COMPUTER-BASED PATIENT RECORDS

CPR Implementation Strategies, Return-on-Investment Rationales, and the Growing Role of Web Technologies
ABOUT THE PANEL

DENNIS J. STREVELE, Ph.D. (MODERATOR), is senior technology consultant to Healthstat Corp. in Santa Clara, Calif. Prior to his California tenure, he was national technology projects manager at Kaiser Permanente. He is also contributing editor, technology, for Healthcare Business Roundtable magazine and a health management information systems consultant to the World Bank in the Middle East and North Africa. Mr. Streveler has more than 20 years of experience in healthcare information systems, medical informatics and managed care. Mr. Streveler earned his Ph.D. in management informatics from the University of California at San Francisco.

JAMES F. BURGESS joined 3M Health Information Systems in Murray, Utah, as general manager in May 1998. He is working to expand 3M’s position in the healthcare marketplace, by growing and leveraging the 3M HIS coding and classification business worldwide and applying its clinical data management expertise to provide clinical decision support. Prior to his tenure at 3M, Mr. Burgess was vice president and general manager of information technology initiatives at VHA Inc. and gained development, channel management and field sales experience during his 14-year tenure with IBM. He also served as a paramedic in the U.S. Air Force.

TED COOPER, M.D., is the director of clinical informatics and security at Kaiser Permanente in Oakland, Calif., where he is responsible for the development and implementation of policy and practices needed to protect personal health information. From 1985 to 1994 he was the associate director for medical information systems for Kaiser Permanente Northern California, sponsoring the development and implementation of a number of systems ranging from patient follow-up to pharmacy, pathology, clinical data and information presentation, as well as the implementation of terminals or personal computers in all physicians offices. Dr. Cooper serves as chairman of the board of directors for the Computer-based Patient Records Institute.

VICTOR S. DORODNY, M.D., Ph.D., M.H.A., F.I.C.H., F.A.A.P.M., is the chief medical information officer and corporate vice president for Superior Consulting Company Inc. in Pasadena, Calif. He is a practicing physician, health information and academic faculty member. He served as an advisory board member for the Association of Medical Directors of Information Systems, the IPA Association of America and the National Managed Care Congress. Dr. Dorodny also serves as an editorial board member for several healthcare industry publications and is the co-chair of HealthDatums Design. Dr. Dorodny is the founder of Health PRO Worldwide Inc., a full-service physician consulting company.

MICHAEL L. FRANKENBERGER is senior executive and chief information officer at MeritCare Health System in Fargo, N.D. Previous positions include: CIO at the University of Missouri Health System; associate director of IS at the University of Wisconsin Hospitals and Clinics; technical and planning director at the Daughters of Charity Health System; and technical services manager at Wellborn Baptist Hospital in Evansville, Ind. He is a member of the College of Healthcare Information Executives and the Healthcare Information and Management Systems Society.

BETH HAENKE, JUST, M.B.A., R.R.A., is currently vice president of technology at QuadraMed Corp.’s office in Englewood, Colo., where she is responsible for the ongoing design and development of department and enterprise-level solutions, including electronic medical record systems and successful implementation strategies. Ms. Haenke has 20 years of experience in the healthcare industry with a focus on health information management and has held senior management positions in two healthcare software companies prior to joining QuadraMed. A past president of the Colorado Health Information Management Association, Ms. Haenke just received the association’s 1989 Distinguished Member Award. Currently, Ms. Haenke just serves on the board of directors of the Quality Management Association of the American Health Information Management Association.

BLACKFORD MIDDLETON, M.D., M.P.H., M.Sc., F.A.C.P., is vice president, clinical informatics, MedicalLogic Inc., Hillboro, Ore. Dr. Middleton has practiced in academic medical centers for 10 years. He completed a fellowship in health information management and technology at Stanford and led the implementation of the integrated clinical information management system. Dr. Middleton serves as a director-at-large on the Computer-based Patient Records Institute Executive Committee.

MARK MULCAHY has been an analyst in the Healthcare Information Service at Volpe, Brown, Whelan & Co. in San Francisco since 1997. Mr. Mulcahy graduated from University College Cork in Ireland, and earned a master’s degree in economic science from the same institution. He is a member of the Healthcare Information and Management Systems Society.

ROBERTA ROCHMAN, R.N., M.B.A., brings more than 20 years of experience in healthcare information technology to her position as director of information systems at St. Joseph’s Health System. She joined St. Joseph’s in 1998. Prior to her tenure at St. Joseph’s, Ms. Rochman was a member of the Health Information Management and Systems Society, the Center for Healthcare Information Management, the American Association for Home Care, the American Organization of Nurse Executives, and the American Medical Informatics Association.

RICHARD J. SKINNER is chief information officer of Salinas Valley Memorial Healthcare System, an Oregon- and California-based integrated delivery system consisting of eight hospitals, 18 primary care clinics, a home health service and a managed care plan with more than 750,000 members. Mr. Skinner is leading the system in efforts to standarize to a single family of information systems supported by a single information services organization; building an enterprise-wide electronic medical record; and using information technology to improve efficiency and member service levels in the health plans. Mr. Skinner has more than 25 years of experience in healthcare information systems and was the 1994 recipient of the Healthcare Information Executives Forum Crystal Award for Excellence.

ANN C. SULLIVAN is senior vice president and chief information officer at the Mamoides Health System located in Brooklyn, N.Y., and is responsible for the overall MIS strategic direction for the hospitals. She has worked in healthcare administration for more than 20 years, including stints as CFO, North Bronx Healthcare Network, CFO, Jacob Moskos Medical Center; and associate executive director for Elmhurst Hospital Center. Ms. Sullivan has written numerous articles on the computerized patient record and has achieved 100 percent utilization of these systems at two medical centers. Ms. Sullivan led the MIS department and the hospital to the 1996 Computerworld Smithsonian Award for Medicine for MACS (the Mamoides Access Clinical System).

PATRICIA C. THOMPSON, is the senior vice president for information services and chief information officer for the Penn State Geisinger Health System in Danville, Pa. Her IT team has won numerous national and regional awards for the use of Internet/Intranet in all industries. Currently, her IT team is engaged in an aggressive rollout of a CPR in more than 40 counties covering two-thirds of Pennsylvania. Ms. Thompson has more than 20 years of experience in healthcare with the past 16 spent in healthcare information services. Pat earned a degree in Information Management from the University of Maryland and is a member of the Healthcare Information and Management Systems Society, the College of Healthcare Information Management Executives and Healthcare Information Systems Executive Association.

UPCOMING ROUNDTABLES

- Controlling Pharmacy Costs
- Physician/Hospital Partnerships and the Future of Integrated Delivery Networks
- Disease Management: Market Opportunities
- The Future of Employer-Based Health Coverage
- Healthcare Entrepreneurship Forum

SPECIAL SUPPLEMENT | March/April 1999 | CPR-3

Have we turned the corner?

TO A HEALTHCARE OUTSIDER, it might seem quaint that, on the threshold of the new millennium, we are still talking about creating an electronic patient record.

There have always been a litany of good reasons why clinical health information was not yet fully computerized—inadequate technology, concerns over confidentiality, physician intransigence, to name but a few. And, of course, the sheer complexity of the task.

But today, with the clearing of many of those roadblocks, we are finally seeing the first real installations of computer-based patient record systems at leading-edge provider organizations nationwide.

For the first time ever, the computer-based patient record, while still in its infancy, is operational and not just a vision.

To better understand how far CPR systems have come, and how much further they need to go, we have recently brought together a stellar panel of experts to share their views on the subject.

The edited results of that discussion, held in San Francisco in January 1999, are presented in this month’s Roundtable, the latest in a series of in-depth reports on significant trends in healthcare management, finance and technology.

We would like to thank our outstanding panelists for contributing their time and expertise, as well as the organizations that helped underwrite this report. Special thanks to Dennis Streveler for moderating the session and developing the agenda.

If you have a suggestion for a future Roundtable topic or are interested in participating in an upcoming event as a panelist or a sponsor, please contact me at 800-643-7600, x 16 or via e-mail at: dmmack@healthcarebusiness.com.

— David M. Mack
Publisher & Editor-In-Chief
COMPUTER-BASED PATIENT RECORDS

CPR Implementation Strategies, Return-on-Investment Rationales, and the Growing Role of Web Technologies

REVOLUTION OR EVOLUTION?

DENNIS J. STREVELER (MODERATOR): In his 1979 book, The Growth of Information Systems in the United States, Dr. Donald Lindberg predicted that we were just about on the verge of a computer-based patient record. In that work, he quoted Kaiser Permanente pioneer Dr. Morris Collen as having said much the same thing way back in 1956. So, now in 1999, are we actually on the verge of a CPR revolution?

PAT THOMPSON (PENN STATE GEISINGER HEALTH SYSTEM): I think so. Today there are usable, enterprise-wide, commercially available CPR systems while only several years ago there were not. You can install the systems and they are generally workable for physicians. The challenges today are more operational—the change management issues for physicians, nurses and support staff. The technical issues are less acute.

MARK MULCAHY (VOLPE, BROWN, WHELAN & COMPANY): I wouldn’t say we are in the midst of a revolution—more of an evolution. What we do know is that the CPR is a much more tangible concept now than it has ever been. The fact that we are discussing the operational challenges of implementing it speaks volumes for how far we have come.

BLACKFORD MIDDLETON, MD (MEDICALOGIC, INC.): We’re in the midst of a generational change. Everyone younger than me has no trouble approaching a computer in a clinical environment. But those older than me seem to have more difficulty and, depending on the day, I have difficulty too. It may be 20 years before we see the full penetration of the CPR in the routine clinical use that Lindberg and Collen predicted. However, we might already be five to seven years through that 20.

JAMES BURGESS (3M HEALTH INFORMATION SYSTEMS): I think we’ve been approaching the edge of the CPR since 1956 and we still are nowhere near acceptance. This is an embryonic market.

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BETH HAEKEN JUST (QUADRAMED CORPORATION): I agree. I have a very difficult time finding an organization, particularly an integrated delivery network, that has done anything on a broad scope. Part of this is due to the level of enterprise technology. We can’t yet connect master patient indexes very well.

TED COOPER, MD (KAISER PERMANENTE): That’s a good point. My organization, Kaiser Permanente, sees 65,000 outpatient visits a day in northern California alone. Frankly, the vendor technology doesn’t scale up to that at this point. By and large, we’ve had to build and scale our own clinical data repository. We now have technology in place that records appointments, patient visits, diagnoses, lab work, pharmacy, patient follow-up, immunizations, as well as alerts for preventive health measures.

RICHARD SKINNER (PROVIDENCE HEALTH SYSTEM): Part of the problem is that we are trying to create a computerized analog to the paper medical record. The time has come and gone for that. In essence, we are entering a post-CPR world. What we are really trying to do is use information technology to improve clinical and business efficacy in medicine. And we are hampering our progress by continuing to harken back to the old-fashioned paper record and what its computerized cousin might look like.
DEFINING THE CPR

STREVELER: Before we get too far along, we should define what a CPR is.

MIDDLETON: The Computer-Based Patient Records Institute has put forth a definition that is very reasonable—a system of systems devoted to maintaining and chronicling a patient's entire healthcare experience from birth to death. It is not a single system which can be installed. It's an integration of data and systems to serve healthcare delivery.

VICTOR DORODYN, MD (SUPERIOR CONSULTANT COMPANY, INC.): There's a body of literature, including some of my own work, that compares all the definitions. There are probably about six or seven definitions that mean different things to different people. What we need to worry about, however, is common functionality, not assorted acronyms.

STREVELER: What should a CPR system do?

MULCAHY: I would say that a CPR should enable the physician to leverage the information within the system of systems to bring optimal knowledge to the point of care.

COOPER: There are several fundamental processes in the delivery of care that have to be incorporated into a CPR. Patients need to set up appointments or, if they walk in, they need to be registered. We need to pull a record on the prior care. Someone needs to review it. Someone then sees the patient, does an examination, decides what kind of care will be rendered, writes orders, arranges for the follow-up and documents the encounter. Once the care is delivered, we want to know what it costs, its quality, and what is going on from the population management perspective.

MIDDLETON: We also want workflow support for the clinical environment that will allow the physician, the nurse, the records staff and the administrator to communicate as appropriate, with clinical information in tow. We want decision support. We can impact the healthcare bottom-line by complying with formularies and doing preventive care services.

"I don't think any integrated delivery system can get by without significant implementation of a clinical information system."

TED COOPER, M.D.
KAISER PERMANENTE

STREVELER: Mark, you represent an investment banking firm. Financially speaking, are CPR systems bankable? Is the market ready for them?

MULCAHY: The major players in the CPR arena have been public for many years. In that sense, they have been very bankable indeed. The area we are particularly focused on is populating the CPR. In other words, even if the systems are functional, they won't work unless you can actually funnel data into them. In our research, we're finding that transcription, for all its faults, is still a preferred way to populate the patient record. And integrating transcription with the Internet will be huge within the next couple of years. That may be the next step in pushing the CPR forward.

THOMPSON: In some of our clinics, among the physicians who really utilize the technology, we're seeing significant reductions in transcription—up to 80 percent.

BURGESS: Those of us who are building these CPR systems are betting that, minimally, transcription will be structured to allow for digital entry or encoded data, complementing the documentation process of clinicians while populating the CPR.

MULCAHY: We've come full circle on that. Originally, we thought doctors would be forced to change the way they report encounters and that we would transition to structured text. That hasn't happened.

MIDDLETON: What we're seeing is a hybrid of structured and free text because, frankly, the standards of informatics do not yet have a reliable reference terminology and information model that will allow physicians to create a fully structured, digital encounter form.

DORODYN: There are new voice recognition technologies with high degrees of accuracy that might address these transcription issues.

MULCAHY: How high a degree of accuracy? Is 90 percent good enough?

FRANKENBERGER: No, not for a physician.

MULCAHY: That's why we're seeing the voice recognition vendors teaming up with the transcription companies. That's where it's going to go.

ROBERTA ROCHMAN (PER-SE TECHNOLOGIES): We've mentioned the essentials so far. Yet, we're already seeing a surge in the implementation of multi-media for the CPR such as wave forms, voice capture, video clips, consent form signatures, drawings and digitized medical images such as X-rays.

IMPEDIMENTS TO IMPLEMENTATION

STREVELER: What is holding back widespread implementation of CPR systems? What are the roadblocks?

MULCAHY: Notwithstanding the integration problems experienced in implementing the CPR, physician intransigence remains one of the primary roadblocks. With the Internet providing patients the ability to make more informed healthcare choices, the demand for better information should encourage physicians to become more proactive.

THOMPSON: With the early CPR systems, there was a lot of resistance from physicians. The systems just were not optimized for direct physician entry at the keyboard. With the EPIC system we are implementing,
that has changed. In many cases, the physicians are now pushing us for the technology. However, implementation is time-consuming and disruptive for the physicians.

MICHAEL FRANKENBERGER (MERITCARE HEALTH SYSTEM): There will be a transition period. You can’t get physicians from Point A to Point Z in one jump. So we start by developing dictation templates. Then we develop some structured data entry. At this point, we begin to realize value. We can then use the information, for example, to remind a physician that it’s time for a 40-year-old female patient to have a mammogram. We can do that more easily with structured data than with a transcribed document.

HAENKE JUST: The transition period can be tricky. Until you have enough medical history online, the physicians aren’t going to start using the PC.

FRANKENBERGER: We have dealt with that transition as well. We’re taking the time, at a cost of about $5 per patient record, to abstract and enter summary information like problems, medications and allergies, into the CPR before the physician steps up to use the system for the first time. The physician then has some history on the patient during the first visit.

HAENKE JUST: That’s part of the challenge because you end up having to run dual systems for a certain period of time. And that’s very expensive.

STREVELE: Will implementation of the CPR save the physician time?

SKINNER: Physicians, by and large, get paid on the basis of production. When we introduce something that costs them production and yet doesn’t accrue any extra return of risk withhold or quality bonus points, it is a no-brainer to assume some resistance. So the critical area to address is to figure out how to incent physicians to use CPR tools when most of the evidence, so far, would indicate that physician production is not enhanced by the use of these tools, although there may be some tremendous back-end benefits down the road.

HAENKE JUST: One ambulatory CPR vendor has indicated that it takes a physician approximately three months of daily use to achieve proficiency with their product. During this three-month period, the physician spends more time on documentation, but after three months, the physician spends about the same amount of time as they used to spend documenting by hand. In the long run, it doesn’t save them time, but it does reduce work process time as more complete medical information is available immediately for subsequent care.

STREVELE: Most of the CPR systems we are discussing are organization-specific. Are we seeing any movement towards the development of a longitudinal patient record, one that could allow for exchange of information between institutions, even competition?

SKINNER: Until the healthcare market incent providers to create and maintain a longitudinal record, we’re wasting our time talking about how to do it. There’s absolutely no incentive for me to invest a nickel in making sure, for example, that a patient in Portland can have his or her health record transferred to another institution in Fargo.

MIDDLET: As a vendor today, there’s no need for us to provide a tool which allows Providence Health System in Portland to exchange patient data with Legacy Health System in Portland. On the other hand, we pay a lot of lip service to developing a standardized, structured clinical record that could be shipped between systems. But so far, it’s not happening.

THOMPSON: This is an evolution. It’s hard to find anyone with a fully implemented CPR in an integrated delivery system. The challenges to electronically exchange clinical data among unaffiliated providers are immense. This is not going to be widespread for quite a while.

HAENKE JUST: Most of the development and implementation of automated technology is driven by cost and pricing. Within our company, we have discussed why so many decision support systems already in place are underutilized from a clinical standpoint. It would seem that it is because very little managed care contracting and other types of contracting are based on proving outcomes. There are just isolated pockets of that right now. And until payors drive providers to implement systems that will improve outcomes, provider organizations aren’t going to spend much time and money on these systems.

"We are heading towards a point in time where we will empower the patient to take accountability for their own healthcare.”

MICHAEL FRANKENBERGER
MERITCARE HEALTH SYSTEM
WHO’S DRIVING THE CPR: VENDORS OR PROVIDERS?

STREVELE: Are vendors delivering on the promise of the CPR? Are provider organizations even able to fully utilize and implement the technologies that are now coming on the market?

BURGESS: I think it is mixed. In some cases, buyers’ expectations are above their ability to implement. They have process reengineering and workflow issues to work through as well as the actual implementation. On the other hand, it is true that no single vendor has a complete solution. The biggest challenge is getting providers to focus on their strategic needs and to match them with the appropriate mix of information solutions.

MULCAHY: I agree. The products are available today but integration problems between vendor offerings have slowed CPR acceptance. On the other hand, providers don’t always make best use of the information available to them at the point of care delivery.

THOMPSON: I think that many vendors are ahead of what providers can implement. But the exciting thing, in my mind, is that we are seeing documented evidence of real improvements in care with the implementation of these systems. As soon as that is better understood, the momentum will begin to drive providers to realize that you can’t compete without these systems.

DORODY: A lot of healthcare organizations don’t know what kind of information they already have. The ones that know what they have do not know where it is. The few that know where it is don’t necessarily know how to get at it in a usable format. And the lucky ones that know how to get at it don’t know how to use it to deliver and document quality care and achieve competitive market advantage. So, in this context, data is cheap but information is priceless. The challenge is to show providers how CPR systems will enable them to access, manage and utilize clinical information in useful ways.

BURGESS: I believe CPR systems are more ready for implementation than providers are ready to implement them right now. I’m not saying they are perfect, nor that they are necessarily ready for physician use. Fortunately, I do not think physicians have to use these systems for an organization to get to return-on-investment goals, improved quality and improved outcomes. The return, however, will grow exponentially once physician utilization increases.

SKINNER: That may be true. But when I try to list multientity, multivendor networks that are making use of integrated information technology in the delivery of clinical care, you can list them on one hand, if that.

STREVELE: What will drive this to change?

SKINNER: It hasn’t become bad enough yet to force most of us to really reinvent our processes. For the most part, physicians still practice the way they have always practiced and hospitals still deliver care the way they have always delivered care. And, right now, competitive pressures seem to be driving wedges between different parts of the care delivery structure rather than bringing them together. We have some distance to travel to get the proper alignment of incentives and goals to create a climate in which we can fully implement these CPR products.

ROCHMAN: As I go from one healthcare organization client site to another, I often find that they have bought multiple products that overlap. If an organization has 10 corporate goals, it will purchase three or four overlapping products for each one. Then they need to bring in consultants to help them figure it out, which fragments the systems even more. Obviously, this occurs because each department is buying a system from its limited perspective. Providers need to create a consolidated CPR plan that takes into account an enterprise-wide view, supported by the steering committee and board.

STREVELE: Most provider organizations are operating a multiplicity of technology systems. Since CPR systems can’t stand on their own, what kinds of integration issues are arising?

SKINNER: It has gotten more complicated in the past few years. The driving force in the industry was towards integration three to five years ago. In most markets, now, that has kind of dried up. So the incentives for HMOs to work with hospitals and other providers have gone away in a lot of markets. That makes it more difficult to aggregate information across boundaries, notwithstanding the technical challenges.

MULCAHY: A typical CPR system is made up of many systems from many vendors. Each vendor has its own idea of standards and, even when standards are agreed upon, there are still nuances that frustrate full integration across vendors.

DORODY: Many of these technologies can be connected, but they are not truly integrated. To me, integration means the ability to move information across the continuum of care, the continuum of business. If systems are integrated, you can extract key performance indicators that are important to your organization. Then you can use data in a meaningful way. Getting it all to work together is a very difficult but achievable task.

ROCHMAN: I’d like to stress that the CPR must expand into all venues of care within the continuum that Dr. Dorodnny describes. The integration needs to start with the call center and extend through the emergency department, acute care settings, home care, nursing home and hospice.

"Information is now the currency of healthcare. The healthcare industry will have to learn how to handle the new currency."

VICTOR DORODY, M.D.
SUPERIOR CONSULTANT CO.
BURGESS: Right. The biggest challenge for us as vendors isn't developing the technology; it is nurturing the business-to-business relationships and committing to the industry standards necessary for these systems to succeed.

RETURN ON INVESTMENT

STREVELER: In dollars and cents terms, how do you defend the value proposition of a CPR system to management?

ANN SULLIVAN (MAIMONIDES MEDICAL CENTER): Stanley Brezenoff, the president of Maimonides, requested a ROI analysis before signing off on our CPR implementation since we were going to be spending a third of the medical center's entire capital investment on technology. The trouble was, while we were implementing systems we were not gathering data, so we had to perform a retrospective review. Yet we were able to measure a sufficient amount of outcome data to show less than a five-year ROI on the systems we implemented.

FRANKENBERGER: MeriCare's CFO and I walked arm in arm into the boardroom and said we can determine a ROI but we're not confident of our numbers. We simply told them we need to implement it; that it's the right thing to do. I wouldn't overemphasize upper management's involvement. You need to go to the physicians and the clinic managers and the staff on the frontlines and get their commitment. Without their cooperation, the full value or return on investment will not be realized.

BURGESS: You can pick ROI apart any way you want. Each department or user has a different perspective. In the end, you have to have the guts instinct that the system is going to improve outcomes, improve patient satisfaction and improve your competitive position, and that it is going to give your clinicians quick access to information, which is their number one need.

COOPER: Our organization has spent lots of money trying to figure out how much this is going to save us. Top management, however, believes that our future competitive ability depends on it. As our recently retired director of financial services once told me, accountants get bachelors of art, not science, because this type of work is art not science. I don't think any integrated healthcare delivery system can get by without significant implementation of a clinical system.

"If it wasn't for our physicians, our CPR system would not have been implemented."

ANN SULLIVAN
MAIMONIDES MEDICAL CENTER

THOMPSON: Our approach was more of a strategic sell and our CEO and our board fully supported it. It's not easy to run the numbers when trying to develop a ROI for CPR systems. For instance, we made an assumption from industry averages that there would be three workstations per doc. And, in fact, we've seen five. But until there is more published data on this, I think we all just have to go to a strategic positioning.

ROCHMAN: Our clients would love to see a detailed ROI for the CPR. In the past, we've seen that baseline studies weren't performed, so it was difficult to calculate the post-implementation ROI analysis. Going forward, Per-Sc is taking steps to ensure a client's rapid return on investment by having programs in place with third-party consulting partners. The three parties—Per-Sc, the client and the consultant—share in the risk of benchmarking, CPR implementation and benefits realization. But we're finding that implementations take a long time and you don't have the ability to study the environment ahead of time, implement the system, test it six months later and then a year later.

DORODY: It is a Catch-22 of sorts. In order to document ROI, an organization needs a robust, integrated system to gather all the data in order to be able to achieve qualitative and quantitative reporting. So one has to assume a certain degree of faith in the ability of these systems to improve the quality and reduce the cost of delivering care.

"The fact that we are discussing the operational challenges of implementing [the CPR] speaks volumes for how far we have come."

MARK MULCAHY
VOULPE, BROWN, WHELAND CO.

SKINNER: The real ROI comes from determining the system's value to the overall business operation. So I have turned from a technology cheerleader into a technology skeptic. When someone comes to me and recommends that we buy a new OR scheduling system, for example, I ask them how our cost-per-case will be reduced if we purchase it. For these comprehensive systems, you need to measure business value.

HAENKE JUST: I think it is absolutely fundamental that providers project their own ROIs. If a vendor comes up with the ROI, it becomes the vendor's projection. The organization doesn't necessarily have the incentive to make it happen. But if your lab director comes back with an ROI for a new lab system, that director is going to be very incented to make the changes that are going to be necessary to make the system successful.

DORODY: From the provider standpoint, nobody wants "pure" IT solutions anymore. People are looking for total business solutions. If they're IT-enabled, that's even better.
STREVELER: We haven’t talked about real dollar figures yet. How much do CPR systems cost? Are there some general rules of thumb?

SKINNER: That’s a hard question to respond to since the definition of a CPR is so fuzzy. If you ask me how much we paid to put in an ambulatory electronic medical record into our physician practices, that’s one figure. If you ask how much we spent to wire up a hospital, that’s a different figure. Our estimates show that it costs us about $25,000 per doctor for an ambulatory electronic medical record system. But I should add that, in the most heavily computerized parts of our company, our net income is the greatest and our cost per patient is the lowest. So that gets back to the ROI question.

DORODNY: So, in fact, your “faith” in this investment is paying off and you are able to document that these systems are paying for themselves.

STREVELER: Ted, what is Kaiser spending?

COOPER: We are probably going to spend in the neighborhood of a couple of billion dollars over the next few years for our whole program. It comes out to approximately $25,000 per year per physician.

SULLIVAN: At Maimonides, we are now spending four percent of our revenues on information systems versus nearly zero a few years ago. That translates to over $45 million. I would say that the electronic record portion of that is about $17 million.

DATA OWNERSHIP, PATIENT PRIVACY

STREVELER: Let’s switch gears and discuss data ownership issues. There are those who felt that Community Healthcare Information Networks (CHINs) failed because no one could resolve the data ownership issue. Are we still fighting this battle?

DORODNY: The issue of data ownership has not been resolved. It is still up for grabs. It varies from state to state, from system to system, and even from individual physician to individual physician. There are some doctors who do not allow patients to ever see their record and there are some organizations that routinely allow patients access to their records and give them a printout of their medical record audit trail. Obviously there is a divergence of opinions. A recent court opinion tried to define who owns what. They basically said that a computer file is equivalent to a paper chart jacket, a file folder is similar to a chart storage rack, and the contents of a paper record is similar to the contents of an electronic one. The opinion expressed by the court was that the originating entity, either hospital or physician, owns the folder (chart rack) but the content belongs to the patient.

STREVELER: Does the expansion of CPR systems open the Pandora’s Box of patient confidentiality concerns?

COOPER: Whatever we do, we must enhance rather than reduce the trust that the patient has with their physician. We’d like to give the patient as much control as possible over who sees what parts of their health information. At the same time, you can’t bring the healthcare delivery system to a standstill. If you require the patient to sign a form each time a physician needs to look at their medical record, that is extreme. We haven’t worked through this as a country or a culture. There’s plenty of legislation trying to keep it in line, and probably some of it will within the next few years. To settle this issue, we fundamentally need a set of federal privacy laws and regulations to protect the privacy of healthcare information and to prevent it being used to discriminate against the individual for health insurance and employment.

SKINNER: I was amazed at what an emotional issue this is for providers, not just patients. We get much more resistance from providers on sharing information than we do from patients. We spent almost a year trying to iron out a corporate policy of sharing clinical information between our medical groups, hospitals, HMOs and research institute. I never would have believed how contentious an issue it became.

STREVELER: Is anyone else seeing provider resistance to sharing information?

SULLIVAN: Not at our facilities. We have publicly said that, if it wasn’t for our physicians, our CPR system would have not been implemented at Maimonides Medical Center. We first identified our technology-savvy physicians upfront. We had them chair technology standards committees and selection standards committees. Our physicians were the drivers in making the system work.

FRANKENBERGER: At MeritCare, we have an organizational structure that brings physicians into the decision-making process not only with information technology, but on everything that happens within the health system. That structure will enable us to be successful in deploying technologies that impact physicians.

THE Y2K FACTOR

STREVELER: How has the Y2K problem impacted the development and implementation of CPR systems?

MULCAHY: Y2K is likely to be a cause of major brain lock among healthcare participants through 1999. Whether it has induced providers to accelerate CPR system implementation to tackle the Y2K problem at the same time, or delay implementation until after Y2K passes, depends on who you talk to and which side of the debate you are on.

SULLIVAN: Fifty percent of our MIS department is devoted now to integrated testing and replacement of systems that we would not be performing if there wasn’t a Y2K issue around. As a result, we have made a conscious decision that, in 1999, we are only going to complete projects we started last year and the rest of our attention would be directed to Y2K.

"It is absolutely fundamental that providers project their own ROIs. If a vendor comes up with the ROI, it becomes the vendor’s projection."

BETH HAENKE JUST
QUADRAMED CORPORATION

SPECIAL SUPPLEMENT | March/April 1999 | CPR-11
STREVELE: From a vendor perspective, then, are healthcare organizations saying "Go away and come back next year?" Or are they able to deal with tactical remedial action and strategic decision-making at the same time?

ROCHMAN: Providers are truly in a survival mode. They have evaluated their existing systems for Y2K compatibility. If they are compliant, CIOs are trying not to do anything that might change these systems during the next 12 months.

HAENJE JUST: We are seeing both scenarios. At QuadraMed, we are getting a lot more business because of Y2K, particularly in the replacement of systems that are not Y2K-compliant. Yet we also have customers who are going to wait until things settle down in terms of Y2K to make a purchase decision.

BURGESS: Our general impression is that Y2K is worse than people thought it would be. By and large, it is taking more resources, causing significant delays in adopting new technologies, and altering people's priorities. It is forcing people into what we call digital triage. We expect it to delay some CPR purchasing decisions well into 2000 and beyond. On the other hand, it has actually increased demand for some of our other products, in the coding and compliance arenas, for example.

MULCHAY: We are definitely seeing Y2K impacting some of the companies we follow. I'd like to ask the CIOs on the panel how much Y2K has affected capital IT budgets. Our estimates show that overall budgets have increased from two-and-a-half to maybe 3 or 4 percent of overall capital spending.

FRANKENBERGER: Five or 10 percent of our total capital budget in IS is for Y2K replacement. Nearly 20 percent of our IS operational budget is now allocated to Y2K.

THOMPSON: We are probably spending 80 percent of our IT capital on Y2K. Many of these projects are replacing non-compliant versions but also moving us to the same platform across all our regions. For example, the EPIC scheduling system and Sunquest lab system are replacing several different vendors in our major tertiary centers.

SKINNER: We don't have a Y2K budget, per se. We have made the decision that we will do whatever is necessary to become Y2K-compliant within our existing resources. For the most part, because we are coming off of a five-year modernization cycle, it really hasn't had that great an effect on our operations. We have consciously made an effort to make it very hard get Y2K dollars budgeted based on the belief that whenever you establish a budget, it gets spent. So we have focused on doing things we would do anyway and incorporating any Y2K issues that arise. We will see whether that works.

COOPER: As a large organization, Kaiser has something like 800 systems that need assessment or modification. We have been working on Y2K compliance for a number of years. Essentially, we have stopped any new project that wasn't mandated by regulation, except for development of our clinical information system which is continuing at the anticipated level of funding.

IMPLEMENTING THE CPR: FROM THE FRONTLINES

STREVELE: Let's discuss the real-life complexities of implementing CPR systems. Ann, what was your experience at Maimonides?

SULLIVAN: First, you have quite a bit of disruption in the old processes that existed before. So you have to put together a project team with a broad range of clinical expertise, including physicians, in order to get critical paths imbedded in the design of the CPR system. Then it is critical to design a training program capable of supporting such an infrastructure. At Maimonides, we just completed 45,000 hours of physician and nurse training over the past three years to support implementation. In order to do that much training in a compressed period of time, we recruited the entire nurse education staff and made them part of the MIS team during implementation. Some physicians told us early on that they would not go to training programs. We had to come up with euphemisms to encourage them to come. So we would call it "Navigating the Internet," when it was really mouse and keyboard training.

COOPER: At Kaiser, we learned that you need to populate the system before you launch so that there is something in the system for the physician at the beginning of the case.

MIDDLETON: I would consider that a "staged" implementation model. We often propose that nursing staff and administrative staff use the system for a period of time before the physicians get on board. That helps to prepopulate the data. Then you phase in the functionality for physician users in areas that are of most value to them, such as prescription writing, where they can benefit immediately from medication interaction assessment.

SKINNER: In both the hospital and the physician organization, you have to pay attention to convenience. You have to champion those aspects of the system that make it easier for physicians, nurses and others to get their work done more efficiently.

STREVELE: How do you address the conversion of paper-based records?

DORODY: There are a number of ways to handle it. Probably the most effective way, during transition from a paper-based system, is gradual digitizing of old paper records as they reenter the system using new compression technologies.
HAENKE JUST: Document management is one of the biggest perceived failures of CPR systems. I cannot tell you the number of facilities that, after implementation, end up with twice the number of full-time equivalent (FTE) workers as they had before. They are printing paper until the cows come home. They are running paper all over the organization. When a doctor makes a hand-written note on a copy of a chart, it needs to be re-scanned. It becomes a paper nightmare. But it doesn’t have to work that way. Some facilities, using the right interfaces, end up with half the number of FTEs. And they don’t have a shred of paper in the whole medical record department.

COOPER: There’s something to be said for not trying to digitize all the old records. Very seldom do physicians want or need to go back to a 10-year-old outpatient paper record to get information. That being said, you still need to input a summary or abstract of the record before the system can be functional. That way you can avoid the huge cost of scanning all the old material you are not really going to use.

HAENKE JUST: The problem with summarizing is that you can encounter legal liabilities if you make a mistake. You can compromise and just scan the past two years’ worth of data. There are a number of options.

THOMPSON: This requires a gradual move away from the paper record. Some of our physicians continue to carry the paper record into the exam room and never open it. As we stop filing paper on the paper record, it becomes less and less useful. Eventually the clinics stop pulling the paper record altogether.

MIDDLETON: We propose to our customers that documents, loose papers, and correspondence coming into the outpatient environment should get scanned immediately and then linked from a third-party imaging application to the CPR.

STREVELER: We’ve discussed the hospital and the ambulatory care environment. How can the CPR work in other venues—home health, skilled nursing, and the like?

DORODY: The first and most successful CPR penetration was actually in the home health. The reason was that home health is mainly nurse-driven. Nurses were much more receptive than doctors to adoption of information technology.

SKINNER: The main barrier to implementation in home health or long-term care is that there is no money available to invest in the creation of a CPR in those sectors. If you are having trouble building a ROI case for CPR in a hospital setting, try doing so in home health or long-term care with payment rates the way they are. That would be a hard sell.

MIDDLETON: I would propose that long-term care and home health are really part of the ambulatory care continuum. It is going to be a lot easier to penetrate those environments with lightweight extensions to the CPR or Web extensions than it will be to bring in a whole new set of applications to target those markets because the margins are so low.

SKINNER: With the margins in the home health and long-term care markets disappearing and less willingness on the part of the industry to pay for any kind of integration, those sectors pretty much have to stand on their own in terms of their cost structure. Because of that, it makes it hard to build the case for a significant IT investment there. I’m not arguing that it wouldn’t be a good thing. But in today’s business climate, trying to sell even an inexpensive CPR installation in a home care or long-term care setting would be tough.

ROCHMAN: At Per-Se, we have had several clients who have chosen to extend the CPR to home health. From the patient home, the nurses link up with the IDN-based CPR through wireless modems. So the costs are really limited to purchasing laptop PCs and providing training for the nurses in the field.

SKINNER: You might be able to justify the expense depending on your business structure. You might make the case that, by improving your home care performance, you can actually improve margins on the acute care side. But if that scenario doesn’t work for your organization, it becomes hard to justify the costs.

WILL THE INTERNET MOVE THE CPR FORWARD?

STREVELER: If we were to come back in a few years, would we be saying that, of course, the Internet was the obvious way to connect all the disparate parts of our fractured healthcare enterprise?

MULCANY: The Internet is an as-yet unknown quantity in healthcare. But we all expect it will be the solution to the communication and integration problems we have discussed—and I think rightly so.

MIDDLETON: I agree that Internet and Intranet technologies will have a dramatic impact. The opportunity for desktop integration and accessing disparate systems changes the information management experience. The other thing to consider is the role of the healthcare consumer in all of this. The consumer is going to drive this and radically reform how medicine will be delivered in ways we can’t even imagine today.

SKINNER: Web technology finally offers us a way to deliver information from disparate systems and contexts in a singular fashion, whether internally or externally. That is changing the way we think about systems, design systems, and the way our customers use our systems. The Internet also offers the mechanism whereby healthcare can make the same customer-focused evolution that almost every other major industry is making or has made.

"There is definitely a correlation between organizations that are taking on risk and the need for sophisticated information management."

BLACKFORD MIDDLETON, M.D.
MEDICALOGIC INC.
We are just starting to pilot Web access to the CPR and it is looking very promising.

- PATRICIA THOMPSON
  PENN STATE GEISINGER HEALTH SYSTEM

COOPER: I think it will create business pressure to be able to exchange information. As patients gain more access to their health information, they have more options.

FRANKENBERGER: Let me give you a real-life example. Some of our patients in North Dakota and Minnesota spend the winter in Florida or Arizona. The Internet could allow the physicians at their winter homes to access their MeritCare medical record.

DORODYN: Patients are starting to expect and demand such capability. They can’t understand why they can’t go to Timbuktu and get $20 out of an ATM, yet they can’t access their medical information from a facility 10 miles away.

HAENKE JUST: The Internet will improve productivity too. Now you can perform remote transcription, remote coding, and a lot of other things that were previously tied to a paper record. There will be hundreds of other productivity improvements over the next five to 10 years.

STREVELER: Will use of the Internet exacerbate patient confidentiality issues?

I think it initially causes some new fears, because we weren’t sure at first how to deal with encryption technology and authentication in the Internet environment. But I think we’ve come to terms with that pretty quickly. It can be done successfully now.

HAENKE JUST: The word on the street is that the electronic record is actually more secure than the paper record.

STREVELER: I think everyone on this panel believes that. But how do you convince the rest of the world?

MULCAHY: Until recently, everyone was loathe to buy products on the Internet fearing lack of security. Now security issues have faded to the background. We will probably have to go through the same process in healthcare but to a certain extent the perception of safety has already been established by people’s previous experiences over the Internet.

HAENKE JUST: With electronic data, you have audit trails built in. Every time someone interacts with the system, whether through the Internet or within the four walls of a facility, there is a record of that activity.

THOMPSON: The Internet will also lower costs and ease implementation. We are using the Web for our providers prior to full rollout of the CPR. It is very easy to implement and train people to use. For affiliates, this is really exciting. Instead of supporting workstation and client software in these clinics, we can provide Web access to information. We are just starting to pilot Web access to the CPR and it is looking very promising.

STREVELER: Will the Internet be the driver to finally create access to a longitudinal patient record across competing organizations?

HAENKE JUST: The Internet can address portability issues but will the payors and providers respond? My parents are snowbirds, yet they are covered completely differently when they are in Florida versus when they are in Minnnesota. Snowbirds need to have their records available at both of their home locations, but providers aren’t financially incented to create systems allowing other providers, clear across the country, access to their records. This is true not only for the elderly population. I personally travel every single week. What happens when I have a health problem in Washington or California? This issue might drive the need for having a health history online.

BURGESS: Consumers will certainly drive this profound change. They are going to demand health information be available electronically as well as the ability to communicate with their provider electronically. Most patients don’t necessarily need to go to the doctor, but they need to communicate with the doctor.

STREVELER: Payors have had to deal with out-of-area claims and coverage for a long time. But providers have yet to really tackle portability of care. So the problems that remain are more clinical than financial. Perhaps getting the CPR online can not only help reconcile the books, but also reconcile the care. Let’s hope so.

WHEN WILL WE SEE A PAPER-LESS FUTURE?

STREVELER: I think we could all imagine the day the paper chart, as we know it, disappears. It will wind up in the Smithsonian with an exhibit number on it. But what will the proverbial last scrap of paper be? How do we

"Part of the problem is that we are trying to create a digital analog to the paper medical record. The time has come and gone for that."

- RICHARD SKINNER
  PROVIDENCE HEALTH SYSTEM
get to the point where the healthcare industry, in terms of technological sophistication, will resemble banking and the airlines?

SKINNER: The last scrap of paper will be the sticky note that the doctor leaves on his computer terminal for the nurse.

BURGESS: With his password on it!

STREVELER: What venue will be the last to climb on board the CPR?

BURGESS: It will be the lowest-margin element of healthcare—long-term care and skilled nursing. Those will be the last pieces of paper to go. That's where you find the lowest return-on-investment.

FRANKENBERGER: I don't see eliminating paper as the ultimate end-game. What we are trying to achieve will constantly change. I think we are moving towards a point in time where we will empower the patient to take accountability for their own healthcare and take the executive control out of the hands of doctors and nurses. We should be trying to get to a place where the patient says, "It's my responsibility to get healthy" or, better yet, "It's my responsibility to stay healthy." Providing appropriate and timely access to information, whether it's in paper or electronic form, should be what we're about.

STREVELER: From an investment point of view, where are the dollars going to go?

MULCAHY: Wellness and the convergence of healthcare and the Internet are going to be the investments of the future in this area.

STREVELER: Are vendors going to be able to hang in there while we wait out Y2K and make important contributions to the further development of the CPR?

BURGESS: The strong ones will. Many will fail.

HAENKE JUST: Vendors will either be an acquirer, an acquiree or roadkill. I believe you will continue to see a lot of vendor consolidation.

SKINNER: If you believe that information technology will become central and mission-critical to healthcare at the same time it is in other industries, you can't leave the hard work up to the vendors. Healthcare organizations—the providers, payers, or some blend—are going to have to assume accountability and say, "This is part of our business and we're going to have to take ownership."

FRANKENBERGER: That's right. You can look at the same vendor system and find that it has been tremendously successful in one organization and has failed miserably in another. What's the difference? The difference is that the successful health system took responsibility for how implementation was managed and how expectations were defined. In that context, the vendor becomes a partner and shares the responsibility and the risk.

DORODYN: Information is now the currency of healthcare. The healthcare industry will just have to learn to how to handle the new currency.