

Permanente Medicine

Focus: Evidence-Based Medicine

Evidence-Based Medicine (EBM) has been defined by David Sackett, MD, a Canadian pioneer of EBM, as “the conscientious, explicit and judicious use of current best evidence in making clinical decisions about the care of individual patients. This practice,” he adds, “means integrating individual clinical experience with the best available clinical evidence from systematic research.”

A less formal definition is that EBM is a bridge between clinical research and clinical practice, bringing the best applicable evidence from scientific research to the provision of patient care.

David Eddy, MD, PhD, a Kaiser Permanente physician consultant and a leading American advocate of EBM, offers another definition, emphasizing the fact that EBM is not so much about doing research as about applying research: “When

there’s evidence that something works and is good and benefits the patient, we should do it. When we have evidence that there’s no benefit, that it’s not effective, where it’s going to harm a patient either directly or indirectly by stealing resources, we should not do it. When there’s insufficient evidence to determine whether there’s benefit, we must be conservative, relying on individual physician discretion.”

Dr. Eddy, who has promoted EBM through a widely read series of articles in the *Journal of the American Medical Association* and

who many credit with having coined the term, has argued that the principles of evidence-based medicine “have the potential to affect the quality and cost of medical care more profoundly than all the new treatments of the past or next decade.” They represent, he added, “a change in the intellectual basis of medicine”—a change from subjective clinical judgments to objective clinical evidence of effectiveness, benefits and harm^o

■ A Broad Range of Health Care Applications

Dr. Eddy would apply the principles of EBM broadly, far beyond the examination room. “Evidence-Based Medicine should be applied consistently through all the different places where an organization can make statements about what should and shouldn’t be done.”

The most obvious application is in the development of disease-specific clinical practice guidelines that can be used by many health care providers, thus relieving individual clinicians of the time-consuming tasks of gathering, evaluating and synthesizing evidence as the basis for clinical practices.

Other applications of the principles of EBM, Eddy says, might include health plan coverage criteria, definitions of medical necessity, pharmaceutical formulary policies, adoption of new medical equipment, disease management protocols, identification of clinical best practices, rate-setting policies, and even the determination of organizational goals and strategies. “We want to make sure there’s evidence of effectiveness and benefit behind anything important that we do,” said Dr. Eddy.

■ But Isn’t Medicine Already Evidence-Based?

Many people assume that medicine is already based on scientific evidence, or making logical decisions about diagnoses and treatments using scientific methods.

In fact, while clinical epidemiology has long looked to the scientific method, most clinical patient care has relied on a combination of informed guesswork, unsystematic observation, common sense, the consensus views of panels of clinical experts, and so-called “standard and accepted practice,” meaning the treatments and procedures used by most other clinicians in a local community. The trouble with these traditional approaches to clinical care is that they all rest on the assumption that, as Eddy says, “decision-makers can accurately perceive the consequences of a practice and determine its appropriate use *subjectively*, without explicitly examining the evidence that supports its use, estimating its outcomes, or comparing its benefits, harms or costs.” This assumption “per-

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Evidence-Based Medicine

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vades medical reasoning to this day,” he adds.

The late Archie Cochrane, a British epidemiologist and a leading EBM theoretician, estimated a decade ago that only 15-20 percent of all medical practice is based on scientific, statistically sound research. Medical practices that do not accord with well-documented evidence, according to published studies, include common approaches to breast cancer, pain control, depression, immunizations, cancer screening, vaccinations, alcohol and drug abuse, smoking, and functional disabilities, among others, says Dr. Eddy.

Despite the paucity of good research evidence in the past, many traditional, long-standing “standard and accepted practices” are, in fact, efficacious. This is because, in the past, clinical problems were simpler and more straightforward, and the connection between specific interventions and health outcomes was more obvious. In this narrower, simpler environment, experts were quite capable of using subjective, intuitive processing of observed evidence to identify efficacious interventions. Many of the standard practices thus developed are still in use today. Unfortunately, so are many standard practices that bear no relation to any evidence of effectiveness.

■ The Growing Complexity of Medicine

Today, in contrast to even the recent past, clinicians are bombarded with an unmanageable chaos of clinical choices, ambiguities and uncertainties. Even “standard practices” often vary widely from one hospital or health system to another, and from one city to another.

According to an article in the British journal Evidence-Based Medicine, “We clinicians need new, clinically important evidence as often as twice for every three patients seen, and affecting up to eight clinical decisions a day... Physicians must come to grips with 19 original articles per day... if they want to keep abreast of their field.” The number of biomedical journals alone has more than doubled since 1970.

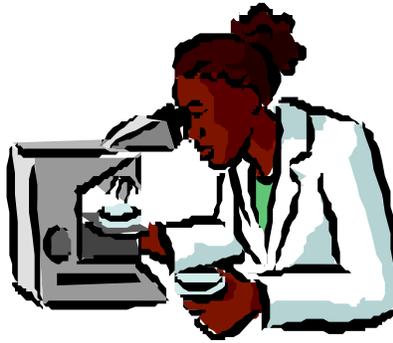
Says Dr. Eddy: “The complexity of modern medicine exceeds the inherent limitations of the unaided human mind.”

In other words, while modern research methods and statistical tools have helped generate a wealth of new evidence on clinical care, the very abundance of evidence has made the task of doing evidence-based medicine more difficult than ever for the individual clinician.

■ Strategies for the Individual Physician

What’s to be done?

EBM advocates offer three strategies for individual clinicians: 1) learn the principles, strategies and tactics of EBM in such a way that they become the foundation of all that one



does as a clinician throughout one’s career; 2) look for and apply examples of EBM produced by others, now available on the Internet and in a growing list of medical journals; and 3) adopt and apply EBM-based clinical care guidelines and implementation tools developed by respected colleagues at independent clinical research organizations that are dedicated to the principles of EBM.

At Kaiser Permanente, clinicians are encouraged to employ all three strategies for practicing EBM. In-house continuing medical education (CME) courses focus on the principles and techniques of EBM; an extensive database of web-based EBM resources is available to all clinicians on a CD ROM; and a new internal organization, the Care Management Institute, was formed in 1997 to develop and implement EBM-based clinical care guidelines throughout the KP program (*See page 8*).

■ Glossary of EBM Terms

Absolute Risk Reduction is the difference in the event rate between the control group and treated group.

Algorithm (Clinical) is an explicit description of steps to be taken in patient care in specified circumstances.

Balance Sheet The purpose of a balance sheet is to display in compact form quantitative estimates of the effects of alternative treatments on all the important outcomes, so that physicians, patients, and other decision-makers can more easily grasp the consequences of the different options they face.

Care Management (or disease management) is **coordinated** health care, for **logical groupings** of members, intended to **prospectively** improve, maintain, or limit the degradation of their functional status.

Clinical Practice Guideline is a systematically developed statement designed to assist practitioner and patient in making decisions about appropriate health care for specific clinical circumstances.

Cost-Benefit Analysis converts effects into the same monetary terms as the costs and compares them.

Cost-Effectiveness Analysis converts effects into health terms and describes the costs for some additional health gain (e.g. cost per additional myocardial infarction prevented).

Evidence Tables organize and summarize evidence from the medical literature. They are useful in documenting evidence used in guidelines and facilitating discussion. They may also be used as decision support in clinical practice guidelines.

EBM: Just the FAQs

What does it mean for a physician to practice evidence-based medicine?

The discipline of evidence-based medicine enables clinicians to base decisions on evidence of the effectiveness and benefit of specific treatment options.

David Eddy, MD, PhD, a nationally known expert and senior advisor for health policy and management in the Southern California Region, suggests that clinicians follow some general rules of thumb when making their decisions:

- When there is evidence of benefit, do it.
- When there is evidence of no benefit or harm, don't do it.
- When there is insufficient evidence to determine if there is benefit, be conservative.

Do evidence-based policies and guidelines replace an individual clinician's judgment?

External clinical evidence can inform, but can never replace, individual clinical expertise. It is this expertise that determines whether the evidence applies to the individual patient at all—and if so, how it should be integrated into a clinical decision.

Why do we need evidence-based medicine?

There are several reasons that present a strong case for practicing evidence-based medicine within Kaiser Permanente. First, we want our members to receive treatments that make them better (i.e., deliver benefit). Second, we want to protect our members from treatments that are harmful. Third, we want to spend our members' money as efficiently as possible to improve their health.

In his book about teaching evidence-based medicine, David Sackett, MD, points out that clinicians practicing evidence-based medicine will identify and apply the most efficacious interventions to maximize the quality and quantity of life for individual patients; this may raise, rather than lower, the cost of their care.

How do clinicians participate in evidence-based medicine?

Ideally, clinicians should participate in the design of evidence-based policies and use the policies as a guide for practicing medicine. However, the expectation is not for all clinicians to pull the evidence and do the analyses themselves.

Instead, clinicians can use the policies as a guide for practicing medicine. Individual clinical expertise is integrated with the best available external clinical evidence from systematic research.

Don't guidelines—even if based on science—amount to cookie-cutter medicine?

Not when used as intended. Guidelines, while based on evidence derived from a population of patients, must be applied to individual patients and clinical situations based on judgments by physicians and their patients. Thus, guidelines are intended to be flexible tools to aid physician-patient decision-making, not rigid rules.

Does evidence-based medicine allow a decision-making role for the patient?

Yes, in fact evidence-based medicine makes it easier for patients to participate in decisions about their own care because it provides quantitative evidence of the benefits and harms of clinical interventions. At Kaiser Permanente, clinicians are encouraged to discuss this evidence with patients using evidence “balance sheets” that summarize the consequences of specific interventions in easily understood ways.

Meta-analysis is an overview that uses quantitative methods to summarize the results.

Number Needed to Treat (NNT) is the number of patients who need to be treated to prevent one bad outcome.

Population, in research, is applied to the group of people being studied, which may or may not be the population of a particular geographical area.

Randomized Controlled Clinical Trial is when a group of patients is randomized into an experimental group and a control group. These groups are followed up for the variables/outcomes of interest.

Registry is a means for storing and tracking information on a common set of patients, e.g. members with asthma.

Shared Decision Making is when patients participate in making medical decisions about their care.

The glossary of terms was developed using the following sources: The Research Glossary for Consumers, prepared by the Australasian Cochrane Centre; Evidence-Based Medicine Glossary, prepared by The Centre for Evidence-Based Medicine, Oxford, England; A Dictionary of Epidemiology, edited by John M. Last; A Manual for Assessing Health Practices and Designing Practice Policies, The Explicit Approach, David M. Eddy, MD, PhD; Michael Stuart, MD, Director, Provider Education and Guideline Development, Group Health Permanente.

How Evidence-Based Balance Sheets Can

By David Eddy, MD, PhD
 Senior Advisor for Health Policy and Management
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A balance sheet is an important tool that supports the practice of evidence-based medicine. The first step in evidence-based medicine is to examine the evidence that a treatment is effective. If the evidence shows that the treatment is effective, the next step is to determine the magnitude of its benefits, harms, and costs.

The purpose of a balance sheet is to display this information—quantitative estimates of the effects of alternative treatments on all the important outcomes—in a compact form so that physicians, patients, and other decision-makers can more

easily grasp the consequences of the different options they face. Balance sheets are especially useful for informed shared decision-making between physicians and patients.

■ Developing a balance sheet

There are four main steps to developing a balance sheet:

1. Identify the alternative treatments that are available to the patient.
2. Identify the health outcomes that are affected by the treatments. Health outcomes are the outcomes that can be experienced by, and are important to, the people who will receive the treatments.
3. Estimate the probabilities or magnitudes of each of the health outcomes, for each of the alternative treatments.
4. Display the information in a table.

■ An Example: Alendronate

Table 1 is an evidence-based balance sheet for a 55-year-old, average-risk woman who is considering whether or not to take Alendronate 5 mg. to prevent osteoporosis.

The first two columns show the treatment alternatives—in this case to take Alendronate or not. Columns three and four summarize the effectiveness of the treatment compared to no treatment, based on the best available evidence.

■ Forces Driving the Adoption of Evidence-Based Medicine

The scientific approach to medicine is hardly a new phenomenon, but in recent years it has generated great interest and activity, especially at Kaiser Permanente. Among the forces responsible for this surge of interest are the following:

- Rising medical costs have focused increased attention on evidence for the necessity and usefulness of many expensive standard clinical practices.
- Increased use of medical care outcomes measures has highlighted wide variations in outcomes among geographic regions, and even among providers within a region.
- Health care consumers and consumer advocacy groups are demanding more and better information as the basis for informed choice and shared decision-making in clinical care.
- Clinicians and patients see increasing evidence of the value of shared decision-making, based on evidence of effectiveness, benefits and harm, in patient interactions.
- The Internet has enabled easy access to searchable databases of published medical research reports, the primary basis for EBM.

Table 1

One-year probabilities of outcomes associated with Alendronate 5 mg vs. no drug, for a 55-year-old average-risk woman

	No Drug	Drug
Hip fracture	.00046	.00032
Wrist fracture	.00316	.00223
Spine fracture	.00144	.00084
Long-term benefits	0	?
Inconvenience	1	0
Gastric distress	30%	0
Long-term Harms	0	?
Cost of drug	\$0	\$308
Expected cost of treatment	\$220	\$203
Net cost	\$220	\$511

*NNT: Number Needed to Treat

Help Make Decisions

The rows list the possible outcomes that could occur with the different treatment options. The cells give the probabilities of each outcome with each treatment option.



The first four rows summarize the potential benefits of Alendronate. For example, if a 55-year-old, average-risk woman does not take Alendronate, her chance of having a hip fracture is about .00046, or 46 in 100,000. An optimistic estimate is that if she decides to take Alendronate, her chance of a hip fracture would decrease to 32 out of 100,000, an absolute decrease of about 14 out of 100,000.

Put another way, for every 100,000 55-year-old, average-risk women who choose to take Alendronate, 14 hip fractures will be prevented, or 1 in 7,143. (This estimate is optimistic because it assumes that Alendronate is as effective in average-risk women as in high-risk women, an assumption not borne out by the evidence.)

If desired, additional rows could be used to describe some of the consequences of fractures that might be prevented, such as chronic pain, deformity, and disability.

The fourth row acknowledges that there may be some long-term benefits because Alendronate slows the loss of bone mineral density. The question mark indicates that this benefit cannot be confirmed, nor its magnitude estimated, on the basis of any available evidence.

The next three rows of the table address some of the outcomes of the treatment itself, including the inconvenience of taking the medication (remaining upright and not eating for a half hour), gastric distress, and pos-

sible long-term risks, which are not confirmed by the evidence. The last rows summarize the economic effects of Alendronate, assuming a 10-mg. pill is cut in half.

The main strength of balance sheets is that they summarize in one place the critical information people need to make decisions. Without the quantitative information provided by balance sheets, decision-makers would have to base their decisions on qualitative statements such as, "This treatment can decrease your chance of a hip fracture, but it has some risks." This is obviously inadequate, because it begs questions such as, "What is my chance?" "How much will Alendronate decrease it?" and "How bad are the risks, and what are my chances?" Balance sheets are intended to answer those questions.

Barriers to Evidence-Based Medicine

- Evidence-based medicine (EBM) requires a significant investment in educating and changing the behavior patterns and habits of physicians, many of whom view it as a threat to their autonomy.
- EBM is most effectively implemented through a comprehensive clinical information system and electronic medical record, which require substantial investments by health care organizations.
- There is insufficient scientific evidence regarding the outcomes of many clinical interventions.
- Using EBM tools, such as evidence tables, for shared decision-making with patients requires special communication tools and skills, plus additional exam room time.
- Few health delivery systems are sufficiently integrated to develop or implement evidence-based medicine.
- EBM is viewed by some as a form of health care "rationing" because it considers the cost-effectiveness of interventions. However, EBM aims to improve the quality of care, not save money. In some cases, the evidence may indicate that an effective but expensive treatment is underutilized and should be promoted.

Difference	NNT *
.00014	7143
.00093	1078
.0003	3322
?	?
1	1
30%	3
?	?
+\$308	
-\$17	
+291	

Using Cutting-Edge Information Technology to Promote Evidence-Based Medicine

Evidence-based clinical practice guidelines are used by many health care organizations as a means to bring the best evidence on clinical practices to bear in the interest of improving quality of care, reducing unnecessary practice variation, and maximizing the use of appropriate interventions.

However, studies have shown that simply publishing and distributing paper or Internet-based guidelines has relatively little effect on the way clinicians actually provide care. If guidelines are to be effective in influencing physician behavior, they need to be instantly available at the point of care (in the exam room), simple, timely, and incorporated into the care experience in such a seamless way that physicians view them as an aid, not an obstacle, to providing the best possible care.

■ Beyond the Electronic Medical Record

Toward this end, Kaiser Permanente is making a major, programwide investment in the development of a computer-based clinical information system (CIS) capable of delivering guidelines in a user-friendly way at the point of care. Various Kaiser Permanente regions have experimented with different technical approaches to such a system. One of the most successful, to date, is the EpicCare system in Kaiser Permanente's Northwest Region, based in Portland.

The EpicCare system includes a computerized version of the standard outpatient medical record, which enables an examining physician, for example, to pull up on a computer screen a patient's medical history and add notations to it during or immediately following an examination.

But the system is more than just an electronic version of a medical record. It also automates numerous tasks associated with patient encounters, such as ordering lab tests, prescribing medications, ordering referrals to specialists, and messaging other physicians or members of a care team. This so-called physician order entry (POE) functionality provides an ideal on-line "vehicle" for embedding clinical care guidelines and medication suggestions that seamlessly support a clinician's decision-making process to provide optimal care.

For instance, take the case of a physician ordering a chest X-ray. On the computer, the physician would click on a standard radiology requisition form to transmit the order to the

radiology department. In KP Northwest's POE system, the requisition could include an electronically embedded guideline to help inform the decision-making of the treating clinician. When the physician orders the test, the guideline would automatically appear and inform the physician about appropriate indications for the test, or other tests that might be even more appropriate for a particular set of indications, or other treatment options.

If a guideline suggests a course other than what a physician wants to order, he or she is free to accept it or to override it.

■ Reducing Unnecessary Variation

Experience with the EpicCare system in the Northwest has persuaded Kaiser Permanente leaders that such systems are effective in helping physicians reduce unnecessary practice variation and improve quality. For instance, before the evidence-based guideline on upper gastrointestinal radiology tests was embedded in the physician ordering system, only 55 percent of all orders for such tests conformed to the recommendations in the EBM guideline. Following implementation of the embedded guideline, 86-90 percent of all tests conformed to the guideline.

In addition, the number of such tests ordered declined by 40 percent—a strong indication that the guideline was helping clinicians make better judgments about when a relatively invasive medical procedure was really needed and when it was not. Similar results from elec-

tronically embedded guidelines have been documented for numerous other practices, including prescriptions (an evidence-based guideline might suggest an alternative medication). Permanente physicians in the Northwest have developed more than 35 evidence-based guidelines since 1994.

KP's success in integrating evidence-based medicine through simple guidelines embedded in electronic patient medical records is groundbreaking and encouraging. However, even more dramatic improvements in quality and efficiency await the development of more robust clinical information systems that will be capable of transmitting more comprehensive guidelines. Accordingly, Kaiser Permanente has identified the development of such a system as one of the national program's highest priorities.

Kaiser Permanente is making a major investment in a computer-based clinical information system capable of delivering user-friendly guidelines at the point of care.



EBM Principles as a Tool for Medical Technology Assessment

By Mitchell Sugarman

Director, Medical Technology Assessment

The Permanente Federation

Recently, my point-and-shoot camera broke. So I am now faced with the decision of what to replace it with. Two years ago it would have been simple; I would have decided on what basic features I wanted and then purchased a camera made by one of the reputable manufacturers based on the best price I could find. But now it's different; now there's APS, the Advanced Photo System.

APS uses a completely different kind of film cartridge, requires special processing, and costs significantly more than standard 35-mm film. However, APS allows you to take pictures using three different formats—wide-angle, panoramic, and telephoto—all on the same roll of film. And it claims to correct for a variety of common lighting and exposure mistakes, producing better quality prints.

Do I go with the new, or stick with the old? It's a tough decision.

To make the best informed decision, I need to do some research. I'll start off with Consumer Reports and go on to other consumer magazine articles that test and review the new camera and compare it to more traditional cameras. And then I have to assess the objectivity and quality of the research itself: Were the testing methods sound? Did the reviewer have any biases? Has the improvement in quality really been demonstrated?

Presumably, any prudent consumer would approach such a decision in much the same manner. And in fact it's not all that different in terms of far more complicated and far-reaching decisions in the assessment of new medical technology. For instance, does the new Positron Emission Tomography (PET) identify changes in tissue that would otherwise be missed by other, less expensive, imaging technologies? What proof is there? What does the peer-reviewed medical literature show? How will PET change the management of patients in the oncology, cardiology or neurology settings?

The concepts of evidence-based medicine drive Kaiser Permanente's Interregional New Technology Committee (INTC) as it reviews data on safety and effectiveness to determine if a new medical technology is medically appropriate. Much as you might do if you were considering a new kind of camera, the INTC gathers evidence, which it then grades depending on its design—a randomized trial carries more weight than a case series—determines the harms, ben-

efits and costs of the new technology, compares them to other interventions or technologies that currently are standard, and makes recommendations to the Permanente Medical Groups.

Evidence-based medicine can sound complicated, but the principles aren't that different from those people use every day in the course of many routine decisions—specifically, the scientific practices of evaluation and comparison. Systematically applying such principles to critical decisions is the least we should expect of health professionals.

EBM Resources

Following is a select list of Web-based resources available to clinicians practicing evidence-based medicine. This list was compiled by Matt Handley, MD, Associate Director for Provider Education and Guideline Development at Group Health Cooperative of Puget Sound.

- *Abstracts of Cochrane Reviews* (<http://som.flinders.edu.au/fusa/cochrane/cochrane/revabstr/abidx.htm>) Provides a listing of the Cochrane reviews available on the CD-ROM.
- Health Services/Technology Assessment Text (HSTAT) (<http://text.nlm.nih.gov/ftsr/gateway>) Provides searchable access to Centers for Disease Control and Prevention (CDC), Agency for Health Care Policy and Research (AHCPR) guidelines and evidence reviews, *Guide to Clinical Preventive Services*, and National Institutes of Health (NIH) consensus conferences.
- *Bandolier* (<http://www.jr2.ox.ac.uk/Bandolier/>) A monthly journal produced in Oxford, UK for the National Health Service Research and Development Directorate.
- ACP Journal Club, also known as the journal *Evidence-Based Medicine* (<http://www.acponline.org/journals/acpjc/jcmenu.htm>). The main purpose of this journal is to select from the biomedical literature those articles reporting studies and reviews that warrant immediate attention by physicians wanting to keep pace with important advances in internal medicine, general and family practice, surgery, psychiatry, pediatrics, and OB-Gyn.

Websites that support evidence-based practice and skills

- (<http://intensivecare.com/EBM.html>)
- User's Guide to the Medical Literature http://hiru.hiru-net.mcmaster.ca/ebm/userguid/1_intro.htm
- Centre for Evidence-Based Medicine (<http://cebim.jr2.ox.ac.uk>)
- Netting the Evidence (<http://www.shef.ac.uk/uni/academic/R-Z/sharr/ir/netting.html>)
- New Zealand Guidelines Group: Tools for Guideline Development and Evaluation (<http://www.nzgg.org.nz/tools/htm>)

KP's EBM Engine:

The Care Management Institute

Among American health care delivery systems, Kaiser Permanente is widely recognized for its ability to promote the principles and practice of evidence-based medicine throughout its system of some 10,000 physicians. That ability to harness the power of EBM principles in the interest of practicing comprehensive care management derives in large part from the fact that Kaiser Permanente has created a unique, pioneering institution with a mandate to drive, fund, and support evidence-based care management.

KP's Care Management Institute (CMI), directed by Peter Juhn, MD, was created in 1997 for the express purpose of helping the program's regions improve the quality of care and health outcomes for Kaiser Permanente members. Drawing on the extensive clinical experience, research, and data of an integrated care health system with 9 million members, CMI synthesizes knowledge about the best clinical approaches in order to create, implement, and evaluate effective and efficient care management programs.

CMI works through a small national staff in Oakland, California, and an extensive network of implementation physicians, project managers, and analysts/programmers in each of the KP regions. These regional staff provide dedicated support for CMI implementation projects, assuring that performance measures for specific clinical priorities are achieved. Staff also build data registries to define and track disease populations in the regions. The registries produce paper reports and on-line services, support care management tools, and provide feedback to physicians about their patients.

In creating and implementing its care management programs, CMI incorporates the principles of evidence-based medicine, and also teaches EBM concepts and skills to physicians and other clinicians.

While CMI officially stands for the Care Management Institute, the letters of the name also represent the type of work the Institute does:

Content: CMI creates integrated, evidence-based care management programs in strategically selected clinical priority areas, including diabetes, asthma, congestive heart failure, coronary artery disease, and depression (a care management program on elder care is in development). These clinical priorities were selected because they represent a great opportunity to improve care for members, as well as to improve cost effectiveness. These five clinical priorities alone

affect 15% to 20% of Kaiser Permanente members and account for about 25% to 30% of the health plan's cost structure. In addition, CMI collects, evaluates, shares, and helps to implement more than two dozen "successful practices" from around KP.

Measurement: CMI conducts national outcomes studies in each of its clinical priority areas. These studies are unique both for their size and their level of detail. The outcomes reports serve as internal Kaiser Permanente benchmarking tools. They show areas where the organization is doing well, so that successful practices can be collected and shared. The studies also indicate where there is need for improvement and the key levers that can be employed to make those improvements. Follow-up studies are conducted to see if the gaps have been closed.

Implementation: Throughout KP, physicians and staff participate in a care management Implementation Network that uses CMI's content and measurement capabilities to share lessons among providers at the local level. Physician members of the network in each local area provide a direct link between CMI and local activities.



For More Information...

If you would like more information about evidence-based medicine at Kaiser Permanente or Group Health Cooperative of Puget Sound, or would like to contact EBM experts for interviews, any of the following people can assist you:

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