Measuring the Quality of Health Care

EBRI
EMPLOYEE BENEFIT RESEARCH INSTITUTE®

Issue Brief

- This *Issue Brief* examines some of the issues involved in defining and measuring the quality of health care and in implementing quality measures. It discusses the importance of measures of health care quality in the evolving health care delivery system, examines some of the conceptual issues involved in defining quality of care, and discusses some of the measures of health care quality and how these measures have been implemented in the health care delivery system.

- The major impetus for quality assurance programs is cost management: it is an attempt to allocate scarce health care resources efficiently. This requires making choices among alternatives, which may mean that maximizing quality of care for whole populations may not maximize the quality of care for individuals.

- Quality, in terms of any single good or service, has a number of dimensions. Health care is a complex bundle of services, and each component service within an episode of care affects the other components and the patients differently. Moreover, patients differ in numerous ways, which means that similar symptoms may require different services if care is to be effective. Measuring quality of health care services requires accounting for all of these factors.

- In attempting to manage health care costs, employers and other private health plans have begun to employ process measures of quality, i.e., evaluating caregivers' activities, the decisions made at each step in an episode of illness, and the appropriateness of the care provided.

- Process is an important component of quality measures because it focuses directly on the uncertainty in the efficacy of treatment. Given this uncertainty, the logic of medical decision making is an important determinant of quality and cost effectiveness. Examining the process of care involves assembling a panel of physicians who review medical records to determine the appropriateness of the care received.

- Providers have increasingly found that their medical decision making and practice styles are being monitored by purchasers as new health care delivery systems are being formed. The American Medical Association found that 39 percent of surveyed physicians were subject to clinical profiling.

Table of Contents

Introduction

Health care quality is Americans' number one concern in changing the health care system (Employee Benefit Research Institute/The Gallup Organization, Inc., 1993 and 1994). Employers and other purchasers of health care services continue to search for measures to ensure that they are buying the best value for their health care dollars. **Concern over health care cost inflation has led private employers and public programs to adopt a number of strategies to manage health care costs, but the key to all of these strategies is purchasing high quality health care at the lowest cost possible.** However, quality is an elusive concept, and the practical measurement of any definition of quality will affect the incentives of providers, payers, and patients.

Defining and measuring the quality of health care services is an arduous task. Quality of care has a number of dimensions, but ultimately they all relate to the effect of health services on the individual patient or on a population of patients. Researchers who examined the state of medical evidence in 1988 argued that, ". . . for at least some important practices, the existing evidence is of such poor quality that it is virtually impossible to determine even what effect the practice has on patients, much less whether that effect is preferable to the outcomes which would have occurred with other options" (Eddy and Billings, 1988). In the seven years since 1988 there has been tremendous progress in the measurement of health care quality and in the implementation of quality measures, but few believe the state of the art is adequate for informed decision making.

This *Issue Brief* examines some of the issues involved in defining and measuring the quality of health care and in implementing quality measures. It begins with a discussion of the importance of measures of health care quality in the evolving health care delivery system. The report then examines some of the conceptual issues involved in defining quality of care. The final section describes some of the measures of health care quality and looks at how these measures have been implemented in the health care delivery system.

Quality in the System

The health care delivery system has undergone a rapid evolution during the past 20 years, in terms of both technological innovation and the organization and financing of the delivery of health care services. Increases in health care cost inflation, fueled by technological innovation, have changed the way health care services are purchased, the delivery of health care, and access to health care.

Public and private attempts to manage health care cost inflation have focused on two issues: reducing the amount of waste in the health care delivery system and applying cost-benefit criteria to the introduction of new technology. Measuring the amount of waste in the system, or the benefits of any health care procedure, requires an ability to measure the effect of health care on a patient or a population.

For most of this century it has generally been assumed that licensure of physicians and other health care practitioners, the accreditation of hospitals and other medical facilities, the internal quality assurance mechanisms in hospitals and other health care institutions, and the regulation of pharmaceuticals and other medical devices ensured an acceptable minimum quality level in the health care system.

Efficacy of Treatments

Economist Kenneth Arrow, who would later win the Nobel Prize in economics, was given a grant by the Ford

The uncertainty in treatment effectiveness means that it is difficult to make a correct diagnosis given a set of symptoms and that, once the correct diagnosis is made, a given procedure may produce different outcomes for people with the same diagnosis.

Foundation in the early 1960s to analyze the health care delivery system. His analysis suggested that many of the institutions that then characterized the health care delivery system arose because of uncertainty. He wrote, ". . . the special economic problems of medical care can be explained as adaptations to the existence of uncertainty in the incidence of disease and in the efficacy of treatment" (Arrow, 1963). The uncertainty in the incidence of disease or injury led to the development of health insurance, while uncertainty in the efficacy of treatment determined the characteristics of private insurance plans and public health policy. The uncertainty in treatment effectiveness means that it is difficult to make a correct diagnosis given a set of symptoms and that, once the correct diagnosis is made, a given procedure may produce different outcomes for people with the same diagnosis.

The "uncertainty in the efficacy of treatment" determined the characteristics of private and public insurers' provider reimbursement policies. These policies were designed to enhance the physician-patient relationship. Physicians were reimbursed under a fee-for-service system to avoid burdening either patient or physician with the risk associated with the uncertainty in treatment effectiveness. The presumption was that providing incentives that limited the access to the full potential range of diagnostic and therapeutic services available would lower the quality of care.

The increased demand for health care services led to an increase in the demand for new medical technology. Medical researchers, with financial assistance from the government and other sources, responded impressively. The number of diagnostic tools a physician can employ on a given set of symptoms and the number of potential therapeutic procedures for a given diagnosis have increased dramatically in the last 25 years.

Medical research has produced a rapid expansion in treatment options without concurrent research on the relative efficacy of each option. This has prevented the formation of a medical consensus on the proper treatment of a given set of symptoms. It has been well documented that large variation in practice patterns exists among physicians practicing in the same geographic area. Individual physicians in many cases see too few patients of any one type to evaluate the relative efficacy of competing treatments. The paucity of research on medical outcomes results in the practice of medicine as an art rather than a science and limits the ability of purchasers of health care services to differentiate among providers on the basis of quality.

Measuring the quality of health care is necessary if the issues facing the health care delivery system are to be resolved. The three generally accepted goals of future health policy are to lower health care costs, increase access to health care, and increase the quality of care. It is not possible to separate these goals. While health care cost inflation could be reduced with price controls or national budgets, many oppose these approaches for fear that they would compromise the quality of health care. Americans have generally found markets an attractive way to allocate resources in large part because decision making is decentralized. This is especially appealing in health care, where decisions often involve the most fundamental and personal tradeoffs between comfort and pain, between life and death. However, the complexity of medical decision making, the amount of information necessary to make appropriate choices, and the pooling of risk through insurance means that, unlike the situation in most markets, in the health care services markets individuals may not necessarily be the primary decision makers. Moreover, the state of medical knowledge is such that many providers and large purchasers lack the information necessary to evaluate the care being provided.

Quality Measures

One of the most important components of an efficient health care services market is the measurement of the quality of care. Markets cannot function without adequate information on both sides. Under perfect conditions, the market system allocates scarce resources across competing demands for these resources so that the costs to society of producing a good is equal to the amount individuals are willing to pay for that good. The market may not efficiently allocate resources in a market where information is limited.

However, it has proven difficult to define quality and even more difficult to measure it. Quality, in terms of any single good or service, has a number of dimensions. Health care is a complex bundle of services, and each component service within an episode of care affects the other components and the patients differently. Moreover, patients differ in numerous ways, which means that similar symptoms may require different services if care is to be effective. Measuring the quality of health care services requires accounting for all of these factors.

Defining Quality

Defining and measuring health care quality are controversial and costly endeavors.

Quality of care is a multidimensional concept: it can be viewed narrowly (as clinical effectiveness) or broadly (as all the attributes of medical care that patients value). The difficulty with any multidimensional concept is weighting the disparate components. Even if individuals agree on the attributes of care that determine its quality, they may disagree about the relative importance of each attribute.

Ginsburg and Hammons (1988) sum up many definitions of quality with the statement, "Care is of good quality insofar as it contributes to the patient's health and well-being." However, this definition does not specify to what degree care must contribute to a patient's health, or at what cost. There is no comparison between the care delivered and alternative ways to treat the same ailment. This particular definition also focuses on the individual without regard to larger populations. Using this meaning of quality is not very helpful to those attempting to manage health care costs or to allocate health care resources.

The Institute of Medicine has defined quality of care as "the degree to which health services for individuals and populations increase the likelihood of desired health outcomes and are consistent with current professional knowledge" (Institute of Medicine, 1994). This definition combines individual quality with that of entire populations. Maximizing the quality of care an individual receives should maximize the quality of care the population receives. However, the major impetus for quality assurance programs is cost management: it is an attempt to allocate scarce health care resources efficiently. This requires making choices among alternatives, which may mean that maximizing quality of care for whole populations may not maximize the quality of care for individuals.

For example, David Eddy describes a situation where a health plan's breast cancer screening program shifts resources from younger women to older women. While that strategy increases the number of lives saved and decreases the program's total cost, it reduces the resources available to younger women. Eddy argues that such a program increases the quality of care because "The objective of [the health plan] is to maximize the health care of the population that it serves, and the proper measure of quality is how well it does that" (Eddy, 1994). A measure of quality that is population based may well result in a valuation system that favors some individuals over others. Conversely, a definition of quality that focuses on the individual may not provide appropriate incentives for health care cost management.

Any specific definition of quality and any

specific methodology for measuring quality will reflect an inherent bias toward some aspect of care. Definitions of quality that focus on populations must implicitly or explicitly weight the individuals who make up that population. In Eddy's example, lives saved were all weighted equally. His analysis of the benefits of the screening process might have yielded different results if the outcome measure used was expected years saved rather than lives. In that case, younger women would have had greater weight than older women. The most appropriate definition and measures of quality will depend on the context of the decisions being made on the basis of those measures. It is important for decision makers to understand the measures of quality being employed and their implications.

Policymakers, patients, payers, and providers are all making decisions on health care services based on health care quality measures. Fundamental to understanding and using measures of quality is understanding the underlying processes they measure. For example, instituting clinical guidelines to reduce the number of unnecessary or inappropriate procedures within a health plan will change the incentives for patients and providers. Will the quality of health care increase, or will behavior change in ways that leave the patients' overall health unchanged? Understanding why inappropriate or unnecessary care was provided in the first place is fundamental to any attempt to increase or maintain quality health care (Grogan et al., 1994).

Donabedian (1988) classified attempts to measure quality of care as studies of structure, process, and outcome. *Structure* refers to the attributes of care: the caregivers' qualifications, the resources available at the site of care, and other attributes. Evaluation of the *process* of care examines the caregivers' activities, the decisions made at each step in an episode of illness, and the appropriateness of the care provided. *Outcome* measures the effects of care on health status and patient satisfaction (chart 1).

Chart 1
Donabedian's Quality Measure Typology with Examples of Indicators of Quality

Structure
Physician Specialty Mix
Health Personnel per Patient
Number of Operating Rooms
Reimbursement Methodology

Process
Practice Parameters
Specialty Referrals
Quality Assurance Methodologies

Outcomes
Severity Adjusted Mortality
Severity Adjusted Morbidity
Readmission Rates
Patient Satisfaction

Source: Avedis Donabedian, "The Quality of Care: How Can It Be Assessed?," *Journal of the American Medical Association* (September 23–30): 1743–1748.

These dimensions of quality are interrelated. As Donabedian and others (Wyszewianski, 1988) have pointed out, measures of structure and process are only important as indicators of quality if they are related to outcomes, and measures of outcomes are important only if they can be related back to the structure and process of care and not to environmental or other factors.

Each of these dimensions may be more appropriate to some diagnoses or treatments than the other two. Iezzoni (1993) citing Thomas, describes three types of medical technologies: high, halfway, or nontechnologies. High technologies are "genuinely decisive" in that they are capable of preventing or curing disease. Halfway technologies are those that redress the effects of disease without curing or preventing disease. Finally, nontechnologies are those that support patients through diseases for which effective treatments are not available. Outcome measures are clearly important for halfway technologies but have limited applicability for nontechnologies and have already been established for high technologies. Process measures are important for all three types of technologies; these measures examine the appropriateness of care among other elements. Structure measures the ability to provide care within all three technologies.

Donabedian's framework for health care quality provides a convenient outline for discussing the measurement of health care quality. It partially reflects the evolution of the measurement of the quality of health care services as purchasers and accreditation bodies have moved from structural measures to outcomes measures.

Structure

Structural measures of quality have historically been employed in the various accreditation processes used by both private agencies such as the Joint Commission on the Accreditation of Healthcare Organizations (JCAHO) and public agencies such as the Health Care Financing Administration (HCFA). As an example, in reviewing a hospital, JCAHO has historically looked at a long list of structural measures such as a hospital's physical plant and medical staff organization. However, the relationship between some of these factors and health outcomes seems tenuous at best.

Most managed care networks use structural measures of quality of care in contracting with providers and in their marketing efforts. In the case of physicians, measures such as medical school affiliation, board certification, and specialty are used as measures of quality. For hospitals, health plans use JCAHO accreditation, teaching status, and geographic location as measures of quality.

Most recent attempts to implement measures of quality of care have focused on process and outcomes measures rather than structure. While there may will be an underlying connection between structure and quality, the relationship is difficult to capture and highly variable. In general, structural measures are too aggregate to be useful to purchasers of health care services. For example, there can be wide variation in the quality of care delivered at the same hospital depending on diagnosis, procedure, or attending physician. Structural measures are unable to reflect these differences.

Process

Process is an important component of quality assessment because it focuses directly on the uncertainty in the efficacy of treatment. Given this uncertainty, the logic of medical decision making is an important determinant of quality and cost effectiveness. Process measures are used by peer review organizations (PROs) in reviewing the quality of care received by Medicare recipients and by organizations that perform utilization review (UR). The creation of practice guidelines, the utilization of total quality management (TQM) methodologies, UR, and reviews of medical necessity and appropriateness are all examples of process measures of quality.

Generally, examining the process of care involves assembling a panel of physicians who review medical records to determine the appropriateness of the care received. A number of studies employing this method have indicated that a significant proportion of the treatment provided to patients is inappropriate, but there is also considerable variation in the opinion of the expert panelists.

UR is probably the most frequently used process measure of health care quality. Although there is wide disparity among UR programs, most are structured in a similar fashion. Generally, either the patient or the provider makes initial contact with the UR firm. Commonly, registered nurses then make an initial evaluation based on information gathered regarding whether proposed services are medically necessary. If the nurse is unable to certify that the proposed service is medically necessary based on the organization's criteria, the case is referred to a physician for determination (Gray and Field, 1989).

Although their basic structures are similar, the credentials and competence of many companies offering UR services vary widely, as do the criteria used for review. At a recent hearing on third party UR firms sponsored by the Institute of Medicine, both provider groups and insurers testified that the criteria used by UR firms and the professional backgrounds of the reviewers varied widely. These factors clearly affect UR's impact on total plan costs and quality of care.

In all cases, care is reviewed against criteria to determine if it is necessary and appropriate. These criteria are either developed by UR firms

Employers and other private health plans have begun to employ process measures of quality in attempting to manage health care costs. In general, employers have adopted four types of cost management strategies: cost sharing, UR, packaging provider services, and selectively contracting with providers.

internally or are licensed from outside sources and modified by the firms. In 1990, three criteria sets were evaluated to assess both their reliability and validity: Appropriateness Evaluation Protocol (AEP), the Standardized Medreview Instrument (SMI), and the Intensity-Severity-Discharge criteria set (ISD). The SMI was found to have both low reliability and low validity. The AEP and ISD were found to be moderately reliable and moderately valid (Strumwasser, 1990). Although these and other UR criteria are likely to have undergone significant revision since 1990, the results of this study indicate the difficulty in implementing process measures of quality of care and point to the lack of evidence connecting health care process to medical outcomes.

UR applies process measures of quality of care either retrospectively or by providing limited information to attending physicians. Practice parameters or guidelines attempt to apply process measures prospectively by providing physicians and other providers with information on processes that will yield quality care.

In 1989, the Agency of Health Care Policy and Research was created within the U.S. Department of Health and Human Services as part of the Medical Effectiveness Program. The agency focuses on those treatments and diagnoses that are most important to the Medicare program. The Medical Effectiveness Program was authorized to spend $185 million in 1994. While much of this funding is intended to support research on outcomes, the stated purpose of this research is to create practice guidelines.

The most common method for producing practice parameters is to seek consensus among a panel of providers with expertise in a given diagnosis or set of symptoms. While this method clearly yields benefits in the short run, it is often difficult to achieve consensus largely because of the lack of scientific evidence relating process to medical outcomes.

Outcomes

One list of outcome measures could be described as "'the five Ds': death, disease, disability, discomfort, and dissatisfaction" (Lohr, 1988). **The most commonly used outcome measures have been mortality, morbidity, and patient satisfaction. Morbidity is generally measured by length of stay for hospital admissions or by readmissions to the hospital. The appropriateness of these measures as indicators of the quality of health care services depends on a number of factors. Most conditions for which individuals receive care are not life threatening, so mortality would be at best a gross indicator of quality.**

Outcome measures have intuitive appeal in that they can be relatively inexpensive to collect and appear to be easy to interpret. For example, HCFA began a program in the late 1980s that released hospital mortality rates in an effort to provide consumers with information on hospital quality. Hospitals indignantly, and correctly, pointed out that the problem with simple outcomes measures is that good quality care may not prevent a poor outcome, and that providers treating sicker patients are more likely to have bad outcomes regardless of the quality of care they provide.

Simple outcome measures must be adjusted to account for factors other than the quality of care that might affect outcomes. These factors include the types of cases a provider treats (case mix), the severity of illness, and patient characteristics. A number of systems have been developed to measure case mix and severity. Diagnosis related groups (DRGs) classify inpatient admissions by diagnosis. They can be used to determine a hospital's case mix and are used by Medicare to reimburse hospitals. There are a number of systems such as APACHE, Iameter, and the medical illness severity grouping system (MEDISGRPS) that use physiological

indicators to measure a patient's risk of dying to determine the severity of the patient's condition.

These and similar systems have been used by providers and insurers to evaluate the quality and cost effectiveness of care. For example, a hospital can assign a severity measure to each patient within a DRG. Then the hospital can evaluate each physician's outcomes, using mortality or morbidity rates (such as length of hospital stay). Within each DRG the physician with the most severely ill patients should have the highest rates of bad outcomes and the highest costs. The accuracy of this style of quality evaluation depends on the degree to which the severity and case mix measures capture the effects of factors other than quality on outcomes.

Patient satisfaction is an outcome measure that is relatively easy to collect. **A number of studies have attempted to assess patient satisfaction and its relationship to the structure and process of care.** Satisfaction, of course, is subjective. Attributes of care that some patients find satisfactory others may find unacceptable. The Group Health Association of America's survey results indicate that their enrollees are very satisfied with the care they receive (Davies and Ware, 1991), but at least two older studies found high levels of dissatisfaction among HMO enrollees who were assigned, but did not choose, that style of care (Manning et al., 1987, and Rowland and Lyons, 1987).

A survey of employees of large employers found clear differences in the dimensions of care that enrollees in indemnity plans valued and those valued by enrollees in prepaid plans (Allen et al., 1994). Managed care plans received high marks for the functioning of the plans, while indemnity plans enrollees rated the delivery of care within their plans more favorably than did the managed care enrollees. The individuals who choose to enroll in a particular type of health plan are more likely to rate that form of health insurance highly than others might. Instruments for collecting patient satisfaction are not standardized. The outcome of any survey is determined by the form of the questionnaire, the way questions are posed, and the selection of individuals to participate.

Measuring Quality

In the health services market, purchasers have traditionally used structural measures of quality in evaluating alternative providers for purchasing services. Accreditation from the various credentialing bodies, board certification, specialty, and a variety of other measures have been used to indicate quality. As private and public purchasers sought ways to manage health care cost inflation, they began to employ strategies that relied on other measures of quality.

Employers and other private health plans have begun to employ process measures of quality in attempting to manage health care costs. In general, employers have adopted four types of cost management strategies: cost sharing, UR, packaging provider services, and selectively contracting with providers. These strategies have been combined in the various managed care plans employed by many employers. Cost sharing puts more of the burden of evaluating quality of care on the patient. UR is an attempt to move the treatment patterns closer to practice guidelines. These guidelines have generally been developed from expert opinion and medical literature, but they are often proprietary.

The relevant policy question is how to develop the capability to perform quality assessment. A market for quality assessment is beginning to emerge as researchers develop and market some aspects of quality assessment. The federal government, state governments, and private organizations have begun to develop and implement standardized measures of quality of care. All of these efforts are necessary for an efficient health care services market, but their ability to provide purchasers and providers with quality of care information is still very limited.

The following discussion provides an overview of the various players in the health care delivery system

that perform some level of quality assessment and the measures they use to make these assessments.

Federal Government

The federal government is concerned with technology assessment both as a regulator and as a payer. As a regulator, the U.S. Department of Health and Human Services' (HHS) Food and Drug Administration (FDA) requires stringent studies of new drugs, medical devices, and other products prior to their being marketed. Outcomes measures are important in their analysis. However, the FDA's jurisdiction and resources are limited to assessing only new drugs and certain classes of new medical devices for safety and efficacy. Other medical treatments that do not include a new pharmaceutical product are not required to undergo the same level of review by the federal government.

As a payer, the federal government conducts quality assessment in the Medicare program and to a limited degree in the Medicaid program. HCFA is charged with ensuring the quality of care provided to Medicare beneficiaries. Peer review organizations (PROs) are intended to ensure quality of care provided by Medicare while reducing unnecessary and inappropriate utilization of services covered.

The oldest form of quality assurance for Medicare is based on structural properties of organizations seeking eligibilty for reimbursement of services rendered to Medicare enrollees. Specifically, such organizations must meet the Medicare Conditions of Participation. Hospitals can meet these conditions by being accredited by JCAHO (see page 12) or by being certified by state agencies.

The government has been slower to integrate UR into Medicare than the private sector has been in integrating this technique into health care plans. Government decision makers are now looking to the private sector for ideas and models to help shape Medicare policy (Lohr, 1990). PROs ensure that services provided through Medicare are necessary, appropriate, and of high quality. In addition, PROs are involved with many aspects of Medicare administration. PROs operate on a total annual budget of $300 million per year (0.3 percent of total Medicare Part A and Part B expenditures). To qualify as a PRO, a statewide organization must demonstrate sponsorship by including at least 10 percent of the physicians practicing in the area (physician sponsored area) or must have available for PRO review at least one physician in every generally recognized specialty in the area (physician access organization). Third party payers can obtain PRO contracts if no other eligible organization is available. PROs are financed through competitively awarded contracts. Compared with the grant mechanism used in the professional standards review organizations (PRSO) program (precursor to PROs), contracting makes the program more centrally manageable but restricts local entities' ability to respond flexibly and sensitively to local problems and needs. PRO contracts are established for three years and can be renewed or cancelled and put up for competitive bidding.

The scope of work (SOW) performed by a PRO is specified in the request for proposal sent out by the Secretary of the U.S. Department of HHS. The current SOW emphasizes quality assurance by requiring retrospective review of all inpatient hospital cases, generic quality screening, discharge review, admission review, review of invasive procedures, DRG validation, coverage review, and determination of the application of the waiver of liability provision. Cases are identified for review through a random sampling process that constitutes 3 percent of all Medicare admissions. Other cases are selected for review based on specific reasons that reflect concern about the use of services, costs, or quality. Altogether, the pool of cases under review constitutes almost 25 percent of Medicare admissions (Lohr, 1990). In addition, PROs are required to review 10 procedures (specified by HCFA) on a preadmission or preprocedure basis, for necessity and for appropriateness of setting. However, each PRO establishes its own authorization criteria (often in consultation with physician groups).

PROs differ in the types of clinical factors or levels of patient functioning they require to be present (or absent) before they will approve a procedure.

PROs can pursue several courses of action when they have confirmed a quality or utilization problem. They can notify providers of problems, place them on intensified review, require a wide variety of corrective actions, or institute sanction procedures.

State Government

State governments are involved in assuring the quality of care provided within the state and use this authority and responsibility to license both health care institutions and individual providers. States usually operate licensing programs for physicians, hospitals, and health maintenance organizations (HMOs). The past two decades have produced a rapid expansion of both HMOs and freestanding providers that provide specific health care services outside of the traditional settings of hospitals, nursing homes, and physician offices.

States license many types of freestanding providers, including alcohol and drug abuse treatment centers, ambulatory care centers, ambulatory psychiatric centers, ambulatory surgical centers, cancer treatment centers, cardiac catheterization laboratories, rehabilitation centers, diagnostic imaging centers, emergency centers, general diagnostic centers, home health care services, hospice care centers, independent clinical laboratories, and pain control centers. Although there are federal quality assurance standards for ambulatory surgical centers, home health care services, hospice care centers, clinical laboratories, and comprehensive rehabilitation centers choosing to participate in Medicare, there are no federal quality assurance standards for the other types of freestanding providers. These providers are essentially unregulated unless the state imposes quality assurance requirements through its licensing and inspection process.

States generally require an HMO to obtain a license (usually called a certificate of authority) to operate, and a growing number of states have enacted quality assurance requirements as part of their HMO licensing laws.

Some health industry experts have raised concerns about the quality of care in the growing numbers of freestanding providers and HMOs that perform complex medical procedures traditionally provided in highly regulated hospitals. These concerns are related to the perception that no one is taking steps to assure consumers that they will receive quality care from these freestanding providers. **States frequently do not require freestanding providers to obtain a license to operate. Those states with licensing requirements have generally established minimum requirements for quality assurance, conducted on-site inspections to determine compliance with such requirements, and imposed sanctions on providers not in compliance.** Of the nine types of providers known to be operating in more than 30 states in 1987, three (alcohol and drug abuse treatment centers, ambulatory surgery centers, and home health agencies) were required to have a license to operate in more than 70 percent of the states where they were operating. The remaining six types of providers (ambulatory care centers, ambulatory psychiatric centers, diagnostic imaging centers, hospices, independent clinical laboratories, and comprehensive rehabilitation centers) were allowed to operate without licenses in 20–35 of the states where they were known to be operating (U.S. General Accounting Office, 1990).

On-site inspections of the quality of care provided by HMOs were being conducted at the time of the study in 1987 in 22 of the 50 states and the District of Columbia. States generally require an HMO to obtain a license (usually called a certificate of authority) to operate, and a growing number of states have enacted quality assurance requirements as part of their HMO licensing laws. Although primary responsibility for regulating HMOs is generally held by a commissioner of insurance, quality assurance requirements are usually

the responsibility of a department of health or similar state agency (U.S. General Accounting Office, 1990). In addition to licensing all types of providers, many states influence technology assessment through their certificate of need (CON) programs. These programs require providers (or manufacturers of medical technology) to demonstrate that a new technology is in fact needed by patients within the state. Structural measures are important in state government regulation.

Pennsylvania began to require hospitals to implement the MedisGroups system in 1989 and to release the data from that data base to the state's Health Care Cost Containment Commission. The commission then releases reports comparing costs and adjusted mortality and morbidity information. These data have been used by a number of employers and insurers within the state of Pennsylvania in negotiating with hospitals and by hospitals in marketing themselves.

A number of other states have also been collecting and disseminating information about providers, primarily hospitals, within their states. Over 30 states collect hospital discharge data, and many states, including Florida, Illinois, and Wisconsin, release reports to the public on costs of selected procedures. Most of these reports do not attempt to evaluate quality.

External Accreditation and Standards

Private organizations such as JCAHO provide external review and certification of quality standards in hospitals and other health care institutions. JCAHO's accreditation can substitute for conditions of participation approval for Medicare and Medicaid. Legal action against malpractice is another form of governmental plus private action to assure quality standards.

Of the approximately 6,800 hospitals in the United States, 5,000 are surveyed by JCAHO. Although submitting to JCAHO evaluation is voluntary, accreditation, along with certain additional criteria, can be a condition of participation in Medicare and Medicaid. JCAHO conducts a complete survey of each eligible hospital once every three years and assesses each hospital's compliance with over 2,000 standards. The purpose of JCAHO hospital accreditation has been to evaluate each hospital's overall capability of providing medical care (rather than to evaluate specific processes). In the past, JCAHO has relied exclusively on structure and process standards to evaluate an organization's ability to provide high quality medical care. Recent changes attempt to incorporate outcomes measures into the review process. JCAHO has expanded its focus beyond hospitals to other health care delivery organizations and announced in June 1994 that it would begin accrediting managed care organizations.

Hospitals that want to treat Medicare and Medicaid patients but choose not to be surveyed by JCAHO or cannot meet JCAHO's eligibility or accreditation criteria may be certified by HCFA. Most HCFA-certified hospitals are small rural community hospitals. HCFA uses survey methods that are somewhat different from JCAHO's. For example, HCFA hospital reviews are conducted annually rather than every three years, HCFA has substantially fewer standards than does JCAHO, and HCFA's conditions of participation are much less detailed than JCAHO's. Generally, one percent or less of the hospitals surveyed by HCFA each year are terminated from the program involuntarily. The quality measures used in the HCFA certification process include those of structure and process, not outcomes.

Structural measures of quality of care remain an important part of the quality assessment being done in the marketplace today. The National Committee for Quality Assurance (NCQA) is an independent body that accredits managed care plans. The criteria for accreditation are almost entirely structural. For example, NCQA looks at physician credentials and whether the health plan has a system for evaluating the quality of care it provides. In June 1994 NCQA released for the first time the list of 156 plans it reviewed for accreditation. Twenty-nine

percent of these plans received full accreditation, 36 percent received a one-year accreditation, and 24 percent received provisional accreditation. Only 3 percent were denied accreditation, and the other 8 percent are under review.

Purchasers

Private health plans and public programs have been evolving rapidly in the last decade in response to health care cost inflation. The reaction of employers to increases in health care costs has varied depending on the labor market they face, the amount of competition in their product market, and their level of market power in their specific health care services markets. Generally, their response has been to adopt various cost management strategies.

Managed care, for example, relies on monitoring physician treatment patterns in a variety of ways (UR, physician profiling, and case management) and changing the financial incentives faced by providers. The first approach requires an explicit definition of the quality of health care services. Without that definition there are no criteria for evaluating care as it is being provided. Changing provider incentives also relies on quality of care measures. It would be difficult to justify a financial incentive to provide too little care if there were no checks on the quality of care being provided under such incentives.

Providers have increasingly found that their medical decision making and practice styles are being monitored by purchasers as new health care delivery systems are being formed. The American Medical Association found that 39 percent of surveyed physicians were subject to clinical profiling, which it defines as "the collection and use of clinical, performance-based measures such as patterns of treatment, health care outcomes, and patient satisfaction for the purpose of comparing individual data with those of some comparison group" (Emmons and Wozniak, 1994) (table 1). The same survey found that 22 percent of physicians were subject to economic profiling, defined as "the collection and use of data on costs, charges, claims, reimbursement per admission or diagnosis related group for the purpose of comparing individual data with those of some comparison group." Clearly these two definitions overlap in many respects.

Table 1
Percentage of Physicians Subject to Clinical or Economic Profiling

	Clinical Profiling	Economic Profiling
Total	39%	22%
Specialty		
General/family practice	38	23
Internal medicine	41	25
Surgery	36	21
Obstetrics	39	21
Pediatrics	45	23
Psychiatry	41	19
Radiology	36	14
Anesthesiology	40	25
Pathology	35	28
Other	40	22
Employment		
Employee	43	22
HMO[a]	48	19
Self-employed	37	23
PPO[b] contract	41	24
HMO contract	44	24
IPA[c] contract	47	28
Census Region		
Northeast	40	22
North Central	39	23
South	36	21
West	43	24

Source: David W. Emmons and Gregory D. Wozniak, *Socioeconomic Characteristics of Medical Practice, 1993* (Chicago, IL: American Medical Association, 1994).
[a]Health maintenance organization.
[b]Preferred provider organization.
[c]Independent practice association.

Physician profiling provides insurers and employers with outcome and process measures of quality of care. Managed care networks rely on these measures in selecting providers in an attempt to provide high quality care while managing health care costs. Physicians employed by HMOs and those with contracts with individual practice arrangements (IPAs) are more likely to have been profiled than self-employed physicians. The regional differences in managed care plan penetration largely explains the regional differences in physician profiling.

A number of employer groups have pushed providers to implement quality of care measures. The New Orleans Business Coalition on Health has been successful in getting local hospitals to imple-

ment both MedisGroups and Iameter severity adjustment methodologies so that outcomes could be compared. Severity adjusted outcomes are important measures of the quality of health care and have only recently been implemented. These measures can produce a great deal of information that can be used to identify the best practices and to create practice guidelines.

In Cincinnati, four employers, Proctor and Gamble, The Kroger Company, Cincinnati Bell, and General Electric Aircraft Engines, with approximately 168,000 employees combined, asked 14 local hospitals to participate in a quality assessment program using Iameter methodology for adjusting for severity of illness. While some hospitals accepted the program, some participated only because of the market power of the four employers in the local health care services market. While the initial portion of the program was designed to give hospitals feedback on the quality of care they provide, eventually the employers will use the information in their purchasing decisions. The result may well be that some hospitals will not survive if they do not get at least a portion of the patients insured through these employers.

Health Plan Employer Data and Information Set (HEDIS)—There are potential problems associated with collecting data to be used in quality assessment programs. First, different health plans not only routinely collect different data, but they also collect and process these data using different formats and software, which often makes the data incompatible. Second, differences in types of data under different health plans can be exacerbated by variations in how the same event is coded, processed, used, and stored in different plans. Third, there is lack of confidence in the general validity of the data and in the ability of the data to reflect what is really occurring in a given plan. Fourth, there is lack of consistency in the data being requested for use by employers and other organizations. HEDIS attempts to alleviate these problems.

As early as 1989, several employers and managed care organizations began work on HEDIS. It was conceived as a practical tool for large purchasers to use in judging the comparative value of competing health care plans. The founders felt that developing a set of standardized measures was necessary for quality assessment. HEDIS was and continues to be a private-sector initiative, as it has spanned four years of input and revision from hundreds of health plan executives, consultants, physicians, researchers, and management information systems experts.

The HEDIS 2.0 effort was led by NCQA. HEDIS formation originated among the HMO Group, a consortium of 17 group and staff model HMOs, along with four large employers (Bull HN Information Systems, Digital, GTE, and Xerox) and benefits consultants in 1989. Kaiser Permanente joined a few months later. The participating employers, like their colleagues, faced escalating health care benefit costs and a lack of data to evaluate what they were purchasing. After areas needing improvement were identified, the document was turned over to NCQA.

In October 1992, NCQA organized a Performance Assessment Committee, which was assigned the task of devising performance measures that would document health plan value. The committee included the four original employers, Aetna Health Plans, Harvard Community Health Plan, Kaiser Permanente, Prudential Insurance Company, United Health Corporation, and U.S. Health Care. Additionally, the committee drew technical expertise from the HMO Group and the Minnesota Utilization Data Definitions Committee.

The selection of performance measures was based on the measures' relevance and value to employers, the reasonable ability of health plans to provide the desired data in the specified manner, and the measures' potential impact on improving quality and process of care delivery. The draft document of HEDIS 2.0 was released for comment in May 1993. A final version was released in November 1993.

HEDIS is a core set of performance mea-

HEDIS

HEDIS is designed to measure five major performance categories: health plan quality, access and patient satisfaction, membership and utilization, finance, and management and activities.

Health Plan Quality. These criteria are designed to measure preventive medicine, prenatal care, acute and chronic diseases, and mental health. Indicators are:

- preventive medicine
- childhood immunization
- cholesterol screening
- mammography screening
- cervical cancer screening
- prenatal care
- low birth weight
- prenatal care in the first trimester
- acute and chronic diseases
- inpatient admissions for asthmatics
- diabetic retinal examinations
- mental health
- patients receiving an ambulatory followup visit after hospitalization for a major affective disorder

Access and Patient Satisfaction. Indicators are:

- access
- percentages of plan members between ages 23–39 and 40–64 who have visited the plan in the previous three years
- number and percentage of primary care physicians accepting new patients
- provision of plan access standards for various types of visits and for telephone response satisfaction
- percentage of members who say they are satisfied with the plan
- provision of satisfaction surveys

Membership and Utilization. Indicators are:

- enrollment and disenrollment figures
- frequency and average cost of nine common diagnosis related group (DRG) categories
- frequency of seven selected high cost procedures
- inpatient utilization rates for general acute or hospital care, including surgery, maternity, and newborns
- ambulatory care utilization rates, including outpatient visits, emergency room visits, and ambulatory surgery or procedures
- inpatient utilization rates for nonacute care in nursing homes, rehabilitation facilities, hospices, transitional facilities, and respite facilities
- total deliveries, with subdivision of vaginal births and cesarean sections
- length of stay for well and complex newborns
- mental health treatment in inpatient, day/night, and outpatient locations
- readmission rates for major affective disorders
- chemical dependency treatment in inpatient, day/night, and outpatient locations
- readmission rates for major affective disorders
- chemical dependency treatment in inpatient, day/night, and outpatient locations
- average costs and number of prescription drugs per member

Finance—This category is designed to measure plans' performance in achieving financial stability and consists of 14 indicators that encompass:

- financial performance
- liquidity
- efficiency
- compliance with statutory requirements
- information on premium trends

Management and Activities—Unlike the other four sections, this category consists of written narratives rather than objective measurements. It includes information regarding provider recredentialing and utilization review, which cannot be quantified but may help employers with value and accountably assessments.

sures that can be adapted to serve the needs of other purchasers, whether individuals, cooperatives, or government entities (see HEDIS Box). HEDIS can enhance health plans' internal quality by helping them establish benchmarks for performance in specific areas. Three employers piloted HEDIS for their health plans: Xerox Corporation, GTE Corporation, and Digital Equipment Company. As a continuation of the HEDIS project, 21 health plans will participate in a one-year pilot project testing the development of a report card summarizing some of the HEDIS findings.

HEDIS clearly relies primarily on struc-

tural and process measures of quality. The major outcome measures are patient satisfaction and readmission rates for major disorders. The reliance on structural and process measures is a reflection of the state of the art of developing validating outcome measures.

HEDIS has been criticized as focusing on measures that favor HMOs over other health plans. Many of the measures reflect common practice within prepaid plans. The focus on preventive medicine and on hospital admission rates is likely to favor HMOs over fee-for-service plans.

However valid these criticisms may be, HEDIS is clearly a step forward in measuring the quality of care. If HEDIS is flawed in measuring the absolute quality of care, it does provide a framework for evaluating relative quality. While both dimensions are desirable, it is the latter that is necessary for the market to function properly.

The Future

The goals of quality assessment need to be carefully considered in the development and implementation of any quality measure to be used in the health care delivery system. Simply creating practice guidelines or performing outcomes studies is unlikely to change provider behavior without some other incentives. If the goal is to achieve cost savings, then changing provider behavior may achieve only one-time savings unless a mechanism exists for evaluating new technologies or treatments relative to existing treatments.

If quality assessment is used as a rationale for allocating health care resources across a population, whether it is the population of the United States or the enrollees in an HMO, the criteria for evaluating quality differ from those intended to measure the quality of care received by individuals. It is important to understand the underlying aggregate measures of quality of care. Many of these measures may place implicit values on quality of life and other factors that affect the ranking of alternative practices, providers, or sites of care.

Lacking measures of quality of care, the only basis for making resource allocation decisions will be cost. One of the causes of health care cost inflation is that, lacking good information to evaluate the relative quality of care, patients and purchasers have tended to err on the side of buying whatever services had any potential to improve health. Continued health care cost inflation implies that at some point some entity (an employer, a medical director of a health plan, or the government), lacking measures of quality of care, will have to begin to err on the side of choosing the least cost method of treating an ailment.

There have been great strides in the measurement of the quality of health care services, but there clearly remains much more to be done. Employers and other purchasers have not yet been presented with standardized measures of quality of care, nor are most employers using these measures in their purchasing decisions. Foster Higgens' survey of managed care plans and providers found that 69 percent of the respondents, when asked to rank seven factors in order of importance to their marketplace success, rated price first or second. While 50 percent rated patient satisfaction as first or second, only 20 percent rated quality improvement as first or second, and only 9 percent rated published outcomes as first or second (A. Foster Higgins & Co., Inc., 1994).

Many analysts believe that the future evolution of the health care delivery system will be driven by the development of measures of the quality of care. For the market for health care services to function properly, purchasers of health care services must be able to assess what they are purchasing.

This *Issue Brief* was written by EBRI Fellow William Custer, Ph.D. president of Custer Economic Research, with assistance from EBRI's research and education staffs.

Bibliography

A. Foster Higgins & Company, Inc. *Survey on Outcomes Management.* Princeton, NJ: A. Foster Higgins & Company, Inc., 1994.

Aaron, Henry, and William Schwartz. "Rationing Health Care: The Choice before Us." *Science* (January 1990): 418–422.

Allen, Harris, et al. "The Employee Health Care Value Survey: Round One." *Health Affairs* (Fall 1994): 25–41.

Arrow, Kenneth. "Uncertainty and the Welfare Economics of Medical Care." *American Economic Review* (December 1963): 941–973.

Baker, Robert. "The Inevitability of Health Care Rationing: A Case Study of Rationing in the British National Health Service." In *Rationing America's Medical Care: The Oregon Plan and Beyond.* Washington, DC: The Brookings Institution, 1992.

Cleary, Paul D., and Barbara J. McNeil. "Patient Satisfaction as an Indicator of Quality Care." *Inquiry* (Spring 1988): 25–36.

Davies, Allison Ross, and John E. Ware. *GHAA's Consumer Satisfaction Survey and User's Manual.* Washington, DC: Group Health Association of America, 1991.

Donabedian, Avedis. "The Quality of Care: How Can It Be Assessed?" *Journal of the American Medical Association* (September 23–30, 1988): 1743–1748.

Eddy, David M. "Rationing Resources While Improving Quality: How to Get More for Less." *Journal of the American Medical Association* (September 14, 1994): 817–824.

Eddy, David M., and John Billings. "The Quality of Medical Evidence: Implications for Quality of Care." *Health Affairs* (Spring 1988): 19–32.

Emmons, David W., and Gregory D. Wozniak. "Physician Profiling." *Socioeconomic Characteristics of Medical Practice, 1993*. Chicago, IL: American Medical Association, 1994.

Employee Benefit Research Institute/The Gallup Organization, Inc. "Public Attitudes on Health Reform, 1993." G-49. Washington, DC: Employee Benefit Research Institute, 1993.

_____. "Public Attitudes on Health Reform, 1994." G-60. Washington, DC: Employee Benefit Research Institute, 1994.

Gray, Bradford H., and Marilyn J. Field, eds. *Controlling Costs and Changing Patient Care?: The Role of Utilization Managment.* Washington, DC: Institute of Medicine, National Academy Press, 1989.

Ginsburg, Paul B., and Glenn T. Hammons. "Competition and the Quality of Care: The Importance of Information." *Inquiry* (Spring 1988): 108–115.

Grogan, Colleen M., et al. "How Will We Use Clinical Guidelines? The Experience of Medicare Carriers." *Journal of Health Politics, Policy and Law* (Spring 1994): 7–26.

Iezzoni, Lisa I. "Monitoring Quality of Care: What Do We Need to Know." *Inquiry* (Summer 1993): 112–114.

Institute of Medicine. *America's Health in Transition: Protecting and Improving Quality.* Washington DC: National Academy Press, 1994.

Kahn, K.L., et al. "Comparing Outcomes of Care Before and After Implementation of the DRG-based Prospective Payment System." *Journal of the American Medical Association.* Vol. 264 (1990): 1989–1994.

Lohr, Kathleen N., ed. *Medicare: A Strategy for Quality Assurance*. Vol. 1. Washington, DC: National Academy Press, 1990.

Lohr, Kathleen N. "Outcome Measurement: Concepts and Questions." *Inquiry* (Spring 1988): 37–50.

Manning, Willard G., et al. "Health Insurance and the Demand for Medical Care." *The American Economic Review* (June 1987): 251–276.

Rowland, Diane, and Barbara Lyons. "Mandatory HMO Care for Milwaukee's Poor." *Health Affairs* (Spring 1987): 87–100.

Strumwasser, Ira, et al. "Reliability and Validity of

Utilization Review Criteria: Appropriateness Evaluation Protocol, Standardized Medreview Instrument, and Intensity-Severity-Discharge Criteria." *Medical Care* (February 1990): 95–111.

U.S. Congress. Office of Technology Assessment. *Does Health Insurance Make a Difference?* Background Paper. OTA–BP-H-99. Washington, DC: U.S. Government Printing Office, 1992.

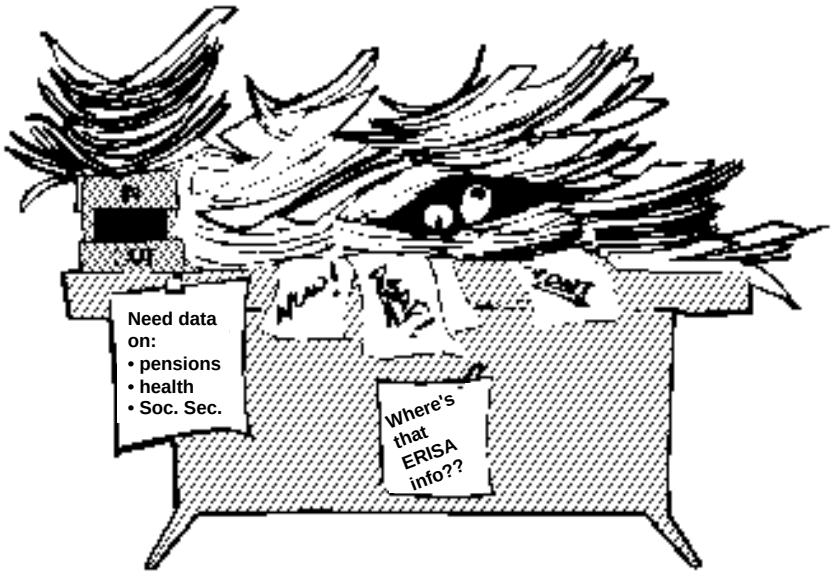
U.S. General Accounting Office. *Health Care: Limited State Efforts to Assure Quality of Care Outside Hospitals.* Washington, DC: U.S. General Accounting Office, 1990.

Wennberg, John, and Alan Gittelson. "Variations in Medical Care among Small Areas." *Scientific American* (April 1982): 120–135.

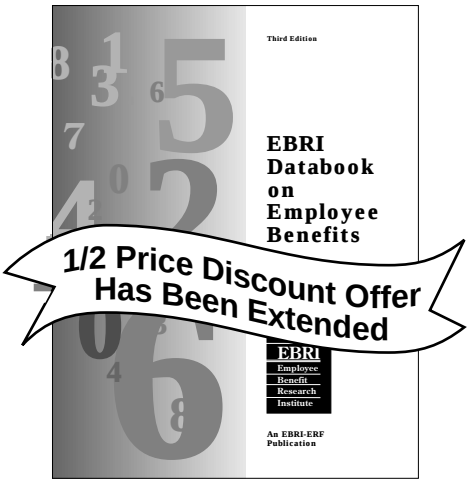
Wyszewianski, Leon. "Quality of Care: Past Achievements and Future Challenges." *Inquiry* (Spring 1988): 13–24.

SPECIAL 1/2 PRICE OFFER

HAVING TROUBLE FINDING THE INFORMATION YOU NEED?



- **The third edition of the *EBRI Databook on Employee Benefits* includes over 350 tables and charts presenting vital statistics on the employee benefits system.**
- **Topics include the retirement income system; employe- sponsored benefit plans; government programs such as Social Security, Medicare, and Medicaid; health insurance; and labor force and demographic trends.**



- **The *Databook* is also fully indexed and includes a glossary of terms used in the book, legislative history of employee benefit programs, and reference guide listing sources for further research.**
- **The *EBRI Databook* includes data from dozens of sources to provide a comprehensive analysis of how the employee benefits system works, who and what its various functions affect, and its relationship with the U.S. economy.**
- **Tables and charts are supplemented by explan atory text to provide detailed information on the entire range of employee benefit programs and work force related issues.**

GET ALL YOUR BENEFITS DATA FROM ONE SOURCE

EBRI
EMPLOYEE
BENEFIT
RESEARCH
INSTITUTE

Our 1/2 price pre-publication discount has been extended. To place your pre-publication order and receive the *Databook* for only $17.98 (regularly $35.95), call EBRI publications at (410) 516-6946. Please mention the discount when ordering.

For information on other EBRI publications or EBRI membership, call (202) 659-0670.

EBRI
EMPLOYEE BENEFIT RESEARCH INSTITUTE ®

Issue Brief

The Employee Benefit Research Institute (EBRI) is a nonprofit, nonpartisan public policy research organization based in Washington, DC. Established in 1978, EBRI provides educational and research materials to employers, employees, retired workers, public officials, members of the press, academics, and the general public. The Employee Benefit Research Institute Education and Research Fund (EBRI-ERF) is a nonprofit, nonpartisan education and research organization established by EBRI in 1979. EBRI-ERF produces and distributes a wide range of educational publications concerning health, welfare, and retirement policies. Through its books, policy forums, and monthly subscription service, EBRI-ERF contributes to the formulation of effective and responsible health, welfare, and retirement policies. EBRI and EBRI-ERF have—and seek—a broad base of support among interested individuals and organizations with interests in employee benefits education, research, and public policy.

EBRI Issue Briefs provide expert evaluations of employee benefit issues and trends, as well as critical analyses of employee benefit policies and proposals. ***EBRI Notes*** provides up-to-date information on a variety of employee benefit topics. ***EBRI's Benefit Outlook*** provides a comprehensive legislative bill chart coupled with observations on the likelihood for passage of employee benefits-related legislation. ***EBRI's Quarterly Pension Investment Report (QPIR)*** provides historical data on net contributions to pension plans and investment allocation by plan type, total plan assets and their investment mix by plan type, and short- and long-term earnings. ***EBRI's Washington Bulletin*** provides sponsors with short, timely updates on major developments in Washington in employee benefits.

EBRI also publishes EBRI/Gallup public opinion surveys, special reports, studies, and books.

For information on subscribing to EBRI publications or on becoming a member of EBRI, call or write to EBRI at 2121 K Street, NW, Suite 600, Washington, DC 20037-1896, (202) 659-0670.

Nothing herein is to be construed as necessarily reflecting the views of the Employee Benefit Research Institute or the Employee Benefit Research Institute Education and Research Fund or as an attempt to aid or hinder the passage of any bill pending before Congress.

EBRI Issue Brief is registered in the U.S. Patent and Trademark Office
ISSN: 0887-137X 0887-1388/90 $ .50 + .50 .