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AN ECONOMIC HISTORY OF HEALTH CARE IN MASSACHUSETTS 1990-2000

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This paper is dedicated to

JOHN T. DUNLOP

Lamont University Professor, Emeritus
Harvard University

who has been my mentor for these past five years

FOREWORD

Twelve long years ago, we published Pioneer Institute's first monograph, *The Massachusetts Health Plan: The Right Prescription?* The authors, Attiat Ott and Wayne Gray, took an in-depth look at the Dukakis administration's universal health plan. The report stimulated intense discussion and led ultimately to the abandonment of the plan's most costly and damaging components.

A lot has changed in the health care industry since then, including major economic problems besetting both medical providers and insurance plans. The enormity of the change is reflected in the corresponding shift in the debate over topics like cost and quality, while access to coverage remains on the table. Finally, there have been concerns raised about for-profit (versus nonprofit) health care organizations, considered anathema by many in Massachusetts.

In 1999 Pioneer published Dr. Jack Needleman's "Nonprofit to For-Profit Conversions by Hospitals and Health Plans." The surprising (to many) conclusion of this paper was that non-profit hospitals that converted to for-profit status did not diminish the level of service provided. This paper set the stage for a more comprehensive exploration of the competitive dynamics of the health care market in Massachusetts—a market distinguished by the dearth of for-profit institutions and the dominance of teaching hospitals—and for an analysis of the effects of recent changes in the composition and structure of the market on costs and quality.

By the start of this year, Pioneer Institute concluded that an appraisal of where we are and how we got here was needed to facilitate a more thoughtful health policy debate and to lay a foundation for further research. We sought out Dr. Jerome Grossman, whose impressive curriculum vitae appears at the back of this report.

Dr. Grossman's "An Economic History of Health Care in Massachusetts" represents a map of the health care sector in Massachusetts. As Dr. Grossman himself notes, this work is something of "an oral history" by someone who was intimately involved in the changes occurring over the last 15 years. Of particular importance is Dr. Grossman's emphasis on the structure of the state's health care industry, which furnishes us an opportunity to assess the strengths and dysfunctions in today's health care market with a view toward renewed debates about the role of market forces and distinctions of for-profit and not-for-profit medical institutions.

Following this excellent economic history and analysis, Dr. Grossman offers his own conclusions on where we in Massachusetts might go from here.

—Pioneer Institute for Public Policy Research

PREFACE

This report examines the Massachusetts health care system during the tumultuous period from the late 1980s to the close of the 1990s. This timeframe begins with the attempt in 1988 to become the first state in the country to ensure universal entitlement to health insurance and ends with the fiscal crisis of Harvard Pilgrim Health Care and the general climate of uncertainty and angst that has beset the state's health care system. Apart from describing the important events of this timeframe—and highlighting the pivotal decisions of earlier decades that set the stage for this period of upheaval—the report aims to illustrate more broadly ways in which the health care system in Massachusetts (and in the United States generally) has evolved in a highly dysfunctional manner, one which made some of the marked changes of the past decade not only inevitable but in many respects desirable.

In Massachusetts, we are fortunate to be home to a health care system that indisputably provides among the best medical care available on earth. But it is also a system that, despite accounting for roughly 12 percent of the state's economic activity, has adopted few of the models of innovation and efficiency that mark the best and brightest organizations of the state's other economic sectors. The final chapter of Paul Starr's epic medical history, *The Social Transformation of American Medicine,* is titled "The Coming of the Corporation." It is from that point of view that this paper is written, for by focusing on the basic economic structure of the health care industry, it tells a story of the business and economics of medicine and health.

I have striven for fairness and balance. Two things are important for readers to know. First, as a believer in the ability of a properly deregulated health care system to provide a large proportion of the population with high-quality medical care, delivered with the efficiencies and innovations of a market-based system, I am intellectually biased to continue the transformation of medicine in that direction. Second, I was an active player in the events that unfolded during the period covered by this report. I was among the original team of clinicians that launched Harvard Community Plan in 1966. I served from 1966 to 1979 at the Massachusetts General Hospital, as director of ambulatory care and associate director of the Lab for Computer Science, and was a faculty member of Harvard Medical School. From 1979 to 1995, I was chairman and chief executive officer of the New England Medical Center, and a professor of medicine at Tufts University School of Medicine. I was founding chairman of The Health Institute, a group recruited from the Rand Corporation to continue development of quality measures, and was a founder and vice-chairman of the Tufts Associated Health Plan from 1981 to 1995.

I argue that information technology should play an increasing role in advances in the health care system over the next decade. Readers should know that I was a founder in 1969 of Medical Information Technology (Meditech), a hospital software company where I presently serve as a Senior Medical Scientist, and Transition Systems Inc. (TSI), a company focused on linking clinical and costing data for hospitals, which has since merged with another company.

I also suggest that some aspects of government oversight now lacking in our newly deregulated health care environment might be modeled after mechanisms governing other recently deregulated industries, such as banking. My tenure as a member and, ultimately, chairman of the Federal Reserve Bank of Boston from 1990 to 1998, provided much food for my thought in this area.

Finally, my belief in the need to overhaul safety oversight in healthcare has been stimulated greatly by my service on the Institute of Medicine's Quality of Care in America Committee, whose recent report, "To Err Is Human," addresses this issue in great detail.

I have spent the last five years returning to my academic roots. My undergraduate thesis advisor at MIT in 1960–61 was Alfred DuPont Chandler, who was then completing his seminal work on the history of corporate development, "Strategy and Structure," from which my management orientation was born and has developed. Indeed, my undergraduate thesis addressed the question of the government becoming engaged in the actual provision of health services. In 1996–97, I was a senior fellow at the Institute of Medicine, focusing on public policy in medicine. Upon returning to Boston, I received an appointment as fellow at the John F. Kennedy School of Government at Harvard and became senior scientist at Meditech. John Dunlop, the noted labor economist, helped me sponsor a seminar at Harvard last year that examined the role of not-for-profits in healthcare. The session ranged widely over policy issues and the present dysfunction in health care. When I was approached by the Pioneer Institute to undertake a working paper on health care, it served as a welcome goad to consider in greater detail what has occurred in Massachusetts' health care over the past several years, and where we might go from here.

While the focus of this paper is on the business and economics of health care delivery, my roots in medicine are those of a physician, and my driving motivation remains the delivery of the highest quality health care to the most people in the most effective and efficient way. The dedicated professionals who strive daily to meet the needs of their patients should have institutions and systems to support them. We are making remarkable strides in our understanding

of human biology and translating those findings into tangible advances in the treatment and prevention of human disease. Unless we commit the same energy and aptitude for innovation to transforming the systems of delivery of that medical care, however, I believe we will continue to fall well short of what we can accomplish.

—J.H.G.

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I am grateful to the more than 100 experts in the field who have shared their thoughts with me over the past months. Each feels deeply about the health of the people of Massachusetts and the nation and is committed to making health and medical care all we desire: widely available, affordable, accessible, efficient, and of the highest quality.

Dr. Martin Feldstein, President of the National Bureau of Economic Research and Professor of Economics at Harvard, and David M. Cutler, Professor, Department of Economics at Harvard, were sage advisors on the economic aspects of the proposed plan.

Additionally, I would like to thank Michael Jonas for his unwavering patience, persistence and tireless efforts; Susan Goldberger for her ideas and reviews; Linda Long for her research into Massachusetts legislation of the past twenty years; Richard Averbuch of the Massachusetts Hospital Association who answered endless questions and magically located obscure data; Richard Senicola from the Massachusetts Health Data Consortium for his resourcefulness and good cheer; Linda Kohn from the Institute of Medicine for her assistance in preparing my summary of appendix C; and Dr. Gary Fanjiang for his computer wizardry in putting together the presentations.

Many thanks to the Pioneer Institute for their funding of this work to examine the history and workings of the Massachusetts health care delivery systems. Their grant gave me the impetus to track down the story and examine it impartially. Particularly, I would like to thank James Stergios and Gabriela Mrad for their help and support.

Finally, I would like to thank a group of people without whom I surely could not pass from day to day: John Gonsalves for constant encouragement and unstinting willingness to accomplish the tasks at hand; Karen Tracy for keeping me organized and focused over endless drafts and for always keeping a cool head; my daughters for their constant love and support; and my wife, Barbara, for her love, intelligence, and encouragement.

Without these people, this paper would not have been possible.

—J.H.G.

EXECUTIVE SUMMARY

This paper traces the economic history of the health care system in Massachusetts from the early 1900s to the present and offers a series of recommendations that would bring to Massachusetts the advantages of a more market-based system.

Events dating at least as far back as the Depression contributed to the development of what today is in many respects a dysfunctional industry, viewed as deficient in different ways by nearly every stakeholder. The federal government assumed an ever increasing role in health care over the last 50 years, ultimately becoming the nation's leading health care payer as well as the prime catalyst for the growth of the nation's hospital system and expansion of its physician workforce. While the goal became to extend increasingly sophisticated health care services as widely as possible, little consideration was given to the economic impact of many decisions, and few of the business dynamics that governed other sectors of the economy were at play in the build-up of the U.S. health care system.

These effects have been magnified in Massachusetts. Beginning with the Hill-Burton Act of 1946, federal legislation created incentives for expansion of the state's health care system regardless of need or demand. The Medicare payment structure encouraged extensive expansion of higher cost teaching hospitals. The state's position as a center of postgraduate medical training contributed to an abundant physician workforce. Massachusetts had among the earliest and most complete shifts following World War II from general practice to specialty medicine. Thus, by the late 1980s the state had not only one of the highest overall ratios of physicians to population, but also among the highest ratios of specialists to generalists, with roughly two thirds of the state's 12,000 physicians practicing in specialty areas, compared with about half of all doctors nationally. Finally, the concentration of research and development combined with the large number of academic medical centers led to early and widespread diffusion of new techniques. The combined effect of these factors made the state's health care system structurally disposed toward very high costs, a situation that continues today and that has enormous relevance to the problems currently facing the Massachusetts health care system.

The 1990s marked a fundamental shift in the approach to how health care is delivered and paid for in Massachusetts as well as the rest of the country. The decade began with the promise of health care deregulation and managed competition, a bold new chapter that proponents said would unleash creative forces in the marketplace to provide quality health care in Massachusetts at costs that would be held in check by the dynamic of free-market competition. The ensuing years witnessed the expansion of managed care medicine and a dizzying series of hospital mergers and consolidations and insurer mergers.

As part of the move nationally toward managed care health coverage, HMOs in the state substantially increased their share of the private insurance market, a trend accelerated in Massachusetts by cost-conscious employers who were just emerging from the severe recession of the late 1980s. State government dramatically reduced Medicaid spending. The state's hospital industry was deregulated, ending 25 years of price-setting by state regulators of inpatient hospital fees. For the first time since World War II, buyers of heath care, either directly or through their intermediaries, aggressively took control of the pricing of medical care services. The aftermath was an unmanaged private sector onslaught on medical care costs through price management by HMOs. Neither providers nor payers were prepared for the dramatic shift toward a more competitive system of health care in Massachusetts. As the decade came to close, the state's largest HMO was in tatters, costs that had stabilized during the mid-90s were again spiraling upward, and physician and patient concerns about quality in the new managed care era were fueling a popular backlash against the state's once vaunted health maintenance organizations. [For a comparison of Boston's health care delivery to two other cities, see Nancy Kane's recent case study, available online at **www.cmwf.org/programs/health_care/kanebrf.asp**.]

The health care industry in Massachusetts has been set loose on the path of deregulation, but we have failed to respond with necessary oversight mechanisms or by ensuring the type of "transparency" for consumer choices that makes for a healthy, functioning market-based system. Unlike the deregulation experience of other industries, such as banking or airlines, there was little, if any, regulatory framework to guide the players or to guard the interests of those with a stake in the system. A hallmark of market-based economic sectors is the ability to select products or services based on some measure of value or quality. It should be no different in health care—consumers should be able to make informed choices based not simply on the level of benefits they are purchasing, but on the actual performance of those who will be providing their health care services. While there are satisfaction surveys of HMO plan subscribers, there are no large-scale, publicly available data on medical care processes, outcomes by disease or clinical condition, or service quality by doctor or hospital. [For a description of recent legislative debate over HMO oversight, go to **www.sllf.org/papers/wps_v1/069807. html**.]

We have entered the era of deregulated competitive health care but have seen little of the innovation that has brought productivity and improvements to other industries faced with similar transitions, such as the financial, airline, and telecommunication sectors. Yet Massachusetts has throughout this period steadily improved access to care for the poor and uninsured. Structures are in place to continue to lower the number of those without adequate insurance. We have also reduced system capacity and shown an ability to slow premium cost increases. But these changes

have not altered the system's fundamental structure. We should tap the power of information technology and telecommunications to move forward and truly transform the operation of the health care system.

We are rich in the knowledge-based resources needed to guide such a transformation. These include medical information scientists interested in applying computers to medicine; social scientists who have developed measures of health care quality and performance; health economists who can model, track and assess the financial implications of new health delivery system models. We have the experts in regulation and law who can devise ways to remove existing barriers to change and to protect both consumers and providers. We also have the industry resources necessary in medical computing and software development, as well as data storage and analysis. We have four medical schools that can turn their research and teaching energy to this new "science." Finally, we have the venture capital that can catalyze innovation in the design of new health system models.

Fully exploiting the benefits of information technology could simultaneously reduce costs and improve health care quality and patient satisfaction. The obstacles to greater use of information technology in health care are many. Health care is among the most tradition-bound of our social institutions. Obstacles include everything from the vigorously protected lines of practice authority among different licensed health care professionals (physicians, nurses, physical therapists, etc.) to fears of greater depersonalization of medicine, privacy concerns, and the rules concerning reimbursement for services (face-to-face contact is usually a requirement for billing a "clinical encounter"). The current crisis provides an opportunity to rethink some of the structures that define the industry. Massachusetts can and must serve once again as a laboratory for the nation, this time developing new models of delivering health care.

Recommendations:

1) Make effective use of available technologies, such as databases of treatment outcomes and interactive systems for self-care and patient monitoring, to improve productivity and quality of care and to mitigate the high cost structure of the system; to give both doctors and patients greater control; and to provide patients ease of access to medical care.
2) Use data systems to track provider and insurer quality to enable patients to make informed choices among a wider variety of health care options.
3) Allow physicians to reclaim authority for care decisions. In exchange, providers should agree to make clinical performance data publicly available and to accept a new payment system that would provide opportunities for innovation and compensate for high-quality care, yet keep them accountable for costs, adjusted for disease and severity of patient condition.
4) Create unobtrusive mechanisms to provide oversight of clinical performance data and financial soundness and performance of health providers and insurers.

[For alternative discussions of health delivery reform, read “Protection of the Health Care Consumer: The ‘Truth’ Agency” by Regina Herzlinger **at** **www.dlcppi.org/texts/health/herzlinger.htm** and “Universal Comprehensive Coverage” by Alan Sager and Deborah Socolar at **www.massmed.org/physicians/resource/report2.pdf**.

An Economic History of Health Care in Massachusetts 1990-2000

Jerome H. Grossman, M.D.

I. INTRODUCTION

The decade from 1990 to 2000 was one of profound changes in the Massachusetts health care system. The late 1980s witnessed a failed attempt to become the first state in the country to ensure universal health care coverage. The 1990s began with the promise of health care deregulation and managed competition, a bold new chapter that proponents said would unleash creative forces in the marketplace to provide quality health care in Massachusetts at costs that would be held in check by the dynamic of free-market competition. The ensuing years witnessed the expansion of managed care medicine and a dizzying series of hospital mergers and consolidations and insurer mergers that virtually remade the state's health care landscape overnight. As the decade came to close, however, the state's largest HMO was in tatters, costs that had stabilized during the mid–90s were again spiraling upward, and physician and patient concerns about quality in the new managed care era were fueling a popular backlash against the state's once vaunted health maintenance organizations. Meanwhile, hospitals found themselves on no less shaky financial ground than insurers, despite a decade's worth of consolidation and cost-cutting efforts.

How did the Massachusetts health care system, long regarded as among the best in the world, and for decades a stable anchor of the state's economy and knowledge-based industries, find itself in this cycle of fiscal convulsions and rapid realignment of institutions? We did not get to this place suddenly. A series of actions dating at least as far back as the Depression set the stage for the events of the past decade and contributed to the development of what today is in many respects a dysfunctional industry, viewed as deficient in different ways by nearly every stakeholder. The 1990s marked a fundamental shift in the approach to how health care is delivered and paid for in Massachusetts as well as the rest of the country. The impulses behind that shift were long overdue; the health care system we have a decade later, however, fails us on many accounts.

This report attempts to give a concise history of the pivotal events that shaped the Massachusetts health care system over the past decade. It tries to make some sense of where we have been, and to draw lessons from that experience to outline a path that represents a sensible direction in which to head. In so doing, the report tries to answer four broad questions:

1) How has the health care system evolved in Massachusetts (and the United States) over the past 50 to 60 years, and what are the historical antecedents that set the stage for the moves of the last decade to deregulate the state's hospital industry, the push nationally for "managed care," and efforts to rein in federal spending on health care?

2) How did those developments alter the health care landscape in Massachusetts during the 1990s?

3) What went right and what went wrong during the state's initial decade of health care deregulation and experience in the new managed care era?

4) How can we improve and strengthen the system we have elected to pursue in Massachusetts, and play a leadership role in structuring a health care system that is as much in the forefront of innovations in health care delivery as it is in clinical research and patient care?

A guiding premise of the report is that the health care industry in Massachusetts has been set loose on the path of deregulation, but we have failed to respond to these shifts by putting necessary oversight mechanisms in place or ensuring the type of "transparency" for consumer choices that makes for a healthy functioning market-based system. The merits and wisdom of deregulating a "public good" such as health care, and exposing it more fully to the effects of market forces, have been, and should continue to be, the subject of public debate. This is, however, the system currently in place, and nearly every indication, from the most local to the global, suggests it is likely to be the type of system favored throughout the United States for the foreseeable future. What then can be done to bring to health care in Massachusetts the advantages of a more market-based system? To understand the forces at play during the pivotal decade of the 1990s, it is necessary first to understand the evolution of the U.S. medical delivery system during the decades leading up to that period.

SETTING THE RULES, BUILDING THE SYSTEM: THE 20TH CENTURY RISE OF A 'MEDICAL MECCA'

The structure of the modern U.S. health care system began to take shape during the early decades of the 20th century. The well-known Flexner Report on medical education in 1911 established a new trajectory for medical practice, leading to the full-fledged emergence of academic-based medicine and the growing professionalism of the physician workforce. By 1929, there were 7,000 hospitals nationwide, most of them private, not-for-profit facilities.

During the Depression, in the first of what would be several such moments over the following decades, the idea of a fully government-funded health care system was raised, but rejected. In 1935, a proposal was circulated within the Roosevelt administration to attach a universal health coverage component to the pending landmark Social Security Act. Viewed as a politically risky add-on to the groundbreaking retirement insurance bill, however, the health care provision never surfaced in serious public discussions.[1,2]

Rather than a national insurance scheme, a system of private insurance begun by doctors and hospitals—Blue Cross and Blue Shield—emerged during this same period. The initial focus of these plans was on hospitalization costs, an approach that would become the model for U.S. health insurance.[3] Also of great significance to the way health coverage would evolve in the United States was the payment system for inpatient care. Hospitals were to be reimbursed on a so-called "cost-plus" basis, meaning insurers would pay the full cost of hospitalization including full overhead costs. There were no guidelines imposed on those costs and no incentives built in for either patients or hospital providers to limit care. When coverage of physician services was added into health plans, it was governed by a similarly unchecked system of reimbursement for "usual and customary" physician's fees as set by the doctors themselves.

Another emerging development that would become a hallmark of U.S. medicine was the provision of health coverage as a voluntary, employment-based fringe benefit. Such a system grew through labor union campaigns of the 1930s, and even during World War II, when wage and price controls were in effect, the addition of new fringe benefits whose value did not exceed 5 percent of wages was permitted. Employers used health coverage to attract scarce labor, and membership in group hospital plans grew during the war from 7 to 26 million, representing about 20 percent of the U.S. population.[4] Blue Cross and Blue Shield, a network of nonprofit insurers, soon gave way to commercial insurers, which became

[1] J. Douglas Brown, *An American Philosophy of Social Security - Evolution and Issues* (Princeton: Princeton University Press, 1972) 19.
[2] Judith M. Feder, *Medicare: The Politics of Federal Hospital Insurance* (Lexington: D.C. Heath and Company, 1977) 91.
[3] Paul Starr, *The Social Transformation of American Medicine* (New York: Basic Books, Inc., 1982) 295. [For a list of Paul Starr's publications on health care, see **www.princeton.edu/~starr/hcpubs.html**.]
[4] *Ibid*., 311.

the dominant players in the growing private health coverage market. Health benefits became viewed as a routine and important part of collective bargaining, but they were provided far less often in smaller, low-margin service sector businesses, which employed a significant part of the workforce. Thus, unlike the systems of Western Europe, the U.S. model of private health insurance did not lead to universal entitlement to this benefit.

POST-WAR INITIATIVES DROVE BUILD-UP OF THE SYSTEM

Alongside that private system of employment-based insurance, however, the federal government assumed an ever increasing role in health care over the ensuing 50 years, becoming the nation's prime catalyst for the growth of the nation's hospital system and expansion of its physician workforce. Simultaneously, government grew to be the major and generous source of biomedical research. Ultimately, it became the leading payor of health care services as well.

This mix of private market health insurance coverage and federal entitlement and reimbursement programs reflected many of the country's countervailing political impulses: a reluctance to embrace fully the centralized, social-welfare structures that existed in Western Europe, but also a growing recognition of health care as an essential "public good," whose availability should not be left solely to marketplace dynamics. While the goal became to extend increasingly sophisticated health care services as widely as possible, little consideration was given to the economic impact of many decisions, and few of the business dynamics that governed other sectors of the economy were at play in the build-up of the U.S. health care system.

Three government programs played crucial roles in shaping the U.S. medical system in the post-war period. The first of these came in 1946, when Congress passed the Hospital Survey and Construction Act (known popularly as the Hill-Burton Act, after its lead Senate sponsors), which provided construction funds to build nonprofit community hospitals. By 1971, the program had disbursed $3.7 billion and generated approximately $9.1 billion in local and state matching funds.[5]

Also having a pronounced impact was the growing extramural activities of the National Institutes of Health. Beginning in the late 1930s, but then accelerating after the war, the NIH began awarding research monies outside of its own research campus, funding medical schools and individual academic-based researchers. From 1941 to 1951, the federal budget for research rose from about $3 million to $76 million, and total national expenditures for medical research rose from $18 million to $181 million.[6] In the wake of the success of the Salk polio vaccine in 1955, public support for federal research expenditures soared, and with it so did the NIH budget, increasing more than fourfold from $81 million in 1955 to

[5] *Ibid*., 349-50. [For more information about Hill-Burton and other post war legislative initiatives, see **www.hrsa.dhhs.gov/osp/dfcr/about/aboutdiv.htm**.]

[6] Kenneth M. Endicott and Ernest M. Allen, "The Growth of Medical Research (1941-1952) and the Role of the P.H.S. Research Grants," *Science* 118 (September 25, 1952): 337.

$400 million in 1960.[7] Over the next 30 years, NIH spending rose more than fifteenfold, reaching nearly $7 billion by 1990. This explosion of NIH spending also greatly affected the composition of the physician workforce. The NIH, in addition to funding direct research, also provided financial support for fellowship training, which transformed general practice physicians into medical and surgical sub-specialists. Thus, in addition to increasing the total number of physicians, this program led the majority of them to become specialists. In Massachusetts, the concentration of nationally renowned academic medical centers quickly propelled the state to near the top in per capita as well as absolute NIH funding. This contributed greatly, in turn, to the build-up of a vast system for training medical specialists, many of whom remained in Massachusetts to practice.

The 1961 *Bane Report* led to passage of the Health Professionals Education Assistance Act of 1963. This fueled the growth of the nation's health care industry by providing money on a competitive basis to expand existing medical schools and establish new ones to address concerns that there was a physician shortage. The result was an increasing number of students graduating medical school between 1967 and 1981, from 7,000 per year to more than 15,000 per year[8] (see table 1).

Table 1: Growth in Medical Schools

Year	Number of Schools	Entering Class Size	Number of Graduates
1960-61	86	8,298	6,994
1965-66	88	8,759	7,574
1970-71	103	11,348	8,974
1975-76	114	14,963	12,714
1980-81	126	17,320	15,985

Despite the stated concerns of a looming physician shortage, there was little, if any, formal labor economics analysis done to understand the likely financial implications of the new federal legislation. Indeed, Rashi Fein, who in 1961 became the first staff economist on the President's Council of Economic Advisers, said recently that none of the traditional analyses of labor impact were carried out in relation to the Health Professionals Act.[9] The tendency to view the U.S. health care system in largely non-economic, mission-driven terms, had firmly taken root. Thus, what had already become the largest service industry in the country was seen as a public good to be spread through the private provider system as quickly and widely as possible.

INTRODUCTION OF MEDICARE AND MEDICAID

Against this background of a burgeoning health care industry came the federal action that would have the most far-reaching economic and social impact of any initiative of the post-war period, the 1965

[7] Starr, 347.
[8] Kenneth M. Ludmerer, *Time to Heal: American Medical Education in the 20th Century* (New York: Oxford University Press, 1999) 212.
[9] Rashi Fein, *The Doctor Shortage* (Washington: The Brookings Institution, 1967) 90.

passage of legislation establishing the Medicare and Medicaid programs. Elderly patients (now covered by Medicare) and poor patients (now covered under Medicaid), many of whom had previously received care as charity patients and had been a financial drain on hospitals, were suddenly among the best paying patients in the health care system. The new federal programs, under which roughly one-quarter of the nation's population suddenly received health coverage, followed the fee-for-service model of indemnity health care, and government delegated payment to intermediaries, mainly Blue Cross and Blue Shield. [For summaries of Medicare and Medicaid legislation, see **www.hcfa.gov/pubforms/actuary/ormedmed**.] To match this new service, the Hill-Burton program was replaced with free access for hospitals to tax-free debt, the cost of which was reimbursed by the new Medicare program. The final addition to the act, and one that would have a major influence in Massachusetts, was a significant premium per case added to Medicare reimbursement for the training of doctors. There were two components to this—direct medical education, which compensated teaching hospitals for the costs of residents and their teachers, and indirect medical education, designed to cover the costs of inefficiency introduced by the apprentice method of teaching in academic medical centers. The latter added significantly to the revenue of teaching hospitals and their doctors. This supplemental payment was calculated based on the number of residents per bed.

The economic impact was slow to start but came to grow enormously over the next two decades. As with many other U.S. health care choices, the structure of the Medicare and Medicaid programs was not so much based on rational planning or economic models as on the need for political accommodation of various interested sectors.[10] The secretary of Health, Education and Welfare under whom the programs were launched, Wilbur Cohen, successfully blocked President Johnson's Council of Economic of Advisers from being involved in the determination of the likely economic impact of the new programs.[11] The lasting impact of the decisions that were made, on both the structure of the health care system and politics of health care, is hard to overstate.

MASSACHUSETTS HEALTH CARE BOOMS

Medical care had been transformed from a private good with charitable support for the poor to a public entitlement program with few if any controls. There was now every incentive for the health care system to expand, and Massachusetts became a leader in taking advantage of these programs. The state's medical community invested heavily in costly diagnostic and therapeutic modalities—now covered as reimbursable debt by Medicare—to meet the almost endless demand. The open-ended Medicare payment stream turned classic supply-and-demand dynamics on their head, with every expansion in the "supply"

[10] Feder, chapter 7.
[11] Rashi Fein, interview on April 13, 2000.

of medical services and hospital capacity virtually assured of a commensurate increase in "demand" by both doctors and patients, paid for by third party insurance, both public and private.

The state's three medical schools—Harvard, Boston University, and Tufts University—had already become leading recipients of NIH funds, and their teaching hospitals oversaw one of the largest cluster of post-residency specialty training in the nation. Following passage of the Health Professionals Educational Assistance Act, the state established a fourth medical school, the University of Massachusetts Medical School, in Worcester. Significantly, there were 12 separate teaching affiliate hospitals within the Harvard system, and the university encouraged each to build up its own research capacity, further fueling the growth of the state's medical infrastructure. Tufts is the only other medical school in the country that encouraged its independent teaching hospital, New England Medical Center, to develop as an autonomous research and graduate medical training center.

This alignment of various economic incentives from the federal government greatly aided the build-up of Boston into one of the premier medical centers in the country and in the world. If the government-fed, defense-related economy had been dubbed by Dwight Eisenhower the "military-industrial complex," Massachusetts became home to its medical equivalent, and the state's academic medical centers were the unquestioned captains of this industry. [Links to schools and agencies analyzing Massachusetts health care delivery: Massachusetts Health Care Data Consortium (**www.mahealthdata.org**), Agency for Healthcare Research and Quality (**www.ahcpr.gov**), Division of Health Care Finance and Policy (**www.magnet.state.ma.us/dhcfp/index.htm**), Boston University School of Public Health (**www.bumc.bu.edu/sph/internet.htm**), and Harvard School of Public Health (**www.hsph.harvard.edu**).]

EARLY COST CONCERNS

Although health care spending in Massachusetts—as well as nationally—would continue to soar throughout the 1970s and 1980s, concern over the rising costs of health care had begun not long after Medicare and Medicaid set in motion the sudden increase in reimbursable medical costs in the mid–1960s. In 1971, in the first of what would become a series of federal and state efforts to control health care costs through regulation, the federal government mandated that states establish "determination of need" (DON) regulations. These required health care institutions to receive approval from a state commission before using Medicare construction allowances for capital projects in excess of $100,000.

Far from being constrained by the DON process, the state's academic teaching hospitals won a critical addendum to the program established in Massachusetts, so that it not only controlled approval of new Medicare construction funds, it allowed the state Public Health Council to limit the diffusion of sophisticated, high-cost procedures, such as coronary bypass surgery, to other hospitals. In the name of health care quality and cost considerations, the commission could withhold authorization to smaller community hospitals to begin performing more advanced procedures, leaving teaching hospitals as the

exclusive providers of many of the most expensive treatments and procedures. There certainly have been data correlating a minimum volume of some such procedures at a hospital with better outcomes, but it is far less clear that the use of DON guidelines to limit some procedures to higher volume academic medical centers resulted in any net savings of health care expenditures.

Meanwhile, Massachusetts had established a rate setting commission in 1968 to control the prices that hospitals could charge for inpatient services. Fees for inpatient services were set such that hospitals were assured positive operating incomes before investment income. Every hospital in the state was guaranteed a contract from Blue Cross/Blue Shield, the Commonwealth's largest insurer. However, this rate setting only covered those insured through traditional fee-for-service indemnity insurance plans. It did not apply to those insured through Medicare or Medicaid or through private HMOs. Indemnity insurance was still the overwhelmingly dominant form of private health coverage in the state, but as HMO membership increased throughout the 1980s, state rate setting affected a shrinking portion of hospitalizations in the state. Nonetheless, it remained an important factor and contributed to the climate of regulated medicine.

It was the federal Medicare program itself, however, not efforts at state control, that introduced perhaps the first effective measure to contain health care costs. In 1983, Medicare introduced the diagnosis-related group, or DRG, payment method. The DRG system shifted payment from "cost-plus" to a fixed price that was based on cost guidelines established for different diagnoses or treatment plans. Since Medicare was the largest payer to hospitals (the elderly use one-third of all services and, in community hospitals, account for as much as 75 percent of the inpatient population), this change signaled the beginning of the first successful attack on one aspect of rising health care costs—over capacity of acute care beds. Medicare also began to exert some control on physician fees, lowering high fees of common surgical procedures such as coronary bypass surgery and cataract removal, while raising fees to general practitioners. Private insurers also undertook utilization review of doctors' actions, the beginning of the control of services that fuels the present backlash.[12]

THE MASSACHUSETTS HMO MOVEMENT

It was just after introduction of the Medicare and Medicaid programs that Harvard Community Health Plan (HCHP), one of the nation's earliest health maintenance organizations, was founded in 1966. HMOs were designed to focus on preventive health services and to control costs by negotiating fees and use of procedures on behalf of corporations and their employees. HCHP was established in the classic, closed-panel model, which meant its physicians were full-time salaried employees, who cared only for the plan's subscribers, with all outpatient care provided at health centers operated by the HMO. Significantly,

[12] "Controlling Costs and Changing Patient Care?: The Role of Utilization Management," Committee on Utilization Management by Third Parties, Institute of Medicine (Washington, DC: National Academy Press, 1989).

the new entity created by Harvard-affiliated physicians was constituted as a nonprofit corporation, funded with foundation dollars, and designed to serve both as a quality health care provider and a research model for the delivery of care. Plans called for the HCHP to serve as a health care laboratory, in which various facets of the delivery system could be rigorously evaluated and improved, just as biomedical research led to better treatments for disease. However, the academic-led HMO soon foundered financially, and it evolved into a nonprofit business corporation under the same name. With that change came an end to the HMO's focus on research into innovations in the delivery system. It is the innovative approach to delivery that did not flourish then that we seek to rekindle.

In 1973, to promote the new HMO model nationally, the federal government began requiring that all companies with more than 25 employees offer HMO coverage (if one was available in their area) along with indemnity plans. Four years later, in 1977, in a bid to head off the growth of HCHP's closed-panel staff model, a group of physicians, with the support of the Massachusetts Medical Society, established their own HMO, the Baystate Health Plan. The new health plan did not operate health centers or employ its own physicians. Instead, it promoted among private practitioners the formation of Independent Practice Associations (IPAs), whose members would continue to see patients covered by indemnity insurance but would also now see patients who purchased coverage through the new Baystate HMO.

By the late 1980s, the state's HMO landscape included not only HCHP and Baystate Health Plan, but also Pilgrim Health Care, The Tufts Associated Health Plan, Fallon Health Plan, and the Neighborhood Health Plan, which was designed to serve those on Medicaid, whose premiums were paid by the state.

THE FATAL FLAW

The evolution of the state's HMO industry had been fundamentally shaped by the formation of Baystate Health Plan as the first alternative to HCHP, and by the service model utilized by the physician-run health plan. Under the Baystate plan, not only could all practicing physicians and hospitals participate (rather than limited competing networks as envisioned by the classic HMO model), the health plan put few if any limits on the practice patterns or fees of their providers, but still charged companies more favorable, HMO-level rates. This pricing and service combination was not sustainable, and in the early 1990s Baystate would declare bankruptcy. For 15 years, however, the uncontrolled services and lower rates of the Baystate plan set the standard to which other HMOs had to adapt to draw members. In many respects, this drove a stake through the heart of the concept in Massachusetts of HMOs as delivery systems that could provide quality care while also keeping costs in check. Baystate, like all the state's major insurers and hospitals, was established as a not-for-profit corporation and therefore fell under the regulatory purview of the state attorney general, not federal laws governing publicly held corporations. Behavior such as Baystate's by a publicly held corporation—i.e., charging less than actual costs of

services—might have been viewed by regulators as illegal predatory pricing. There was questioning of this practice, which contributed substantially to the development of an HMO industry in Massachusetts that was neither particularly competitive nor cost-conscious. The inadequacies of the oversight authority of the attorney general's office, however—and the less than aggressive use of those powers that do exist—were such that the state had no authority to stop this from happening.

With these changes in HMOs there began a slow shift towards managed care, or as some say managed costs, rather than health maintenance organizations, a fundamental change in mission (see appendix B).

By the late 1980s, Massachusetts had a peculiar mix of regulation and competition. On one hand, the state was regulating rates for indemnity insurance—Blue Cross being the largest in the state. On the other, the HMOs were free to negotiate the best deal with hospital providers. They offered to pay only discounted fee-for-service, were allowed to limit the volume of services provided, and to pick and choose among the hospitals to establish contracts. Simultaneously, companies began to pay a fixed percentage of the premium price, introducing choice and payment differential to employees. Thus, the HMOs introduced an element of competition into the health care provider landscape. Their growth also began to move the state away from guaranteed rates for all providers, and continued the shift in control of health care pricing from providers to payers that had been started by the introduction of DRGs in the early 1980s. While Blue Cross-Blue Shield remained the largest insurer in the state covering 2.5 million mainly indemnity customers, the HMOs were growing steadily, reaching among them nearly 1 million customers. Nevertheless, while competition and cost-consciousness were blunted by Baystate, the HMOs did bring some measure of competition.

MASSACHUSETTS HEALTH CARE: A HIGH-COST MEDICAL MECCA

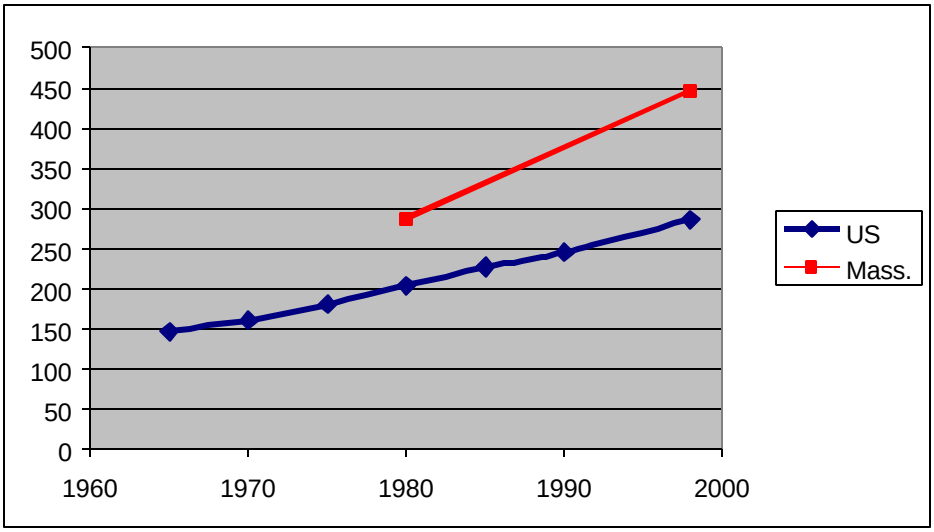
As the 1980s drew to a close, the state's medical system stood out in several respects. The research establishment was receiving more NIH funding per capita than any other state, and close to the highest amount in absolute terms when compared with states four- to five-times larger in population.[13] In clinical care, the state was home to the most advanced level of medical care in the world, with patients traveling great distances for treatment at Boston's premier teaching hospitals. Health care costs per capita in Massachusetts had been the highest in the country for roughly a decade—a period of time coinciding with the advent of Medicare and its generous payment stream to teaching hospitals.[14]

Several factors clearly contributed to the high cost of Massachusetts's health care. The Medicare payment structure had encouraged huge expansion of the state's teaching hospitals. As a consequence, teaching hospitals accounted for a far greater proportion of the state's overall hospital capacity than did

[13] NIH Awards Data.
[14] Medicare Data Tables.

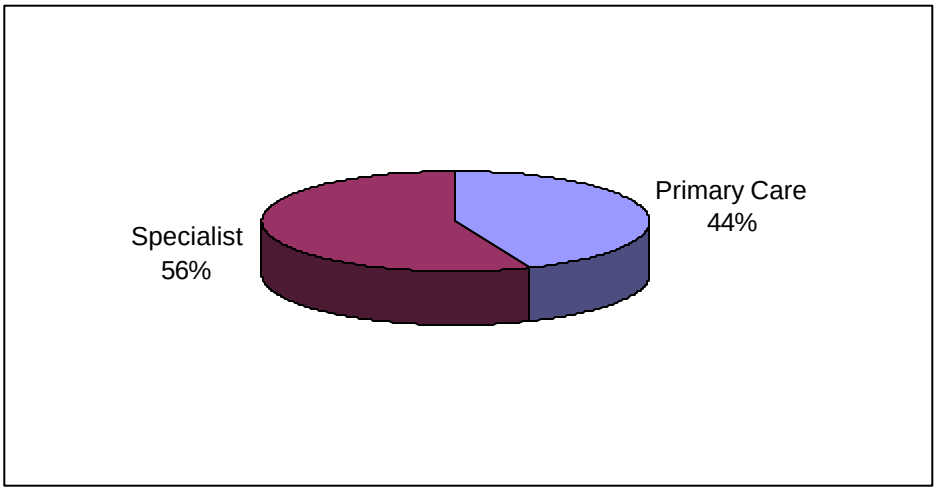
academic centers in other states (22 percent in Massachusetts, 5 percent on average in the nation). In addition, the state's position as a center of postgraduate medical training contributed to an abundant physician workforce (see table 2).

Table 2: Physicians per 100,000 Population



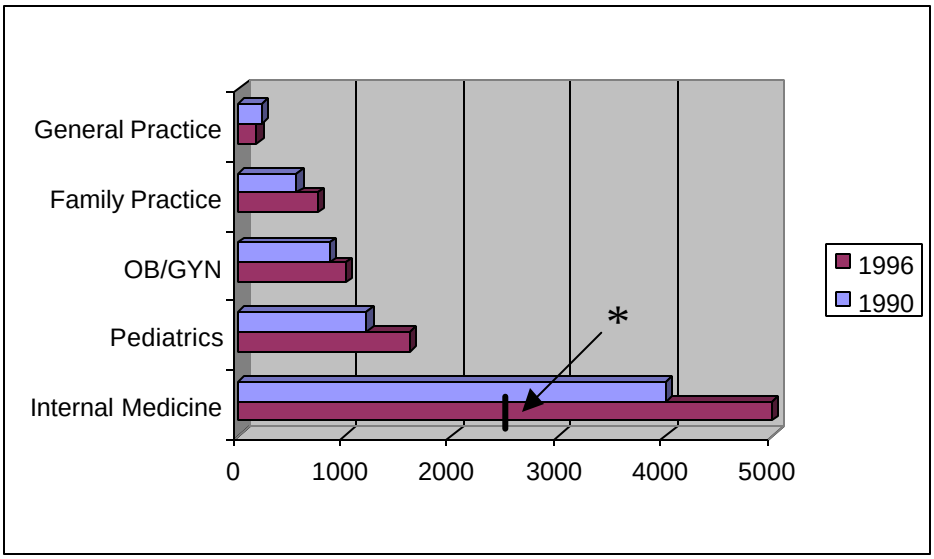
Because NIH training funds were targeted largely to fellowships in medical specialties, Massachusetts had among the earliest and most complete shifts following World War II from general practice to specialty medicine. (In 1959, Massachusetts General Hospital became the first hospital in the nation to subdivide its department of medicine into specialty divisions.) Thus, by the late 1980s the state had not only one of the highest overall ratios of physicians to population, but also among the highest ratios of specialists to generalists. In nominal terms, 56 percent of the state's then 12,000 physicians practicing in specialty areas compared with about half of all doctors nationally (see table 3).

Table 3: Massachusetts Physicians in 1996 – Primary Care vs. Specialists



But table 3 overstates the number of primary care physicians. For if one looks at the breakdown of the primary physician category in Massachusetts, about half of the primary care physicians practicing internal medicine are medical sub-specialists and therefore are not true primary care physicians. If one adjusts for the presence of sub-specialists, the actual percentage of specialists to primary care physicians is about 68 percent to 32 percent (see table 4).

Table 4: Massachusetts Primary Care Physicians by Type



*half are medical sub-specialists, therefore, only 32 percent are true primary care physicians (BRM).

Finally, the concentration of research and development, combined with the large number of academic medical centers, led to early and widespread diffusion of new techniques. The combined effect of these factors was to make the state's health care system structurally disposed toward very high costs, a situation that continues today and that has enormous relevance to the problems currently facing the Massachusetts health care system. [For a discussion of the structure of academic medical centers and the problems they face, see Henry Aaron's Brookings Policy Brief at **www.brook.edu/pa/policybriefs/pb059/pb59.htm**.]

Meanwhile, the state's tradition of liberally spending public money on social services meant that Medicaid eligibility, benefits, and payment rates, which unlike Medicare rates are set individually by states, were among the most generous in the country. Other state initiatives to extend health care services, such as mandating that insurers provide a large number of services, contributed further to overall health care costs.[15]

One more development in the 1980s further bolstered the state's health care industry and added to the clout of its academic medical centers in the state's economy. In 1980, Congress passed the Bayh-Dole bill, which allowed research institutions to patent the results of their findings. This helped form the

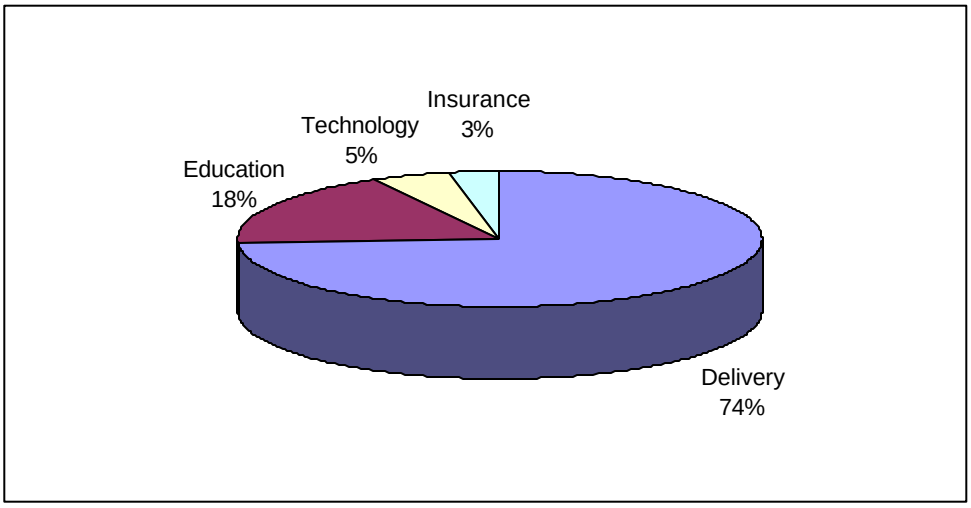
[15] Massachusetts has among the most extensive range of health care services whose coverage by insurers is mandated by state law. These include, for example, generous mental health care and fertility services.

foundation for the state's biotechnology industry, which was fueled by a large venture capital industry in Massachusetts. The health care industry became one of the largest in the state, employing 12 percent of the labor force, compared to 9 percent nationally. The largest part of this industry was delivery, with only one-quarter employed in education or technology (see table 5).

IMPACT OF THE BAYH-DOLE BILL OF 1980: THE GROWTH OF THE MEDICAL RESEARCH INDUSTRY

- By giving research institutes patent rights to research results, it creates protected rights for development.
- In Massachusetts venture capital funds start up biotech industry.
- By the end of the century, Massachusetts becomes a premier center of research, hosting numerous important corporations (240 companies, including Genzyme, Biogen, Vertex, and Alkermes) and benefiting from the recent relocation of pharmaceutical research companies (seven, including BASF, Merck, and Pfizer).
- The biotech industry now represents 26 percent of health-related employees, health care delivery only 74 percent.

Table 5: Health Care Employment Distribution in New England



So, then, was the health care industry a valued growth sector of the state's economy, or did the high cost of health care in Massachusetts represent an unattractive expense of doing business here? Or both?

UNIVERSAL HEALTH CARE BILL

Despite the sprawling health care system in Massachusetts in the late 1980s and the generous federal programs now covering the elderly and the poorest residents, about 15 percent of the state's population remained without health insurance. With the Massachusetts economy enjoying an enormous expansion, dubbed "The Massachusetts Miracle," and with its liberal political orientation firmly in place, the state sought to blaze a new trail in U.S. social policy by ensuring that all its residents had access to health coverage.

This bill, The Universal Entitlement Act of 1988, like many health care measures before, was passed in the heat of a larger political battle, in this case the 1988 campaign for president by the state's three-term governor, Michael Dukakis. Not unlike the later proposal by the Clinton administration,

Dukakis's plan attempted to achieve universal coverage through the unfunded mandate route popularly called "play or pay." It called for all businesses with more than 25 employees to either provide health insurance as a benefit or pay $1680 per employee to a state pool from which otherwise uncovered workers could receive insurance.

At the same time that the state sought to extend health care coverage, it attempted to control health care costs related to hospital expansion. Under the Dukakis administration, the state Public Health Council held up approximately $1 billion worth of hospital construction proposals that required state "determination of need" approval.

The ambitious universal health care plan, however, was never put into place. Just as Dukakis's presidential bid was falling short, the state's economy was nosediving into a marked recession. With state revenues suddenly plummeting and private employers battered by the economic downturn, there was neither the political will nor financial wherewithal to enact the ambitious plan. (After repeated delays in its implementation, the legislation was formally repealed by the legislature in 1995.)

By the late 1980s, after 50 years of virtually unchecked expansion, the nation's massive health care industry stood as a world model of advanced clinical care and cutting-edge research. However, the accompanying, steep rise in health care costs underscored the consequences of open-ended government entitlement systems. Meanwhile, the private components of the U.S. health care system bore little resemblance to a truly market-based economic sector. The various steps taken over the previous two decades had done little to hold back health care inflation, which had averaged two to three times the overall consumer price index. Massachusetts enjoyed an unparalleled period of growth in its medical infrastructure under this system, becoming known in some circles as the "medical Mecca" of U.S. health care and research. During the next decade, however, many of the basic assumptions that had guided that system for 40 years were challenged. This change in course would reverberate strongly across the state's health care landscape.

1990-2000: THE DECADE OF CHANGE

The 1990s marked a sea change in American health care. The system that had grown since World War II into the unrivaled world leader in health care and health research had also become the unrivaled leader in costs. Health care spending as a percentage of the gross national product doubled from 3.6 percent in 1945 to 7.3 percent in 1970, and then doubled again to 13.6 percent by the early 1990s.[16] The burdens of that high-cost system had prompted concern for some time. But the health care system had never faced the type of wholesale pressure on costs that was to come. The 1990s brought a decade of sweeping, cost-conscious maneuvers from both the private and public sector. [For a discussion of state trends in managed care in the 1990's, see Stephen Zuckerman, Alison Evans, John Holahan's Urban Institute Report at **www.newfederalism.urban.org/html/anf_a11.htm**.]

Massachusetts—and the nation as a whole—remains today very much in the throes of this new era in health care, with many stakeholders saying they don't like what they see. There have indeed been downsides to the new market-oriented, cost-conscious era in Massachusetts health care. Some would argue that we have unleashed a monster that must be returned to its cage. A more reasonable conclusion from a review of events of the past decade is that we have yet to seize most of the opportunities for positive change that are now before us.

The reshaping of Massachusetts health care in the 1990s was set in motion by several concurrent and related developments:

- As part of the move nationally toward managed care health coverage, HMOs in the state substantially increased their share of the private insurance market, a trend accelerated in Massachusetts by cost-conscious employers who were just emerging from the severe recession of the late 1980s.
- State government dramatically reduced Medicaid spending.
- The state's hospital industry was deregulated, ending 15 years of price-setting by state regulators of inpatient hospital fees.

MANAGED CARE TAKES HOLD

While the managed care revolution in health care was a national phenomenon of the early 1990s, Massachusetts was particularly ripe for this change. In 1991, the state's unemployment rate stood at 9.6 percent, compared to 6.8 percent in the nation as a whole.[17] Employers feeling the strain of the economic recession began focusing increasingly on spiraling health care costs and the state's unenviable distinction of having the highest health insurance premiums in the nation. One result was a strong embrace by Massachusetts businesses of the growing HMO model. Employers began steering workers into lower-cost

[16] J.D. Kleinke, *Bleeding Edge: The Business of Health Care in the New Century* (Gaithersburg: Aspen Publishers, 1998) 3.
[17] Katharine Bradbury, Research Department at Federal Reserve of Boston.

managed care coverage in a effort to rein in runaway health insurance costs; employees, economically insecure in a climate of high unemployment rates and layoffs, were in no position to resist the change.

Pressure to contain health care costs had already emerged as a national issue, along with the question of how to ensure universal coverage or at least access to insurance. Health care was a central issue in the 1992 presidential campaign and became the centerpiece of the first year of the Clinton administration. The Clinton health care plan, which sought to provide for universal health care entitlement through the savings of "managed competition," fell victim to fierce opposition from the insurance industry and fears of a major new government program, but also to the administration's own political missteps in managing the proposal.[18] Nevertheless the genie was out of the bottle. For the next several years the private insurance industry aggressively pushed providers to give lower prices and perform fewer procedures so that they could price their products aggressively and gain market share. From 1993 to 1998, membership in HMOs nationally went from 36.6 million to 78.8 million.[19] In Massachusetts, which already had the highest penetration of managed care in the country (26.5 percent in 1990), enrollment in managed care insurance went from 1.58 million in 1990 to 3.27 million in 1999.[20] A fundamental change was underway, as private sector interests, and later government, came to believe for the first time that health care premiums and medical costs could be substantially controlled.

Managed care in Massachusetts was different than elsewhere in two significant respects: 1) in a manner virtually indistinguishable from indemnity insurance, every health care provider (hospitals and private physicians) contracted with every plan, and 2) the managed care industry was dominated by non-profit companies. While the HMOs had "gatekeeper" systems in place, it was relatively easy to be referred to a specialist. The Massachusetts style of managed care at the start of the 1990s exhibited few of the hallmarks of tight cost controls usually associated with this approach. It could more accurately be described as a system of matching oligarchies of providers and insurers, with neither group feeling undue pressure to adopt the more aggressive behavior of a market-based system as long as payers from the private sector (principally employers) and public sector (principally Medicare) continued to underwrite health care costs without protest. Indeed, the state's HMOs were so accommodating of patient and provider preferences that a top hospital official recently likened the style of coverage provided by Baystate Health Plan—which had set the standard for managed care in Massachusetts—to "indemnity in drag."[21]

[18] Haynes Johnson and David S. Broder, *The System: The American Way of Politics at the Breaking Point* (Boston: Little, Brown & Company, 1996).
[19] Tammy M. Lauer, Amy E. Boese, Smita Barua, and Eric L. Lauer, "The Interstudy Competitive Edge, Part II: HMO Industry Report," reporting data as of July 1, 1999, April 2000. [Information available at the InterStudy Publications website: **www.hmodata.com/index/html**.]
[20] *Ibid.*
[21] James Bandler, "Hallmark Hospital Group Gasps for Merger Partner," *Wall Street Journal/New England,* April 20, 2000.

THE MOVE TO MARKET-BASED HEALTH CARE

State government made several significant moves concerning health care in the early 1990s. These developments were directly related to the election in 1990 of Republican William Weld as governor, but were also very much in line with the national embrace of greater competition in health care. Weld pledged to curtail state spending and to promote market-oriented approaches to a range of issues. One of Weld's early priorities was to rein in dramatically spending on the Medicaid insurance program for the poor. Medicaid spending had been rising an astonishing 20 percent per year in the late 1980s and had been named one of four so-called "budget busters" at the heart of the fiscal crisis that gripped state government in 1989 and 1990. The Weld administration essentially shifted Medicaid from a traditional fee-for-service structure to a managed care model and steered patients to lower-cost community health centers and community hospitals and away from academic medical centers. As a result, the state brought the annual growth in Medicaid spending down from 20 percent per year to 4 percent per year by 1996.

As part of the administration's free-market approach to the health care industry, the Public Health Council under Weld also ended the bottleneck on hospital capital spending that had been imposed under the Dukakis administration, approving in 1992 and 1993 more than $1 billion of new plant and equipment.[22] With the state's recession-wracked construction industry still moribund, this wave of hospital building became the medical "Big Dig" of the early 1990s. That the state's hospitals were embarking on a massive building program just as the shift to managed care was occurring would only exacerbate the later difficulties faced by the hospital industry. Hospitals continued to operate, apparently believing that there would not be contractions in either price or utilization and that they could each be winners on the new, competitive health care playing field. After 25 years of unchecked spending, hospitals were steeped deeply in a "Field of Dreams" culture, which told them, "If you build it, they will come."

By far the most sweeping proposal from the new state administration came in the form of legislation to deregulate hospital pricing, a move the Weld administration and other proponents argued would promote the efficiencies of the competitive marketplace. Under the plan, hospitals would no longer be guaranteed a fixed price for admissions, but would compete to win patients of various insurers. Meanwhile, insurers could vie to win contracts with employers by offering lower premium costs made possible by negotiating lower payment rates with hospitals. The deregulation proposal would affect a shrinking portion of the insurance market, since HMOs had never been subject to state price setting, and they were the area of the insurance market that had been expanding and would continue to do so throughout the decade. Nevertheless, the deregulation bill sent an important message that the state was now falling fully in line with the move nationally toward a more market-based health care system. Providers and insurers willingly signed on to the change in course. Hospitals were coming off their best year in history, thanks to

[22] Massachusetts HEFA, Health Care Portfolio Update, 1999.

extremely profitable Medicare payments, which averaged 21 percent higher than the actual costs of services. They felt bullish about winning market share. The business community and insurers, meanwhile, supported the change, believing that rate regulation had become captive to the hospitals. Everyone, it seems, was convinced they would emerge as winners in the new system.

Though it was clearly not a proximate cause of the move to hospital rate deregulation, the rapid ascendance of market-based systems worldwide during this same period was hard to ignore. News accounts of the deregulation push placed it in exactly that context. "Free-market capitalism has come to Eastern Europe," reported a *Boston Globe* story in July 1991. "It has come to Mexico and Argentina. It has even made inroads in the Soviet Union. And if the Weld administration has its way, it may soon invade yet another bastion of state control: the $7 billion-a-year Massachusetts hospital industry."[23]

The administration did get its way, as the legislature approved the deregulation plan and Weld signed it into law on December 31, 1991. Despite a willingness to allow a greater role for market forces in health care, the state's political culture remained firmly oriented toward viewing health care as a "public good," which should be made broadly available to the state's population. Thus, the deregulation bill also included a provision that reformed the small group market, making it less expensive for small groups to purchase insurance.

There were skeptics who wondered whether hospitals fully appreciated the safety and security of the rate setting commission, or understood the dramatic shift taking place from the genteel, mission-driving form of medicine that had characterized the state's nonprofit health care system, to a competitive, industrial-style model. Senate Ways and Means Committee chairwoman Patricia McGovern had earlier suggested a phased-in move to deregulation. But there was no holding back the push toward a market-based system, and the attitude of some state leaders appeared to be captured by then-State Senator Edward Burke, who said at the time, "Let's put the scorpions in a bottle, and see who comes out alive."

DEREGULATION ARRIVES

There had been signs prior to deregulation of a shift to a tougher, industrial model for health care in Massachusetts. In 1985, for example, Harvard Community Health Plan and the Brigham and Women's Hospital struck an agreement for the hospital to become the exclusive provider of adult hospital services for the HMO's members, moving the half that had been at Beth Israel Hospital to the Brigham. But the newly deregulated health care landscape led to a rapid acceleration of such market-driven impulses. As deregulation began in 1992, the state's hospitals all envisioned winning market share by competitively pricing their product to the rapidly expanding HMOs. The HMOs, in return, were poised to pressure providers for lower prices in what was clearly a market that had greater capacity than was needed.

[23] Charles Stein, "Pushing hospitals to compete," *Boston Globe*, July 14, 1991.

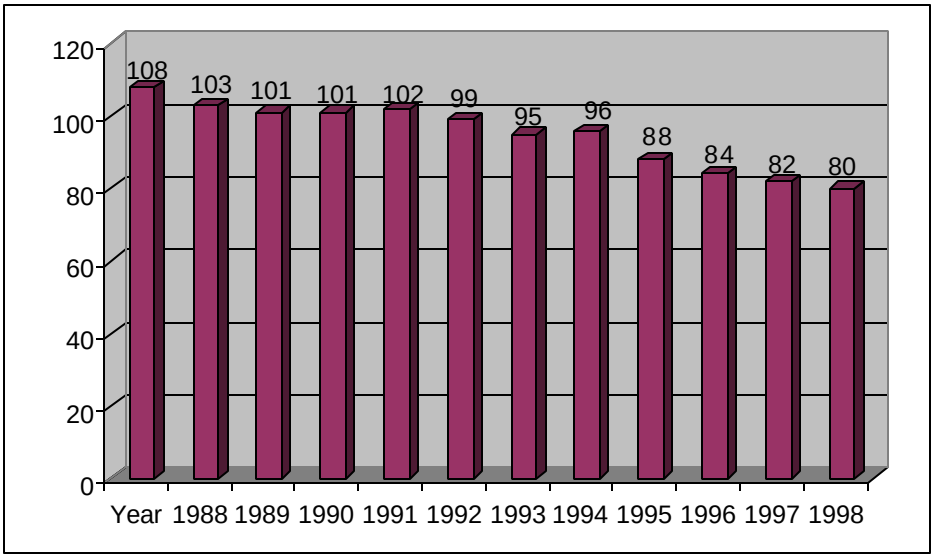
(After 25 years in which the accepted wisdom in U.S. health care was that roughly 4 hospital beds were needed per 1000 residents of an area, managed care plans in California had shown that just over half that number, or about 2.5/1000, and much lower unit prices were feasible.) Between 1980 and 1996, the share of the health care dollars spent on inpatient hospitalization had dropped from 30.1 percent to 21 percent (see table 6).

Table 6: Share of National Health Spending

Sector	1980	1996
Hospitals		
Community		
Inpatient	30.1	21.0
Outpatient	4.5	9.9
Non-community	3.3	1.5
Federal	3.6	2.3
Skilled nursing facilities	7.1	7.6
Home health agencies	1.0	2.9
Physicians	18.3	19.5
Other	32.1	35.3

The shift of the population into managed care coverage in Massachusetts led to an increasing recognition of the state's inpatient overcapacity and high prices. Using the California standard, HMOs began to drive down both use and prices. Within a year of deregulation, hospitals began to see that to win contracts with managed care they would have to offer lower prices and more controlled utilization. A first indication of hospitals' response to deregulation is the reduction in the number of hospitals in the Commonwealth (see table 7).

Table 7: Number of Hospitals in Massachusetts



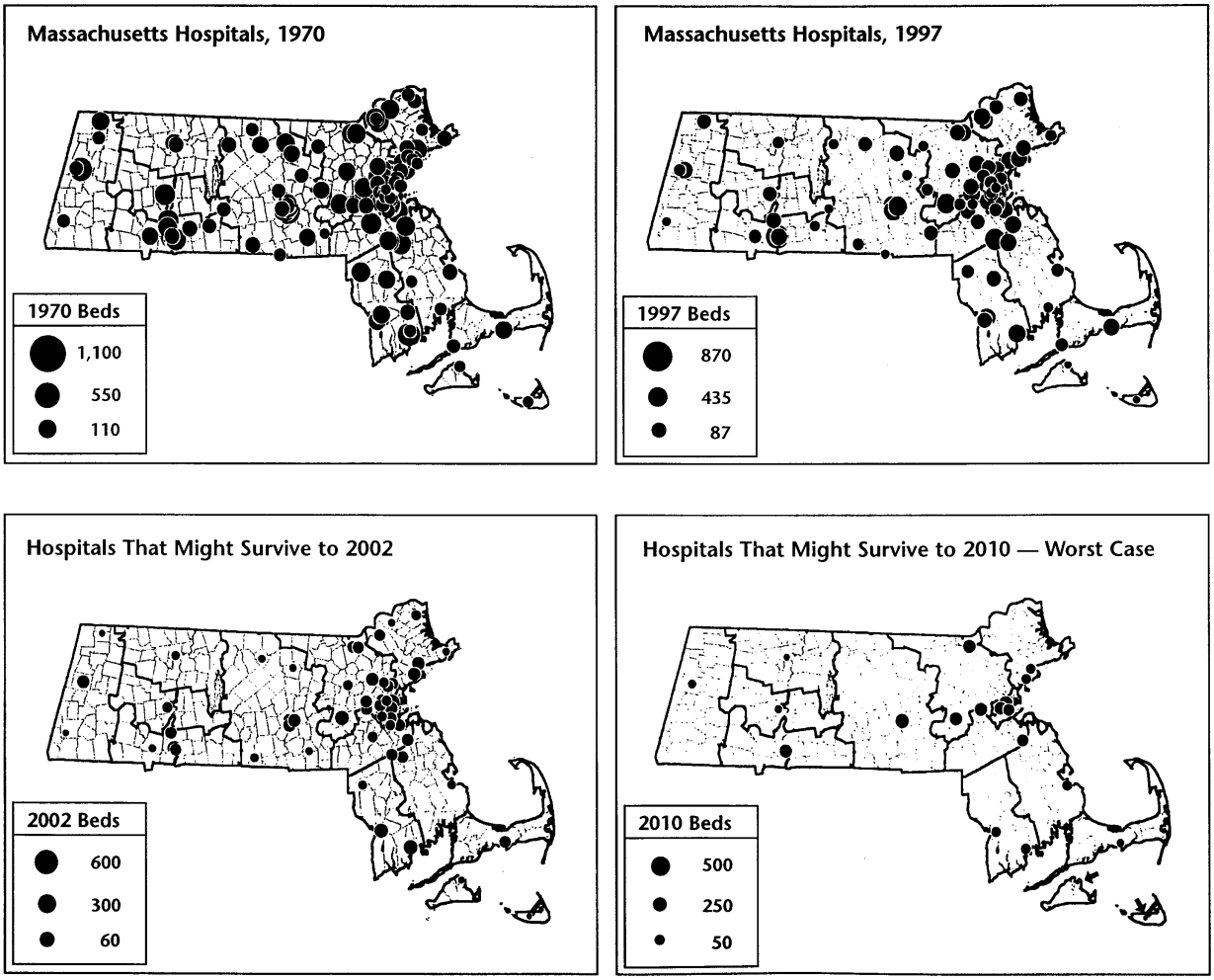
A second indication aspect of the response to deregulation was hospitals' rapid moves to cut costs through reductions in capacity and staff (see table 8).

Table 8: Restructuring to Reduce Costs: Change in Hospital Capacity – 1988-1998

	Massachusetts	U.S.
Hospitals	-24.1%	-9.4%
Beds	-31.3%	-14.8%
Days	-35.2%	-20.8%
ALOS	-27.7%	-20.6%

Table 9 exhibits one scenario as to the long-term effects of changes in health care delivery and restructuring efforts on the number of hospitals in Massachusetts.[24]

Table 9: Massachusetts Hospital Survival – 1970-2010



[24] Alan Sager and Deborah Socolar, "Massachusetts Hopsital Costs per Person Have Risen Much Faster than the National Average, 1997-1998," working paper for Access and Affordability Monitoring Project, Boston University School of Public Health, December 1999.

HOSPITAL CONSOLIDATION

The more dramatic component of the fast-moving changes of 1990s was the consolidation of institutions in order to lower high fixed costs. The concept of consolidation was taking hold in health care nationally, driven by a combination of advances in medical care, which were allowing more care to be rendered safely in less expensive outpatient settings, and recognition that decades of indemnity insurance payments had encouraged far more hospitalizations than were necessary.

There were two approaches to consolidation: horizontal, in which similar institutions merged to consolidate overhead and other fixed costs, and vertical, in which institutions integrated the entire health care chain, from physicians to community hospitals to academic medical centers, and, to lesser extent, long term care-rehab home care and nursing homes. The changes in Massachusetts were set in motion by a dramatic horizontal merger, whose principals eventually turned also to vertical integration and became the overwhelmingly dominant provider of health care services in the eastern region of the state.[25]

Discussions had begun at Harvard Medical School in early 1993 concerning closer ties among its various teaching affiliate hospitals. However, there was concern that such a large group would find it hard to move decisively in what was a rapidly changing health care environment. John H. McArthur, the dean of the Harvard Business School, had joined the board of directors of Brigham and Women's Hospital, one of the flagship Harvard hospitals, a decade earlier. From his experience in the corporate world, McArthur believed that in an industry widely acknowledged as having excess capacity and high fixed costs, the only route to survival and strength was merger, and preferably with the strongest competitor. With McArthur's influence clearly in evidence, after several months of negotiations, in December 1993 the state's two largest, and arguably most prestigious, teaching hospitals, Brigham and Women's and Massachusetts General Hospital, announced the merger of their holding companies into a single entity to be known as Partners HealthCare System, Inc.

While many read this as a merger of the two hospitals, the two health care giants never claimed they would actually merge hospital operations. Instead, they merged their assets and corporate activities, steps that would yield significant administrative savings. Far more significant, however, was the fact that they created a new institution with unparalleled market power to negotiate prices with managed care companies in the new world of health care competition. The issue of antitrust and/or monopoly was examined by the state attorney general, but the merger was cleared since despite the size of the two

[25] Stephen M. Shortell et al., "A Taxonomy of Health Networks and Systems: Bringing Order Out of Chaos," *Health Services Research*, Vol. 33, No. 6 (February 1999); Ralph Snyderman and Vicki Y. Saito, "Integrated Health Delivery Systems," 1999 Duke Private Sector Conference, Duke University Health System. [Available at **www.hsr.org**.]

hospitals, they still accounted collectively for a relatively small percentage of total hospitalizations in the eastern third of the state. That fact notwithstanding, with their huge size and heralded reputations as two of the top hospitals nationwide (both regularly make the top 10 in *US News & World Report*'s annual ranking of US hospitals), Brigham and Women's and MGH were now positioned such that no insurance plan could flourish in eastern Massachusetts without striking agreements with the new Partners HealthCare entity.

Hospitals across the state began following Partners' lead in order to remain viable in the new world of competitive health care landscape, and within five years the state's health care landscape had been virtually remade, a tectonic shift unlike anything that had ever occurred in health care in Massachusetts (see table 10).

Table 10: Results of Consolidation

	Dominant	Other
Western Third (500,000 pop.)	Baystate Health System (1,300 MDs)	Mercy Hospital
Central Third (1,000,000 pop.)	Mass. Memorial System (1,700 MDs)	St. Vincent's Hospital
Eastern Third (4,500,000 pop.)	Partners Health Care System (4,000 MDs)	CareGroup (2,600 MDs) Caritas Christi (1,600 MDs) Boston Medical Center (900 MDs) New England Medical Center (500 MDs) Lahey Clinic (425 MDs)

What unfolded in the state's health care system over the next years was remarkably similar to the waves of mergers aimed at lowering fixed costs and gaining market share that have occurred throughout so many sectors of the economy, such as telecommunications, the automobile industry, and airlines—some of these consolidations also a result of government deregulation (appendix A). What leaves health care standing apart is the vastly different structure of its market, and the tremendous opacity in the financial soundness of the health care institutions and in the pricing, quality level, and selection of services. Missing in health care were oversight bodies to guarantee transparency of financial soundness and safety or availability of any measures of health provider performance, using uniform and objective measurement criteria. Such transparency of soundness is provided, for example, in banking by the Federal Reserve. Safety oversight is provided to the airline industry by the National Transportation Safety Board and the Federal Aviation Administration, while securities investors have access to objective measures of performance, the reporting of which is mandated and overseen by the Securities and Exchange Commission. The move to deregulated health care, however, occurred largely void of any of the oversight elements of a structured market.

Because the state's hospital systems are not-for-profit entities, overseen by the attorney general's office but not subject to the reporting requirements of publicly held corporations, there were also no transparency requirements regarding their strategic choices. Thus, while the public may be regarded as the shareholders of not-for-profit corporations, they were privy to only the most limited information concerning the impact on service, quality, cost, or other factors of the consolidations and contractions occurring among hospitals.

INSURERS MANEUVER FOR ADVANTAGE

The Massachusetts health insurance industry also was profoundly affected by the new competitive health care landscape. Companies began cost sharing with their employees, with the company making a contribution at the level of the most restrictive plan, and then allowing each employee to buy a less restrictive plan with his/her own money. To encourage the transition from non-managed indemnity coverage to more restricted managed care, the state's HMOs broadened their offerings to include a series of managed care plans with expanded choice at higher prices. These plans gave consumers choices of using physicians and hospitals outside of the network, but with higher co-payments and a higher basic premium. These became known as "preferred provider" plans and were generally priced midway between standard HMO and full indemnity policies. Another coverage model, known as "point of service," was also developed, which had greater restriction on out-of-network services, but was priced only about 5 percent above the standard HMO rates. The various managed care companies even added indemnity coverage plans so that each could be the sole contractor for a company and provide the full gamut of coverage models (appendix B).

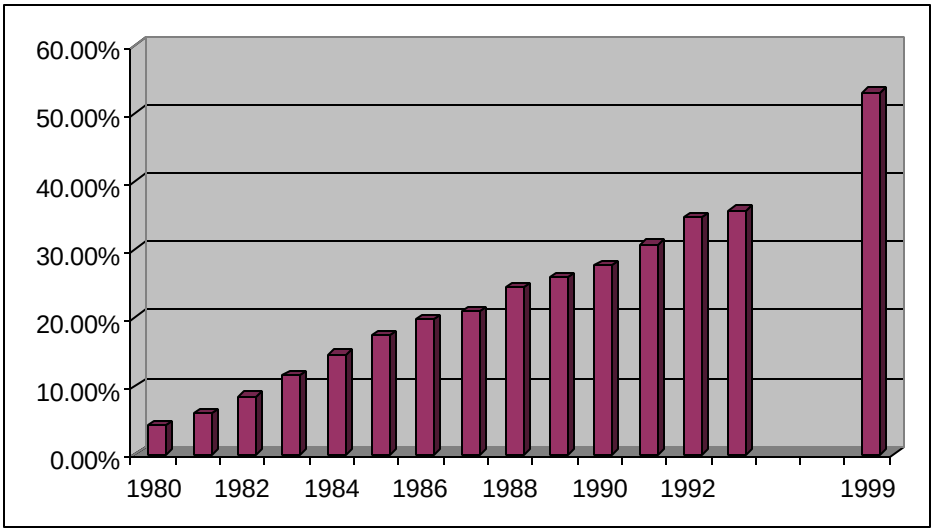
These moves mark the beginning of greater consumer choice in coverage. While the trend resembles the expanding options for retirement investments through employer 401(k) plans, a striking difference is the lack of information that would permit informed choices regarding the quality and performance standards of hospitals and physicians included within the various offerings. While there are satisfaction surveys of HMO plan subscribers, there are no large-scale, publicly available data on medical care processes, outcomes by disease or clinical condition, or service quality by doctor or hospital. A hallmark of market-based economic sectors is the ability to select products or services based on some measure of value or quality. It should be no different in health care, where consumers should be able to make informed choices based not simply on the level of benefits they are purchasing, but the actual performance of those who will be providing their health care services.

Apart from this marketing of a range of coverage levels, insurers sought to solidify and expand their market share through the same classic, market-oriented response as hospital providers: lowering prices to woo customers—in this case primarily employer group contracts, which account for the bulk of managed care membership. The market appeared to be working as predicted by deregulation proponents. Insurers vied for market share through price competition and were able to absorb lower premium payments by negotiating lower hospitalization rates with providers. The providers, in turn, were cutting costs as part of their effort to win inpatient and outpatient service agreements by accepting lowered payments from insurers. The managed care companies were able to keep their spread between premium rates to companies and payment to providers, and thus made significant profits in the mid–1990s, while at the same time they were able to impose the lowest rate of premium increases in 20 years.

1990–1997: RESULTS OF THE FIRST EIGHT YEARS

Almost a full decade of intense market competition among both providers and insurers demonstrated the type of positive, rational outcomes that can be achieved through the introduction of market forces. The membership in HMOs—including point-of-service and preferred provider organization types—had grown markedly (see table 11).

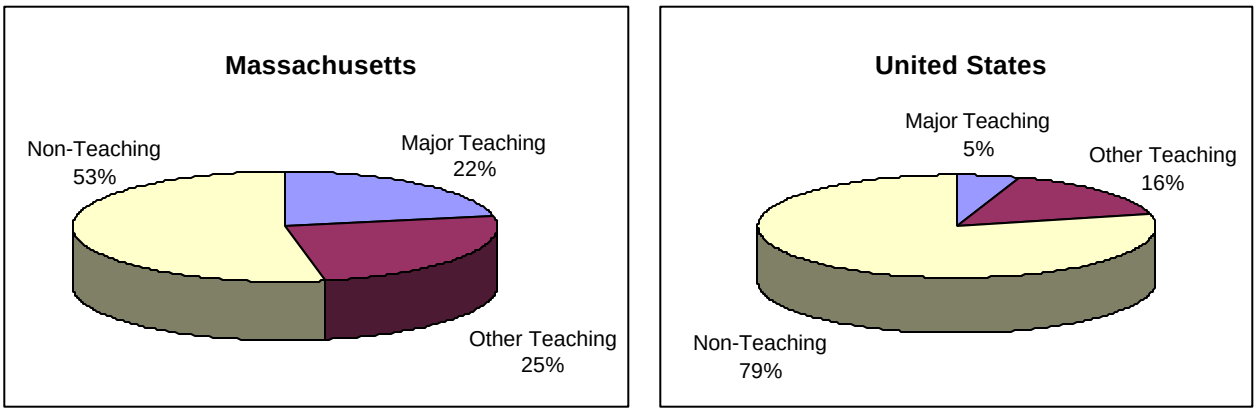
Table 11: Percentage of Massachusetts Population in HMOs



The number of inpatient beds in the state was reduced by 31 percent, there was a 35 percent reduction in annual bed days, and a 25 percent reduction in the number of hospitals, as the state went from 101 to 80 acute care hospitals. And in an indication that the costs of hospital care itself were being reduced, the per diem charges of teaching hospitals and community hospitals went from the highest in the nation to near the national average for each hospital category, and premium rates saw their slowest increase in two decades. In spite of these positive trends, per capita costs remained 25 to 30 percent above the national average.

While unit prices of hospitals and physician services had been reduced to at or near the national average, the hospital mix in Massachusetts remained weighted heavily toward higher-cost teaching hospitals (see table 12).

Table 12: Teaching Hospitals in Massachusetts vs. U.S.

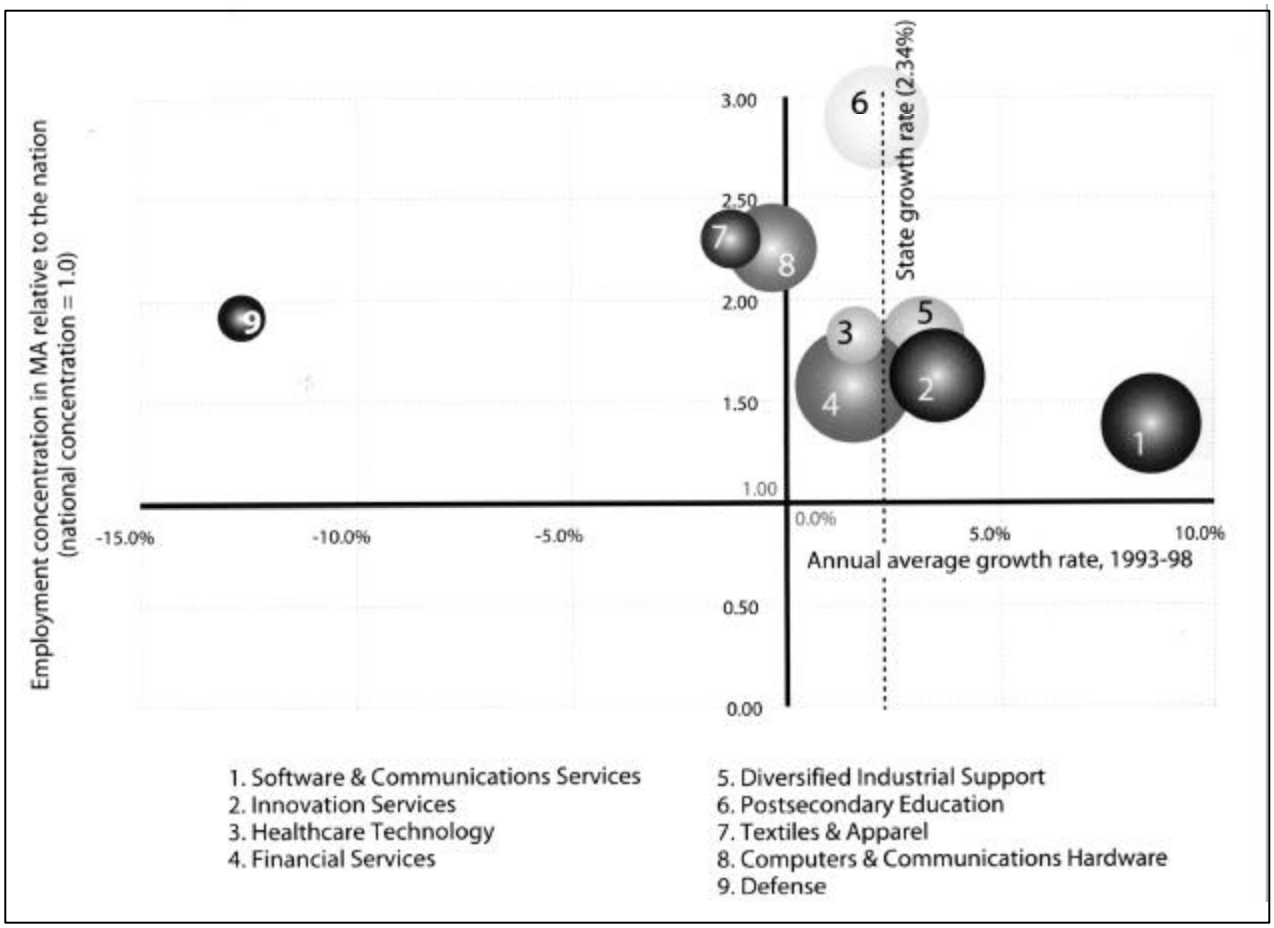


There had been little change in the physician workforce size and composition, which remained the largest per capita of any state and the most heavily weighted toward higher-cost specialists. Thus, the cost-cutting strides that were made did not fundamentally alter the composition of the state's health care system, and Massachusetts continued to have the highest health care and insurance premium costs in the country.

RESEARCH CLUSTER BLOSSOMS

The heavy presence of teaching hospitals and the dense population of physician specialists is clearly not desirable from the standpoint of health care payers, but those characteristics of the state's health care system also form the backbone of its world-renowned biotechnology research industry, one major driver of the robust economic growth Massachusetts has enjoyed over the past decade (see table 13).[26]

Table 13: Massachusetts' Nine Key Industries – 1993-1998



The state received $1.4 billion in National Institutes of Health funding in 1999, maintaining its ranking as the largest per capita recipient of federal research dollars in the nation.[27] The emerging biotech companies and more established companies are providing equity and research support to academic medical centers

[26] *Index of the Massachusetts Innovation Economy 1999* (USA: Massachusetts Technology Park Corporation, 1999) 20.
[27] NIH, All Institution Grants FY99.

and other research institutions. Medical schools, biotech companies, and pharmaceutical company operations are also all building or adding capacity to their research and development centers in Massachusetts. Simultaneously, the industry is moving from the discovery stage to the drug development and testing stage for a number of new biologically based treatments. Because of the earlier diffusion of these new treatments to use in the academic medical centers whose research aided their development, this will inevitably continue to have the dual impact of stimulating the state's economy while also affecting the cost of health care in Massachusetts.

MAINTAINING FOCUS ON THE UNINSURED

Deregulation and a more market-based health care system will not directly address the issue of those without health care coverage. The state did not abandon the issue during the 1990s. A combination of new assistance on the federal level and new state initiatives resulted in incremental progress in reducing the number of uninsured residents.

Multiple strategies have been employed to provide care to the uninsured and underinsured in Massachusetts. First, and most important, of course, is the Medicaid program, designed to provide coverage to the poor. Throughout the life of the program, efforts have been made to extend caps on coverage, to include children outside Medicaid eligibility, and, most recently as part of welfare reform legislation, to extend coverage to families who are part of the so-called "working poor." This has occurred as more and more small employers, often in low profit service sector businesses, offered no insurance or insurance only at prices workers could not afford.

Several parallel pieces of state legislation helped to reform the insurance market in the 1990s. First was the reform of the small group market, which was attached to the 1991 hospital deregulation bill. This component of the legislation provided small business with ways to join together—through chambers of commerce or trade groups—to buy insurance at the more favorable rates that could be obtained by large companies. The next significant step by the state, the Insurance Partnership, is perhaps the most promising. This effort, begun in 1997, is a means-tested program—for both employers and employees—that uses direct state funds to underwrite some of the costs of health insurance to small businesses, and offers lower-income employees assistance in meeting the employee contribution component of the premium cost. Approximately 900 companies and 8,000 workers have thus far utilized the Insurance Partnership (see table 14).

Table 14: Development of Large Regional Networks

CareGroup	Caritas	Partners	UMass
Acute Care •Beth Israel-Deaconess Med. Ctr. (Boston) •Deaconess-Glover Hospital (Needham) •Deaconess-Nashoba Hospital (Ayer) •Deaconess-Waltham Hospital •Mount Auburn Hospital (Cambridge) •N.E. Baptist Hospital (Boston) Non-Acute None Contractual Affiliations •Lahey Clinic (Burlington)* •Youville Lifecare, Inc. (Cambridge) •Children's Hospital (Boston) •Cambridge Hospital •Somerville Hospital •Lahey Clinic (contractual affiliation) •Joslin Diabetes Center (Boston) MDs: 1,500* Primary Care 1,500* Specialist *Lahey MDs for negotiating HMO contracts only	Acute Care •Caritas-Norwood Hospital •Carney Hospital (Boston) •Good Samaritan Medical Center (Brockton) •Holy Family Hospital (Methuen) •St. Ann's Hospital (Fall River) •St. Elizabeth's Med. Ctr. (Boston) Non-Acute •St. Joseph Nursing Care Center (Boston) MDs: 1,600 Total Contractual Affiliations •Children's Hospital (Boston) Bay State •Baystate Med. Ctr. (Springfield) •Franklin Hospital (Greenfield) •Mary Lane Hospital (Ware) MDs: 1,300* Total	Acute Care •AtlantiCare Medical Center (Lynn) •Brigham & Women's Hospital (Boston) •Faulkner Hospital (Boston) •Massachusetts General Hospital (Boston) •Newton-Wellesley Hospital (Newton) •Salem Hospital Non-Acute •Dana-Farber Cancer Insitute (Boston) to form Dana-Farber/ Partners CancerCare •McLean Hospital (Belmont) •Rehabilitation Hospital of Cape & Islands (Sandwich) •Shaughnessy-Kaplan Rehabilitation Hospital (Salem) •The Spauiding Rehabilitation Hospital (Boston) Contractual Affiliations •Lowell General Hospital with Dana-Farber/Partners CancerCare •Cambridge Hospital •Somerville Hospital •Beverly •Emerson MDs: 1,500 Primary Care 3,500 Specialist	Acute Care •Clinton Hospital •Health Alliance Hospitals (Fitchburg, Leominster) •Marlborough Hospital •UMass Memorial Med. Ctr. (Worcester) Non-Acute •Fairlawn Rehabilitation Hospital (Leominister) •University Commons Nursing Care Center (Worcester) •Hilltop Gerontology Center (Fitchburg) Contractual Affiliations •Medford-Whitinsville Regional Hospital •Athol Memorial Hospital •Harrington Memorial Hospital (Southbridge) •Holyoke Hospital •Noble Hospital (Westfield) •Wing Memorial Hospital (Palmer) •Henry Heywood Hospital (Gardner) •Hubbard Reg. Hospital (Webster) MDs: 1,700 Total

As the 1990s ended, the combined effect of various state and federal programs left Massachusetts with the fourth lowest percentage of uninsured residents of any state—10 percent.

BALANCED BUDGET ACT AND CRISES OF THE LATE 1990S

The impact of cost-cutting pressures from private health care payers on hospital finances through 1997 was far less than it might have been because of one overriding factor: Medicare continued to be a stable and generous payer, particularly to teaching hospitals, which received the added payments related to their training functions. Massachusetts hospitals continued to have adequate, if not overwhelming, operating margins throughout the six-year period from 1992 to 1997. In the absence of any large changes, the state's health care industry might have moved forward in the new market-based environment with reasonable stability. But beneath the veneer of an adapting, leaner industry, the state's largest economic sector had done little to fundamentally restructure its delivery system. Operating margins were less than 5

percent and were beginning to erode as managed care companies and the state Medicaid program lowered payments for the same work. Hospitals had also taken on significant debt after the Weld administration authorized nearly $1 billion in capital spending.

The state's hospitals had believed they would come out ahead by winning market share by lowering prices for the short term and then raising them when they owned their territory. However, the generous Medicare payments—the only revenue stream that had not yet been markedly affected by the new managed care ethos—were being used by hospitals to fill gaps created when they rushed to grab market share by pricing services to HMOs below their actual cost. In hindsight, the strategic moves of hospitals in the new market era appear to have been predicated on the huge federal program remaining immune to those market forces. It was all but inevitable, however, that the pressure would build for Medicare to fall in line with the moves to rein in health care spending. That moment came in 1997, when Congress passed the Balanced Budget Act. The sweeping plan to bring the federal government's books into balance exacted its largest savings through huge cuts in the Medicare reimbursements to hospitals, home care agencies, and nursing homes. Furthermore, any cuts implemented in 1998 were twice as large as had been predicted by the models,[28] exceeding the Medicare reductions that hospitals might have anticipated.

In Massachusetts—because of the heavy concentration of Medicare-dependent teaching hospitals—the effects were regarded as cataclysmic. In 1998 and 1999, hospitals throughout the state rapidly went into the red. In 1998, Massachusetts was the only state in the nation whose hospitals had a negative total profit margin (-0.2 percent).

Several other factors had a destabilizing effect on the state's health care industry at the same time. Pharmaceutical costs suddenly jumped 14 to 20 percent in 1998, and medical device costs rose 10 to 15 percent, with particularly large increases in costs of widely used coronary stents, new generation pacemakers, and artificial hips and knees. The enormous squeeze on hospital income was compounded by one-time costs associated with concerns about potential Y2K computer problems, for which hospitals were perhaps the least prepared of any major industry. Finally, the federal welfare reform legislation of 1996, which led to a huge reduction in welfare rolls, sought to temper somewhat the sudden loss of welfare benefits by expanding eligibility for Medicaid benefits. Former welfare recipients in low-wage jobs would thereby maintain their health coverage, but the new guidelines also opened Medicaid coverage to others who had been in low-wage jobs without health insurance. In Massachusetts, where greatly reduced Medicaid reimbursement for services had been implemented by the Weld administration in the early 1990s, the effect was a sudden increase in the pool of patients whose coverage provided low

[28] Stuart Guterman, "The Balanced Budget Act of 1997: What Are the Implications for Hospitals?," The Urban Institute, June 14, 1999.

reimbursement to hospitals. State Medicaid enrollment skyrocketed to one million by 1999, a figure comparable to the size of each of the three major HMOs.

Hospitals turned to the insurers, hoping to adjust the below-cost hospitalization rates to which they had agreed. HMOs had clearly benefited from the lower-than-cost rates they were able to obtain in contracts with hospitals, but were in no position to respond to the call for higher payments from hospitals and doctors because of their own financial crises. The stable insurance premiums prices of the mid–1990s gave way to steep increases, but these did not go toward higher hospital payments. Rather they went to cover insurer losses resulting from unsuccessful expansion into other New England states and, in the case of Harvard Pilgrim Health Care (HPHC), enormous flaws in the management of the 1996 merger of Harvard Community Health Plan and Pilgrim Health.

As the decade drew to a close, HPHC's information systems were in such disarray that the company became increasingly unable either to collect revenue from companies or to reimburse providers for service. While signs of the failure were everywhere, neither the insurer's board of directors nor the state intervened until it was too late. In the middle of 1999, the board dismissed top HPHC management and brought in former director of administration and finance in the Weld administration, Charles Baker, Jr., who had earlier directed the transformation of the state Medicaid program into a managed care model. Baker and a new team of directors sought to untangle the company's information system. However, HPHC had exhausted more than $500 million in reserves, and in preparation for a bond issue to raise additional cash, 1999 losses believed to be $150 million were discovered to be $227 million. Within hours of that disclosure in early January 2000, HPHC was put into state receivership. [For more on HPHC's problems and their amelioration, see Alan Sagar and Deborah Socolar's report at **www.massnurses.org/news/000001/meltdown.htm**.]

While deregulation clearly implies that government will not set prices or establish guaranteed profit margins, it should not mean the absence of a meaningful role for government in promoting a healthy, functioning market-based system. Indeed, such a role has been central to the functioning of other deregulated industries, such as banking and airlines. The HPHC saga, in contrast, stands as a troubling example of the degree to which the shift to competition in healthcare in Massachusetts was not supported by an adequate regulatory framework to guide the players or to guard the interests of those with a stake in the system.

While Massachusetts hospitals and insurers both lurched toward the close of the decade in precarious financial condition, physicians and other health care providers and patients and their advocates were decrying the bottom-line focus of medicine in the 1990s, which they charged with stripping important decisions about health care away from doctors and patients and into the penurious hands of insurance "bean counters."

A recent installment of the public television series, *Frontline,* explored the new realities in medicine by profiling Dr. Martin Solomon, an internist who leads a group practice at Boston's financially struggling Beth Israel Deaconess Medical Center. Reflecting on the state's worldwide reputation in health care, Solomon, who now leads weekly cost-review sessions among the group practice's overworked physicians, concludes plaintively, "We've gone from being a medical Mecca to being a medical Beirut."[29]

Stories appear regularly detailing the frenetic pace at which doctors must run through appointments with patients to satisfy new managed care benchmarks.[30] Unfortunately, managed care's introduction of business sensibilities into the world of medicine appeared to bring little of the forward-looking innovation for which market-based systems are often touted. Instead, observed one business writer, managed care's "MBA managers settled mostly on the time-honored strategy of the speed-up. Doctors would have to see more patients, and spend less time with each."[31]

The backlash against managed care from hospitals has certainly put important issues on the table, but it has also revealed a degree of resistance among providers to the changing world of health care. Evidence that Medicaid payments are falling far short of actual patient care costs argues for a reassessment of the cost-cutting reforms the state introduced into the program in the early 1990s. The state appears poised to approve a $25-million increase in Medicaid payments. Any revamping of Medicaid payment schedules must also carefully examine the argument of state Medicaid administrators that routine care is being provided to Medicaid recipients at high-cost teaching hospitals that could be as effectively delivered elsewhere. As part of their recent campaign for increases in Medicaid payments, state hospitals commissioned an $80,000 study that reported with alarm that Massachusetts is second only to Louisiana in the decline in health care jobs over the past two years.[32] The Massachusetts Hospital Association study appeared to foreclose the possibility that such a trend might be healthy in a state that leads the nation in health care costs. The group also made much of the fact that hospital costs and capacity are on par with national averages, but it did not address the much bigger issue that our system is heavily weighted toward costly academic medical centers.[33] The current approach by the state's hospitals appears to be one of trying to patch the holes in the system by extracting higher payments for their services. While they have justifiably sought to highlight the steps they have taken to reduce costs, they have not confronted directly the possibility that the new realities in health care mean much more fundamental changes in the system may be necessary. Meanwhile, even within the circle of those lashing out against managed care, there is often little consensus, as groups with different interests stake out different positions on priorities for the limited health care dollars now available. In the current debate over Medicare spending,

[29] "Doctor Solomon's Dilemma," *Frontline,* PBS, April 2, 2000. [Available at **www.pbs.org/wgbh/pages/frontline/shows/doctor**.]
[30] Liz Kowalczyk, "A stretched-thin doctor draws a line," *Boston Globe,* June 1, 2000.
[31] David Warsh, "Wake-up call," *Boston Globe,* January 30, 2000.
[32] Liz Kowalczyk, "Report: State's health jobs in sharp drop," *Boston Globe,* May 11, 2000.

for example, hospitals are calling for reinstatement of some of the cuts in hospitalization reimbursement ordered by the Balanced Budget Act, while patient advocates favor use of any new Medicare dollars to cover recipients' rapidly rising drug costs.[34]

THE MASSACHUSETTS HEALTH CARE SYSTEM IN 2000: SEARCHING FOR STEADY STATE

As we enter the new century, there is broad consensus that the Massachusetts health care system is in crisis. In many respects, Massachusetts experienced all of the significant turns in U.S. health care *writ large*. At the outset, it is well worth recognizing that the upheaval and uncertainty in Massachusetts' health care in the 1990s were also accompanied by substantial positive developments. In reaction to the widespread belief in the early 1990s that the state's hospital system was badly bloated with excess capacity, the newly deregulated hospital industry reacted quite appropriately, embarking on an unprecedented wave of mergers and consolidation that are continuing to reshape the state's health care industry. This had two positive results: a decrease in the total number of hospital beds in the state, and a decrease in in-patient costs per bed across the range of hospital settings, from community hospitals to the state's elite tertiary care medical centers. Both of these developments point to some success in adopting a more rational approach to health care delivery and in reining in hospital costs.

We have not, however, fundamentally decreased the costs of health care premiums paid by Massachusetts consumers. We have a system that is structurally high-cost, yet there is little reason to think that public or private health care payers will substantially modify the harder stance of recent years toward health care spending. If not addressed, this situation appears destined to render the state's health care system perpetually unstable. Meanwhile, the transition of the health care industry to a more market-based economic sector has produced a strong backlash from patients and frontline health care providers, who say the new managed care era has brought bottom-line management at the expense of quality care. These concerns are real and must be addressed as well.

With providers and payers in precarious financial condition, and with a growing chorus of voices demanding "patients' rights" legislation that could place further financial strain on the system, many have pointed the finger at deregulation and managed care as the cause of the current crisis. Some have suggested that a return to a more regulated environment is necessary. "Regulation of and for what?" John McDonough, the former cochairman of the legislature's health care committee and now a professor of health policy at Brandeis University, asked in a commentary during the midst of the Harvard Pilgrim Health Care crisis.[35] As McDonough noted, hospitals, which were the focus of state regulation in the 1970s and 80s, are no longer the "center of the health care universe" as they were just 10 or 20 years ago.

[33] Lois Green, "State's hospitals need help now," op-ed, *Boston Globe*, May 10, 2000.
[34] Robert Pear, "Health providers and elderly clash on Medicare funds," *New York Times*, May 15, 2000.
[35] John McDonough, "The case for bailing out a nonprofit HMO," *Boston Globe*, February 21, 2000.

That observation underscores just how fast the world of health care is evolving, a pace of change that may only quicken over the next one or two decades. While a return to a more tightly regulated environment appears to hold little promise of addressing basic challenges facing our health care system, it is equally clear that the current system leaves much to be desired.

TRANSFORMING THE DELIVERY SYSTEM

The Massachusetts health care system faces enormous challenges in the quest to reach stable ground after a decade of tumultuous change. Any strategies to get there must address effectively the two overarching realities of Massachusetts health care today:

1) Our health care system is structurally high cost at a time when public and private health care payers have sought to rein in spiraling health costs and show little sign of retreating from that new posture.
2) The brewing backlash against the cost controls of managed care has led to demands from patients for more control over the care they receive and demands from doctors for a return of control over the care they provide.

The generous style of managed care in Massachusetts has meant far less denial of access to specialists and treatments than in most other states. There is nonetheless palpable dissatisfaction among patients, who face a cumbersome health care system that in many ways is not consumer-friendly, and among clinicians, who are under increasing pressure to manage costs more tightly, often by shortening the time spent with patients.

In recognition of these broad areas of concern, health care summits are being convened regularly; the governor has appointed a blue-ribbon commission on health care (of which the author is a member); and the state legislature is brimming with bills purporting to address one aspect or another of the crisis that many have declared is upon us. Meanwhile, the state attorney general, fresh from his trial-by-fire initiation into health care matters in the Harvard Pilgrim receivership case, is also grappling with the question of how to "fix" the system in order to avert future crises.

While some have seen in the current health care crises the rationale for return to more regulated medicine, such as we had in the 1970s and 80s, long-term solutions to these problems are far more likely to be found by moving forward to a full-fledged embrace of the structure and accountability of a true market-based system. Indeed, the best strategies for addressing the twin realities of a structurally high-cost system and patient and provider discontent may come from confronting a third fundamental reality of our system, one that has been all but ignored amidst the health care din of recent years—namely, that we have entered the era of deregulated, competitive health care, but have seen little of the innovation in structure and operations that has brought productivity improvements to other industries that have made similar transitions, such as the financial and airline sectors.

We have introduced to health care some of the harsher, bottom-line, instincts of economic markets, but without ensuring the free flow of information about the quality and value of services that should be part of any true market system. We have also failed to put into place in health care the type of oversight mechanisms present in other industries, which can provide the structure and "rules of the road"

necessary for the healthy functioning of a competitive, market-based system. It may be far more useful—and accurate—to regard this as the early stages of a new era rather than the end of one that has failed.

Because of the high-cost structure of the Massachusetts health care system, we face a particular imperative to seize opportunities for innovation that could bring new levels of efficiency and accountability to health care. Our rich academic environment and robust knowledge-based economy equip us to play a leadership role in devising new approaches to receiving and paying for health care. Such changes could not only bring substantial gains in efficiency, but also improve the quality of health care and patient and provider satisfaction with the delivery system.

Many of these changes would involve greater use of information technology. Information technology is radically changing how we live and is transforming nearly every social institution and sector of the economy (appendix C). The Internet is empowering consumers to make informed choices as never before. Our health care delivery system, which is the largest service industry in the country, stands virtually alone on the sidelines of this unfolding information revolution.

The cultural barriers to change are far greater in health care than in most other areas, owing principally to the hallowed status of its life-sustaining mission. Fundamental transformation will therefore not come easily to what has been among the most tradition-bound of our social institutions. Nor should we embark recklessly on changes to a system charged with the maintenance of health and treatment of disease. We must, however, be open to change. The following vision of a transformed health care system is much less a blueprint than a working sketch, one that can serve as a basis for discussion and debate.

There are three interrelated components at the heart of this potential transformation:

- productivity improvements to mitigate the high cost structure of our system
- a return to greater patient and physician control, but with greatly expanded accountability for both
- the establishment of appropriate oversight structures to permit more informed health care choices, promote competition, and ensure the financial soundness of providers and insurers and the safety of those receiving care with the system.

IMPROVING PRODUCTIVITY

Harnessing the capabilities of our increasingly sophisticated information and communications technology is at the heart of accomplishing all three goals. The most direct and immediate impact of information technology is on productivity. While the notion of improved productivity may conjure industrial images of speeding up the assembly line, the concept implies both increased efficiency and improved quality, a dual effect that has been increasingly achieved by new industrial operations and management models.[36]

[36] Business examples include the transformation of financial services and the "6-sigma" quality improvement strategies of Motorola and General Electric.

Greater use of computer and information technology could ensure far more rational treatment decisions in patient care and could substantially change the nature of physician-patient interactions to bring tremendous gains in efficiency and increase satisfaction with the health care system. We have a growing base of medical knowledge, derived from well-controlled research, documenting the most appropriate treatments for a wide range of common acute and chronic diseases. While medical practice will always involve clinical judgments by health care providers, models are available to utilize that base of knowledge as a template to guide health care providers in assuring that every patient receives the best demonstrated care for a given condition. Use of such a system would greatly reduce the likelihood of treatment errors that could lead to complications and would also minimize the overuse of health care resources. The systematic collection of data on patient outcomes would, in turn, facilitate the continual updating of treatment recommendations using the most current, "evidence-based" clinical findings.

Information technology also promises to redefine the physician-patient relationship. Structured e-mail exchanges could be used to monitor chronic health conditions. Depending on a patient's condition and its severity, e-mail inquiries would be sent from his or her provider at predefined intervals. The e-mail would ask the patient for answers to a set of questions that would then be read by a computer program to determine which patients require clinical intervention and which are successfully self-managing their condition.

Similarly, for conditions that require routine and frequent monitoring of laboratory values using blood specimens, "micro" blood measurement devices are now available that allow patients to collect samples directly into home-based equipment capable of testing specimens and transmitting the results to the health provider's office. Values deviating from the acceptable range would immediately be flagged so that the patient could be telephoned (or e-mailed) to determine what type of clinical intervention is warranted. The routine use of such an interactive system could save large numbers of patients hours of travel time, missed work, and waiting room frustration. In addition, it could allow physicians and other health care professionals the time they now lack for patients whose conditions require a more intensive clinic-based encounter, or for those patients who feel the need for an office visit to discuss a health issue of concern. Thus, fully exploiting the benefits of information technology could simultaneously reduce costs and improve health care quality and patient satisfaction.

The obstacles to greater use of information technology in health care are many. They include everything from the vigorously protected lines of practice authority among different licensed health care professionals (physicians, nurses, physical therapists, etc.) to fears of greater depersonalization of medicine, privacy concerns, and the rules concerning reimbursement for services (face-to-face contact is usually a requirement for billing a "clinical encounter"). Each of these must be addressed in any discussion of such changes.

RETURNING HEALTH CARE CONTROL TO PROVIDERS AND PATIENTS

The ability to gather and coalesce vast amounts of medical data also enables the implementation of other fundamental changes that could improve our health care system. Foremost among these are new systems for assessing the performance of health care providers and for creating greatly expanded choices in health care coverage to patients.

Health care providers and patients have lamented various aspects of the new, cost-conscious era of managed care medicine. During the 25 years from the advent of Medicare and Medicaid in 1965 to the beginnings of the managed care wave in 1990, patients in the United States enjoyed nearly limitless access to health care, while insulated from the actual costs of that access. Similarly, physicians and hospitals benefited from generous reimbursements that made few demands for accountability concerning the quality or quantity of the services they were providing. That health care providers and patients alike were content in that health care environment is entirely understandable. But we came to conclude that the juggernaut of unrestrained health care spending was threatening to overwhelm us.

The new realities in health care seem all too often to strip control of health care decisions from providers, while also limiting patients' choices of services. New approaches to health care that introduce elements of a true market system have the potential to return control over health care choices to providers and patients. A true market system, however, is a two-way street, so that with that return of control must come greater accountability on the part of both providers and patients.

With respect to hospitals and individual providers, accountability must include requirements to make available a wide range of data concerning the quality of their care and use of resources. It is imperative that patients have access to these data if they are to make informed consumer choices. Perceptions that superior care is provided by academic teaching hospitals, for example, have contributed to a health care culture in Massachusetts in which many patients will settle only for care at those facilities. Do we know that better results are achieved from routine hernia repair or gallbladder removal at those facilities than at community hospitals? How can we know whether a primary care physician provides empathetic health care counseling or has experienced good rates of success in monitoring and controlling high blood pressure? We have far more reliable information available when selecting an automobile or toaster than when making critical health care choices. Bringing the dynamic benefits of a market-based system to health care must involve equipping patients with the information to make truly informed decisions in their selection of health care providers and insurance coverage.

Even more critical is creating a system that assures patients a basic level of safety. It is remarkable that medicine has not up to now had a mandated safety assurance system. While there are many private hospital accrediting bodies, there is no central agency in a position to mandate the reporting of major errors or to use that data to improve safety. A recent report from the Institute of Medicine, "To Err is Human," estimates that somewhere between 44,000 and 98,000 deaths occur in the United States each

year as a result of medical errors.[37] In response to the report, both the federal government and Massachusetts state government are implementing the first stages of a safety reporting system modeled after the National Transportation Safety Board.[38]

Four major areas should be included in publicly available data concerning hospitals and individual practitioners. The first is technical outcome, which would include data such as the percentage of a physician's hypertensive patients with adequately controlled blood pressure, or the rate of blood glucose control among patients with diabetes. A second measure is functional outcome, such as the absence of depressive symptoms in patients under treatment for depression, or an ability to carry on activities of daily living, such as climbing a flight of stairs, among those who have undergone similar knee surgeries. A third area is measures of service, such as accessibility (waiting time for appointments or return of phone calls) and courtesy. Fourth is the appropriate use of resources to gain the best outcome at lowest cost.

Great care must be taken in designing such a performance measurement system. The data must be properly adjusted, for example, to take into account the fact that a given hospital or physician may treat a pool of patients with more severe disease that is less amenable to treatment. Reporting of such data on clinical performance would represent a fundamental change for hospitals and health care professionals, and they should play the major role in the design of any such system.

Physicians have seen their independence and control greatly diminished by the power of managed care companies to pre-approve their care decisions. A return of control over treatment decisions to health providers could come from changes in the method of payment to physicians and hospitals. Physicians, who are paid now only for specific services and for seeing a patient face-to-face, would receive a set payment according to a patient's clinical condition, adjusted for its severity. Insurance companies would provide a monthly payment for treatment of patients with chronic conditions, such as asthma or congestive heart failure, and a single fixed payment for acute episodes such as hip replacement surgery. Physicians' acceptance of a system that calls for publicly available data on their performance will require that they believe that regaining control over patient care is worth being held directly accountable.

These changes would also provide a basis for evolution in the role of managed care insurance companies away from direct management of care, which has prompted such negative response. By reworking their actuarial systems to establish a condition-based payment system, they could serve the more limited role of intermediary and distributor of coverage choices. While this clearly is a complex and detailed task, we have the skills and technology to build such a new model. (Appendix E describes the details of these plans further.)

[37] Institute of Medicine, "To Err is Human: Building a Safer Health System" (Washington, DC: National Academy Press, 1999). [Available at **www.nap.edu/html/to_err_is_human**.]
[38] Richard Knox, "Patient safety center advances," *Boston Globe*, May 10, 2000.

A similar level of patient choice should also be brought to the health insurance system. As health care costs have increased, patients have become responsible for increasing shares of their premiums as well as for partial payments of individual treatments. The choice of coverage options, however, except in large organizations, is quite limited. Moving toward a true retail, consumer choice system must involve companies providing far more choice of coverage to individual employees. One approach would be to adapt some of the features of 401(k) plans to medical insurance. This could include employers' making a defined pre-tax contribution toward health coverage, a practice already in place in some companies. Employees could make additional pre-tax contributions up to a cap to buy a more expensive health care plan. Another important step would be to allow individuals to remain with a chosen health care delivery system regardless of change in employment.

Managed care insurers might eventually offer all licensed care plans, including those of their competitors. (This situation would not be unlike trends in the financial sector, where mutual fund companies, for example, now sell not only their own securities products, but also those of competing companies.) We can create offerings to consumers that are much more extensive in variety and more closely matched to patient preference. Such preferences have been shown by survey to vary widely from intense use of the Internet and self-care, to those that are human interaction- and visit-based. Apart from, say, mandated catastrophic coverage, consumers could select individual components of the remainder of their coverage package, based on cost and their own preference. If data indicated, for example, comparable outcomes from hernia repair and other standard procedures at lower-cost community hospitals and at higher-cost academic medical centers, consumers could elect community hospital coverage for such routine procedures (while retaining the right to go to teaching hospitals for more complex care), with a corresponding savings in premium cost.

As in 401(k) plans, questions are sure to be raised as to whether patients are sufficiently informed to make such choices. Under a system that makes information available about the quality and costs of health care services, we should proceed with the belief that individuals can and wish to make such choices.

BRINGING OVERSIGHT TO HEALTH CARE

Mechanisms should be established to provide oversight of clinical performance data and financial soundness and performance of health providers and insurers. In addition to state-mandated safety standards, a state-sanctioned agency should oversee the reporting (but not analysis or grading) of data on measures of performance of hospitals and physicians. The federal government has begun to establish standards that could be used in a clinical reporting system. There are, however, no federal or state requirements yet that health care providers collect or report such information.

A healthy, functioning system also requires far greater levels of financial oversight than have been in place to date. The most basic level of oversight must assure the financial soundness of health care institutions. Since virtually all Massachusetts hospitals and insurers are nonprofit, the attorney general's office, which oversees nonprofit corporations, could play a lead role in directing such oversight. Oversight mechanisms should bring to the health care system a high level of "transparency," a concept central to financial systems and publicly owned corporations. The financial condition of health providers and insurers must be made clear for all stakeholders to see.

One of the most jarring events of recent years was the fiscal collapse in late 1999 of Harvard Pilgrim Health Care, the largest managed care insurer in the state. A clear deficiency exposed during the Harvard Pilgrim case was the lack of adequate transparency, or ability for those outside Harvard Pilgrim to see the coming fiscal storm before it hit. There must be a rigorous system of financial oversight put in place, and proper coordination of effort among the attorney general's office, Division of Insurance, and other state authorities, so that the financial health of hospitals and insurers can be monitored with full public confidence.

A more complex—and contentious—aspect of financial oversight would involve more aggressive monitoring of strategic choices and behaviors to assure competitive and still public-minded operation of these nonprofit health care institutions. For public companies, the Securities and Exchange Commission requires transparency of corporate actions such as investments, mergers, and acquisitions. Markets, in turn, serve as evaluators of those actions. It is unclear how this could be done more effectively in the nonprofit world of Massachusetts health care. The boards and management of nonprofit corporations make strategic choices without public oversight. Recently, this has included insurers' decisions in the 1990s to expand to other states, decisions by hospitals to rebuild facilities and take on significant debt, and the wave of hospital consolidations of the past decade. In public companies these decisions are required to be made public to shareholders. Careful consideration should be given to what level of oversight of health providers and insurers is necessary to ensure both a competitive market and that they continue to meet their public charity mission.

A Laboratory for the Nation

We are at an important crossroads in health care. It is a crossroads that we have, in many respects, been forced to face by the need to rein in spiraling health care costs. As with many moments of crisis, however, the serious problems facing our health care system also present opportunities to chart new territory that could address these shortcomings with new models that bring substantial improvements to the quality and efficiency of that system.

We are rich in the knowledge-based resources needed to guide such a transformation. These include medical information scientists interested in applying computers to medicine; social scientists who

have developed measures of health care quality and performance; and health economists who can model, track and assess the financial implications of new health delivery system models. We have the experts in regulation and law who can devise ways to remove existing barriers to change and to protect both consumers and providers. We also have the industry resources necessary in medical computing and software development, as well as data storage and analysis. We have four medical schools that can turn their research and teaching energy to this new "science." Finally, we have the venture capital that can catalyze innovation in the design of new health system models.

There are promising beginnings. Younger doctors are utilizing new information technology tools to improve the quality of care and to involve patients more fully in their own care. The larger health care provider systems are making significant investments in telecommunications and the Internet to make care more coordinated and to reduce medical errors in hospitals. The state should find ways of encouraging the acceleration and expansion of these ideas by removing barriers and rewarding successful innovations. Grants could be made available to smaller providers to aid their development of such systems. Transformation of the delivery systems must involve patients, clinicians, hospitals, and insurers. Small, integrated demonstrations that are carefully evaluated may therefore represent the most appropriate initial strategy.

Lastly, despite a firm belief that bringing greater elements of a true market-based system can greatly increase the productivity and quality of our health care system, health care is most assuredly not simply an industry or market. It is an essential public good and should be a core component of a social safety net protecting all citizens. In the United States, we have consistently rejected a fully nationalized health care system and have instead a mixed system of public payment for the poor and elderly and private insurance coverage that is predominantly employment-based. Providing health coverage to the greatest number of residents possible, therefore, involves political decisions reflecting a willingness to fund coverage of the non-working poor as well as programs to provide access to affordable insurance coverage for the large number of working people who are not offered—or cannot afford—health coverage through their employer. Massachusetts has been a leader on both fronts and should continue these efforts.

We should not squander the opportunity to serve, in the spirit of Supreme Court Justice Louis Brandeis's well-worn quote, as a laboratory for the nation in developing new models of health care. We are a world leader in medical care and biomedical research and should harness that same energy for discovery and innovation in medicine to transform the system in which that care is delivered.

[For commentary on the public sector's role in health care delivery, see David Cutler's **www.esg.uqam.ca/ideas/data/Papers/nbrnberwo5591.html**. For further discussion on for profit health care, see *For Profit Enterprise in Health Care* published by National Academy Press at **www.nap.edu/books/0309036437/html/209.html** and The *New Health Care for Profit* at **www.ul.cs.cmu.edu/webRoot/Books/National_Academy_Press_Books/new_health_care/0000001.htm**.]

APPENDIX A: PROVIDER CONSOLIDATION

The hospital boards of trustees and the management they chose represented the oversight and rules for the industry. The results were decidedly mixed. Looking back over mergers, the timing often relates to the outcome. Partners came first and merged the two strongest hospitals in resources and reputation. Using that strength, they recruited new management with the new board, which embarked on a 5-year plan to create a vertically integrated system. Thus, before the financial crisis of the BBA, they had purchased four major community hospitals and become strategic partners of the Dana Farber and two more community hospitals. Most importantly, they developed a primary care network that grew from 65 in 1994 to 1500 in 2000 (including Harvard Vanguard) plus 3500 specialists. It has the capacity to care for more than 3 million people through the eastern Massachusetts region. Their research hospitals' combined research accounts for more than $400 million of the state's $1.4 billion. They have become the "Fleet Bank" of eastern Massachusetts health care.

New management and boards came to two other systems in 1994. Boston University/Boston City Hospital embarked on a merger of two closely allied medical institutions. Given their 100-year mission to serve the poor, they came together with significant support from city, state and federal government. Their network is centered on the Neighborhood Health Centers and it works closely with Neighborhood Health Plan (an HMO for Medicaid and state-supported previously uninsured). That merger has gone well and, while dependent on public support, it is operating well and continues to meet its traditional mission even in a market-oriented environment. They have 800 physicians, and their work is focused in and around Boston.

Also in 1994, Caritas Christi recruited new management to bring together another mission-focused group, the Catholic hospitals of eastern Massachusetts. Catholic hospitals throughout the nation have traditionally been the largest non-profit systems, most often spanning more than 20 states. Thus, to integrate the independent Catholic hospitals of Massachusetts followed tradition, but in contrast to Partners or Boston Medical Center with their deep resources, it has not used the resources of the Diocese to support its growth. Thus, while completed and viable, financial pressures made it more fragile as the decade ended. Their 1600 associated physicians can provide care for just under 1 million people.

In 1995, new management came to Lahey Clinic and New England Medical Center. Lahey was dissolving its 5-year partnership with Hitchcock Clinic in New Hampshire. Lahey has remained independent and financially secure (contracting with HMOs as part of CareGroup). They have 425 physicians. The main strategy for NEMC, cut out of Pilgrim and the HPHC, was to regain access to what was now one-third of the HMO market. Lifespan, in a position to guarantee re-entry as condition of the sale, was the white knight. Soon NEMC began to grow again and showed a slight profit in 1999. NEMC has 325

physicians. With HPHC withdrawn from Rhode Island, the necessity or value of the merger is less clear. Will this merger follow in the tracks of Lahey?

CareGroup is the next in size, but new management did not arrive until 1998. CareGroup, in its merger of 1996, in contrast to Partners and because of its more precarious financial condition, actually merged all operations of the BI and Deaconess within six months. The difficulties of managing clinical coordination, physician defections, and unmerged computer systems, all contributed to a rocky beginning. Its new management is just beginning to show improvement in financial and clinical operating performance and is re-accumulating reserves through asset sales. With 1350 primary care physicians and 1200 specialists, it is capable of taking care of nearly 2 million people.

Children's Hospital is a special case. It is mostly unfinished work. Although it has a large endowment, it is structurally disadvantaged by its high percentage of low-paying Medicaid patients. Its disproportionate situation with regard to the free care pool ($10 million in, $2 million out), little pay for teaching because it is not a Medicare hospital, and the recent arrival of a new competitor in the MGH Hospital for Children (in addition to the Floating Hospital at NEMC) further complicates its situation.

At the end of the decade, the backlash of consumers and MDs is now against managed care for the limits they put on their behavior. With the few giant health systems working to keep patients and MDs inside their systems, can deregulation bring about a truly competitive system? Might new technology and next stage insurers, evolving after managed care, create new options for consumers? Could smaller groups of MDs use technology and open access to draw patients to a transparently safe and high-quality system?

APPENDIX B: INSURER MOVES/CONSOLIDATIONS

PUBLIC MANAGED CARE

As the nineties progressed, first Medicaid HMOs and then Medicare Choice HMO arrived in Massachusetts. Medicaid turned around in the early nineties and consolidated, with other federal programs, into a program that after welfare reform sent people back to work. They were often without insurance in 1997. The Medicaid programs were consolidated under the Mass Health programs, which by 1999 covered nearly 1 million adults and children. In addition, the Insurance Partnership was just getting underway, giving support to low-income companies (900 so far) and their low-wage workers (9000 to date). These programs have kept Massachusetts's safety net for health one of the nation's strongest for those covered, but lowest paying to providers.

Medicare HMOs have fared less successfully. Cutbacks in payments to HMOs have seen commensurate cutbacks in offerings by our HMOs.

THE MAJOR PRIVATE PLANS' ACTIONS IN THE 1990S

Blue Cross

Blue Cross, with new management arriving in 1990, moved more aggressively from indemnity to managed care. Taking advantage of Baystate's financial woes, it came to the state's rescue (there was no consumer or provider protection law for HMOs in place), and by taking over the plan, had caught up with its competition with more than 500,000 HMO members by 1994. They had a number of difficulties in the mid-nineties. They underpriced their products to gain market share and had to lower payments to providers in order to maintain reserve requirements. They were excluded from managed Medicare for one year as a penalty for inaccurate reporting and had significant senior management turnover during those years. However, as the decade ended, they had become the largest HMO in the state with over 1.45 million managed care members.

Tufts Associated Health Plans

TAHP was the most stable. TAHP grew fastest in the mid-nineties by focusing on managing growth and expanding information systems to meet the growth. In addition, when Medicare introduced Medicare Choice HMOs, Tufts became the exclusive distributor of Secure Horizons, a successful California plan, and now has the largest Medicare HMO population in New England with 100,000 members. The plan's expansion to Maine and New Hampshire in 1996 caused a $44 million loss overall (with a $28 million gain from Massachusetts). TAHP exited the New Hampshire/Maine markets in 1999 and raised rates in 2000 to rebuild reserves. It has shown a reasonable profit in the first quarter of 2000.

Fallon

Fallon Health Plan, among the oldest HMOs and closely aligned with the Fallon Clinic, continued to grow slowly in the Worcester area, competing first with for-profit HealthSource, which has since been bought by Cigna.

However, the major story of the decade among insurers was the merger of HCHP and Pilgrim Health Care.

Harvard Community Health Plan

In 1991, there was an insoluble conflict over productivity between the CEO of 19 years and physicians in the HCHP salaried closed panel group. The doctors won, and the CEO was forced to resign. Rather than seeking a replacement, the board chose to make a Board member without health care experience the interim CEO. That situation lasted for 4 years. During that time, from 1992 to 1996, HMOs aggressively sought to expand market share. HCHP lacked the most popular type of plan, the IPA model, so that its growth in Massachusetts was limited. It had a group division, and it bought a failing closed panel plan in Rhode Island and worked to turn it around.

Pilgrim

During this same period, Pilgrim with its major market share expansion focused on the South Shore, embarked on a plan to expand to the North Shore. To jump-start the strategy, it attracted MGH to join, replacing NEMC, the only teaching hospital to be dropped by any plan. By 1996, Pilgrim was an IPA model, growing rapidly. The idea of HCHP and Pilgrim merging made excellent market sense. However, the structure they chose and the cultural differences were such that the merger was disastrous.

Harvard Pilgrim Health Plan

Structurally it was decided that the two merging companies would have equal representation on the board, with the board chair chosen from HCHP as a full-time salaried chair. The Pilgrim CEO would be CEO of the combined companies. This was considered a merger of "equals."

Cultural war began immediately. HCHP's management was academic and operated a closed panel system; Pilgrim's CEO was a young accountant and led a group of fiercely private suburban practice physicians bonded together only to win contracts with companies, maintain access to their patients, and maintain their style of practice. The MDs at HCHP were passionately committed to their model and their way of operating. The stalemate and undercutting were rampant. Within two years, Pilgrim's management had succeeded in ousting the Harvard management. Since market share growth was the goal, financial soundness was not central to management. They focused on marketing and made a wide variety of contracts with providers and companies. What they had never done was to integrate the information systems. Slowly at first and then more rapidly, they lost control of both revenue and expense,

but had no idea of its extent or what to do to fix it. Only complaints from unpaid providers and hospitals brought the problem to the attention of the public and the government.

As the problem accelerated, the board finally ousted management and was able to recruit a highly experienced healthcare turnaround leader, Charles Baker, Jr., who had joined the group practice being separated from Harvard Pilgrim six months earlier. He brought in his team and engaged the Perot Company to take over information systems management. Perot brought 70 people in, but almost all the people who had cobbled the old systems together were gone. They worked valiantly for six months and had put in place a recovery plan for 2000. It seemed to be working until, on the occasion of a bond issue, the due diligence revealed another $77 million loss on top of the $150 million that was known. The $77 million brought the Plan below the statutory reserve and on January 5th, the Plan was put into receivership. The reaction was explosive. Harvard Pilgrim had more than 1.2 million members and owed the financially troubled hospitals $300 million. Fortunately in November 1998, fearing such a possibility, the state passed a bill that guaranteed care would be provided to policyholders, and that providers would be paid for their service and could not bill patients. That moved bondholders from first call on any of their debt to third. It was this bill that in the end served as the basis (after all alternatives were tested and failed) for severely reducing bondholders' position, such that the bondholders could be treated as an ongoing expense, rather than "debt," and lifted the plan back above the reserve requirement and on May 25th out of receivership.

However, combined with Tufts' out-of-state losses, Fallon's losses, and the hospitals' severely weakened status following the Balanced Budget Act, HCHP created the crisis mentality of the first quarter of the year 2000. Rates were increased 10 to 15 percent by the HMOs but there were no dollars to raise payments to providers. The providers meanwhile gained a small reprieve thanks to a delay in decreases from Medicare and a $25-million increase from Medicaid (May 2000). Contracts with HMOs are starting to show increases. Blue Cross offered MDs a 4.8 percent increase for the 1.1 million HMO patients, and 6.8 percent for the 600,000 indemnity patients.

What looked like an impending implosion of the entire health care system seems to have been averted, but the scare put the focus on what to do next.

APPENDIX C: INFORMATION TECHNOLOGY IN FINANCIAL MARKETS AND IN HEALTH

What follows is a summary by the author of a workshop that was conducted to help the Committee on Quality of Health Care in America of the Institute of Medicine of the National Academy of Sciences. For the interested reader, it describes some of the ways a major effort in Information Technology would affect the quality of health care. It speaks briefly to the productivity improvement and reports on a companion to financial services provided by Roger Ferguson, Jr., Governor of the Federal Reserve Bank.

EXECUTIVE SUMMARY

A workshop on the role of information technology (IT) in improving the quality of care was conducted by the Institute of Medicine, Quality of Health Care in America Committee, on September 29, 1999. The objectives of the workshop were to learn from another service industry how IT has and continues to transform the industry, to assess the status of IT development in health care and the most promising areas in which IT can improve quality, to discuss barriers to IT development, and to identify ways to facilitate the development of IT in health care. Participants viewed information technology as an important enabler for improving quality of care, and workshop participants generally believed that significant improvements in the quality of health care will not be achieved without greater use of information technology.

Although IT was believed to affect quality care in a number of ways (see below), two main mechanisms were emphasized to describe how the influence of information technology works to affect health care quality. One is redesign of care processes. IT facilitates the provision of evidence-based care and through evaluation of care processes and outcomes and the linkage of evidence into care processes, variance tracking, and feedback on outcomes. Second, IT can empower consumers by facilitating access to general information, as well as to their own clinical information to involve patients fully in their own care. IT affects how services are received from providers by increasing access to general health information and (potentially) access to patients' own health data. IT can also increase communication with providers and other patients or support groups. Although privacy concerns must be addressed for both patients and clinicians to have confidence in the system, many participants believed that privacy concerns could be balanced with the legitimate uses of IT for quality improvement.

THREE ILLUSTRATIONS OF HOW IT CAN IMPROVE QUALITY

Three examples described by workshop participants illustrate how information technology can improve quality of care. Although each example involves a physician, the illustrations could apply to the activities of any health care professional.

> *I realized that in order to be a good personal physician, I needed to do something…so I began to give my e-mail [address] to all my patients.…It is wonderful for [managing] chronic disease. There is online continuous management of chronic disease with many less visits, but much more interaction. My obese patients send me their weight every week and other information about their diet and nutrition. I provide coaching. My lipid disorder patients are given quarterly lab slips if we are trying to get it under control. They know when they are going to get their test. We dialogue about the results; we coach toward improvement. Conditions like hypothyroidism are incredibly easy to manage online.*

> *If the entire management team were online, we could be much more effective. As information technology becomes more sophisticated, we could have a registry function and broadcast messages to all our patients.*
>
> *Joseph Scherger, September 29, 1999*

> *Computerized physician order entry in which doctors write orders using the computer improves the safety of drug ordering in a whole variety of ways.…It streamlines and structures the process. When people choose doses from menus, they are much less likely to make errors in dose. You can essentially eliminate transcription. You can require complete orders. …You can give people information at the time that they need it. You can show relevant laboratories, display guidelines, put in place guided dose algorithms, which are particularly important for drugs which need to have their dose adjusted based on the patient's kidney function. Perhaps most important, you can perform a whole number of checks in the background. You can look for drug allergies, drug-drug interactions or drug laboratory problems. You can put in place dose ceilings, which is especially important for drugs with narrow toxic therapeutic ratio, like chemotherapy, and you can do drug patient characteristic checking. So for example, you can suggest a different dose for a patient who has impaired kidney function or who is older.*
>
> *David Bates, M.D., September 29, 1999*

> *This [IT] tool … takes one disease area, infectious disease, and with a key stroke, the clinician can choose a patient and bring up all the information that might impact on any decision in infectious disease automatically. You can see some of the relevant information—who the patient is, what their white count is with a trend analysis, what their maximum temperature is with a trend analysis, some comments, interpretations of laboratory values. A reminder that the renal function has deteriorated and that the patient is allergic to ampicillin. And then it shows any anti-infective agent the patient is currently on and if they are on amphotericin. It keeps a running tally of how much they are on and then says here are some of the potential things you might want to look at. Then it goes a step further. It identifies any potential pathogens the patient has and then based on about 60 different variables, it makes a suggestion of antimicrobial therapy, for or against. It will suggest that sometimes there is no need for it; it will suggest sometimes there is. Then it suggests the duration and it adjusts this information based on the patient's renal function and other patient specific factors. So here is a living guideline that is always evolving recommendations based on this patient's real-time information.*
>
> *David Classen, M.D., September 29, 1999*

Although not presented at the workshop, a similar set of scenarios could have been written from the consumer and patient perspectives, illustrating potential shifts in how patients access and receive health care services.

FIVE WAYS IT CAN IMPROVE THE QUALITY OF HEALTH CARE

For purposes of this workshop, a broad definition of information technology was adapted from the literature. Information technology can be defined as a set of applications and processes varying in complexity from communication, through automation to knowledge management and to visualization (supporting new patterns of communication) based on varying combinations of hardware, software and telecommunications devices, that enable the acquiring, recording, storing, transmitting, retrieving and processing of information.

> *"Like it or not, when IT comes in, there will be fundamental change in the whole process of care and who is delivering what care."*
>
> *Robert Kolodner, M.D., September 29, 1999*

Information technology can affect quality of care in a number of ways. The following five effects were identified at various times during the workshop, although none of the benefits identified are being fully attained yet. First, information technology can improve access to an evidence base to support diagnostic and treatment decisions of both clinicians and patients, and help clinicians manage the explosion in medical knowledge. An evidence base is defined as the "conscientious, explicit and judicious use of current best evidence in making decisions about the care of individual patients [Sackett 1996]." The knowledge base in health care is rapidly increasing, particularly in the last decade [Chassin 1998]. It is impossible for any provider to retain all the information needed to effectively diagnose and manage care.

> *"Information technology does a wonderful job of uncovering our management and practice deficiencies. It is a way to view what we are doing."*
>
> *David Classen, M.D., September 29,1999*

Another way IT can improve the quality of health care is by assisting in the identification and prevention of medical errors. It is estimated that at least 44,000 people die in hospitals each year because of avoidable injuries sustained as part of their medical treatment [IOM, 1999C] and that medication errors alone (whether in or out of the hospital) account for over 7000 deaths annually [Phillips et al 1998]. IT can contribute to the reduction of errors by standardizing and automating certain decisions and by aiding in the identification of errors before they result in harm, such as potential adverse drug interactions.

> *"Personal health information should belong to the consumers…."*
>
> *William Stead, M.D., September 29, 1999*

A third way that IT can contribute to improved quality is by facilitating consumer access to health information. It can permit consumers to have access to general health information, as well as the potential for access to their *own* health information through direct access to the medical record. Such improved access can help patients become more active partners in their own care and should reduce asymmetries in information, a classic market failure in health care. IT can also affect how patients receive health services. Greater use of e-mail communications with providers can permit continuous monitoring of clinical conditions, especially for patients with chronic conditions that require self-management. The internet also lets therapeutic and support communities develop for people with common interests and needs.

> *"Health care in America could be fundamentally transformed today without spending a nickel. The simple step required would be for every physician to give their e-mail address to their patients and get an e-mail address …. to engage in electronic communication. Having that continuous ability to monitor and manage your patients is the transforming aspect of health care."*
>
> *Joseph Scherger, M.D., September 29, 1999*

A fourth effect of information technology will be a change in the way individuals receive care and interact with their providers, especially through the internet. Most interactions between physicians and consumers are paper-based, manual and labor-intensive. Information technology and the internet could be used to let patients search for and find their physician, schedule an office visit, decide whether or not the office visit was necessary (or identify alternatives) and have an opportunity for structured communication with their provider. Said one participant, instead of a $65 office visit and a half day off work, a ten-minute e-mail communication could meet the patient's needs. Similarly, patients ought to be able to go online and get test results, inform their physicians about how they are doing and their functional status, participate in interactive disease management services and receive after-care instructions.

A fifth way that information technology can improve quality is by providing health care organizations and policy-makers with information about the use of health care services by populations. This can assist in evaluating outcomes and processes of care to develop best practices for population of patients and in designing new services and programs. It can also decrease the time needed to evaluate and improve care processes and integrate research into everyday practice to continuously improve care. Information technology can be used to develop and maintain best practices for populations of patients, while simultaneously enabling the customization of services to meet the needs of specific patients.

INFORMATION TECHNOLOGY'S GROWING INFLUENCE ON HEALTH CARE QUALITY

As one workshop participant noted, the benefits of IT have been promised for many years. However, many workshop participants believed that IT has more potential than a few years ago to enable significant changes in health care. Two circumstances contribute to this shifting viewpoint. One is the rapid growth of the internet and another is the evidence available from other industries on how IT can transform an industry.

> *"The question is not whether the Internet will be as big as TV … but whether its significance will be more on the scale of the printing press."*
>
> *Charles Saunders, M.D., September 29, 1999*

The internet and world wide web place society on the threshold of a change that is re-shaping virtually all aspects of society, including health care delivery. According to Dr. Charles Saunders of the Healtheon Corporation, the internet supports a rising consumerism, with greater demands for information and convenience in all areas of commerce. Businesses are migrating functions to the net, ranging from e-commerce to mission-critical transactions. He noted that Internet services are becoming cheaper and easier to access; a personal computer is no longer even required to access the net. The options for getting connected are expanding (DSL, cable, wireless, etc.) and the cost of getting connected is also dropping. Additionally, reductions and simplification of pricing methods will get applications out faster and cheaper, removing economic barriers for users.

The effect of these trends is a fundamental transformation in how business is conducted and interacts with customers. According to Dr. Saunders, health care lags behind other industries in this shift for several reasons. Transactions tend to be more complex than other industries, as are data and information requirements. There are unique concerns regarding security. The system is fragmented, and there is less penetration of automation and desk-top technology. But Dr. Saunders believes that health care will not be immune from this transformation for long. Health care searches on the internet are among the most common and in some parts of the country, health care providers are gravitating to the internet as well.

> *"Expect the unexpected."*
>
> *Advice from Roger Ferguson, Vice Chairman of the Federal Reserve Board, to health care on the effect of information technology on an industry, September 29, 1999*

Examples from other industries are also becoming available on how IT has transformed them. In banking, for example, information technology had a profound effect on what services banks delivered and how they delivered them to customers. Governor Ferguson identified four broad effects that IT had on the banking industry. First, IT improved productivity and reduced costs in some areas (e.g., basic transaction costs), but overall costs did not decline as much as originally envisioned nor did revenues increase. Cost per transaction went down, but consumers made more smaller transactions. ATMs became widespread, but branch offices remain and new competitors kept pressure on prices. Second, the firm's relationship with its customers changed dramatically. Customers became more sophisticated and demanding, less tolerant of mistakes and more willing to shop around. Availability of information online and the breadth of services available through the ATMs facilitated this evolution.

Third, IT has supported the expansion of the range and number of products offered by a bank and dissolved the geographic boundaries of the firm. Banks find themselves operating in a dynamic and constantly shifting competitive environment. The number of services they offered increased, but so did the number of new competitors. Although some product offerings were standardized (e.g., mortgages and credit cards), other products need to be tailored to meet the needs of specific customer segments (e.g., risk management tools). Fourth, many aspects of the transformation that IT brings about are chaotic and not always predictable. Banking's experience suggests the need for new mechanisms of oversight to detect concerns in the marketplace rapidly and early, while simultaneously permitting advances in IT to continue.

Governor Ferguson suggested a number of implications for health care. First, health care organizations must assess and take strategic risks in the context of the markets they serve. There is no single,

correct strategy. Second, IT alters operating efficiencies, which drives restructuring. The environment is likely to remain dynamic, with a constantly changing landscape. Third, investments in IT represent a basic cost of doing business. If an organization wants to stay competitive, it has to make such investments even though there may not be an immediate payback. Fourth, relationships with customers will change, with patients likely to become more demanding and more involved in their care, facilitated by IT, which increases access to information. Fifth, all the impacts of IT on health care cannot be identified in advance. Rather than controlling the diffusion of IT, continuous and rapid feedback should be obtained from the marketplace to identify concerns early.

Dr. Jerome Grossman, physician and former Chairman of the Boston Federal Reserve Bank, noted a number of issues in transferring banking's lessons to health care. First, advances in information technology should enable health care organizations to acquire IT faster and at lower cost compared to previous years, especially with the expansion of the internet and web-based applications. Some of the demand will be driven directly by patients. Second, unlike banking, the market does not reward health care organizations that acquire IT to improve quality as well as efficiency. Payment incentives need to support both those objectives. Third, unlike banking, the potential for cost savings could be great if IT improves the management of care to reduce unnecessary utilization, especially for patients with chronic conditions.

FACILITATING GREATER USE OF IT FOR QUALITY IMPROVEMENT

Throughout the workshop, participants discussed, challenged and reflected on a number of key concepts that were perceived as central to enabling greater IT adoption and diffusion in health care for quality-related purposes. These are summarized into five key issues. These issues should not be interpreted as consensus findings from the workshop, but rather, are a synthesis of the discussions that occurred throughout the day.

Issue #1: In order for information technology to improve the quality of health care, it has to reach the point where care is delivered and when clinicians interact with patients.

Although the use of IT is widespread in administrative functions, until it is applied more broadly to the clinical part of health care, a threshold improvement in quality is not achievable. Several participants believed that the only way the quality of health care is going to improve is by changing the way it is delivered, reflecting the provision of evidence-based care and re-engineering processes to improve quality and safety. By building information technology into the routine delivery of care, IT can be a tool for converging around a standard of excellence.

Two leading examples were identified on how IT can be used to affect the actual delivery of care. First, several participants emphasized the need for health care organizations to establish clear priorities on the core care processes where IT can improve quality. Examples of processes of care could include medication systems or management of a class of patients, such as patients with asthma or lipid disorders. Brent James, M.D., relayed that at Intermountain Health Care, they found that 10 percent of key processes accounted for more than 90 percent of all inpatient care; a similar concentration was observed in outpatient care. Therefore, focusing on a few key processes can affect large numbers of patients. To obtain the greatest value from information technology it should be integrating IT into actual patient care flow.

The second example of how IT can affect care at the point of delivery that was discussed by some participants was through the increased use of technical or electronic methods that facilitate the continuous management of patients with a chronic disease, such as e-mail communications. Many health professionals already recognize that visit-based care leaves large gaps in care of patients, especially those with chronic conditions, yet few providers are believed to offer e-mail communication as an option to their patients, even though they may routinely use the internet for other purposes. Using e-mail for communications between clinicians and patients could be done today at minimal cost and could potentially open the door to the use of other online applications, such as scheduling, medical records, access to an evidence base, etc. A number of workshop participants believed that the impact of the internet would be profound as more capabilities are added and functions are conducted on the web. The effect would be

to diminish significantly the levels of capital required to go online compared to previous expenditures levels. At the present time, few payment methods are designed to support continuous clinical management techniques that use information-based technologies, such as email, and that presents one barrier to its greater use.

Issue #2: Information technology can enable consumers to be more directive in their health care.

Workshop participants believed strongly that information technology can bring about a significant cultural change in the power of the consumer in the health care system. IT can support independent access to information in a way that has not been possible before. Consumers can obtain general health information, but over time, should also gain greater access to information on their own clinical record. Health care professionals need to welcome a more active and engaged consumer.

Participants identified two areas in which IT could enable a greater role for consumers. First, some workshop participants believed it was important for patients to have direct access to their medical record so they could be more informed about their own care and treatment processes, and so that all members of the team caring for a patient (and including the patient) would have access to the same information. Direct access could include the ability to view the record at will and, potentially, the ability to add or comment on (but not delete) information on the record. To facilitate such access, clinical management systems would need to be designed so they can be easily used and understood by both health care professionals and patients.

Second, some workshop participants believed that if consumers had more comparative quality information at the provider level, they would be more informed about differences in quality and better able to direct their care to higher-quality providers to meet their specific needs. If consumers had a better understanding of the quality gap, they may make more demands on the system to improve quality, which could advance the use of IT. Some participants noted that consumers do not always use the information that is available today as much as they could, but believed that information about patient safety would be both important and meaningful to consumers. Information on selected safety issues can create "vivid" examples that consumers would understand. For example, consumers should understand that the absence of IT and quality management tools can be dangerous to them and should know which health care organizations use "pivotal infrastructure advances," such as computerized physician order/entry systems.

Other areas briefly mentioned for a greater consumer role included access to clinical guidelines that would help patients monitor their own care, the ability to monitor and communicate information to health professionals about their health status, the availability of emotional support for other patients with similar needs, preparation for a visit to a health professional (e.g., questions to ask), and the ability to learn about one's own disease and its treatment.

Issue #3: The business case for quality has to happen at the provider level or it will not happen at all.

Workshop participants generally believed that health care organizations and the broader marketplace need to recognize, reward and reinforce quality improvement, including the role of IT in developing the structures and processes that will improve quality. The relationship between costs and quality that is well-recognized in other industries, such as manufacturing, is less well understood in health care, although some evidence is beginning to come forward. For example, well-designed IT systems can reduce medication errors, which contribute to increased costs of care [Bates et al 1998].

Public and private purchasers could provide incentives for the development of IT infrastructure among providers, such as incorporating demands into contract requirements for electronic connectivity, defining the dimensions of content of data flow that are to be shared and standards for data accuracy into contract requirements. Purchasers could also activate consumers around quality by communicating the importance of computerized physician order/entry systems or clinical decision support systems to quality management.

Issue #4: Existing efforts related to standards and privacy should proceed as quickly as possible so the public is assured that there are adequate protections for their personal medical information and so providers have the confidence and trust to use IT more in clinical care.

Privacy protections affect the trust of both patients and providers in permitting information to flow through the health system. There are a number of existing efforts, both in health care and elsewhere, to address issues related to standards and privacy. Workshop participants saw these as related issues in that standards define the terms for transmitting data and privacy describes how to protect those data.

While workshop participants believed that privacy issues are frequently voiced by consumers, those involved in delivering or managing care frequently raise concerns about the lack of standards, specifically vocabulary, that affect the inter-operability of information systems within and between health care organizations.

The establishment of standards for data and privacy are important for enabling the social changes that will expand the use of IT in health care. although workshop participants had different views on the role of public policy in advancing IT. Some believed that there should be a minimal public role and that standards would evolve in the marketplace, just as some leading software applications have become the market preference. Others believed that good public policy can help IT grow by facilitating needed changes, particularly in an industry as fragmented as health care.

Based on the discussions of workshop participants, it appears that consumers and the technical IT people working in health care may have quite different views on privacy and security concerns. From a technological viewpoint, many workshop participants believed that secure systems can be designed today and offer greater security than the current paper-based system. However, gaining the confidence of the public will require broad-based policy solutions to resolve what information must never be disclosed and when information may be accessed for legitimate purposes of quality oversight and research. Ultimately, a balance must be struck and adjusted over time as the use of IT in health care advances.

Issue #5: Because of the rapid pace of development and change in information technology, regulatory and other oversight processes should permit the application of IT in health care to advance, while monitoring the marketplace through rapid and continuous feedback to identify quality concerns early.

The pace of change in information technology is so fast that some experts believe it to be almost uncontrollable in some aspects. Many workshop participants believed that while oversight processes should not hinder change and innovation, they should still be alert to unexpected consequences. Steady input from the marketplace can provide an early warning when concerns arise. Although the direction of change may not always be fully manageable, emerging concerns can be monitored.

An approach suggested at the workshop was to develop parameters of acceptable or unacceptable behaviors and meaningful markers that would provide an early warning for regulators, providers and consumers. An important characteristic of such new forms of oversight is a reliance on close contact with consumers and their experiences in the marketplace.

BARRIERS TO GREATER USE OF INFORMATION TECHNOLOGY IN CLINICAL CARE

Despite the promise of IT for improving the quality of care and the identification of issues that could encourage the greater use of IT, a number of constraints were noted throughout the day's discussions.

The implementation of IT into clinical practice has happened more slowly than many people expected. A number of barriers were cited by workshop participants. One participant noted that processes of care are often more complex than processes in other industries, making it harder to apply information technology. Additionally, as IT changes processes of care, it can lead to changes in the roles and responsibilities of team members caring for patients. As one participant noted, changing how work is conducted requires commitment from the organization's leadership to set an overall direction that focuses on both the quality and cost of care and strong clinical leadership. Finally, the link between process and outcome may not always be clearly understood, creating uncertainties in how to apply IT effectively.

Health care organizations also have multiple consumers and health professionals, who may have conflicting priorities. Practitioners are often seeking information that will support decision-making for a given patient; the interest of practitioners in using IT is related to the utility and timeliness of the information. On the other hand, organizations are looking for vast amounts of information that will support

evaluation and management of a range of services for groups or patients and may place the burden of collecting all that information at the front-line practitioner. Finally, it was recognized that these different audiences define "quality" in different ways; the lack of a common vision was cited as a constraint, particularly to defining a common metric that will facilitate the development of standards.

Another set of barriers related to the impact on patient/provider communications. Although the internet and world wide web can open more paths for communication, its expansion in health care also faces constraints. One workshop participant noted the inequities that might be created between the information haves and the information have-nots. Additionally, workshop participants noted the unevenness of information on the internet, with apparent equal access to both valid and unreliable information. Finally, although greater use of e-mail communications can support a continuous relationship between patient and provider, it is not supported in most current reimbursement systems. As a result, e-mail has the potential to become another task to be completed by a busy health professional, rather than a compensated method of managing care that can benefit both the patient and the provider.

Although there is promise in the ability of IT to support the redesign of processes of care to improve quality, most of the focus to date has been on automating administrative functions. Part of the reason is that there is no business case for quality, so there is little incentive for health care organizations to invest in the systems that can improve the quality of health care. If health care organizations are not rewarded differentially for better or worse quality, there is little reason to invest in redesigning systems and IT. Although participants saw a greater role for consumers in demanding improved quality, they also recognized that there is little evidence to date that consumers really have sufficient influence in the marketplace. Some of the barriers cited were consumers' inability to get access to more than just general health information on the internet. Participants believed that consumers were not getting sufficient access to timely information that is relevant to their decision-making, including access to the information on their own medical record.

The impact of IT on health care costs is also unclear. The lesson from banking about the effect on costs is also noteworthy. The reduction of some costs with an increase in other costs diminished the cost-reducing effect of IT on the industry. Although some workshop participants believe that IT can remove inefficiencies from the system to have some cost-reducing impact, it is not clear what the magnitude of those savings would be, nor where increases might arise, such as from increased consumer demand as in the banking industry.

Health care organizations also face a challenge in determining how to invest finite (perhaps diminishing) resources in information technology. There is also a concern with the upfront costs associated with implementing many of these technologies and where the benefits accrue. One workshop participant called attention to the costs associated with bringing many of these technologies into practice, while another participant noted that purchasers are loathe to invest more resources in a system they believe is inefficient. Most believed that, to date, much of the investment has gone toward administrative and billing functions, and less attention has been given to clinical care processes. Yet others noted that health care organizations may make the investments to implement IT that can improve health care, but the savings accrued from making delivery more efficient will go to the health plans and purchasers, rather than the organization making the investment. All these factors suggest that additional investments in IT will be necessary, but it is not clear how such investments can be funded equitably and directed most productively to affect quality care.

SUMMARY

Information technology can have a profound impact on how health care is delivered, measured, and evaluated. It can shift how consumers access health care and participate in their treatment decisions. Just as consumers may become more demanding, more demands may also be placed on them. Among health care professionals and organizations, IT shifts the workloads and the tasks performed. The tasks of health professionals may shift to place greater emphasis on synthesizing and managing large amounts of information and providing a fuller discussion of alternatives by laying out options for patients and

responding to options that patients bring forward based on their own internet searches or other resources, in addition to traditional caring roles.

Throughout the day's discussions, it was evident that many workshop participants believed that perhaps the greatest challenge to increased use of IT to improve the quality of care is overcoming the cultural and social barriers that IT presents to both society generally and to health professionals and organizations specifically. The shifts are profound and far-reaching, affecting how health care professionals and organizations interact with each other, with patients, and with the marketplace. Workshop participants believed that the technological issues could (and would) be solved, but managing the cultural change is likely to be more difficult and take longer to accomplish.

APPENDIX D: THE EVOLUTION OF HMOS AND MANAGED COMPETITION

The idea of managed competition is an outgrowth of a series of ideas first cultivated by Paul Elwood and Alan Enthoven in the early 1970s. It was Elwood who convinced Nixon to put the HMO requirement into law in 1973. They worked through a small policy group called the Jackson Hole group, which met twice yearly in Jackson Hole. The author participated in several years of discussion around 1990 when the idea of how to create managed competition was developed. It was there that we first discussed the analogy between medicine and financial services. We looked at the SEC as the vehicle designed to protect the investor (with reporting rules developed by FASB) and asked, Could we similarly protect the health purchaser such that a competitive model would have the critical data available for consumers to make informed choices? The idea was that such transparency would allow regulators to assure that the competitors were actually doing what they said.

When the Clinton plan took the words but not the ideas, the group went forward developing these concepts further.[39] Lynn Ethridge, a member of the group, put forward a white paper in 1995 (in *Health Affairs*), Regina Herzlinger wrote a book in 1997 entitled "Market Driven Health Care," which most passionately advocates these directions. However, what actually happened was a movement to micro-regulate the HMOs and to define practice by legislation, so far an unsuccessful strategy.

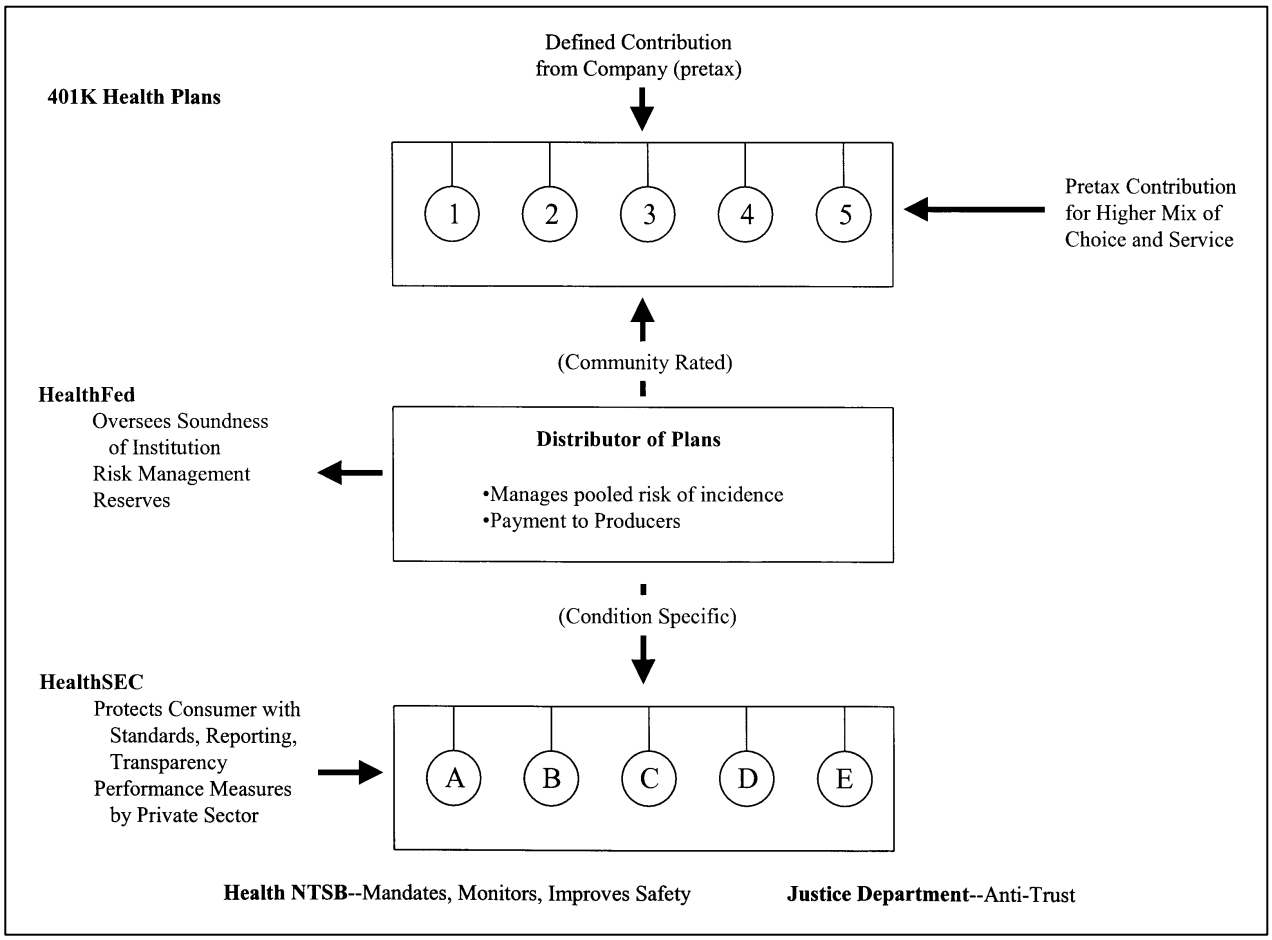
Since those original thoughts in 1990 there have been two trends that make the time ripe to re-examine the concept of managed competition as conceived by the Jackson Hole group. We can learn from our abhorrent experience with managed cost masquerading as managed care. Finally, we can apply the features of the "new economy," which have changed consumer attitudes and behavior, industry responses, and ultimately entire industries themselves.

[39] John Hubner, "The Abandoned Father of Health-Care Reform," *New York Times*, July 18, 1993.

APPENDIX E: SHIFTING THE ACTUARIAL APPROACH

Transforming managed care companies is a major task. What follows is a brief description of what I think is possible, but it requires careful, extensive modeling and testing to validate. (See figure 15.)

Figure 15: Transformed System



Present managed care companies would take on the task of redoing their actuarial approach to their core insurance function. They would move from using classical input and past experience driven data to a prospective system working with epidemiologists, disease management specialists, and outcome measurement experts, to output driven actuarial forecasting. First, they would determine the incidence and prevalence of diseases among the population covered (minimum of 1 million). One would have to be sure they did not skew their calculations (and membership) to have a lower incidence of disease than the population at large (one problem of adverse risk selection).[40]

[40] Systems like Partners Health Care or CareGroup could take on the actuarial risk as well, since they have the capacity to care for more than 1 million patients.

1) All plans would require the purchase (or inclusion) of catastrophic care (60 percent of the dollars go to cover the costs of 10 percent of the population), thus spreading the risk of the majority of cost over the whole insured population. Medicare and Medicaid would continue to maintain their own risk pools, but we hope they would join in the modeling of the new system.

2) For the remaining incidence and prevalence of routine disease, it is important to note that fewer than 50 conditions account for 80 percent of patients' illnesses and there are only 30,000 known diseases (many fewer than the 100,000 genes.) For these conditions the actuaries and disease management specialists, in conjunction with quality outcome measurement experts would develop condition specific costing (DRGs, however ones that have associated defined outcomes).

   As the DRG system for inpatient hospitalization had an improving sensitivity and specificity over its 15-year life, these first models would not be perfect. However to begin, economists such as Joe Newhouse have suggested that at the outset the experiments would use a mixed payment system, with some fee-for-service elements for unexpected or un-included events and costs. However, over time with our much more sophisticated methods and much more powerful computers, the project is achievable.

   Why do we want to do this? First, it begins to set up quality-related outcomes for doing the best-demonstrated processes of care. This allows everyone to have a starting target for performance of delivery units or consortiums on the delivery side. Rather than being paid discounted fee for service or various risk sharing capitation with no recognition for quality in their payment, this introduces a new payment method that is specifically related to the patients they care for and could include rewards for meeting or exceeding the quality goals. Further payment would be on a conditional basis, an episode for acute care, a monthly payment for chronic disease, allowing us to separate the incidence risk from performance risk. Thus, a wide variety of accredited groups could offer their services through the intermediary feeling confident that they would be paid appropriately for the conditions of patients they treated.

   The next critical reason to do this is that the intermediary (insurer, new entrant, large care system) would market these accredited plans at medical amounts averaged over the whole population. This is an effort to reduce the present reality that sicker patients pay more for care than healthier ones, and we have adverse election by the healthy person who becomes ill.

3) There would be a third aspect of pricing for consumers related to different styles of delivering care. There are now patients who prefer to maximize self-care through use of the Internet and the Web, using the care provider as coach, advisor, facilitator and protector. There are others who prefer intense face-to-face contact with care providers and should be able to choose such a system. This undoubtedly brings up the fact that the cost of care in one system vs. the other is quite different. How, or if, we are willing to allow costs to differ on service choice as described is quite political and social. It may be that Medicare and Medicaid choose narrower options of systems than the commercial system.

The author will begin detailed research in the fall with the National Bureau of Economic Research and other members of Harvard's Health Economics group.

APPENDIX F: INTERVIEWS

[in order of scheduled appointments or conference calls]

Michael Daly, President	Baystate Medical Center
James Bentley	formerly AAMC
Ronald Hollander, President	Massachusetts Hospital Association
Alan Macdonald, Executive Director	Massachusetts Business Roundtable
Dr. J. Robert Buchanan	former CEO - MGH
Judith Kurland	former CEO - Boston City Hospital
John T. Dunlop, Lamont Univ. Prof., Emeritus	Harvard University
Dr. Mitchell Rabkin	CareGroup (former CEO of BI)
Dr. James Reinertsen, CEO	CareGroup
Dr. Harris Berman, Chairman & CEO	Tufts Associated Health Plan
Jon Kingsdale, Senior VP, Planning & Devt.	Tufts Associated Health Plan
Kevin Counihan, Senior VP, Sales & Marketing	Tufts Associated Health Plan
Julie Rosen	Tufts Associated Health Plan
Frank Lynch	former CEO – Mt. Auburn
Alan Greenberg	former CEO - Harvard Pilgrim
David Weiner	former CEO - Children's
Tom Pyle	former CEO - HCHP
Robert Fanning, President	Northeast Health Systems
Edward Moscovitch	Independent Consultant
Dr. Richard Gaintner	former CEO - New England Deaconess
William Guenther, President	Mass Insight
Jane Walsh, Trustee	Hallmark Health Corp.
David J. Trull, President & CEO	Faulkner Hospital
John McDonough	former State Legislator
James Hooley, President & CEO	Neighborhood Health Plans
Dr. Peter H. Levine, President & CEO	University of Massachusetts Medical Center
David T. Hannan, President & CEO	South Shore Hospital
Richard Lord, EVP State & Fed. Leg. Policy	Associated Industries of Massachusetts
Eileen McAnneny, Director, Legislative Services	Associated Industries of Massachusetts
Patricia McGovern	former State Legislator
Scott Harshbarger	former Attorney General
Christine Borger, Health Economist	Standard & Poors DRI (HCFA)
Sara Johnson, North American Research Director	Standard & Poors DRI
Judge Bruce Selia (former Chair)	Lifespan
Mitchell R. Creem, CFO	New England Medical Center
William Van Faasen, President & CEO	Blue Cross Blue Shield of Massachusetts
Richard Averbuch, Sr. Director for Policy	Massachusetts Hospital Association
Dr. Samuel O. Thier, President & CEO	Partners Health Care
Elaine Ullian, President & CEO	Boston Medical Center
Paul Drew, VP for Network Development	Boston Medical Center
Charles Baker, Sr.	former Assistant Secretary of Health
Richard von Rueden	formerly of Massachusetts General Hospital
Dr. Michael Collins, President & CEO	Caritas Christi
Dr. Robert Flynn, Chairman of the Board	Caritas Christi
Dr. Aaron Lazarre, Chancellor	Univ. of Massachusetts Medical Center
Charles Baker, Jr., President & CEO	Harvard Pilgrim Health Care
Bruce Bullen, COO	Harvard Pilgrim Health Care
Robert Ciolek, Executive Director	Massachusetts HEFA

Richard Allen	formerly of the Attorney General's office
Thomas O'Donnell, CEO	New England Medical Center
Susan Bailis, Co-Chair/Co-CEO	Solomont Bailis Ventures
John Kaneb, Trustee	Partners Health Care System
Dr. Joseph B. Martin, Dean	Harvard Faculty of Medicine
Peter Slavin, CEO	Massachusetts General Physicians Org.
John Glaser, VP and CIO	Partners Health Care System
David Mulligan	former, Department of Public Health
Alan Sager, Ph.D.	BU School of Public Health
Eugene Wallace, Senior VP for Finance	CareGroup and BI
Dr.William Winkenwater, EVP of Health Care Serv.	Blue Cross Blue Shield of Massachusetts
Barbara Anthony	former Attorney General's office
Dr. John Harrington, Dean	Tufts University School of Medicine
Dr. David Blumenthal	Harvard, Department of Healthcare Policy
John H. McArthur, Dean Emeritus	Harvard Business School
Dr. Daniel Tosteson, Dean Emeritus	Harvard Medical School
Dr. Aram Chobanian, Dean	BU School of Medicine
Ellen Zane, Network President	Partners Health Care System
Cathy Minehan, President & CEO	Federal Reserve Bank of Boston
Thomas Glynn, COO	Partners Health Care
George Veccione	Lifespan
Stephen M. Shortell, Ph.D	Univ. of California, Berkeley
Katerina Simons, Senior Economist	Federal Reserve Bank of Boston
Richard Kopke, VP & Economics	Federal Reserve Bank of Boston
Katharine Bradbury, VP & Economist	Federal Reserve Bank of Boston
Lynn Browne, Senior VP & Dir of Research	Federal Reserve Bank of Boston
Alan Solomont, Co-Chair/Co-CEO	Solomont Bailis Ventures
David McKenzie, Vice Chancellor	UMass, Boston
Dr. Thomas Lee, Medical Director	Partners Health Care System
Dr. Rashi Fein, Prof. of Econ. of Medicine, Emeritus	Harvard, Dept. of Social Medicine
Chip Kahn, President	Health Insurance Assoc. of America (HIAA)
Henri Termeer, Chairman/CEO/President	Genzyme Corporation
John F. Keane, Chairman	Keane Inc.
Nancy Kane, Lecturer in Management	Harvard School of Public Health
Peter Meade, Executive Vice President	Blue Cross Blue Shield of Massachusetts
Gary St. Hilaire, EVP & CFO	Blue Cross Blue Shield of Massachusetts
Bruce Butler, Actuary	Blue Cross Blue Shield of Massachusetts
Tom Reilly, Attorney General	Commonwealth of Massachusetts
Dean Richlin, First Asst. Attorney General	Commonwealth of Massachusetts
Janice Bourque, Executive Director	Massachusetts Biotechnology Council
Peter Markell, VP of Finance	Partners Health Care System
Sujata Sanghvi, Actuary	Harvard Pilgrim Health Care
Elliot Stone, Exec. Director & CEO	Massachusetts Health Data Consortium
Richard Senicola, Data Base Coordinator	Massachusetts Health Data Consortium
Nancy Turnbull	Harvard School of Public Health
James Hunt, Executive Director	Mass. League of Neighborhood Health Ctrs.
Professor David M. Cutler	Harvard Dept. of Economics
Dr. Martin Feldstein, President	National Bureau of Economic Research
Dr. Joseph L. Dorsey, Corp. Medical Director	Harvard Pilgrim Health Care
Stephen Kay, former Chairman of the Board	CareGroup
Jack Connors, Chairman of the Board	Partners Health Care System
Alan E. Morse, Jr., Chairman of the Board	Harvard Pilgrim Health Care

ABOUT THE AUTHOR

Jerome H. Grossman, M.D., is a Fellow at the Kennedy School of Government at Harvard University. Dr. Grossman also serves as Chairman of the National Academy of Engineering's Study Panel on the Impact of Academic Research on Industrial Performance and as a member of the Institute of Medicine's Committee on Quality of Health Care in America. At the Academy, he is serving as a member of the Council of Government-University-Industry Research Roundtable and has also been named co-chair of the NAE's steering committee for the workshop on Engineering and Health Care Delivery Systems. In the fall, he will join with the National Bureau of Economics as well as Harvard University on research to actualize his proposal.

In 1996 he served as Scholar-in-Residence at the Institute of Medicine in Washington, DC. He is Chairman Emeritus of New England Medical Center, Inc., where he served as Chairman and CEO from 1979 to 1995 and is Honorary Physician at the Massachusetts General Hospital where he served full time from 1966-1979.

Dr. Grossman is recognized as an expert and proponent of outcomes and health services research as a means of improving health. In 1988, he founded The Health Institute at New England Medical Center for the purpose of expanding the Medical Center's research capacity to include the social sciences as well as natural sciences. Dr. Grossman continues his information system research as Senior Medical Scientist at Meditech, a medical software company that he co-founded in 1969. He also has joined the Board of Directors of Landa Management Systems Corporation, a company providing a comprehensive, integrated system for Quality and Resource Management.

Dr. Grossman has been a member of the founding team of several healthcare companies. In addition to Medical Information Technology, Inc. (also known as Meditech), these include the Tufts Associated Health Plan, Chartwell Home Therapies, and Transition Systems, Inc. In related experience, from 1966-1972 Dr. Grossman was one of the original staff of the Harvard Community Health Plan Maintenance Organization (HMO). There, he developed the world's first automated medical record system, known as COSTAR, to support the HMO's patient care and academic missions.

Among Dr. Grossman's honors, he was named to the Institute of Medicine, National Academy of Sciences in 1983; he received an honorary degree as Doctor or Human Letters from Lesley College in 1996; an honorary degree as Doctor of Science from the University of Massachusetts in 1997; and has been named the University of Pennsylvania School of Medicine Distinguished Graduate Awardee for 1997. Dr. Grossman also serves as Trustee/Director of several corporations and institutions, including Wellesley College, Stryker Corporation, Arthur D. Little Inc., and the Committee for Economic Development. He served on the Board of the Federal Reserve Bank of Boston from 1990–1997 and was its Chairman from 1994–1997.

Dr. Grossman received his undergraduate degree from the Massachusetts Institute of Technology. He received his M.D. from the University of Pennsylvania School of Medicine.

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