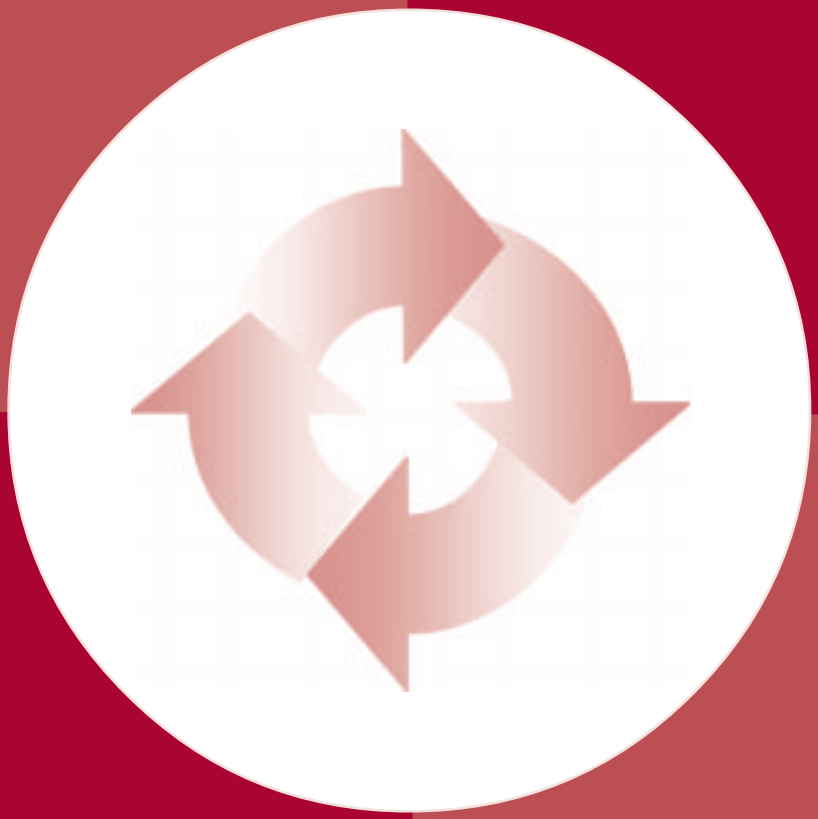
Reducing the Costs of Poor-Quality Health Care Through Responsible Purchasing Leadership



by

Midwest Business Group on Health

in collaboration with

Juran Institute, Inc.

The Severyn Group, Inc.

MBGH
Midwest Business Group on Health

Contributors

The Midwest Business Group on Health would like to thank our members and friends for their financial support of this project. With their help, we have identified steps that will assist public and private organizations to improve quality and reduce cost by working with their covered employees, beneficiaries, health plans, and providers.

- Aircraft Gear/Dean A. Olson Foundation
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About the Authors

Midwest Business Group on Health (MBGH) is a nonprofit, regional, tax-exempt coalition of public and private employers across 11 states that are working together to provide leadership and knowledge to continuously improve the quality and cost-effectiveness of health services. MBGH was founded in January 1980 by a small group of midwestern employers that were concerned about the impact of escalating health care costs on the competitiveness of U.S. employers and the welfare of their employees, families, and the population at large. Since that time, MBGH has evolved its work to help all types of purchasers obtain greater value from their health care benefit dollars. For more information, contact:

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Juran Institute, Inc., is a leading worldwide provider of training, consulting services, and e-learning resources to help clients improve the performance of their products, services, and processes. Since 1979, the Institute has enabled organizations to achieve sustainable breakthrough results. Juran Institute offers a staff of professionals who have superior academic and professional credentials and a broad base of knowledge and hands-on experience that is unparalleled in the field. They deliver quantifiable value to clients by enabling them to measure the financial results of their customer-focused initiatives in marketing, sales, operations, human resource, and finance functions. For more information, contact:

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The Severyn Group, Inc., specializes in conducting qualitative and quantitative research, and writing, editing, and producing publications, Web site content, and electronic presentations for training and education purposes. The company's clients include a broad spectrum of organizations that represent virtually all aspects of health care, including financing, management, delivery, and performance measurement. For more information, contact:

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Executive Summary

The Problem with Poor-Quality Care in America

Most Americans assume that our health care system provides the best care in the world. Yet a variety of reports and statistics paint a very different picture—that of a health care system that is responsible for hundreds of thousands of avoidable deaths and preventable injuries, as well as hundreds of billions of dollars in unnecessary or avoidable costs for the organizations and individuals who finance care in this country. These national problems are largely hidden from purchasers and consumers at the community and health plan level.

In spite of the technological advances of the past 50 years, the quality of health care remains inadequate and highly variable, with errors occurring far too frequently and advances in clinical knowledge finding their way into practice far too slowly. Minorities appear to be disproportionately affected by quality problems within American health care.[1]

World-class competitiveness in manufacturing requires system error (or defect) rates of 230 or fewer per million opportunities. Fewer than five out of a million financial service transactions result in an error. Yet most processes within health care experience 6,000 to over 300,000 defects per million opportunities.[2] In other words, error rates within health care are orders of magnitude higher than in other industries.

A 1999 report by the Institute of Medicine (IOM) estimates that medical errors in the inpatient setting cause between 44,000 and 98,000 avoidable deaths each year, and even more injuries.[3] While experts debate the precise number of deaths and injuries, it is important to realize that even if the true figure is at the low end of the IOM's range, an unacceptably large number of people still die each year in the United States from inpatient medical errors.

Hospitals are not the only setting in which quality shortfalls occur; additional deaths and injuries occur in other settings. Nor is poor quality exclusively the result of medical errors. Unnecessary surgeries, tests, and other procedures—events that would not typically be classified as errors—put patients at risk while driving up health care expenses. This overuse appears to be more prevalent in communities with a high concentration of specialists and excess hospital capacity.

These quality problems not only exact a human toll in terms of lost lives and pain and suffering, but they also create a huge economic burden in terms of both the direct costs of treating complications and the indirect costs of lost productivity and premature death. Consider the following data:

- Based primarily on findings and extrapolations from published literature, as well as analyses conducted by Juran Institute and the reasoned judgment of knowledgeable experts, the authors estimate that **30 percent of all direct health care outlays today are the result of poor-quality care**, consisting primarily of overuse, misuse, and waste. (The impact of underuse on costs is not clear.)
- With national health expenditures of roughly $1.4 trillion in 2001,[4] the 30-percent figure translates into **$420 billion** spent each year as a direct result of poor quality.

- In addition, the indirect costs of poor quality (e.g., reduced productivity due to absenteeism) add an estimated 25 to 50 percent—or $105 to $210 billion—to the national bill.
- Private purchasers absorb about one-third of these costs. In fact, we estimate that poor-quality health care costs the typical employer between **$1,900 and $2,250** per covered employee each year.

The Annual Cost of Poor-Quality Care Per Covered Employee

$1,500	Direct Health Care Expense
$400 to $750	Indirect Cost (e.g., lost workdays)
$1,900 to $2,250	**Total Cost of Poor Quality**

A Note on Estimating Methodology

To estimate the costs of poor quality that are cited in this report, the authors primarily relied on a review of published literature and the experiences of Juran Institute hospital clients from 1987 to 2000. Some estimates of the costs of poor quality are based on extrapolations from single-institution studies to the employed population or the general population. The opinions of knowledgeable experts were used to provide a reality check. Also, this report benefited from the input of a national panel of well-respected experts drawn from both the health care and the business community.

Even if these figures are off by 50 percent, poor-quality health care exacts a several-hundred-billion-dollar toll on our nation each year.

Looking ahead, the picture only gets worse. Projections from the Centers for Medicare & Medicaid Services (CMS) suggest that by the year 2011, national health expenditures will reach $2.8 trillion, more than twice what they are today.[5] Unless action is taken, the total costs of poor-quality care will likely exceed $1 trillion by 2011, equivalent to over 6 percent of projected GDP, with private purchasers picking up approximately $350 billion of this tab.

Categories of Quality Problems

Such broad statistics shed light on the scope of performance problems but offer no insights into the nature of a dilemma that pervades the health care system. To better understand this dilemma, it is useful to classify the different types of quality problems into four categories: overuse, underuse of evidence-based care, misuse, and waste. Within each category, there are numerous examples of poor quality.

Examples of Overuse

A variety of surgical procedures, tests, medications, and treatments are overused, driving up costs unnecessarily while simultaneously exposing patients to risks of complication and sometimes even death. Examples include use of hysterectomies, cardiac catheterizations, tympanostomy, antibiotics, tranquilizers, sedatives, carotid endarterectomy, cardiac pacemakers, upper gastrointestinal endoscopy, and non-steroidal anti-inflammatory drugs.

There are several possible causes of overuse. For example, excess hospital supply in some geographic areas may lead to the overuse of hospital services for certain procedures and for the treatment of certain medical conditions, such as pneumonia, congestive heart failure, and chronic obstructive pulmonary disease. Researchers have also found that an excess supply of specialists within a geographic area can lead to an overuse of services within that specialty. Together, these factors contribute to higher health costs in certain communities.[6]

Examples of Underuse of Evidence-Based Care

There is ample evidence that many people are not receiving diagnostic and therapeutic services, medications, and procedures that have been proven to be effective. For example, providers routinely fail to administer a variety of evidence-based tests and treatments to heart attack victims and individuals with diabetes and congestive heart failure. Other underused services include: the administration of influenza and pneumococcal vaccines; screening tests for depression, breast cancer, and chlamydia; and follow-up after discharge from behavioral health care. While underuse of evidence-based care clearly causes premature death and diminished quality of life, its impact on overall health care expenditures is unclear.

Examples of Misuse

Medical errors represent the most common form of misuse within the health care system, with drug misuse representing the most frequent form of error. Other forms of misuse include hospital-acquired infections, diagnostic and surgical errors, and incorrect use of medical equipment.

Examples of Waste

Waste, primarily in the form of unnecessary administrative activities, is prevalent throughout health care, as it is in many other industries. In addition to driving up costs, waste can have a direct negative impact on service quality (e.g., waiting times), clinical quality, and access to care. Waste may also "crowd out" needed spending in other areas of health care. A number of experts believe that the potential to reduce costs by eliminating inefficiency is enormous.

Most Costly Quality Problems

Certain aspects of the health care system exact an especially large financial and human toll on the nation. The ten areas described below represent attractive targets for purchaser initiatives to reduce the costs of poor-quality health care.

- **Drug misuse**, broadly defined, results in more than 200,000 deaths and as much as $300 billion in expenditures each year. Many of these deaths and costs are likely avoidable.
- **Overuse of antibiotics** results in as much as $5 billion in unnecessary expenditures each year.
- **Overuse of inpatient care** for medical treatments that can be performed safely in an outpatient setting unnecessarily raises costs.
- **Preventable hospital-acquired infections** claim at least 20,000 and perhaps more than 60,000 lives each year, and result in up to $18 billion in unnecessary expenditures each year.
- The direct and indirect costs of **diabetes** are $132 billion annually. Underdiagnosis and inadequate treatment of the disease results in unnecessary expenditures as well as tens of thousands of cases of premature death, limb amputations, kidney disease, and blindness.

- The total economic burden from **depression** likely reached $80 billion in 2002. Underdiagnosis and inadequate treatment are common problems in those suffering from the illness. Analysis from one company suggests that depression can be one of the most costly illnesses, and that increasing use of pharmacy and outpatient services can reduce these costs.
- **Inadequate care after a heart attack** results in 18,000 unnecessary deaths each year.
- **Underuse of influenza and pneumococcal vaccinations** kills between 10,000 and 20,000 individuals each year.
- The direct and indirect costs of **asthma** are $18 billion annually; poor management of the disease results in expensive, acute episodes that undermine the quality of life for individuals who suffer from the disease.
- The direct costs of treating **congestive heart failure** (CHF) are $10 to $40 billion a year. Inadequate treatment of the disease results in expensive, acute episodes that undermine the quality of life for individuals with CHF.

Without purchaser participation, it is unlikely that the health care industry will be able to successfully solve these quality problems.

Fixing the Problem of Poor-Quality Care

Fixing quality problems within health care requires the redesign of systems and processes as well as changes in the conduct of individual practitioners, whose mistakes are inevitable given a complex working environment without proper incentives or the decision-support tools needed to improve quality. The authors of the IOM's *Crossing the Quality Chasm* report and other experts in the field call for a total revamping of these systems. The liberal use of information technology that can support practitioners in administrative and clinical processes would help to avoid errors and to minimize the damage caused by those errors that do occur.

Purchasers can play an important role in promoting this system redesign. In fact, without purchaser participation, it is unlikely that the health care industry will be able to successfully solve these quality problems.

The Purchaser as a Root Cause of Poor Quality

"Quality has to be the Holy Grail for health care for at least the next decade."

—Ken Kizer, CEO, The National Quality Forum

Historically, purchasers of health care benefits bear some responsibility for poor quality. While the root causes of poor-quality care are multifaceted, the actions (or lack thereof) of those who pay for the care—public and private purchasers—have contributed to quality levels remaining lower and more variable than they should be.

Specifically, purchasers knowingly or unknowingly promote poor-quality care through three distinct actions:

- Making contracting decisions based on price without also examining plan and provider performance
- Using transaction-based (rather than outcomes-based) payment structures that discourage quality improvement and promote waste
- Failing to engage the consumer (employees and beneficiaries) on quality issues

Public and private employers represent the largest block of consumers in the health care industry. Yet these employers and their employees continue to accept underuse and to pay for overuse, misuse, and waste without a clear strategy for addressing these problems. Until purchasers (and consumers) demand higher quality, there is little or no reason for the system to improve.

The Four Steps of Responsible Health Care Purchasing

Whether purchasers are public or private, small or large, insured or self-insured, strategies are available that allow them to play a leadership role in addressing the human and financial costs of poor-quality care. MBGH invites all public and private purchasers of health care to adopt a Responsible Health Care Purchasing Statement. See Appendix E for a model of this statement of principles.

The main body of the report lays out a four-step action cycle that responsible purchasers can employ. While relatively few organizations employ these strategies today, some pioneers have embarked on them.

Step #1: **Identify** high-priority problems by analyzing current data.

Step #2: **Measure** the performance of your plans and providers, and **engage** them in continuous improvement (e.g., six-sigma) programs.

Step #3: **Educate and share** performance information with your employees, beneficiaries, and the public at large.

Step #4: **Reward** high-quality (and **penalize** poor-quality) plans and providers through direct incentives (or sanctions), public recognition of best performers, incentives for consumers to choose quality, shared-savings contracts, and/or selective contracting.

This action cycle can be applied to each of the high-priority problem areas identified in Step #1. Purchasers can use this methodology to tackle several problem areas over a one- or two-year period, and thus significantly reduce both the human and financial costs of poor quality. Implementing these initiatives will require a commitment of both time and money on the part of purchasers, health plans, and providers. In the short term, these outlays may significantly cut into the net financial savings. However, over the long term, the implementation costs should fall while the cost savings from quality improvement continue to accrue—and potentially increase—year after year.

Finally, purchasers must be willing to share some of the cost savings generated from quality improvement with those plans and providers that make the effort to improve. Health care organizations often resist investing in quality improvement because they reap no economic reward—and in some cases suffer a financial penalty—for these activities.

Purchasers must be willing to share some of the cost savings generated from quality improvement with those plans and providers that make the effort to improve.

Advice to Employers: Collaborate with Others

While a few of the strategies outlined in this report can be implemented by an individual employer, most of the initiatives require resources and expertise that are available only in very large organizations or through collaborative efforts. For that reason, the vast majority of companies should consider collaborating with others through business coalitions, associations, health plan user groups, and/or local employer associations. In addition to providing access to needed expertise, a cooperative approach creates added leverage and economies of scale, as providers and plans are more likely to pay attention to quality improvement initiatives if the sponsors of that initiative represent more people.

"Of course we are terribly dependent upon our employees for the operation of our business. But more than that, I personally believe we also have a moral obligation to our loyal workers to provide a safe workplace and safe health care."

– Dean Olson, president of Aircraft Gear, a precision parts manufacturing firm in Rockford,

Conclusion

This report is intended to be a "wake-up call" for purchasers, spurring them to adopt innovative strategies for improving the performance of plans and providers, with the ultimate goal of lowering costs and improving health outcomes. The problems that contribute to poor-quality health care are not new. What is new are the overall estimates of these costs in both financial and human terms, and the means by which purchasers can address these problems. Now is the time for concerted action. MBGH believes that purchasers are in the best position to lead the charge and have a strong financial incentive to do so.

[1] Merry, MD, and Brown, JP. 2002. "From a Culture of Safety to a Culture of Excellence: Quality Science, Human Factors, and the Future of Healthcare Quality," *Journal of Innovative Management*. 7(2): 29-46.

[2] Kohn, LT, Corrigan, JM, and Donaldson, MS (Eds). 1999. *To Err Is Human: Building a Safer Health Care System*. Institute of Medicine, published by National Academy of Sciences; Becher, Elise C. and Chassin, Mark R. 2001. "Improving the Quality of Health Care: Who Will Lead?" *Health Affairs* 20(5):164-179.

[3] Institute of Medicine (IOM). 2002. *Minorities More Likely to Receive Lower-Quality Health Care, Regardless of Income and Insurance Coverage*. National Academy of Sciences press release announcing release of new IOM study, *Unequal Treatment: Confronting Racial and Ethnic Disparities in Health Care*. The full press release and report are available at http://national-academies.org.

[4] Tieman, Jeff. 2003. "Hospital Care Fuels Spending," *Modern Healthcare* (January 13).

[5] Graham, Judith. 2002. "Forecast has health costs rising faster," *Chicago Tribune* (March 12). Available on www.chicagotribune.com/news/nationworld/chi-0203120286mar12.story.

[6] The Center for the Evaluative Clinical Sciences, Dartmouth Medical School. 1999. *The Quality of Medical Care in the United States: A Report on the Medicare Program, The Dartmouth Atlas of Health Care 1999*, pp. 128-129.

Introduction and Methodology

Midwest Business Group on Health (MBGH), a non-profit coalition of major public and private employers in eleven states, believes that health care purchasers and government are central to improving the quality and cost-effectiveness of health services. Acting upon this conviction, MBGH recently assembled a diverse panel of leading experts from the health care and business communities to probe the issue of poor-quality health care, with a particular focus on the financial and human costs of poor quality. A complete list of the panel can be found in Appendix A.

Through group and one-on-one discussions with these senior executives, MBGH and Juran Institute, Inc., began to identify the most pressing quality problems within health care, as well as data sources for further examination of these problems and potential strategies for addressing them. Based on a review of available published literature and data, interviews with experts, and an analysis of Juran Institute hospital client experiences, MBGH, Juran Institute, and Severyn Group staff attempted to quantify the financial and human losses brought about by poor-quality health care, and to identify purchaser-initiated strategies with the potential to reduce or eliminate poor-quality health care.

Estimates Represent a First Cut

The "costing out" of poor-quality health care is not an exact science, and our estimates are a first cut that clearly need further refinement. In addition, more work is needed to test and prove the efficacy of the strategies for reducing the costs of poor quality that are profiled in this report.

This report explicitly focuses on purchasers—both in terms of the costs that poor quality imposes on them and the role that they should play in solving performance problems. Specifically, the report is intended to do the following:

- Provide further clarification of the costs of quality problems, both at a macro level and with respect to the care of specific diseases and other problem areas that are known to have a major financial and/or human impact.
- Explain how the current actions and decisions of purchasers contribute to poor-quality care in this country.
- Create a more compelling "business case" for purchasers to promote quality improvement among plans and providers.
- Advocate a Responsible Health Care Purchasing Policy for widespread adoption by public and private purchasers. (See Appendix E for a model policy statement.)
- Identify a variety of potential strategies that private employers, public purchasers, and local purchasing coalitions can use to improve the performance of their plans and providers. New and thought-provoking approaches are included, as well as more established strategies that are still rare in the purchasing community.

This report is an attempt to inform leaders in business and government of the financial and human toll that quality problems impose on the nation, and to provide an expansive menu of recommended strategies for reducing costs and saving lives by solving or avoiding these problems. We hope these data and ideas will motivate employers and other purchasers to adopt a conscious purchasing policy and play an active role in designing, implementing, and measuring the results of strategies to address these problems.

Responsible Purchasing Web Site Offers Updates

In July 2003, MBGH will create a special section on its Web site that will serve as a clearinghouse for information on responsible purchasing. This site will include supplemental materials and tools that expand upon the information contained in this report, including progress reports on responsible purchasing demonstration projects that are currently underway.

MBGH invites all interested parties to periodically visit its Web site (www.mbgh.org) to access these updates. If you would like to be included on a mailing list to receive automatic notification when new materials are posted to the site, please send an e-mail to responsiblepurchasing@mbgh.org.

Section 1:

The Problem with Poor-Quality Care in America

American consumers have recently come to question a long-held belief about the health care they receive. For decades, the health care system in the United States was thought to provide the best care in the world, as it tapped into the newest technologies, the most highly trained practitioners, and the largest budget of any nation.

Yet reports and statistics released within the last few years paint a very different picture—that of a health care system plagued by widespread preventable errors, unnecessary procedures, and misused and underused services. In turn, these manifestations of poor-quality care have led to tens (if not hundreds) of thousands of avoidable deaths, hundreds of thousands of preventable injuries, and billions of dollars in unnecessary costs for those organizations and individuals who finance care in this country. Consider the following excerpts taken from recent landmark publications:

> "*The American health care delivery system is in need of fundamental change . . . the frustration levels of both patients and clinicians have probably never been higher . . . health care today harms too frequently and routinely fails to deliver its potential benefits . . . quality problems are everywhere, affecting many patients . . . between the health care we have and the health care we could have lies not just a gap, but a chasm.*" (Institute of Medicine. *Crossing the Quality Chasm: A New Health System for the 21st Century.* (Washington, DC: National Academy Press, 2001), p. 1)

> *"From ulcers to urinary tract infections, tonsils to organ transplants, back pain to breast cancer, asthma to arteriosclerosis, the evidence is irrefutable. Tens of thousands of patients have died or been injured year after year because readily available information was not used—and is not being used today—to guide their care. If one counts the lives lost to preventable medical mistakes, the toll reaches the hundreds of thousands."* (Michael L. Millenson. *Demanding Medical Excellence: Doctors and Accountability in the Information Age*. (Chicago: University of Chicago Press, 1997), p. 352)

These statements and others like them reflect a growing belief among many stakeholders that something is fundamentally wrong with our nation's health care system.

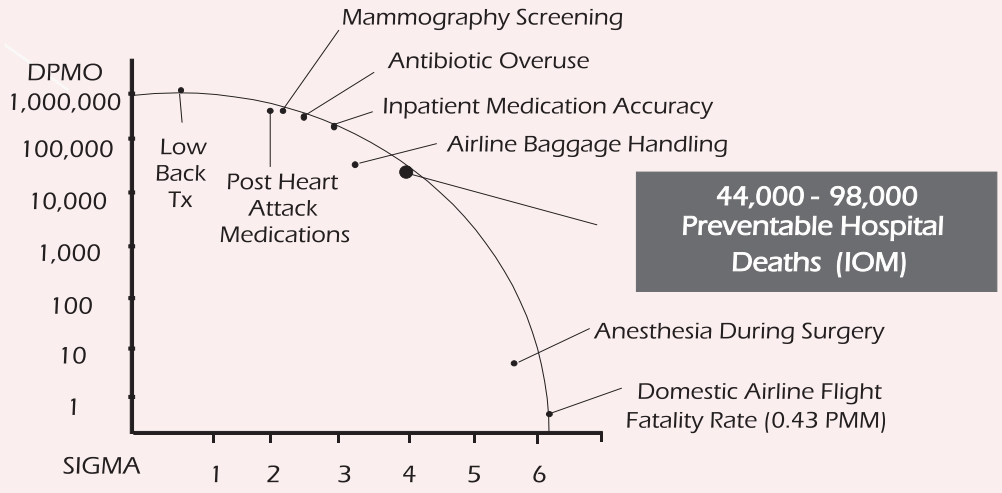
An Overview of the Problem

In spite of the technological advances of the past 50 years, the quality of health care remains inadequate and highly variable, with errors occurring far too frequently and advances in clinical knowledge finding their way into practice far too slowly. Consider a comparison of the health care industry to other industries: In contrast to system error (or defect) rates of 230 or fewer per million opportunities that are required for world-class competitiveness in manufacturing, most processes within health care experience 6,000 to over 300,000 defects per million opportunities.[1]

The "six-sigma" approach to quality improvement suggests that industries should strive for error rates of no more than 3.4 errors per million opportunities. But data taken from peer-reviewed studies show that the quality of many aspects of health care, as reflected in mammography screening rates, diagnosis and treatment of depression, use of appropriate medications for heart attack victims, and treatment of low back pain, ranks well below that of other industries.

Defect Rates in Select Health Care Processes

[Defects per million opportunities (DPMO)]



Source: Robert Galvin, General Electric
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"At the end of the day these are not numbers, these are real people. And that should really scare the hell out of all of us, particularly if you are a patient . . . when you go into a hospital, there's this nagging thought—'please get me out of here safely.'"

—Dennis O'Leary, MD, president of the Joint Commission on the Accreditation of Healthcare Organizations

Defining Quality and the Costs of Poor Quality (COPQ)

Juran Institute defines two dimensions of quality:

- Freedom from deficiencies; and
- Product features that meet customer needs.[2]

For this report, "quality" health care is defined as the former—that is, **the delivery of all necessary care in a timely manner by qualified personnel without deficiency**. Product features, such as the generosity and structure of employer benefits packages and the service and technological capabilities of plans and providers, are not considered. Thus, this report defines the "costs of poor quality" or COPQ as **those costs that would disappear if every task were always performed without deficiency**.[3]

Data suggesting the scope of these problems have existed for decades, but health care purchasers and consumers did not really begin to focus on the issue until the IOM released its 1999 report, *To Err Is Human: Building a Safer Healthcare System*. This report used data from earlier studies to estimate that between 44,000 and 98,000 individuals ***die unnecessarily each year in the inpatient setting*** from medical errors.[4] This report and others suggest that such errors are also responsible for many injuries in hospitals; extrapolating studies of patients hospitalized in Colorado and Utah, Becher and Chassin estimate that errors cause injury to more than 300,000 patients each year.[5]

While experts debate the precise number of deaths and injuries, it is important to realize that even if the true figure is at the low end of the IOM's range, an unacceptably large number of people still die each year in the United States from inpatient medical errors. (A recent survey by The Commonwealth Fund found that more than one in five Americans report that they or a family member had experienced a medical error of some kind. Based on these results, the authors believe that the IOM figures may represent the "tip of the iceberg" with respect to injuries from medical errors.[6] This study can be downloaded from www.cmwf.org.)

Not only do these avoidable deaths and injuries exact a human toll in terms of lost lives and pain and suffering, but they also create a large economic burden in terms of both the direct costs of treating complications and the indirect costs of lost productivity and premature death.

Hospitals are not the only setting beset by poor quality; deaths and injuries occur in other settings as well. While precise data on quality problems in ambulatory settings are difficult to find, errors in the outpatient setting (including medication errors) appear to be a major problem. For example, a recent survey found that many Americans have significant concerns about the quality of care provided in nursing homes, with a majority citing concerns about staffing and neglect of residents, and roughly one in four indicating that they know someone who has received poor-quality care.[7] Quality problems in the ambulatory setting may drive up inpatient costs, as injured patients require hospital care.

Nor is poor quality exclusively the result of medical errors. Overuse, including unnecessary surgeries, tests, and other procedures, puts patients at risk while driving up expenses. Becher and Chassin cite research conducted from 1987 to 1997 that suggests that roughly 30 percent of the care for acute conditions and approximately 20 percent of the care for chronic conditions were provided without appropriate clinical indications.[8] Wennberg, Fisher, and Skinner have shown that unjustified variation in the use of certain services has been largely responsible for excessive costs in the Medicare program; costs could be lowered by 29 percent if risk- and age-adjusted spending in all geographic regions were brought down to levels found in the lowest-cost areas.[9]

Underuse creates quality problems as well. The failure of the health care system to routinely provide certain preventive, screening, and acute care services leads, in some patients, to illnesses, relapses, complications, and other conditions that could have been avoided altogether or caught earlier so as to minimize the impact on health status and the costs of treatment. Becher and Chassin cite data (also from 1987 to 1997) suggesting that, on average, approximately half of Americans did not receive recommended preventive care, approximately 30 percent did not receive recommended acute care, and approximately 40 percent did not receive recommended chronic care.[10] More recent (1998) data for the Medicare population show significant levels of underuse of needed services.[11]

Finally, minorities appear to be disproportionately affected by quality problems within American health care. A 2002 IOM report found that "racial and ethnic minorities tend to receive lower-quality health care than whites do, even when insurance status, income, age, and severity of conditions are comparable . . . differences in treating heart disease, cancer, and HIV infection partly contribute to higher death rates for minorities."[12]

Health Care Should Be No Different than Other Businesses

"Much of industry is measuring quality in Six Sigma terms (number of defects per million opportunities). Most of health care is still measuring quality in defects per hundred. There is enormous opportunity for improvement here."

—Joe De Feo, president and CEO, Juran Institute, Inc.

"'Total quality management' and 'continuous quality improvement' are inherent in American business culture today. There is no reason that this kind of standard cannot or should not be carried into the medical setting."

—Kathy Herold, MBGH board member

"U.S. medicine must commit itself to achieving higher, industry-standard levels of quality in patient safety, and that goal must be extended to all aspects of medical care."

—Karen Davis, president of The Commonwealth Fund, in an April 15, 2002 press release. (Available at www.cmwf.org/media/releases/davis534_release04152002.asp.)

Categorizing Performance Problems

Broad statistics shed light on the scope of performance problems but offer no insights into the nature of a dilemma that pervades the health care system. To better understand this dilemma, it is useful to classify the different types of problems into four categories: overuse, underuse of evidence-based care, misuse, and waste. Within each, there are numerous examples of poor quality.

What follows is a brief synopsis of each of these problems. A more thorough discussion of each category—including detailed examples—can be found in Appendix B.

Examples of Overuse

A variety of surgical procedures, tests, medications, and treatments are overused, driving up costs unnecessarily while simultaneously exposing patients to the risk of complications and sometimes even death. Examples include hysterectomies, cardiac catheterizations, tympanostomy, antibiotics, tranquilizers, sedatives, carotid endarterectomy, cardiac pacemakers, upper gastrointestinal endoscopy, and non-steroidal anti-inflammatory drugs.

There are several possible cause of overuse. For example, excess hospital supply in some geographic areas may lead to the overuse of hospital services for certain procedures and for the treatment of certain medical conditions, such as pneumonia, congestive heart failure, and chronic obstructive pulmonary disease. Researchers have also found that an excess supply of specialists within a geographic area can lead to an overuse of services within that specialty. Together, these factors contribute to higher health costs in certain communities.[13]

Appendix C contains a list of 40 geographic areas that appear to have high levels of overuse. Purchasers in these areas may want to pay particular attention to this potential quality problem.

Problems Are Everywhere

"The majority of these problems are not rare, unpredictable, or inevitable concomitants of the delivery of complex modern health care. Rather, they are frighteningly common, often predictable, and frequently preventable."

—Mark Chassin, MD, in "Is Health Care Ready for Six Sigma Quality," *Milbank Quarterly*, Volume 76, Number 4, 1998.

"Quality problems are widespread. They are not limited to underfunded inner city or rural hospitals. In fact, serious quality problems have been found in every setting in which they have been investigated, including prestigious academic medical centers and world-class delivery systems."

—Mark Chassin, MD, in a presentation to the MBGH board of directors in September 1999.

"Physicians are taught 'First, do no harm.' Yet the evidence shows that harm is widespread."

—Karen Davis, president of The Commonwealth Fund, in an April 15, 2002 press release. (Available at www.cmwf.org/media/releases/davis534_release04152002.asp.)

Examples of Underuse of Evidence-Based Care

There is ample evidence that many people are not receiving diagnostic and therapeutic services, medications, and procedures that have been proven to be effective. For example, providers routinely fail to administer a variety of evidence-based tests and treatments to heart attack victims and individuals with diabetes and congestive heart failure. Other underused services include: the administration of influenza and pneumococcal vaccines; screening tests for depression, breast cancer, and chlamydia; and follow-up after discharge from behavioral health care. Underuse clearly exacts a human toll in terms of premature death and diminished quality of life. As shown on page 61, millions of Americans are not properly diagnosed and treated because of underuse of screening tests. Those who are diagnosed often do not receive needed medications and treatments. But the impact of underuse on overall health care expenditures is unclear. A further discussion appears on page 10.

Examples of Misuse

Medical errors represent the most common form of misuse within the health care system, with drug misuse representing the most frequent form of error. Other forms of misuse include hospital-acquired infections, diagnostic and surgical errors, and incorrect use of medical equipment.

Examples of Waste

Waste, primarily in the form of unnecessary and/or inefficient administrative activities, is prevalent throughout health care, as it is in many other industries. One particularly large problem relates to the failure to transfer information (e.g., medical histories, test results, care plans) across settings in a timely manner, which in turn leads to unnecessary delays and the provision of redundant services. In addition to driving up costs, this type of waste can have a direct negative impact on service quality (e.g., waiting times), clinical quality, and access to care. Waste may also "crowd out" needed spending in other areas of health care. A number of experts believe that the potential to reduce costs by eliminating inefficiency is enormous.

Estimating the Cost of Poor-Quality Health Care

As noted previously, one goal of this report is to present a framework for assessing the costs of poor-quality health care to employers and government purchasers, and ultimately, to health care consumers. Using that framework, this report offers some preliminary estimates that capture the order of magnitude of the problem. MBGH recognizes that much more work is needed to map this terrain accurately. But even if the figures in this report are too high by a factor of two or three, poor-quality care still imposes a tremendous financial and human burden on the nation.

The Financial Toll

This report breaks down the financial costs of poor quality into two categories: direct and indirect costs. **The authors estimate that poor-quality health care costs an individual employer an estimated $1,900 to $2,250 per covered employee each year**. This cost is distributed as follows:

- ▲ Roughly $1,500 in direct costs per covered employee
- ▲ Between $400 and $750 in indirect costs per covered employee

Direct Costs

There are no definitive studies that estimate the direct costs of poor quality. But based on available evidence and the reasoned judgment of respected experts, the authors estimate that **at least 30 percent of all direct health care outlays are the result of poor-quality care, consisting primarily of overuse, misuse, and waste.**

...at least 30 percent of all direct health care outlays today are the result of poor-quality care, consisting primarily of overuse, misuse, and waste.

Our rationale for this figure is provided below:

- **Overuse** is a huge and costly problem. Becher and Chassin estimate that **20 to 30 percent** of the acute and chronic care that is provided today is not clinically necessary; acute and chronic care represent the most expensive types of health care.[14] Wennberg, Fisher, and Skinner have found wide variation across geographic regions in age-, sex-, race-, risk-, and price-adjusted spending in the Medicare program. These variations in spending are unrelated to health outcomes and beneficiary need for services, but are instead driven in large part by the overuse of supply-sensitive services (services where the supply of hospitals and/or physicians appears to drive use) and the overuse of surgery for preference-sensitive conditions (conditions for which the scientific evidence on the appropriate treatment is unclear and thus patient preferences should play a greater role in treatment decisions). Wennberg, Fisher, and Skinner estimate that the Medicare program could reduce its costs by nearly **29 percent** without affecting health outcomes by reducing age-, sex-, and race-adjusted spending levels in all regions to levels found in the lowest-cost regions.[15]
- **Misuse** adds significant additional costs to the health care system. Within the hospital setting, the 1999 IOM study estimates that preventable medical errors cost the nation between $17 billion and $29 billion annually, with health care costs representing over half of this total.[16] In the ambulatory setting, a recent study found that drug-related problems (defined broadly) may be responsible for more than $175 billion in health care costs, equivalent to over 12 percent of the nation's total health bill.[17] A portion of these problems is the result of poor-quality care. Other types of misuse, such as hospital-acquired infections, create additional costs.
- **Waste and inefficiency** are prevalent throughout our health care system, adding more unnecessary costs to the health care system. For example, fragmentation within the industry often leads to uncoordinated care and the provision of redundant tests, procedures, and other services.
- **Underuse** of evidence-based care has an unclear impact on overall health care costs. See the box on page 10 for further discussion of this issue.

Juran Institute's work both within and outside of the health care setting supports the 30-percent estimate. Over the last 14 years, Juran's non-health care clients have consistently found that between 20 and 30 percent of total operating costs can be directly attributed to poor quality.

A Note on Estimating Methodology

To estimate the costs of poor quality that are cited in this report, the authors primarily relied on a review of published literature and the experiences of Juran Institute hospital clients from 1987 to 2000. The opinions of knowledgeable experts were used to provide a reality check. Some estimates of the costs of poor quality are based on extrapolations from single-institution studies to the employed population or the population at large.

Analyses conducted by approximately a dozen of Juran's health care clients over the last eight years have reached similar conclusions, with many of these health care organizations finding the costs of poor quality to be even higher. These results reflect the experiences of a variety of institutions, ranging from prestigious academic medical centers to community hospitals. For example:

- After an analysis at the Mayo Clinic, continuous improvement officer Carleton Rider noted: "The opportunity found [with a cost of poor quality assessment]…was several hundred million dollars, nearly 30 percent of the expense base of the Rochester operation. …The biggest opportunities for improvement were in the core medical processes that comprise the majority of what we do."[18]
- A 338-bed community hospital in the Mid-Atlantic region found that 37 percent of costs within surgical processes added no value. These processes represent 20 percent of the organization's overall cost base. In addition, an analysis of cycle time (the total amount of time it takes to complete an activity) within surgical processes revealed that only 15 percent of employee time is spent in value-added activities for the patient/customer; 66 percent of the time is spent waiting, while 11 percent provides no value at all.[19]

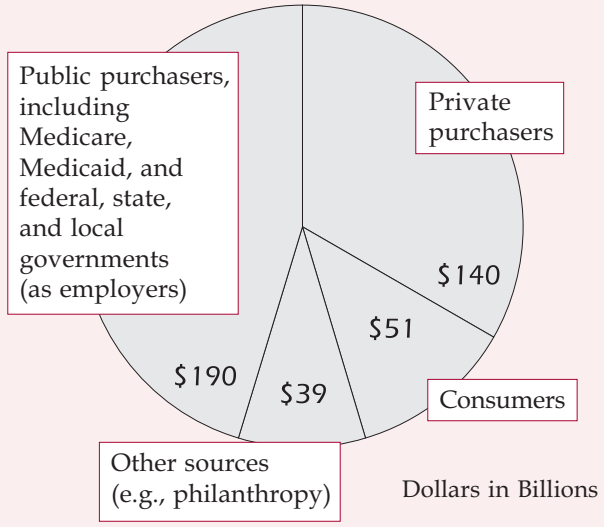
Finally, a number of highly respected experts within the field believe that poor quality is responsible for a significant portion of health care costs:

> "Costs associated with poor health care account for 30 percent of the premiums people pay."[20] — David Lawrence, MD, former CEO of Kaiser Permanente

> "From what I've seen, the cost of poor quality in health care is as much as 60 percent of costs."[21] — Brent James, MD, of Intermountain Health Care

With national health expenditures of roughly $1.4 trillion in 2001, the 30-percent figure translates into an annual expense of $420 billion as a direct result of poor quality.[22] The box at right shows how this expense is distributed.[23]

Everyone Bears the Costs of Poor Quality



These national statistics are alarming. They evoke an even greater sense of urgency when the costs are evaluated for an individual organization. According to data gathered in the spring of 2002, the typical company that offers health care benefits pays $5,870 per year for family coverage and $2,606 for individual coverage. (The employee pays another $2,084 for family coverage and $454 for individual coverage.)[24] Based on these averages, an employer providing family coverage to three-quarters of employees and single coverage to the remainder faces an annual bill for health coverage of just over $5,000 per covered employee. We estimate that **roughly $1,500 of this cost is the direct result of poor-quality care.** For a company with 150 covered employees, that translates into over $225,000 in annual direct costs for poor-quality health care. A very large corporation with 30,000 covered employees spends $45 million each year because of poor quality.

The Impact of Underuse (and Reducing Underuse) on Costs

The 30-percent estimate does not include the financial impact of underuse on health care costs because the available evidence does not allow for an accurate determination of this figure. Underuse of evidence-based care affects health care costs in two distinct ways. On the one hand, expenditures on services that are underused are lower than they would be if people received all the services they need. At the same time, the failure to provide individuals with needed tests, procedures, and medications in a timely manner can lead to serious, expensive health care episodes among some individuals. The net financial impact of these two countervailing forces is not known with certainty.

Similarly, the net financial impact of reducing underuse is not known. The short-term impact of providing previously underused services may well be to raise costs. Providing mammograms, post-MI treatments, and other services to more patients who need them costs money.

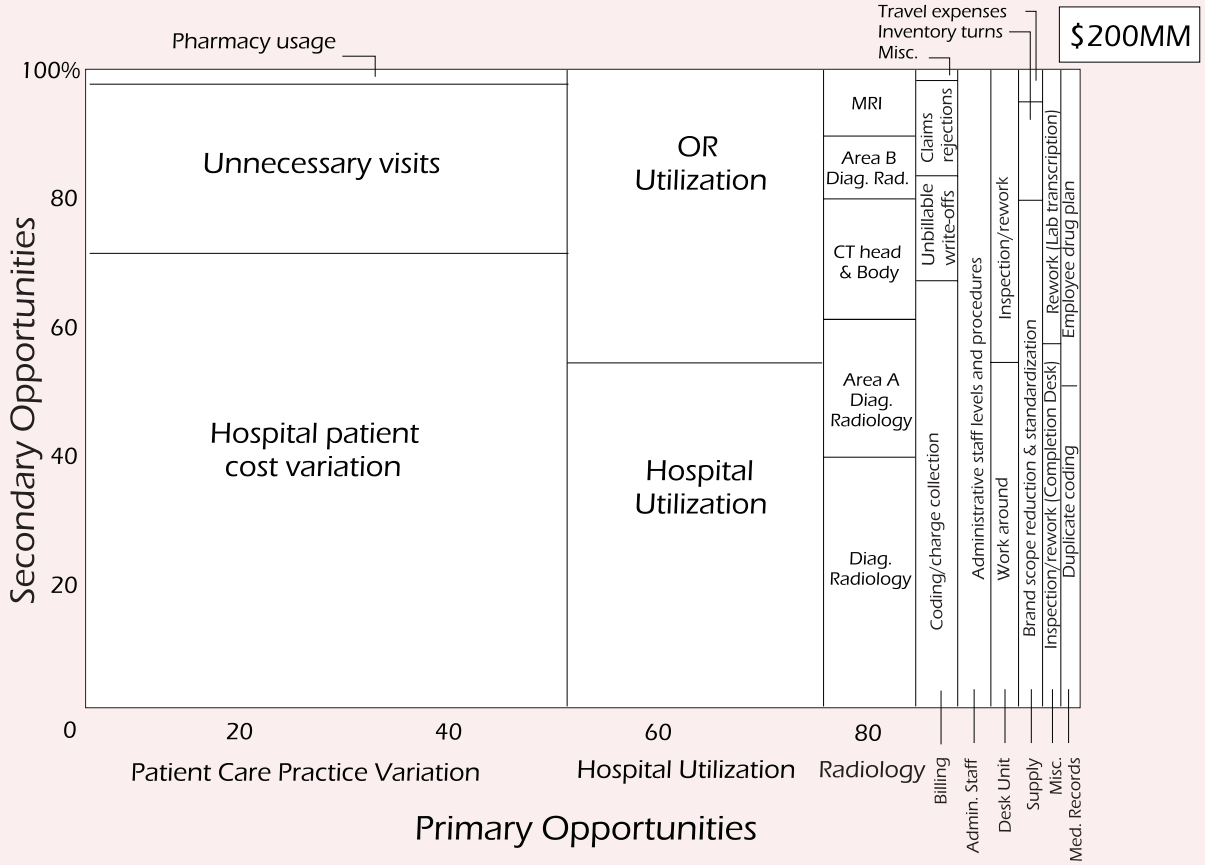
Over the long run, however, it is possible that this spending will be offset by savings. For example, if eligible patients receive effective post-MI treatments, the number of expensive repeat heart attacks and hospitalizations should fall. Similarly, early detection of cancer through more widespread use of mammography screening may save lives and reduce the need for expensive late-stage treatments (although the value of mammography screening remains subject to debate).

The net cost impact of these initiatives over the long run is not clear. Some focused interventions for at-risk individuals are likely to yield long-term savings; examples include the administration of beta-blockers for post-MI patients, influenza/pneumococcal vaccinations for at-risk seniors, and colonoscopy for at-risk individuals. But the long-run cost impact of less focused interventions—such as population-wide cholesterol screening—is less clear. Although many individuals currently do not receive these types of services, relatively few are actually harmed by the omission. Thus, addressing underuse may involve the administration of services to many—which can be a costly proposition—in order to provide a benefit (and long-term savings) to only a few.

Finally, the purchaser community has to consider the value of any long-term savings that materialize. Because savings from averted complications will occur in the future, they must be "discounted." More importantly, cost savings may not be realized until after an employee switches to a new job or becomes eligible for Medicare. Thus, the purchaser that bears the upfront costs of health care may be generating a savings for another organization or the federal government. In particular, employers with high turnover are less likely to see any direct benefit from improving the long-term health of their current employed population.

Juran Institute Estimates of the Costs of Poor Quality

Below is a sample of a report that Juran Institute presents to its clients to summarize the total costs of poor quality. The horizontal axis represents the areas where poor quality results in the most unnecessary costs. In this example, the total costs of poor quality for this hospital are $200 million. Patient care practice variation represents approximately 55 percent of the costs of poor quality, or $110 million annually. Of this $110 million, 70 percent or approximately $77 million is the result of unexplained variation in the treatment of hospitalized patients. (In Juran's experience, unexplained variation in hospital patient costs usually represents the largest opportunity for quality improvement and associated cost savings.) The remainder of the chart is read in a similar manner. For example, roughly 27 percent or $30 million of the $110 million represents unnecessary visits. Juran clients typically set a goal of eliminating 50 percent or more of their COPQ within one or two years; many succeed in reaching this aggressive goal.



Source: Juran Institute, Inc.

Indirect Costs

The costs of poor-quality health care are not limited to the health care arena. In addition to driving up the costs of treating patients, poor-quality care imposes indirect costs on employers, including lost productivity, disability benefits, overtime costs, and expenses associated with worker replacement and training. Interviews and surveys indicate that corporate chief financial officers are especially concerned about the impact of health and health benefits on productivity and absenteeism. (See "CFOs Take a Fresh Look at Health and Productivity," in the March 18, 2003 edition of *Business and Health Archive,* available at **www.businessandhealth.com.**)

Most estimates of the indirect costs of poor-quality health care focus on productivity losses—that is, lost revenues and profits that result from absenteeism and diminished effectiveness while on the job. For example, any working individual undergoing an unnecessary surgery will be forced to take off time from work. Similarly, patients whose hospitalizations and/or recovery periods are extended due to preventable medical errors are also unnecessarily missing work.

Juran Institute conservatively estimates that lost revenues per worker due to absenteeism are equivalent to 2.5 times the salary and benefits of the absent worker. Using this analysis to evaluate a few individual conditions, the productivity costs resulting from poor-quality health care are a substantial (but highly variable) percentage of the direct costs of poor-quality, as demonstrated in the examples below:

- A women earning $35,000 per year who misses 12 full days of work because of an unnecessary hysterectomy will "cost" the company $4,200 in foregone revenues, which is equal to between 26 and 62 percent of the cost of the procedure.[25]
- A person earning the same salary who misses 8 days of work due to an unnecessary pacemaker implantation costs his company $2,800 in foregone revenues, nearly 13 percent of the cost of the $22,000 procedure.[26]
- Unnecessary bypass surgery would force the same patient to miss 17 days of work; his company would lose nearly $6,000 in revenue, roughly 15 percent of the $40,000 cost of the procedure.[27]

Estimates of the relationship between direct and indirect costs for specific diseases or industries shed further light on the indirect costs of poor quality. While these estimates relate to the total direct and indirect costs for the disease or industry in question, it is reasonable to assume that a similar ratio would hold for that portion of the costs that results from poor-quality health care. These figures suggest that indirect costs range from **55 percent to more than 100 percent** of the direct costs of care. For example:

- The Institute for Health and Productivity Management estimates that the indirect costs of treating chronic conditions are as high as 55 percent of the direct costs of such treatment (chronic conditions account for $425 billion in direct medical claim costs and another $234 billion in productivity losses).[28]
- The indirect costs of certain diseases such as asthma, diabetes, and depression—each of which is a major source of missed work—may exceed the direct costs of care. For example, a 1990 study found that the direct costs of treating depression were $12 billion while the indirect costs (measured by lost productivity and workdays) were $24 billion.[29] Data

from the American Diabetes Association suggests that the indirect costs of diabetes also exceed the direct costs of treating the disease.[30] Addressing underuse of evidence-based care for these patients would reduce these costs.

- A study specific to the telecommunications industry estimates that the indirect costs of health care due to reduced productivity exceeded direct costs by a factor of three to one.[31]

Finally, estimates of the costs associated with drug-related problems support the argument that the indirect costs of poor quality are substantial, perhaps even greater than the direct costs of poor quality.[32]

Although the examples cited do not allow for a precise estimate of the impact of poor-quality health care on indirect costs, the authors estimate that **indirect costs are equivalent to at least 25 percent of the direct costs of poor-quality care, and likely approach 50 percent**. For certain industries or disease types, the indirect costs of poor quality may even exceed the direct costs. In other words, in addition to paying direct costs of poor-quality care of $1,500 per employee per year, employers pay indirect costs of roughly $400 to $750 per year, and some pay significantly more.

"The typical corporation seriously underestimates the total costs of a disease because only the direct costs are tracked and examined. Indirect costs such as absenteeism, short-term disability, and lost productivity may cost a corporation two to ten times the direct health care cost."

—Wayne Burton, MD, BankOne Corporation

Other Expenses May Add to Indirect Costs of Poor Quality

The estimate of indirect costs in this section reflects productivity losses from poor-quality health care. Employers may also face the added burden of other indirect costs, including the cost of disability benefits, overtime, and worker replacement and training that result from poor-quality care.

Bleak Prospects Ahead

Looking ahead, the costs of poor quality are only going to rise. Between 2000 and 2001, overall health care expenditures rose by 8.7 percent (to $1.4 trillion), the fastest year-over-year acceleration in more than a decade.[33] In 2001, health care expenses accounted for 14 percent of GDP, breaking a decade of stability in which they represented just over 13 percent.[34] Employers have faced even more rapid cost escalation, with an average year-over-year increase in employer-sponsored premiums of 12.7 percent in 2002.[35] (This increase was much higher than the overall rate of inflation.)

Projections from CMS suggest that by the year 2011, total national health expenditures will reach $2.8 trillion, twice what they are today, and account for 17 percent of GDP.[36] Unless action is taken, a reasonable estimate of the direct costs of poor-quality care in 2011 would be $840 billion, with private purchasers footing at least $275 billion of this bill, and even more if employers continue to bear a disproportionate share of the increase in health expenditures.

Accounting for the indirect costs of poor quality adds another 25 to 50 percent to these figures. Thus, by 2011, the total direct and indirect costs of poor-quality health care will likely exceed $1 trillion, representing over six percent of projected GDP for that year. Private purchasers will absorb over $350 billion of these costs, unless a concerted effort to identify and reduce them counters this trend.

The Human Toll

It is hard to estimate the precise human toll of poor-quality care. But there is no question that misuse, overuse, and underuse kill and injure hundreds of thousands of Americans each year. Consider the following evidence:

- As noted previously, studies by the IOM and others estimate that up to 98,000 individuals die each year and 300,000 are injured in our nation's hospitals due to medical errors.[37] Many more individuals suffer similar fates in other settings.
- Underuse kills tens of thousands of Americans each year. For example, the failure to provide needed care for heart attack victims alone results in an estimated 18,000 preventable deaths each year.[38] The failure to provide other needed services, including screening for depression and breast cancer, results in unnecessary injuries and deaths among many more patients. For example, the total number of deaths from suicide in 1998 was over 30,000.[39] Studies suggest that the most promising way to prevent suicide and suicidal behavior is through the early recognition and treatment of depression and other psychiatric illnesses.[40]
- Similarly, overuse results in unnecessary morbidity and mortality. Nearly 72 million inpatient and outpatient surgeries are performed each year.[41] Even if just one percent of these were inappropriate, more than 700,000 individuals would unnecessarily face a recovery period from the surgery and the possibility of surgery-related complications. Moreover, a small percentage of these individuals could die due to complications resulting from unnecessary surgery.

While these national statistics are alarming, the best way to appreciate the magnitude of the human toll is to look at the impact at a micro level. For example, General Motors (GM) used the IOM's *To Err Is Human* report to determine that 1.3 GM employees or dependents die each day because of inpatient medical errors; this is equivalent to 500 deaths a year. Applying this same research, Chrysler Corporation calculated that it loses one employee or dependent every other day, while MBGH estimated that its member corporations lose three employees or dependents each day. These calculations do not include injuries due to medical errors, or injuries and deaths due to other quality problems, such as overuse and underuse.

The Most Costly Quality Problems for Purchasers

Poor-quality care is evident throughout the health care system, but a number of areas exact an especially large financial and/or human toll. The ten areas listed below represent attractive targets we have identified for purchaser initiatives to reduce the costs of poor quality (COPQ). Appendix D offers a further discussion, including citations that provide the sources for the figures below.

- **Drug misuse**, broadly defined, results in more than 200,000 deaths and as much as $300 billion in expenditures each year. Many of these deaths and costs are likely avoidable.
- **Overuse of antibiotics** may cost as much as $5 billion each year.
- **Overuse of inpatient care** for medical treatments that can be performed safely in an outpatient setting unnecessarily adds significant costs to the system.

- **Preventable hospital-acquired infections** claim at least 20,000 and perhaps more than 60,000 lives each year, and result in up to $18 billion a year in unnecessary expenditures.
- The direct and indirect costs of **diabetes** are $132 billion annually. Underdiagnosis and inadequate treatment of the disease results in unnecessary expenditures as well as tens of thousands of cases of premature death, limb amputations, kidney disease, and blindness.
- The total economic burden from **depression** is estimated to be $80 billion in 2002. Underdiagnosis and inadequate treatment are common problems for those suffering from the illness. Analysis from one company suggests that depression can be one of the most costly illnesses for a purchaser, and that increasing use of pharmacy and outpatient services can reduce these costs. (See page 25 for more details.)
- **Inadequate care after a heart attack** results in 18,000 unnecessary deaths each year.
- **Underuse of influenza and pneumococcal vaccinations** kills between 10,000 and 20,000 individuals each year.
- The direct and indirect costs of **asthma** are $18 billion annually; poor management of the disease results in expensive, acute episodes that undermine the quality of life for individuals who suffer from the disease.
- The direct costs of treating **congestive heart failure** (CHF) are $10 to $40 billion a year. Inadequate treatment of the disease results in frequent hospitalization, a decline in quality of life, and premature mortality for many individuals with CHF.

A "Top 10" List of COPQ Problems for Employers

- Drug misuse
- Overuse of inpatient care (versus less-costly settings)
- Overuse of antibiotics
- Hospital-acquired infections
- Diabetes care
- Depression care
- Post-heart attack care
- Underuse of influenza and pneumococcal vaccinations
- Asthma care
- Congestive heart failure care

The **worksheet** on the following page is intended to help purchasers to estimate the financial impact of poor quality on their organization. A copy of this worksheet has also been provided as the last page of this report. This page can be torn out of the report, photocopied, and distributed to colleagues.

Employer Worksheet: Savings from Reducing Costs of Poor Quality

This worksheet can assist employers in making a rough estimate of the potential financial benefits from a program aimed at reducing the costs of poor quality (COPQ) in health care. Please note that this worksheet does not include the investment costs associated with programs and system changes required to achieve these savings. As a result, the figures derived from this worksheet would have to be compared to these expenses.

Part I: Potential Cost Savings

This section calculates the direct and indirect cost savings from reducing COPQ.

1. Total annual direct health care costs in most recent fiscal year $_____
2. Estimated % that goes to poor-quality health care (suggestion: 20% to 40%; see pp. 8-9 of report for details) _____%
3. Estimated % of poor-quality care that could be eliminated (suggestion: 25% to 50%) _____%
4. Total potential reduction in direct costs by reducing COPQ (calculated as line 1 x line 2 x line 3) $_____
5. Estimate of the indirect costs of health care as a percent of direct costs [suggestion: 50% (conservative); 75% (moderate), or 100% (aggressive); see pp. 12-13 of report for details] _____%
6. Total potential reduction in indirect costs by reducing COPQ (calculated as line 4 x line 5) $_____
7. **Total potential cost savings by reducing COPQ** (calculated as line 4 + line 6) $_____
8. Total direct health care costs after reducing COPQ (calculated as line 1 - line 4) $_____

Part II: Impact of Potential Savings

This section translates the savings from part I into meaningful metrics.

9. Total annual earnings in most recent fiscal year $_____
10. Total annual earnings if cost savings realized from COPQ (calculated as line 7 + line 9) $_____
11. **Percentage increase in earnings due to reducing COPQ** (calculated as [line 10 - line 9]/line 9) _____%
12. Estimated annual percentage growth in health care costs over next 5 years (conservative: 8%; aggressive: 12%) _____%
13. Multiplier to calculate health care costs in five years (calculated as [1 + line 12]^5--i.e., raised to the 5th power) _____
14. Projected health care costs in 5 years if no action is taken (calculated as line 1 x [line 13]) $_____
15. Projected health care costs in 5 years if COPQ are reduced (calculated as line 8 x [line 13]) $_____
16. Percentage increase in health care costs over next 5 years if no action is taken (calculated as [line 14 - line 1]/line 1) _____%
17. Percentage increase in health care costs over next 5 years if COPQ are reduced (calculated as [line 15 - line 1]/line 1) _____%

Section II:

Fixing the Problem of Poor-Quality Care

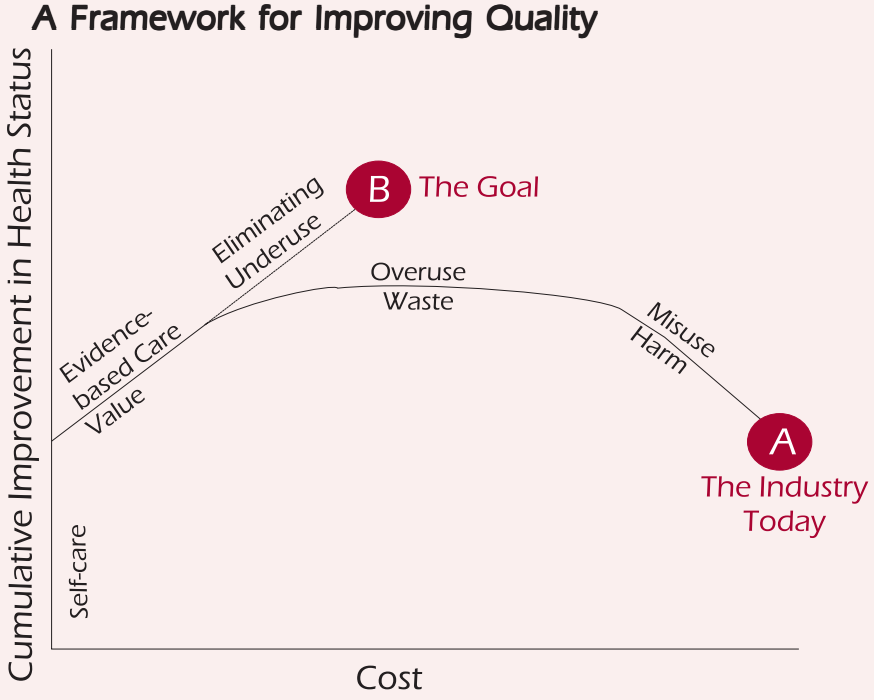
Understanding the nature and magnitude of the problem of poor-quality care is important, if for no other reason than it raises awareness of the need to do something about it. But "doing something about it" is the real work. This section lays out a roadmap for addressing the issue by emphasizing the key role of purchasers, which are both contributors to current quality problems and, more importantly, potential catalysts for future improvement. It advocates the adoption of a Responsible Health Care Purchasing Policy (see Appendix E) and describes four steps that purchasers can pursue in their efforts to improve quality, detailing (where available) real-life examples of pioneering organizations already employing these techniques.

A Framework for Improving Quality

A handful of innovative health systems around the country have demonstrated the potential of the industry to produce dramatic improvements in the quality of health care services. For example, Intermountain Health Care (IHC) in Utah improved the treatment of heart attack patients by adopting a protocol for the use of aspirin, ACE inhibitors, beta-blockers, and reperfusion therapy. Under this protocol, eligible patients (as defined by certain clinical criteria) automatically receive these treatments unless the physician intervenes, thus making it easy for physicians to provide needed care. As a result, IHC drastically reduced underuse of these known-to-be-effective therapies, with 94 to 96 percent of eligible patients receiving the therapies they need.[42]

Other delivery systems have successfully tackled problems of misuse. For example, an analysis conducted by Brigham and Women's Hospital in Boston found that 6.5 percent of admitted patients suffered from adverse drug events (ADEs), with 28 percent of these being preventable. Each preventable ADE costs an estimated $4,500, which added up to $2.8 million each year for the 700-bed hospital. Hospital leadership decided to install a computerized physician order entry (CPOE) system, which has helped to reduce ADEs by nearly 80 percent, from 140 to 30 ADEs per 1,000 inpatient days. The hospital estimates that the CPOE system saves $5 to $10 million annually due to reduced ADEs and increased efficiency in the use of drugs and tests; these savings dwarf the $1.4 million upfront investment and $500,000 in annual maintenance costs for the system.[43]

Unfortunately, the examples cited above are far too rare in health care today. Despite efforts by the health care industry to improve their performance by providing evidence-based care, overuse, underuse, misuse, and waste remain prevalent. As a result, the industry remains stuck at point "A" on the following chart (see next page), with unnecessarily high costs and unnecessarily low quality. What is needed is a migration to point "B" through a reduction in the prevalence of misuse, overuse, and waste (which promises to both raise quality and reduce costs) and an increase in the use of previously underused services, which will boost quality further and, as discussed earlier, potentially raise costs (at least in the short term).



The Purchaser as a Root Cause of Poor Quality

The root causes of poor-quality care are multifaceted. Wennberg's work suggests that the overuse of certain services within specific geographic areas may be driven by an excess supply of physicians or hospital beds.[44] Becher and Chassin suggest that overuse of services may also be the result of fee-for-service reimbursement (which often pays for the delivery of services whether needed or not) and physicians being overly enthusiastic about the value of the services they provide. They also cite the American consumers' expectation that physicians do "something" about their complaints and their infatuation with technology.[45] The tort system may also play a role in encouraging overuse of services.

Becher and Chassin believe that underuse may be the result of physician overload with respect to new clinical knowledge (and the lack of information technology to help them stay abreast of new findings on efficacy), financial barriers, payment incentives under capitation (although this has not been proved), and patients' distrust of physicians and the health care system.[46]

There is a broad consensus that most quality problems result primarily from system problems rather than the conduct of individual practitioners. Unfortunately, the culture of medicine has historically emphasized individual responsibility, not faulty systems, when assigning blame for errors. The IOM's *Crossing the Quality Chasm* report notes that health care relies on "outmoded" systems with "poor designs" that "set up the workforce to fail." The report's authors call for a totally revamping of these systems, making liberal use of "information technology to support clinical and administrative processes."[47] Merry and Brown also support the development of entirely new systems with "sophisticated design elements" that help to "prevent the multiplication of human error which is indigenous to highly labor-intensive, complicated endeavors such as health care."[48]

While all of the factors cited above are important contributors to poor quality, purchasers also bear some responsibility for the poor systems and inadequate levels of quality that characterize health care today. As outlined below, purchasers knowingly or unknowingly promote poor quality through three actions (or lack thereof):

- Making contracting decisions based on price without also examining plan and provider performance
- Using transaction-based (rather than outcomes-based) payment structures that discourage quality improvement and promote waste
- Failing to engage the consumer (employees and beneficiaries) on quality issues

Public and private purchasers represent the largest block of consumers in the health care industry. Yet these purchasers and their beneficiaries continue to accept underuse and to pay for overuse, misuse, and waste in the system the way it is. Unless and until purchasers (and consumers) demand better performance through the revamping of health care systems, there is little or no reason for the industry to improve.

Making Contracting Decisions Based on Price Without also Examining Performance

The vast majority of purchasers choose the health plans or provider systems they offer to beneficiaries based on unit price and choice of providers. While this approach seemed reasonable a decade ago as an effective way of dealing with runaway health care inflation, it continued even as health care expenses stabilized in the late 1990s. With a renewed cycle of inflation now raging, most purchasers continue to emphasize price.

Such an approach is short-sighted. Managed care has already eliminated the "low-hanging fruit" of cost savings through "easy" solutions such as price discounts from providers and third-party utilization review. A further emphasis on low price will likely yield few benefits today, particularly now that many providers find themselves in a strong negotiating position as a result of mergers.

To realize the "next generation" of cost savings, a handful of pioneering purchasers have begun to emphasize performance and quality improvement rather than price. These pioneers recognize that value-based purchasing is the key to getting the most out of the health care system. Just as pressure from value-driven foreign manufacturers led to dramatic improvements in the quality of American-made automobiles, pressure from value-driven purchasers can improve American health care.

An Unconcerned Public?

"**The public expects and demands near perfection in air travel, but does not in health care.**"

—Mark Chassin, MD

"**Media reports of shoddy health care in this country provoke either mass denial or a collective yawn.**"

—Elizabeth McGlynn and Robert Brook of the Rand Institute, in "Full Disclosure: Time for the Naked Truth About Health Care," in *RAND Review*, Summer 2001.

"**Health care quality problems don't really come up on the radar screen for most people. People for some reason don't react the same way to wrongful contact in health care as they do in other instances. If death had occurred because of a reckless driver, the reaction would be much different.**"

—Dean Olson, Aircraft Gear

"**Most people are either uninformed or forgiving about the quality problems in health care.**"

—Jim Mortimer, Midwest Business Group on Health

"**Employees see the problems as a bit of bad luck rather than an indication of a system failure or a system weakness.**"

—Peter Lardner, Bituminous Casualty Corporation

Use of Payment Structures that Discourage Quality Improvement

Ironically, price-conscious purchasers—and health plans acting on their behalf—have largely failed to address the fact that their primary method of paying providers drives up costs while simultaneously discouraging investments in quality. Under the transaction-based, discounted fee-for-service payment system (still the dominant formula for paying providers), medical errors result in higher reimbursement, as health systems are compensated for the treatment of any complications that result from the error. Fee-for-service payments also encourage overuse, as providers usually receive payment even if a treatment is not clinically necessary. (The impact of fee-for-service payments on the prevalence of underuse is less clear.)

Worse still, current reimbursement methodologies penalize providers for investing in quality improvement. For example, when a group of physicians improved outcomes for patients with diabetes through the use of e-mail communications, they lost revenues due to reduced patient visits. At the same time, the program's implementation drove up operating costs.[49]

Some purchasers and health plans have tried to address these kinds of problems by setting up "bonus" pools for providers. But typically, most of the payout from these pools is tied to efficiency, not quality. And the dollars at stake are seldom enough to compensate for lost revenues.

The good news is that a few purchasers, recognizing the important role that financial incentives can play in encouraging quality, have begun to revise their payment systems to move toward rewarding superior outcomes rather than simply paying for every transaction. (See step #4 for a discussion of these efforts.)

For More Information

The IOM's *Crossing the Quality Chasm* report dedicates Chapter 8 to payment policies, analyzing how current payment policies can undermine quality improvement efforts. The March/April 2003 issue of *Health Affairs* also discusses this problem. Both publications include case examples that clearly demonstrate the problem.

MBGH believes that **innovations in payment systems cannot come soon enough**. Purchasers must re-tool perverse payment policies that discourage quality improvement so that they can reward strong performance instead. For their part, provider organizations should begin to guarantee that poor quality will not result in added costs for purchasers.

A Failure to Engage the Consumer on Quality Issues

Perhaps the least publicized but largest shortcoming of the purchaser community has been its inability to engage consumers on the issue of quality. Many experts believe that performance will not improve meaningfully until consumers demand change. Other industries provide top-notch quality because consumers will accept nothing less. Yet health care consumers are either willing to accept something less or, more likely, are not aware of—and thus not alarmed about—the uneven quality of the American health care system. Even after all the recent publicity, most consumers continue to assume that the quality of health care in the United States is first-rate. If they

have heard about quality problems in general, they tend to believe that their own health care providers are excellent. Choice of providers and out-of-pocket expenses remain much larger concerns than quality.

Because they finance the vast majority of working Americans' health care benefits, public and private purchasers are in an excellent position to educate and influence consumers. For example, purchasers can use data from the *Dartmouth Atlas* (which analyzes risk-adjusted utilization of health care services throughout the country) to show beneficiaries, employees, and dependents how care varies widely from one community to another. (For more information, see **www.dartmouthatlas.org**.) These data may help consumers to better understand why they cannot take quality for granted. The hospital safety database being developed by The Leapfrog Group, a coalition of major purchasers, is another example of a consumer-friendly tool that employers can use to engage consumers on quality issues. (For more information, see **www.leapfroggroup.org**.)

Employers and government purchasers also have the opportunity to provide information on the comparative performance of plans and/or providers, and can establish financial mechanisms—copayments, deductibles, and the like—that encourage covered populations to choose high-quality plans and providers. Unfortunately, most purchasers today provide little if any information on quality to their beneficiaries, and they tend to structure financial mechanisms to encourage the choice of low-cost (not high-quality) plans and providers.

The Four Steps of Responsible Health Care Purchasing

Public and private purchasers have enormous influence over the health care system. In the past, this influence has been successfully used to tackle health care inflation; the managed care revolution of the early 1990s was in direct response to the demands by large purchasers that costs be brought under control.

Going forward, employers must use this influence once again, but in a different manner. While health care inflation has returned, the root cause of that inflation is no longer high prices or obvious overutilization. Rather, the current cost crisis in health care is inextricably linked to the quality crisis. Realizing the next-generation of cost savings requires an explicit focus by the purchaser community on quality improvement.

The Expert View: Purchasers Can and Should Be Catalysts for Improvement

"Despite where I sit [in government], I think that large purchasers have done more to change health care in the last decade than any other group."

—Gregg Meyer, MD, Agency for Healthcare Research and Quality (AHRQ)

"I have 120,000 customers from Ford and 80,000 from General Motors. If I want to keep that business, I have to be responsible and responsive to them."

—Gail Warden, CEO, Henry Ford Health System

"The market will respond to where pressure is coming from . . . if purchasers would demand higher quality for higher quality's sake."

—Ken Kizer, CEO, The National Quality Forum

"Purchasers need to put the heat on, be more assertive, and get out of the one-year mindset."

—Don Berwick, president, Institute for Healthcare Improvement

"I think we (employers and purchasers) play a key role in the improvement of health care. If it hadn't been for employers we never would have seen HEDIS."

—Wayne Burton, MD, Bank One Corporation

"Over time, we as employers have been largely responsible for creating a monster—the health care system. It is our responsibility, therefore, to rein it in."

—Kathy Herold, MBGH board member

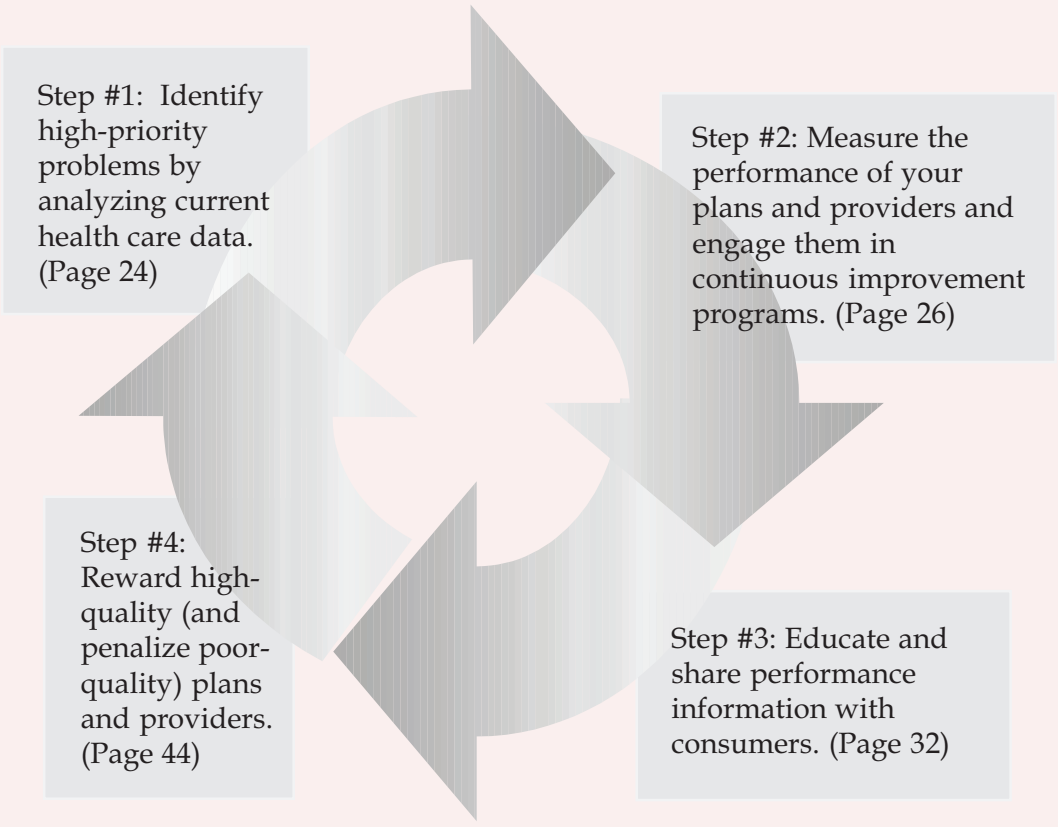
MBGH invites all public and private purchasers of health care to adopt a Responsible Health Care Purchasing Statement. **(See Appendix E for a model of this statement of principles.)**

Whether purchasers are public or private, small or large, insured or self-insured, strategies are available that allow them to play a leadership role in addressing the human and financial costs of poor-quality care. This section lays out four steps that purchasers should consider employing. For each step, this report offers brief profiles of the efforts of a few pioneering organizations. In addition, where relevant, untested but promising ideas are laid out for consideration.

Collectively, the use of these initiatives by purchasers can lead to a fundamental improvement in the design of health care systems and processes that has the potential to result in a significant reduction in the costs of poor quality. That said, we recognize that many of the initiatives laid out in this report are still in their infancy; few of the pioneering organizations that have implemented them have documented their effectiveness in reducing costs and/or improving quality. Going forward, the challenge for purchasers will be to test these different approaches, measure their impact, and disseminate best practices.

Action Cycle: Four Steps to a Responsible Health Care Purchasing Policy

The action cycle outlined below can be applied to each of the high-priority problem areas identified in Step #1. Purchasers should consider using this methodology to tackle several problem areas over a one- or two-year period.



We also recognize that implementing these initiatives will take time and cost money, not only for purchasers, but also for the health plans and provider organizations that must respond to the purchasers' challenge. In the short term, these outlays may significantly cut into the net financial savings that can be achieved by improving performance. Over the long term, however, the implementation costs should fall while the cost savings from quality improvement continue to accrue (and may even increase) year after year. A similar phenomenon occurred with U.S. manufacturers, as overseas competition forced them to spend significant resources to re-tool their processes. Over time, however, the cost savings dwarfed these initial outlays. The result was the production of goods of much higher quality at much lower cost than before the re-engineering effort began.

Finally, purchasers must be willing to share some of the cost savings generated from quality improvement with those plans and providers that make the effort to improve. At present, these organizations often resist investing in quality improvement because they reap no economic reward—and in some cases suffer a financial penalty—for these activities.

Purchasers must be willing to share some of the cost savings generated from quality improvement with those plans and providers that make the effort to improve.

Advice to Employers: Collaborate with Others

While a few of the strategies outlined in this report can be implemented by an individual employer on its own, most of the initiatives require resources and expertise that are available only in very large organizations. As a result, it likely makes sense for the vast majority of companies to collaborate with others through business coalitions, associations, health plan user groups, and/or local employer associations. Some of these organizations, such as The Leapfrog Group, the National Business Coalition on Health, the Central Florida Health Care Coalition, the Midwest Business Group on Health, and the Pacific Business Group on Health, have already embarked on initiatives described in this report.

Collaboration also creates economies of scale and added leverage, as providers and plans are more likely to pay attention to quality improvement initiatives if the sponsors of that initiative control a significant number of covered lives and health benefit dollars.

Finally, collaboration may provide individual employers with "cover" from the political and business challenges that are inherent in pushing for a robust quality improvement agenda. For example, employer representatives who sit on the boards of local hospitals may face pressure from these hospitals not to pursue quality improvement initiatives that are viewed as an added burden for the provider community. Collaboration provides a vehicle for resisting this pressure.

"That is why we work with coalitions on quality improvement initiatives—to improve the health care of the nation."

—Wayne Burton, MD, Bank One Corporation

For more information on the benefits of collaboration and useful advice on partnering with others, please see *Arm in Arm: A Guide to Implementing a Coordinated Quality Measurement Program,* published in 1999 by the Quality Measurement Advisory Service (QMAS). Copies may be purchased for $25 from the Foundation for Health Care Quality (call 206-682-2811 to order).

Step #1: Identify High-Priority Problems by Analyzing Health Care Data

Purchasers cannot devise strategies for attacking quality problems without first understanding the nature and scope of the quality issues and problems they face. For that reason, it is best to begin by evaluating internal data to identify the most pressing and costly quality issues facing the company and its employees. Once the problems are identified, the company can develop targeted strategies for addressing each one.

The need for such an assessment stems from two facts about quality. First, the nature of quality problems varies across geographic markets. Decades of studies conducted by John E. Wennberg, MD, MPH, director of the Center for Evaluative Clinical Sciences at Dartmouth Medical School, have consistently found wide variations in the use of health care services across geographic markets. His analyses link the majority of the variation to the supply of facilities and practitioners and to physician preference rather than underlying differences in the population being treated. Consequently, quality problems are likely to vary by market; what may be overused (or underused) in one market may not be as much of a problem in another.

Second, heterogeneity across employee populations means that different employers—even those within the same market—will likely face different quality issues and health problems. For example, a small professional services firm that employs many young white-collar employees will need to address a different set of health care quality problems than will a large manufacturing firm with an older, blue-collar employee base.

There are two components to a self-diagnosis and analysis: an employee health risk survey and an audit of potential quality problems.

Assistance in Identifying Quality Issues

For assistance in understanding the different types and categories of quality that may be of relevance to employers, please refer to the following article: Fraser, I. and McNamara P. 2000. "Employers: Quality Takers or Quality Makers?" *Medical Care Research and Review*. 57(Supplement 2):33-52.

First Task: Employee Health Risk Survey

The first component involves administering a health risk survey to employees and/or mining claims data to identify the most pressing health problems facing the company's workforce. For example, Union Pacific Railroad's survey found the following health problems among employees: poor exercise habits, high levels of stress, a high incidence of smoking, high blood-pressure levels, elevated blood-sugar levels, excess alcohol consumption, poor eating habits, depression, weight problems, and high cholesterol levels. While these problems were not primarily due to deficiencies in the health care delivery system, some of them may have been exacerbated by underuse of needed services. Union Pacific's analysis of the survey data suggested that the company's direct medical costs were likely to increase by $100 million over a 10-year period because of these problems. But by investing heavily in health promotion and disease management strategies, the company now expects to reduce direct medical costs by $20 to $77 million over the next 10 years.

A second example of a self-assessment comes from First Chicago Corporation (now BankOne Corporation), which developed an integrated health data warehouse to improve quality and reduce costs. This data warehouse integrates inputs from a number of databases that contain information on employee-specific demographics (e.g., age, sex, location, job), medical claims, pharmacy, short-term and long-term disabilities, scattered sick-day absences, participation in wellness programs, lab test results, results from health-risk appraisals and physical exams, and productivity. By analyzing the data, the company can identify health risk problems and estimate their impact (in terms of direct costs and lost productivity) so that disease-specific interventions can be developed, implemented, monitored, and evaluated.

For example, a study of First Chicago employees from 1993 to 1995 found that depression resulted in 10,859 lost workdays, with an average loss of 43 workdays per event. The disease had the highest rate of recidivism (22 percent) and the highest total cost (direct and indirect) of any of the conditions that were measured, including diabetes, ulcer, hypertension and asthma. In 1991 alone, depressive disorders accounted for more than $927,000 in paid medical claims, almost as much as heart disease. Based on these findings, First Chicago's management was concerned about potential underuse of needed medical services by individuals suffering from depression. As a result, the company made changes to its mental health benefit, including increasing pharmacy coverage. While these changes raised pharmacy and outpatient costs, total direct treatment costs decreased significantly, from $71 per covered employee in 1993 to $61 per covered employee in 1995.[50]

Second Task: An Audit of Potential Quality Problems

The second component of an internal assessment involves an "audit" of potential quality problems among the plans and providers that care for employees. This initial assessment of quality problems becomes a baseline for measuring the impact of action taken in steps 2-4 of the model. For example, Union Pacific worked with MBGH to use *The Dartmouth Atlas* and HEDIS (Health Plan Employer Data and Information Set) data to audit quality problems in the Omaha, Nebraska region. The profile found the following:

- **A history of high mortality rates for bypass surgery patients, which may be related to both overuse and underuse of certain tests and procedures**. For example, the study found a high mortality rate for Medicare enrollees in the 30-day period following surgery. This high rate may be due in part to low rates of stress testing prior to revascularization procedures. Other issues included underuse of aspirin (in the hospital and at discharge), beta-blockers, and smoking cessation advice to AMI patients. The audit also pointed to the potential overuse of angioplasty and bypass surgery for certain segments of the population.
- **Higher than average rates of back surgery procedures**, including laminectomy, lumbar discectomy, lumbar decompression, and spinal fusion, for individuals 20 years of age and older.
- **A practice pattern of preference for total mastectomy** over partial mastectomy for breast cancer.

The company is using this report to educate and inform providers, consumers (employees, retirees, and dependents), and other employers. Company leadership hopes to involve these stakeholders in addressing these issues.

Resources for Small and Large Companies

Outside consultants can assist employers in auditing their data to identify quality problems. Smaller employers that lack the data and/or resources to conduct a self-assessment can turn to local organizations, such as a business coalition or the Chamber of Commerce. These organizations may have already conducted such assessments within a local area. (To find a local coalition, contact the National Business Coalition on Health at 202-775-9300 or visit **www.nbch.org**.)

In addition, as the Union Pacific example demonstrates, resources such as *The Dartmouth Atlas* and NCQA's HEDIS data may also point to potential problems in specific geographic areas, such as overuse or underuse of a treatment or service.

Finally, the data collected at this stage can be very useful for any future evaluation of purchaser initiatives. Purchasers interested in evaluating the impact of the strategies discussed in this report can order *Evaluating the Impact of Value-Based Purchasing Initiatives: A Guide for Purchasers* from the Agency for Healthcare Research and Quality. This guide reviews the process of evaluation and describes relevant qualitative and quantitative methodologies. For a copy of this guide, visit the Publications Clearinghouse on the AHRQ Web site (**www.ahrq.gov**) to order the following document:

Scanlon DP, Chernew M, Doty H. "Evaluating the Impact of Value-Based Purchasing Initiatives: A Guide for Purchasers." Paper prepared for *Understanding How Employers Can Be Catalysts for Quality: Insights for a Research Agenda*, a meeting convened by the Agency for Healthcare Research and Quality, April 4, 2001, Washington, DC. Rockville, MD: Agency for Healthcare Research and Quality.

Step #2: Measure the Performance of Your Plans and Providers, and Engage Them in Continuous Improvement Programs

Once Step #1 is complete, purchasers can develop a set of strategies for dealing with the specific quality problems and issues they have identified.

First Task: Measurement and Feedback

For the vast majority of purchasers, the centerpiece of these efforts will be a system to measure the quality performance of the plans and/or providers with which they contract. In fact, without a system to measure quality and to hold plans and providers accountable for their performance, employers will be able to make little headway in addressing quality problems.

The strategy of using performance measurement and feedback for quality improvement purposes is hardly unique to health care. It has been used to improve quality and safety in a number of other industries. Perhaps the best known example comes from Alcoa (Aluminum Company of America), where former CEO and former Secretary of the Treasury Paul O'Neill pioneered a system that virtually eliminated in-plant accidents in an inherently dangerous environment. The key to the system was a superb, real-time measurement system that reported all accidents, combined with the expectation that the root cause of any accident would be investigated and addressed promptly. More recently, Mr. O'Neill was instrumental in bringing the same type of approach

to the Pittsburgh Regional Health Initiative (PRHI), a coalition of Pittsburgh-area purchasers and providers that is using performance measurement and feedback systems to reduce nosocomial (hospital-acquired) infections.

Over the last decade, a number of large purchasers and employer coalitions have put in place programs to provide feedback to plans and providers on the quality and cost-effectiveness of their services. Most of these efforts assess performance with HEDIS and/or CAHPS (Consumer Assessment of Health Plans Study), both of which provide a set of standardized indicators designed to evaluate health plan performance in a variety of areas.

CAHPS captures consumers' reports and ratings of their experiences with the care they receive. HEDIS focuses on technical measures of quality, with an emphasis on assessing adherence to evidence-based medicine by looking at the delivery of important services that have been proven effective in controlled studies. HEDIS measures include a whole series related to management of diabetes and heart disease, as well as measures for breast cancer screening, cervical cancer screening, chlamydia screening, follow-up after hospitalization for mental illness, advising smokers to quit, childhood immunizations, beta-blocker treatment after a heart attack, and use of appropriate medications for people with asthma.

Measurement and Accountability: The Catalysts for Improvement

"We've concluded that the quality of care cannot improve until physicians and hospitals nationwide are held accountable to common measures of performance."

—Elizabeth A. McGlynn and Robert H. Brook, The Rand Institute, from "Full Disclosure: Time for the Naked Truth About Health Care," in *RAND Review*, Summer 2001

"In God We Trust, All Others Bring Data."

—Steve Wetzell, founding member of The Leapfrog Group and The Buyers Health Care Action Group

"Patients deserve to have their providers held accountable for poor-quality care up front, rather than through the tort system after an employee or loved one has suffered."

—Kathy Herold, MBGH board member

Since HEDIS and CAHPS measures focus on health plan performance—and most purchasers contract with plans—it is no surprise that the majority of purchaser initiatives to date have been targeted at health plans. For example, GM has evaluated HMO quality by looking at four types of information: select HEDIS measures, employee satisfaction, accreditation status, and impressions gained from site visits.[51] The company has used this information to identify problem areas and to work with plan leaders on quality improvement initiatives. Similar approaches have been used effectively by the Greater Detroit Area Health Council, Digital Equipment Corporation (now a part of Compaq) and Southern California Edison (now Edison International).[52] In some instances, purchasers have given plans specific targets or benchmarks that they are expected to achieve within a certain period of time. Others have asked their health plans to develop and share concrete plans for improvement.

Another example comes from the "eValue8 Group," which is a nationwide collaboration of the Buyers Health Care Action Group (BHCAG), the Colorado Business Group on Health, Gateway Purchasers for Health in St. Louis, the Greater Detroit Area Health Council, the Health Policy Corporation of Iowa, MBGH, the Central Florida Health Care Coalition, and the Pacific Business Group on Health (PBGH). Sponsored by the National Business Coalition on

Health, this collaborative developed and encourages the use of a standardized Request for Information (RFI) to collect information on health plan quality, gives plans feedback on their quality management activity, and focuses them on opportunities for improvement. (See page 41 for more on the eValue8 Group.) This collaborative approach can also work with providers. Consider the following examples:

- Massachusetts Health Quality Partners (MHQP) is a cooperative project involving health plans, provider associations, state government, and the Massachusetts Business Roundtable. As a part of its program to improve hospital performance, MHQP surveys patients on their experiences and provides detailed results to participating hospitals. This information has been a catalyst for numerous hospital-initiated quality improvement initiatives. MHQP leaders have also hosted numerous networking and education sessions where providers and payers work together to identify and address the root causes of underlying performance problems.[53]
- Between 1989 and 1997, Ford Motor Company shared performance information with hospital CEOs. Because this initiative was only moderately successful in encouraging hospitals to address quality problems, Ford decided to join with other purchasers to launch the Hospital Profiling Project, in which information on hospital performance is released to employees, retirees, and the public at large. (See step #3 for more details.) At the same time, Ford intensified its efforts to work with hospitals on quality improvement, both by providing hospitals with more accessible, actionable data and by instituting biweekly meetings to discuss the data, methodology, strategies for improvement, and other related issues.
- The California Cooperative Healthcare Reporting Initiative (CCHRI), a collaboration of health plans, medical groups, and purchasers, has developed the Diabetes Continuous Quality Improvement Project. Administered by PBGH, this program is intended to spur improvements in the quality of care delivered to California's diabetic population through the standardization and dissemination of care guidelines and other information. CCHRI officially released the printed guidelines to participating provider organizations in October 2001, and mailed the guidelines to all California primary care physicians in January 2002. The guidelines are also posted on PBGH's Web site (**www.pbgh.org**).[54]

Measurement at the Provider Level

While HEDIS and CAHPS are robust tools for assessing health plans, their applicability to quality measurement at the delivery system and individual provider level is relatively limited. Efforts are presently underway to refine these tools to allow for measurement at the provider level. A version of the CAHPS survey for group practices has already been tested in California (see **www.healthscope.org**). For information on the development and availability of the CAHPS survey for physicians and medical groups, visit **www.cahps-sun.org**. In addition, the National Quality Forum (**www.qualityforum.org**), an outgrowth of President Clinton's task force on improving the quality of health care in America, is working to develop national standards for the measurement and reporting of hospital safety and performance.

Measurement and Feedback Versus Selective Contracting

The measurement and feedback approach is sometimes viewed as an alternative to selective contracting, in which purchasers contract with only the best plans or providers. (See step #4 for more details.) Measurement and feedback preserves a spirit of cooperation between the purchaser and plans/providers, as opposed to the more confrontational nature of selective contracting. It also, at least in the short term, eliminates the need to terminate existing relationships with plans or providers, thus minimizing the potential for employee backlash. Over time, however, this strategy will not work unless employers are willing to penalize chronically poor performers in some way, such as freezing enrollment, driving volume to higher-quality performers, reducing payments, or terminating the contract.

- Three Tennessee business coalitions (the Memphis Business Group on Health, Healthcare 21, and TriHealth) are working with the Mid-South Foundation for Medical Care (the local Medicare peer review organization) to produce meaningful clinical data on cardiac care for physicians, hospitals, health plans, and employers. The employer groups give the providers periodic reports on their performance, and require them to respond to the data by developing concrete action plans for improvement.[55]

Second Task: Engage Plans and Providers in Continuous Improvement Programs

Some purchasers have found that the measurement and feedback strategy works best when it is accompanied by hands-on assistance. These organizations have sent qualified individuals to meet with health plans and providers to assist in developing plans for continuous improvement. For example:

- GM and Daimler-Chrysler have sent teams of trainers to assist the management of provider organizations in developing quality management skills within their clinical and administrative teams.
- MBGH has used the Institute for Healthcare Improvement's *Breakthrough Series* to train teams of hospital-based nurses and physicians on best practices for improving quality and reducing waste. The quality improvement projects address several topics of importance to purchasers, including best practices in treating Cesarean sections, depression, and diabetes. The goal of this type of information-sharing is to help plans and providers in identifying problem areas and improving their performance over time. Some purchasers require the plans or providers to submit concrete proposals for how they plan to address areas of weakness. See **www.ihi.org** and **www.improvingchroniccare.org** for more information.
- As a part of its Diabetes Continuous Quality Improvement Project, CCHRI is sending consultants to visit each participating medical group to discuss benchmarking data and to assist in the development of an intervention work plan to improve the care of patients with diabetes. In addition, CCHRI distributed toolkits containing best-in-class provider education materials and patient rosters at the individual physician level.[56]

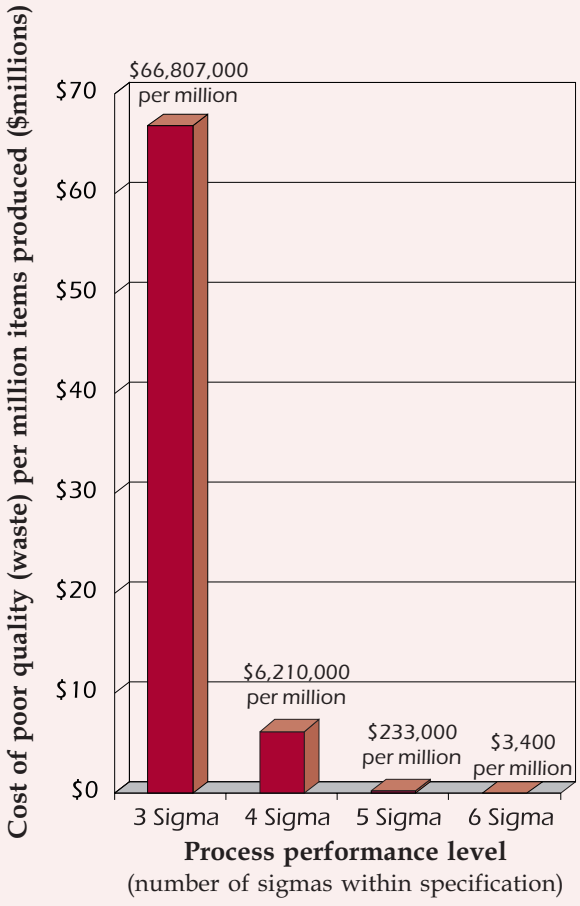
Some innovative purchasers have gone even farther by actively engaging their plans and/or providers in a more formal approach to continuous quality assessment and improvement. A variety of formal tools exist for diagnosing and correcting health care performance problems, including overuse, underuse, misuse, and waste. For example, based on the success of the Toyota Corporation in world competition, "Lean Manufacturing" has developed as a management discipline. More information on this concept can be found at www.lean.org.

To give a better sense of the power of these types of tools, this section provides a more detailed look at six sigma, an approach that has been used by a number of major corporations and has recently been adapted in the health care setting. Six sigma is a statistical term that refers to a process that produces less than 3.4 defects out of every million opportunities. But it is also a business strategy which aims to eliminate waste and drive the quality, cost, and time performance of any business process to near-perfect levels. The cost savings potential from the use of six-sigma tools is quite high. As demonstrated in the chart at right, the costs of poor quality within a given process fall exponentially with movement from three-sigma levels of performance (where many health care processes are today) to four-, five-, and six-sigma performance.

The six-sigma strategy refers to a series of interventions and statistical tools and techniques, combined with a disciplined methodology used by specially trained individuals. It can lead to order-of-magnitude improvements in profitability and quantum gains in quality for companies that produce goods or services. The training of individuals in six-sigma techniques typically takes several weeks and costs several thousand dollars per trainee.[57]

Cost of Poor Quality as a Function of Six Sigma Performance Levels

(assuming 1 million items produced and a cost of $1,000 per defect)



Source: DeFeo, JA. "The Tip of the Iceberg," *Quality Progress*. May 2001. 36.

The six-sigma methodology follows a five-step method: define, measure, analyze, improve, and control (also known as DMAIC). This methodology is used to correct processes that are somehow "off target" or that produce a high degree of variation. Processes tend to be candidates for improvement if the impact from improvement on the bottom line is expected to exceed several hundred thousand dollars and if there is the potential for a 10-fold (or greater) reduction in defect rates. Six-sigma pioneers also tend to look for quick results, choosing projects that can be completed within a few months and that produce financial benefits within a year or less. For example, in its six-sigma program, 3M tries to identify projects that will take less than 6 months to complete and that have the potential for at least a $300,000 return within 12 months.[58]

Motorola coined the term *six sigma* in the 1980s as a rallying cry to achieve breakthrough results. Since that time, the strategy has been adopted and expanded by several companies, including General Electric (GE), Allied-Signal, and 3M. For example, Allied-Signal used the approach to bring three model factories to near six-sigma levels of performance between 1994 and 1997. GE reduced the average frequency of defects from 67,000 to 23,000 per million within the first 22 months of its program.

While the six-sigma approach began in manufacturing, Motorola, GE, and other companies have extended its application to customer service activities. One of GE's divisions used six sigma to improve on-time deliveries by 85 percent and to reduce billing mistakes by 87 percent within two years.[59]

Six sigma is slowly gaining acceptance among purchasers and providers as a means of improving health care processes, which currently tend to operate at much higher defect rates (in some cases exceeding 500,000 defects per million opportunities). The earliest adopters of six sigma in the health care industry were anesthesiologists, who used six-sigma methodologies and other tools over a 30-year period to radically reduce error and death rates. For more information on these efforts, please visit the responsible purchasing section of the MBGH Web site (www.mbgh.org), available beginning in July 2003. Another example comes from Heartland Health, a vertically integrated health care system in Missouri, which has adopted six-sigma tools in an effort to improve some of its poorer-performing processes. To reach six-sigma quality, Heartland estimates it would need to reduce the following:

- Incomplete medical records from 1,450 per month to 18 per year.
- Clerical errors on charts from 24 per month to 14 per year.
- Annual adverse drug events from 1,040 to 5.
- Surgery patients with incomplete orders from 45 per week to 3 per year.
- Patients with incorrect billing statements from 60 per month to 24 per year.
- Late-starting, early-morning surgeries from 12 per month to 1 per year.[60]

Heartland is presently engaged in several six-sigma initiatives, including a project targeted at claims adjudication, a process that currently results in errors 93 percent of the time (a zero-sigma level of quality), and medication errors, which currently affect seven percent of patients (a three-sigma level of quality). In both cases, Heartland's goal is a 10-fold improvement.[61] Additional information on the use of six-sigma tools in the health care industry can be found by visiting the Web sites of the Juran Institute (**www.juran.com**) and the Institute for Healthcare Improvement (**www.ihi.org**).

In recent years, a handful of purchasers that pioneered the six-sigma strategy in their own businesses—including Motorola, Honeywell, and GE —have begun to assist plans and providers in their efforts to adopt it in health care.[62] For example, Motorola has applied the six-sigma approach and terminology (e.g., defect rates) to its health plan relationships. All aspects of health plan performance are measured continuously, with an expectation that data will be analyzed to identify and address the most important problem areas. Motorola has also trained network and medical managers in six-sigma techniques.

Beginning in 2001, 3M embraced six sigma as a company-wide initiative.[63] Staff in 3M's human resources department (10 percent of whom are currently trained in six-sigma techniques; the company's goal is to have all department staff trained within two years) are presently evaluating opportunities to launch six-sigma projects in order to optimize health care expenditures. While the initial focus is on internal processes and programs (e.g., redesigning the prescription drug benefit), 3M expects to identify six-sigma projects where it will collaborate with plans and/or providers in the future.[64]

Step #3: Educate and Share Performance Information with Consumers

Some experts believe that providing feedback for internal quality improvement is not enough of an incentive for plans and providers. They believe that quality of care will not get significantly better until there is an external "push" for improvement from consumers. Purchasers are uniquely positioned to "activate" their employees, beneficiaries, and the public at large on the issue of quality.

First Task: General Education on Performance Issues

Activating consumers is not an easy task, as many assume that the quality of care they receive is first rate. To begin the long process of consumer activation, therefore, many experts advocate educational initiatives that are intended to raise awareness of performance problems in the health care system. While education on quality and cost issues is not enough on its own to change consumer behavior, it is one of a constellation of strategies that employers can use to promote consumerism.

Purchaser-led education can take a variety of forms. Some purchasers may want to engage in general education about quality problems, safety issues, and/or variations in quality. For example, prior to open enrollment, the Ford Motor Company has distributed a flyer that, among other things, highlights problems related to patient safety (specifically, deaths from avoidable errors) and quality (specifically, overuse of hysterectomies and nationwide variations in the use of eye exams for Medicare beneficiaries with diabetes).[65]

"It is well accepted that employers have a responsibility to educate 401(k) participants about investments. We have a parallel responsibility in health care."

—Peter Lardner, chairman of the board of Bituminous Casualty Corporation

A Strategy for All Employers

Unlike some of the initiatives outlined in this report, virtually any employer—large or small—can independently develop a program to educate employees about health care quality issues. Much of the raw material needed to develop an educational campaign is publicly available at little or no cost.

Purchasers should also strongly consider providing employees with educational materials to assist in choosing health plans, doctors, hospitals, and other facilities based upon quality. For example, purchasers can take advantage of a quality navigation tool produced by AHRQ, entitled *Your Guide to Choosing Quality Health Care,* available at **www.ahrq.gov/consumer/qmtool.htm**. This guide provides general education on the importance of quality and, more importantly, provides specific guidance to consumers as they select plans and providers. The booklet helps consumers determine what to look for with respect to quality (e.g., accreditation reports, quality rankings) and provides a list of specific questions to consider when making decisions.[66]

An evaluation of this tool, commissioned by MBGH with financial support from AHRQ, was conducted by Lake Snell Perry & Associates (LSPA) in October 2000. Based on two focus groups, LSPA found that Chicago YMCA employees had overwhelmingly positive reactions to the information, which was available to them on the YMCA Web site. Employees appreciated the information (especially the questions to ask physicians), and felt that providing the information was an appropriate role for an employer to play.[67]

The most effective education programs may be those targeting a specific performance problem, usually one that has been identified in the audit as being a large issue for a company. Examples include the following:

- **Educating employees on patient safety issues**. The Leapfrog Group, in collaboration with the Foundation for Accountability (FACCT; **www.facct.org**), has developed a comprehensive patient safety education campaign that is available on the organization's Web site (www.leapfroggroup.org). The Joint Commission on the Accreditation of Healthcare Organizations (JCAHO) has launched the "Speak Up" campaign, which urges patients to become active, involved, and informed participants on their health care team. A central focus of the campaign is to prevent medical errors. The "Speak-Up" brochure can be downloaded from **www.jcaho.org**.[68]
- **Providing employees and retirees with information on medication errors**, such as the Institute of Safe Medication Practice's brochure *How to Take Your Medication Safely*. These materials should include a list of questions that patients can ask pharmacists, physicians, and/or nurses, including the name of the drug, its purpose, and the proper dosage and frequency.
- **Providing employees, retirees, and family members who are suffering from a particular illness or condition with information that can help them be partners with their physicians in treatment decisions**. Shared decision making, pioneered by John Wennberg, MD, MPH, allows patients to use decision-support systems (e.g., videos) that provide balanced information about treatment options for a specific disease. The goal is a better match between patient preferences and treatment. Studies suggest that patients provided with this information choose surgery less often for a variety of "preference-sensitive" conditions, such as low back pain, prostatic hyperplasia, and stable angina.[69] For more information, purchasers can call the Center for Shared Decision Making at Dartmouth-Hitchcock Medical Center at (603) 650-5578 or visit **www.hitchcock.org**. Click on Health Education Resources, Health Education Centers, and then Shared Decision Making.

- **Distributing (or directing employees to) educational materials and/or "cold kits" on the overuse of antibiotics, and the potential development of resistance to future treatment**. The Centers for Disease Control and Prevention (CDC) have developed consumer-friendly materials (**www.cdc.gov/antibioticresistance/tools.htm**) on this subject. CDC also recently joined in partnership with the Coalition for Affordable Quality Healthcare (CAQH, a coalition of 25 health plans and insurers representing more than 100 million Americans) to launch a national campaign to educate Americans about the growing risk of antibiotic resistance. Purchasers can provide employees with materials from this campaign as well as copies of important articles on the issue (see March 1998 and May 2001 *Scientific American*). Purchasers can also post information on a company Intranet (with links to CDC and other credible sources) or put up posters in public areas. In addition, some purchasers may want to extend their educational efforts to physicians by using claims data to identify and counsel doctors that frequently prescribe antibiotics that are prone to overuse.
- **Providing education about the importance of employees and family members getting regular preventive care (e.g., immunizations and flu shots) and screenings**. For example, 3M developed written educational materials designed to educate employees on proper preventive care and on lifestyle issues that are related to improved health.[70]
- **Distributing materials to employees and retirees on the importance of hand washing by providers both before and after patient contact**, which has been shown to be the single most effective means of preventing the spread of bacteria in the hospital and other settings. Yet today providers wash their hands only 30 to 50 percent of the time.[71] If consumers were educated to inquire about hand washing, perhaps this figure would improve.

To maximize the impact of any educational initiative, marketing experts suggest multiple exposures to the message. While providing information at the time of enrollment is a good start, information will not have a lasting effect unless it is reinforced consistently and frequently. Experts also suggest use of a wide variety of formats, including written brochures or fliers, television or video, and a company's Intranet or Web site.

Finally, purchasers may want to test the message of any educational program on a pilot basis before launching it company-wide. For example, The Leapfrog Group used focus groups to test the educational package it developed for members to use in communicating to employees. During these focus groups, Leapfrog's leadership learned important lessons on how best to convey messages about quality. For example, they discovered that consumers did not relate well to terms such as "medical errors" and "patient safety," but they did respond positively to the term "preventable mistake." By crafting the language so that it resonated with consumers, Leapfrog members are more likely to have an impact with employees, even skeptical ones who may fear that their employer is merely using the educational initiative as a precursor to curbing benefits.[72] (See box on the facing page for more details on this issue.)

Resistance to, and Assistance with, Educational Programs

Some employees may not be receptive to educational programs on the quality of health care, as they may perceive them as a precursor to a reduction in health care benefits. Thus, it is critical for employers to consider the potential for this type of reaction when designing an educational campaign related to health care and quality issues.

To assist in the development of educational initiatives that will be well received by employees, employers might want to consult outside resources. AHRQ, in conjunction with CMS and the U.S. Office of Personnel Management, has created a Web site (**www.talkingquality.gov**) that can help purchasers formulate strategies for educating employees about quality issues. The site offers guidance on what to tell employees about quality, how to present information on the relative performance of plans and providers, how to promote the use of this information, and how to evaluate the effectiveness of educational efforts. (See the next part of this step for more details on sharing performance information.)

In addition, the Leapfrog Group has created a clearinghouse of consumer information materials and tools developed by government agencies, accreditors, non-profit organizations, and employers. Interested purchasers can access these materials at **http://www.leapfroggroup.org/clearinghouse.htm**.

Finally, purchasers might want to assist employees and family members in accessing high-quality information over the Internet. While the Internet contains vast amounts of information on health care that may be of use to employees and family members, the quality and reliability of the information contained on some Web sites is a serious concern. One useful resource for purchasers is a recent report by The Commonwealth Fund, *Accessing Physician Information on the Internet*. This report, available at **www.cmwf.org**, reviews the quality of information contained on 40 different Web sites that provide information on physicians.

Second Task: Share Performance Information with Consumers

Simply educating consumers about general or specific quality issues is likely not enough to change how they make their health care decisions. Many experts believe that consumers must be armed with comparative information on the quality performance of the various plans or providers available to them. The benefits of this approach are thought to be two-fold:

- First, by providing information to employees, dependents, and the public at large, purchasers encourage consumers to consider quality when making important health care decisions, including the selection of a plan or provider. The hope is that consumers will "vote with their feet" by migrating to organizations offering the highest levels of performance, thus creating a reward for those plans and providers who invest in quality improvement.
- Second, even if consumers do not pay attention to the information, the simple act of publicly disclosing information often provides plans and providers with the motivation they need to improve. This motivation should be particularly strong among the worst performers, as no organization wants to be singled out in public as offering poor quality.

Information Important as Employees Assume Financial Responsibility

Within the last few years, purchasers have slowly been shifting financial responsibility for health care coverage to employees. This increase in cost sharing is intended to force consumers to have a larger financial stake in the decisions they make. The theory is that if consumers bear a greater portion of the cost, they will be more cost-conscious in selecting plans, providers, and treatments.

One vehicle for giving employees greater financial responsibility is the creation of "multi-tier" provider networks. Like the three-tier drug plans that many employers now use, these arrangements group hospitals and physicians based on various performance measures related to cost, customer satisfaction, and quality. While employees retain access to any provider, they may be required to pay more to visit a provider with higher costs. The goal is to force employees to consider performance when making health care decisions, and to motivate providers to differentiate themselves based on quality, service, satisfaction, and price.

Some companies are considering taking this concept a step further by evolving their contribution strategy to one in which they contribute a fixed amount per employee (or family) for coverage. This contribution may be set at a level equal to the lowest-priced plan or provider system in the market, leaving the employee to pay the incremental costs if they choose a more expensive plan or provider system. While this type of "defined contribution" strategy is still in its infancy, it holds tremendous potential for curbing the employer's share of health care costs. As a result, many experts expect it to become much more popular in the future.

As purchasers shift financial responsibility to employees through defined contribution and other strategies, they have a special responsibility to provide these employees with the information they need to make wise purchasing decisions. This includes data not only on the relative costs of available plans or provider systems, but also on the quality of services.

Reporting at the Health Plan Level

The vast majority of purchasers that explicitly measure health plan performance for internal quality improvement purposes also release similar kinds of information to employees and, in some cases, the general public. Often this is accomplished through the distribution of "report cards" that contain comparative information on the performance of the various plans available to employees and their families. For example:

- From 1996 to 2001, the Alliance, a non-profit coalition of employers in the Denver area, released reports on the performance of health plans participating in the CHIP (Cooperative for Health Insurance Purchasing). The reports included select HEDIS indicators, consumer satisfaction rates, and select measures of customer service.[73]

- The New York Business Group on Health (NYBGH) is working with IPRO (the local peer review organization) in a partnership known as the New York State Health Accountability Foundation (NYSHAF). This organization releases a report card each year that compares the performance of 30 health plans along a number of key dimensions related to access, service, prevention, and recovery from illness.[74] These reports can be found at **www.abouthealthquality.org**.
- For several years, GM released a company-wide report card that showed the performance of its HMOs relative to national standards and local norms. The report evaluated plan performance in eight areas, including whether the plan had NCQA accreditation; whether its performance met the level of superior or "benchmark" plans; plan operational results; and plan scores on measures related to preventive care, medical/surgical care, women's health care, access to care, and patient satisfaction.[75] GM now participates in a regional report card initiative known as CARS (Coordinated Autos/UAW Reporting System).
- A number of state governments, including New Mexico, Texas, New Jersey, Maryland, and Minnesota, issue report cards to assist state employees and the general public in choosing health plans.
- For many years, the U.S. Office of Personnel Management has provided a variety of information to employees on the quality, costs, and other features of the health plans available to them.
- CMS uses its Web site (**www.Medicare.gov**) to provide beneficiaries with comparative information on Medicare+Choice organizations, including data on beneficiary satisfaction levels and selected quality measures (e.g., the percentage of eligible beneficiaries who received flu shots and mammograms).[76]

More Report Card Examples

For a single source of a wide variety of report card examples, visit the AHRQ-sponsored Web site, **www.talkingquality.gov**.

Bringing Reporting to the Level of the Provider Organization

Consumers tend to care more about providers than plans, and variations in quality tend to be greater at the provider level. Consequently, a handful of purchasers focus their measurement and reporting efforts on provider organization (e.g., hospitals, medical groups). For example:

- For several years, PBGH surveyed patients to measure the performance of approximately 30 medical groups and independent practice associations. Performance dimensions included overall satisfaction with quality of care and services; access to care; two-year changes in physical and mental functioning; provision of key preventive services (e.g., screening for breast, cervical, and colorectal cancer); and helping patients control high blood pressure and high cholesterol.[77]

  Most recently, PBGH has worked with AHRQ and other researchers to merge its survey instrument with CAHPS in order to create a new standardized patient survey that can be administered at the provider level. PBGH's report cards also include information on California hospitals; for more information, visit **www.healthscope.org**.

- BHCAG, a coalition of 52 purchasers in Minnesota and South Dakota, evaluates the quality of 28 provider-led care systems (groups of primary care physicians, specialists, hospitals, and other care providers that have come together to offer a comprehensive set of services to BHCAG member employees). Each year, BHCAG provides employees and their dependents with patient-reported satisfaction scores at the care system level, including overall satisfaction with the clinic and individual providers; access to care; how well doctors communicate; ease in getting referrals and care; waiting times for appointments and in waiting rooms; and courtesy, respect, and helpfulness of staff.[78] Purchasers can view BHCAG's report card at **www.bhcag.com**.
- Ford Motor Company, in collaboration with eight other organizations, has been working with local hospitals in five metropolitan areas (Atlanta, Buffalo, Indianapolis, Cleveland, and Southeast Michigan) on the Hospital Profiling Project. Reports on the quality of care that hospitals provide are available to employees and retirees in brochures and are publicly available via a Web site (**www.hospitalprofiles.com**).[79] As noted previously, Ford initiated this project after earlier efforts to persuade hospitals to improve through internal feedback alone met with limited success. Anecdotal evidence suggests that the public release of the information has motivated at least some hospitals to use the information to identify problem areas and to develop and implement strategies for improving performance.[80]
- The Niagara Health Quality Coalition (NHQC) publishes a report on the quality of care as reported by patients for 15 Western New York hospitals. Patients rate quality for three different types of service: medical care and treatment, surgery, and childbirth procedures. Care is rated in the following categories: being treated with respect, being kept informed and educated, having care coordinated, being comfortable, receiving emotional support, involving family and friends in decision making, and being prepared for discharge. As a result of the NHQC patient survey process and other programs, participating hospitals have implemented 153 improvement initiatives. More information, including samples of reports, is available at **www.myhealthfinder.com**.
- The Community Health Purchasing Corporation (CHPC) in central Iowa, a coalition of 30 corporations, uses CAHPS to assess patients' experiences with three Integrated Systems of Care (ISCs), which are provider networks available to employees of these companies. Each ISC is also required to implement and measure the impact of 15 clinical practice guidelines over a three-year period.[81]
- The Massachusetts Business Roundtable participates in Massachusetts Health Quality Partners (MHQP), a collaboration of plans, providers, state government, and purchasers. MHQP conducts and publishes the results of a standardized survey of adults who receive hospital-based medical, surgical, or maternity care. The survey evaluates seven dimensions of care, including respect for patient preferences, coordination of care, information and education, physical comfort and pain relief, emotional support, involvement of family and friends, and continuity and transition.[82] More information on MHQP is available at **www.mhqp.org**.

- The Alliance in Madison, Wisconsin, is a coalition of 170 large and mid-size employers and 400 small employers that collectively cover 106,000 lives. The group released two reports comparing the quality of hospitals and medical groups in the state. One report rates 24 Wisconsin hospitals on safety measures such as mistakes, complications, and deaths in 1999 and 2000. The second report, based on a survey of 3,500 consumers, shows satisfaction rates for 12 central Wisconsin medical groups during 1998 and 1999.[83] The Alliance's report cards are available at **www.qualitycounts.org**.
- The New York State Health Accountability Foundation (NYSHAF) produces reports that compare procedure volumes on a provider-specific basis. The report focuses on those procedures, such as hysterectomy, cardiac catheterization, and knee replacement, where high volumes are correlated with better outcomes.[84] These reports are available at **www.abouthealthquality.org**.
- The Leapfrog Group is creating a national database that will include information on the performance status of more than 7,000 urban hospitals with respect to the three safety leaps that Leapfrog advocates. More information is available at **www.leapfroggroup.org**.
- CMS provides information about the performance of every Medicare- and Medicaid-certified nursing home and dialysis facility on its **www.Medicare.gov** Web site.[85] Most recently, CMS released the results of a pilot program to rate nursing homes in nine quality areas.

Work is presently underway to bring measurement down to the level of individual physicians. Purchaser organizations involved in these initiatives include the Employer Health Care Alliance in Cincinnati and the Oregon Coalition of Health Care Purchasers in Portland. That said, due to a variety of issues (e.g., sample sizes that are too small for statistical significance), a number of problems must be resolved before reporting at the individual physician level can become common.

Reporting on Quality Improvement

In addition to providing information on performance at a point in time, report cards can also highlight any quality improvement initiatives that a plan or provider may have in place. For example

- The Greater Detroit Area Health Council has highlighted information on health plans' disease management programs.[86] Plans and providers with quality improvement programs often appreciate the publicity, which sends a strong signal to consumers about the seriousness of their commitment to quality.
- NYSHAF highlights whether health plans have implemented programs to improve the quality of diabetes care, including both monitoring and treatment of the disease. The Foundation required plans to provide written documentation of their efforts with respect to each of six diabetes management measures. Initial reports found that the scope of improvement efforts varied significantly, with four plans having no improvement efforts in place and five having programs in all six areas.[87]

Collaborating for a Better Process and Product

To ease the data collection and analysis burden on both purchasers as well as those entities being measured, purchasers in some areas have come together to agree on a common approach to measurement and, in some cases, reporting. This collaborative approach may also produce other benefits, including greater visibility for the program, greater leverage with the plans or providers, more credible information (due to larger sample sizes), and clearer and more consistent information for employees. (In some markets, including California, the existence of multiple report cards that measure the performance of the same plans and/or provider groups has historically resulted in inconsistent and often confusing information for consumers.)

> ***"The 10,000 report cards floating around this country are a massive duplication. But there is no standardization of what they are measuring. Patient satisfaction on one report card may be totally different from patient satisfaction on another one."***
>
> —Gail Warden, CEO of Henry Ford Health System

Examples of this collaborative approach on a regional level include the following:

- In California, CCHRI (a collaboration of health plans, medical groups, and purchasers) takes responsibility for collecting, analyzing, and reporting on health plan performance for the vast majority of plans enrolling commercial HMO members. This collaborative effort is managed by PBGH, whose members rely on carefully defined and audited measures drawn from HEDIS and CAHPS.[88] More information on CCHRI is available on the PBGH Web site (**www.pbgh.org**).
- In the late 1990s, the Missouri Consolidated Health Plan (which purchases on behalf of state and local government employees) joined with Gateway Purchasers of Health, a coalition of large St. Louis corporations, to standardize their data collection and audit activities.[89]
- General Motors, Ford, Daimler-Chrysler, the International Union of United Auto Workers (UAW), the state of Michigan, and the Greater Detroit Area Health Council joined forces in the CARS (Coordinated Autos/UAW Reporting System) project to develop a common measurement methodology and presentation format for information on the performance of health plans.[90]
- Members of the NYBGH—which include some very large employers such as IBM—have agreed to use the NYSHAF report card, which provides statewide data on all commercial enrollees, rather than issuing multiple, company-specific report cards.[91]
- By agreeing on common measures and methodologies, the nine sponsors of the Hospital Profiling Project share the costs associated with analyzing the data and producing the report, and are able to enjoy greater community visibility for the project and enhanced leverage with the plans being measured.[92] The sponsors include Ford Motor Company, Daimler-Chrysler, General Motors, the United Auto Workers, MESSA, Detroit Edison, COSE, the Health Action Council, and the Michigan Public School Employees Retirement System.

In addition to these regional initiatives, the National Business Coalition on Health's eValue8 Group has developed a standardized health plan Request for Information (RFI) which can greatly reduce the time and effort required to research health plans, verify responses, and analyze plan-specific information. Health plans and provider systems also can benefit from reduced time spent responding to a variety of requests from purchasers and benefit consultants. In addition to the coalitions, contributors to this joint initiative include GM, Marriott International, the Joint Commission on the Accreditation of Healthcare Organizations, the National Committee for Quality Assurance, and the Substance Abuse and Mental Health Services Administration. The eValue8 Group also provides a forum for collaborating on what works best for producing report cards.[93] More information on eValue8 is available at **www.nbch.org**.

Finally, the National Quality Forum (NQF) represents the "mother of all collaborative efforts." Founded as an outgrowth of President Clinton's task force on improving the quality of health care in America, NQF is a privately funded and governed institution that involves all major stakeholders in the industry. Among its early activities are efforts to develop consensus on "never events" (egregious errors that should never occur) and a set of national measures for hospital safety and performance reporting. The goal is to enhance the comparability of measurement across organizations and to ease the measurement and reporting burden on the industry. Interested purchasers can become involved in NQF's activities. For more information, visit the NQF Web site at **www.qualityforum.org**.

Taking a Different Approach to Provider Reporting

An alternative approach to collaborative public reporting at the provider level comes from The Leapfrog Group, a coalition of more than 100 major purchasers that collectively represent more than 30 million Americans and more than $48 billion in annual health care spending.[94] Founding members of Leapfrog, which was originally sponsored by The Business Roundtable, include PBGH, GM, GE, and BHCAG. These founders have now been joined by a large number of employers, coalitions, CMS, and the U.S. Office of Personnel Management, whose leaders have become alarmed at the data coming out of IOM and other organizations on medical errors.

To address these issues, Leapfrog members have identified three "leaps" in patient safety that they would like all urban hospitals to implement:[95]

- Computerized physician order entry or CPOE systems, which have been shown to reduce serious drug errors by 88 percent
- Evidence-based referrals to high-volume institutions for procedures (coronary artery bypass surgery, coronary angioplasty, abdominal aortic aneurysm repair, carotid endarterectomy, esophageal cancer surgery, and high-risk deliveries) where quality is correlated with volume, which could reduce mortality by 20 percent
- Daytime use of physician intensivists in the intensive care unit, which has been shown to reduce mortality in these units by 10 percent or more

Taken together, Leapfrog estimates that these three initiatives could prevent over 500,000 medication errors and save over 58,000 lives (and a similar number of disabilities) if implemented in every non-rural hospital in the country.[96]

Consumer information is a key component of Leapfrog's strategy to encourage hospitals to implement these initiatives. The safety initiatives were chosen in part because they would be easy for the lay public to understand. Leapfrog members are making a concerted effort to educate their employees and the general public about the importance of these measures and to tell them which hospitals have implemented each "leap." For example, Leapfrog recently rolled out a survey of hospital leaders to gauge their progress in implementing the three patient safety standards; it released results from the initial roll-out in six geographic areas, which indicate that only 3.3 percent of

Do Consumers Pay Attention to the Data?

The public reporting strategy rests on one huge assumption—that consumers will use the data when choosing among plans and providers. Some evidence suggests that at least a small subset of consumers use such information today. For example, in an evaluation of the Hospital Profiling Project, researchers found that a small percentage of employees and retirees in all five geographic areas are incorporating data from report cards into their choice of hospitals.[98]

Moreover, there are encouraging signs that more consumers will use comparative information in the future. A 2000 survey sponsored by the Kaiser Family Foundation (KFF) and AHRQ found that 47 percent of consumers believe there are "big differences" in the quality of local hospitals, up from 38 percent four years earlier. Forty-two percent believe there are big differences in the quality of specialists, up from 28 percent in 1996. In addition, consumers display an increased willingness to use performance ratings in choosing providers (and a concomitant decrease in reliance on past experience). For example, only 50 percent of consumers suggest they would continue to see their surgeon if he or she had poor performance scores, down from 76 percent in 1996. Nearly four in ten (38 percent) say they would choose a highly rated surgeon they had not seen before, almost double the 20 percent who would have chosen this surgeon in 1996.[99]

An employee survey conducted by GE also demonstrates a willingness to use performance ratings, as evidenced by the following:[100]

- Ninety-seven percent of employees believe it is important for them to play an active role in choosing physicians, hospitals, and medical treatments.
- Four in five would switch doctors or hospitals based on measurements of quality.

Further signs of encouragement come from a recent study conducted by VHA, Inc., which collected quantitative and qualitative data from 419 participants in nine large group sessions held in the summer of 2000, and conducted nine focus groups with 86 consumers. All of these consumers had recent experience with the health care system, either on their own or through an immediate family member. This research produced the following findings:

- Consumers are seeking credible and meaningful clinical information.
- They believe it is important to be actively involved in their care and that of their family members.
- They regard clinical quality issues as central to quality, and therefore more important factors in decisions than service issues.

the 241 respondents have CPOE systems, with 30 percent planning to implement CPOE by 2004. Corresponding figures for intensivists are 10 percent in use today and an additional 20 percent planning to use them in the near future. Leapfrog plans to expand this survey to 10 other geographic areas in 2002.

Employees of Leapfrog companies remain free to choose providers that do not implement the safety measures. However, some Leapfrog members might ultimately consider a hospital's progress with respect to the three initiatives in contracting discussions with plans and providers.[97]

- They understand and embrace concepts such as evidence-based medicine and systems-based measures for patient safety.
- They believe that having such information would influence their choice of provider.

The report's authors cautioned, however, that the results from this research are not universally applicable to the general population, due to the non-random nature of the sample (i.e., consumers with recent experience with the health care system). Nonetheless, the authors believe the results apply to as much as 40 percent of the general population and are indicative of more general trends in consumer attitudes.[101]

Even if consumers never show interest in quality information (an unlikely outcome), the act of disclosing data publicly still can have enormous value, as it appears to spur poor-performing organizations to improve. In New York State, for example, those hospitals singled out as poor performers in the state's report on mortality from cardiac surgery took concrete steps to improve. In the three years after the system was introduced, statewide mortality rates declined by 41 percent, considerably better than the national average.[102]

Improving the Quality of Report Cards

Many experts believe that consumers do not pay attention to report card data because of flaws in the way the information is presented. McGlynn and Brook cite a variety of problems, including conflicts in information when multiple report cards exist within a geographic area, information that is hard to understand due to its technical nature or poor design, information that is irrelevant to the decision at hand, and a lack of availability when a decision needs to be made. They recommend the following improvements to current efforts: provide a context for consumers and reasons why they should care about the information; give top billing to the information that is most important to consumers; organize the information hierarchically under clear headings and subheadings; and build redundancy into the presentation to reinforce the message.[103] For assistance in developing the kinds of reports that McGlynn and Brook envision, purchasers and other interested sponsors can turn to **www.talkingquality.gov**, a Web site sponsored by AHRQ.

Step #4: Reward High-Quality (and Penalize Poor-Quality) Plans and Providers

Despite the encouraging signs that consumers may be paying more attention to information on the relative performance of plans and providers, consumers are not yet migrating in significant numbers to the best performers.

As a result, health plans and providers often derive no economic benefit from their quality improvement activities. In some cases, perverse purchaser payment systems even penalize them for improving quality. It is no surprise, therefore, that purchasers' demands for investments in quality improvement activities are often ignored, if not resisted.

First Approach: Financial Incentives

To address this issue, a handful of purchasers have decided that they need to create meaningful financial incentives to reward strong performance. These purchasers recognize that in order to realize any cost savings from quality improvement, they must be willing to share some of those accrued benefits with plans and providers as a "reward" for their efforts.

A variety of models for implementing this strategy exist, as outlined below.

"There are no financial incentives for quality today. Here, employers have been a real problem . . . I think purchasers are going to have to step up to the plate and be willing to create the incentives."

—Lee Newcomer, MD , while at United Health Group (now at Vivius)

Model #1: Direct Incentives to Plans or Providers

The first model involves payments to plans or providers to reward strong performance or investments in quality. Typically, these payments are made through a risk or bonus pool in which money is set aside, to be distributed to plans or providers based on their ability to meet agreed-to performance targets. For example:

- The Central Florida Health Care Coalition, a group of large Florida employers (including Disney, Lockheed Martin, and Universal Studios), is planning to give financial rewards to physicians who meet certain quality and best practice standards. Once the plan is implemented, the coalition will compare physicians' clinical, financial, and patient satisfaction data with benchmark standards developed by AHRQ for the treatment of diseases such as asthma, diabetes, and heart failure. The coalition's president noted, "The goal is to utilize the information to reward physicians who have the best outcomes and to pay for performance."[104]
- PBGH collects performance data and negotiates performance guarantees tied specifically to quality targets for each of the HMOs used by the purchasers it represents. Quality measures include customer satisfaction as well as mammography screening rates, childhood immunizations, blood glucose monitoring and retinal exams (for individuals with diabetes), cholesterol screening, prenatal care, cervical cancer screening, flu vaccines, and advising smokers to quit. Two percent of premium payments are at risk based on how well the plans do in achieving agreed-upon improvements.[105]

- BHCAG provides direct cash incentives to providers that demonstrate superior performance based on patient satisfaction, delivery of preventive services, and documented implementation of clinical quality improvement initiatives.[106]
- Since 1998, CBGH has sponsored the Health Purchasing Initiative (HPI) to bring area employers together to evaluate and purchase HMO services. As part of the HPI, CBGH negotiates performance guarantees with each HMO on behalf of its HPI clients. Each plan is required to place two percent of its premium at risk, with payout based on whether the plan meets its negotiated targets with respect to clinical performance, administrative performance, member satisfaction, and member service. The targets are based on a plan's current performance, not a community standard. CBGH has found that most plans meet the majority of targets.

In some instances, purchasers have been instrumental in encouraging health plans to set up incentive programs for providers. For example, six large California health plans recently agreed to set aside $100 million in annual incentives to medical groups representing 35,000 physicians (roughly 70 percent of those who practice in the state). The plans will use a common medical group performance scorecard, with payments based on a mix of prevention, chronic care management, and patient satisfaction measures that PBGH is helping to craft. Half of the score will be derived from clinical measures such as effective screenings for breast and cervical cancers, management of chronic conditions such as asthma, diabetes, and heart disease, and administration of childhood immunizations. An independent entity will validate the scores, which will be published, probably on a public Web site. The $100 million represents roughly 5 to 10 percent of the total funds that the plans pay these groups. This figure is expected to increase over time.[107]

> ***"We have set up some very good quality performance measures with a cardiology group in Florida. The bonus is worth about 20 percent of what they got paid last year. These doctors have proven, with hard data, that all of their patients are getting better care than the community."***
>
> —Lee Newcomer, while at United Health Group (now at Vivius)

A variation on this "pay-for-performance" approach is being pursued by five Leapfrog members in the New York area: Xerox, IBM, Pepsi, Verizon, and Empire Blue Cross and Blue Shield. These companies have agreed to an increase in DRG payments of about four percent for hospitals that invest in quality by implementing two of Leapfrog's recommended safety "leaps" (CPOE and closed-staff ICUs).[108] Rather than boosting payments in response to improvements in outcomes, these purchasers are confident enough in the value of the leaps that they are creating direct financial incentives for hospitals to invest in them. The idea is to share the savings generated from the reduction in medical errors and the improved surgical and ICU outcomes that should result from implementation of the recommendations. GE is working with provider systems in the Boston area on a similar type of change in reimbursement that recognizes quality improvement.[109] The Leapfrog Group will also be developing additional incentive templates that will be available to employers and health plans.

Collaboration Required, Assistance Available When Setting Up Incentive Programs

Purchasers typically need to develop incentive plans in collaboration with the plans or providers for which they are being created. These organizations must perceive the program as both understandable and fair. The incentives must also be substantial if they are to have an impact on behavior.

The lack of adequate consultation with plans and providers has resulted in problems for some purchaser-led incentive programs. To improve the odds of success, purchasers might want to turn to consultants or other outside resources for assistance in setting up these programs. For example, the National Health Care Purchasing Institute (NHCPI) produced a series of toolkits to assist purchasers in developing financial and nonfinancial incentives for plans and providers to improve quality of care. To access these materials, **visit www.nhcpi.net**, click on publications, and then toolkits. Relevant reports are also available by clicking on the executive briefs section. This site will be available until the end of 2003.

Model #2: Public Recognition of Best Performers

In addition to direct monetary incentives for high quality, a few purchasers have put in place systems designed to reward strong performers with public recognition. For example, BHCAG gives out annual "Excellence in Quality" Awards that are designed to recognize the achievements of care systems in offering excellent clinical care to enrollees.[110] PBGH had a "Blue Ribbon" Award designed to recognize the best-performing plans, while GM has designated certain plans with superior performance as "benchmark" plans.

The purpose of public recognition is to encourage consumers to migrate to the winning organizations. Thus, the "reward" is not better reimbursement, but rather increased volume. It is important to recognize, however, that in some capacity-constrained markets providers are not looking for additional volume; in these areas, this model may be relatively ineffective in promoting quality improvement.

Model #3: Incentives for Consumers to Choose Quality

Yet another variation on this strategy involves the creation of financial incentives for consumers to choose high-quality plans or providers. Purchasers can set up these incentives by creating tiers of health plans or provider systems, with consumers paying less if they choose higher-quality organizations.

For example, GM has structured its premium contribution policy so that employees pay less out-of-pocket if they choose plans that score well on the company's performance rating system (which is determined equally by quality and cost measures). The difference in out-of-pocket costs for an employee can be significant. Early evidence suggests that the approach is working: Higher-rated HMOs have gained enrollment at the expense of lower-rated plans.[111] Another example comes from BHCAG, which uses a risk-adjusted payment mechanism that creates incentives for beneficiaries to enroll in delivery systems that do the best job of taking care of the sickest patients.[112]

This strategy is an obvious complement to a consumer information strategy, as the combination of performance information and financial incentives should be a strong motivator for employees and dependents to carefully consider quality when making health care decisions.

Model #4: Shared-Savings Contracts

Another way for purchasers to create incentives for quality is to set up "shared-savings" contracts that allow providers and plans to share in some of the savings generated by the elimination of quality problems such as errors or overuse. For example:

- Intermountain Health Care in Utah has successfully negotiated such arrangements with its health plans and purchasers, although doing so required very sophisticated cost and clinical outcome information.[114]
- MBGH and the CBGH Quality Forum (a group of active CBGH members, health plans, providers, and consultants) are exploring opportunities to align payment policies with quality improvement in diabetes. The goal is to develop an innovative reimbursement model that will align incentives by sharing any cost savings with the plans and providers responsible for the improvement. The current plan is to test potential strategies in a pilot project that will assess the impact on health costs, absenteeism, and productivity, and then to modify or spread the innovation as appropriate.[115]

Model #5: Subsidizing Investments in Quality

Purchasers could offer direct or indirect subsidies to providers in order to share in the costs of investing in technologies proven to improve quality. Many of these technologies relate to information systems, which the IOM's *Crossing the Quality Chasm* report highlighted as central to quality improvement. Examples include automated medical records, CPOE, and computerized decision-support tools (e.g., automated reminders, drug-alert systems). Subsidies could take the form of direct payments to cover a portion of the costs of the investment, or higher per-unit reimbursement to compensate for the higher costs borne by the provider that invests in these types of technologies.

Creating Incentives to Access Needed Care

Purchasers can also use financial incentives to encourage consumers to access needed care, such as prevention and screening services. For example, in the mid-1990s, 3M revamped its benefits plan to provide better coverage of preventive services. The old plan—which provided only $50 to $100 of coverage depending on age—was amended to provide 100 percent coverage of preventive care for in-network primary care physicians (who are given guidelines on what is appropriate preventive care).

Another example comes from Eli Lilly and Company, which revamped its benefits package to include coverage for eligible individuals (as determined by clinical criteria) of flexible colonoscopy or FCS, a test for colon cancer that is nearly 100 percent accurate in detecting cancer throughout the colon. Eli Lilly had previously conducted analysis suggesting that colon cancer cost the company over $9 million a year, due primarily to "too-late" screening and inadequate diagnostic tests.[113]

In an earlier effort, BankOne Corporation created a financial incentive (via waived deductibles or extra benefit coverage) for new mothers to obtain pre-natal care beginning in the first trimester of pregnancy. This strategy helped to reduce the rate of Cesarean sections through patient education and the prevention of complications that create the need for a Cesarean section.

An Additional Idea: Instilling Accountability for Poor Quality

While the programs outlined above are laudable, purchasers might want to consider one additional idea—insisting that plans or providers take responsibility for poor quality. For example, purchasers that contract directly with providers could insist on contractual language that specifies no payment when a patient is the victim of a preventable medical error, complication, or infection. Companies in many other industries offer "money-back guarantees" that protect consumers from poor quality. While adapting this approach to health care will undoubtedly be complex (e.g., with respect to identifying and "costing out" errors) and politically difficult for purchasers, few strategies are likely to be more effective in reducing the prevalence of poor-quality care within plans and provider organizations.

Some plans and providers might adopt such sanctions voluntarily. For example, the Veterans Affairs Medical Center in Lexington, KY, put in place a policy that calls for immediate acknowledgment of errors to patients and families. Hospital staff also express their regret and discuss corrective steps they will take to minimize damage to the patient and to prevent future recurrences with other patients. Patients and family members are advised to hire an attorney, and the hospital's counsel quickly begins negotiating a fair and equitable settlement.

The program appears to have resulted in savings for the hospital. The hospital adopted this "tell-all" policy after suffering two major malpractice judgments in the 1980s that cost $1.5 million. During the subsequent seven years (1990-1996), total payments from the 88 malpractice claims against the facility were just over $1.3 million (an average of just over $15,000 per claim).[116] Evidently, patients and their family members appreciate this type of approach, and are less likely to sue if they believe that their providers are being open and honest about their mistakes.

Alternative (or Complementary) Approach to Financial Incentives: Selective Contracting with Best Performers

Rather than, or in addition to, creating financial incentives that reward strong performance, some purchasers may choose to contract only with the best performers. Given the wide variation in performance across plans and (to a greater extent) providers, the potential quality and cost savings benefits from employing this strategy are significant. For example:

- A study of 1,400 hospital organizations shows that 53 percent of those in the top quartile for quality (as measured by mortality, readmission, and complication rates) are also in the lowest quartile for costs, while only 14 percent of those in the highest quartile for costs are also in the highest quartile for quality. In other words, high quality is associated with low costs, while high costs do not appear to be associated with high quality.[117]
- Data from Premier Healthcare Informatics analyzing the costs and quality of three different groups of institutions performing coronary artery bypass graft (CABG) surgery showed that the best-performing institutions achieved 20 percent better outcomes and 40 percent lower costs than did the worst performers.[118]

- Based on a hypothetical analysis by the NCQA (using real data on variations in plan performance), a 20,000-employee manufacturing firm could save over $850,000 ($244,000 in reduced sick day wages and $611,000 in recouped revenues) by contracting with a health plan that does a good job in managing blood glucose levels among diabetic workers, rather than a plan that does a poor job.[119]
- A number of procedure-specific studies have demonstrated the potential for quality improvement through selective contracting with high-volume providers (which in the absence of data can serve as a proxy for quality for certain procedures). Physicians and hospitals that perform more cases of coronary artery bypass surgery, coronary angioplasty, abdominal aortic aneurysm repair, carotid endarterectomy, esophageal cancer surgery, and high-risk delivery tend to have better outcomes than their lower-volume counterparts.

  For example, a recent study on coronary angioplasty found that patients treated by low-volume physicians were more likely to need follow-up bypass surgery than were patients treated by physicians who perform more procedures. Patients treated at low-volume hospitals also had a higher risk of dying within 30 days of the procedure. Similar results were found for patients who received angioplasty with a coronary stent.[120] While there may be exceptions to these rules for some procedures, data such as these helped to convince members of The Leapfrog Group to promote the concept of steering cases to high-volume providers for select procedures where the evidence suggests a quality benefit.

Various methods exist for ensuring that the plans and/or providers made available to employees and their dependents are among the best performers.

Method #1: Contractual Requirements

The most common method is to build in a set of requirements that any plan or provider under contract must meet (either right away or over time). Setting requirements as a condition of contracting is not a new strategy for purchasers, although tailoring these requirements to the promotion of quality improvement is. Requirements can address any of a variety of issues that might affect quality of care. Putting them in place serves to "screen out" those organizations that lack the structural capabilities regarded as essential to offering high-quality care.

For example, **with respect to medical errors and patient safety**, purchasers could require plans and providers to do any or all of the following:

- Position patient safety as a priority in the organization's mission statement.
- Create an accountability system for patient safety, such as reports to the board or the designation of a patient safety officer.
- Promote error reporting to internal and established external (national or state) programs.

Collective Action Required to Influence Plan Contracts with Providers

Because most employers purchase health care through health plans that have relationships with many other purchasers, employers will need to band together to encourage these plans to implement quality-oriented requirements in their provider contracts. The voice of a single customer will likely not be sufficient to convince a plan of the merits of taking this step.

- ▲ Provide practitioners with feedback as a reward for reporting errors.
- ▲ Maintain the confidentiality of all individuals (both staff and patients) involved in errors.
- ▲ Declare that involvement in errors and error reporting will not lead to disciplinary action.
- ▲ Promote proactive quality improvement initiatives designed to enhance systems for addressing errors, near misses, and hazardous conditions.
- ▲ Establish safe workloads and assure proper breaks, using national data as benchmarks.
- ▲ Require the hospital to develop and share a plan for incorporating appropriate technology for efficiency and safety.
- ▲ Use periodic safety self-assessment guides to help with implementation of needed enhancements.
- ▲ Develop (or participate in existing national or regional) initiatives related to medical error reduction, and agree upon approaches for collecting, sharing, and following up on data.

With respect to safety, purchasers could also insist that providers (or plans working with their providers) implement, over time, the three safety leaps advocated by The Leapfrog Group as a condition of contracting. (See page 41 for more information on the safety leaps.) The Leapfrog Group offers free boilerplate contract language that employers can use to commit health plans to improving safety. General Electric has used this type of language to incorporate patient safety requirements into its contracts with health plans.

To promote quality improvement, purchasers can insist on the development of clinical quality improvement programs and the use of outcomes measurement, disease management programs, practice guidelines, or other initiatives. For example, BHCAG has mandated that its provider care systems implement quality improvement programs.[121] The Health Care Purchasing Corporation of Iowa (a Des Moines-based employer purchasing coalition) required each of its provider systems to develop and implement 15 clinical practice guidelines over a three-year period.[122] Motorola requires that its health plans have a variety of quality-improvement programs, including measuring outcomes and using practice guidelines or protocols in a minimum number of areas.[123]

Purchasers can also insist on the use of reminder systems (e.g., charts, computerized reminders, checklists, or medical record flags) or standing orders for treatments or services that are known to be effective, such as pneumococcal vaccines for at-risk seniors. Systems that provide real-time prompts to overloaded caregivers are highly effective in reducing underuse.

To promote adoption of automated information systems, purchasers could insist on the development of an electronic medical record and/or on the use of computerized decision-support tools to guide treatment. BHCAG used this approach by including a provision in an RFP to provider systems that called for a five-year implementation strategy for an automated medical record. While the providers initially failed to meet this requirement, several systems, including Mayo Clinic and Park Nicollet, have recently introduced or committed to the development of automated medical records in some or all of their facilities.[124]

In some cases, contractual requirements can be very specific in nature. For example, purchasers interested in reducing inappropriate antibiotic use could require health plans to provide educational materials and ongoing, academic detailing to primary care physicians, and/or could require plans to mandate laboratory test results that confirm the presence of bacteria before approving payment for commonly overused antibiotics.

Finally, purchasers can use contractual requirements to ensure that providers pay for their own mistakes. Purchasers could insist on clauses that require providers to absorb the costs of any medical error.

Method #2: "Threshold" Performance Criteria

A second approach sets "threshold levels" of performance that plans and providers must meet in order to be included or retained in a contract. For example, to reduce medical errors, a purchaser might contract only with providers that use automated drug order entry for 85 percent or more of prescriptions. Or they could attack underuse by requiring minimum levels of performance with respect to some or all HEDIS measures, such as influenza and pneumococcal vaccination rates, mammography screening rates, or retinal exams and glucose monitoring for individuals with diabetes. Minimum goals could be the targets set by the *Healthy People 2010* initiative sponsored by the U.S. Department of Health and Human Services (DHHS).

Purchasers can also use this approach to ensure that employees have timely access to care. For example, BHCAG requires each of its care systems to provide and document acceptable levels of access to providers and facilities.[125]

Freezing Enrollment: An Alternative to Outright Termination

Because it may not be practical to terminate relationships with plans or providers that fail to meet performance standards, some purchasers have opted to freeze enrollment for these poor performers. In other words, plans or providers that fail to "make the grade" are denied new enrollees. This approach preserves continuity of care for existing enrollees while still punishing those organizations that fail to meet threshold levels of quality.

Over the past seven years, Motorola has relied extensively on this approach, having frozen the enrollment of poor-performing plans in all the company's major markets, including California, Texas, Illinois, Massachusetts, and Florida. Over time, as enrollment dwindled, Motorola terminated its relationship with many of these plans; the number of HMOs under contract with Motorola has fallen from 45 to 25 over the past seven years.[126] GM has also used this approach with some of its poor-performing plans.

Method #3: "Centers-of-Excellence" Contracting

A third variation on this strategy involves the development of centers of excellence, in which purchasers agree to contract with only a select few providers that have a proven record of quality. This type of strategy may be appropriate for a subset of services, such as cardiac surgery or transplant procedures, where a handful of providers stand out from the crowd in terms of quality and cost-effectiveness, or where scientific evidence supports a strategy of steering cases to high-volume providers.

The designation of centers of excellence is not a new strategy; the approach was popular in the early 1990s, but interest has waned with the growth of the consumer choice movement in recent years. However, given the wide variations in the quality and cost-effectiveness of providers of select procedures, the strategy may be worthy of serious consideration by purchasers today.

The Medicare program was one of the first major purchasers to implement a variation on the centers-of-excellence strategy. In 1991, Medicare selected four sites to participate in a pilot program to test packaged payments to hospitals that bundled inpatient hospital and physician charges for bypass surgery. Three additional sites were added in 1993. The evidence indicates that overall costs to the hospitals and the Medicare program were lower—and patient satisfaction higher—in the pilot sites during the five years the program was in existence.[127]

The success of the Medicare initiative encouraged health plans to become much more active in implementing centers-of-excellence approaches with hospitals. A 1993 survey of 103 teaching hospitals found that over half had established centers-of-excellence arrangements with health plans, with the vast majority of these involving fixed-pricing arrangements.[129] While there is relatively little evidence on the effectiveness of these programs, the existing data point to reduced costs and stable or higher quality. For example:

- United Resource Network's centers-of-excellence program in transplants (in which 16 hospitals participated) resulted in improved survival rates and average savings of 30 percent.[130]
- Anthem Blue Cross & Blue Shield's Cardiology Services Network in Ohio resulted in an estimated $14.8 million in savings over a four-year period (versus discounted fee-for-service payments), along with lower rates of adverse outcomes and mortality. The program's success was driven by rigorous participation requirements, which included not only minimum volume thresholds, but also the measurement and achievement of threshold levels of risk-adjusted outcomes and process variables. The positive results from this experience convinced Anthem's management to expand the program to other states.[131]
- An evaluation of Texas Heart Institute's packaged pricing program suggests that it reduced costs and increased access while maintaining quality of care.[132]

Promising Outcomes at One of Medicare's Demonstration Sites

At one of the demonstration sites, St. Joseph's Hospital in Atlanta, the overall costs for DRG 106 (bypass surgery with catheterization) fell by 28 percent, with length of stay (LOS) falling from 13.6 days to 10.6 days in three years. LOS for DRG 107 (bypass surgery without catetherization) fell from 10.7 days to 8.3 days during the same time period. In addition, patient satisfaction scores for both DRGs were higher than scores for the hospital overall and the national average. Mortality rates remained the same during the three-year period, while complication rates fell (as measured by the number of consultants brought in on cases). Returns to the operating room and intensive care unit, along with readmission rates, either remained stable or in some cases improved.[128]

Caveat: Selective Provider Contracting Limits Choice

Because most consumers value having a choice of providers, some selective contracting approaches—particularly a centers-of-excellence strategy—may meet with resistance among employees. In these situations, purchasers must educate employees on the quality benefits of selective contracting, in part by sharing the data that demonstrate clear distinctions in outcomes among the various providers. This information-sharing helps to make the case to employees that limiting the provider network is good for their health. (See Step #3 for more information on employee education and the sharing of performance information.)

Alternatively, given the real risk of employee backlash, some purchasers may prefer to stick with strategies (including public reporting and financial incentives) that preserve consumers' choices but encourage decisions that favor higher-quality plans and providers.

Conclusion

In the first part of this report, we defined the problem of poor-quality health care from the purchaser's perspective and estimated both the direct and indirect costs of poor quality for the nation as a whole and for individual purchasers. Our hope is that this information will serve as a "wake-up call" to purchasers, spurring them to pursue and evaluate the impact of some of the innovative strategies for eliminating poor quality that are described in detail in the second part of the report.

Purchasers not only have a moral responsibility to lead the charge, but they also have a strong financial interest in doing so.

In our opinion, **the time for action is now**. The problem of poor-quality health care, including unacceptable levels of medical errors, is not new. Early in our research for this report, some of the authors paid a visit to J.M. Juran, JD, founder and chairman emeritus of Juran Institute. While Dr. Juran applauded the great progress that the health care system has made in eradicating diseases such as small pox and diptheria, and marveled at recent advances in treating diseases such as cancer and heart disease, he also noted that quality problems such as medication errors have been around for a long time. In fact, he pulled out a study from 1959 that documented an unacceptably high error rate of over 16 percent at one institution. Ironically, this error rate compares favorably to more recent studies, such as the 28-percent rate for preventable adverse drug events that was reported in the 1990s at Brigham and Women's Hospital.[133]

In other words, the health care industry has not made much progress in addressing systemic quality problems over the past 40 years. The time for merely documenting these problems has passed; we now need concerted action to do something about them. Purchasers not only have a moral responsibility to lead the charge, but they also have a strong financial interest in doing so. If the industry fails to act, the federal government and/or state governments might intervene, especially if additional high-profile, catastrophic errors were to take place. Sentinel events in other industries—such as the Three-Mile Island nuclear accident—have proven to be catalysts for increased government oversight.

Next Steps

The MBGH Board of Directors approved a communication and demonstration plan for this report and its recommendations. Among the work steps to be funded over the next three years are the following:

- Conduct focus groups of senior business executives to test the messages in the report for clarity and utility.
- Partner with other employer/health organizations to encourage the adoption of the Responsible Health Care Purchasing Policy and initiate demonstration projects.
- Sponsor conferences to present the report and invite attendees to participate in demonstration projects involving purchasers, plans, and providers.

"Quality has to be the Holy Grail for health care for at least the next decade."

—Ken Kizer, CEO, The National Quality Forum

Appendix A:

Business Executive and Expert Panels

Business Executive Panel

Mike Bealle
Assistant Vice President
Quality
Union Pacific Railroad

Randall Bowman
Corporate Medical Director
Sauder Woodworking

Bruce Bradley
Director
Managed Care Plans
General Motors

Wayne Burton, M.D.
Senior Vice President
Corporate Medical Director
BANK ONE Corporation

Tricia Dirks
Senior Vice President
Human Resources
Target Corporation

Kathy Herold
Independent Consultant

Rob Johnson
Manager
Health and Welfare Plans
Eastman Chemical

Martin Joyce
Senior Vice President
Northern Trust Company

Peter Lardner
Chairman of the Board
Bituminous Casualty

Carol Ley, M.D.
Director
Occupational Medicine
3M

Dean Olson
Chairman of the Board
Aircraft Gear

Carolyn Pare
Executive Director
Buyers Health Care Action Group

Dennis Richling, M.D.
President
Midwest Business Group on Health
Former Assistant Vice President
Health Services and Medical Director
Union Pacific

Claire Sharda
Outcomes, Research & Management
Merck & Co., Inc.

Karen Williams
President
National Pharmaceutical Council

Paul Wittig
Director of Corporate Services
Federal Signal Corporation

Expert Panel

Robert Berenson, M.D.
Senior Consultant
Academy for Health Services Research and Health Policy

Don Berwick, M.D.
President & Chief Executive Officer
Institute for Healthcare Improvement

Mark Chassin, M.D.
Professor & Chairman
Department of Health Policy
The Mount Sinai Medical Center

Michael R. Cohen, R.Ph., D.Sc.
President
Institute for Safe Medication Practices

Molla Donaldson
Senior Scientist
Quality Care
National Cancer Institute

Mary Jane England, M.D.
President
Regis College
Formerly with the Washington Business Group on Health

Terry Hammons, M.D.
Senior Vice President
Research & Education
Medical Group Management Association

Brent James, M.D.
Executive Director
Institute for Healthcare Delivery Research
Intermountain Health Care, Inc.

David Kindig, M.D., Ph.D.
Professor
Preventive Medicine
University of Wisconsin School of Medicine

Ken Kizer, M.D.
President and CEO
National Forum on Quality Measurement and Reporting

David Lawrence, M.D., M.P.H.
Chairman & CEO
Kaiser Foundation Health Plans

Gregg Lehman, Ph.D.
President and CEO
National Business Coalition on Health

Jack Lord, M.D.
Chief Clinical Strategy & Innovation Officer
Humana

John Lumpkin, M.D., M.P.H.
Director
Illinois Department of Public Health

Carole Magoffin
Senior Advisor
Quality of Care
The National Pharmaceutical Council

Henri Manasse, Jr.
Executive Vice President
American Society of Health Systems Pharmacists

Gregg Meyer, M.D.
Director
Center for Quality Measurement & Improvement
Agency for Healthcare Research and Quality

Jack Meyer, Ph.D.
President
Economic and Social Research Institute

Michael Millenson
Visiting Scholar
Northwestern University

Ann Monroe
Director
Quality Initiatives
California HealthCare Foundation

James Murray
Director
Outcomes Research and Management
Merck & Co.

Eugene Nelson
Director
Quality Education, Measurement and Research
Dartmouth Hitchcock Clinic

Lee Newcomer, M.D.
Chief Medical Officer
Vivius

Don Nielsen
Senior Vice President
Quality Leadership
American Hospital Association

Dennis O'Leary, M.D.
President
Joint Commission on Accreditation of Healthcare Organizations

Gail Warden
President and CEO
Henry Ford Health System

Jack Wennberg, M.D.
Director
Center for the Evaluative Clinical Sciences
Dartmouth Medical School

Appendix B:

Examples of Overuse, Underuse, Misuse, and Waste

This appendix expands upon the brief descriptions of overuse, underuse, misuse, and waste provided in the main body of the report.

Overuse

A wide variety of surgical procedures and other tests and treatments are overused, driving up costs unnecessarily while simultaneously exposing patients to the risk of complications and sometimes even death. For example:

- Between 16 and 30 percent of the 600,000 **hysterectomies** performed each year are believed to be unnecessary. With complication rates of 25 to 50 percent, this means that between 24,000 and 90,000 women unnecessarily suffer complications such as severe bleeding, bowel or bladder injury, infection, blood clots, depression, and heart attack. An estimated 500 women die each year from the procedure; if 16 to 30 percent of these procedures were unnecessary, that translates into 80 to 150 avoidable deaths annually. (Death is just as likely from unnecessary surgery as it is from necessary surgery.)[134]
- Approximately one in four of the more than one million **cardiac catheterizations** performed each year are either inappropriate or of questionable benefit.[135]
- Nearly one quarter (23 percent) of the 500,000 children who undergo **tympanostomy** (tubes inserted in the ears) do not need the procedure, and another one third of these procedures provide questionable benefit to the patient.[136]
- Of the 110 million office-based prescriptions written annually for **antibiotics** and **antimicrobials** each year, 40 percent—or 44 million—are unnecessary.[137]

Researchers have also documented overuse for a host of other medications, procedures, and services, including tranquilizers, sedatives, carotid endarterectomy, cardiac pacemakers, upper gastrointestinal endoscopy, and non-steroidal anti-inflammatory drugs.[138]

Numerous factors contribute to overuse. For example, data from the *Dartmouth Atlas* (a report that provides data and analyses of risk-adjusted, per-capita use of hospital services by geographic area) suggests that an excessive supply of hospital beds may lead to the overuse of hospital services for patients suffering from a variety of medical conditions that can typically be managed in the ambulatory setting, including pneumonia, congestive heart failure, and chronic obstructive pulmonary disease. The 1999 version of the *Atlas* found that hospitalization rates for these ambulatory-sensitive conditions and for medical conditions in general were highly correlated with local hospital bed capacity. In other words, people who live in areas with a large number of hospital beds per 1,000 residents are more likely to be hospitalized for these conditions, while residents who live in areas with fewer beds per 1,000 residents are more likely to have these conditions treated in another setting.[139]

A recent article by Wennberg, Fisher, and Skinner refers to these services as "supply-sensitive services," meaning that levels of supply drive utilization. The same article notes that bypass surgery and use of the intensive care unit (ICU) during the last six months of life are also driven in part by supply. Specifically, the number of cardiac catheterization laboratories per capita is strongly correlated with use of bypass surgery, while the supply of medical specialists and hospital beds explains 41 percent of the variation across geographic regions in the intensity of end-of-life care.[139]

Underuse of Evidence-based Care

There is ample evidence that many people are not receiving diagnostic and therapeutic services, medications, and procedures that have been proven to be effective. For example, a recent study found that for "16 of 40 necessary indicators of care, including preventive care, Medicare beneficiaries received the indicated care less than two-thirds of the time."[140]

This is consistent with an analysis of 1998 data conducted by the Health Care Financing Administration (now the Centers for Medicare & Medicaid Services or CMS), which found numerous examples of underuse of evidence-based care in the Medicare population.[141] (In each example cited below, 100 percent of eligible patients should be receiving the test or treatment in question.)

- Among eligible **heart attack** victims, only 65 percent received early administration of beta-blockers, while only 72 percent received them at discharge. Evidence suggests that administration of these drugs to eligible patients saves lives and reduces costs by preventing repeat heart attacks and other acute episodes.
- The **mammography** screening rate for female Medicare beneficiaries between the age of 52 and 69 was only 55 percent.
- Just over 70 percent of Medicare patients with **diabetes** had a hemoglobin A1c test (to measure long-term blood glucose management) each year, while 69 percent had an eye exam and 57 percent had a lipid profile test to measure cholesterol levels every two years. Each of these interventions has been shown to provide benefits to those with, or at risk for, diabetes, primarily by preventing or delaying common symptoms and/or complications associated with the disease, including blindness, amputations, kidney failure, and cardiovascular disease.
- Among Medicare patients with **congestive heart failure**, 64 percent of eligible patients had a test (known as left ventricular ejection fraction or LVEF) to measure how well the heart is functioning, while just under 70 percent of patients with decreased LVEF were prescribed ACE inhibitors at discharge. This intervention has been shown to significantly reduce mortality rates by reducing blood vessel constriction.
- Only two in three Medicare beneficiaries received **influenza** vaccines while less than half received **pneumococcal** vaccines. In addition, less than 15 percent of hospitalized Medicare patients were screened to determine if they need an influenza or pneumococcal vaccine.
- Only 55 percent of eligible Medicare patients with **atrial fibrillation** received the drug warfarin, which is highly effective in preventing stroke and other complications.

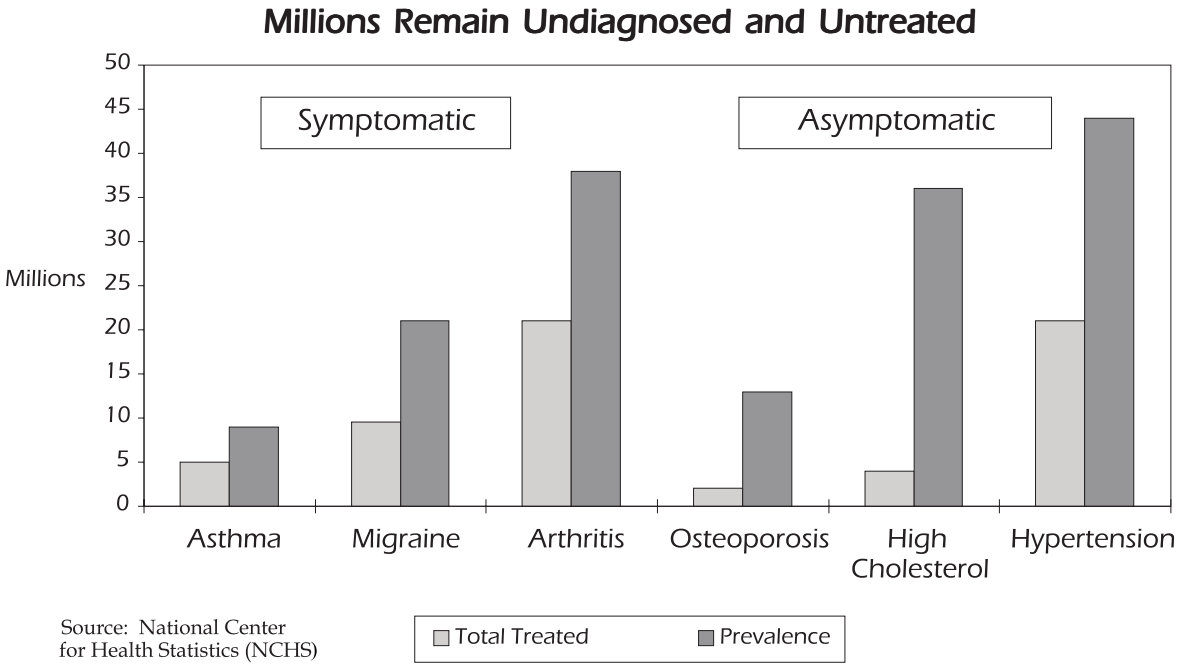
As noted, the figures cited at right are based on 1998 Medicare data. Because these data change annually, current rates may be different and may vary at the local level.

Patterns of underuse are not confined to the Medicare population. For example, 2000 data from the National Committee for Quality Assurance indicates underuse of evidence-based care in commercial health plans.[142]

- One quarter of eligible women did not receive **breast cancer screening**.
- One in three smokers in commercial plans were not **advised to quit**.
- Three in 10 children in commercial HMOs did not receive the **vaccination for chicken pox.**
- Over 20 percent of diabetes patients did not receive **hemoglobin A1c screening** and over 50 percent did not receive **eye examinations**.
- Only about 25 percent of women in commercial HMOs who should have been **screened for chlamydia** were in fact screened.
- Less than half of patients discharged from an inpatient **mental health** facility received needed follow-up care within seven days of discharge.

Consumer surveys confirm underuse of evidence-based services. A recent survey by The Commonwealth Fund found that one in five women over the age of 18 had failed to receive a pap test in a three-year interval, one-fifth of adults have not had a cholesterol screening exam in the past five years, nearly half (44 percent) of adults had not had an annual dental exam, and nearly half (45 percent) of adults with diabetes had not received recommended annual checks of their eyes, feet, and blood pressure. The authors believe that inadequate outreach and poor follow-up on the part of the health care system contribute to these low rates of preventive care.[143]

The impact of underuse on health status is quite significant. Millions of individuals with treatable conditions are not being diagnosed (and therefore not treated). Many who have been diagnosed are not receiving appropriate treatment. The chart below highlights the magnitude of the problem for several common chronic conditions (e.g., high cholesterol, hypertension, asthma), most of which can be effectively treated through relatively inexpensive interventions (e.g., pharmaceuticals) and lifestyle changes.



Source: National Center for Health Statistics (NCHS)

Misuse

Medical errors commonly occur within the health care system. A Commonwealth Fund survey found that 22 percent of Americans report that they or a family member had experienced a medical error of some kind, while one in 10 adults reported that they or a family member had gotten sicker as a result of a mistake in the doctor's office or hospital. About half of these problems were reported to be very serious. Based on these figures, the authors conclude that the IOM estimates of 44,000 to 98,000 inpatient deaths due to medical errors each year may represent just the "tip of the iceberg" with respect to injuries from medical errors.[144]

Medication errors appear to be the biggest category of misuse. Sixteen percent of consumers report that they or a family member were the victim of a medication error, with over one in five of these errors resulting in a serious problem.[145] One study estimates that drug-related problems, broadly defined, are among the most frequent and costly types of error in the outpatient setting, responsible for as much as $177 billion in health care expenditures and over 200,000 deaths each year. The study defines drug-related problems to include untreated indications (which might also be considered underuse), improper drug selection, subtherapeutic dosing, overdosage, drug use without indication, and adverse drug events (ADEs).[146]

Not surprisingly, some of these problems are likely avoidable. A study of two Boston hospitals found that 1.8 percent of hospitalized patients suffered a preventable ADE, 20 percent of which were life threatening.[147] Examples of preventable ADEs include injuries from any of the following: incorrect prescribing, entry/transcription, order filling, administration, or routing; administration of the wrong medication or wrong dosage; and administration to the wrong patient. The 1999 IOM study estimates that the cost of preventable medical errors within hospitals is $17 billion to $29 billion annually, including the additional health care expenses created by the error, lost household income and productivity, and excess disability costs.[148] Other forms of misuse include the following:

- **Preventable hospital-acquired infections**: An estimated two million individuals suffer from hospital-acquired infections each year, leading to nearly 90,000 deaths. Between one quarter and three quarters of these infections could have been prevented.[149]
- **Diagnostic errors**: These errors include the misdiagnosis of an existing condition, improper performance of a diagnostic test, recommendation of inappropriate tests or therapies, the failure to perform certain tests, delays in diagnosing, and other errors. Diagnostic errors occur more frequently than one might imagine. A recent study by The Cleveland Clinic Foundation found that the patient was misdiagnosed in 20 percent of deaths in the intensive care unit (i.e., the cause of death was different than the diagnosis determined by an autopsy). In 44 percent of these cases, a correct diagnosis would have resulted in altered treatment.[150] Of course, not all diagnostic errors can be avoided, as some are only discoverable after the fact (via an autopsy or other retrospective review).
- **Surgical errors**: These errors include inappropriate surgery, wrong-site surgery, and any of a number of mistakes made during the course of a surgical procedure. These errors are both common and dangerous. One observational study of 1,047 surgical cases identified 1,858 errors of all

types. Of these, 14 percent resulted in serious injury, such as temporary physical disability, permanent disability, or death. In nearly one-third of cases resulting in serious injury, the surgery was inappropriate.[151]

Another study found that an orthopedic surgeon has a one in four chance of performing wrong-site surgery sometime during his or her 35-year career. As a result of these findings, the American Academy of Orthopedic Surgeons has adopted the "Sign Your Site" program, which requires surgeons, in the presence of an unanesthesized patient, to initial the site of surgery with a permanent pen before starting the procedure.[152]

- **Errors in the use of medical equipment**: Equipment errors include malfunctions of the equipment itself and user-related errors. Use errors (as they are called by the Food and Drug Administration) have been identified as a significant factor in sentinel events that involve medical equipment. They are preventable with better equipment design, ensuring the proper environment, and improved instructions for use.[153]

Waste

Waste, primarily in the form of unnecessary administrative activities, is prevalent throughout health care, as it is in many other industries. Some waste within health care has little or no impact on quality, but rather serves to drive up costs. For example:

- Complex billing requirements force hospitals and other providers to dedicate significant resources to activities outside of patient care. Northwestern Memorial Hospital in Chicago dedicates 38,400 labor hours per year to sorting through Medicare billing requirements. This translates into roughly 20 full-time equivalents (FTEs) and over $300,000 a year in labor costs.[154]
- The health care industry relies heavily on inspections to oversee quality and costs. Individual health plans and providers spend significant resources on case managers and reviewers who scrutinize care decisions. Yet the benefits of such reviews remain unclear. United Healthcare, a large managed care organization, used to spend $108 million each year reviewing physician's decisions on 85 million claims, even though these decisions were upheld over 99 percent of the time. Because of this finding, United has dramatically scaled back its utilization review program.[155]
- Long wait times in physician offices and hospitals lead to productivity losses, as patients miss more work than would otherwise be necessary.

Waste can also have a negative impact on quality. For example, surveys indicate that nurses spend 50 percent or more of their time on administrative duties, much of it on wasteful activities.[156] This is consistent with Juran Institute's finding that medical records are frequently misplaced in hospitals, forcing nurses to waste valuable time searching for them.

Time spent on these activities takes away from patient care, leading to unnecessary delays in service, and potentially to medical errors. The landmark Harvard Medical Practice Study II found that 20 percent of errors were due to avoidable delays in drug treatment and inadequate staffing.[157]

Finally, wasteful expenditures may "crowd out" needed spending in other areas of health care, thus having an indirect impact on quality. Experts believe that the potential to reduce costs by eliminating inefficiency within health care is enormous. In other industries, 50 percent or more of total costs can be attributed to inefficiency waste.[158]

Appendix C:

Regions Exhibiting Overuse of Selected Services

State	Hospital Referral Region	Back Surgery Procedures per 1,000 Medicare Enrollees	Radical Prostatectomies per 1,000 Medicare Enrollees	Average Number of Physician Visits During the Last Six Months of Life	Average Number of Visits to Medical Specialists During the Last Six Months of Life	Average Number of Hospital Days During the Last Six Months of Life
U.S.	**National Average**	**3.06**	**1.85**	**24.4**	**10.34**	**10.59**
Alabama	Mobile	3.09	2.19	25.2	11.54	11.8
Arkansas	Fort Smith	2.45	1.23	27.6	12.47	11.7
California	Bakersfield	3.14	2.22	25.5	12.90	10.6
	Los Angeles	3.34	2.25	38.9	22.88	11.2
Connecticut	Bridgeport	3.46	1.64	29.6	13.64	11.5
District of Columbia	Washington	3.42	1.60	25.1	12.36	12.5
Delaware	Wilmington	2.58	1.81	25.8	12.78	11.5
Florida	Miami	1.77	1.49	47.9	25.09	14.1
Illinois	Blue Island	2.65	2.03	30.8	15.15	12.4
	Chicago	1.77	1.21	33.0	13.92	13.3
	Joliet	2.90	2.08	31.6	15.31	12.1
Indiana	Gary	3.09	1.85	33.6	16.73	12.9
	Munster	2.30	2.18	27.1	12.42	13.5
Kentucky	Louisville	2.95	1.15	25.8	10.57	10.9
Louisiana	Lake Charles	2.98	2.43	30.1	10.87	11.7
Maryland	Baltimore	3.48	1.90	24.9	8.72	12.4
	Takoma Park	3.21	1.80	35.9	21.45	12.9
Michigan	Flint	4.45	2.83	28.0	11.95	11.7
	Royal Oak	3.29	1.55	33.9	13.93	12.7
Mississippi	Gulfport	3.32	1.57	36.2	14.87	13.3
New Jersey	Camden	2.04	1.26	33.8	16.68	15.4
	Morristown	2.02	1.97	33.8	15.57	14.5
	New Brunswick	2.02	1.68	42.4	22.45	18.2
	Newark	1.38	0.96	45.5	23.84	21.5
	Paterson	1.75	0.91	42.2	21.89	17.8
	Ridgewood	1.98	1.62	43.0	21.05	16.6
New York	Bronx	1.30	1.18	34.7	13.99	18.8
	East Long Island	1.54	0.89	40.0	18.34	19.2
	New York	1.58	0.86	39.4	18.03	20.7
	White Plains	2.20	1.66	33.7	13.77	17.2
Ohio	Akron	2.97	1.33	27.3	11.94	11.9
Pennsylvania	Allentown	2.42	1.33	31.2	13.94	13.2
	Philadelphia	2.43	1.45	36.2	19.30	13.2
	Pittsburgh	3.26	1.90	30.0	13.26	12.9
	Scranton	2.23	0.82	33.3	13.92	13.7
Tennessee	Memphis	2.62	1.65	30.0	13.37	12.0
Texas	Beaumont	3.10	1.87	31.6	14.92	12.9
	Harlingen	1.54	0.52	32.1	13.63	13.7
	Mcallen	1.36	1.42	36.6	20.38	13.4
	Victoria	3.34	1.93	25.2	9.18	11.2

These rates for 1995-1996 have been adjusted for age, sex, and race.
Source: *The Dartmouth Atlas of Health Care 1999*

Appendix D:

The Most Costly Quality Problems for Purchasers

This appendix provides more detail on the most costly quality problems that were briefly described in the main body of the report. Where possible, the costs of poor quality (COPQ) are estimated. In general, the health services research literature does not include estimates of the economic impact of these quality problems.

Drug Misuse: Total Costs of $300 Billion and Over 200,000 Deaths Annually [Estimated COPQ Is Not Available]

A recent study found that drug-related problems in the ambulatory setting, broadly defined, resulted in 218,000 patient deaths and $177 billion in direct health expenditures in 2000. Nearly 70 percent of the direct costs are the result of hospital admissions that occur because of the misuse.[159] In addition, an earlier, related study suggests that the indirect costs from drug-related problems are also substantial, perhaps even greater than the direct costs.[160] Together, these studies imply that the total costs of drug misuse could run over $300 billion per year.

In the studies, drug-related problems include untreated indications, improper drug selection, subtherapeutic dosage, the failure to receive drugs, overdose, adverse drug reactions, drug interactions, and drug use without indication. Even if only half of these problems could be prevented, the costs of poor quality are staggering: Over 100,000 deaths and perhaps $150 billion or more in direct and indirect costs could be avoided each year.

Preventable adverse drug events (PADEs) may be a good starting point for purchasers hoping to eliminate drug misuse. Approximately 7,000 people die of PADEs in hospitals each year, more than the total number who die from workplace injuries (a problem that has a government agency—the Occupational Safety and Health Administration—dedicated to it). One study estimates that the inpatient cost related to PADEs that occur in hospitals is $2 billion per year.[161] Of course, hospitals are not the only setting where PADEs occur; another study estimates that 350,000 ADEs occur in nursing homes each year, approximately half of which are preventable.[162]

Hospital-Acquired Infections: Total Estimated COPQ of 22,500 to 67,500 Deaths, $6.2 to $18.6 Billion Annually

Each year, an estimated two million individuals get hospital-acquired infections, 25 to 75 percent of which are preventable. Based on a direct cost of $12,500 per infection, the financial toll from preventable infection runs between $6.2 and $18.6 billion each year (excluding indirect costs).[163] In addition, these infections claim nearly 90,000 lives every year.[164] Assuming that deadly infections are as preventable as other infections, approximately 22,500 to 67,500 of these deaths could be avoided through the elimination of preventable infections. One researcher estimates that between 87,500 and 350,000 years of life are lost annually due to hospital-acquired bloodstream infections alone.[165]

Antibiotics: Total Estimated COPQ of $4 to $5 Billion Annually

Of the 110 million office-based prescriptions written for antibiotics each year, 40 percent—or 44 million—are unnecessary, at a cost of over $600 million each year.[166] Patients receiving unnecessary antibiotics risk developing an allergic reaction; also, microorganisms may develop a resistance to common antibiotics, rendering them less effective in curing future illnesses. For example, in certain areas of the country, up to 30 percent of S. pneumoniae, the bacteria that cause pneumonia, ear infections, and meningitis, are no longer susceptible to penicillin.[167] This resistance creates additional patient suffering and expenses for the system.

The CDC has estimated that the medical costs associated with treating antibiotic-resistant organisms are $4 billion each year.[168] Hospital costs alone for treating drug-resistant hospital-acquired infections are conservatively estimated at $1.3 billion, with the resistance inherent in six common bacteria in the hospital setting accounting for $600 million in unnecessary costs each year.[169]

Diabetes: Direct and Indirect Costs of $132 Billion Annually [Estimated COPQ Is Not Available]

Diabetes takes a huge economic toll on the nation. According to the American Diabetes Association (ADA), diabetes accounted for $92 billion in treatment costs in 2002 (up from $44 billion in 1997), as well as $40 billion in indirect costs.[170] The average individual with diabetes loses 11.3 hours of total work time every week because of the disease.[171] Data from 1998 indicate that an employer's mean annual per capita costs are $4,410 higher for workers with diabetes than for those without, due to both increased medical costs and lost productivity.[172]

Projections for growth in the number of individuals with diabetes—presently at 15.8 million or nearly 6 percent of the population—suggest that the overall costs of diabetes will rise rapidly over the next 10 years. While it is difficult to know exactly how much of the direct and indirect costs are the result of poor-quality care, there is no question that the health system is failing to adequately diagnose and treat the disease. Quality problems in diabetes include both the underuse of evidence-based outpatient and self-care, which in turn can lead to avoidable inpatient care, as well as the potential overuse of inpatient services in some geographic areas.

The biggest quality problem may be the failure to diagnose the disease; roughly one-third (five million) of the 15.8 million people with diabetes do not know they have it.[173] In addition, those with diabetes often do not receive recommended treatments; as noted in Appendix B, a significant percentage of both Medicare and commercial enrollees with diabetes are not receiving recommended hemoglobin A1c screenings, eye exams, or lipid profile tests.

In some specific markets, such as the Chicago metropolitan area, the problem is even more severe. Medicare data from 1996 indicates that annual rates of hemoglobin A1c monitoring, lipid profile testing, and eye examinations for local beneficiaries with diabetes are well below the national average.[174] MBGH's regression analysis suggests that lower hemoglobin A1c testing rates in the Chicago area are associated with higher rates of inpatient admissions; differences in these monitoring rates explain as much as 45 percent of the variance in rates of hospitalization for diabetes.[175]

This finding is consistent with what many experts believe—that earlier diagnosis and better treatment could significantly reduce the high costs of diabetes and its related complications. In fact, while diabetes is the leading cause of new cases of blindness, lower-extremity amputations, and kidney failure in the United States, many of these complications could be delayed or prevented. Consider the following data from the CDC:[176]

- An estimated 12,000 to 24,000 people become blind each year because of diabetic eye disease. By screening for and treating eye disease among people with diabetes, the federal government currently saves about $248 million annually. If all people with diabetes received recommended eye disease screening and follow-up, the annual savings or deferred costs could be as much as $470 million.
- Roughly 86,000 people with diabetes must have a lower limb amputated each year, accounting for 60 percent of all such amputations in the country. Over half of all lower-limb amputations associated with diabetes could be prevented. Hospitalization costs alone for these preventable amputations are over $335 million annually.
- Diabetes is the leading cause of kidney failure. Of the 33,000 new cases of kidney failure diagnosed among people with diabetes in 1997, at least half could have been prevented or delayed. These preventable cases cost about $827 million in their first year of treatment.

Many experts also believe that the combination of early screening and lifestyle changes could help curb future growth in the prevalence of the disease.

Finally, a growing body of evidence suggests that managing blood pressure and LDL levels may be just as important for people with diabetes as is managing glucose levels. As a result, increased use of tests to monitor blood pressure and lipid levels may be warranted in this population, as is increased use of drugs to treat those with elevated blood pressure and/or cholesterol.

Several resources are available to assist employers in reducing the costs of diabetes. The ADA and the American Association of Health Plans have developed the *Taking on Diabetes* program which is intended to promote prevention and management of diabetes through employer-provider partnerships. More information is available at **www.aahp.org**. In addition, **www.diabetesatwork.org** offers guidance on how to conduct diabetes education and management.

Depression: Estimated Direct and Indirect Costs of $80 Billion Annually [Estimated COPQ Is Not Available]

Data from 1990 suggest that depression inflicts an economic burden of $43 billion a year. Only $12 billion of this cost arises directly from treatment, in contrast to $24 billion due to lost productivity and lost work days. (Another $7 billion relates to other costs.)[177] Assuming a moderate (5-percent) increase in these annual costs over the last decade, the total economic burden from depression likely increased to $80 billion by 2002.

Depression also can result in death or diminished quality of life for those who suffer from the disease. For example, in the U.S., major depression alone accounts for an estimated 6.7 million disability-adjusted life years, a measure of the years of life lost to premature death as well as years lived with a disability of specified severity and duration.[178]

One of the big problems with depression is the failure to diagnose. For example, studies suggest that an estimated one-half to two-thirds of individuals with major depressive disorder who are seen by a primary care physician do not have that condition properly diagnosed.[179] But even when diagnosed, depression is often not treated properly. A study of patients with depressive symptoms in three major cities found that 19 percent were treated with minor tranquilizers (and no antidepressants), despite the potential for side effects and a lack of evidence that tranquilizers are effective in treating depression.[180] This lack of timely diagnosis and appropriate treatment imposes significant costs on society. For example, individuals with major depression are more than four times as likely to take disability days as their non-depressed colleagues.[181]

It is difficult to estimate the financial impact of poor-quality care for a disease, like depression, where underuse of certain services represents a major component of the quality problem. Data from First Chicago Corporation, however, suggest that depression can be one of the most costly illnesses for a major corporation, and that increased use of pharmacy and outpatient services among individuals with depression can reduce these costs (see page 25 for more details).

Care After a Heart Attack: Total Estimated COPQ of 18,000 Deaths Annually [No Dollar Estimate Available]

Heart attacks strike 1.1 million Americans and account for 400,000 hospitalizations each year.[182] Although a number of treatments—including appropriate and timely administration of aspirin, beta-blockers, ACE inhibitors, and reperfusion therapy—have been shown to reduce mortality rates significantly for heart attack victims, they are consistently underutilized. Usage rates for eligible patients in the Medicare population range from 65 percent for early administration of beta-blockers to 85 percent for the prescribing of aspirin at discharge. The failure to administer these treatments in a timely fashion results in an estimated 18,000 preventable deaths each year. [183]

Influenza/Pneumococcal Disease: Estimated COPQ of 10,000 to 20,000 Deaths Annually [No Dollar Estimate Available]

Influenza and pneumococcal disease are responsible for 20,000 to 40,000 deaths each year, primarily among the elderly.[184] The annual direct costs of influenza range from $1 to $12 billion, depending on the severity of the epidemic. About 600,000 Medicare patients are hospitalized each year with pneumonia, generating more than 4.2 million inpatient days and more than $3.5 billion in expenditures. In addition, approximately 500,000 Medicare beneficiaries visit emergency rooms each year with pneumonia.[185]

An estimated one half (10,000 to 20,000) of deaths, along with a significant portion of the direct and indirect costs associated with influenza and pneumonia, could be eliminated through wider use of annual flu shots and one-time pneumococcal vaccinations (for the elderly).[186] In 1998, the median immunization rate among the 50 states for the Medicare population was only 66 percent for influenza vaccines and 46 percent for pneumococcal vaccines.[187]

For the working population, each episode of influenza results in five to six days away from work, as well as an additional period of fatigue and lowered productivity that can last for weeks. The benefits of widespread immunization of the working population depend upon the strength of the match between the virus strains of the vaccine and the circulating viruses in a given year. When the match is good, the benefits appear to be significant. One study found that influenza vaccinations reduced the rate of illness by 25 percent, the number of days missed from work by 43 percent, and the number of office visits by 44 percent. The same study documented cost savings of roughly $47 for each person vaccinated, over 85 percent of which was due to a reduction in the number of lost work days. This estimate was conservative because it excluded savings due to reduced hospitalizations and complications.[188]

A second study evaluated the impact of influenza vaccination on the working population during two separate years. During one year in which the match between vaccine and circulating viruses was good, the vaccine reduced influenza-like illnesses by 34 percent, physician visits by 42 percent, and missed work days by 32 percent. But in the year in which the match between the vaccination and circulating viruses was not good, the vaccine was much less effective.[189]

Asthma: Direct and Indirect Costs of $18 Billion Annually [Estimated COPQ Is Not Available.]

More than 17 million people in the U.S.—including 5 million children—are affected by asthma. The estimated yearly cost of asthma treatment in the U.S. more than doubled between 1990 and 2000, from $6.2 billion to $14.2 billion; asthma-related hospitalizations and emergency room visits alone—which are often preventable with proper treatment—cost over $1.3 billion a year. The estimated indirect costs of asthma in 1998 were $3.8 billion. The cost of lost workdays for adults with asthma has been estimated at $846 million per year, while the cost of lost productivity for parents of children with asthma is estimated to be $900 million per year.[190]

While it is unclear how much of these costs are due to poor quality, there is ample evidence that a sizable minority of asthmatics are not getting the treatment they need. In 2000, commercial health plans reported an average 61.4 percent rate for appropriate asthma medication among children age 5 to 9 and a 59.5 percent rate among children age 10 to 17. The rate among 18-56 year olds was 64.4 percent. [191]

Congestive Heart Failure: Direct Costs of $10 to $40 Billion Annually [Estimated COPQ Is Not Available.]

Congestive heart failure (CHF) accounts for more hospital admissions of patients over the age of 65 than any other single diagnosis; 20 to 30 percent of elderly patients with the disease die within a year, and those who do not die face significant functional limitations. The cost of caring for patients with CHF is estimated at $10 to $40 billion a year.[192] Yet, as noted in Appendix B, studies have indicated that nearly one-third of eligible patients do not receive needed tests and therapy that could reduce mortality rates among patients with weak heart function.

Appendix E:

Responsible Health Care Purchasing Statement

Inherent in the funding of health benefits for employees and beneficiaries is the responsibility to hold health plans, institutions, and practitioners accountable for the quality of care they provide and to pay for these services based on their level of performance and results. Our organization will follow the following seven principles with respect to the purchasing of health care.

1. Require health plans and providers to use available national, state, and local data to identify health care quality problems and to report to purchasers and consumers how they affect their own operations.
2. Join other responsible health care purchasers in standardizing and simplifying performance measures at the plan, hospital, practitioner, and treatment levels.
3. Collect and share performance data with providers to help them in managing quality improvement initiatives and in measuring their results.
4. Educate covered beneficiaries about variations and quality problems in health care and steps they should take to reduce the risk of harm from treatment.
5. Share timely and validated performance data with beneficiaries to assist them in making choices of plan, hospital, practitioner, and treatment.
6. Reward high performing plans and providers with financial incentives and with shared savings from quality improvement initiatives.
7. While difficult to accomplish, consider curtailing payment for plans, providers, or professionals who do not meet accountability requirements, do not perform up to employer expectations, or do not achieve accreditation.

Adopted _____ (date)

Organization _____

By: _____(names and signatures)

If you would like to register your purchasing policy with MBGH, please send it to :

Health Care Purchasing Policy Registry
Midwest Business Group on Health
8765 West Higgins Road – Suite 280
Chicago, IL 60631

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Employer Worksheet: Savings from Reducing Costs of Poor Quality

This worksheet can assist employers in making a rough estimate of the potential financial benefits from a program aimed at reducing the costs of poor quality (COPQ) in health care. Please note that this worksheet does not include the investment costs associated with programs and system changes required to achieve these savings. As a result, the figures derived from this worksheet would have to be compared to these expenses.

Part I: Potential Cost Savings

This section calculates the direct and indirect cost savings from reducing COPQ.

1. Total annual direct health care costs in most recent fiscal year $_____
2. Estimated % that goes to poor-quality health care (suggestion: 20% to 40%; see pp. 8-9 of report for details) _____%
3. Estimated % of poor-quality care that could be eliminated (suggestion: 25% to 50%) _____%
4. Total potential reduction in direct costs by reducing COPQ (calculated as line 1 x line 2 x line 3) $_____
5. Estimate of the indirect costs of health care as a percent of direct costs [suggestion: 50% (conservative); 75% (moderate), or 100% (aggressive); see pp. 12-13 of report for details] _____%
6. Total potential reduction in indirect costs by reducing COPQ (calculated as line 4 x line 5) $_____
7. **Total potential cost savings by reducing COPQ** (calculated as line 4 + line 6) $_____
8. Total direct health care costs after reducing COPQ (calculated as line 1 - line 4) $_____

Part II: Impact of Potential Savings

This section translates the savings from part I into meaningful metrics.

9. Total annual earnings in most recent fiscal year $_____
10. Total annual earnings if cost savings realized from COPQ (calculated as line 7 + line 9) $_____
11. **Percentage increase in earnings due to reducing COPQ** (calculated as [line 10 - line 9]/line 9) _____%
12. Estimated annual percentage growth in health care costs over next 5 years (conservative: 8%; aggressive: 12%) _____%
13. Multiplier to calculate health care costs in five years (calculated as [1 + line 12]^5--i.e., raised to the 5th power) _____
14. Projected health care costs in 5 years if no action is taken (calculated as line 1 x [line 13]) $_____
15. Projected health care costs in 5 years if COPQ are reduced (calculated as line 8 x [line 13]) $_____
16. Percentage increase in health care costs over next 5 years if no action is taken (calculated as [line 14 - line 1]/line 1) _____%
17. Percentage increase in health care costs over next 5 years if COPQ are reduced (calculated as [line 15 - line 1]/line 1) _____%

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