White Paper

Ambulatory EMR

Establishing a Business Case

Allina Health System, Minneapolis, MN | Beth Israel Deaconess Medical Center, Boston, MA | BJC Health System, St. Louis, MO | Capital Region Healthcare, Concord, NH | Carilion Health System, Roanoke, VA | Community Hospital, Indianapolis, IN | MeritCare Health System, Fargo, ND | Mid-America Cardiology, Kansas City, MO | Neurologic Center of South Florida, Miami, FL | Noran Neurological, Minneapolis, MN | Providence Health System, Portland, OR | Riverside Health System, Newport News, VA | Wasatch Internal Medicine, Salt Lake City, UT | Washington Primary Care Physicians, Washington, D.C

MedicaLogic
Practice with Knowledge

Ambulatory EMR

Establishing a Business Case

Introduction

The economics of healthcare are changing dramatically. Healthcare providers are increasingly challenged to continuously improve the productivity of their practices even as they must spend more time documenting and reporting on the care they deliver. They must effectively meet the often conflicting demands of payors, regulators, and patients.

These pressures not only affect the way providers use their time; they affect their financial health and their ability to deliver quality care. And, there is no sign of relief.

In this complex environment, it is no longer sufficient to do nothing. Even the most basic trend analysis of patient volume and revenues illustrates this point. In the words of Peter Basch, M.D., Washington Primary Care Physicians, Washington, DC: "A lot of people make the assumption that doing nothing is standing still. Doing nothing, I feel, is moving backwards."

Dr. Basch and others have seen that implementing an Electronic Medical Record (EMR) system can change this dynamic–often dramatically. The more commonly cited returns include cost savings related to reduced chart pulls, lower transcription costs, less duplication of tests, and better management of pharmacy costs. Less visible at first, but equally significant, is the potential to increase revenues as a result of more accurate E&M (Evaluation and Management) coding, improved clinical productivity, and more complete documentation. Medicare reimbursement requests more accurately reflect the level of care provided, and claims are handled more quickly.

Longer-term benefits that result from the immediate access to complete, accurate patient information afforded by an EMR are more difficult to quantify. However, even today, MedicaLogic customers cite examples of using information captured in the Logician® ambulatory EMR system to manage their patients' health more proactively, resulting in more efficient delivery of care and fewer unnecessary patient visits.

Some MedicaLogic customers have found that the real potential of EMR extends beyond traditional, quantitative benefits. In the process of examining the way they do business and redesigning their workflows, these providers have identified ways to increase their operating efficiencies, better utilize current staff and resources, even see more patients per day. From this perspective, the EMR system becomes a tool for changing the way they do business. In short, they are positioning their organizations now for continued success in this economically challenging environment.

Financial Trends
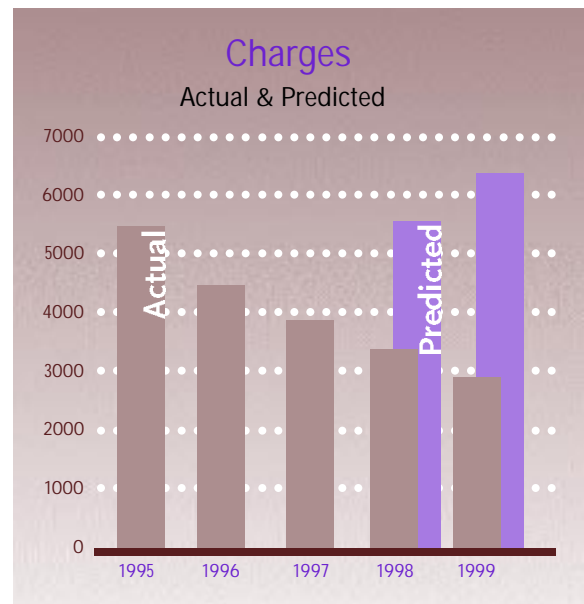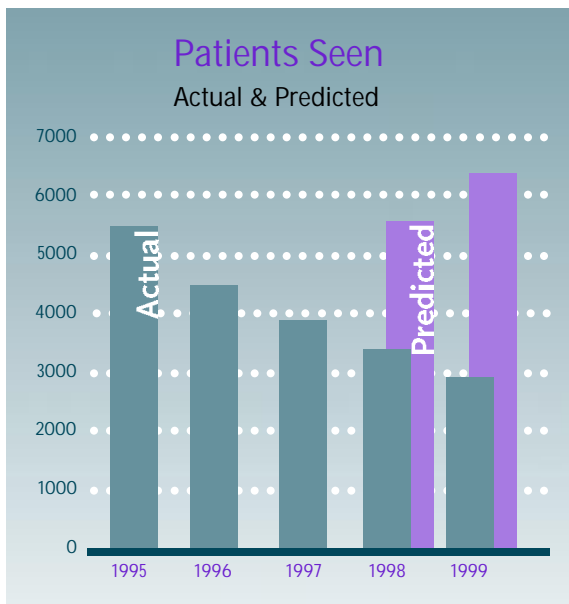
We ran basic trend analyses using actual data through 3Q98 and projected the impact of EMR on our business. We've identified EMR as the primary variable in reducing costs. At the same time, productivity has jumped dramatically. We're seeing more patients and spending more time with each one. We've reduced hours of non-billable time spent per day searching for information. Now, if it's not in the flowsheet, I know we don't have it.

Peter Basch, M.D.
Washington Primary Care
Washington, DC

Three Stages of Economic Return

As the implementation of EMR progresses within a clinic and across the enterprise, healthcare organizations can expect to experience growing economic returns on their investments. As we described in our white paper, "Implementing Ambulatory EMR Enterprise-wide: Critical Success Factors," return on investment (ROI) can be anticipated to build in several stages.

The first stage is characterized by operational efficiencies and workflow automation achieved through process re-engineering and faster access to accurate information. The benefits gained in this stage include reduced overhead costs and professional liability rate reduction.

In the second stage, benefits are derived from increased clinic productivity and decision support at the point of care. As more information is entered into the EMR, standard care protocols, order management, and outcomes analyses can be supported. EMR customers experience quality improvements, compliance with regulatory requirements, and reduced exposure to risk.

In the longer term, investments in EMR can provide healthcare organizations with a distinct competitive advantage. Looking forward, MedicaLogic customers anticipate using EMR as a tool to manage the business of delivering care efficiently and cost-effectively, and to provide more responsive care to an increasingly selective consumer.

This paper provides a look at the returns achieved by a variety of healthcare institutions that have implemented ambulatory EMR. It presents both their quantitative and qualitative returns. Finally, it suggests a framework for establishing your own return on investment measures, based on best practices identified through the experience of our customers.

EMR Reduces Costs and Protects Revenues

Market pressures continue to bear down on healthcare providers

"We've watched our operating margins shrink over the last three years. We're all being challenged by declining reimbursements and the need to tighten the ways we manage our care. Physicians today probably make 85-90% of the decisions that ultimately end up in our cost structure," said David Weiss, CIO, BJC Health System, St. Louis, MO.

Through an EMR, however, providers can manage their overhead expenses and improve their revenues with more timely, complete reimbursement for services delivered. As a result, they are better able to respond effectively to these market pressures.

Reductions in overhead can be significant

Quantitative benefits can be identified at three months, six months, and one year after EMR implementation.

The cumulative reductions in overhead expenses documented by a wide range of providers, from specialty clinics to integrated-delivery networks, are dramatic. For example:

A two physician/two nurse practitioner clinic owned by Capital Region Healthcare, Concord, NH, has eliminated all transcription costs by utilizing structured flowsheet views, note templates, and point-of-care documentation. The practice generates approximately 14,000 visits per year and approximately 35 lines of transcription per patient. At a cost of $0.11 per line, the practice estimates a savings of $53,900. However, it does take approximately one hour longer per week per provider to generate the documentation. That time at a blended rate of $55.00 per hour for four providers for 46 weeks equates to about $10,120. The net savings to the practice is $43,780.

A 51% to 100% reduction in chart pulls

At Cox Health Systems, Springfield, MO, one eight-physician clinic has reduced chart pulls by 54% over the first nine months after implementation. Similarly, daily chart pulls for medication refills and messages for the 19 neurologists at Noran Neurological in Minneapolis, MN, have decreased by 80%. Family Care of Concord, a two-physician clinic owned by Capital Region Healthcare in Concord, NH, has eliminated chart pulls completely, saving $24,500 per year on this activity alone.

A 50% to 100% reduction in transcription costs

Allina Health System, Minneapolis, MN, (the largest integrated-delivery network in the country) has realized a 51% decrease in transcription costs at one nine-physician clinic, a savings of almost $150,000 per year.

In addition, miscellaneous costs such as courier service and copying can add to this expense item. Cox Health Systems reduced its outside copying expenses by 75% within the first year.

More effective allocation of staff resources

As a result of reducing chart pulls, a six-physician practice at Community Hospital of Indianapolis has reduced medical records staff hours from 80 hours per week to 40. This has translated to a savings of $28,050 in the first year. At Riverside Health System, Newport News, VA, medical records personnel now handle electronic document scanning duties which would otherwise have required dedicated staff.

Storage space and supply costs can be significant. Within an ambulatory setting, the chart room in a mid-size to large clinic (e.g., 50 physicians) requires as much space as three exam rooms, which could support one revenue-generating clinician. This represents an opportunity cost of $200,000 to $300,000 per year.

Supply costs, at this time, appear to be reduced slightly by EMR. The cost of chart folders, dividers, and filing cabinets are estimated to average $3 per record, which could total $10,000 per physician, including files on past patients.

Malpractice premium discounts of 5% to 10%

Many malpractice insurance carriers now offer premium discounts for using an EMR. For example, Neurologic Center of South Florida, a specialty practice with nine physicians, has reduced its malpractice premiums by $25,000 per year as a result of the improved documentation, reminders, and alerts provided by Logician.

Pharmacy costs can be managed more effectively

Excess pharmacy expenses can represent a significant cost for providers. As an example, one health maintenance organization (HMO) in the Pacific Northwest determined that $6 million of its $30 million annual budget (20%) for pharmaceuticals was attributed to lack of formulary compliance.

EMR systems such as Logician help providers manage pharmacy costs more effectively through increased formulary compliance and improved medication management. With direct access to plan-specific formularies and patient drug history at the point of care, physicians are assured of prescribing the most cost-effective and appropriate drugs.

Average coding levels and per-visit charges increase

According to an August 25, 1998, article in *Medical Economics*, one physician regularly "down coding" by just one level costs a practice $40,000 to $60,000 each year. Advising physicians of appropriate E&M coding eliminates the tendency to "under-code" just to be safe. Accurate coding plus complete documentation of the encounter not only speeds reimbursement, but also results in appropriate reimbursement for services delivered.

In addition, EMR users are billing for more services per patient visit. One health system has documented an 11.7% increase in the average charge per patient visit clinic-wide within four months after "go-live." Wasatch Internal Medicine, a six-physician clinic in Salt Lake City, UT, which went live in September, 1996, not only has increased the average charge per visit by 62.3%, but also has increased the number of patient visits per hour.

"Lost revenues" are captured

Cash flow can be improved through better documentation and greater visibility on outstanding receivables. Published estimates on improvements in charge capture range from 3%-15%.

Allina Health System's nine-physician pilot clinic has realized a $20,000 to $25,000 per year improvement in collections resulting from accurate billing. It also achieved a $15,000 improvement in revenues in the first year–and expects to realize an additional $35,000 in year two–as a direct result of its ability to recover "lost" charges. This particular clinic has a "service-charge-to-entry" timeframe 50% shorter than those which have not yet implemented EMR.

"In 1996, . . . nearly 30 percent of claims submitted to HCFA contained errors resulting in nonpayment or severely delayed reimbursement. Half of those contained insufficient documentation." ("Know the Code," *Healthcare Informatics*, November 1998.)

At Allina, improvements in coding quality have reduced their claims denial rate from 3% to 1%.

Community Hospital, Indianapolis, IN

Go-live: June 1997

Revenue Improvements

A six-physician practice at Community Hospital realized significant revenue improvement in its coding level for specified visits. The practice took advantage of Logician's documentation compliance features and preventive protocols to support increased charges.

Data based on a four-physician practice

Significant CPT codes	Before EMR 9-1-96 thru 8-31-97		First Year Results with EMR		Improvements 9-1-97 thru 8-31-98	
	Number of Procedures	Revenue	Number of Procedures	Revenue	Number of Procedures	Revenue
99213 (Moderate Exam)	17,166	$686,579	16,673	$675,635	-493	($10,944)
99214 (Extended Exam)	2,467	$146,779	3,104	$198,815	637	$52,036
99215 (Complete Physical)	768	$71,713	918	$93,096	150	$21,383
45330 (Flexible Sigmoidoscopy)	58	$10,150	75	$13,125	17	$2,975
Total of Significant CPT Codes		$915,221		$980,671		$65,450
All Other Charges		$945,861		$1,105,207		$159,346
Total Charges		$1,861,082		$2,085,878		$224,796

Carilion Health System, Roanoke, VA

Go-live: September 1998

Revenue Improvements

Carilion Health System used Logician to increase revenues for Home Health and Hospice oversight services (CPT codes 99375 and 99378). Prior to implementing the system, physicians had not billed consistently for these services. By documenting these visits and monitoring their activity, however, they were able to document and charge for these codes 140 times between October 1997 and September 1998. At a 1998 Medicare-approved fee of $76 per hour, this represented additional annual charges of $10,640 for the practice. With 1999 approved fees of $82, they expect to see an 8% increase in that number.

A second area of potential improved reimbursement relates to the use of CPT code 99211 to bill for periodic monitoring and oversight of Coumadin anitcoagulation. The average monthly number of outpatient prothrombin times monitored in this practice is around 150 and the 1998 Medicare fee for 99211 is $13.28, resulting in potential additional annual charges of around $24,000.

Data based on a four-physician practice

Home Health/Hospice Oversight & Monitoring Charges	Before EMR		First Year Results with EMR	
	Number of Procedures	Revenue	Number of Procedures	Revenue
Home Health & Hospice Oversight, 30-60 Minutes	140	$0	140	$10,640
CoumadinMonitoring	1,800	$0	1,800	$23,904
Total Oversight & Monitoring Charges		$0		$34,544

Wasatch Internal Medicine, Salt Lake City, UT
Go-live: September 1996

Data based on a six-physician practice

	Baseline Measure	Benefit Received	
Transcription Costs	$675/month/per physician	$359/month/per physician	53.3% decrease
Patient Charges	$89.41/hour	$145.15/hour	62.3% decrease
Chart Pulls	1,305	224	84.3% decrease
Coding			18.9% increase avg. charge/visit
Patient Visits	10.3/hour	14.1/hour	

Capital Region Healthcare, Concord, NH
Go-live: April 1996

Data based on a two-physician practice

	Baseline Measure	Benefit Received	Benefit Dollars
Transcription Costs		100% elimination	$43,780/year
Chart Pulls		100% elimination	$24,500/year
Prescription/Refill Generation	15 minutes/per request	3 minutes/per request	$71,400/year
Lab Results	1 hour to file 20 results	0 time to file	$5,525/year

Quality and Productivity are Both Improved

While productivity can be dampened in the first few weeks after "go-live," MedicaLogic customers have found that clinics typically are back to a full appointment schedule within a period of three weeks.

Equipped with an EMR system, clinics become more efficient, physicians and staff spend less time filing and searching for data, and patient satisfaction is increased.

Automated workflows save time

By capturing more patient information and facilitating communications among clinic staff, EMR systems have a significant impact on operating efficiency.

At Allina Health System, the time required to get information into patient charts has decreased 83%, reducing a six-week backlog to five days. Nurses there have documented a 20% to 80% decrease in the time they spend looking for patient information.

For most clinics, documentation on patient visits is incorporated into the chart sooner. At Riverside Health System, 50% of charts are completed immediately following patient visits, making them available on the same day. A six-physician practice at Community Hospitals, Indianapolis, IN, reports that 85% to 90% of charting now takes place during or at the end of the patient visit. Notes are entered within ten minutes to four hours, compared to 24 to 72 hours prior to implementing EMR.

Referrals also are streamlined with EMR. Capital Region Healthcare's pilot clinic, a two-physician practice, generates about 3,600 referrals per year. It estimates a savings of approximately 420 hours of staff time by generating them electronically during the patient encounter. Overall turnaround time has been reduced from one day to less than one hour. This practice also has saved $5,525 or 325 hours of staff time by implementing direct lab interfaces that reduce data entry and filing time.

Laboratory interfaces provide yet another example of increased efficiencies gained through an EMR. One hospital has reduced the elapsed time between patient visit and posting lab results from an average of 24-36 hours to less than 24 hours. As a result, it can now notify patients of their results within a week, increasing patient satisfaction.

Patient services are improved

EMR provides an array of tools for improving patient satisfaction and loyalty. With instant access to patient charts, nurses and administrators can answer questions promptly and can easily provide important patient education material.

New prescriptions and refills require a fraction of the time it can take without an EMR. Capital Region Healthcare has reduced the average time to complete a prescription from 15 minutes to less than three. With 400 prescriptions per week, the practice estimates a time savings of approximately 4,200 hours, or about $71,400 per year. As an added benefit, prescriptions can easily be changed when formularies change–which can happen frequently.

We were able to search our Logician database by medication lists to identify patients who were currently taking or had taken the drugs fenfluramine and dexfenfluramine, both of which had been recalled from the market. We created a letter, merged it with the demographic information in Logician, and mailed it to all patients. We were able to adequately evaluate almost all former fen and Redux users.

David Shein, M.D.,
Beth Israel Deaconess
Medical Center,
Boston, MA

In the case of drug recalls, when time is of the essence, an EMR system can help physicians identify at-risk patients and notify them quickly of any actions they need to take.

Clinicians also have ready access to patients' ongoing healthcare requirements through health maintenance protocols that appear each time a patient's chart is displayed. The impact of this information can be significant. Riverside Health System, for example, attributes this capability to an increase in adult tetanus and pneumovax immunizations of 400% and 200%, respectively, in the first year of EMR.

Indeed, patients themselves are beginning to vocalize their excitement about EMR systems in the exam room.

"I just thought I would tell you how much my family and I love the EMR system in North Fargo. At a recent appointment, Dr. Mastel was able to pull up my chart on the computer. I then had a question about some medication for my daughter. Without having to call down to get her chart and make me wait around, he pulled it up right there! From a patient standpoint, this saved me a lot of time," said a patient from MeritCare Health System, Fargo, ND.

Physician productivity is enhanced

Physician productivity typically increases with an EMR system. Now in its second year with Logician, Wasatch Internal Medicine has increased the average number of total patient visits scheduled per hour from 10.3 to 14.1 for this six-physician practice.

Allina Health System has increased visit volumes (annualized) per provider by 15%, based on a comparison of activity in the first quarters of 1997 and 1998. A Midwestern health system expects to add seven appointments per week per physician by its second year, thereby increasing revenues by $89,424 in that year.

Anatomy of a Day

Pre-EMR

- 8:00am to 9:00am Lab Review
- 9:00am to 12:00pm Patients
- 12:00pm to 12:30pm Overrun
- 12:30pm to 1:15pm Dictate
- 1:15pm to 1:30pm Lunch
- 1:30pm to 4:30pm Patients
- 4:30pm to 5:00pm Callbacks
- 5:00pm to 5:45pm Dictate

Post-EMR

- 8:00am to 8:20am Labs & Letters
- 8:20am to 12:00pm Patients
- 12:00pm to 12:30pm Mail, Calls
- 12:30pm to 1:00pm Records
- 1:00pm to 1:20pm Lunch
- 1:20pm to 5:00pm Patients
- 5:00pm to 5:30pm Records

Though visits are shorter, I'm actually spending more time face to face with patients-up to two hours-because I spend less time searching for information. As a result, I've increased my billable time by one hour. My patients are more satisfied with the quality of care they receive.

Peter Basch, M.D.
Washington Primary Care
Washington, DC

The Economic Benefits of EMR Extend System-Wide

Healthcare institutions which have begun to roll out ambulatory EMR beyond their initial pilot clinics recognize that important benefits can be obtained through broader access to the patient record. As more clinics are brought online and workstations are deployed in hospitals and physician homes, health systems can ensure consistent management of patient care across the continuum.

"Cost savings could be in the range of $2.25 million to $3 million if the ambulatory EMR system is successfully implemented in the rest of the health system's practices consisting of 75 providers," said Deane Morrison, CIO, Capital Region Healthcare, Concord, NH.

Manage the health of patient populations

For example, physicians at Mid-America Cardiology, a 30-physician specialty clinic in Kansas City, MO, can access patient charts from their homes as well as from the echo reading rooms of two area hospitals. The clinic is also in the process of placing Logician workstations in the emergency rooms of the local hospitals. Such access, in addition to access by nurses and administrative staff, is very important in caring for the clinic's aging patient population.

An EMR system also helps health systems gather the information necessary to establish care guidelines for patient groups requiring proactive disease management. Riverside Health System used the information compiled by Logician to establish a set of clinical parameters for treating diabetes patients, who now receive recommended care plans for HgbA1C, foot and eye care, diet, exercise, and medications.

A two-physician clinic at Capital Region Health Care, Concord, NH, uses Logician to report its quality indicators to qualify for managed care payor's incentive bonus programs. Typical areas targeted include the pap smears, mammograms, and diabetic eye exams. For one managed care company, the average compliance is approximately 60% for providing diabetics with annual eye exams. By capturing discrete data through the system, it was able to document that 199 of 200 patients received such exams. Compared to the average compliance estimate of 60%, the practice performed approximately 80 more eye exams. Nationally, 40% of all diabetics tested will have a surgically correctable complication detected. Therefore, the practice estimates that it diagnosed and prevented complications in 32 patients that otherwise may have gone undetected. Based on these results, the practice has qualified for the maximum quality bonuses provided by this payor.

John Janas III, M.D.

Capital Region Healthcare

Concord, NH

Support health system wellness and quality goals

An EMR system like Logician provides the documentation and reporting capabilities to demonstrate compliance with quality initiatives such as JCAHO and NCQA. Physicians now have the tools to clearly demonstrate the high quality of care they provide.

Adoption of clinical protocols and outcomes reporting are also facilitated by EMR. Riverside Health System, for example, uses Logician to conduct quality assurance checks on preventive healthcare provided to patients. The results have increased physician attention to preventive regimens system-wide, supporting wellness goals set by the organization for its entire patient population.

Select Appropriate ROI Measures: Best practices

The determination of return on investment can be affected by a number of variables. To ensure a valid assessment of the full impact of EMR on your organization, and on the clinics which have implemented it, you need to establish the assumptions, metrics, and methods for analyzing your results before you start.

Each organization will take a different approach. However, through the experience of our customers, we can suggest a number of issues and steps that provide a basis for "best practices" in determining your ROI.

Establish a framework before EMR implementation

Establish a framework for determining ROI as part of your strategic plan for EMR. This framework should define the potential benefits anticipated at various stages of EMR implementation, along with the key drivers expected to contribute to those benefits. It will help guide discussions and decisions on the development, use, and, interpretation of the metrics you choose.

Include all stakeholders in your determinations

Make sure that all stakeholders in your EMR initiative are represented in determining and evaluating the measures and indicators you will use to determine your ROI. Establish consensus across the organization on exactly what will be measured and how. Early discussion and buy-in to your plan will ensure widespread support for the results of your analysis.

Establish relevant, meaningful metrics

It is important to select metrics that will be relevant and valuable to your organization. Select indicators that will provide a meaningful measure of the value delivered by your EMR.

Be aware that variances in factors like payor mix and capitation rates can affect your analysis and should be accommodated for in your analysis models. You might also need to be able to adjust for differences between owned and affiliated clinics, as well as employed and contracted providers.

Once the final list of metrics has been agreed upon, develop specific measurement parameters for each. Include the sources of specific data elements needed, preferred method of collection, tools needed to support collection, and appropriate collection intervals for both pre and post-live data collection.

Five Physicians

Providence Health System

Portland, OR

Define the process for capturing and reporting data

Many organizations fail to assign sufficient resources or to allow for the time required to collect and input data. Make sure that you identify and empower individuals to undertake this task early in your planning process. Provide them with continued support as the EMR is rolled out.

Data collection can be accomplished in a number of ways, including personal interviews, structured questionnaires, and surveys. In addition, existing financial and productivity reports provide valuable data. Results can be captured and analyzed using standard desktop productivity software.

Capture baseline data

Collecting and documenting baseline data on key measures and indicators are crucial. You need a clear picture of "pre-EMR" conditions to accurately determine your ROI.

Continue monitoring ROI over time

Your plans for monitoring ROI should extend over a period of time as your clinics gain more experience with EMR, continue to add more interfaces to external systems, and increase their technical infrastructure. MedicaLogic customers have found it valuable to make these determinations six months, one year, and two years after "go-live."
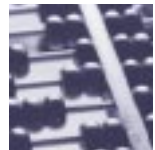
In developing their ROI model, Allina Health System made sure that it was applicable to the pilot site as well as to other Allina clinics and contracted provider clinics. The model allowed for multiple combinations of actual and projected benefits, variable capitation and discount rates, and variable loading of costs (complete or incremental).

EMR Metrics—Productivity Financial

Data based on a nine-physician practice

Description	Specific Measure	Baseline Measurement		Post-live Measurement		Result
		Time	Duration	Time	Duration	
Number of Chart Pulls	Requests received by Wright Medical Clinic Records	March 1997	1 Week	May 1997	1 Week	65% Decrease
Responsibility Report Indicators	Patients visits	1997	Q1	1998	Q1	Up 15%
	Avenue FTEs/provider	1997	Q1	1998	Q1	Down 10%*
Transcription Costs	Monthly bill from service	1997	Q1	1998	Q1	Down 51%

* Clinic already below MGMA average-was at 0.8, not 0.72.

Unexpected Benefits

- Clinic has shortest service-to-charge-entry timeline of any AMG clinics (3 days on average, compared to 6 days as AMG-wide average).

- Increased ease of recovering lost charges total $15,000 in first year.

- Improved accuracy in billing for services-like immunization-resulted in a $20,000-$25,000 per year increase.

- No negative feedback from any patients. In fact, many said, It's about time!

The Numbers Don't Tell the Whole Story

As the economics of healthcare become more challenging, healthcare organizations need to base their long-term strategic advantage on more than the numbers we have seen here. A sustainable advantage requires systemic improvements in the way providers do business–from the front office, to the nurse, to the physician, to the enterprise.

In re-evaluating business processes as part of their EMR implementations, providers are realizing that activities beyond the exam room affect their patients' experience of the care they deliver. An EMR solution like Logician gives them the tools and the information they need to identify problem areas, adjust those activities, and change basic processes in ways that enhance that experience.

These providers are using Logician to change the way they schedule patient visits, handle episodic illnesses, and make referrals. For example, a physician on call, who is speaking with a patient, may schedule an appointment with a colleague, send appropriate referral information, and establish reminders for a follow-up visit before hanging up. This type of accessibility gives physician practices a strategic advantage while providing great customer service.

At Riverside Health System, where 400 people use the full capabilities of Logician, clinics use the system to electronically make appointments, notify nurses of their arrivals, and send phone messages to providers. Patients call a dedicated phone line to obtain medication refills.

By implementing EMR solutions and re-designing fundamental processes, healthcare providers gain the ability to better manage the delivery of care in the fullest sense of the term, to achieve higher levels of quality, and to control costs. As a result, they are better equipped to respond effectively to the shifting dynamics of the healthcare industry.

"It is important to note that the numbers do not tell the whole story. What is clear, however, is that even when 'only' hard financial benefits and costs are quantified, the implementation of EMR is definitely justified," said Linda Zdon, Director, Information Services, Allina Health System, Minneapolis, MN.
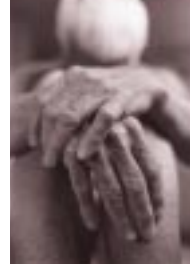
For your information...

MedicaLogic will continue to publish at our Web site, *www.medicalogic.com*, customer and industry research that addresses the analysis of value from ambulatory clinical information systems. Additional research may be obtained from the Computer-based Patient Record Institute located at *www.cpri.org*.

Other clinical offerings, such as our customer-contributed shared knowledge tools available at the KnowledgeBank˚, will be updated and shared at our Web site, with the aim of helping healthcare organizations realize and measure the greatest possible value from electronic medical records.

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