



# Quality Improvement and Patient Safety

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Vol. 4, Issue 4 April 2004

## New Center Seeks to Educate, Stimulate Adoption of Evidence-Based Medicine into Practice

By Lee Reeder

**T**he case for incorporating evidence-based medicine into practice should be simple—it has been proven to be the right thing to do. Then why is recommended care practiced only about half the time? Why is there still confusion over what are the best practices for a given condition?

A new academic center is beginning to answer those questions and educate consumers, clinicians and health plans on incorporating evidence into practice. Paul H. Keckly, PhD, is the executive director of the Vanderbilt Center for Evidence-Based Medicine at the Vanderbilt University School of Medicine in Nashville, which was founded in October 2003 after five years of research there into evidence-based medicine applications in healthcare in the United States.

Keckly said one purpose of the center is to educate stakeholders across the industry—including providers, payers and public policy players—about evidence-based medicine. The other purpose is to stimulate adoption of evidence-based practice. The center has been developing a market-focused body of research on various aspects of evidence-based medicine.

A respected economist and healthcare industry expert, Keckly often speaks and writes on the subject of incorporating evidence-based medicine into practice. In an article published in February in *Health Informatics Magazine*, Keckly explains how evidence-based medicine should be incorporated into practice:

“Ideally, evidence-based practice involves a clinical transaction in which the clinician, patient and other members of the care team collaborate about the most appropriate course of treatment for the patient’s care. The evidence upon which decisions are based is filtered through the clinician’s practice experience and the patient’s preference. Adherence to evidence-based guidelines in the diagnostic and prognostic process, therefore, features shared decision-making between the clinician and patient supported by relevant scientific evidence accessible to both.”

*“Variability of care leaves the health system dangerously compromised and in need of innovative new approaches to ensure best practice. Wide adoption of evidence-based medicine, where the best evidence exists, is a challenging but absolutely essential goal.”*

Harry R. Jacobsen, M.D.  
Vice Chancellor For Health Affairs  
Vanderbilt University

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## Putting Evidence-Based Medicine into Practice (cont...)

### The Costs of Non-Adherence

Keckly often addresses the subject of making the business case for evidence-based medicine. One of the elements of that business case is the cost of poor quality. That cost is seen in the following two major areas, according to Keckly:

- Inefficiencies associated with widespread variation
- Avoidable complications and avoidable utilization from non-adherence to best practices

Variation causes inefficiencies that can raise costs. “As a general principle, if each clinician approaches a diagnosis and treatment in a different way, you’re going to have consistent inefficiency,” Keckly said.

Vanderbilt University Vice Chancellor for Health Affairs Harry R. Jacobsen, M.D., who helped conceive the center, addressed variability in his announcement of the founding of the organization. “Variability of care leaves the health system dangerously compromised and in need of innovative new approaches to ensure best practice,” he said. “Wide adoption of evidence-based medicine, where the best evidence exists, is a challenging but absolutely essential goal.”

In its *State of Health Care Quality* report released last summer, the National Committee on Quality Assurance stated that: “The nation’s health care system is riddled with ‘quality gaps’ that prevent millions of Americans from receiving ‘best practice’ care. These gaps, the result of factors such as poor use of technology and irrational payment systems, lead to more than 57,000 avoidable deaths each year.” The productivity costs are also staggering,

with an estimated 41 million lost work days and \$11 billion worth of lost productivity that could be recovered if best practices were more widely adopted.<sup>1</sup>

Avoidable complications, and avoidable utilization associated with non-adherence to best practices are

patient outcome-focused inefficiencies that can be highly expensive to hospitals and health systems. Some of these problems are caused when patients leave hospitals after surgery with inadequate discharge plans. One of the key areas of focus for the Vanderbilt Center for Evidence-Based Medicine

**Table 1: Estimated Deaths Attributable to Failure to Deliver Recommended Care<sup>1</sup>**

Measure	Avoidable Deaths Each Year
Beta Blocker Treatment	1,700
Breast Cancer Screening	2,500
Cervical Cancer Screening	700
Cholesterol Management - Control	6,500
Controlling High Blood Pressure	28,300
Diabetes Care - HbA1c Control	13,600
Prenatal Care	1,500
Smoking Cessation	2,700
<b>Total</b>	<b>57,500</b>

Source: “The State of Health Care Quality 2003: Industry Trends and Analysis.” National Committee for Quality Assurance, 2003.

**Table 2: Estimated Avoidable Hospital Costs Due to Heart Attacks and Stroke<sup>1</sup>**

Measure	Avoidable Costs Each Year
Beta Blocker Treatment	\$11,076,204
Cholesterol Management - Control	\$94,249,482
Controlling High Blood Pressure	\$1,242,836,580
Diabetes Care - HbA1c Control	\$178,464,900
Smoking Cessation	\$97,690,642
<b>Total</b>	<b>\$1,624,317,808</b>

Source: “The State of Health Care Quality 2003: Industry Trends and Analysis.” National Committee for Quality Assurance, 2003.

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is discharge planning as a care management function.

“Studies show that there are high majorities of patients who are discharged from hospitals who do not know what they’re supposed to do upon discharge,” Keckly said. He pointed out, for example, that in patients who have had hip-replacement surgery, having a good discharge plan with evidence-based instructions is critical to optimal outcomes.

A study published last year in the *Journal of Bone and Joint Surgery* found that 4.6 percent of primary total hip replacement surgery patients were readmitted to the hospital within 90 days of leaving the hospital and 1.0 percent die during those first three months. In revision total hip replacement surgery, hospital readmission rates were 10 percent and the level of mortality was 2.6 percent in that first 90 days.<sup>2</sup>

Good discharge instructions and follow-up might prevent some of these readmissions. Falls can occur among these patients who may not realize that their pain medication can make them dizzy. These patients often injure themselves by trying to lift items that are too heavy. These issues and several others that can cause avoidable complications need to be addressed in the discharge plan, according to evidence-based medicine advocates.

Although there has been much talk of evidenced-based medicine and best practices, they are not widely used. In a recent presentation, Keckly cited a study published last year in the *New England Journal of Medicine* that found that participants in the study received only 54.9 percent of

recommended care. The study found no significant differences in the proportion of recommended care received in acute

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care, preventive care or care for chronic conditions.<sup>3</sup>

Tables 1 and 2 on Page 2 are examples from the NCQA report that show some of the estimated avoidable deaths and costs associated with the failure to provide recommended care.

The benefits of using evidence-based practice may be seen in improved functional status, decreased complications and mortality, and avoidable emergency department visits and hospital readmissions, according to Keckly.

Vanderbilt University Medical Center (VUMC) uses evidence-based guidelines for every admission through a system called “WizOrder,” which was developed at Vanderbilt University and is now commercially available as Horizon Expert Orders™ from McKesson Corp. The system is available throughout the hospital on clinical-care units and includes evidence-based reminders and alerts. The system has been credited with helping to improve the quality of care and saving VUMC millions of dollars in pharmacy and X-ray costs alone.

In part because of the use of this system, the purchaser consortium Leapfrog Group chose VUMC in 2002 as one of a few hospitals that were providing safety measures that could

serve as a model to the rest of the nation for computerized order entry.

Culture is an important aspect of employing evidence-based medicine. “This is not about bad people, it’s about flawed systems,” Keckly said. “Where people start to push back from evidence-based medicine is when they start pointing fingers at one another. It’s

doubtful that any one of us could stay abreast of the science in medicine given the speed and acceleration of knowledge. So we have to get away from the concept that this is somehow pointing at doctors and saying, ‘You’re not doing a good job’”

### Searching in Different Places

Keckly addressed the different ways in which consumers, clinicians and organizations seek and gather evidence-based medicine information. “That’s part of the problem,” Keckly said. “Everyone starts at a different place. At the consumer level, most start through a search engine, and it takes a little more than five minutes for a consumer to do a search on a diagnosis.”

The fruits of their searches might be less than optimal, according to Keckly. “They often end up with information that is not evidence-based and may have a commercial sponsor,” he said. “Generally, the physician is seen as the best source of evidence-based information by a patient, but the problem is that physicians don’t distribute information—it occurs in only 1 out of 10 situations.”

Keckly said this creates a void for consumer access to evidence. “Consumers are not able to access the

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evidence as they need to, and the resources to do that have not been developed for them,” he said. Keckly added that an exception may be that some might find their way to the Web site of the Agency for Healthcare Research and Quality, which does have extensive information on evidence-based medicine for some conditions, but this is rare.

Other consumers might find a medical society guideline, which might not always provide the best information, according to Keckly. “Some, but not all, of the medical society guidelines are evidence-based, and that’s something most people don’t know,” he said. Keckly noted that medical societies, especially the smaller ones, often do not update their guidelines as often as they should, or they do not make the evidence available, or they shape the evidence to reflect who should be doing certain pieces of the work rather than what should be done. He said, however, that such protectionism and inattention to changes in the evidence are generally not the case with most of the major medical societies.

### How do Clinicians Find Evidence?

For clinicians, access to information is less of a problem than with consumers because of resources available to them, according to Keckly. “On the consumer end it’s more of a matter of where do they go, and once they get there does what they find have any credibility at all,” he said. “The problem with the clinician is actually doing it, not so much access,” he said. Keckly added that the clinician’s medical society is usually the first chosen source, and then they go to other search resources such as MedLine, HealthGate and the Cochrane Collaborative.

### Ten Hard Facts of Evidence-Based Medicine

On its Web site (<http://ebm.vanderbilt.edu>), the Vanderbilt Center for Evidence-Based Medicine lists what it calls “Ten Hard Facts” regarding evidence-based medicine with citations. The ten facts are:

**1. The gap between knowing “what works best, for whom and why” and the day-to-day provision of health services is wide ... and expanding.**

**2. Most physicians believe they practice evidence-based medicine ... and it actually occurs about half the time.**

**3. Most patients believe they receive “evidence-based care” ... but they don’t understand what that means.**

**4. Most health plans encourage clinicians to practice evidence-based medicine ... but they don’t reward those who actually do so.**

**5. Scientific evidence is strong and consistent ... for about 40 percent of the most prevalent medical conditions.**

**6. Consistent clinician adherence to evidence-based guidelines results in quality care and lower costs ... though the cost-effectiveness of some evidence-based interventions is delayed.**

**7. Many consumers independently investigate treatment options when they are newly diagnosed ... but for only a handful of common conditions.**

**8. Most consumers adhere to evidence-based treatment directives ... when clearly presented by their clinician in an understandable manner at a teachable moment with perceived consequences.**

**9. Most physicians pay attention for new evidence in their specialty ... but often fall behind in staying abreast.**

**10. The practice of evidence-based medicine is premised on shared decision-making between physicians and patients ... but physicians do a poor job of engaging patients in decision-making.**

Note: for citations, visit <http://ebm.vanderbilt.edu>

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Information overload and the time available for searching are also considerations. “For the clinician it is not so much a question of where do I go, but when do I have time to go, and is the information in a format that is applicable to this patient,” Keckly said. “Doctors think in terms of patients and not patient populations, so they have to course through the evidence to build their case for not only a primary diagnosis, but perhaps indications of two secondary diagnoses. Sometimes the evidence around that is not as clear.”

### Hospitals Not Looked to as a Good Source

Providing such information has been “an interesting journey” for many hospitals and health systems, according to Keckly. “A lot of hospitals have attempted to make information available, but they have not attempted to make the information available to clinicians—they have tried to provide some basic content for consumers at a Reader’s Digest level,” he said. Keckly added that this practice is usually based on the presumption that the hospital does not want to go too far into the physician’s domain of directing care.

Even so, Keckly said that studies show that consumers do not generally go first to hospital Web sites to search for evidence-based medicine information. “They don’t typically think of a hospital Web site as the place to go for clinical information,” he said, adding that they look to hospital Web sites for directions, campus maps, class schedules and other information.

Regarding the use of evidence-based medicine by hospitals and health systems in disease management and quality improvement programs, Keckly

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Vanderbilt Center for Evidence-Based Medicine

said the process is just starting. “It hasn’t been prevalent,” he said. “Most hospitals do not have chronic care management programs; most are just starting to move in that direction. Most are adopting guidelines for inpatient admissions where there is significant inefficiency in the work flow around that patient.” He said this is occurring in some of the top, high-cost conditions, such as community-acquired pneumonia and congestive heart failure.

Keckly said he believes every hospital is now starting to incorporate evidence into practice and that hospital CEOs are not backing away from it, because it is the right thing to do. However, he said many of them are treading lightly into this area because appropriateness of admissions and care has long been the domain of the physician. On the other hand, according to Keckly, various entities are setting evidence-based standards for care, and a host of public reporting programs are being created, putting clinical performance pressures on hospitals and health systems. Another example is the Centers for Medicare and Medicaid Services cutting reimbursement levels for healthcare provider organizations that do not report their performance on

a specific set of evidence-based practices.

These entities are putting pressure on hospitals and health systems to put evidence-based medicine into practice. “Between JCAHO, the major commercial payers and the Leapfrogs of the world, you have three different sets of entities developing report cards on hospitals around evidence-based processes,” Keckly said.

“They are potentially picking up the newspaper and seeing their own performance against two other local players. If they don’t do certain things, they are going to have some black marks on their performance, but if they do them, some of the physicians will be concerned that the hospital is starting to practice medicine.”

He said that it is difficult for hospitals to “turn on a dime” on implementing best practices. “It can take a hospital three to six months just to get everybody—the hospital medical staff, the board and key managers—to understand it,” Keckly said. “For the Leapfrogs and others to come pouncing on the hospital overnight is unfortunate, because it takes the focus away from the meaningful changes that need to occur. I think we need to retool the relationship between providers and payers around the evidence.”

He said this retooled relationship would include collaborating on achievable short- and long-term outcomes of evidence-based practice. This might involve agreeing on three to five major diagnoses in which near-term results could be had, and then look at which could be most effective if worked on over the long term. Keckly said that he believes the “cookie cutter, one-size-

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fits-all” report card concept is doomed to failure. “Most of those are not really getting to the substance of evidence-based medicine,” he said.

In November 2003, 88 senior leaders from several sectors of health care met in Nashville for the Health Delivery Solutions Congress. The purpose of the meeting was to work on transformation strategies and develop steps to implement them.

Before the meeting, participants were asked to complete a survey created by the Vanderbilt Center which rates the importance of certain proposed strategies for healthcare transformation. Some of the most highly rated (more than 9 out of 10 in importance) were related to evidence-based medicine and best practices, including the following:

- Consumers who are not compliant with physician-directed wellness and preventive health measures should pay higher deductibles for health benefits.
- Employers should be able to vary benefits in recognition of an employee's compliance with evidence-based treatment plans to which they have been directed.
- Public policy should focus on prevention as a national strategy.
- Medical education should be rebuilt to focus on lifelong learning (continuous professional development) for clinicians.

The Vanderbilt Center advocates three essential strategies for increasing adherence to the use of evidence-based medicine:

- Employing tools, not rules. Keckly said, “We have to get the stigma away from this and focus on what are the tools that

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accelerate the practice of evidenced-based medicine.”

- Educating all key stakeholders. The key stakeholders include clinicians, consumers, regulators and employers.
- Creating incentives that matter. The Vanderbilt center is studying mechanisms to remove barriers to practice, and mechanisms to enhance the adherence of both providers and consumers. Keckly said incentives should be structured so that “payers and providers can move in the same direction.”

Keckly said that if he were trying to persuade the management of a hospital to put evidence-based medicine into practice, he would first start with the appropriateness of it. “The primary reason for the discussion of the pursuit of evidence-based medicine is that it is the right thing to do,” Keckly said. “The business case for evidence-based medicine is a very nice, but secondary benefit of its application, but it is primarily the right thing to do. You don’t raise questions about why we ask surgeons to wash their hands before they go into the operating room, for example.”

The Vanderbilt Center lists the following as key components of evidence-based medicine:

1. Evidence-based medicine involves ongoing access to and incorporation of evidence in care-management decisions.

2. Evidence-based medicine involves a didactic relationship between a provider,

acting as coach, and a patient.

3. Evidence-based medicine is patient centered with appropriate self-care management a key outcome.

“Ours is a market-based focus of evidence-based medicine,” Keckly said. “Where does it take us, and how do we get there?”

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