

Scottsdale Institute Fall Conference Summary

Advanced Technologies: Advancing Care Partners HealthCare System, Boston Mass.

Sept. 30-Oct. 1, 2004

EXECUTIVE SUMMARY

Welcome

Stan Nelson, Chairman of the Scottsdale Institute, welcomed attendees and thanked **John Glaser**, CIO, and his Partners HealthCare team for hosting S.I.'s fourth fall conference.



John Glaser



Mr. Glaser also welcomed everybody to Partners and Boston, which has an incredible concentration of world-class healthcare facilities. Partners is the largest non-governmental employer in Massachusetts, with 4-million outpatient visits, 160,000 admissions, \$1 billion in biomedical research, and also trains medical residents and nurses through Harvard Medical School.

Morning Session 1: "Who's Going to Pay for all of This?"

The morning session kicked off the conference theme of how technologies can advance care with presentations on how we will be able to pay for quality care through pay-for-performance and other initiatives.

Pay for Performance, IT and Quality

Meredith Rosenthal, Assistant Professor of Health Economics and Policy

Harvard School of Public Health, Boston
Ms. Rosenthal said that one result of the IOM reports was a call for action to align payment incentives with quality improvement: pay for performance—rather than just pay for services. She said the U.S. invested about \$200 million in P4P programs in 2004, a small step considering the size of the healthcare industry. By comparison, the U.K., a single-payer system, spends a third of all primary care dollars on P4P.

Our system shows how little leverage a single payer can have in trying to improve quality in any market scenario of many, many payers.

"Some of the programs we looked at rewarded outcomes, but there's concern about measuring those well and about effectively controlling for case severity in order to get the right information about outcomes. There are a lot of concerns about measurement, but I think we're moving in that direction," she said.

IT enters into this in two ways. Some programs specifically target IT interventions and reward physicians for having specific technologies. Others pay for outcomes or processes, which rewards IT to the extent

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Upcoming Events

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January 11

The Toll of Downtime: Educating Your Board About the True Cost of Being Down

- Mark R. Anderson, FHIMSS, CPHIMS, CEO, AC Group, Spring, Texas

January 12

Collaborative Efforts to Promote Technology Adoption by Healthcare Providers

- Robert Mandel, MD, CMO, Blue Cross Blue Shield of Massachusetts, Boston

January 26

Nursing Unit of the Future: Linkage with IT

- Jon Burns, Regional CIO, Cleveland Clinic, Cleveland

January 27

The Emerging Clinical Systems Environment: Market Dynamics Drive Adoption Models (co-hosted with HIMSS)

- Mike Davis, EVP, HIMSS Analytics, Chicago
- Dave Garets, CEO, HIMSS Analytics, Chicago

more events on next page

that IT is the most cost-effective means for achieving those processes and outcomes.



Meredith Rosenthal

The initial Bridges to Excellence (B2E) program, for example, targets diabetic patients, allowing a primary care physician to earn up to \$100 per diabetic patient by using American Diabetes Association certified practices, using IT to track lab tests and values, and manage patients effectively. Similar programs are now being developed for cardiac patients.

Another example is a coalition of California health plans and providers who've agreed on a common set of ambulatory care measures developed by the Integrated Healthcare Association (IHA). This coalition covers almost two-thirds of the California market, whereas no single B2E program controls more than 15% of any market. They're paying bonuses to medical groups for a panel of quality measures, including a direct measure for IT capabilities as well as cervical cancer screening, mammography and other process measures—no outcomes yet. Eventually they'll broaden to hospital and other patient safety measures. Currently, the bonuses are about 5% of the capitation rate.

These bonuses are risky, they're not guaranteed revenue and they're not very large, either. "If we're thinking about small providers, hospitals and medical groups, these kinds of risky rewards may not be sufficient to make investments of, say, \$30,000-\$40,000 to get an EMR and operate it. If times get tough, will the plans stop paying? To the extent there is a real ROI for the payers, we expect these programs to continue," says Ms. Rosenthal. We don't know if there will be a real ROI in purely financial returns as opposed to counting all of the quality of care returns.

On the other hand, direct subsidies can also be problematic. If a payer subsidizes CPOE, can the payer then define the kind

of system, level of compliance or lock in a specific technology that may not be right for every system or hospital? One of the beauties of paying for outcomes is that it rewards an end point and allows the provider to determine the best way to get there. It generates innovation and is adaptable to different settings.

Finally, Ms. Rosenthal asked: Are financial barriers really the big issue? Or do we still need to figure out how to get the physicians and other clinicians on board?

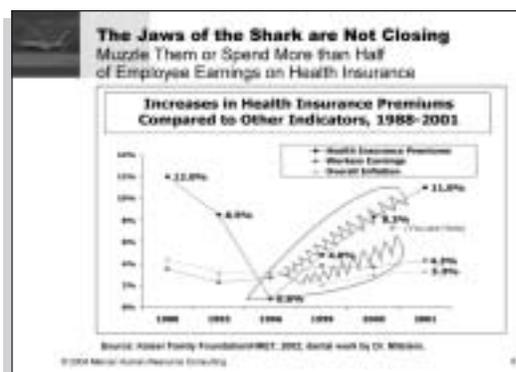
The Impending Race between Biomedical and Industrial Engineering

Arnold Milstein, MD, MPH

Co-founder, The Leapfrog Group, National Healthcare Thought Leader, Mercer Human Resource Consulting, Medical Director, Pacific Business Group on Health, San Francisco

In reflecting back on our experience over the last two to three years, large purchasers sense a need to change strategy.

He displayed a chart (see graphic) showing the ever-widening discrepancy between health-insurance premiums and workers' earnings, which he embellished to look like the jaws of a shark and then commented, "It's not a sustainable relationship."



When Dr. Milstein testified before Congress in the spring, Senator Bennett who chairs the House/Senate Joint Economic Committee said, "This is a dynamic that will fall of its own weight." A USA Today headline recently read, "Medicare Eats Social Security," making the point that

seniors' out-of-pocket costs for Medicare are rising faster than their social security checks.

"I do work for low-wage unions, and their perspective is no different than General Motors. They're saying the shark is upon us, we need something that will begin to muzzle it. Otherwise, it's just a question of time when more than half of the average American worker income, or more than half of social security checks, go to healthcare," said Dr. Milstein.



What are sources of relief? In a study Dr. Milstein did for the Business Roundtable, national experts were asked what the biggest opportunities were for offsetting future health insurance costs.

Arnold Milstein What most benefits managers have been doing over the last 10 years to control costs comprises "the shallow end of the pool," namely, thinning out coverage levels and offering high-deductible plans. The problem with high-deductible plans is that not too many sick people choose them. All your very sick people remain in high-deductible plans, causing employee dissatisfaction, so, it's not a very viable strategy."

Alternatively, he identified key opportunities for static efficiency gains:

First, *more efficient treatments*. What would happen if, every day in every way, we incentivized American consumers and physicians such that whenever there was more than one treatment option, to choose the more cost-efficient option, holding quality constant? "The expert health economists we talked to couldn't estimate association. They said the number's pretty big, but we just don't know what it is."

Second: *more efficient care management*. Americans invented a new industry over the last 10 years called care management, basically a second-line delivery system that

does everything that doctors or hospitals don't consider their job. It includes case managers, health promotion coaches, decision support coaches, nurse line, etc. If tomorrow we were to move our population to the very best performers within that industry, and we were to do a much better job in incentivizing regular use of those interventions, the estimated efficiency gains were in the low teens.

Next, and very interesting: *most efficient providers*. What would happen if, in every community, we moved our population to the doctors and hospitals that were both more cost efficient on total cost of care and superior quality of care? The estimated insurance-premium reduction was 17%.

Last: *more efficient health production*. What would happen if we took our most efficient providers and insert *world-class industrial engineering* advice into the redesign of their work methods and make a hospital or doctor's office more analogous to Southwest Airlines or the GM/Toyota assembly line? The estimate is an additional 15% gain.

Most purchasers are moving to the more efficient provider strategy, because they view it as the single most powerful leverage point in American healthcare: selection of more efficient treatment options, better care management and continuous industrial engineering. The initial focus is doctors and hospitals, because their decisions have such a large impact on total health insurance cost.

"On behalf of Boeing, we partnered with Regence Blue Shield to profile all the doctors in Seattle on whom we had enough claims data to make a judgment about total cost efficiency (total cost of care on a per-episode basis for acute illness, or an annual basis for chronic illness) and also to take a Version 1.0 snapshot of their quality of care," Dr. Milstein said. He displayed a diagram (see graphic) showing the percentage compliance with evidence-based rules (vertical axis) and MD cost efficiency

Upcoming Events continued

January 28

Task Force: IT Value Measurement and Impact on Operations

January 31

Engaging Physicians to Change Practice: An Evidence Based Approach
 • Scott Weingarten, MD, president, Zynx Health, Beverly Hills, Calif.

February 8

The ROI from Integrating CPOE Across the Enterprise
 • Alberto Kywi, CIO, Cottage Health System, Santa Barbara, Calif.

February 9

End to End Availability: Achieving Uptime and Managing Downtime (Part I)
 • Mary Finlay, Deputy CIO, Partners HealthCare, Boston
 • Gayle Simkin, CIO, Catholic Healthcare West, San Francisco
 • Nancy Staggers, RN, PhD, Catholic Healthcare West, San Francisco
 • Rich Pollack, CIO, Clarian Health, Indianapolis
 • George Brenckle, CIO, University of Pennsylvania Health System, Philadelphia

February 10

Case Study: Data Warehousing

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Upcoming Events continued

February 22

Case Study: CPOE Implementation Lessons Learned for Community Hospitals

- Jim Anzeveno, CIO, Faulkner Hospital, Boston

February 23

CDS Readiness

- Zynx Health, Beverly Hills, Calif.

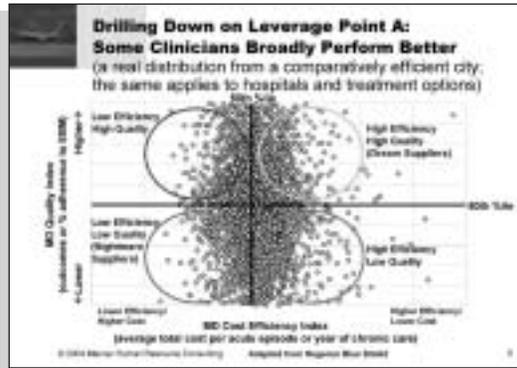
March 1

End to End Availability: Achieving Uptime and Managing Downtime (Part II)

- Mary Finlay, Deputy CIO, Partners HealthCare, Boston
- Gayle Simkin, CIO, Catholic Healthcare West, San Francisco
- Nancy Stagers, RN, PhD, Catholic Healthcare West, San Francisco
- Rich Pollack, CIO, Clarian Health, Indianapolis
- George Brenckle, CIO, University of Pennsylvania Health System, Philadelphia

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(horizontal axis). It effectively segmented providers into roughly equal quadrants of low efficiency/low quality, low efficiency/high quality, low quality/high efficiency and high efficiency/high quality.



“I show this diagram to people who are in central purchasing in Fortune 500 companies and they say, ‘We do this all the time with suppliers, this is how we go about selecting and incentivizing our supplier chain.’ As you can see, at our starting point in the industrial engineering of American healthcare, the relationship between quality and cost efficiency is virtually undetectable. There isn’t any relationship.”

The opportunities for a purchaser, said Dr. Milstein, are to move its population to the upper right-hand quadrant (high efficiency/high quality providers) and/or pay bonuses to the upper right-hand quadrant to expand and further improve.

Political tensions are going to force insurers, including Medicare, to blend two different strategies: *First*, greater provider selectivity, combined with pay for performance. *Second*, consumerism: linking how much consumers pay to the comparative cost efficiency and quality of the doctor, hospital, treatment option and care-management solution that they select.

What’s the near-term static opportunity if we optimize health delivery on a one-time basis? The health economists used for the Business Roundtable study conservatively estimated an at-least 25% improvement on current healthcare spending and quality reliability. Dr. Milstein thinks in the next 10 years waste in healthcare can be cut and it will equal 40% of today’s spending.

“However, once you have very performance-sensitive markets around any industry, including the doctor industry or hospital industry, the industry will respond with continuous industrial engineering and dynamic improvements in efficiency that you can’t estimate today.”

Anyone who thinks this is crazy should imagine Herb Kelleher, CEO of Southwest Airlines, walking into the boardroom of United Airlines 25 years ago and telling them he was going to create an airline whose safety and satisfaction record will be better or as good as theirs—and at a sticker price that’s below a third of what they were currently charging. They would’ve laughed at him. At United, they’re not laughing anymore.

“Show me an industry that has achieved real advances in the efficiency of their operation that has not used an IT platform. IT platforms are the jewels in the crown of the reengineering of American healthcare,” he said.

Advanced Technologies to Lower Health Care Costs and Improve Quality

Mitch Adams, MBA

Executive Director

Massachusetts Technology Collaborative, Boston

The Mass Technology Collaborative is an independent agency whose mission is to support the high-tech economy in Massachusetts, the innovation economy. The point was to examine this economy to identify advanced technologies and innovations that can lower the cost of healthcare and improve quality, and to address barriers in the system that impede implementation.

“We can change that,” said Mr. Adams, who cited MTC’s report on this subject. The report identified seven advanced technologies that if implemented in the Massachusetts healthcare system would save \$2.5 billion dollars annually. The report identifies the barriers and includes a roadmap for knocking them down. From

the beginning the effort has been collaborative, involving a working group of 30 senior executives from across the health-care system in Massachusetts, including payers, providers, the Mass Medical Society and business associations.



Mitch Adams

“I think the hallmark is collaborative action. We’re looking at ways of changing the system that can only be done as a concerted, collaborative effort involving all stakeholders pulling in the same direction,” he said. MTC decided to focus in the near term on advancing particular technologies in Massachusetts, especially CPOE to improve quality and reduce costs. The goal is to get all Massachusetts hospitals with CPOE systems operating within three to four years. He outlined the barriers:

- **Cost:** There are very high costs for any institution, particularly community hospitals, which lack capital and debt capacity. A \$5 million IT-capital expenditure is a problem.
- **Who wins?:** There’s uncertainty with regard to the benefits. We hear there are a lot of benefits, but who enjoys them? The insurance company or the provider?
- **Lack of Standards:** Just what is the minimum set of application standards and IT standards that we should be shooting for?
- **Culture Change:** Finally, this is a major transformation for any institution, turning everything upside down in a sense. We’re talking about doing work in a way that is fundamentally different.

The estimated cost of implementing these systems is \$210 million, including hardware, software and implementation costs, with annual returns of \$300 million. “That’s conservative. CPOE with decision support is probably the IT application with the most bang for the buck,” said Mr. Adams.

Of the \$300 million saved, \$100 million accrues to payers and \$200 million a year accrues to hospitals. The report presents for consideration a set of standards. “The tires on this have been kicked by a lot of hospital CIOs and there’s general agreement as to what the minimum standards for a hospital CPOE system ought to be,” he said.

Finally, MTC has created a financing and incentive program. “This is bold,” declared Mr. Adams. A key principle: this would be completely disengaged from the annual conversation and negotiation about reimbursement. Payers would provide 50% of the project costs—that’s the \$210 million—and of that, half would be a grant paid out pro-rated according to the implementation of the project. And the other half would be held back as contingent on performance metrics not yet developed.

This is one of a number of projects underway in Massachusetts. The American College of Physicians Massachusetts Chapter has presented a program strikingly similar to the CPOE program but on the ambulatory side. It essentially involves installation of an EMR in the ambulatory setting in a collaborative fashion with all of the stakeholders at the table: payers, providers, everyone. Also, Blue Cross of Massachusetts has presented a very exciting vision: a ubiquitous EMR in Massachusetts interoperable across all provider settings: big hospitals, little hospitals, clinics and physician’s offices. And here’s \$50 million on the table to try to make this happen.

The Massachusetts e-Health Collaborative, 30 stakeholder organizations, proposes that all parties—health plans, employers, Medicaid, the group insurance commission and the federal government—agree to pay for half these systems. Payers would agree to say to any provider, “If you install the system that meets the minimum standards, we’re going to pay a material portion of that capital expenditure.”

The report “Advanced Technologies Lower Costs and Improve Quality” and a new report on the ROI of CPOE “Treatment Plan: CPOE in all Massachusetts Hospitals” are available on the website of the Massachusetts Technology Collaborative at www.mtpc.org/institute/health/summary.htm

WELCOME
NEW PROGRAM
PARTNER

The Scottsdale Institute is proud to announce Cerner Corporation as a Program Partner.



Cerner, based in Kansas City, Mo., is a leading supplier of healthcare information technology. Their technology combines knowledge to deliver vital data for effective, real-time decision-making across the enterprise. Cerner is taking the paper chart out of healthcare, eliminating errors, variance and waste in the care process.

Founded in 1979, Cerner has grown into a worldwide corporation with 1,500 clients and over 5,000 associates. Additional information can be found at www.cerner.com.

Welcome Bill Dwyer, SVP, and the entire Cerner team.

Said Mr. Adams, “We think we’re at an inflection point in Massachusetts.”

Jeff Levin-Scherz, MD, MBA
Chief Medical Officer,
Partners Community HealthCare, Inc.,
Boston

Dr. Levin-Scherz, CMO for the network of Partners HealthCare System in the metropolitan Boston area, reviewed the transition from capitation to pay-for-performance contracts. He noted that Partners generally has financial “risk” for efficiency measures, including inpatient, imaging and pharmacy utilization, as well as for quality measures. Historically the quality measures have tended to be HEDIS measures for physicians and Leapfrog or JCAHO core measures for hospitals, but in the most recent contracts the health plans have been willing to tie substantially more withhold return to the development of the electronic infrastructure to make the next “leap” in terms of quality improvement.



Jeff Levin-Scherz



For physicians, a substantial portion of withhold return is associated with deployment of electronic medical records. Partners’ academic medical centers (AMCs) already have very high penetration of EMR among primary care physicians (over 85%), and so incentives are around deployment of EMR for specialists. EMR deployment is still at just under 20% for community primary care physicians, and Partners has committed to increase this to 70% over the next three years. There remain substantial financial barriers to EMR implementation in the community, and attributing withhold return to EMR implementation helps diminish these barriers.

For hospitals, a substantial portion of withhold return is associated with deployment of computerized physician order entry

(CPOE). Partners AMCs have already earned Leapfrog’s four quadrants for CPOE, and incentives are built around adding additional decision support, including imaging ordering and geriatric and renal dosing. Partners community hospitals are making substantial progress in deploying CPOE.

John Yindra, MD
Medical Director, PHO,
Central Maine Healthcare, Lewiston

“I represent a little different point of view: a rural delivery system. We have been working as a PHO for about 10 years. We first started out with contracts that were based on economic performance, and in effect we never talked of quality. But as time went by, we realized it would be very difficult to succeed—though we did have some success because there was a lot of fat to trim early on,” he said.

By 2000, the group partnered with Anthem Blue Cross to work in the area of quality. “We embarked on a two-and-a-half-year contract to see if we could get physicians thinking about this and put some real money on the table,” said Dr. Yindra.

We went to fee-for-service with discounts, including with-holds that were at-risk. “So if you met our targets, you would get our withhold return. Many physicians felt like we were only giving them their money back. They weren’t getting anything new,” he said.

“So we asked Anthem to put some new money on the table so we could say, ‘If you’re really successful at improving the quality of care, there would actually be new money into the system that we could use to help us do even better jobs in the future.’ It turned out to be about \$750,000 in increased withhold based on prior contract years, and so Anthem agreed to put up \$755,000 of their own, which is a lot of money in Maine!” Dr. Yindra said.

Three areas thought most likely to impact the care in the PHO patient population:

1. Diabetes—easy to measure, everybody’s doing it;
2. Patient safety—focused on Warfarin, primarily in doctors’ offices. “We had to radically revise the way we monitor these patients;”
3. ER guidelines at the point of service.



In the diabetes group the PHO looked at “best care, adequate care and terrible care,” committed to developing registries and further decided that this effort would not be limited to just Anthem patients.

John Yindra “We thought that if we’re going to do this we should do it for everybody and we really ought to make a transformation within the practices,” said Dr. Yindra. Measures of success at using the registries, patient self-management and increased education were developed.

Finally, the PHO worked with ER doctors to develop programs around acute low-back pain and asthma care, implement those at the point of care and then measure the success. Examples: door-to-drug time or door-to-balloon time. “We had good success in implementing the point-of-service guidelines, about 75%, which I thought was a pretty good success with our ER docs. And 99% with our primary care docs. Only one doc in a solo practice wouldn’t cooperate,” he said.

“Most gratifying to me,” said Dr. Yindra, “was the decrease in the percent of patients with inappropriate HbA1c levels to 9% of the population from 18%. And if you look at ROI, that seems to be the biggest bang for the buck. That translates into less suffering for those patients. So that made us all feel good, because in the end, what we really care about is the quality of care. If we get a \$10,000 bonus check from the insurance company, it helps, but it’s really not anything. We do this because it’s the right thing to do,” he said.

In the Warfarin initiative, the PHO found its results were better than the national average. “We looked at how this happened, and actually most of the physicians already had a computer program or registry system in place.”

With the ER guidelines, the group had about 75% compliance overall with simple solutions. It used colored paper in the patient chart which prompted a nurse every time they saw a patient with that diagnosis. “We had much higher outcomes success—in the 90% range—making sure that right things were being done,” Dr. Yindra said.

Ultimately the PHO got all the withhold back. About 50% of the primary care doctors have electronic medical records in their practice already. That’s largely because many are affiliated with hospitals. “We’ve accumulated now almost \$1.5 million and we always give the withhold money back to physicians. My goal in the next two or three years is to convince the docs that the best way to spend this money is through the capital fund for advance of the practice, much the way they’re doing it here in Massachusetts,” said Dr. Yindra.

Morning Session 2: “Interoperability: A Key to Improving Care and Safety”

The second morning session focused on IT interoperability, the lack of which is a major barrier to healthcare information management, even within integrated delivery systems, let alone on a regional or national level.

**Blackford Middleton, MD, MPH, MSc
Corporate Director, Clinical Informatics
Research and Development, Partners
Healthcare
Chairman, Center for Information
Technology Leadership (CITL), Boston**

Dr. Middleton discussed findings and research by CITL on interoperability, and the value of electronic health records,

Partners’ academic medical centers (AMCs) already have very high penetration of EMR among primary care physicians (over 85%), and so incentives are around deployment of EMR for specialists. EMR deployment is still at just under 20% for community primary care physicians, and Partners has committed to increase this to 70% over the next three years.

particularly in the context of the approaching National Healthcare Information Infrastructure, the LHII, or the RHIO.

He echoed previous speakers' concern about double-digit healthcare insurance premium jumps. Partners is experiencing a doubling of radiology costs, increased utilization such that essential procedures have doubled in the past four years, and prescription costs have equally increased.



**Blackford
Middleton**



The challenge is ongoing. “The doctor doesn’t know about 25% of the meds you take,” Dr. Middleton said. One-in-seven admissions results from missing

information. One-in-five labs mixes up orders because the original cannot be found and 40% of outpatient prescriptions are probably unnecessary. “Patients are only receiving half the recommended care in this country. We’re spending more on healthcare than any other country in the world, yet we’re ranked in the low to high 20’s for total quality,” he said.

“Patient data is unavailable 81% of the time. In one study, there averaged four missing items per patient per encounter and, as Lucian Leape has discovered, 18% of errors are estimated to be due to antiquated availability of patient info. Not only is the doctor flying blind a lot of the time, but we live in this fractured healthcare delivery system where we’re not applying the best evidence or current healthcare guidelines,” Dr. Middleton said.

Yes, fractured. Medicare beneficiaries see from 1.3 to 13.8 different providers annually—that’s 6.4 different doctors per year on average. “My mom’s a great example. She winters in Florida, has a variety of serious medical conditions, goes up to Maine in the summer, and those doctors repeat everything,” he said. The patient’s medical records fundamentally are still not inter-

operable. Even if we’re using the same vendor, it’s hard for clinics to transmit records from one to another.

Conservatively speaking, there are about 30 billion different transactions in healthcare per year: 4.5 billion prescription transactions; 1 billion outpatient visits; 570 million outpatient tests. And 90% of these transactions are being managed in mail, fax or phone. “Fundamentally, we still live in an unwired healthcare system,” said Dr. Middleton.

Clearly, technology is part of the answer. Dr. David Brailer, our new National Healthcare Technology Coordinator, understands interoperability is an important problem. We can’t look myopically at the application of EMR, at IT only within clinics or hospitals but also within the home, even. We have to look at how healthcare IT interoperates across all healthcare.

In terms of investing in IT in healthcare, Dr. Middleton believes there is “fundamental mis-alignment of incentives for IT because he who pays is not he who benefits. The federal government or some third party” will have to help providers pay for IT investments, and align incentives. In a non-myopic view, we have to look at the value of healthcare information technology across the community and region, at what the value is of supporting exchange and sharing information. “This is largely a public value, that does not accrue to providers paying for IT,” he said.

We know a lot about how EMRs impact clinical outcomes—completing and correcting orders and documentation, and performing drug interaction checks at the point of care. “In my own practice, if there is a drug interaction that pops up, I just show the patient. It’s a great thing. Most of the elderly say, ‘Oh, smart doctor.’ Between you and me, it’s the system being smart,” said Dr. Middleton.

He described the Center for IT Leadership, whose goal is to encourage market-driven, value-based technology by helping

Dr. Middleton believes there is “fundamental mis-alignment of incentives for IT because he who pays is not he who benefits. The federal government or some third party” will have to help providers pay for IT investments, and align incentives.

providers invest wisely, and two CITL studies on the value of ambulatory CPOE and healthcare information exchange and interoperability. The ambulatory CPOE study produced a software model that allows organizations to calculate an expected impact of CPOE.

“In a nutshell, what we do,” said Dr. Middleton, “is create a large cost-benefit model of the technology under consideration. In the case of ambulatory CPOE, we lined up the set of patient characteristics, the practice features, the system costs, and what the features that evidence suggests for clinical value, financial value, and organizational value, and sum those up from an individual provider’s as well as national perspective.”

CITL also developed a framework to categorize ACPOE systems as basic, intermediate and advanced.

The basic systems prevent only about 10% of preventable adverse drug effects (ADE’s). The intermediate class systems can prevent about 45%, and the most advanced still only prevent about 75%. Even the best systems won’t actually prevent all ADEs, he said.

What’s the clinical impact for this hypothetical average provider? The advanced class ambulatory CPOE would prevent about 9 ADE’s per year, which would prevent about six ADE-related outpatient visits per year. That would prevent about 4 ADE related admissions in five years, and about three life-threatening ADE’s in five years.

Estimated cost savings would average about \$28,000 per provider. The advanced system would eliminate more than \$10 in rejected claims per outpatient visit. In addition, productivity-gains from the EHR over the first three to four months range from 20% up to as high as 50%.

“Medication opportunities are the biggest way to save money using this technology,” said Dr. Middleton.

“We concluded that the advance systems cost four times as much, but they generate

over 12 times the return. They produce a nearly tenfold rate of reduction in the number of ADE’s, and they provide the IT infrastructure, which is Step One to an interoperable wired healthcare system. There’s some debate about this. Some people feel you have to get the wires right and then you can run an EHR. My own view is that you have to do the EHR at the same time you’re doing the wiring, and they pay for themselves within the first three years of being fully implemented.”

This is a model, so it has limitations, but the savings are impressive: If we fully implemented ambulatory CPOE, we could save \$44 billion nationally.

And regarding interoperability: In a nutshell, if every hospital, clinic, laboratory center, radiology center, payer and public-health agency were wired to permit interoperability, we’d save the country about \$337 billion over 10 years, about \$78 billion this year and thereafter, and the total provider net is \$34.4 billion, on top of the ACPOE of \$44 billion. Why? It dramatically reduces the burden associated with manual paper-based data exchange. “If Mom goes to a new clinic and has to print her record in one place and take it to the next place, even if that next provider has EHR, they’re manually entering data,” he said.

The second primary effect is through decreased unnecessary utilization of duplicative laboratory tests. Dr. Middleton estimates \$337 billion potential savings based on a conservative national implementation schedule over 10 years.

Panel Discussion

An expert panel provided further insight into the issue of interoperability in health-care.

David Classen, MD, VP, FCG, Long Beach, Calif., Associate Professor, University of Utah, Salt Lake City
Special Advisor to JCAHO, The Leapfrog Group, and The Institute of Medicine

Reports on CPOE and interoperability are available at the website of the Center for Information Technology Leadership at www.citl.org/

Mr. Garets said that the issue of data ownership begs the question whether a public utility model is the right way to go, which allows such initiatives to be governed in a non-threatening, third-party way. In much of the work being done around the country—Tennessee, Nebraska, Georgia, Louisiana, Rhode Island—they’re considering a non-profit public utility or regional information exchange.

**David E. Garets, President and CEO
HIMSS Analytics, Chicago**

**Gregory H. Dorn, MD, MPH, VP and
General Manager
Zynx Health Inc., Beverly Hills, Calif.**

Putting Dr. Middleton’s discussion into the context of hypothetical regional health information organizations (RHIOs), Dr. Classen asked if it makes sense to think of a RHIO without an EHR.

Mr. Garets said, “I don’t think there’s a consistent definition around the country of what an EHR is. I would argue that you can’t have RHIOs without an electronic medical record in each of the participating healthcare organizations, but I would propose that an EHR is an EMR with patient access and input capabilities, and there are few, if any organizations, that have one of those,” he said.

Dr. Classen asked, “Who’s going to pay for this? And, as Blackford outlined, who’s going to benefit? Because it may be that the people who invest in paying for this garner only a small percentage of the benefits.”



Gregory H. Dorn

ZYNXHEALTH
A Subsidiary of The Heart Corporation

In contrast to previous speakers, Dr. Dorn said that hospitals making an investment in RHIOs may not necessarily get a return, and any return may be small, initially. On a global scale the numbers add up, “but at a local level, the ROI case for a RHIO is challenging. There needs to be some outside funding because, I think, the incentives aren’t aligned at a community level, especially in the fragmented CPOE marketplace,” he said.

Mr. Garets said it’s worth examining a for-profit approach to outsource the RHIO to a third party because the outsourcing company understands the rigor of running a business. But he is afraid that kind of

approach would be challenged because of the sensitive issue of patient data, which might be used wrongly, despite the restrictions of HIPAA. There are issues related to the “politics of information.” He said, “We don’t have a framework with which you actually go beyond HIPAA security and privacy in terms of provisions to really address the fundamental value questions about data. It’s the first thing you have to do to get at solving these problems of politics and information.”

Mr. Garets said that the issue of data ownership begs the question whether a public utility model is the right way to go, which allows such initiatives to be governed in a non-threatening, third-party way. In much of the work being done around the country—Tennessee, Nebraska, Georgia, Louisiana, Rhode Island—they’re considering a non-profit public utility or regional information exchange. “Again, though, we don’t have a proven governance model or even the financial models in place to do such an outsourced public utility,” he said.



David Classen



Dr. Classen said it’s not only a question of who’s going to pay, but who’s going to govern, lead and get RHIOs started. “The parallels between what’s going on here and what went on in banking 30 years ago are just astounding, and the solution as banks created the Visa network was very similar to what you’re outlining here today. But if one looks at it in detail, it was a very bumpy, very difficult road for them. The banks had to be convinced that their future was not in selling proprietary databases or software, but services on top of a generic network. And it seems to me that poses a great threat to the vendors in the current space, all of

which have an incentive to have their software and their databases used proprietarily.”



David E. Garets

Mr. Garets responded that he thinks comparisons with the financial industry are flawed in a several ways. “For starters, there were several large banks. The banking industry is not as fragmented as healthcare delivery: it’s Citibank, Chase, Bank of America and a few others. When the international banks get together and decide to do something, the small banks have no choice but to follow along,” he said.

Mr. Garets suggested, “It’s highly unlikely that Johns Hopkins and Partners and Catholic Healthcare West are going to get together and mandate standards for the rest of the country. We’re a very, very fragmented environment and we are not going to have the same kind of environment banks had with the ATM.” The banking analogy also falls apart in terms of the transaction size. “Healthcare transactions are several dozen orders of magnitude more complex. So I don’t think we can use the financial model as a model for what’s going to happen here,” he said.

Again, in contrast to previous speakers, Mr. Garets said “The folks that benefit from what Blackford was proposing are the GE’s of the world whose employee healthcare costs go down dramatically. It’s CMS and the payer organizations whose costs go down dramatically. The healthcare organizations themselves do benefit. But are we going to have those big employers and payers donating a bunch of money? I don’t see it.”

Afternoon Session: “Disease Registries: Improving Outcomes, Safety and Satisfaction”

This session provided a thorough discussion of disease registries, which are databases that are used to manage specific patient populations, especially those with chronic diseases.

Facilitator: Jane Metzger, Research Director, Emerging Practices, FCG, Boston

Ms. Metzger linked the increased use of disease registries to key industry trends, including pay for performance, quality improvement and patient safety. For population-based care, you need something different from an encounter-based tool; EMR’s were really designed to support encounter-based care and generate reminders based on the problem list. Many organizations have EMRs but still need a registry. Two areas where the EMR falls down: One is keeping a clean list of current patients with the targeted diseases who rely on the practice for ongoing management (not any patient with diabetes ever seen); Second, most EMRs aren’t designed to capture the small number of data elements in coded information for tracking.



Jane Metzger



Pay for performance is a huge driver for not just a better approach to chronic-care management, but also for IT to help with that. For many organizations a registry is a good first step for IT to support population management because it is much less expensive and easier to implement than an EMR. They have a number of options for obtaining registry software.

There are lots of homegrown applications, a growing number of commercial products and government-sponsored freeware. Provider organizations, IPAs, government agencies and pharmaceutical companies also sometimes sponsor disease registries, hosted locally or remotely via the ASP model. Many registries were initially designed for a single disease; newer products help manage multiple conditions. Registries can be either static, with a pre-configured set of data elements, or they can be highly flexible. Some of the public freeware versions lack configurability.

Pay for performance is a huge driver for not just a better approach to chronic-care management, but also for IT to help with that.

The Disease Registries panel addressed several questions whose answers can be seen in their entirety on the SI website at www.scottsdaleinstitute.org:

1. What did a disease registry need to accomplish in your organization?
2. What about the data?
3. What does it take to roll out a disease registry?
4. What is the actual workflow in physician practices/clinics?
5. What results can you share from your registry-supported disease management program?
6. How will pay for performance affect your DM program?
7. Where next with your program and registry?

EMR vendors are hearing from customers and prospective buyers the increasing interest in population management and enhancing function accordingly. Ms. Metzger said, “I expect there to be more examples over time where registry functions are added onto an EMR, so you have a nice clean flow of data from documentation, and registry-supported tools available at the point of care integrated into the EMR.”

A big challenge with any registry effort: how the data gets in. Most registries require at least some manual entry and some rely totally on manual input. Feeds from laboratory, pharmacy and other external systems make a great difference in terms of usability and ability to track a larger set of recommended interventions for each disease state.

Registries have definitely hit the mainstream with the proliferation of so many pay-for-performance programs and as many QIO’s now offer statewide programs for managing chronic disease that include a registry, Ms. Metzger said. She then asked panelists to describe disease-registry programs in their organizations.

**James Barr, MD, Executive Director
Central Jersey Physician Network
Flemington, NJ**

Two main factors influenced the group’s patient-registry initiative, said Dr. Barr. “One, we were in full-risk contracting at the time and needed to control costs. So, we went after our asthma and diabetic populations in order to keep our performance acceptable within these full-risk contracts. Second, and more important, we were looking at it more from the standpoint of going to the next level of contracting. We needed leverage with payers and incentive contracts with employers. So, we needed to demonstrate that our outcomes were above benchmarks, that we could take on population management. We needed the tool to not only show that but also to help us improve the performance once we learned how well we were doing. A lot of our motivation was contract-based.”

CJPN started with a pilot of eight primary-care practices. None of these practices had the same information system, two had an EMR, one was homegrown, nobody was on the same page. “It was challenging. No one had any money,” said Dr. Barr. So, there was no capital and limited resources for staffing and hardware. “We overcame all that mostly because we knew we had to do it,” he said.

The group adopted the Bridging Care Patient Planner, which GSK Pharmaceuticals provided and helped to implement. “It was very low cost and web-enabled, so we didn’t have to put in any special systems in anyone’s office. I had to incentivize these offices by saying I was going to buy their high-speed lines for their office, and they were all happy to get AOL,” he said. The registry had to be quite flexible because each employer wanted different subjects tracked in their employee population: diabetics; low back pain; migraines with absenteeism.

Said Dr. Barr, “My biggest question was: ‘Can it be used as a tool to change performance?’ The patient registry can do that. It can drive performance improvement.”

**Evan Steffans, RN, Director of Clinical
and Quality Systems and Healthnet
Operations**

Premier Health Partners, Dayton, Ohio

“Our system is just the opposite. There is no perceived need to do it and we have no risk contracting, We got into registries because I worked with Health Cooperative in Seattle for many years and was spoiled; I knew the value,” said Ms Steffans.

As the group began participating in chronic-care projects at the Institute for Healthcare Improvement, it was one of the first to participate in a diabetes collaborative. “We had to do a good sales pitch. We tried to do it with paper and pencil and with an Excel spreadsheet but it simply did not work,” she said. The organization found a commercial add-on to its existing billing system, paying \$300 in license fees for an enhancement that was essentially a children’s immu-

nization registry which they modified for disease management. The program is available on all computers at 36 sites. One FTE helps support the registry, so, “It’s seamless, takes care of itself,” said Ms. Steffens.

The registry module searches by disease codes, age and sex for the status of disease and wellness interventions and lists this information for each physician. The interventions match the chronic-disease targets for diabetes, cardiac disease, hypertension, prevention and immunization in the organization’s quality program.

David Larsen, RN, MHA, Director, Quality Improvement, IHC Health Plan and Data Manager, IHC Primary Care Clinical Programs

Intermountain Health Care, Salt Lake City
Intermountain Health Care, an integrated delivery system, implemented its “Care-Process Model,” a very aggressive initiative to manage 40 different care-processes. “We found we were good at developing guidelines and packaging them in presentable ways to physicians, but found that once we developed them, they weren’t used to fundamentally change how care was delivered,” said Mr. Larsen.



INTERMOUNTAIN HEALTH CARE



David L. Larsen

So IHC decided to develop a “Patient Care Management System,” which not only comprises practice guidelines of best care, but—in order to get these adopted internally—has data on measured performance to be able to show variances between best care and actual care. “We needed tools to implement and improve care. We now have a whole set of databases that we pull data from to populate the diabetes data mart, which has allowed us to improve the accuracy of reports and performance,” said Mr. Larsen.

The homegrown registries allow IHC physicians to submit corrections to the data, allows modeling of data before export to physicians and custom reporting. “We built a front end onto our data mart that allows web-based physicians to log onto our intranet and get their lists of patients with gaps in care from their office without specialized software,” said Mr. Larsen.

Debbie O. Lucas, MPH, Director, Medical Affairs

**GSK Pharmaceuticals
Research Triangle Park, NC**

GSK’s program is called the Bridging Care Planner Initiative and the tool it uses, Patient Planner, was developed by DocSite. GSK’s first general goal was to successfully facilitate the implementation of guidelines into practice. “Pharma companies are great at taking 40-page guideline documents and reducing them to 10-page, nicely printed documents that are never integrated into care. So we’ve used the registry as a tool to enable healthcare providers to track and implement guidelines at the point of care,” said Ms. Lucas.

The patient-registry effort is about improving physician adherence to treatment guidelines in order to improve diagnosis and treatment of disease.

GSK further decided that its registry had to be able to manage any condition. “Registries grew up as pretty much disease-specific. We wanted to make sure that the one we offered was a patient-centric and that it would facilitate proactive care,” said Ms. Lucas.

“A lot of what we’re doing is helping healthcare providers implement chronic-care management. That concept has been well accepted, but very few people are able to implement it because they lack the tools and processes to use the tools. Our interest is in helping providers move from acute-care to chronic care management,” she said.

Afternoon Tours

“The Pike”

Sue Schade, CIO, gave a walking tour of The Brigham and Women’s Hospital.

Advanced Technology Tours

Attendees could choose two optional tours:

Tour 1

- Brigham and Women’s Pharmacy Repackaging Center: Demonstrates the technologies that are required to assure 100% availability of bar coded medications. Bill Churchill, Director of Pharmacy, Brigham and Women’s Hospital.
- The STRATUS Center for Medical Simulation: One of a small number of centers in North America that employs microsimulation, partial-task training, and high-fidelity human patient simulation, and the only civilian application of the US Army micro-simulations of weapons of mass destruction for field personnel. Charles Pozner, MD, Director of EMS and the STRATUS Medical Simulation Center, Department of Emergency Medicine, Brigham and Women’s Hospital.

more tours on next page

Afternoon Tours continued

Tour 2

- OR of the Future (Virtual Tour): State-of-the-art operating suite that serves as a living clinical innovation laboratory to explore new technology platforms and systems of care for performing minimally invasive procedures. Smart real-time systems, including RFID, and indoor location technology create a “zone of safety” from check-in to discharge. Janice Crosby, Director of Business Development, Center for the Integration of Medical and Innovative Technology, (CIMIT) Partners HealthCare System, Inc.
- Radiology: A large-scale implementation of multi-disciplinary PACS, and physicians’ perspective on useability. Maria Damiano, Director of Operations, Multidisciplinary PACS, Partners HealthCare System, Inc.



GSK’s registry model also had to focus on point-of-care decision support. “A lot of registries have been used to provide report cards back to providers identifying who their populations are, who’s out of range and other measures. We wanted a tool that would provide key information at the point of care to enable more informed decision making between the healthcare provider and patient during an office visit—and it can be used from a population management perspective,” said Ms. Lucas.

Pankaj Patel, MD, MSC, Medical Director for Quality Improvement

Advocate Health Partners, Oak Brook, IL.

“I come at this from the perspective of a clinician who’s spent a significant amount of time trying to improve quality of care, but also from the perspective of a clinician using relatively low-tech registries for about 10 years and having had considerable success,” said Dr. Patel.



Advocate Health Care, an integrated delivery system in Chicago, includes eight hospitals, eight PHOs, contracts with about 2,500 independent physicians, and includes three medical groups that employ over 800 primary care physicians and specialists. “Our reason for developing disease registries was very patient-centric: to better organize and improve care in areas where we had specifically identified problems. This was not primarily a way for us to manage lists, motivate physicians, identify poor performers or reduce costs, none of those things. It was very much about

providing clinicians with specific support to improve clinical care,” said Dr. Patel.

Most of Advocate’s disease registries are homegrown and initially were simple. They range all the way from being merely a list of patients with a specific disease and their contact information up to longitudinal relational databases that help track quite specific indicators. “We’re now compiling point-of-care registries for clinicians. Quite frankly, there was never any grand scheme. They have just evolved over time. My message is that you can start very simply, and go through an evolutionary process and make great clinical progress,” said Dr. Patel.

**Day Two:
Session 1
“Simulation: Improving Care,
Medical Education and
Operations”**

**Facilitator: Angie Frank, VP,
Market Development
Lawson Software, St. Paul, Minn.**

**Jeffrey B. Cooper, PhD.
Director, Biomedical Engineering,
Partners HealthCare System
Associate Professor of Anaesthesia,
Harvard Medical School
Executive Director, Center for Medical
Simulation, Boston**

Dr. Cooper said, “I think simulation is ripe for making dramatic changes in healthcare.”

Most of us are touched by simulation in everything we do. “Do you want the pilot checking engines out while you’re a passenger? Of course not. Do you want nuclear power plant operators to do what they did in Chernobyl? Of course not. Why is it in healthcare that we practice on people? Because, until recently, we didn’t have simulators. We do now—so we’re at the beginning of a new era of training healthcare professionals,” Dr. Cooper said.

Dr. Cooper showed a clip from a TV news show to give the audience a sense of full-

environment simulation at the high-end. He went on to describe virtual reality tools, part-task simulation, patient simulation with actors, and electronic patient simulation via computers. Simulation can be done physically with mannequins or using full virtual reality. The web is where simulation is going to have the greatest impact on the IT world, asserted Dr. Cooper.



Jeffrey B. Cooper



Multiple companies make a variety of procedural simulators and task trainers for minimally invasive surgery, cardiology, endoscopy, dentistry and ophthalmology. Some, such as laparoscopic surgical simulators, are beginning to be used to verify the impact of training on surgical skills and how well the learning transfers to a “real” environment. While some devices are still cartoon-like visualizations of laparoscopic surgery, Dr. Cooper said that some are “getting increasingly sophisticated.”

Products range from body parts to sophisticated mannequins with almost-human features: heart beat, pulses, breath sounds, eyes that blink and pupils that dilate and constrict. “You can give voice to it. It has thumb twitching that is used in anesthesia to determine degree of paralysis. They can be made to urinate, bleed and have their arms move. The realism of the skin is not quite there yet; but the mannequins there are moderately high-fidelity. There’s still a long way to go, but for most of the things we’re doing now, they’re really adequate,” said Dr. Cooper.

Simulation is used in medical schools to teach basic principles of medicine; practice for novice trainees in difficult or dangerous procedures without risking a patient; quick training for experienced clinicians in new techniques; systematic training for man-

aging critical events, and team training in particular. Dr. Cooper said, “Continuity of care and teamwork are two of the biggest patient safety issues.”

“You can also use simulation to test new technologies under stressful conditions. That’s where you really need to know about how clinicians are going to use equipment,” he said.

Research in human performance and evaluating performance for feedback, credentialing and licensure are additional opportunities, just as for pilots. Some are already beginning to use simulation to credential clinicians. Increasingly, they’re going to be qualified to do certain things only after they’ve been trained on a simulator.

The Simulation Group in Harvard’s Center for Integration of Medicine and Innovative Technology is one of a few that develops enabling technologies, including a chest-tube-insertion trainer that was awarded one of the Invention-of-the-Year awards by the U.S. Army, the first time a medical organization has been so honored.

Several years ago, a group of medical students at Harvard Medical School, after experiencing training at the Center for Medical Simulation, which Cooper founded in 1993, wrote a letter to the dean stating that simulation was the most exciting experience they’d had in the course of their education.

Dr. Cooper concluded by stating that he believes Internet-based simulation applications are likely to proliferate, “and support will be needed on the back-end.” The training also can be used to train IT professionals to learn how their customers do their work. Cooper’s center offers a one of a kind training program to do that. “And, it’s a great place to do usability tests on a new IT system, like an EDR,” he said.

See

www.harvardmedim.org
for more information
and links to simulation
information.

Expansion of simulation occurred in the last three years when the price of simulators dropped to about \$40,000 from as high as \$500,000 previously.

Charles Pozner, MD, Director of EMS and the STRATUS Center for Medical Simulation, Dept. of Emergency Medicine, Brigham and Women's Hospital, Boston

STRATUS stands for *simulation training, resuscitation, and technology utilization system*. It includes an advanced skills lab, a microsimulation lab and two high-fidelity simulation suites. Although we are part of the Department of Emergency Medicine, we use a multidisciplinary approach, “we don’t just train emergency medicine docs and nurses, we develop curricula for any providers who can envision simulation as a component of their clinical and preclinical training. We believe that given simulation’s growth and projections for continued growth in healthcare education, IT folks will be an important partner for those choosing to employ simulation. We interact with patient technology all the time, and I think your understanding of how simulation works and its dependence on computer technology is going to be very, very helpful in this process,” he said. Dr. Pozner added that the real expansion of simulation occurred in the last three years when the price of simulators dropped to about \$40,000 from as high as \$500,000 in previous years.

“Depending on both what you do and how long it takes you to do it, the simulated patient will either get better or worse. So, if you don’t do things in the right sequence or in a timely fashion, the patient will get worse, just as you would predict a real patient would respond. If you do things well, the patient should get better. Though each scenario can be preprogrammed and standardized, every time the simulator is used, it will react differently, because not everyone’s going to make the same clinical decisions or perform flawlessly,” he said.

“Simulation may also be used as an evaluative tool.” STRATUS employs an information management system that allows the tracking of performance of both individu-

als and groups who utilize its simulation systems. This component of simulation is both very important and very new. “One of our most important projects at STRATUS is the development of a seamless, easy-to-use database entry system that will allow us to review the performance of individuals or groups as well as allowing our educators to enhance the curriculum based on this data,” said Dr. Pozner. “If a group of residents performs poorly when presented with a particular patient-care scenario, maybe that’s not their fault. It may be just as likely that we have inadequately prepared them and that we need to alter our curriculum. This is one of the ways we hope to employ information technology in simulation,” he said.



Charles Pozner



STRATUS considers simulation an innovative method of education. “We develop our curriculum based on specific, defined objectives. We look at who we’re teaching, then what points we are trying to present, and finally how we may utilize simulation to effectively meet our educational objectives. The objectives and simulations will be different depending on whether you’re a nurse, an EMT, a physician or a physician in training,” said Dr. Pozner.

Immediately following each simulation, participants are debriefed, taking advantage of their full engagement in the educational process. Debriefing software allows facilitators to focus on performance during group debriefings, and when employing microsimulation software, allows individual students to learn from their performance. “This software allows us to not only “score” performance, but also to track performance. One of the technical problems that we need to work with our IT colleagues to fix is that there’s not enough bandwidth

to allow us to offer this on the Internet. These are very popular, and we're having a hard time getting this to our customers....we want our residents to be able to train at home."

Dan Johnson, PT, MA, Associate Director for Program Development, HealthPartners Institute for Medical Education, Bloomington, Minn.

Mr. Johnson said HealthPartners has been conducting a formal simulation program for only two years and is still in the start-up mode. "Our challenge is to integrate clinical training into the care-improvement process so it contributes and we're looking for innovative ways to do that. We felt the need for a different kind of learning space. We tend to train like we were trained. We sit, we listen until we're numb, and we know that that accomplishes something, but it does not transform practice. So, we decided to start a skills lab and were given the opportunity with some underutilized university space," he said.

"We said let's don't lock ourselves in. Let's plan on learning and evolving. So, we're not really invested in bricks and mortar. We put money in equipment and staff," said Mr. Johnson. The university partnership has been marvelous, and physical space is one of the benefits. On the flip side, HealthPartners brings a credible level of confidence and a systems way of thinking. "We were also able to raise \$600,000 in only 18 months. When you add cash—colleges are always cash poor—that combination was dynamite," he said.

The first purchases were for high-end human-patient simulators. An electronic medical record and high-end audiovisual infrastructure were installed in a "typical" healthcare environment with a front desk and nurse's station and exam rooms—all structured to look like a critical or emergency-medicine environment. "We're in the process of building an operating room and searching for a services area to teach

teams things like sterile technique, positioning and use of instrumentation. We can't shut down an OR to do that!" said Mr. Johnson.



Dan Johnson



Among lessons learned: Teaching using simulation requires a different set of skills and a different mastery of technology than a "conventional" faculty has. "Simulation must be supported, and you must have help when you're designing the instructional activity. Those two things are really critical, so we've tried to invest in them," he said.

Another key lesson: Look for champions within your system. "We have an ER physician who has taken a course on how to use simulation to teach. He's beginning to integrate it into his curriculum and is so excited about it. He is like a magnet pulling activity into the center," said Mr. Johnson.

Inpatient and outpatient nursing education, especially orientation, has really improved with use of the simulation center. "New employees find it very engaging. Our clinics can feel like training wastelands. They need new and effective approaches to learning. The noontime pizza with a speaker is ineffective, it doesn't work. They need a new approach, and we're enjoying this opportunity to bring them onsite," he said.

**Session 2
"e-Patient-Physician Communication "**

**Facilitator: Daniel Sands, MD
Practicing physician at Harvard Medical School and Chief Medical Officer of Zix Health, Boston**

Dr. Sands practices primary care and has been dealing with the issue of email in healthcare for his entire career. "Because you use email, you expect everybody else in

Our clinics can feel like training wastelands. They need new and effective approaches to learning. The noontime pizza with a speaker is ineffective, it doesn't work.

your life uses email. So, why is it that in healthcare we haven't really welcomed use of email?" he asked.

Dr. Sands cited statistics from Manhattan Research that only about 5% of online adults communicated with their doctor through email. When asked how many would like to communicate with a doctor through email, the number was close to 50%. When asked if they would switch providers if they could find one who used email, almost half would switch. "Patients are telling us they would actually switch providers for services like email," he said.



Daniel Sands

Dr. Sands described the backdrop. In any specific situation, a patient has to figure out how to reach her doctor. Typically, her only options are to come in for a visit or to pick up the phone. "Does anyone like to go see their doctor? You're dealing with something that's really time-consuming—generally patients have to take a half a day off from work," he said.

Obviously, these traditional options are not good for all situations. "Most patients can't reach their doctors right away on the telephone, even though it's the only pipeline through which patients can get into our practices. They either come in or they call us. There are so many messages coming into an office, they've got to be triaged to the right people, then they're going to leave a message for us, and then eventually we're going to call them back, depending on how much time we have, how painful we anticipate the conversation with the patient's going to be," Dr. Sands said.

Clearly we need alternative forms of communication that break down the time barriers and even some of the space barriers in our relationships.

Patients want to do email but aren't allowed to. Surveys show about 25% of

physicians have sent an email to a patient, but only 10% regularly do so. Clearly, no matter how you look at the numbers, it's an underutilized technology.

Dr. Sands asked the panel why it is that physicians are not using email as much as patients want them to.

Panelists

Joe Kvedar, MD, Corporate Director of Telemedicine, Partners HealthCare, Boston

Jim Jones, Healthcare Solutions Manager, Hewlett-Packard, Palo Alto, Calif.

Mitch Mitchell, Regional Director, RelayHealth, Emeryville, Calif.

Dr. Kvedar said he believes physicians fear things that separate them from the patient and the issue of risk associated with that. "My interest has always been on how far can we push the boundaries and still remain within the space of quality care, and we're still learning that," he said. "Sometimes technology makes those things easier, but we're trained that interaction with a patient in the office or at the bedside is good care. One of the things we learned in the context of online second opinions is that specialists feel at great risk when reviewing data online because of what data they might be missing; that somehow being with the patient provides them with a more complete data set. We train specialists to respond to inquiries in very specific ways—"based on the data I have seen," or "if I had a similar patient in my office," for example—so that they minimize their risk.

Mr. Mitchell said, "Not being a clinician, I can only speak to feedback I get working with physicians. They're concerned there will be a flood of messages from patients. If you give somebody an email address, it's really hard to turn that off. You can't change your email address to avoid them."

Manhattan

Research found that only about 5% of online adults communicated with their doctor through email. When asked how many would like to communicate with a doctor through email, the number was close to 50%.

Dr. Sands said, “Joe, you talked about a concern of risk. There’s no case law in this area yet, nobody’s been sued because of an errant email or something stupid they said in an email. There’s some suggestion that email may actually protect you and there’s good data that a lot of malpractice suits result from a failure to communicate. So when we’re not communicating well with our patients, then they say, ‘I’m going to sue this doctor because he never called me back or he never talked to me.’ If you have an open channel of communication, then you may mitigate that risk.”

Dr. Sands also noted, “Patients don’t remember what we’re telling them, and so if they don’t follow our instructions, then they could get themselves into more trouble, and that leads to bad outcomes. So email as a form of documentation can lead to improved communication and compliance.”

On the other hand, usually a visit is documented, but it turns out that we’re not good about documenting phone calls. One study found that only 40% of phone conversations are documented, a risk-management nightmare. Malpractice is typically the result—not when you said or did something stupid—but because there’s no documentation of what you did. There’s a self-documenting factor with email. It is there, it is the record, automatically. Dr. Sands also said, “If we’re communicating electronically, we need to be careful about what we’re saying and read it over a couple of times before we press the send button.”

Now to another point about patients with whom we have no relationship and answering those emails. Tom Ferguson, one of the pioneers of consumer health informatics, talks about *Type One* patient-doctor email, where there’s no pre-existing relationship, versus *Type Two*, where this is. Tom swears that *Type One* email has preceded the other kinds of email, and in fact there’s a lot of that going on. So it’s not just people identifying Dr. Kvedar as somebody who is



Joe Kvedar



a dermatologist and might answer these medical questions, but it happens in chat rooms all over the place right now.

“Mitch, you brought up this flood of email situation. So, is it true, do we really have a flood of email messages going on? How many emails can a doctor expect in their practice if they start accepting them?” he asked.

Mr. Mitchell said it depends on the doctor. One, he’s got to give his patients an email address. It’s analogous to your phone number. “You can mitigate that somewhat by only telling patients you really like what your email address is. Or assigning email to somebody in your office, triage it, and let me know if I need to personally handle it. We’re going to assign different roles and responsibilities to people inside the practice; a team of individuals might handle prescription renewals and appointments and referral requests, and a nurse triage person who’ll take those clinical phone or emessages.”

Mr. Mitchell addressed the liability question and the importance of physicians carefully reviewing their answers before hitting the send button. “I think what’s equally important is the patient thinking through their concern before they send that message to the doctor, and there be some structure around that message from the patient. I could wax poetic about my allergy symptoms, but it may or may not provide my physician the needed information, and the inevitable result would be this back and forth of email, the same way we play phone tag. What we see being much more valuable is a structured environment in which the patient can respond to a certain set of questions and send the message to the doctor. That helps to add value to online interaction.”

One study found that only 40% of phone conversations are documented, a risk-management nightmare.

Concerning the feared flood of email messages, Dr. Sands said the reality is—the flood never happens.

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Concerning the feared flood of email messages, Dr. Sands said the reality is—the flood never happens. “At Beth Israel Deaconess we have a communications portal in which we’ve enrolled over 20,000 patients. Our experience since April 2000 is that for every 100 enrolled the result is less than one email message to a physician per day. This is not a large volume. This finding has been replicated at a number of sites around the country. There’s the myth and the reality, the fear and the reality.”

Dr. Sands then returned to the issue of structured emails. “If you structure a communication, what does that mean?”

Mr. Mitchell said that would depend upon the type of communication. “If I’m going to request a referral, there are some pieces of information that my doctor needs to know. Why do you need a referral? Who do you want to see? Have you seen me for this already? If it’s an appointment, why do you want to see me? When do you want to see me? How do I get a hold of you? And while you’re filling this out, give me your member

ID number and your health plan information. In our organization, we call that a web visit, and a web visit is clinically structured, and it’s designed in concert with a panel of doctors, to make sure the questions are in fact valid questions. It formats the message for physicians.”

Mr. Mitchell noted there are questions that might be missed in structuring an email. “That’s why I think it’s really important to also provide an opportunity for them to be subjective in communication using free-form text.

Dr. Sands concluded the session due to time running out, but the panel and audience clearly could have continued this lively discussion.

Conference Conclusion

John Glaser concluded the two-day gathering by thanking all the presenters for an excellent conference and thanking attendees for their participation. Presentations are available on the SI website at www.scottsdaleinstitute.org.



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