



## *Decision Support at the Point of Care*

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# Decision Support at the Point of Care

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Substandard care in America kills over 57,000 people and wastes over \$9 billion annually. We have the medical knowledge and clinical systems to fix this critical problem, but we haven't deployed these resources where it counts – at the point of care.

A sustainable solution must start with doctors. They drive 80% of the cost, but they don't have the time to search for publicly available best-practice information when treating patients. Sadly, existing decision support tools "slap their wrists" (don't order this contra-indicated drug), require laborious questioning ("branching logic") or offer limited support (e.g., drug order entry).

Electronic medical record (EMR) systems will eliminate paper records and personnel costs and help doctors improve care by providing up-to-date clinical information and decision support. To date, existing EMR systems provide only rudimentary decision support tools. While advanced health care delivery systems have installed EMR for ambulatory and inpatient use, few independent physician groups have invested to date.

Solutions on the horizon will transform the way medicine is practiced at the point of care. Technology is now available which, by applying up-to-date clinical data (sourced through an interface with an EMR) to disease management guidelines, can provide practitioners with easy-to-use, best evidenced-based, recommended treatment plans for direct patient use. This, coupled with pay-for-performance incentives for doctors, will result in the delivery of better, more cost-effective care.

## Optimal Decision Support

Excellence in decision support requires best-practice knowledge that is reliable, locally relevant, patient-oriented and practice focused. Improved approaches to guideline knowledge management must go beyond attempting to analyze unstructured text-based guidelines. A significant advantage will be gained by use of standard-based methods for the representation of best-practice clinical knowledge and tools to support its effective implementation within clinical information systems.

These tools need to be linked to the patient's record, use standard medical terminologies and coding, have clear semantics and facilitate knowledge maintenance and sharing. They should reflect key elements in the guideline authoring process, such as management goals, evidence levels, version and adaptation for local conditions. The "knowledge elements", such as advice, management tasks and supporting information interpretable by an information system, should be explicit. These ingredients will make decision support realistic and meaningful.

Methods have been developed to support computerization of clinical guidelines for use in decision support. However, the different approaches taken to date have shown limited effectiveness because they either require highly specialized programming logic skills or do not reflect how doctors actually treat patients. Doctors look at the picture painted from the clinical data they see in the patient's chart. Then, they apply the knowledge learned from training and practice to that clinical picture to create the patient's treatment plan..

Increasingly, doctors find this hard to do. Data from the written chart is difficult to access and may not be up-to-date. New knowledge in the public domain occurs too rapidly for doctors to stay current. Even if they come up with an optimal care plan, doctors still have to deal with getting their patients to comply with it - not an easy task.

Optimal decision support addresses this problem by giving physicians a current clinical picture of their patient and presenting them, on-line, with best-evidence based care plans to review with their patients on a laptop during the office visit.

It works like this:

- An underlying “scenario-based” technology platform interfaces with the EMR system, allowing the patient’s current clinical data to stream into the software.
- One of many best evidence-based care plans imbedded in the software is selected for the patient with a particular disease (e.g., cardiovascular disease, diabetes or COPD) through a matching process which picks the best plan based upon predetermined clinical determinants. These determinants are also used to screen patients to determine the degree of risk for the disease.
- The physician can review this assessment and learning charts on line with the patient and tailor the resulting recommended care plan using his or her own judgment.
- The tools appear to the physician at a click on easy to manipulate screens: (i) a detailed care plan for the physician, with links to more information; (ii) a clear set of actions to take, pulled from approved order sets; and (iii) a care plan in “patient speak” for the patient.
- The doctor can order supplemental information for the patient, transmit orders to other clinical systems, view a patient history to follow progress and capture data for outcome analysis..

This scenario-based technology, now in use in the U.S. at select sites, has been deployed for some time in other countries where EMR is more prevalent. For example, applications in use screen and treat patients for cardiovascular care, manage diabetes patients, help primary care physicians refer to specialists and screen patients for eligibility for coronary artery by-pass surgery. The technology has significant potential to screen for patients for, and manage patients under, clinical trials.

## Powerful Trends

A mounting consensus that technology can impact better clinical decision making is driving powerful trends which will promote the use of decision support.

**Innovation.** Tablet PCs, wireless technology, handheld devices, faster computers and voice-recognition, all available to doctors, are becoming smaller, lighter and more affordable. The internet is allowing patients to access their electronic records and enabling new communication channels linking providers, payors and patients.

**Spending.** Fueled by national awareness following the Institute of Medicine’s 1999 study (“To Err is Human: Building a Safer Health System”), hospitals are placing a high priority on purchasing clinical systems aimed at patient safety and quality outcomes. The health IT market will grow to over \$30 billion by 2006. The disease management market is already well over \$500 million. Over 15% of physicians in the U.S. already use EMR, with growth to 30% expected by 2005. The decision support market could grow to \$1 billion in five years. The Bush Administration has committed \$100 million, and Congressional bi-partisan efforts are forming to introduce legislation, to stimulate the purchase of EMR.

**Pay-for-Performance.** Medical informatics opinion leaders believe that one way to address high health care costs and poor medical outcomes is the use of financial incentives to motivate provider behavior change. “Well crafted payment-for-performance initiatives are worth pursuing and may lead to substantial improvements in quality of care,” concluded the authors of an article in the *New England Journal of Medicine* (“Paying Physicians for High-Quality Care”, January 22, 2004).

Some examples:

- Bridges to Excellence – GE, Tufts Health Plan, Lahey Clinic and other employers are providing per patient dollar incentives for improved diabetes care.

- Six health plans in California and Anthem Blue Cross and Blue Shield in New Hampshire have programs underway.
- Center for Medicare and Medicaid Services: chronic care improvement program under Section 721 of the Medicare Prescription Drug, Improvement, and Modernization Act of 2003; Premier Hospital Quality Initiative Demonstration seeking high quality performance in five acute care areas; and Physician Group Practice Demonstration program covering ambulatory care.

**“Man on the Moon”.** The President wants all Americans to have an electronic health record in ten years. David Brailer’s selection to lead the Government’s diverse medical informatics initiatives reinforces this priority.

**Physician Adoption** Physicians must embrace decision support for it to make a difference. Changing physician behavior is not easy, with physicians preoccupied by the malpractice crisis and inadequate reimbursement.

Nevertheless, decision support will take hold for several reasons:

- *Uncle Sam Wants You!*: Dr. Brailer plans, as a key goal, to address physician adoption directly, including the financial issues and workflow transformation required.
- *Try It, You’ll Like It*: Doctors have an aversion to technology which is hard to use and doesn’t fit how they practice. Scenario-based decision support addresses this directly.
- *Doctors Do Care*: Scenario-based decision support can help doctors manage patient care better, work interactively with clinical team members and increase patient satisfaction.
- *Show Me the Money*: Better outcomes from decision support should induce malpractice carriers to reduce premiums. Physicians should be able to succeed better under pay-for-performance programs using the tool. The patient screening feature will help recruit patients for clinical trials, increasing the revenue potential for physician practices engaged in clinical research.
- *It’s Inevitable*: Medical education programs will promote this technology. Tech-savvy younger doctors will insist on it when they start practice. Advanced health systems, already invested in ambulatory EMR, are acquiring scenario-based decision support. Their positive testimony will encourage peer adoption.

## The Future is Near

Soon, doctors will say of decision support, “We can’t live without it!”. Why? It’s easy to use, it helps patients, the entire clinical team can use it and it has economic value. Some day soon EMR and decision support will be taken for granted, just as pocket calculators and email are today. It’s just a matter of time.

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