clinical IT demonstration projects in three Massachusetts communities – Brockton, Newburyport, and North Adams – so that we can learn the most effective way to realize our vision of a state-wide electronic health information infrastructure. The pilot program was borne of the realization that before we embark on that larger mission, we need to have a better understanding of the adoption barriers that have prevented greater penetration to date, the costs and benefits of such systems and who is bearing the costs and reaping the benefits, and finally, the best strategies for replicating the pilot lessons to the rest of the Commonwealth. I should add that while we will learn valuable lessons about deploying IT in a variety of clinical settings, I believe that the most important precedents we'll be setting will be in bringing communities together to solve system-wide public goods problems, and most important, establishing best practices for creating a system that allows patients to benefit from the higher quality, safety, and affordability that such systems can foster, while still addressing patients' understandable concerns about privacy and security. As I've said before, we will not flip the switch on any system that clinicians and patients don't trust.

Of course, such an ambitious effort takes considerable resources, and the citizens of the Commonwealth are extremely fortunate that the resources required for this initiative are all available right here in our state. We don't need to create or import the talent – we already have world-class talent here in Massachusetts, already participating in the Collaborative. Our members have committed their time, their wisdom, their energy, their reputations, and their powers of persuasion to this effort.

We're also incredibly fortunate to have a \$50 M financial commitment from Blue Cross and Blue Shield of Massachusetts, and I speak for the Collaborative in commending the Blue Cross leadership -- including Bill Van Faasen, Cleve Killingsworth and Carl Ascenzo who you'll be hearing from later today -- for the visionary approach their company has taken, recognizing how important a shared medical information technology infrastructure is for all.

We have the strong support of our member organizations, the most generous funding in the nation to date, and the enthusiastic backing of state government. I believe that we have the best chance in decades to make a fundamental improvement in health care, one that holds promise for all citizens of the Commonwealth, and one that exemplifies the collaborative spirit that pervades the health care community in the state today. Thank you.



## ASSOCIATED INDUSTRIES OF MASSACHUSETTS

May 5, 2005

### STATEMENT OF ASSOCIATED INDUSTRIES OF MASSACHUSETTS BEFORE THE JOINT COMMITTEE ON HEALTH CARE FINANCING AND THE JOINT COMMITTEE ON ECONOMIC DEVELOPMENT AND EMERGING TECHNOLOGY

Thank you for the opportunity to testify before you today on the role of technology in our health care system.

Let me start off by noting that virtually all of the 7,600 members of A.I.M. offer health insurance to their employees. I do believe that this is a testament to the commitment of employers in this state to try to assist their workers in obtaining health care coverage, despite several consecutive years of double-digit increases in the cost of health insurance premiums. I also believe that this commitment by Massachusetts employers is one of the reasons that the percentage of our population without some kind of health coverage is only 7 % - one of the lowest rates in the nation.

We are fortunate to live in a state where we have some of the finest health care providers in the world. Our major health plans are continually rated among the top ten in the nation – and this past year Harvard Pilgrim Health Plan received the highest ratings in the country for both clinical quality and member satisfaction by the National Committee on Quality Assurance. Likewise, we have world-renowned hospitals and other health care facilities that attract patients from countries around the world.

Despite being a leader in the quality of medical care, and making use of state-of-the-art research and technology we have not been a leader, until recently, in the use of technology in the administration of health care. However, we at A.I.M. are very pleased to have participated in several initiatives in the past few years to rectify that situation.

A.I.M. served on an advisory committee for a project by the Massachusetts Technology Corporation (MTC) and the New England Healthcare Institute (NEHI) that identified several technologies, which if adopted by all of our health care providers, would not only dramatically improve patient safety, but also have the potential of saving over \$1 billion dollars in administrative costs. The most important of these is computerized physician order entry (CPOE) which would enable physicians to order prescriptions electronically,

eliminating many errors which currently occur because of illegible handwriting and also identifying potentially dangerous interactions for consumers who take multiple medications. Many of our state's largest hospitals have already begun to implement this technology with promising results.

A.I.M. is also pleased to be an active member of the Massachusetts E-Health Collaborative, an organization founded last year to promote the development of electronic medical records in our state. With the assistance of a \$50 million grant from Blue Cross and Blue Shield of Massachusetts, we have an opportunity to become a pioneer in this area and a model for other states throughout the country. The Collaborative just recently announced the selection of three pilot communities – Brockton, Newburyport, and North Adams – and will be working with doctors, hospitals and other providers in those communities to assist them in acquiring the software, hardware and support they need to develop and implement electronic health records. This project has enormous implications for improvement in patient safety and for reducing administrative inefficiencies that exist in the current system. Both of these results are welcome news to the state's employers who are concerned both about the quality of care received by their employees as well as the escalating cost of providing health insurance.

We at A.I.M. are excited to be part of both of these initiatives which I have just described, as well as other efforts to ensure that the use of advanced technology is maximized in the administration of our health care system. We believe that there are potentially enormous benefits for all affected parties – patients, providers, and employers – most notable among them is the potential to stabilize the costs or perhaps lower them over time without compromising quality.

As the president and CEO of an association representing 7,600 member companies, virtually all of which offer health insurance to their employees, I can tell you unequivocally that the cost of health care is their number one concern. I believe increased utilization of technology in the administration of health care holds great promise for lowering costs. Many of the processes for medical record keeping, billing and scheduling can be streamlined and improved upon, leading to more efficiencies in the delivery of health care – a first step in containing health care costs.

A.I.M. looks forward to working with the Legislature and the Administration to create an environment which enables us to be a world leader in this area.

Thank you.



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May 5, 2005

Senator Richard T. Moore  
Representative Patricia A. Walrath  
Co-Chairs, Joint Committee on  
Health Care Financing

Senator Jack Hart  
Representative Daniel E. Bosley  
Co-Chairs, Joint Committee on  
Economic Development and  
Emerging Technologies

Dear Co-Chairs:

I am sorry not to be here this morning to voice, in person, my support for the kinds of technological advances that your committee has been encouraging and that the Massachusetts Technology Collaborative has been actively supporting for the past several years.

The GIC is responsible, as most of you know, for providing life, health, disability and other benefits to some 265,000 Massachusetts residents — state employees, retirees, and their dependents. We are, and always have been, data driven. The miracle we celebrate is, that the accessibility and value of the data we use to select benefits and plan administrators; the tools we use to monitor their performance and analyze their spending; the communication media we use to inform our enrollees; and the measures we review to protect the quality and safety of their care are all enhanced immeasurably by modern technology.

We were early members of the Mass Health Data Consortium. We were the first Massachusetts entity to join Leapfrog. In fact, on the wall in my office is a Senate plaque commending the GIC for being out front in support of Leapfrog — dated, October 30, 2000, and signed by Senator Moore, as well as then Senate President, Senator Tom Birmingham. We serve on the board of the Mass Coalition for the Prevention of Medical Errors and we are also on the Board of the Mass e-Health Collaborative, which is seeking to jump-start the conversion to integrated electronic medical record systems in the Commonwealth. And I was personally pleased to be a member of the Advisory Committee assembled by Mitchell Adams to review and recommend the technological improvements that showed the most immediate promise — recommendations that resulted in their emphasis on computerized physician order entry as their major effort. We are, of course, members of other boards, coalitions, and consortia — and I won't enumerate them here, but I will note, that our membership in some of these endeavors has



not been by invitation, but by self-invitation. Purchasers who, after all, eventually pay for these projects, are often overlooked when the so-called “stakeholders” are convened, and it is because I feel strongly that their voices need to be heard, that I have pushed the cause of purchaser involvement very aggressively, both in these groups and in the Mass Healthcare Purchaser Group as well. Technology in the operating room is a given; it is also commonplace in the billing department, but its application for administrative functions, even those with direct clinical relevance, has been harder to achieve. The use of electronic submission of drug orders is, of course, a prime example, on hospital wards, in the ER and at the local pharmacy. Fortunately, that is one idea whose time seems, finally to have come. Medical records are clearly next and the use of those data will eventually increase the ease, accuracy, and cost of improving quality based on solid, reliable evidence of practice patterns, and the real time intervention to prevent serious errors and real harm to patients.

We at the GIC are currently engaged in a three-year program to improve clinical performance using data gathered from the claims of all of our health plans to track the utilization of resources by physicians, and measure the variability of practice patterns. We move next to quality measures, difficult though that may be. How much easier our job will be were we to have electronic medical records at our disposal, linking diagnoses, lab results, pharmacy and even outcomes. As it is, we’re moving forward with what we have — because we live in the here and now and our budget numbers are looking pretty scary. Our preferred version of patient empowerment is not just higher deductibles — but choices offered to our enrollees, backed by data, measuring cost and quality. We can do it better, faster, and cheaper with the tools of technology. So we support SB 275.

Again, my apologies for not being able to attend the hearing on medical technology. I do hope, however, that you and your staff will not hesitate to contact me or my staff should you require additional information about the GIC and, in particular, our support for the advancement and wider distribution of health care technology.

Very truly yours,

A handwritten signature in black ink, appearing to read "Dolores L. Mitchell". The signature is fluid and cursive, with a large initial "D" and "M".

Dolores L. Mitchell  
Executive Director

M A S S A C H U S E T T S  
**HIGHTECHNOLOGYCOUNCIL**

*Dedicated to Growth... Committed to Action*

**Saving Lives and Reducing Costs in Health Care  
Joint Oversight Hearing**

**Joint Committee on Health Care Financing  
Joint Committee on Economic Development and Emerging  
Technologies**

**Testimony of Christopher R. Anderson, President  
Massachusetts High Technology Council, Inc.  
May 5, 2005**

- The Massachusetts High Technology Council was formed in 1977 by high tech CEO's whose mission is to help make Massachusetts the most competitive place in which to create, operate, and expand high tech businesses. That remains our mission today. Council members employ hundreds of thousands of skilled workers in all of Massachusetts's key technology sectors, including computer hardware, life sciences, software, medical products, semiconductor, and telecommunications. Our board includes the executive leadership of tech employers such as EMC, Boston Scientific, Analog Devices, Genzyme, and Thermo Electron.
- Each year, High Tech Council CEOs rate their top policy priorities through our annual survey. We break out the survey into policy areas which are critical to a competitive high tech economy: Fiscal/economic policy, workforce training and education, public infrastructure and health care. It's no surprise that fiscal policy concerns tend to dominate the top rankings every year, but this year, a number of health care items made their way into the top 10 items on our agenda.
- As many experts have said, there is no magic elixir for the health care system, either in Massachusetts or on the national stage. There are however, many specific actions we can take in Massachusetts to improve access, quality and cost efficiency. One such crucial step is the e-health initiative that has been championed by MTC.
- But at the same time we must also work to reduce the high costs and the negative impact on health care quality caused by the costs of the state's professional

medical liability insurance system. We must stick with and enhance successful reforms to the state's uncompensated care pool. We must push for transparency in the state's health care delivery system, as envisioned by Charlie Baker of Harvard Pilgrim Health Care. The state must not create employer mandates, but look for creative solutions for addressing health care access issues.

- As I just mentioned, the use of technology in health care delivery rated in the top 10 for technology CEOs this year. While technology CEOs view the e-health initiative as a way to create a safer, more efficient and cost effective health care delivery system, they also see it as an important business opportunity for technology firms. After all a technology company must create the equipment, software platforms, communications systems, data storage facilities and other application that are used in hospitals, community health centers, research labs and more.
- Roughly one job in seven in Massachusetts is the health care field. The lines of what is a traditional technology firm or a traditional health care company are blending. Supporting technology in health care will reinforce Massachusetts' position as a national leader in this field.
- A recent national survey showed that Massachusetts had dropped out of the top five "technology states" in terms of employment numbers. But beyond the headline was the fact that this study used a very narrow definition of what a technology company should be. It did not include health care technology or even life sciences jobs in its report, which are two obvious areas of strength for Massachusetts. We should be proud of our technological diversity and implement policies that specifically support our entire technology economy.
- We have been working with MassInsight, MTC, AIM and others on the Science & Technology Initiative, which is designed to create a statewide, technology bases economic stimulus plan. Through the SciTech Road Map we identified core competencies within Massachusetts and how to create strategic alliances; we found that health care related applications were common areas of strength.
- We look forward to working with the Legislature and the Administration on this important component of what must be an integrated, long-term, technology based, economic growth strategy for Massachusetts.

Testimony of Carl Ascenzo  
Senior Vice President and Chief Information Officer  
Blue Cross Blue Shield of Massachusetts

Joint Committee on Health Care Financing  
Joint Committee on Economic Development and Emerging Technologies

Joint Oversight Hearing on Advanced Technologies in Healthcare  
May 5, 2005

## I. Introduction

- Good morning, Chairwoman Walrath, Chairman Moore, Chairman Hart and Chairman Bosley, members of the Committees, and staff. My name is Carl Ascenzo and I am the Chief Information Officer at Blue Cross and Blue Shield of Massachusetts. I also serve on the board and executive committee of the Massachusetts eHealth Collaborative and chair the MA-SHARE board of managers. I appreciate this opportunity to speak to you generally about advanced technologies in health care and the resulting improvements to patient safety.
  
- Blue Cross Blue Shield provides health coverage to over 2.6 million members. We offer our members a variety of products and an extensive network of quality providers. Every employee of Blue Cross Blue Shield is committed to putting our members first. As part of this commitment, we have invested in innovative solutions that will make quality health care safer and more affordable for our members.

## II. Blue Cross Blue Shield Initiatives

- As part of this effort, Blue Cross Blue Shield has committed \$50 million in funding to the eHealth Collaborative.

- The Collaborative was formed last year to improve the safety, cost effectiveness and quality of health care in Massachusetts through the promotion of widespread implementation and use of secure and confidential electronic clinical information systems, including electronic health records, medical decision support and clinical data exchange capabilities.
- We believe this initiative will transform the health care system by linking hospitals and affiliated doctors, making medical information more accessible and resulting in fewer medical errors and improved quality and cost-effectiveness of care. Providers will all be linked with real time access to a patient's medical history, test results, allergies, prescriptions and other important patient information.
- It is estimated that adoption and utilization of this system could lead to substantial cost savings by reducing the cost associated with medical errors and improving efficiency. The amount of actual quality improvements and cost savings is not known, and a key result of the initial pilots is to determine what these might be, as well as determining the cost of the initial implementation and the recurring operating expense.
- Three communities have recently been selected from a group of 35 applicants, as pilot sites for the Collaborative's first demonstration project, which we hope to have up and running within 24 to 36 months. These selected sites will demonstrate the effectiveness and practicality of implementing electronic health records in community practice settings. Within each community, the local acute care hospital or hospitals, physician practices, long term care facilities, nursing and home health agencies and community health centers will be connected. The communities that have been chosen are

- ▶ Greater Newburyport (Anna Jacques Hospital and about 120 physicians)
- ▶ Greater Brockton (Brockton Hospital and Good Samaritan Medical Center and about 400 doctors)
- ▶ Northern Berkshire (North Adams Regional Hospital and over 80 private physicians)
- The project will be formally launched at an event in Brockton on May 13.
- There are certainly challenges ahead, particularly around converting paper records to an electronic format, establishing guidelines for sharing information across practices and sites and around patient confidentiality. Despite these challenges, we are excited to move forward with this initiative.
- E-prescribing

Along with Tufts Health Plan and Neighborhood Health Plan, Blue Cross Blue Shield has provided funding to physicians to allow them to purchase electronic prescription software. Since the launch of the program, over 2,700 physicians and their clinical staff have signed up to participate. Over 40,000 prescriptions a week are now being submitted electronically. The system allows physicians real-time access to a patient's prescription history and enables physicians to send prescriptions directly and securely to the pharmacy in an electronic format, rather than relying on written prescriptions that may be difficult to read. As an added benefit, it saves the member a trip to the pharmacy and makes it more likely that the prescription will be filled.
- Other Blue Cross Blue Shield Initiatives:
  - E-visits: Blue Cross Blue Shield now reimburses physicians for consultations with a patient that occur via the internet.

- Blue Cross Blue Shield is also in the initial phases of piloting computer aided clinical decision support with physicians. These initial pilots are focused on the areas of pharmacy and radiology.

### III. Conclusion

- We applaud you and your colleagues for holding this hearing today to shed light on the benefits of health care technology.
- We at Blue Cross Blue Shield are committed to finding new and innovative solutions that will make quality health care safer and more affordable for our members and the population at large.
- On behalf of Blue Cross and Blue Shield of Massachusetts, I thank you for allowing me this opportunity to speak to you today.

DEPARTMENT OF HEALTH & HUMAN SERVICES  
Centers for Medicare & Medicaid Services  
JFK Federal Building, Government Center  
Room 2325  
Boston, Massachusetts 02203



## **Division of Quality Improvement / Region I**

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May 5, 2005

Testimony to the Joint Committee on Health Care Financing and the Joint Committee on Economic Development and Emerging Technologies

Senator Richard Moore and Representative Patricia Walrath  
Senator Jack Hart and Representative Daniel Bosley

William Taylor  
Director, Division of Quality Improvement  
Boston Regional Office  
Centers for Medicare & Medicaid Services  
617-565-1323, office  
William.Taylor@cms.hhs.gov

Senators and Representatives, my name is William Taylor, and I am a physician who works for the Centers for Medicare & Medicaid Services in the Boston Regional Office. I am the Director of the Division of Quality Improvement and am responsible for Medicare quality improvement activities.

As a purchaser of health care, CMS is focused on the quality of care, the efficiency of health care delivery, and the value of services we purchase. CMS provides health care services to 41 million persons in Medicare and spent \$250 billion in 2002. This year's Medicare Trustees report projects that the level of Medicare expenditures is expected to exceed the cost for Social Security by 2024.

Dr. McClelland, the CMS Administrator states "The key factor that will lead to better health care over the next decade is the effective generation and use of information about the quality of health care services," He continues "Patients will use this information to make informed choices about their treatments and their providers. Providers will use this information to improve their decisions about the care provided. And policymakers will use this information to ensure that financial incentives support the best care possible."

The Medicare Modernization Act (MMA) of 2004 has changed the Medicare program. First, it adds a new prescription drug benefit for all Medicare beneficiaries. Second, it includes some innovative strategies including competitive markets, health information technology, pay-for-performance, disease management, and preventive benefits. Third, the Medicare



law also includes innovative demonstration projects to test and evaluate the effect of potential program changes.

CMS is promoting the widespread adoption of electronic prescribing under the Medicare Modernization Act in order to support Medicare's prescription drug plan and achieve improvements by reducing medication errors. Within the QIO program we also promote Computerized Physician Order Entry in hospitals and the electronic health record in physician offices. CMS is also exploring payment for performance to support the development of quality improvement and implementation of IT systems.

Quality Improvement Organization programs are state-based organizations that provide localized quality improvement assistance to a broad range of health care providers and different populations such as rural and underserved. We're now beginning a new 3-year contract period with the QIOs. They will assist hospitals and physician offices in implementing IT systems under this contract.

Hospitals voluntarily collaborate with their QIOs on quality improvement strategies for acute myocardial infarction, heart failure, pneumonia, and surgical infection program. These 4 conditions have 25 specific quality measures that if achieved will result in higher quality.

I want to use pneumonia as an example of how QIOs work with their hospitals in quality improvement. Approximately 12 million Medicare beneficiaries were admitted to hospitals in 2003, and 500,000 of those were admitted for pneumonia. The quality measures that we track and work to improve are initial antibiotic given in 4 hours and appropriate antibiotic selected according to current guidelines.

67% of hospitalized patients received an antibiotic within 4 hours of admission.  
73% received the appropriate antibiotic regimen according to current guidelines.

Among all pneumonia patients only 52% received both antibiotic treatments that were timely and that follow guidelines for selection of antibiotics.

In much of our work in quality improvement we find that omissions result in lower quality care. Many of our strategies then are to work with hospitals to develop information systems that ensure that patients are getting all treatments that could improve their outcomes based on the current scientific knowledge.

Hospitals are making improvements in quality. From 2001 through mid 2004, hospitals nationally have improved the timeliness of antibiotics for pneumonia from 61% to 71% of Medicare patients admitted with pneumonia.

For those patients who received an antibiotic according to current guidelines, hospitals increased from 59% to 77%.

Quality improvement requires continuous reinforcing work to bring about improvements. CMS anticipates that health information technology can be used to track performance on evidence-based measures and can be designed to ensure a pneumonia patient would get all the interventions that they can benefit from. CMS believes that health information technology can provide transformation improvements in quality through generating real-time patient data, tracking results, and providing the decision support necessary to provide the best care for each patient.

In the new contract CMS will be working with hospitals in improving quality measures, but will also foster improvements in hospitals using Computerized Physician Order Entry and bar coding in hospitals.

### **Doctors' Office Quality - Information Technology (DOQ-IT)**

The bulk of health care is provided in the physician office. In the new contract we will be working with physicians on a voluntary basis to facilitate the adoption of information technology.

Doctors' Office Quality Information Technology (DOQ-IT) promotes the adoption of electronic health record (EHR) systems and information technology (IT) in small-to-medium sized physician offices with a vision of enhancing access to patient information, decision support, and reference data, as well as improving patient-clinician communications.

The DOQ-IT project offers an integrated approach to improving care for Medicare beneficiaries in the areas of diabetes, heart failure, coronary artery disease, hypertension, osteoarthritis, and preventive care.

By educating physician offices on EHR system solutions and alternatives, as well as providing implementation and quality improvement assistance, we aim to assist physician offices in migrating easily from paper-based health records to EHR systems that suit the needs of their office. DOQ-IT does not endorse any particular vendor product or service.

Health information technology will be useful for the physician office in the following ways:

- Real-time data that a physician can use for monitoring his performance.
- Patient recall when necessary for periodic testing
- E-prescribing
- Seamless reporting on the evidence-based performance to a national database

In summary, I have described the importance that CMS places on health information technology in its vision of the future. We are promoting the use of health information technology through our QIO program where we think it will contribute to significant improvements in quality of care.



May 5, 2005

Hon. Richard T. Moore, co-chair  
 Hon. Patricia A. Walrath, co-chair  
 Joint Committee on Health Care  
 Financing  
 The State House  
 Boston, MA 02133

Hon. Jack Hart, co-chair  
 Hon. Daniel E. Bosley, co-chair  
 Joint Committee on Economic Development &  
 Emerging Technologies  
 The State House  
 Boston, MA 02133

**RE: Joint Oversight Hearing on Advanced Technologies in Healthcare**

Dear Chairs Moore, Hart, Walrath and Bosley:

On behalf of the Massachusetts Association of Health Plans (MAHP), I want to thank you for the opportunity to testify today at the Joint Oversight Hearing on Advanced Technologies in Healthcare. MAHP and its member health plans are strong supporters of utilizing technology to improve the quality and cost effectiveness of the health care system.

By way of background, MAHP represents eight health plans that provide health care coverage to approximately 2 million Massachusetts residents and the Association is also on the board of the Massachusetts e-Health Collaborative. Our members add significant value to the health care system, focusing on getting patients the right care, at the right time, and in the right setting.

We are proud that our health plans consistently have been rated as the best in the country in critical quality areas such as access and service, treating and managing illness, and improving health, as measured by national surveys and accrediting organizations. For example, in the National Committee for Quality Assurance's 2004 annual *State of Health Care Quality* report, five (5) of the country's top 10 performing health plans in terms of clinical quality were based in Massachusetts.

The affordability of health care remains the most urgent issue in health care today. The cost of health care has become a major barrier to economic growth in Massachusetts and the top reason many employers and their workers give for not purchasing health care coverage is the ever-rising cost of health care.

Despite the continued growth in health care costs, the system remains widely inconsistent and is not yielding the highest quality or safety. Today, only 55 percent of health care provided represents what the medical evidence says is the right thing to do, indicating there is significant waste and inefficiency in the current system that has contributed to the rising cost of care.

Nationally, the failure to follow best practices and deliver appropriate care each year results in:

42,000 to 79,000 deaths;  
Over 66 million sick days; and  
More than \$1.8 billion in excess medical costs.

To encourage physicians to utilize technologies that can improve the quality and delivery of care, health plans have been instituting incentive programs to reward physicians who make investments in and utilize information technology (IT). Bonus payments have been awarded for the use of computerized physician order entry software, e-prescribing, electronic medical records, and other efforts to improve quality and reduce medication errors through computerized initiatives. By rewarding physicians who invest in IT systems, Massachusetts health plans are demonstrating their commitment to improving the health care system. Recently, MAHP published a booklet explaining these bonus programs and mailed it to 15,000 Massachusetts physicians. A copy of the booklet is included with our testimony.

Additional examples of measures MAHP members have undertaken to promote the use of IT and advanced technologies in health care include:

- One member health plan has been promoting the use of electronic prescription (e-prescribing) efforts by distributing e-prescribing devices and software to physicians in its network. The technology has demonstrated the ability to improve patient care and reduce prescribing errors. During the 2003-2004 legislative session, MAHP and its member health plans worked with provider groups to push for passage of Chapter 133 of the Acts of 2003 to permit the use of electronic signatures, which will allow physicians to sign for and send prescriptions electronically to pharmacies.
- Another member health plan has been working jointly with providers to design and build a software prototype that will connect clinical data and information systems among individual health care organizations, enabling clinicians to access patients' medical records in emergency and ambulatory settings.
- Additionally, MAHP member health plans are simplifying enrollment, billing, and other aspects of administering coverage for employers by utilizing information technology and web-based tools. Health plans have made similar tools available to providers to help reduce administrative processes, such as prior authorizations and eligibility verification.

Moving forward, the use of advanced technologies in health care should be leveraged to bring about transparency around the cost and quality of care and to make this information available on the Internet. Consumers currently utilize health care resources without access to data or any objective provider performance comparisons to understand the cost or quality impact of their decisions. For the system to function properly, accurate and useful information about quality, pricing, supply, and alternative care sites must be publicly available.

A December 2004 report by the state's Division of Insurance (DOI) examining the feasibility of creating a repository of health care cost and quality information for consumers stated that Massachusetts patients could benefit from a single source of information, provided that the information is reliable, easily understandable, and consistently reported. The DOI report noted

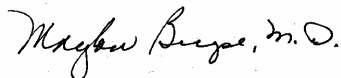
that establishing a decision support tool for consumers would require establishing an independent entity to collect data from all hospitals, physician practices, and health plans.

Currently, the federal government and several states, including New Hampshire, are providing consumers with this type of information on the Internet so that they have the necessary data to understand differences in the cost and quality of care. Moving forward, the Commonwealth should take the lead on developing easy-to-understand cost and quality information. This would provide purchasers and consumers with the ability to measure the effectiveness of care in different clinical settings, and would give providers the necessary information to measure the productivity and efficiency of their operations to develop strategies to improve the effectiveness of the services they deliver.

We commend the Legislature for the emphasis it has placed on increasing access to health care coverage and for making transparency a part of the Senate's health care reform package. The proposal to establish a Consumer Health Information Board and a state-supported website that can compare the cost and quality of health care services in the state will give consumers the necessary tools for making informed decisions about their care. Better information for consumers will help to improve clinical outcomes and lower costs.

Again, we appreciate the opportunity to testify on how MAHP and its member health plans are promoting the use of advanced technologies to improve the quality and cost-effectiveness of the health care system. We look forward to working with you in the months ahead on these and other issues, and I encourage you or members of your staff to contact myself or the MAHP staff to discuss any issues or concerns you may have by phone at 617-338-2244 or by email at [buyse@mahp.com](mailto:buyse@mahp.com).

Sincerely,



Marylou Buyse, MD  
President and CEO

Testimony of

**Steven R. Simon, MD, MPH, FACP**

Joint Oversight Hearing on  
Advanced Technologies in Healthcare

Joint Committee on Health Care Financing and Joint Committee on Economic  
Development and Emerging Technologies' Joint Oversight Hearing on Advanced  
Technologies in Healthcare

The Commonwealth of Massachusetts

May 5, 2005

Senators Moore and Hart, Representatives Walrath and Bosley, distinguished Committee Members: thank you for the invitation to speak with you today about the role of health information technology in improving the quality and safety of health care.

I am an assistant professor of ambulatory care and prevention at Harvard Pilgrim Health Care and Harvard Medical School, where I do research related to the interface of medical education and health information technology, specifically on interventions to improve the safety and quality of health care. I am a board-certified internist, and I practice primary care general internal medicine at Harvard Vanguard Medical Associates. I am also the father of three small children, who are thankfully very healthy, but who, like most of us, are fortunate enough to engage frequently with the health care system for episodic and preventive health care. It is with these perspectives that I am delighted to speak with you today about the value of health information technology in improving the quality and safety of health care. Because of time constraints, my remarks will focus on the value of electronic health records, or EHRs, in the ambulatory practice setting, the widespread adoption and implementation of which will transform the nature of health care delivery as we know it – for the better. I will not discuss other technologies, such as computerized provider order entry (CPOE) and regional health information infrastructures, in any detail, but suffice it to say that the integration of all these and other technologies will have synergistic benefits in a variety of sectors and dimensions of the health care system.

The problems of quality and safety in health care have been well described and are too numerous to describe in any detail here.<sup>1-8</sup> These problems frequently relate to

insufficient, inadequate, or wrong information being available for clinical decision-making. They result in patients, both in hospitals and the outpatient setting, receiving care that results in harm or not receiving care that would be considered appropriate or even necessary.

Based on a broad foundation of evidence, the Institute of Medicine, among other professional, governmental and academic institutions, has advocated for the wide-scale implementation of EHRs as the most important health care intervention to improve patient safety and health care quality.<sup>1-8</sup> EHRs can help improve communication among providers, patients, and payers and can help to decrease administrative burdens. With sophisticated decision support systems, EHRs can contribute to a decrease in costs and an improvement in quality by suggesting cost-efficient approaches and alternatives, identifying errors, emphasizing important abnormalities, and making guidelines readily accessible. Those on the frontlines of healthcare recognize these potential benefits: The Medical Record Institute Survey found that clinicians' main interest in EHRs is to achieve improvements in efficiency and patient care quality.<sup>9</sup>

A host of studies has shown that electronic health records with built-in clinical decision support systems can reduce errors, resulting in better patient care.<sup>10-15</sup> Health maintenance and disease management rules integrated into the EHR remind physicians of patients who are due for tests and alert physicians about outstanding results, ensuring that important results are not lost and are acted upon. Evidence-based guidelines can assist physicians in providing optimal care for chronic diseases, and clinical hints will suggest best practices.<sup>16</sup> A crucial patient safety benefit arises from



the use of computerized prescribing, which allows default dosing, allergy information and drug/drug interactions among other features.<sup>11,17-22</sup> The central importance of this benefit cannot be overstated, as medication errors make up a large percentage of avoidable problems in safety and quality. An EHR contributes to improved clinical data capture and provides the ability to aggregate data across patients, making it an excellent quality assurance tool by providing better information about performance.

Time and place independence of record availability contributes enormously to improved continuity and integrity of care. Electronic connections between physicians' EHRs and other health care organizations lead to improved physician-to-physician communication especially around referrals to specialists, who typically lack access to important patient information in paper systems, and also facilitates primary care physicians' receiving information back from specialists.<sup>22</sup> In addition, electronic access to data from health care organizations such as commercial laboratories and pharmacies can provide much needed information at the point-of-care. With the advent of community data exchange, the potential for increased efficiencies, improved quality care, and cost savings is greatly enhanced. Better communication will result in improved safety, quality and efficiency.<sup>23-25</sup>

Electronic recording, storage, and exchange of patient information have the potential to save time and money for providers and payers alike.<sup>26,27</sup> For providers, the financial benefits fall into two main categories: operational efficiency and improved reimbursement. For those physicians working under capitated arrangements, medical cost savings will also directly benefit them. Operational efficiencies can be realized from systems that facilitate workflow improvements and clinical processes.<sup>26,27</sup> The EHR

streamlines awkward paper processes and eliminates duplicate data entry. The costs associated with maintaining, storing, transcribing, and retrieving paper records can be decreased. Improved reimbursement results from improved clinical documentation to support appropriate billing service levels. Electronic data exchange both between practices, and between practices and other health care organizations such as laboratories and pharmacies also create operational efficiencies. As for the payers, it has been demonstrated that changes in drug utilization due to EHR use can result in large savings for payers and capitated providers. Other savings result from decreased utilization of laboratory tests and radiology examinations, and reduction in inpatient admissions relating to ambulatory care sensitive conditions.<sup>28</sup> More accurate billing and coding by physicians result in lower claims-processing costs for the payer.

Fewer than 20% of U.S. physicians use electronic health records. Although many of the large practice groups and integrated delivery systems in the Commonwealth have adopted this technology, best estimates suggest that fewer than 10% of the physicians in office practice in Massachusetts use electronic health records. The greatest barrier to EHR adoption seems to be the lack of available capital. That is, although EHRs and related technology will ultimately be cost-saving for the practicing physician, the up-front capital expenditure is preventing most physicians, and hence most of the citizens of the Commonwealth, from benefiting from this technology.

In summary, strong research evidence supports the conclusion that electronic health records can improve the quality and safety of health care and will correspondingly reduce health care costs. To date, physicians in office practice have been unable to adopt this technology because of financial barriers. Widespread adoption and implementation of EHRs should be of high priority for advancing the quality and safety of healthcare in Massachusetts.

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*Presented by: Mark Fisher, Dr. Larry Garber and Hao Wang*

**SAFE HEALTH** was conceived in October 2003, when three of the country's top health care organizations seized an opportunity to work together to improve clinical outcomes, patient safety and the quality of health care delivery in central Massachusetts.

**OUTCOME** — Fallon Clinic, Fallon Community Health Plan and UMass Memorial Health Care entered into a long-term partnership to develop a regional health information organization (called *Central Massachusetts Health Information Organization*) and the technology (called *SAFE Health*) to support the secure exchange of health information.

### **CHALLENGES FOR REGIONAL HEALTH INFORMATION ORGANIZATIONS**

- *Collaboration among health care stakeholders*
- *Technical barriers*
- *Funding*
- *Adoption by physicians*

### **WHY SAFE HEALTH IS UNIQUE?**

- Technology developed in-house
- Partnerships in place
- Physicians are involved in the business and technology design
- Federated technical architecture with no central data repository
- Data will be integrated into physicians' existing information systems

### **WHERE ARE WE NOW?**

Funded in large part by Fallon Community Health Plan, SAFE Health also received a \$1.4 million grant from NIH and AHRQ. With this additional funding, SAFE Health will be accessible to over 1,500 physicians affiliated with Fallon Clinic and UMass Memorial by 2006. SAFE Health will then support the CMHIO, which will include a broader network of physicians, hospitals and ancillary providers.

- Proof of concept complete
- Pilot to launch October 2005
- CMHIO expansion efforts underway

Visit [www.safehealth.org](http://www.safehealth.org) for more information.





## Massachusetts Hospital Association

Joint Oversight Hearing on Advanced Technologies in Healthcare

Joint Committee on Health Care Financing  
Joint Committee on Economic Development and Emerging Technologies

May 5, 2005

Testimony of the Massachusetts Hospital Association  
Ronald H. Hollander  
President

Thank you for the opportunity to provide testimony on SB 275 that would create a Massachusetts Advanced Technologies in Healthcare Trust Fund. The legislation would provide [\$10 million/\$50 million] to the Trust Fund to support the development and use of advanced technologies in health care by Massachusetts-based institutions and companies in a variety of health-related areas. Among the areas targeted for Trust Fund support are medical error reduction systems and information technology.

The Massachusetts hospital and health care system is vitally important to our state. It is an engine of economic growth and stability and it is critical to the well being and quality of life of all our citizens. In many dimensions it is unsurpassed and the envy of others, but it also shares many of the flaws that plague health care across the nation. Health care is expensive, and getting more so. Many people do not have access to the health care that they need. And the quality and safety of health care is far from what it can and should be. Many solutions to these issues have been debated, but there is little consensus on best approaches. Amid all this confusion and debate, though, there is a consensus emerging that information may be the best medicine for what ails our health care system.

While health information technology (IT) is still in its infancy and much remains to be proven, there is a growing evidence and growing consensus that health IT saves lives and saves money. Much of the R&D on health IT has originated here in Massachusetts at our medical centers and universities. It has shown that health IT – such as computerized physician order entry systems (CPOE), electronic health data exchange, and electronic health records -- improves care, reduces wasteful and redundant treatments, prevents medical errors, and improves people's health status.

It is appropriate that today's hearing is conducted with the Joint Committee on Economic Development & Emerging Technologies. When we improve care, reduce waste, prevent errors, and improve health status, we strengthen our economy. As the President's National Coordinator for Health Information Technology said earlier this year, "Health IT not only adds value to the way people lead their lives, but it gets more out of our investment in healthcare overall. Health IT can help the U.S. become more globally competitive – that is, it can increase our productivity and our standard of living at the same time."

Because they are at the center of the health care delivery system in so many communities, hospitals are affected by and have a role to play in many kinds of health IT. One of the most promising and challenging of these technologies for hospitals is CPOE. CPOE in its basic form is typically a medication ordering and fulfillment system. More advanced CPOE will also include lab orders, radiology studies, procedures, discharges, transfer instructions, and referrals. CPOE has been shown to improve the quality and safety of care principally by reducing medication errors and adverse drug events. A landmark study conducted at Brigham & Women's Hospital in Boston demonstrated a 55 percent reduction in serious medication errors and a 17 percent decrease in adverse drug events. CPOE produces these benefits because it reduces errors associated with the transcription and reading of prescriptions, and facilitates the detection of potentially dangerous drug-drug interactions and drug allergies. In some of its forms, CPOE also helps guide physicians to follow practice guidelines and provides other decision-support mechanisms that have been demonstrated to improve patient care outcomes. The speed of electronic delivery of orders also reduces turnaround times for medication delivery and the completion of diagnostic tests and studies, which improves the quality and efficiency of care.

CPOE helps to reduce health care costs because it reduces the costs of care associated with medication errors, prevents duplicative ordering of medications, tests, and other services, and because it helps guide physicians and other clinicians to deliver more cost-effective care. A 2004 report issued by the Massachusetts Technology Collaborative (MTC) and the New England Healthcare Institute<sup>1</sup> (NEHI) concluded that reduced use of inpatient hospital services attributable to the introduction of CPOE in Massachusetts hospitals that do not now have such systems would produce annual savings conservatively estimated at nearly \$300 million. The report estimates that these savings could be had for initial capital and one-time operating expenditures of \$211 million and annual operating costs of \$26 million. The net annual benefit would be \$274 million.

Despite these compelling quality, safety, and financial benefits, only about 15 percent of acute care hospital campuses in Massachusetts have CPOE installed or are near installation. The rate of adoption nationwide is even lower. Barriers to adoption of CPOE include the significant capital and operating costs to acquire CPOE (\$5 million in capital and one-time operating costs in an average size hospital); uncertainty with respect to the return on investment (much of the estimated savings will accrue to stakeholders other than the investing hospital); the magnitude of changes to work processes and work flows associated with CPOE adoption; absence of standards regarding CPOE capabilities and performance; and the immaturity of vendor product offerings.

Because the financial benefits of CPOE adoption accrue to constituencies outside the hospital, those who benefit should share in funding the capital and ongoing operating costs for CPOE. The MTC/NEHI report proposes, as a starting point for discussion, that payers fund half of all

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<sup>1</sup> "Treatment Plan: High Tech Transfusion – Case Statement for Implementation of CPOE in All Massachusetts Hospitals," Massachusetts Technology Collaborative and New England Health Care Institute, Fall 2004

implementation costs through grants, a portion of which would be made contingent on achievement of CPOE performance standards by the hospital. Even with such external support, many hospitals may still need additional support to borrow funds for their share of the cost.

The proposed Trust Fund, by embracing the principle that CPOE funding must be a shared responsibility, would be a significant step in overcoming the barriers to CPOE adoption. The MHA is committed to working with all stakeholders to accelerate adoption of CPOE in our hospitals. We are already working with MTC and others to refine the cost estimates and funding models described here. Our goal is to have universal implementation of CPOE in acute care hospitals within four years. We encourage the legislature to join with us in the hard work that it will take to achieve that goal and pledge our assistance to you toward that end.

Thank you for the opportunity to testify on this important issue.

**May 5, 2005**

**Hearings before the Joint Committees on Health Care Financing and Economic Development and Emerging Technologies.**

Senators, I wanted to thank you for the opportunity to speak with you today. My name is David Feinbloom, MD and I am an academic hospitalist at Beth Israel Deaconess Medical Center (BIDMC) in Boston where I am the Director of Clinical Resource Management for the Department of Medicine and Physician Liaison for Clinical Information Systems. We are very fortunate at BIDMC to have successfully implemented a CPOE system which has been well received by physicians, nurses, pharmacists, and has positively impacted patient care. I believe that our experience is instructive as it highlights the benefits of CPOE and may assist others in avoiding some of the problems that are often encountered when these systems are implemented.

I am here to join the other panelist in advocating for the widespread adoption of electronic medical records (EMR) in general, and computerized physician order entry (CPOE) in particular. As medical care becomes increasingly complicated, specialized, and fragmented, it is more challenging than ever to maintain an accurate and integrated medical record that is accessible to all relevant care providers in a timely manner. It is well known that patients are at high risk for adverse outcomes as part of normal care in the modern hospital. The threats to quality are numerous, but broadly speaking can be viewed as errors of commission and errors of omission. Errors of commission are best exemplified by illegible orders, which result in the wrong drug or wrong dose of a medication being given to a patient, often with deleterious results. Errors of omission may occur when a physician fails to provide the correct treatment, or react to a critical result, leading to an avoidable adverse outcome. While none of these errors is intentional, they highlight the difficulty of managing all of the data and detail that is generated in the course of healthcare delivery.

The power of CPOE and EMR's is due to their unparalleled ability to structure and manipulate clinical data. This allows for clinicians to access critical patient information in real-time, track and respond to abnormal results or care that is overdue, and use best evidence decision support at the point of care. The result is improved quality, fewer medical errors, and reductions in morbidity and mortality. This in turn creates a feedback loop and leads to clinical practice that is more uniform, evidenced based, and cost-effective.

One can imagine that in the traditional paper ordering system, a nurse may see a poorly written order for "6U" (6 units) of insulin and inadvertently interpret it as "60" units of insulin; an error that may produce life threatening hypoglycemia. At the BIDMC the implementation of CPOE has virtually eliminated these types of overdose errors. We have also been able to dramatically decrease the rate of adverse drug events due to the ability of the CPOE system to check all medication orders for interactions with other medications, adjust dosing for age, weight, and kidney function, and to flag for known patient drug allergies. This is possible because our system is fully integrated with the

pharmacy and the patient's clinical information database, which allows the clinician to identify errors at the time of ordering.

CPOE can also example prompt physicians to provide care that they may have inadvertently omitted. For example, our CPOE system automatically prompts clinicians to administer the Pneumococcal vaccination to all eligible patients over age 65. This has increased our compliance rate from 3% to 70% in the 6 months since implementation. This simple but effective use of CPOE puts us in line with JCAHO requirements and is of obvious benefit to our patients.

CPOE also has great promise for improvement of resource utilization. Examples include: notifying clinicians about redundant tests at the time the new order is being placed, suggesting formulary medications, and offering decision support algorithms which are evidence based and cost-effective.

Despite the promise of CPOE, it still has minimal penetration into the American health care system. This is because successful implementation and deployment involves many challenges. There are numerous examples of hospitals where CPOE was installed and then failed, typically because of incongruity with standard clinical work, poor design resulting in more additional problems than those solved, and lack of physician acceptance. In addition, implementation requires a large initial capital investment and then ongoing maintenance.

These challenges can be solved, but will require the combined efforts of both the public and private sectors. From the standpoint of the academic community, we will continue to develop POE systems that address the quality, efficiency, and safety needs of the health care system. We can also provide expertise on the social engineering that necessary for successful implementation. However, it is critical that the government join with the payers to begin the process of implementation. As has been discussed, this investment will be more than offset by future savings, and the positive effect on the future health of our patients will be immeasurable.

David Feinbloom, MD  
Instructor in Medicine  
Harvard Medical School  
Hospitalist – Attending Physician  
Division of General Medicine and Primary CareGroup  
Beth Israel Deaconess Medical Center  
Boston, Massachusetts

Testimony submitted to the Joint Oversight Hearing on Advanced Technologies in Healthcare, May 5, 2005

Ladies and Gentlemen:

The Massachusetts Council of Community Hospitals represents 25 community hospitals across the Commonwealth. Our mission is to advance the interests of the community hospital sector and the patients and communities they serve.

We are grateful for the interest the legislature has in better understanding the technology needs of hospitals. We are cognizant of your individual roles on your respective committees and hope that we are able to address your concerns.

We believe there is now an imperative for community hospitals to adopt advanced technologies at a more rapid rate than in the past. First, the rising expectations of patients and physicians regarding patient safety; second, the increasing reliability and greater availability of information technology and devices that more clearly provide cost effective benefits; and third, the need to have a technology level that contributes to retaining and attracting physicians, nurses and other essential clinical skills.

We have a unique situation at the moment in Massachusetts, largely the result of volunteer information sharing amongst the information technology executives of many of our hospitals. Years ago they formed the Massachusetts Health Data Consortium. Other executives formed MA-Share and several like organizations. This information sharing is a surprising outcome to expect in a fairly competitive marketplace. Many of these same individuals are also sitting on national committees to develop technology standards and propose more rapid paths to implement technology. A surprising outcome because Massachusetts hospitals are not seeing technology as a weapon to be employed against one another but rather how, collectively, we can quickly identify and filter the important technology, measure its appropriateness, and disseminate the means to employ it more quickly across all hospitals. At the same time the payers also are making a unique contribution to accelerating the use of technology. One example is the initiative related to e-prescribing, which uses advanced hand held devices to make a more rapid and accurate connection between a physician and pharmacy. An equally important point though is that several plans are working cooperatively to make the implementation more successful. This is a unique situation that represents good public policy and we should be building upon its foundation.

We now have several key ingredients in place that strongly suggest further investment in technology will have a very big payoff, not only in improved patient safety but in lowering the rate of health care cost increase. We have the urgency and motivation, we have tools in the marketplace, we have expertise, and we have a willingness to share for the common good. We now need the Commonwealth's continued partnership and investment to accelerate what the Massachusetts Technology Council has identified as a

Testimony submitted to the Joint Oversight Hearing on Advanced Technologies in Healthcare, May 5, 2005

pressing need with an achievable solution in Computerized Physician Order Entry (CPOE). We need the Commonwealth's support to access capital for technology such as electronic drug ordering, bar coding, and Picture Archiving and Communication Systems (PACS) as well.

Massachusetts community hospitals have been under financial pressure for such a long time that they are essentially starved for capital precisely at a time when they need it the most. Building on the public-private partnership around a theme of not only improving overall public safety but also insuring that Medicaid dollars will more effectively be spent seems like a very good reason to have greater public investment in our technology needs. The average community hospital is about \$3-8 million deficient in their current technology budget. Grant programs or revolving loan programs might be ways for the Commonwealth to aid our efforts. We are open to any ideas. We ask for your consideration and active involvement and commitment to a new level of patient safety.

Thank you for your consideration.



Donald J. Thieme  
Executive Director

May 18, 2005

I want to thank the members of these committees for holding these hearings on this vital topic for the hospitals of the Commonwealth.

My name is Gerald Greeley. Today in addition to my role at Winchester Hospital overseeing the Medical Record and Information Systems areas, I am representing Don Thieme, Executive Director of Mass. Council. of Community Hospitals (MCCH) and Dale Lodge CEO of Winchester Hospital and President of MCCH – Don Thieme has submitted written testimony as well.

Computerized Physician Order Entry (CPOE) and other information technologies are essential components of a comprehensive patient safety and clinical quality improvement effort for all hospitals.

The experiences of the academic teaching hospitals, in our area and throughout the U.S. have shown that this technology is a key component to a full patient safety plan. Non - Teaching community hospitals are in need of these systems in the same way the teaching hospitals are.

The scalability of these systems is not necessarily equivalent to bed size or patient acuity. Similar financial investment is required for a 600-bed teaching hospital as for a 200-bed community hospital. The average community hospital is experiencing \$3-8M deficit in technology budgets . In fact, the challenge of training community attending Physicians can be more challenging than training residents in a teaching setting.

Community hospitals need the Commonwealth's continued partnership and investment to accelerate what the Mass Technology Collaborative has identified as a pressing need with an achievable solution in CPOE.

We need the Commonwealth's support to access capital for technology including CPOE, bar coding of medications and other critical Clinical Information Technology that supports safe patient care.

On behalf of the 25 Community hospitals represented by the Mass Council of Community Hospitals, I ask for your support in the effort to bring CPOE to all hospitals in the Commonwealth in the near future.



**The Commonwealth of Massachusetts**  
Board of Registration in Medicine  
Patient Care Assessment Division

**Health Care Technology Oversight Hearing**  
**Thursday, May 5, 2005**

**INTRODUCTION**

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Good morning Chairman Moore, Chairwoman Walrath, Chairman Hart and Chairman Bosley. Thank you for inviting me to this special hearing on health care technology. My name is Nancy Achin Audesse and I am the Executive Director for the Board of Registration in Medicine. I am also a former state senator and health care advocate.

In 1996, prior to my position at the Board, I led a successful effort to implement the Board of Registration in Medicine's Physicians Profiles program, a first-in-the-nation on-line effort to give patients more information about their health care providers. This, if you will, was one of the first health care quality technological improvements in Massachusetts. And I have not stopped since.

Since becoming Executive Director of the Board in 2000, the Board has made more technology advancements. For example:

Wallet Cards

In 2004, the Board replaced the traditional paper wallet card with a heavy-duty laminated wallet card that is that is more durable, more professional and protects the licensing information from being altered. Furthermore, adding photographs to the physician wallet cards will allow them to be used to satisfy a JCAHO requirement, saving time and effort for both hospitals and physicians, and creating a universal form of licensed physician identification that may have applications during times of serious emergency.

Common License Application

The Board is working with the Federation of State Medical Boards (FSMB) to develop a Common License Application (CLA) for physicians who apply for state licensure. It would be a single online license application that a physician would be required to complete, and that could be stored electronically and updated as often as necessary. The time consuming and expensive redundancy of providing the same information to each state will be eliminated for both physicians and the state medical boards. The increased demand for telemedicine services has expanded the scope of the practice of medicine by enabling physicians to provide health services across state lines via the Internet. The CLA will expedite the licensing process since all states require a physician to hold some type of licensure in that state in order to practice medicine across state lines.

### CLARIS Licensing System

In 1999 BORIM successfully implemented a state of the art web based licensing and complaint system known as the *Consolidated Licensing and Regulatory Information System (CLARIS)*. CLARIS currently supports the licensing of approximately 34,000 physicians in Massachusetts. The Commonwealth has a major investment in the CLARIS system. Over the past six years, we have invested approximately \$ 5 million in the development, installation and modification of this software at BORIM and DOI.

## **OVERVIEW**

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While those are great strides, today, like you, the Board is looking for more ways to improve health care quality through technology.

To give you an idea of what the Board is doing, I would like to draw your attention to Chairman Moore's five-point plan for real reform of the Massachusetts Health Care System. His five-point plan consists of:

1. Reforming the administration of health care in Massachusetts
2. Improving health care access and affordability
3. Promoting safe patient care
4. Reforming the Professional Medical Malpractice Liability System, and
5. Providing for Investment of Technology to improve management and delivery of health care.

What if I said to you that there are three technological investments that you could make that would achieve all five points, and in answering "Who is Going to Pay?" that there would be no cost to the General Fund.

Would you be interested? Would you do something about it?

The three technological investments to which I am referring are investments that the Board of Registration in Medicine is planning and hoping to implement in the coming months. They are:

1. Online Physician Licensing
2. Clinical Skills Assessment, and
3. Web-Based Medical Error reporting

## **ONLINE PHYSICIAN RENEWAL**

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### Background

In the Commonwealth, physicians with full licenses are renewed every two years. This is a time consuming, costly, and inefficient process. During busy renewal cycles, it becomes necessary to hire temporary data entry clerks to keep pace with the volume of renewal applications received.

The manual nature of the work puts the agency at risk for data entry, cancellation and renewal errors

The renewal cycle is also a primary mechanism for BORIM to obtain updates from the physicians on medical malpractice claims and demographic changes. Doctors are required to report all such changes to the Board as soon as they occur, but in practice, the Board receives the majority of these updates during the renewal process. As a result, the Board's records are often as much as 2 years out of date. This severely impedes the Board's ability to protect the public safety.

### Initiative

As a result of this initiative to have online physician license renewal, BORIM intends to: provide physicians with the ability to renew their licenses on-line via the web; provide physicians with the ability to view and change demographic information via the web; require physicians to report malpractice information annually on-line via the web; and provide access to hospitals, insurance plans, and other credentialing entities to current, on-line information to streamline the credentialing process.

As part of this project, BORIM also intends to provide hospitals and Health Maintenance organizations with data sharing subscription services to assist the facility in their credentialing of physicians affiliated with their facility. During a facility's open enrollment process, using this function to verify credentials for their physicians is a very labor intensive and time consuming process. A subscription service for facilities to check all affiliated practitioners at once would greatly reduce the administrative burden in these facilities.

### Benefits

The benefits of online licensing results in:

**Increased Efficiencies.** The ability to renew an existing license online would be a major benefit to physicians, due to the savings they would realize in time and effort.

**Reduction in Costs.** Online renewals will be cost effective by reducing reproduction costs, mailing costs, the data entry process and the current manual process of reviewing every renewal application for completeness.

**Improved Quality.** Electronic access for online renewals will improve data quality and reduce data entry errors. And the online renewal technology will enable the Board to collect malpractice, legal and criminal information more frequently and increase the Board's ability to protect the public by receiving and acting on adverse information in a more timely manner.

**Better Credentialing.** Sharing licensing data with hospitals and HMO's will significantly streamline the credentialing process for these facilities, decrease the time required for the Board to renew licenses, and provide a service to physicians by notifying them of the need to renew their licenses, and

Enhanced Ability to Protect the Public. On-line renewals will enable the Board to require much more timely accurate information about malpractice information that will enable the Board to better inform and protect the citizens of the Commonwealth.

## **CLINICAL SKILLS ASSESSMENT**

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### Overview

Another technology investment the Board wants to pursue in the coming years continues to be Clinical Skills Assessment. This testing procedure would measure the clinical skills, not only of new doctors, but of physicians coming into the state from elsewhere, who have been away from practice for an extended period or who may have had multiple medical malpractice payments or other problems.

Furthermore, as technology is introduced in health care facilities and in the health care marketplace, how do we ensure that physicians know how to use the technology? Whether it is CPOE systems, medical devices or prescribing knowledge, the Board can be a resource to provide education and training in these areas to ensure that physicians have the tools they need to practice competently.

In 2004, the National Medical Board of Examiners began requiring all new physicians to pass a clinical skills exam. But there are only five locations nationwide where such physicians may take the test. The closest one to Massachusetts is in Philadelphia. The Board remains committed to add a sixth site – in the Boston area. Such a site could be used not only for testing new physicians, but also for those veteran physicians whose clinical skills may be in question. Massachusetts is an ideal site for such a program as it has a depth of medical schools, teaching hospitals and expertise unmatched in the nation.

Also, having such a site in Massachusetts could provide an economic resource for the state as physicians come here for education and training. This program could also assist with the physician shortage. Many physicians are leaving the practice as technology becomes more complicated. Or physicians are subjected to malpractice claims because they are using new technologies on ‘live’ patients without having the opportunity to train in alternative setting, and the malpractice rates are driving them out of the profession. By offering training and education opportunities, it may ensure additional physicians stay in the profession.

The Massachusetts Board of Registration in Medicine believes that such a center could be of great assistance not only to the Massachusetts Board, but also to hospitals, liability insurers, health plans and other state medical boards in the region when confronted with substantial doubts about a physician's competence. In addition to providing a much-desired upgrade in the Board's capacity to assess clinical competence, the proposal has the benefit of responding to a statutory mandate, in Chapter 112, Section 5, that the Board develop a remediation program.

### Mandate

The Board was directed in the 1996 Physicians Profiles Bill to establish a remediation program for physicians who otherwise might be subject to disciplinary action. The statute is meant to complement and not replace the Board's disciplinary function, so that only cases deemed appropriate by the Board would be diverted to the remediation track. Indeed, the statute envisions that disciplinary action could be taken even after assessment and attempts at remediation had been made.

The statute directs that there shall be no cost to the Commonwealth for the mandated remediation program. Given that the Board necessarily must expend public resources during the course of developing and implementing the mandated program, this prohibition cannot be intended to extend to the costs required to develop, implement and oversee a remediation program.

### Current Process

Presently, the Board's primary tool for assessing physicians' competence is chart review. While chart review is a valuable technique in some cases, it has substantial limitations and cannot answer all questions in every case.

Aside from the logistical and economic issues associated with expert chart review, medical records provide, at best, a partial picture of a physician's performance and capabilities. One major shortcoming of chart review is that most care is provided in outpatient settings where the documentation is not as comprehensive as that maintained for patients admitted to hospitals. Review of office records often does not yield enough information on which to make judgments concerning the clinical skills of primary care physicians.

There also is the issue of what is not in the chart, even hospital charts. For example, patient records generally document adverse events without revealing their causes. Nor is every aspect of every physician-patient encounter documented in the patient's record. Communication issues, for example, are common problems that affect the quality of care, but generally it is impossible to assess a physician's communications skills by reviewing a chart.

### Initiative

A proposal to create, pursuant to statute, a pilot program for such an assessment and remediation center in Massachusetts would serve as a referral resource for the Massachusetts Board of Registration in Medicine when faced with questions involving a physician's clinical competence.

The Center would have four (4) basic components:

- Pre-licensure Assessment Services
- Post-licensure Assessment & Remediation Services
- Training for New Medical Techniques & Devices and Established Best Practices.
- Data Collection and Analysis

Ultimately, this program can improve quality, increase competency, and reduce medical errors

## **WEB-BASED REPORTING**

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As you know, the Patient Care Assessment Division at the Board gets confidential healthcare facilities' reports of serious events. However, having a secure, *web-based* system at the Board that enables healthcare facilities to submit reports of serious events online, can enable facilities to better report, spend less time reporting, and save money. Furthermore, the Board can better analyze the collected data, than it can now, to identify trends and recommend changes in healthcare practices and procedures that may be instituted to reduce the number and severity of future serious events and incidents.

The web-based system could also provide individual facilities with detailed reports analyzing data related to their specific facilities or to certain geographic regions and the state as a whole. Facility managers would be able to use these reports for their internal quality improvement and patient safety activities.

Because reports are confidential, all information submitted through the system would remain confidential, and no information about individual facilities or providers will be made public. But the aggregate data would give the public data.

In addition, the web-system's capacity to include the submission of reports to the Department of Public Health, even though those reports fall outside the scope of the Board's responsibility. This assures that facilities have a single portal for the submission of various types of reports and creates a unified reporting tool for the agencies involved.

Ultimately, the database would allow individual facilities and Board analysts to assess the types of adverse events and near misses that are occurring, identify why they occurred and suggest steps they can take to prevent reoccurrence. Hospitals do not have the funds to invest in technology to track their own adverse reporting and even if they did, it would be fragmented across the system. Having a centralized reporting system at the Board would enable facilities to have their own confidential report cards, without additional cost, and would enable the Board and others to have a report card on the entire system.

Most health care and medical errors take place in ambulatory settings so web-based reporting would ensure that we are getting accurate, timely information from these sites, which notoriously have fewer resources to paper report. The Board has identified an existing system that has a proven record of web-based reporting of adverse events. Thus, it is extremely possible for the Board to purchase this system and test pilot the online reporting this fall.

## **CONCLUSION**

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In conclusion, the Board believes that the application of technology must be expanded to bring greater safety, quality, and affordability to the health care system, and we are working to provide assistance and encouragement for doctors and hospitals to embrace new technologies that could, save billions of dollars a year, but more importantly, thousands of lives. The Board is also hosting the 2006 Annual Federation of State Medical Boards Meeting in Boston. The

Conference will be entitled “Technology in Medicine” and we hope to be able to showcase the work Massachusetts is doing and will be doing in this area.

The On-line license renewal project could be completed in 6 months and the projected cost of the project would be approximately \$1 million.

The Clinical Skills assessment project is expected to generate an operating deficit totaling \$432,000 during the three-year pilot phase. However, the assessment center could be fully operational in less than two years.

Lastly, the Board may be able to buy an existing web-based reporting system for use at the Board. Projected costs are around \$400,000, and the system could be piloted this fall.

These initiatives can be funded and realized if language, to allow unexpended sums in the Board’s Trust Fund to carry over to the next fiscal year, is passed by the Legislature. The Board of Medicine is the only Health and Human Agency whose Trust Fund money reverts at the end of the fiscal year.

The problem is that the vast majority of the Board’s licensing fee revenue comes in odd-numbered years, and such an uneven revenue stream makes it extraordinarily difficult for the Board to make intelligent planning and expenditure decisions. The revenue stream is so unbalanced because nearly all physicians renew their licenses in odd-numbered years.

Thus, in even-numbered years the Board receives very little fee revenue, while in odd-numbered years it receives quite a lot. The Board is alternately short of funds or winds up reverting *significant* amounts to the General Fund.

Thus, this makes it very hard to complete technology improvement projects like the ones discussed above. Furthermore, since it is unknown how much money will revert from year to year, and that money is only reverted in practice every other year, the money is never accounted for in budget planning in the General Fund.

Lastly, in addition to the carry over language, ultimately the Board hopes to be able to retain 100% of physician license fees. Right now only approximately 75% of fee revenue is available to the Board.

So with your Legislative support in passing the carry over language and full license fee retention, online licensing, web-based reporting, and a state-of-the-art clinical skills assessment center can become a reality, and sooner than we think, with no additional funding by the Legislature.

We look forward to making it happen.

**Statement of Thomas J. Sommer, President, Massachusetts Medical Device Industry Council (MassMEDIC) before the Joint Massachusetts Legislative Committees on Emerging Technologies & Economic Development and Healthcare Financing  
Friday, May 6, 2005  
Massachusetts Technology Collaborative  
Westborough, Massachusetts**

Thank you for this opportunity to appear at this hearing on behalf of the Massachusetts Medical Device Industry Council (MassMEDIC).

As you may know, MassMEDIC is nine-year old organization of Massachusetts medical device manufacturers, suppliers and researchers. Our members include internationally-known companies such as Boston Scientific, Philips Medical Systems and Haemonetics as well as medium-sized and start-up companies that are developing break-through medical products that were the result of research performed at area teaching hospitals and research institutions.

Massachusetts is home to the second largest concentration of medical device development and manufacturing in the United States with over 220 companies, 21,000 workers and annual shipments of \$5 billion. Medical devices represent the second largest commodity exported out of Massachusetts and account for approximately 10 percent of all Massachusetts exports.

While MassMEDIC has no formal position on supporting state legislation that would authorize funding for various e-health improvements, the organization would strongly endorse implementation of the computerized physician order entry (CPOE) initiative detailed in a report issued by the Mass. Technology Collaborative and the New England Healthcare Institute in 2003. We believe that the benefits of such a project would meet two



very important objectives that MassMEDIC shares – increasing patient safety and reducing healthcare costs.

These outcomes are identical to two major objectives that drive the medical device industry – providing safe and effective medical products to healthcare providers and developing and manufacturing devices that lower the overall cost of healthcare services.

An example of this would be Boston Scientific’s recent introduction of the drug-eluting coronary stent system that has significantly reduce the number of expensive and extremely invasive coronary artery bypass graft procedures.

I am not aware of any Massachusetts device companies that would immediately benefit from the implementation of CPOE – although there are several companies here that develop and manufacture a wide variety of patient monitoring systems. Our support is a result of our general belief that this project would relieve some of the cost pressures now facing the hospital community and would decrease the incidence of medical errors.

If Massachusetts were to fully implement the CPOE in the near-term, it would clearly send a strong signal that the Commonwealth was serious about modernizing its health care delivery system– a measure that would add to the state’s already well-deserved excellent reputation.

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**Testimony Before Senators Richard P. Moore and John A. Hart, Jr. and  
Representatives Daniel E. Bosley and Patricia A. Walrath**

*Thursday, May 5, 2005  
Westborough, Massachusetts*

Good afternoon and thank you for your time today. My name is Keith MacDonald. I am a senior research manager at First Consulting Group's local office in Lexington, Massachusetts. FCG is a national leader in helping healthcare clients across the country understand and leverage information technology. FCG's applied research group – of which I am a member – specifically focuses on defining the benefits and challenges associated with emerging technologies.

Last year, FCG worked with the Massachusetts Technology Collaborative, the New England Healthcare Institute and a number of other healthcare stakeholders across the Commonwealth to quantify the costs and savings to Massachusetts of implementing one specific technology known to reduce medical errors. That technology is computerized physician order entry, or CPOE.

According to the 1998 Institute of Medicine report, *To Err Is Human*, between 44,000 and 98,000 deaths each year are attributable to medical errors. Studies in three states have demonstrated that drug complications constitute 19 percent of all adverse events that occur in hospitals, and that overall between 2.9 and 3.7 percent of all hospital admissions are complicated by adverse events – over half of which are the result of medical errors that could have been prevented.

CPOE systems have been shown to greatly improve the quality of clinical care and reduce the associated costs of that care by guiding physicians to make the right critical decisions when they order medications and diagnostic tests in the inpatient setting. These systems offer a range of tools to assure that clinical protocols known to benefit patients are consistently accessed and deployed. CPOE systems prevent harm that would otherwise be caused to patients by inappropriately or incorrectly ordered medications. CPOE systems can also help improve the turnaround time for medication orders, and can improve overall resource utilization while decreasing costs.

While most hospitals do employ some level of information technology, a majority of them do not currently have the advanced clinical capabilities required for CPOE. The Commonwealth of Massachusetts – which boasts some of the world's most renowned hospitals and academic medical centers – is no exception. Through our survey work last year, we estimated that only 10 percent of our acute care hospitals currently have CPOE systems installed and operational. Another 20 percent are in the process of implementing them. The remaining 70 percent – or 46 hospitals – that do not have CPOE systems represent our smaller, community-based institutions with typically fewer than 500 beds. These organizations have historically lacked the financial and human resources to implement these complicated systems.

Installing a CPOE system is a major undertaking. Purchase and implementation costs can be substantial – particularly for those institutions with limited ability to secure capital financing. Resistance to CPOE systems among clinical staff has also been an historical barrier to adoption since these systems result in major changes and disruption to the core clinical processes of a hospital's staff. Up to now, there have been no standard specifications for these systems, and the best practice guidelines for installing and using these systems have not been widely shared.

Here's the bottom line, however: Using research findings produced by leading organizations such as Brigham and Women's Hospital here in Boston and the Reigenstrief Institute in Indianapolis that quantify the benefits of electronic ordering systems, we estimate that if CPOE systems were operating in all of Massachusetts' acute care hospitals, the Commonwealth has the potential to reap \$275 million in net savings on an annual basis.

No state has yet had the vision and wherewithal that we've had here in Massachusetts to undertake such a significant statewide collaboration.

The time is right for us to completely and successfully implement CPOE. The benefits are now quantifiably clear and we know more than ever about what it takes to implement these systems successfully.

Thank you.

Joint Oversight Hearing on Advanced Technologies in Healthcare  
Joint Committee on Health Care Financing  
Joint Committee on Economic Development and Emerging Technologies

May 5, 2005

Testimony of the Massachusetts Coalition for the Prevention of Medical Errors  
Randy Peto, MD, Director

The Massachusetts Coalition for the Prevention of Medical Errors welcomes this opportunity to provide comment on this critical issue in health care today, the potential to improve quality and safety and to reduce costs through the implementation of advanced technologies, especially information technologies. We commend the committees for creating this opportunity to show the growing consensus on this issue in our state.

At the same time that the health care system in Massachusetts and nationally is failing to meet our expectations for quality and safety, it is imposing the costs of poor quality both in lives and in dollars. The 1999 Institute of Medicine Report publicized the disturbing statistic that preventable medical errors result in the loss of 44,000 to 98,000 lives in US hospitals annually. The debate since then has articulated reasons that the actual number may be at least twice that high. At the same time, the dollar costs of poor quality impose a significant burden on our economy, an amount that has been estimated to be up to 30% of health care spending each year. These costs are borne by individuals who purchase health care and health insurance, by businesses paying higher costs for health insurance for workers, and by public sector health insurance programs.

There is a growing call for policies and legislative approaches to accelerate the adoption of the advanced technologies, already in existence, which can improve patient safety and quality and reduce health care costs. These technologies include, among others, bar coding for reducing errors in administering medications, decision support through computerized physician order entry systems (often called CPOE) for ordering medications as well as diagnostic tests, electronic prescribing –which can provide decision support to reduce errors in medication orders as well as reduce transaction costs in communicating with retail pharmacies, and electronic medical records in hospitals and physician offices.

The impact these technologies can have in reducing errors and improving efficiency has been obvious in a major initiative underway the past three years, in which the Massachusetts Coalition for the Prevention of Medical Errors has partnered with the Massachusetts Hospital Association, with funding from the Department of Public Health through a cooperative agreement with the federal Agency for Healthcare Research and Quality. The project involved a statewide initiative to help hospitals ensure that medication orders are complete and accurate on admission and that critical test results are communicated in a timely and reliable manner to physicians so that they can take action on the results. Our work has demonstrated the substantial gaps that exist in information systems that could help communicate medication lists from one setting to another so that medications are not missed or ordered with incorrect dosages or other errors when the

patient is admitted to the hospital, or discharged to home. Without these information systems, nurses, pharmacists, or physicians must conduct detailed interviews with the patient and the patient's family, make calls to the primary care physician's office or the patient's pharmacy to identify the medications the patient was taking prior to the hospital admission. This inefficient process could be streamlined substantially if our state had electronic medical records which communicated these medication lists from one site of care to another. The same substantial gaps in information systems may mean that a critical test result is not reliably communicated from the laboratory to the ordering physician, resulting in a missed or delayed diagnosis that may have serious consequences for the patient. At the minimum, these inadequate information systems often result in tests being repeated because the results are not available at a future visit to a different site. Our current system produces worse outcomes for patients at higher costs due to its inefficiency.

Evidence already exists of the improvements in safety and the reductions in cost that would be possible with the adoption of advanced technologies.

In one study conducted in an academic medical center in Colorado, implementation of bar coding for administering medications showed a 33% decrease in "wrong-drug" errors, a 52% decrease in "omitted dose" medication errors, and a 47% decrease in "order-entry" medication errors according to a report by the federal Agency for Healthcare Research and Quality.

A major study performed at the Brigham & Women's hospital demonstrated a 55% reduction in serious medication errors and a 17% reduction in adverse drug events, those errors which harmed patients, after implementation of its computerized prescriber order entry (CPOE) system. A study at the Latter Day Saints Hospital in Utah showed a 70% reduction in adverse drug events from improving the use of antibiotics through its CPOE system.

In 2004, 70% of Massachusetts hospitals did not have this error-reducing technology, computerized order entry systems. The Massachusetts Technology Collaborative and the New England Healthcare Institute, working with First Consulting Group and a group broadly representing the state's healthcare system, reviewed the data and concluded that full implementation of computerized prescriber order entry systems in all the state's acute care hospitals has the potential to produce a net cost savings in the state of \$275 million annually.

There is much more evidence available to demonstrate the safety improvements that could be achieved through adoption of advanced technologies, and more estimates showing the overwhelming cost-effectiveness of such adoption.

There are activities that are already underway to start to accelerate the adoption of advanced technologies in the Massachusetts health care system ; these include Meds-Info and SHARE sponsored by the Massachusetts Health Data Consortium, the Massachusetts E-Health Collaborative, and MassPRO Doctors Office Quality – Information Technology program. But the current efforts could be expanded and accelerated by public policies and legislative initiatives which help overcome the current barriers to adoption, including the problem that the organization that must bear the costs of implementation often is not able to receive the full

financial rewards resulting from implementation; instead a substantial part of the return on the investment goes to other organizations.

We all would benefit from adopting these advanced technologies in our healthcare system. Our healthcare would be safer; our health insurance would be less expensive, and businesses and state government could shift money which had previously paid for our high healthcare costs to other uses.

We thank and commend the committees for providing the opportunity to highlight the critical need for action to accelerate adoption of these advanced technologies. On behalf of the Coalition, I will commit our efforts to work together toward this important aim.

# Notes

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