Behind the Stimulus Program

The Eye Care Opportunity in Health Care Reform

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Executive Summary

The macro-economic shift in health care today is to the medical model. In the following series, EMRlogic describes the opportunity for eye care practices of all kinds to adapt, grow and thrive in the new era of health care we call Health Care Reform. The key is in pushing beyond refractive eye care, and driving a deeper commitment to best practices in medical eye care.

In **part 1**, we see that Health Care Reform is not going away. Despite political debate and questions about funding, health care has entered a new era and reform is here to stay.

In **part 2**, we explore how one small requirement – to provide an electronic copy of the patient exam – can affect the culture of health care nationwide.

In **part 3**, we address a fundamental question about our health care system: is reform just about the stimulus money, or is the HITECH Act a by-product of a longer and greater evolution?

In **part 4**, we turn our attention to the question of EHR certification. Beyond the stimulus money and the deadlines, where is certification taking us?

In **part 5,** we start to unpack a topic that some health care IT committees and other authorities consider the most important capability for EHR systems — Clinical Decision Support. The terminology used in leading sources is academic and technical; we will attempt to "speak English" with recognizable and practical eye care examples.

The world has changed and health care is transforming. The opportunity at hand now is to become an established eye care leader in your state and local community.

A Foreword from Park City Research

Eye Care Needs a Breakthrough

Business as usual, isn't. In today's increasingly competitive and challenging business world, if you are not moving forward then you are moving backward. Eye care has long been isolated from many of the problems that plague the broader medical and retail communities. Now increasingly, this profession sees declining insurance reimbursements, margins under pressure, customer loyalty eroding. The message is clear: transforming the business is no longer a "nice to do," rather has become a "must do." Eye care needs a breakthrough and new software, especially the right new software, can deliver that breakthrough.

What is this right new software? It is software that moves beyond the traditional "record the business" to actively "drive business performance." With some simple guidance, it's easy to spot the differences between the older, less useful software and this new must-have solution. The critical importance of mastering the medical model dramatically escalates the need for the right new software. Massive attention is now focused on the promised reimbursements for new software, software that passes muster on "meaningful use." Products that are certified now must scale up their capabilities to meet more stringent certification requirements in the years to come.

Let's be clear: the government is hardly giving away free money to buy you software out of any sense of generosity. Government and private payers alike are acutely focused on driving down the cost of care by lowering reimbursements. They see new software as a key to cost reduction. For your part, meeting meaningful use criteria requires transformation of the way you practice. And, irrespective of certification, some software can help make your practice a survivor, while other software can easily take you a giant step backward.

Legacy Software Moves You Backward

Older applications aren't just bad because they are old; they were built to serve different purposes than those served by modern systems. Most troubling, even the most recent releases and, supposedly, brand new versions of many systems merely mask their true legacy nature. Google lets you look up phone numbers, but it's radically different than the latest version of the old phone book.

Older eye care systems automated the paper schedule and cash register, and sometimes even the doctor's notes. Computerized schedules are shareable and can embed rules (e.g. allowable over booking) and processes (e.g. prompt for confirmation calling), and paperless patient files can save space. But the ROI on these systems has always been troubling. So how do you spot an older system, even one masquerading as "new"?

The simplest tip-off is the ever-present "data-entry screen", those screens with lots of fill-in-the-blank data fields. If you're a doctor, ask yourself, "Did I really go to medical school to become a data-entry clerk?" Do you want to spend time clicking and typing or should you be interacting with patients? Study after study shows that automation often reduces patient throughput and lowers office efficiencies, most notably in so-called paperless offices. These older systems, and new systems built on the old-system model, can be a real drag on your business and certainly position your business poorly for the future.

From Ideas to Action

Today's business and technology challenges are daunting but what is most worrisome is their looming escalation. The time to get started building a business for the future is now. There is no shortage of ideas on how to build a better practice. With health care reform, there is even more help needed and more available. The appetite of practitioners to avail themselves of these services and listen to the wealth of ideas is high.

The challenge seems to be in transforming ideas to action. For example, most business experts will tout the value of key business metrics, such as financial performance ratios. Yet, for the most part, these metrics are part of an accountant's monthly review of past performance, examined in the context of historical financial data once it is too late to change the outcomes. The needed breakthrough comes from active management, not more reflective reviews of post-facto results. The brilliance of computer systems is in moving business analysis from historical review to embedded real-time activities, and knowing clearly the required actions to achieve your desired results. These actions must be baked in to the computer system. Achieving the breakthrough means the computer system drives processes versus relying on your people always to do just the right thing at the right time.

A transformation to the medical model ups the ante on the need for best practices to be baked into flawlessly consistent systems. While seasoned expert practitioners may skip over steps in a process when they intuitively know what is wrong and what should be done in providing patient care, healthcare reform, and the need to get reimbursed properly for services performed, mandates following care and documentation guidelines precisely. "Done but not documented" means not done and likely not paid in the new health care world. The right computer system can make the critical difference.

The Modern System Breakthrough

What must modern systems do and have to be effective for the future? A good place to start looking is in the Health Care Reform Stage 3 requirements. While specifics have yet to be finalized, the Stage 3 objectives are clear. This is where the application of information technology finally shows a substantive meaningful and measurable impact on the efficiencies and efficacies of care. Stage 3 is important to the federal government because this is when real cost savings are realized. Fundamentally, the government is driving these initiatives in an attempt to slash the costs – or at least growth in the costs – of healthcare. Future reimbursements will be predicated on the assumption that you are benefiting from comprehensive technology solutions. After all, it is the practice and its effective use of technology to drive down costs that is important in view of government reimbursements. The technology is an enabler, a means to that end. The breakthrough in information systems is when the system changes business and clinical processes and streamlines work, rather than simply pushing paper to computers. You need solutions that drive the success of your practice, not solutions that meet the early checklist for a government program whose long-term focus is to pay you less.

Richard Currier, Park City Research

Editor's Note: Over 300 leading high tech companies have turned to Park City Research for help in launching, positioning and repositioning their companies and products. Clients turn to Park City Research to understand what buyers really want and need from vendors, and how vendors should best market, sell and serve the buyer community. Richard Currier also serves at InterSystems Corporation as Vice President of Strategic Initiatives.

Part 1: Health Care Reform Is Not Going Away

Today's largest hospital systems are continuing their health care reform programs regardless of the political unrest over the health care bill. The hospitals are also continuing to position their businesses for success under the new delivery system. Why? The reason is simple: despite changes in political leadership, there is not likely a sufficient power shift to repeal the current law. The most negative possibility is that stimulus funding could be withheld. That could leave Eligible Providers without grant monies to assist them in their transition to the new system. The requirements would remain, leaving the financial burden on Providers.

Health care as an industry has no expectation that health care reform will go away or that we will return to a fee-for-service model. Fee-for-service is not sustainable … From a business standpoint, the health care industry is advising organizations and Eligible Providers to continue executing every new health care reform program already in place, with the expectation that the best prepared will fare best regardless of the political issues of the day.

The part of the current health care reform bill that could actually go away is the insurance reform component, which includes things like ending lifetime limits on health insurance policies, not allowing insurance companies to terminate coverage when patients get sick, and not allowing insurance companies to deny coverage based on pre-existing conditions. Insurance reform also includes the controversial provision of requiring everyone to purchase health care insurance. These are the changes that have resulted in the recent increase in premiums for most health care policies and stimulated most of the political discontent with the health care bill.

The easiest way to think about these two components is to regard the *insurance reform* component as the increased-cost side of the legislation and the *health care reform* component as the cost-savings part of the legislation. Most of the national debate in the media revolves around the insurance reform component, but there is little controversy about the true health care reform component. The current bill actually incorporates the health reform component that was started by the previous administration and was included, with little change, into the current health reform legislation.

If the health care bill were to be repealed, the new leadership in the House is saying they will then put in place "real health care reform". What they are referring to is the health care reform process that was actually started by the Bush administration and supported by the Republican Party. What they are saying, therefore, is that they would put in place the full reform platform that the prior administration had started, which is actually more aggressive in cutting payment to Providers, and more aggressive in effecting cost-saving measures.

Notwithstanding, health care as an industry has no expectation that health care reform will go away or that we will return to a fee-for-service model. Fee-for-service is not sustainable. Therefore, the best

bets are for the current bill to remain, with probable modifications in the funding portions. From a business standpoint, the health care industry is advising organizations and Eligible Providers to continue executing every new health care reform program already in place, with the expectation that the best prepared will fare best regardless of the political issues of the day.

Part 2: An Electronic Copy of the Patient Exam Changes Provider Choice

One of the fundamental concepts of health care reform is to raise the quality and consistency of care delivery while decreasing the overall cost of care. Regulatory changes and new reimbursement methodologies will lead some of this change, but the system is designed so the primary driver for this change will be patients themselves. By putting patients more in control of their medical decisions, it is expected that a higher level of patient compliance will occur in treatment recommendations. Patients will have more control of ensuring they are receiving the best care possible.

Under the old model of care, eye care providers were able to choose the level of care they wanted. The new model of care changes everything. The *patient* is empowered by new health care technologies.

One of the key provisions of the health reform legislation is to make electronic exam records more available to patients. As this unfolds, and our culture changes so all patients expect their health records to be electronic, the patient themselves will have more options to ensure the quality of their care.

The health care system created by current reform legislation includes more Transparency than ever. In addition to payers making provider outcomes available to the public, patients themselves have greater control over who sees their medical records. A national system of health information exchanges (HIEs) has been in development for years already. This system, which began separately in each state, will ultimately be linked to allow every health care provider to share patient health information electronically with every other provider. Large health systems such as the Veterans Administration and other health systems all over the country already have this capability. It doesn't matter what VA clinic a patient is seen in, the record is available to any other provider the patient may see at a later time in any other VA facility in the country. The national and statewide systems will link these existing health systems and provide portals for independent health care providers, through a number of technical windows, into the system. HIPAA guidelines will provide the required privacy. Government, payers and employers will all make sure every citizen knows how these exchanges work, and what it means for the patient. It will become increasingly easier for patients to have their record sent anywhere and to any provider of choice, and increasingly difficult for providers not to deliver an electronic copy of any exam a patient requests. This portability capability of patient health information has extensive implications for providers, and especially for optometrists who often see themselves as somewhat outside the mainstream of the health care delivery system.

Thought leaders in all areas of health care are coming to the conclusion that it is important for every provider to be aware of, and capable of delivering "best practices".

Under the still predominant paper record and fee-for-service reimbursement system, eye care providers have been able to select the type of patients they wanted to see and provide whatever level of care they decided. The result was a system of providers presented to the public as equals, but in reality, who individually make choices that affect the care they provide to the patient. Some ODs think of themselves as providers of medical care and therefore diligently seek to identify ocular or medical conditions the patient may have. These providers may or may not also have a dispensary or provide optical services. On the other end of the spectrum are ODs who do not consider themselves to be medical care providers and therefore focus on optical services directly or indirectly. The exams performed by these providers may not look as closely at medical issues and, when medical issues are revealed, will refer the patient to other providers for definitive diagnosis or treatment. In this system, since the medical record belonged to the provider and was usually on paper, and patients had limited access to the information, it was, and continues to be, easy for providers to make the decisions on the level of care they individually wanted to provide.

All this changes as patients become empowered to realize that their health information is all electronic, that they have complete control over where it goes, and that it is easy to have it sent wherever they choose. Now, instead of care being based on the provider's medical/optical penchant, it shifts to every provider needing to provide the best care for the individual patient, as every patient will have easy access to second opinions, on-line second opinions, and health research indicating the best way to treat or diagnose any condition. Patients will learn the value of questioning every health care decision. Patients who perceive their care is too aggressive will be able to find out if the standard of care for their condition reflects the care they received and whether best practices were followed in delivering that care. On the other side, patients who have an exam and feel their needs or concerns were not adequately addressed will just as easily be able to have their record sent to another provider to ensure the proper level of care was delivered.

Thought leaders in all areas of health care are coming to the conclusion that it is important for every provider to be aware of, and capable of delivering "best practices". That is the standard against which most care will ultimately be compared. Determining what these best practices are in all areas of health care will be an evolving process taking many years, but certainly starts with each provider tracking their clinical outcomes, analyzing and knowing their clinical outcomes as compared to their peers. Ultimately, as the reimbursement for care shifts to outcome-based methods, the providers who will succeed best under

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Part 3: Breaking the Cost/Care Conundrum

Health Care Evolution: from Fee-for-Service to Pay-for-Performance

A fundamental change in health care's reimbursement model has been under way for well over a decade. Despite the fact that President George W. Bush created the Office of the National Coordinator for Health Information Technology (ONC) in 2003, health care reform did not begin as a political initiative. Instead, it has been driven by private payers and health care purchaser groups then found its way through Medicaid and Medicare. From an historical standpoint, pay-for-performance and other health care cost-cutting and quality-evaluation measures are not new. They have been studied and proposed for over 20 years.[1]

The pursuit of better care at lower cost has been a long-term trend across health care and, in eye care, has driven a sizeable movement, especially among optometrists, to the medical model. The success of optometry in being recognized as Medicare physicians or Eligible Providers means that optometrists too will participate in the move away from fee-for-service reimbursements to a pay-for-performance model.

The depletion in retail is also a major force affecting eye care. Driven more by flat-world business trends than health care reform initiatives, the impact on the full-scope eye care business is nevertheless significant. "With combined retail and clinical businesses, eye care professionals escaped much of the plight that besets the rest of the medical community. However, the retail business is no longer a 'high margin stock and sell' business." [2] Retail eye care businesses with a core competency in selling eyewear and that fail to embrace health care reform may find themselves at considerable risk today when referring patients out for medical eye care. Simply put, patients are more likely to buy their eyewear where they find their eye care.

For health care practitioners in general, and eye care practitioners in particular, faced with the need both to improve care *and* reduce cost, the question of the day is, "How do I do more for less forever?" Fortunately, technology helps do both. But, not *all* technology – only the *right* technology.

New Systems, Old Technology?

Health care technology abounds and, yes, we've all heard the stories about antiquated hospital systems. Going back to the health care purchaser groups that played such a significant role in driving toward health care reform, we know that one of their major cries was, "Bring the technology of the banking world into the health care world … your costs will drop and we can continue to afford your premiums!"

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[1] A White Paper for Optometry: Medicare Pay-for-Performance & Value-Driven Health Care, Third Edition. Grue & Jackson, © June 2007. Available to read or download at http://www.emrlogic.com/news/white-papers.htm

[2] Taken from a statement by Richard Currier, Park City Research, about "the business platform for the future".

In health care, we must take care not to implement old technologies that can meet checklist requirements but still move us backwards.

> **"Many eye care professionals are at risk of buying the perfect computer system for their requirements of 5 or 10 years ago – a new paperless system but one that merely 'records the business.' The world has changed – health care today faces similar challenges to what traumatized the manufacturing rust belt 20 years ago: it is no longer enough to *record* the business; now you must *optimize* the business. 'Do more for less forever' has become the mantra of modern business. Manufacturers who relied on the old 'record the business' systems moved backwards while those who moved up to 'optimize the business' solutions not only survived but prospered."[3]**

Prospering in today's health care environment means moving not merely to documentation systems but to truly modern information management systems that optimize the business through systemizing best practices.

The new health care system points to three essentials for growing a practice, a three-step pathway to build your business in an era of health care where "survival of the fittest" still applies:

1. **Communicate electronically** with patients and the rest of health care in a way that was never before required. The EHR needs to provide this communication capability. Every state has a process under way to put in place a statewide health information exchange (HIE). The state-based HIE will be the portal to electronic communications with every other health care provider in the country.

2. **Track clinical outcomes and report them** to payers who will in turn make them available to the public to use this information in selecting their health care providers. (This is Transparency, the #1 tenet of Value-Driven Health Care.)[4]

3. **Measure what you do, analyze the results and determine best practices**. Modern technologies can help you quantify your outcomes, using Clinical Decision Support and real-time analytics. From these findings, you can determine and drive best practices. In the final analysis, the eye care profession needs to drive this at a federal level but realistically it will take root at the individual, local or organization level.

So, what about the Stimulus Money?

As we will see in part 4 of the series, much attention today is focused on Meaningful Use certification of EHRs with the end goal that the Eligible Provider qualifies for the $44,000 stimulus grant. Is reform just about the stimulus money, or is the HITECH Act a by-product of a longer and greater evolution? We've

[3] Taken from a statement by Richard Currier, Park City Research, about "the business platform for the future".
[4] See pages 8 and 18-19 (Key Understanding #10), A White Paper for Optometry: Medicare Pay-for-Performance & Value-Driven Health Care, Third Edition. Grue & Jackson, © June 2007.

already seen that there's more to health care reform than the money and that long-term forces are at play. Several more questions are in order:

- **Does the stimulus money offset backward movement?**

Clearly, no it does not. A grant that besets a business worth ten or twenty times the incentive amount is indeed no gift. How is this possible? The new EHR needs only to meet "checklist requirements" and, in reality, cause the doctor to see fewer patients for less money. Certification requirements say nothing about speed of use. A certified EHR that slows you down in the exam lane or embraces a business model of the past will put you out of business!

The right EHRs technology will build a business with or without stimulus money. The real win is to break the cost/care conundrum by providing higher quality care at a lower cost.

- **Are EHRs a waste of time for a doctor whose Medicare volume is too low to qualify for the grant or a worthwhile portion thereof?**

The right EHRs technology will build a business with or without stimulus money. The real win is to break the cost/care conundrum by providing higher quality care at a lower cost. This comes from greater speed and efficiency throughout the business, best practices systemized. The right new technology really does affect the core issue. In this case, if it is available, the stimulus money becomes the icing on the cake. Improving care is the right thing to do in any circumstance.

- **What if, for political reasons, the stimulus money for EHRs fails to be sustained?**

Today's largest hospital systems are continuing their health care reform programs regardless of the political unrest over the health care bill. They are also continuing their efforts to position their businesses for success under the new delivery system. Why? The reason is simple: despite changes in political leadership, there is not likely enough of a power shift to repeal the current law. The most negative possibility is that funding could be withheld. That could leave providers in a position where the funding to assist them in their transition to the new system could go away. The requirements would remain, leaving the financial burden on Providers.

Notwithstanding, health care as an industry has no expectation that health care reform will go away or that we will return to a fee-for-service model. Fee-for-service is not sustainable. Therefore, the best bets are for the current bill to stay in place, with probable modifications in the funding portions.

From a business standpoint, the health care industry is advising individual health systems and providers to continue executing every new health care reform program already in place, with the expectation that the best prepared are going to fare best in the future regardless of the current political issues.

- **Pay-for-Performance seems to have clear benefits for the Payers. What's in it for the Providers?**

Simply put: survival. As noted above, fee-for-service is not sustainable. The world is changing; health care has transformed. Those who adapt will survive, and even thrive. The big advantage of the new reimbursement model is its ability to differentiate between good care and poor care, and to reward excellence. The fee-for-service model lacked that capacity, which is the main reason for runaway costs. Doctors who wish to pursue excellence will be *aided* by their health IT solutions and *rewarded* by a reimbursement system that recognizes highest quality.

We have seen that health care reform is not a new idea nor is the stimulus money a core tenet without which change will cease. The fundamental shift in health care is away from an old reimbursement model that did not work well towards a new one that has potential to work very well. Breaking the cost/care conundrum is all about understanding high-quality low-cost solutions possible today that were not available for the previous generation.

Technology is clearly at the core of this shift. Those who embrace new technologies must do so in the interests of the "business of health care", that is, viewing the potential to enhance their business solutions as well as clinical solutions. The winners in health care reform will be those who see and seize the opportunity to systemize best practices and optimize their businesses at all levels.

A certified EHR that slows you down in the exam lane or embraces a business model of the past will put you out of business!

Time counts in this opportunity. The leaders in eye care will emerge as those who choose the right technologies and step out ahead of the curve to change the profession, having looked outside eye care and learned from state programs and hospital systems that have gone before us and shown us the way.

And people count in this opportunity too. Health care reform is about improving patient outcomes and notably about "transparency" – educating the public about the cost and quality of the services you provide.

Part 4: Certifying activEHR™ for the End-Game in Health Care Reform

EHR certification can certainly be portrayed as a race with the winner being the first across the finish line. In reality, Health Care Reform points more to a new level playing field with the winners being all who remain on the field by the fourth quarter. The end game will be played out toward 2015 as we move through to stage 3 of EHR certification.

Stage 1 Certification

As of January 1, 2011 when Eligible Providers began demonstrating Meaningful Use, it was "game on" for all concerned. Naturally, there was tremendous interest in whether or not a vendor's product was or

would be certified. Certification certainly was and is important but there's more to it. The players need obviously to be on the field but also must be in shape to finish well.

The rules of certification state that, once an EHR has been certified, the code may not be substantially changed without re-certification. Indeed, some certified products were certified as an "EHR Module" and must test additional criteria and quality measures in order to attain "Complete EHR" certification. Certification, therefore, could hurt if it meant adequate care has not been taken to consider long-term requirements. At the provider level, this has the potential to restrict your ability to compete at a time where new regulations are emerging regularly, especially at the state level since each state is establishing new requirements for portability of electronic health data. In the end game, you'll be better off with an EHR that encompasses long-term requirements and gives them to you as soon as possible.

> "When the Centers for Medicare and Medicaid Services (CMS) unveiled the meaningful use Stage 1 final rule on July 13, [2010] health system CIOs breathed a collective sigh of relief that the agency had scaled back some requirements and deferred others. And many expressed an eagerness to pore over the 864-page document explaining the final rule, then roll up their sleeves and get to work. …. While CMS did not offer many specifics on Stage 2 in its Stage 1 final document, the agency did make clear that it will expect more robust use of health information exchanges (HIE) and that all the optional objectives will become mandatory. But if there is one thing CIOs, analysts, and policymakers seem to agree on, it is that people shouldn't focus too narrowly on Stage 1. Instead, they should keep their eye on where they need to be in 2015." [5]

Stage 2 Certification

Many Stage 1 final rule criteria include a compliance percentage, for example "Computerized Physician Order Entry for Rx orders (30%)". For Stage 2, several possibilities exist: the percentages will increase; the optional measures will become core in Stage 2; or the objective will be retired because it would be presumed to be within a higher-order objective.

> "Stage 2 will also see a ramp-up in the expectations regarding clinical quality measures derived from electronic health records (EHRs) rather than claims data." [1]

Health care reform, in the overall sense, calls for a move away from fee-for-service reimbursements towards a new pay-for-performance reimbursement model. Thus the clinical quality measures referred to above will become performance measures. It is fundamental, therefore, that EHRs be capable of measuring performance and helping raise the standard of care. In the literature of health care reform, we will find this referred to with terms such as "evidence-based order sets", "clinical decision support" and "improved patient outcomes".

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[5] **Meaningful Use: First Steps** - CIOs Prepare for Ramped-Up Requirements in Later Stages
by David Raths
http://www.health care-informatics.com/ME2/dirmod.asp?sid=9B6FFC446FF7486981EA3C0C3CCE4943&nm=Articles%2FNews&type=Publishing&mod=Publications%3A%3AArticle&mid=8F3A7027421841978F18BE895F87F791&tier=4&id=D1269752ACBA471DB5CD9A58FBDDA771

Stage 3 Certification

It is challenging to predict accurately the details of Stage 2 certification never mind Stage 3. Nevertheless, two things are clear today:

1. **The business model of the practice will need to evolve.** The focus on certification of EHRs may convey the impression that Health Care Reform is only about clinical practice. Make no mistake – Health Care Reform is about the *cost* of health care not only the *quality* and, therefore, has important implications also for the business management dimensions of your software. At its roots, the reform movement began with health care purchaser groups who could no longer afford the premiums for millions of employees. Pay-for-performance introduces a whole new reimbursement model with far-reaching consequences for the business side of health care.

activEHR™ will be certified in time for you to demonstrate Meaningful Use. On December 3, 2010, EMRlogic's application for ONC certification of activEHR™ as a "Complete EHR" was accepted. We are scheduled for testing on March 8, 2011, with general release to follow immediately.

2. **The clinical models of the practice will need to evolve.** Pay-for-performance begs the question, "What does *performance* look like?" Without question, it will drive the eye care profession to establish performance standards, quality measures and best-practice protocols. Clinical Decision Support (CDS) will play a major role in the later stages. We believe, in reality, that players will win or lose on account of their ability to drive the most complex categories of CDS. In Stage 1, most vendors are covering a minimal expectation under the auspices of an e-prescribing interface. Indeed, much of the discussion of CDS centers around drug-drug interactions, however there is significantly more to be considered.

Health Care Reform takes into consideration that many offices are starting from a non-technical position. Therefore, the three stages of certification offer a gradual process to get to the level necessary to support a successful business model. EMRlogic began its development of activEHR™ over 3 years prior to Health Care Reform being written into law, in order to ensure users would have an advantage as the realities of reform unfolded.

The certification game will be won on the ability to demonstrate the most advanced types of Clinical Decision Support.

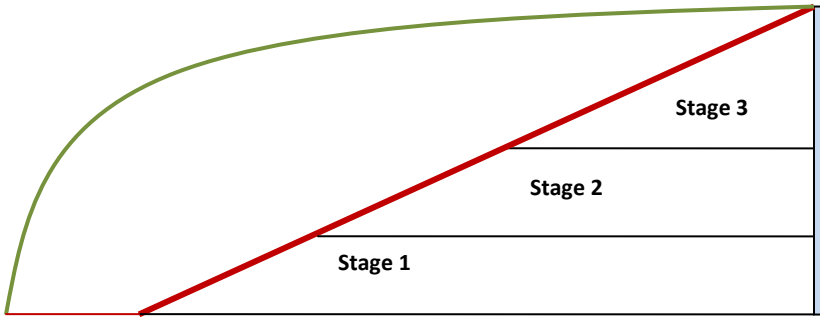
In Figure 1 below, the red line depicts a gradual climb to the kind of business and clinical models towards which Health Care Reform is striving. The green line illustrates the path taken by EMRlogic, beginning years earlier to create an EHR (now activEHR™) that would meet the long-term demands of Health Care Reform. The goal was to optimize the business and clinical models early in the process and allow users to build their practice ahead of those who chose other software solutions, even those that were certified sooner.

- Stage 1 certification of EHRs is focused on functional process objectives, enough for software vendors and Eligible Providers to show they are on the path toward a business model that's competitive in the new health care delivery system.

- Stage 2 is designed to show that software and Eligible Providers are moving beyond *process* reporting to *outcomes* reporting.

- Stage 3 is designed to show that providers and institutions are focused on improved outcomes and have achieved a technical level allowing successful inclusion and participation in the new health care delivery model.

Figure 1: Meaningful Use Certification Level



Clinical models in place today are being used to develop Meaningful Use criteria and, from a business standpoint, are dominating the expansion of the new health care delivery system.

Clinical Decision Support (CDS)

So, how can activEHR™ help you grow your practice ahead of offices with other certified EHR solutions? We believe it's all about Clinical Decision Support.

As seen in the table below,[6] Clinical Decision Support is both varied and complex. Categories 1, 2 and 6 (black text) are easy for most software systems. Categories 3, 4 and 5 (red text), on the other hand, are complex and not able to be bolted on to existing systems, especially traditional EMRs that essentially record clinical findings but offer no predictive capabilities, reasoning or workflow modeling.

Table 1

Principal methodologies for Clinical Decision Support (CDS), their uses and key developments			
Category	**Methodology**	**Major uses**	**Key developments**
1	Information retrieval	Finding information, answering questions	Taxonomies, ontologies, text-based methods, patient-specific context keys, automatic invocation

[6] Table 1. ***Clinical Decision Support - the Road Ahead***, Edited by Robert A. Greenes, M.D., PH.D., Harvard Medical School and Brigham & Women's Hospital Boston, Massachusetts. Published by Academic Press © 2007

2	Evaluation of logical conditions	Alerts, reminders, constraints, inferencing systems	Decision tables, event-condition-action rules, production rules
3	Probabilistic and data-driven classification or prediction	Diagnosis, technology assessment, treatment selection, classification and prediction, prognosis estimation, evidence-based medicine	Bayes theorem, decision theory, ROC analysis, data mining, logistic regression, artificial neural networks, belief networks, meta-analysis
4	Heuristic modeling and expert systems	Diagnostic and therapeutic reasoning, capturing nuances of human experience	Rule-based systems, frame-based reasoning
5	Calculations, algorithms, and multi-step processes	Execution of computational processes, flow-chart-based guidelines and consultations, interactive dialogue control, biomedical image and signal processing	Process flow and workflow modeling, guideline formalisms and modeling languages
6	Associative groupings of elements	Structured data entry, structured reports, order sets, other specialized presentations and data views	Report generators, and document construction tools, document architectures, templates, markup languages, ontology tools, ontology languages

activEHR™ and Clinical Decision Support

A more detailed discussion of the six categories of CDS will be offered in part 5. The bottom line? activEHR™ already offers all six categories of CDS. This is unique among eye care software solutions today. Why so? Because EMRlogic saw years ago what would be required of EHRs in a value-driven health care world. By looking outside eye care at hospital systems and other medical disciplines, it was obvious that traditional EMRs would not stand the test of time. The company discontinued development of its then-current EMR and went back to the drawing board. The result was activEHR™, a one-of-a-kind knowledge-base driven platform for the future that is changing the way ECPs practice optometry and ophthalmology.

activEHR™ was certified in time for you to demonstrate Meaningful Use. On December 3, 2010, EMRlogic's application for ONC certification of activEHR™ as a "Complete EHR" was accepted. Testing was completed on March 8, 2011 and general release followed. However, the longer-term and more important goal was to support your business model so you may not only survive these transitional times but also adapt and compete effectively in the new health care system. "Being attached to business models of the past will cause you to go out of business. Staying flexible to new ideas, new technologies and even hybrids of the past, present and future will keep your company alive." [7]

[7] Liquid Leadership, Brad Szollose, Greenleaf Book Group Press © 2011, p.52.

In 2015, with several players left on the field, you will still ask, "What sets you apart?" It is our strong conviction at EMRlogic that survival in business today is about adaptability, which requires not only flexible thinking but robust (powerful and versatile) technology as well. That's why we're continuing to build our platform for the future on healthcare's gold-standard database and connected-care platform from InterSystems. We're in this game for the long haul and are committed ultimately to your end-game success. [8]

The bottom line? activEHR™ already offers all six categories of CDS.

Part 5: Unpacking Clinical Decision Support, the Health Care Reform Dealmaker.

We have known for several years already that Health IT committees consider Clinical Decision Support (CDS) to be the apex of what Electronic Health Records can contribute to health care. Why then do we hear so little about CDS in the literature, the press and the grapevine? CDS is known to be a complex topic and one therefore that has been pushed to the back burner to be handled in the later stages of the certification process. The designers of Health Care Reform legislation understood that among the myriad of traditional EHRs on the market many would be unable to incorporate successfully all six categories, and that the rest would need assistance.

Since the certification process for EHRs is a progressive certification, is it not possible that some software solutions will meet Stage 1 or 2 requirements but be unable to make the grade at Stage 3 or 4? The answer to that question is one of the main criticisms of the current health care legislation. This scenario is not only possible, it is likely.

The HITECH Act, through the Strategic Health IT Advanced Research Programs (SHARP), is funding a National Center for Cognitive Informatics and Decision Making in Health care (NCCD). This program, based at the University of Texas – Houston, is intended to serve as a national resource to EHRs attempting to incorporate CDS. NCCD will also continually help evolve our understanding of how CDS can improve clinical understanding, clinical decision-making and clinical problem-solving.

The authoritative resource on CDS, already cited above, is a textbook entitled, *Clinical Decision Support- the Road Ahead*, edited by Dr. Robert A. Greenes. This book gives many examples of each type of CDS. It concludes that the EHR software solutions that will allow providers ultimately to be the most successful will be ones that are "rules-based" and provide internal clinical-analysis capabilities, more of which we will discuss below.

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[8] For more information:

1. activEHR™, see www.emrlogic.com
2. Medicare Pay-for-Performance and Health Care Reform, see White Papers at http://www.emrlogic.com/news/white-papers.htm
3. Webinar sign-up, see http://www.emrlogic.com/news/news.htm
4. Caché™ and Ensemble™ from InterSystems: http://www.intersystems.com

The practical consideration for EHR end users is this: ultimately the health care system will shift sufficiently that every successful practice will need a rules-based solution with embedded CDS. When EMRlogic made the decision over three years ago to replace its "traditional" EMR, it was a decision to build from the ground up a new rules-based EHR.

Concurrently, a decision was also made to develop the new program with built-in analytics, including clinical and financial capabilities. Even though EMRlogic already had an EMR, the new one was started for the same reason the HITECH Act is funding the National Center for Cognitive Informatics (NCCD): attempting to build these components into a traditional EMR not structured for these activities is very difficult, potentially even impossible. The best long-term solution for our end users was to build a program with the underlying structure to support these activities, even though it meant giving up years of development in the traditional EMR.

It is also important to understand that any software can program in a rule but that this is completely different than a rules-based application. In traditional software applications, rules require software engineers to write specific code per rule. Since these new code sets must pass through the traditional software life cycle, it may take months before a requested rule is usable by an end-user. In a rules-based application, the underlying rules engine allows complex rules to be written by non-programmers and released after a much shorter quality assurance (QA) cycle.

Let's take a look at each category of the six recognized categories of CDS. You will see by their descriptions that some are easier to incorporate into an EHR than others. Within each category, there are many different levels of functionality possible. The best EHRs will incorporate a high level of functionality in every section.

The Easy Ones: No-Brainer Clinical Decision Support

1. Information Retrieval

Software systems are often referred to as Information Systems, so information retrieval is what we expect software to be able to do. When EHRs associate an exam record with a patient demographic record and create a single database, they are setting up a framework for patient-specific information retrieval. Eye Care Providers (ECPs) use many different software solutions in the course of their daily work, systems that don't "speak to each other". The practice management software doesn't integrate with the optical lab and the patient's image files are kept on separate databases from the exam record. Obtaining an insurance authorization or using the e-prescribing solution may require searching once again for the patient, re-entering search criteria once again. Software solutions that put an end to repeat data-entry are creating system-wide efficiencies and meeting this basic level of Clinical Decision Support. This is why fully-integrated systems are replacing disparate specialty systems.

Within the exam record itself, pick lists or dropdown menus are examples of clinical information retrieval. This approach provides limited selections based on the topic and represents simple file trees or taxonomies, the complexities of which are hidden from the end user.

2. Evaluation of Logical Conditions (Alerts & Reminders)

Another common expectation among end users is that the software can remind them of events or requirements not to be missed. Typically, this means a patient follow-up or recall flag. Clinically, the ECP wants software to "red flag" any event that represents risk. E-prescribing solutions do this well in the case of allergy alerts and drug-drug interactions.

activEHR™ extends this type of CDS into the eye exam with "*event-condition-action"* rule capabilities built in so any event can drive any action, ensuring all appropriate testing is done during the exam and the provider hasn't missed an important aspect of the care the patient requires. Every exam can be internally "audited" for quality to ensure that consistency of best practices is delivered throughout the organization on every patient and is consistent with billing requirements to prevent claim rejection.

Example, an Event-Condition-Action Rule:	
Event	doctor selects blurred vision
Condition	software checks for arthritis, a certain medication and the patient's age
Action	if "true", software suggests an in-depth tear analysis or special test

In a rules-based system, a rule like the one above can be written and released in minutes whereas in a traditional system, the same rule could take months of developing code, testing and releasing. A rules-based system gives the users of the system the power to adapt quickly to what is important in their business at the time it becomes important.

3. Associative Groupings (Structured Data & Reports)

Were we to analyze the percentage of health care measures delivered by doctors versus support staff, we would quickly see that the vast majority is provided by nurses, technicians and office or clinic staff. Structured data is a way of ensuring that support staff are able to ask the right questions, follow the correct procedures and maintain the standard of care for which the doctor is responsible.

A good example is found in recording a patient's history. Given the vast array of possibilities upon asking, "How are you today? What brings you in to see us?" the technician may quickly be faced with patient complaints well outside his or her comfort zone. Structured data offers a framework to get back into a comfort zone with precise questions, proper sequence and guidance to meet billing and coding requirements.

For the most part, we enter data into software for one reason: to get it back out as meaningful information. Perhaps the most meaningful form of data output for practitioners is referral letters and reports. Structured data, being predictable and reportable, is ideal for providing structured reports of all types. Reports can be auto-generated using templates and can be "ready and waiting" for the doctor at the conclusion of the exam. This means goodbye to the traditional extra hours of office time spent writing referrals.

activEHR™ offers these kinds of efficiencies but goes on to add the ability to incorporate clinical guidelines right into the application so the end user has immediate access, for example, to quality protocols or billing guidelines. This will be increasingly important as providers get more involved

with the medical model and with chronic care teams in the emerging Medical Home model. Having easy access to all guidelines ensures easy assimilation into the new health care delivery system.

activEHR™ also brings the ability to provide educational materials right within the application or link to external sources of educational materials. When providers need to reference educational materials that assist in their clinical decision-making for a particular patient, those resources are available from right within the EHR. This will be especially important as medicine and optometry better define best practices and each provider is expected to deliver consistent best-practices-based care. If a new best practice emerges, it can be immediately incorporated right into the EHR to assist the user with rapid compliance.

We wouldn't drive a car with no speedometer that instead gave us an end-of-month report on our average speed! It is obvious to us that we need to know our speed at all times. BI gives us similar dashboards and other analytical tools so we can monitor business and clinical functions in real time.

The Tough Ones: Wow-Factor Clinical Decision Support

4. Predictive Analyses

Software has long excelled at offering rear-view mirror analyses of past performance. Daily Transactions, Accounts Receivable, Frames Sales reports and all the typical end-of-month reports are familiar examples. Looking ahead requires a whole new level of functionality. We tend to recognize this as Business Intelligence or BI. In the domain of EHRs we might call this "clinical intelligence".

activEHR™ embeds one of the health care industry's most powerful BI programs right into the application. activEHR™ Analytics provides dashboards and other real-time analytics of the practice. At any point in time, we can see exactly how our business and clinical processes are performing. Traditional business management involves end-of-month reports to drive major management decisions. We wouldn't drive a car without a speedometer, a car that instead gave us an end-of-month report on our average speed! It is obvious to us that we need to know our speed at all times. BI gives us similar dashboards and other analytical tools so we can monitor business and clinical functions in real time. When we use end-of-month reports, we are getting reports that cover a time period in which lots of different activities occurred and many decisions were made. Which ones were the most influential on the direction the business is going? We end up making many assumptions. With BI, we can see influences on the business as they occur. We can immediately identify those things that have a beneficial effect as well as those that have a negative effect. Real-time built in BI puts us in total control of our business.

If you are trying to shift to a medical model of care, or trying to drive your organization toward consistent delivery of best practice standards, BI gives you the power to ensure consistent delivery quickly.

Example: Built-in BI can track the characteristics of patients who have the least chance of success with a complicated contact lens fit. It can also measure your aggregate clinical outcomes by tracking how many of your toric contact lens patients continue successfully to wear their lenses one year or three years after being fit. You can analyze your success based on brand of lenses, refractive error or any other criteria you choose.

5. Heuristic Modeling (Smart Records)

Rule sets are a core capability in knowledgebase-driven EHRs but only the most advanced types can make the program interact the way a human typically reasons, based on human expertise. Rules can drive simple actions like data transfers and red flags but may also extend into multi-faceted "reasoning" scenarios. In spreadsheet applications, this may resemble "if-then-else" functionalities. However, health care data surpasses "rows and columns" type data, taking the form of "objects" of many shapes, sizes and types. The ability of an EHR database to handle object-oriented data is paramount for this type of CDS. Advanced rule sets may be written for virtually any clinical scenario, which is why it is an ever-expanding knowledgebase.

One of the ways humans typically reason is, "if I do *this*, and *that* happens then I will do *the next thing*." activEHR™ incorporates this type of reasoning through the use of clinical decision trees, often referred to by doctors as a "differential diagnosis" and sometimes also called a "smart record" or "intelligent medical record". At every level of the tree, possible clinical scenarios may be represented. Regardless of the course taken by a particular clinical case, the ensuing best practices can be identified, followed and documented. This leads to best practices clinical decision-making and procedures whether the clinical pathway is routine or complex.

Humans tend to function even better if they have "what they need when they need it". Therefore, activEHR™ offers more advanced CDS capability to match. Traditional EMRs or EHRs that display lots of fields with pick lists, even templates for specific activities, essentially offer a laundry list of items that may or may not be useful or applicable to the case at hand. activEHR™ uses heuristic [9] modeling CDS to "learn" what the user needs next, based on what is recorded, to be able to present in the clinical workflow the items the user will need next. This eliminates the user having to find the correct place to document the next steps, and also allows the incorporation of best practice workflow into the activity automatically. This process can take the most complex clinical decision making processes and break them down into easy-to-follow steps that are presented in the best order, to arrive at the best clinical conclusion.

Example: When doing a progress evaluation on a patient wearing CLs, you don't want your exam form cluttered with fields or information not needed in evaluating the current fit. Should you fail the current CLs, the system will automatically present the workflow steps required to complete the new fit. The display can also present a list of each lens previously tried on this patient, the success status of each trial, and why every lens that failed was not acceptable.

6. Algorithms and Multi-Step Processes (Clinical Workflows)

Workflows in health care (eye care) are of two kinds: patient workflows and clinical workflows. Patient workflows guide how the patient moves through the practice. Who sees the patient? What

[9] Heuristic = helping to learn, guiding in discovery or investigation. A heuristic solution is a rule of thumb for solving a problem without the exhaustive application of an algorithm.

is each person responsible to contribute to the overall patient encounter? Patient workflows are essentially business workflows, a template of internal best practices, which when carried out with true consistency, can make the business more profitable. An important goal for patient workflows is to prevent key action items from falling through the cracks.

All the same principles apply to clinical workflows. What are the best practices? What must be done without fail? What key elements must not be missed? In clinical terms, these are often called "protocols". This level of Clinical Decision Support drives best-practice protocols. activEHR™ has the ability to utilize clinical guidelines to drive clinical decision-making processes in the evaluation of complex patients. Structured data-entry can guide the user through the best-practice sequence to arrive at the best clinical conclusions, the best patient outcomes.

For eye care as a profession – both optometry and ophthalmology – the challenge ahead is to look afresh at best practices. Outdated Clinical Guidelines cannot be construed to be today's best practices. Modern health IT brings a whole new capacity to track and analyze outcomes, establish quality measures and new pay-for-performance standards.

Conclusion

Since the certification process for EHRs is a progressive certification, is it not possible that some software solutions will meet Stage 1 requirements but be unable to make the grade at Stage 3? The answer to that question is one of the main criticisms of the current health care legislation. This scenario is not only possible, it is likely.

At EMRlogic, we are "in the game". We achieved Complete EHR certification in Stage 1. However, our true focus has not been on Stage 1 certification where the bar is very low. We believe our users need to be absolutely sure we are going to meet Stage 3 certification. It is for that reason, we have created activEHR™, a first-of-its-kind rules-based system that already includes each of the six categories of CDS discussed above.

Even more important than certification is the fact that the entire health care delivery system is shifting to require these CDS components. As Health Care Reform continues its evolution and we move into a true value-driven health care world, advanced CDS capabilities will be the "dealmaker" for practitioners who are "in it to win it", who wish to compete successfully.

At EMRlogic, we want you, as an end-user of activEHR™, to be positioned so that, when new opportunities become available, you can take advantage quickly and adapt your business model. The slow path to Stage 3 certification being taken by other vendors may qualify users for some stimulus money, however we want our users to have these tools now. May they enable you to take a leadership position, as the complex processes of health care reform continue to emerge and evolve.