

# ***THE WORLD'S MOST EXPENSIVE HOSPITALS***

***ONE-FIFTH OF MASSACHUSETTS HOSPITAL COSTS APPEAR UNJUSTIFIED***

Alan Sager  
Deborah Socolar  
Peter Hiam

Access and Affordability Monitoring Project

Boston University School of Public Health  
School of Medicine  
80 East Concord Street  
Boston, Massachusetts 02118  
(617) 638-5042

1 February 1991

## ***ACKNOWLEDGMENTS***

The Access and Affordability Monitoring Project acknowledges with gratitude support from The Boston Foundation, Families USA Foundation, Hewlett-Packard, the Mabel A. Horne Trust/Bank of Boston Trusts, New England Telephone, and the Erna Yaffe Foundation.

The authors are grateful for comments on earlier drafts from Martin Charns, Robert Master, Susan Payne, Rob Restuccia, John Sandson, Michael Shwartz, and Susan Sherry.

The report's data analyses and conclusions are the authors'.

For more information, or for copies of other recent reports on health care access and costs in Massachusetts, please write or telephone the Access and Affordability Monitoring Project, Boston University School of Public Health, 80 East Concord Street, Boston, Massachusetts 02118; (617) 638-5042.

## SUMMARY

Massachusetts acute hospital costs in 1989 were \$1.75 billion greater than they would have been had we spent at the national average. This forty percent excess equaled almost \$300 for each citizen of the Commonwealth. We find that two-thirds of the excess—almost \$1.2 billion or almost one-fifth of hospital costs—is not justified by durably appropriate and legitimate explanations. These excess costs harm each person who lives, works, pays taxes, or employs people in Massachusetts.

Our September 1990 report suggested that the bulk of the excess was not justified. The present report quantifies the shares of the excess associated with six commonly-cited factors: medical research, teaching, service to patients who reside out-of-state, high reliance on hospitals for physician care, high wages, and a slightly older population.

Our conclusion that two-thirds of the Massachusetts excess is simply not durably legitimate and appropriate means that this \$1.2 billion represents a chance to do better without harming quality of care and without increasing spending. It is money that can be used to entitle people who are uninsured today-- without increasing the burden on all who already pay such huge sums for health care. Also, the potential savings it represents can help make health insurance more affordable for workers and employers.

The Massachusetts Hospital Association (MHA) tries to explain away today's high costs and tries to rationalize ever-higher spending in the future. But our state's vital hospitals cannot rely on that money, and the rest of us cannot afford to provide it. Hospital costs cannot be allowed to continue to increase two or three times as quickly as the state's overall economy; they must be slowed eventually. The question is: when? And the best answer is: the sooner the better. Gradual deceleration in costs will allow hospitals and physicians to protect quality of care. If, instead, hospitals insist on pursuing more money to continue business as usual for as long as possible, they will suffer serious damage when the cost brakes are finally applied-- and so will the health care services we all need.

**I. How expensive is hospital care in Massachusetts?** Hospital costs per capita in our state are far above the national average-- \$296 or 39.7 percent greater in hospital fiscal year 1989. Even if hospital spending increases in this state were held to the national rate, the dollar differential would double to almost \$600 per capita by 1998. This will make it even harder for Massachusetts firms to compete with those in other states.

Only soaring personal incomes during the 1980s contained the growth in hospitals' share of personal incomes in Massachusetts. Even so, hospitals are almost 11 percent more burdensome on personal incomes here than nationally.

Overall, health insurance in the Boston metropolitan area was 25 percent more expensive in 1989 than for the average of the six other areas for which comparable data could be obtained. This matches the evidence from other sources on Massachusetts per-

sonal health spending per capita, which was 25 percent above the national average in 1990. This meant that total personal health spending statewide was \$3.5 billion greater-- almost \$600 per person or \$2400 for a family of four-- than it would have been had we spent at the national average. Over one-half of the 1990 excess was attributable to acute hospitals.

International comparisons are even more disturbing. When comparing Massachusetts costs with the average of 19 industrial democracies, we find that 1987 health spending here was \$9.1 billion (three-fifths) greater than it would have been had we spent at the 19-nation average. The comparable figure for hospital care was \$5.1 billion (two-thirds of 1987 Massachusetts hospital spending). These are the true measures of the burdens faced by Massachusetts firms seeking to compete with those in other nations. Further, these other nations protect all of their citizens against health costs, and most enjoy better health outcomes.

These comparisons indicate that there is room for hope, because they suggest strongly that we can do better for all citizens of Massachusetts with the money we already spend. It is time for us to take "yes" for an answer. This is vital for at least four reasons:

- None who pay for health care can continue to finance huge annual increases in hospital spending in Massachusetts. It is just too expensive.
- Soaring insurance premiums threaten access for patients who are still well covered, while undermining progress in protecting people who lack coverage.
- High health spending burdens Massachusetts' interstate and international competitiveness.
- It drains money away from other pressing needs, such as education, infrastructure rebuilding, job training, housing, and environmental protection.

**II. There is no evidence of net economic gains to justify these high costs.** We find no evidence of net economic gains *associated with high costs*. Certainly, hospitals employ workers and provide invaluable services. So does state government. But no one suggests that more state jobs and higher state spending are *good things in themselves*. Why believe this about hospital care? Rather, the issues here are ones of value for money, and of balance between hospital care and other things we need. Biomedical research is important socially and is valuable to the state's economy, but it should not be allowed to increase the cost of hospital care financed by Massachusetts employers, workers, and taxpayers. This raises the larger questions of who benefits from any economic gains, who pays for them, and how was the consent of the payors obtained?

The MHA asserts that since high spending on things like electronics manufacturing, financial services, and private higher education is good for the Massachusetts

economy, high spending on hospital care is also good. What is vital to determining economic gains is the share of each type of spending that is borne by residents of Massachusetts. Well over half of the spending on electronics, financial services, and higher education is borne by out-of-staters. These are "exports" that bring jobs and money into our state's economy. Biomedical research and biotechnology development undoubtedly generate large sums for Massachusetts hospitals and businesses, but hospital care itself is very different. Only a tiny share is financed by patients from out-of-state. The rest is a cost borne by Massachusetts patients, workers, employers, and taxpayers. We find that *net* service to out-of-staters (our hospitals' care to patients residing in other states minus out-of-state hospitals' care to Massachusetts residents) generates \$242 million in revenues to Massachusetts hospitals, or just 4.4 percent of patient care revenues.

Against these economic gains must be balanced two sorts of harm. Are the characteristics that make Massachusetts hospitals attractive to a small number of out-of-state patients, and to those investing in medical research and technology, the very things that make for high health insurance premiums? If so, the high cost of insurance must be considered. The MHA clearly acknowledges such a link whenever it defends high hospital costs in part by claiming that they bring the economic benefits of attracting out-of-state patients and research funds. The other economic harm occurs when firms are driven out of business or out of the state, or choose not to locate here, in part because of the high cost of health insurance coverage. This cost is impossible to quantify currently, but it could be substantial.

The challenge is to win more economic benefits while reducing economic costs. This will require breaking the link that apparently prevails today between importing patients and bringing in research money, on the one hand, and high hospital and health insurance costs for Massachusetts citizens and employers, on the other. More efficient hospital care for Massachusetts patients would clearly be better for all who pay for it. Also, greater efficiency would probably attract more research and technology funds in the future, as payors nationally and world-wide give more attention to reducing health care spending. Massachusetts could become the leader in developing low-cost, high-quality standards of care and medical innovations.

Hospitals and health care are so important to the state's economy that they must be made more economic and efficient. If this is not done soon, out-of-control hospital costs will bump up against revenue ceilings, destabilizing hospitals' finances, throwing thousands of hospital workers out of work, disrupting research programs, and depriving many patients of needed care.

**III. What are the medical benefits associated with high costs?** The Massachusetts Hospital Association asserts that "Massachusetts hospitals are at the center of a health delivery system providing, at unsurpassed quality, the full spectrum of services...." While good medical care is vital, the important question is whether our state's extraordinarily high costs win us commensurate medical benefits. Are we getting our money's worth?

Some worry that slower increases in hospital spending may harm our health. But slower rates of increase are inevitable. Those who expect otherwise deceive themselves. A belief that current rates of increase in hospital spending can continue constitutes the greatest threat to quality of care in the Commonwealth, because it delays hospitals' and doctors' preparation for providing appropriate and high-quality care in leaner financial circumstances. Failure to prepare will necessitate wholesale service cuts or ill-considered individual clinical decisions to balance hospitals' books in an atmosphere of financial crisis. That would hurt patients badly.

Massachusetts health outcomes are not commensurate with our high spending. Health status in our state is good by some measures, not so good by others. Could we do better medically with the money we already spend? Could we do as well if we spent less? The answer to both questions seems to be "yes."

The challenge is to provide *appropriate and high-quality care*-- the right care-- to all citizens at an affordable cost. This requires spending money *differently*. The result could be superior health outcomes across the board. McClure's analyses of the low-cost but superb-quality care provided by Mayo Clinic physicians support this view.

Wennberg and his colleagues found that both Boston's and New Haven's teaching hospitals provided high-quality care. Mortality rates for Medicare recipients were close to identical, but total costs per capita were *twice* as high in Boston. There was no evidence of medical rationing in New Haven. Rather, there were indications of *over-service* in Boston.

Human beings are frightened of pain, illness, disability, and death. We all want the best medical care for our families and ourselves. It would be comforting to believe that spending more on hospitals predictably gives us better care. But, as the Mayo Clinic and New Haven findings indicate, there is no automatic link between higher hospital spending and better medical outcomes.

Cost will soar if we all seek as much health care as possible-- and if doctors and hospitals have financial and non-financial motives to give us more care than is clinically appropriate. Our government and our employers will respond to high costs by instituting increasingly harsh controls on what is covered by health insurance. But the sum of insurance premiums and out-of-pocket costs will continue to rise, leaving many of us unable to afford needed care. Also, some payors will give hospitals and doctors new financial incentives to withhold care. Thus, the result of seeking and providing too much care is likely to be less care than we need.

Providing the amount and types of care that is clinically appropriate and optimal does not mean providing as much care as possible. Massachusetts health care is not yet geared to deliver this sort of appropriate high-quality care. Strategic reforms in how hospitals are paid could help both hospitals and doctors change gears.

Other nations have paid hospitals and doctors in ways that make them more financially neutral in their clinical judgments. This seems to liberate caregivers elsewhere to achieve superior clinical outcomes while spending less money and protecting all citizens.

Identifying high-quality and appropriate standards of care will help Massachusetts hospitals withstand inevitable reductions in the rate of increase in their revenues. Eliminating unnecessary care is vital also because it reduces iatrogenic harm. And it frees clinical resources to address real needs, some of which are unmet still. Today, elaborate standards of care mean that many well-insured patients are over-served. At the same time, many uninsured or Medicaid-sponsored patients can find needed services difficult to obtain.

For all these reasons, the facts do not support the claim that Massachusetts hospitals provide care "at unsurpassed quality." Some might respond that hospitals can't do much to improve health outcomes, so it is not fair to hold them accountable when outcomes are not commensurate with costs. But in that case, why do we spend so much on hospitals?

**IV. Conventional explanations of excess Massachusetts hospital costs.** Six explanations put forth by the MHA explain only a part of the \$1.75 billion excess.

Service to patients from out-of-state, biomedical research, and care for a Massachusetts population that is slightly older than the national average are clearly durably appropriate and legitimate justifications for part of the Massachusetts excess.

The durable legitimacy of other factors, such as high rates of medical training and outpatient and emergency room care by hospitals, is much more questionable. In part, these reflect inefficiency, less-than-appropriate patterns of care, and unfair burdens on those who pay for health care in Massachusetts. Thus, we distinguish between identifying factors that are currently associated with part of the Massachusetts excess, on the one hand, and accepting these factors as durably appropriate and legitimate justifications for the excess in the long run, on the other hand.

We estimate that only \$100 million of the \$1.75 billion in excess Massachusetts hospital costs was associated with net service to patients from out-of-state in hospital fiscal year 1989; that \$234 million of the excess was associated with medical research; and that \$98 million was associated with care for a Massachusetts population slightly older than the national average. We conclude that all of these sums were durably appropriate and legitimate justifications for their shares of excess costs.

We estimate that \$280 million of the 1989 excess was associated with teaching and training, and conclude that only half of this sum (\$140 million) was durably appropriate and legitimate.

We estimate that \$220 million of the excess was associated with disproportionate

reliance on hospital outpatient departments and emergency rooms in 1989, and conclude that two-thirds of this sum (\$147 million) was durably appropriate and legitimate.

Finally, we estimate that \$270 million of the excess was associated with higher wages and benefits, and conclude that \$216 million (80 percent) of this was durably appropriate and legitimate.

Together, these six factors durably, appropriately, and legitimately justified \$936 million of the excess.

**V. Two reasons why hospital costs should be lower here.** Other things equal, two factors worked to lower our state's 1989 hospital costs. Massachusetts hospital profit margins were only a fraction of the national average in that year. Further, Massachusetts Medicare inpatients were somewhat less sick than those nationally in 1988, the most recent year for which data were available. Together, these two offsets against high costs equaled \$349 million in 1989.

**VI. What share of the excess is explained?** We found that \$936 million of the excess was durably, appropriately, and legitimately associated with the six conventional factors. This must be reduced by the \$349 million associated with the two offsets, leaving a net explained share of \$587 million. This is just one-third of the \$1.75 billion total excess.

The remaining two-thirds, some \$1,163,000,000 of the 1989 excess-- 18.9 percent of total costs and almost \$200 for each citizen of the Commonwealth-- remains unexplained.

**VII. Elaborate and costly patterns of practice.** After reviewing the evidence on Massachusetts hospital costs in light of the work of McClure and of Wennberg and his colleagues, we conclude that an elaborate, aggressive, and costly culture of clinical practice appears to have arisen in Massachusetts medicine, much of it seemingly centered in our tertiary hospitals. This is central to understanding otherwise unexplained excess costs. We do not question most hospitals' and physicians' motives, but since our state's high costs seem unwarranted by either economic benefits or medical outcomes, they should be challenged. The savings can be put to good use.

**VIII. Can anyone afford to continue business as usual?** One generation of hospital cost control techniques has already failed in Massachusetts. Over 40 hospitals have been closed since 1960 and the state's bed-to-population ratio fell below the national average in 1989, but costs continue to soar. Another generation of cost controls is in process of failing. Managed care, utilization review, and competition are proving ineffective in slowing hospital cost increases.

It is time to control costs simply and directly, and to use some of the savings to finance universal access. Two-thirds of today's excess in Massachusetts hospital costs is not justified. We therefore call for a gradual but steady reduction in the rate of increase in statewide payments to hospitals, along with a redistribution of revenues across hospitals. We identify specific steps to enable and encourage hospitals to be more efficient, and to weed out unnecessary care. At the same time, we identify policies to enable and oblige hospitals to organize and provide needed services for all previously uninsured patients. We conclude that enough is spent in Massachusetts already to provide appropriate and effective health care to all who live here, and that financial incentives that distort hospitals' and doctors' clinical decisions must be removed.

Health care in the United States is already so expensive, and demands so much new money each year to continue business as usual, that it will soon collide with the economic realities of competing domestic needs, budget deficits, massive public and private debt, and slow productivity growth. This collision is likely to occur first in Massachusetts, because our costs are so high.

Fortunately, the extraordinarily high level of health spending in Massachusetts can cushion us from the harmful effects of the collision, to allow us to slow cost growth gradually. But we must begin soon. High current costs associated with clinical and administrative waste now embedded in Massachusetts health care also allow us to universalize access to care while maintaining high-quality services.

Achieving the goal of equitable and affordable access high-quality care will require steady, sustained, and coordinated reform, with the active cooperation of physicians, hospital trustees and administrators, and other groups. All parties have much to gain by putting Massachusetts health care on a durably affordable footing. With the cooperation of payors, access advocates, and other parties, state government must galvanize and coordinate reform. No other party seems likely to take on the job of reconstituting Massachusetts health care, so this must fall to state government.

Although the main focus of this report has been on evaluating the Massachusetts hospital cost excess, it also sketches a number of short-term individual financing and delivery reforms that do not need to await coordinated progress. The need to act is clear, and the money is already at hand.

## CONTENTS

Acknowledgments	i
Summary	ii
Contents	ix
Introduction	1
<b>I. How Expensive is Hospital Care in Massachusetts?</b>	<b>3</b>
A. How great is the real burden of health and hospital costs?	3
B. Is it right to compare our state's hospital cost per capita with the national average?	6
C. Is cost per person the right measure?	9
<b>II. Do Economic Gains Justify High Costs?</b>	<b>9</b>
A. The net patient inflow: flood or trickle?	11
B. Research and technology	14
C. Have our health services become misshapen by pursuit of high technology?	15
<b>III. Are High Costs Inevitable If We Want High-quality Care?</b>	<b>17</b>
<b>IV. Conventional Explanations of Excess Massachusetts Hospital Costs</b>	<b>21</b>
A. Importing patients/exporting services	23
B. Medical research	24
C. Teaching/training	26
D. A greater proportion of older patients	29
E. Outpatient and emergency room care	30
F. Higher wages and benefits	34
<b>V. Two Reasons Why Hospital Costs Should Be Lower Here</b>	<b>35</b>
A. Low Financial Margins	35
B. Low Case Mix	36
<b>VI. What Share of the \$1.75 Billion Excess Is Explained?</b>	<b>37</b>
<b>VII. Elaborate and Costly Patterns of Practice</b>	<b>39</b>
<b>VIII. Can Anyone Afford to Continue Business As Usual?</b>	<b>44</b>
<b>Notes</b>	<b>51</b>

## **INTRODUCTION**

Massachusetts acute hospital costs in 1989 were \$1.75 billion in excess of the level they would have reached had we spent at the national average. This amounted to almost \$300 for each citizen of the Commonwealth. Further, the gap between Massachusetts hospital costs and those in other states is widening rapidly. In 1989 alone, hospital costs per capita in Massachusetts grew almost one-third faster than in the nation as a whole.

And where are we today? If hospital costs per capita rose by eight percent per year in hospital fiscal year 1990 and if they rise at that rate in 1991, then this year's Massachusetts excess will be just over \$2.0 billion.

The Massachusetts Hospital Association (MHA) claims that high hospital spending wins our state large economic and medical benefits. In the absence of a systematic comparison of the benefits and the costs associated with high spending, these claims should be rejected as unproven.

The MHA also implies that the Massachusetts excess is largely explained by service to patients from out-of-state, research, teaching, caring for an older population, higher reliance on hospitals for ambulatory care, and higher wages.

We examine the share of the excess associated with these six factors in section IV. We find that they durably explained or justified 33.5 percent of the \$1.75 billion Massachusetts excess in 1989. The unexplained share amounted to \$1,163,000,000 or almost one-fifth of all acute hospital spending statewide. This unexplained excess was almost \$200 per person or \$800 for the average family of four.

So huge a sum is neither an abstraction nor only a subject for debate among experts. It affects all of us.

On 11 September 1990, our group, the Access and Affordability Monitoring Project (AAMP), released a report on *Hospital Expenses: Massachusetts vs. the United States*.<sup>1</sup> Relying on data for fiscal year 1988 provided by hospitals and published by the American Hospital Association (AHA), we showed that the traditional explanations of high hospital costs in our state-- low occupancy rates, high wages, lengthy stays, high admission rates, and excess capacity-- were largely unfounded.

Seeking sources of high costs, we noted that Massachusetts hospitals provided much more emergency room and other outpatient visits, and surgery, per capita than hospitals nationally. We also noted that Massachusetts hospitals employed 36 percent more workers per capita than the national average, and had non-labor expenses 31 percent above the national average. But why all these workers and why such high non-labor expenses? After considering the possible roles of teaching, research, and service to out-of-state patients, we concluded that "The main problem seems to be the style of

medical practice in our teaching hospitals, and perhaps in some others as well."

In October of 1990, the Massachusetts Hospital Association issued its Information Advisory No. 194. It asserted that our September report was flawed because it used costs per capita to compare the state with the nation, and because its analyses were "superficial" and its claims "unsubstantiated."

We were not surprised by the MHA's reply. The MHA is no ordinary trade association. It represents almost 100 acute care hospitals. Many of these hospitals are extraordinarily large and powerful. For reasons explored in Section VII, most of them and their physicians believe in the rightness of the style of care they provide. Further, hospitals have large financial stakes in public decisions. Some public decisions exempt hospitals from paying property, sales, and income taxes. Others govern the flow of almost all hospital revenues, totaling about \$7.25 billion this year. As a result of these decisions, hospitals receive more tax subsidies and public or publicly-governed payments than any other industry in the state.

The MHA is accustomed to controlling or shaping the flow of information and analysis of hospital costs and revenues in our state. The Association has tended to use-- and sometimes misuse-- this information and analysis to support hospitals' claims for more money.

Because the MHA is torn internally by the conflicting needs of different groups of hospitals, its lowest common denominator has understandably become more money for all. The MHA therefore seeks to justify and applaud high hospital spending in Massachusetts.

The AAMP sees high hospital cost as a huge problem. It is the main obstacle to health care for all, to realizing the promise of universal access. It increasingly oppresses all who are insured or pay for health care. Insurance bills of \$6,000 per year for family coverage are not uncommon. To-date, most responses to the cost problem by payors have been complicated, expensive, or largely ineffective. These include micromanagement through utilization review, health maintenance organizations, higher out-of-pocket payments, hospital closings, and competition. But there are alternatives. We can find practical, simple, incremental, and affordable paths to cost control and universal access.

Hospitals have become too costly to succeed much longer in finding more money to continue business as usual. Institutions that do not adapt to new realities risk extinction. A few years ago, who would have thought that so many of the nation's financial institutions could be in so precarious a position-- and at the end of seven years of steady economic growth? Who thinks today that one or more of our major teaching hospitals and one or more dozen of our needed community hospitals could be closing or filing for Chapter 11 protection a few years from now?

Massachusetts cannot afford the destabilization or destruction of our fine hospitals. Yet this will be the inevitable result of hospital pursuit of more money for business as usual.

Some may try to explain away the high cost of hospital care in Massachusetts today, and to rationalize ever-higher spending for the future. But the first is unbelievable and the second is unaffordable. High costs threaten the health of our citizens-- and hospitals' financial health as well.

The present report aims to quantify the shares of the \$1.75 billion Massachusetts hospital cost excess associated with factors that could not be studied using the AHA data employed in our September report. We have drawn on a wide variety of new sources of data, and made a number of calculations and assumptions. In doing so, we recognize that others may disagree with some of the specifics of our work. We hope they will join us in refining the analyses of the sources of excess Massachusetts hospital costs.

But vital reforms should not be delayed needlessly. The evidence presented in this report indicates that enough is already spent in Massachusetts to finance and deliver affordable, appropriate and high-quality care for all citizens. We therefore hope that all parties concerned about health care will be encouraged to make the commitment to develop, refine, test, and implement practical methods to reach this goal quickly.

## ***I. HOW EXPENSIVE IS HOSPITAL CARE IN MASSACHUSETTS?***

### **A. How great is the real burden of health and hospital costs on Massachusetts?**

High Massachusetts health and hospital costs are substantial burdens on businesses considering how to survive or where to expand, and on workers struggling to afford their shares of health insurance premiums.

**A bottom line: insurance costs.** Are Massachusetts health and hospital costs per capita really much higher than the national average? One bottom line measure of the cost of health care in different areas is the health insurance premiums charged in those areas. This excludes both the costs of caring for people who live elsewhere, and the costs of research that is funded by federal agencies or private foundations. Health insurance in the Boston metropolitan area in 1989 was 25 percent more costly to employers and workers, on average, than the average of comparable policies in the six other major metropolitan areas (New York, Chicago, Los Angeles, Dallas, Atlanta, and Cincinnati) for which comparable data were available.<sup>2</sup>

**Health spending.** The AAMP's September 1990 report estimated that personal

health spending per capita in Massachusetts was 20-25 percent above the national average because this was about the range experienced during the seventeen years between 1966 and 1982, when the Health Care Financing Administration made these comparisons.<sup>3</sup>

Since our report appeared, new figures on calendar year 1990 personal health spending have been released. Prepared by Lewin/ICF, these estimate 1990 personal health spending per capita in Massachusetts at \$3,031, still 25.0 percent above the national figure of \$2,425 per capita.<sup>4</sup> Total personal health spending in Massachusetts is estimated at \$17,947,477,000 in 1990. This means that \$3,589,495,000-- over \$3.5 billion-- would have been saved by Massachusetts workers, businesses, and taxpayers had personal health care spending per capita been at the national average in 1990. This is about \$800 per person or about \$2,400 for the average family of four. In the year 2000, according to Lewin/ICF projections, the Massachusetts excess in total health spending will be almost \$8.5 billion annually-- in the absence of reform.

**Hospital spending.** The AAMP's September 1990 report analyzed community (acute) hospital spending per capita, from the American Hospital Association.<sup>5</sup> Acute hospital costs in fiscal year 1988 were \$959 per capita in Massachusetts, 39.3 percent above the national average of \$688 per capita. Thus, had Massachusetts been spending at the national average, we would have saved over \$1.5 billion on hospital care in 1988. Had Massachusetts hospital care been no more expensive than in the second-most-costly state, New York, we would have saved over \$500 million.

The data for hospital fiscal year 1989 have just been released by the American Hospital Association.<sup>6</sup> We calculate from these results that Massachusetts acute hospital costs per capita rose by 8.8 percent during 1989 to \$1,043 per capita, making us now 39.7 percent above the national average of \$747 per capita.

Actual acute hospital spending in Massachusetts in HFY 1989 was \$6,160,608,000, according to the American Hospital Association. If Massachusetts hospital spending per capita had been at the national average in HFY 1989, we would have spent \$4,410,580,000.

Thus, the Massachusetts excess rose to \$1,750,028,000 in 1989-- \$1.75 billion. The factors that are associated with parts of this excess (such as research, teaching, and higher wages) must be identified. The legitimacy and appropriateness of these factors must then be assessed.

The comparison between 1988 and 1989 draws attention to the importance of the dollar differential in hospital costs between our state and in the nation. Although the percentage change in cost per capita in Massachusetts was only slightly above that for the nation, our increase in actual hospital spending per person was \$84.43-- fully 44 percent greater than the national increase of \$58.60. This was because we started from a higher

cost base. Thus, the dollar differential in hospital costs between the state and the nation will steadily widen even if the ratio between the two remains constant. This will increasingly burden Massachusetts citizens and increasingly undermine our economic competitiveness. The 1991 excess is estimated at just over \$2.0 billion, an increase of \$250 million in just two years.

Table 1

**Massachusetts - United States Hospital Spending per Capita**

	<b>1980 - 1989 - 1998</b>		
<u>Hospital spending per capita</u>	<u>1980</u>	<u>1989</u>	<u>1998</u>
Massachusetts	\$476	\$1043	\$2086
United States	339	747	1493
Dollar Difference	137	296	593
<u>Dollar increases</u>	<u>1980 - 1989</u>	<u>1989 - 1998</u>	
Massachusetts	\$566	\$1043	
United States	407	747	
Dollar Difference	159	296	

**Sources:** American Hospital Association, *Hospital Statistics*, 1981 and 1990-1991 editions, Tables 5A and 5C. Projections to 1998 assume identical 8.0 percent annual increases for Massachusetts and the United States.

For example, as shown in Table 1, the dollar differential between Massachusetts and United States hospital spending per capita rose from \$137 in hospital fiscal year 1980 to \$296 per capita in 1989 even though the Massachusetts and United States percentage rates of increase were virtually identical over the entire period.

This becomes a more and more serious problem over time. Contrast what actually happened in the nine years between 1980 and 1989 with projected changes in the nine years between 1989 and 1998 (assuming identical 8.0 percent annual increases for both Massachusetts and the nation). As Table 1 indicates, identical annual percentage

increases double the dollar differential between 1989 and 1998, from \$296 per capita to \$593 per capita (even as the percentage differential remains flat at just below 40 percent).

This report analyzes the Massachusetts hospital cost excess, which is slightly over half the total excess in state health spending over the national level. The non-hospital share of excess cost clearly warrants separate and detailed investigation.

## **B. Is it right to compare Massachusetts hospital cost per capita with the national average?**

If anything, the AAMP's September 1990 report's comparisons between Massachusetts and United States hospital and health spending understated how extraordinarily costly our state's care really is. This is because the United States national average is far above that of other industrial democracies-- all of which protect virtually all of their citizens against costs of health care, and most of which enjoy better health outcomes (see Section III).

Our estimate of 1987 Massachusetts total health spending per capita of \$2,564 was fully 255.4 percent (two and one-half times)<sup>7</sup> as much as the average for nineteen other industrial democracies that belong to the Organization for Economic Cooperation and Development (OECD).<sup>8</sup> (See Table 2 and Figure 1.) This is partly because Massachusetts spending was well above the United States average, but mainly because the United States average was so far above the nineteen-nation OECD average. The United States' per capita health costs in 1987 of \$2,051 were more than double (204.3 percent as much as) the average of the nineteen.

This translates into an enormous dollar differential between Massachusetts and the OECD average. Had Massachusetts spent on health care at the OECD average, total health spending here would have been about \$5,879,424,000 in 1987 instead of the actual figure of about \$15,014,784,000. Thus, the Massachusetts dollar excess in health spending over the OECD average was over \$9.1 billion in 1987, or over three-fifths of actual Massachusetts health spending. This huge 1987 dollar excess is the fair measure of the burden of Massachusetts health spending on the state's international competitiveness.

Table 2  
**Massachusetts - United States - International Health Care and Hospital Spending  
 1987 per capita spending**

	<u>health care</u>	<u>hospitals</u>
Massachusetts	\$2,564	\$1,310
United States	\$2,051	\$ 965
19 OECD nations	\$1,004	\$ 434

**1987 per capita spending as percentage of  
 19 OECD nations**

	<u>health care</u>	<u>hospitals</u>
Massachusetts	255.4%	301.8%
United States	204.3%	222.4%

**Sources** for Table 2 and Figure 1: AAMP analyses of data reported in Families USA Foundation, *Emergency! Rising Health Costs in America: 1980-1990-2000*, A Families USA Foundation Report in Cooperation with Citizen Action, Washington: The Foundation, October 1990; Katharine R. Levit, "Personal Health Care Expenditures, by State: 1966-82," *Health Care Financing Review*, Vol. 6, No. 4 (Summer 1985), pp. 1-49; and "Health Care Expenditure and Other Data," *Health Care Financing Review*, 1989 Annual Supplement, pp. 111-194.

The picture is even bleaker when comparing Massachusetts institutional health spending (referred to for convenience in this section only as "hospital" spending) with the nineteen-nation average.<sup>9</sup> In 1987, United States hospital spending per capita of \$965 was almost two and one-quarter times (222.4 percent) as much as the average of the nineteen other nations. Massachusetts hospital spending per capita was more than three times (301.8 percent) as great as the average of the nineteen.<sup>10</sup>

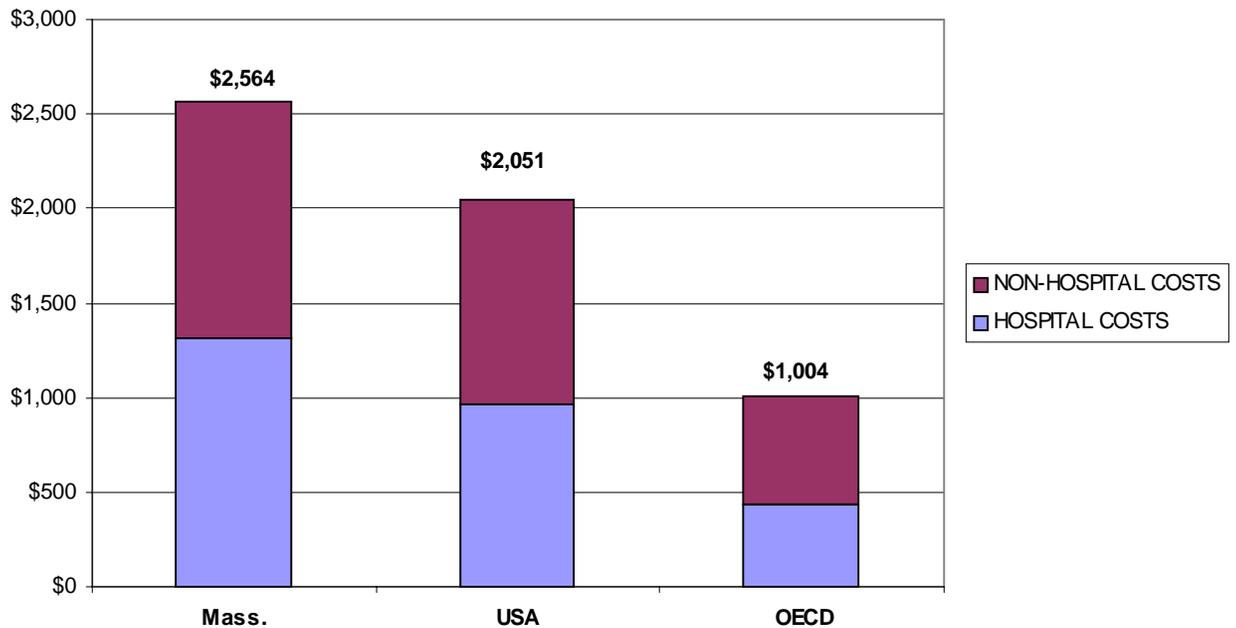
Again, this translates into an enormous dollar differential. Had Massachusetts spent on hospital care at the OECD average, hospital spending here would have been about \$2,543,240,000 instead of the actual figure of \$7,676,600,000. Thus, the Massachusetts excess over the OECD average for institutional health spending was over \$5.1 billion in 1987, or fully two-thirds of Massachusetts institutional health spending.

We should all take hope from these comparisons, because they suggest strongly that we can do better for all citizens of Massachusetts with the money we already spend.

It is time to take "yes" for an answer.

This is vital for at least four reasons. A first is that few who pay for health care can continue to finance huge annual increases in hospital spending in Massachusetts; it is just too expensive. A second is that higher insurance costs threaten access for patients who are still well covered, while undermining progress in protecting people who are still without coverage. A third is that it burdens Massachusetts' interstate and international competitiveness. The last is that high health spending drains money away from other pressing needs, such as education, infrastructure, job training, and housing.

Figure 1  
**HOSPITAL AND OTHER HEALTH CARE COSTS PER CAPITA,  
MASSACHUSETTS - UNITED STATES - 19 OECD NATIONS**



### **C. Is cost per person the right measure?**

The MHA's reply to our September 1990 report asserts that hospital cost per capita is not the right measure to use when comparing the state with the nation.

Cost per person is exactly the right measure. After accounting for relevant factors, including service to patients from out-of-state, this measure shows the cost of the care that Massachusetts residents receive. To use cost per capita is neutral because it makes no assumption about the appropriateness of current rates of hospital admission or outpatient visits.

The alternatives variously suggested by the MHA and others-- using such measures as cost per admission, cost per adjusted admission, or cost per patient-day-- have the built-in potential for sweeping a big share of the cost problem under the rug. This is because each of these other measures carries the assumption that the prevailing Massachusetts rates of admission, patient-days, surgery, outpatient care, and the like are appropriate. They therefore automatically assume away many possible problems.

For example, reversing a several-year trend, admissions per capita to Massachusetts hospitals increased in 1989, we calculate,<sup>11</sup> even while they were continuing to drop nationally. In all likelihood, the increase here was partly or largely a response to the financial incentive to increase admissions that some hospitals and the MHA successfully lobbied to include in the 1988 Universal Health Insurance Law. Looking at cost per admission automatically cancels or conceals the overall cost consequences of rising admission rates. Only examining hospital costs per capita reveals what is taking place.

## **II. DO ECONOMIC GAINS JUSTIFY HIGH COSTS?**

Are high Massachusetts hospital costs justified because hospitals "export" services to other states, earning money and making jobs for Massachusetts? Could some of our state's high hospital costs be balanced by economic gains from patient care, from biomedical research and technology, and health-related construction. Especially during a recession, it is tempting to hope that higher spending on hospital care could stabilize and energize the Massachusetts economy. Our analyses suggest that this hope is unrealistic.

The challenge is to maximize the things about health care that are good for current and long-term economic growth and jobs and to minimize the costs we must all pay to subsidize that growth and those jobs.

The MHA's reply to the AAMP's September 1990 report complains that we failed to consider service to thousands of inpatients who reside out-of-state. The MHA further notes the importance of medical research and training in bringing money into the state.

The MHA says that Massachusetts is far above the national average in the share of the economy devoted to education, electronics manufacturing, and financial services-- so why not health care?

The MHA is wrong on the details. Worse, it is dangerously wrong on the big picture. While some substantial economic benefits are certainly associated with high hospital spending, some substantial economic costs are just as clearly associated with that spending. Further, who enjoys the benefits and who pays the costs? Was the informed consent of the payors obtained?

To-date, greater efforts have been made to quantify benefits associated with high hospital spending. These should be matched by more serious attempts to quantify costs. Both sets of analyses should be scrutinized carefully. Much more detailed data collection and analysis will be required to determine whether the benefits or the costs are greater. Until this work is accomplished, the neutral assumption is that they are equal. Still, because some have asserted that hospitals win net economic benefits, it is proper to examine the evidence and arguments underlying those assertions even without attempting a comprehensive assessment.

It is useful to begin assessing the net economic value of Massachusetts hospitals by recalling the evidence compiled in Section I on the extent to which high hospital costs undermine our state's national and international competitiveness. Two matters are related to this: hospital spending as a share of personal income in our state, and the opportunity costs associated with high hospital spending.

**Spending as a share of income.** In hospital fiscal year 1988, hospital spending in Massachusetts was 4.68 percent of personal income, 10.4 percent greater than the national share. This is surprising in light of the rapid growth in personal income and the fairly effective regulatory controls on hospital revenues in the years before 1988. In hospital fiscal year 1989, Massachusetts hospital costs had risen to 4.77 percent of personal income, or 10.7 percent above the national average.<sup>12</sup>

Through most of the 1980s, personal income growth in Massachusetts was well above the national average. According to Sum, personal income per capita in Massachusetts was only four percent above the national average in 1979. It was fully 26 percent higher in 1989.<sup>13</sup> This rise in income helped make the increase in hospital spending per capita during the past decade more tolerable. If our hospital costs continue to increase rapidly, they will consume ever-larger shares of personal income because personal income growth is slowing sharply here. This will leave us all with less money to spend on everything else.

**Opportunity cost.** Money spent on hospital care is money that cannot be spent in ways that do more to improve our economic competitiveness: education, job training, and infrastructure. Or on building new housing, which would at once protect people who

are homeless and markedly lower cost of living, again enhancing economic competitiveness.

We need to spend money on what is useful. We could have full employment but zero well-being if half of us were to dig big holes in the ground while the other half filled them in. The MHA touts hospital construction, but it could be economically counter-productive. We don't want to build or expand hospitals unnecessarily. The jobs won during construction must be paid for in principal and interest cost for decades, and hospitals will have incentives to provide services, even unnecessarily, to pay for unneeded construction. This will cost still more money.

Within health care itself, much could be done with money saved by slowing hospital cost increases. One example spelled out later in this report would be to hire hundreds of needed primary care physicians to serve citizens-- including many who are insured-- who today lack easy and routine access to a family doctor.

We now turn to examining the net economic benefits associated with high hospital spending.

#### **A. The net patient inflow: flood or trickle?**

Our September 1990 report "found the *net* inflow to be at most 5 percent of admissions" to Massachusetts hospitals.<sup>14</sup> We stand by this figure.

The MHA's approach to admissions from elsewhere considers only patients who come to Massachusetts from other states. It ignores the reverse flow: residents of Massachusetts who seek inpatient care in other states. According to data from the Massachusetts Health Data Consortium, 46,372 patients who resided outside Massachusetts were admitted to Massachusetts acute care hospitals in 1988, down 8.5 percent from 50,654 in 1987.<sup>15</sup> But a minimum of 11,647 residents of Massachusetts were admitted to hospitals in other states in 1987, a number equal to 23.0 percent of out-of-staters seeking inpatient care here. This means that the maximum net inflow was 39,007 out-of-state patients admitted to Massachusetts hospitals in 1987, or only 4.8 percent of the 813,565 admissions to Massachusetts hospitals in 1987.

Moreover, the figure for Massachusetts residents admitted elsewhere is certainly under-stated because data are available only on patients admitted elsewhere in New England and in the New York City and Albany counties of New York State.

Review of inpatient claims paid by Blue Cross Blue Shield of Massachusetts during the first eleven months of calendar 1990 has shown that fully 10.0 percent of the claims' dollar value was paid to out-of-state hospitals.<sup>16</sup> Surely, some of these claims were paid on behalf of Blue Cross Blue Shield enrollees who were not residents of Massachusetts. These could include persons who resided in adjacent states but received insurance

through employers located in Massachusetts, and also retirees residing permanently or temporarily in other states.

But the share of dollars paid to out-of-state hospitals is so high that it probably also includes payment for a substantial amount of care for Massachusetts residents who became ill while vacationing in other states or who were simply seeking hospital care across the border. The latter should be captured by the Massachusetts Health Data Consortium figures; the former is not. The Blue Cross finding supports the assertion that the outflow of Massachusetts residents to out-of-state hospitals is somewhat greater than the Massachusetts Health Data Consortium is able to capture.

The MHA ignores data on net importing of hospital patients in a source it cites at length. Levit notes that 5.8 percent of charges for hospital care provided in Massachusetts to Medicare Part A enrollees in 1980 was earned on residents of other states. (More recent data are not yet available.) But, unlike the MHA, Levit also notes the importance of comparing "imports" and "exports," and reports that 2.6 percent of charges for care received by Massachusetts-resident Part A enrollees was earned by hospitals in other states.<sup>17</sup>

The *net* result here is that \$30,888,000 was earned by Massachusetts hospitals on out-of-state Medicare Part A enrollees in 1980. This was equal to only about 3.3 percent of Massachusetts hospitals' Medicare Part A hospital charges of \$940,143,000. Non-Medicare patients are younger and may be more willing to travel, but with Medicare providing so great a share of hospitals' third-party revenues-- 29.0 percent in 1988 nationally-- its role cannot be ignored.<sup>18</sup>

Further, because this Medicare analysis concerns charges, it should somewhat reflect patients' severity of illness, which simple counts of admissions cannot.

Inpatient hospital care is the type of health care for which patients are likeliest to travel any distance. The net inflow of hospital outpatients is likely to be a small factor by comparison. It is therefore probable that out-of-state patients' share of total hospital spending and total health spending in Massachusetts is somewhat below the 3.3 percent to 5.0 percent range estimated here for inpatient hospital spending alone.

The MHA asserts baldly that "patients receiving inpatient care in Massachusetts add over \$400 million in revenues to our economy" in 1989. Here, the MHA abuses the evidence in two ways. First, the \$416 million in service to out-of-state residents was valued in charges (gross patient revenues), which are typically substantially higher than the payments actually received by hospitals. In fiscal year 1989, Massachusetts hospital net patient revenues averaged 74.5 percent of charges.<sup>19</sup> Assume that this ratio applies to patients who were not residents of Massachusetts.<sup>20</sup> Then, measured at actual average net revenues received by hospitals, the out-of-state patient admissions contributed about \$310 million to the state's economy (74.5 percent of \$416 million).<sup>21</sup>

Second, the MHA again ignores the reverse flow of Massachusetts residents to hospitals in other states. The sum of \$310 million must therefore be reduced to reflect the offsetting financial loss suffered when Massachusetts patients receive care in other states. Financial data on these patients are lacking, but if revenues are in proportion to patient flows, the \$310 million estimate can be reduced by 23 percent to reflect the revenues lost when Massachusetts residents obtain hospital care in other states. Thus, the net earning on inpatient care, in real dollars received, was about \$242 million, or *about 4.4 percent of hospital patient revenues* of \$5.5 billion. This is the real, *net* contribution of service to out-of-state patients to the state's economy.<sup>22</sup>

**What are the economic costs and benefits associated with service to patients from out-of-state?** Attempting to cloak high hospital spending in robes of economic vitality, the MHA notes that per capita spending on manufacturing, financial services, and education are all much higher in Massachusetts than nationally. Certainly electronics manufacturing revenues in Massachusetts are much higher than the national average, but the overwhelming share of our electronics production is sold to people in other states and nations ("exported"), earning money for Massachusetts manufacturers. The same is true in financial services. In education, 60 percent of students in private colleges and universities in Massachusetts come from out-of-state, bringing substantial tuition and room and board revenues into Massachusetts.<sup>23</sup> The proportions in health care are very much lower, as has been shown.

It is therefore wrong-headed to assert that high health and hospital spending *in themselves* are good for the state's economy. Even the MHA's inflated figures indicate that only six percent of inpatient admissions are from out-of-state. The remaining share of the burden of supporting our state's high costs of hospital care and other health care falls on the citizens, employers, and workers of Massachusetts. In other words, our state must support a hugely expensive set of health services from in-state resources to attract a very small number of patients from out-of-state.

There are additional questions for the future. What is the risk that out-of-state patients will become more sensitive to the high cost of Massachusetts health care, leading them to remain at home or to seek high-quality care elsewhere? Further, as the quality of medical care diffuses outward, what is the risk that patients from out-of-state will simply secure good care at home? As technical proficiency and scopes of service improve elsewhere, what would be the cost to Massachusetts hospitals-- and to all of us who pay for them-- of staying ahead of hospitals elsewhere?

It is natural for some patients to cross state borders in search of health care. It is perfectly reasonable for some residents of Connecticut, Rhode Island, New Hampshire, Vermont, Maine, and New York to travel relatively short distances to seek hospital care here, just as some Massachusetts residents cross our borders to seek care in adjacent states.

But only a small fraction of those who come here from out-of-state travel a long way. In 1987, fully 38,931 (76.9 percent) of 50,654 non-Massachusetts patients discharged from our hospitals lived elsewhere in New England or in New York. This is very far from the picture sometimes drawn of Massachusetts hospitals serving large numbers of patients from throughout the world.

The small net number of patients from out-of-state cannot justify depicting Massachusetts hospitals as economic powerhouses that create many jobs in Massachusetts by selling services to people who reside elsewhere. This reinforces our assertion that it is Massachusetts citizens, workers, businesses, and taxpayers who pay the overwhelming share of the bill for Massachusetts health care. Massachusetts hospital care is therefore much more an economic millstone around our state's neck than it is an economic "engine", as the MHA contends.

Certainly, hospitals employ workers and provide invaluable services. So does state government. But no one suggests that more state jobs and higher state spending are good things in themselves. Why believe this about hospital care?

The issues here are ones of value for money, and of balance between hospital care and other things we need. Evidence presented in this document suggests we can afford to slow the rate of growth in hospital spending and still cover all citizens of the Commonwealth. Some of the savings could lower costs of doing business in Massachusetts. The remainder could enable us to build housing, repair roads and bridges, educate children, and the like. Thus, fewer jobs in one sector can mean more jobs in other sectors.

## **B. Research and technology**

Some believe that the state's economic future rests in some substantial part on advances in biomedical research and biotechnology. They may or may not be right.

Caution is indicated. At a time of economic recession and of weakness in electronics, defense, construction, finance, and other industries, it is natural to try to identify potential sources of future strength and growth. But easy analogies between biotechnology and computer electronics should probably be avoided. It is risky to assume that biotechnology investment and employment will boom in the 1990s as computer electronics did in the 1970s and early- to mid-1980s.

This assumption rests in great part on the nation's (and the world's) economic ability and political willingness to pay for what biotechnology invents.

Avault and Johnson assert the growing importance of health services and biomedical research to Boston's economy. But they rely heavily on projections *from inside the*

*health care field* that demand for health services and health care employment will continue to rise.<sup>24</sup> So, it seems, does another recent Boston report that also finds important new employment opportunities in health care.<sup>25</sup>

In our view, reliance on projections that United States health spending will reach 15.0 to 17.5 percent of GNP by the year 2000 is not justified. They assume straight line extensions of recent health spending trends; they assume no changes, and this is not remotely likely. Health care already consumes a far greater share of the United States' economy than of our competitors'. Why should we increase this share? It is far more reasonable to expect deceleration in the growth in health spending in the United States, and in the number of health care jobs. Particularly in Massachusetts, pressures to slow health and hospital spending are inevitable.

Derivatively, in this case, medical research and biotechnology will thrive to the extent that they uncover new diagnostic and therapeutic procedures that are more efficient than those in place today throughout the world, or that dramatically push back the frontiers of what is medically possible. The elaborate patterns of clinical practice that predominate in Massachusetts provide many opportunities to make Massachusetts medicine more efficient, but are they likely to be an advantage in developing more affordable procedures for the rest of the world?

Massachusetts' medical schools and teaching hospitals have garnered a huge share of National Institutes of Health-supported research. This amounted to \$630 million in fiscal year 1989, of which \$251 million was received by hospitals.<sup>26</sup> (Statewide, this was a total of \$486 million more revenue than would have been received had NIH funds been awarded strictly in proportion to our state's population.) Can this continue? Between 1981 and 1989, our state's share of NIH grants ranged between about 10.5 and 11.0 percent.<sup>27</sup> But NIH grant funds increased by about 50 percent in real dollars during this time. Can our state continue to maintain its share of an NIH research pie that, in real dollars, is likely to remain constant or even shrink in the years to come?

Rather than banking on increased health care spending to bolster our economy, a superior economic strategy for Massachusetts could be to pursue balanced growth in a number of industries, to educate more highly-skilled and productive workers, and to lower the costs of living and of doing business in our state-- in part by reducing the cost of health care.

### **C. Have our health services become misshapen by the pursuit of high technology?**

What is the connection between expensive hospital care and economic growth through biomedical research and biotechnology? Are the proponents of biomedical research and biotechnology asserting that these activities make money for Massachusetts (by exporting goods and services), or are they asserting that those who pay for hospital care and health insurance in our state should help to subsidize the costs of biomedical

research and biotechnology?

Once the costs of grant-funded biomedical research are factored out of hospital expenses, why should any part of the remaining cost of these advances be allowed to burden all of us who pay for hospital care and health insurance in our state? If state subsidies to biomedical research and biotechnology are appropriate, they should be voted explicitly by the legislature, not imposed quietly through hospital charges and insurance premiums.

From financial or economic development standpoints, the questions concern the benefits and costs. Which organizations (for-profit and non-profit) and which individuals win the benefits associated with expensive hospitals, biomedical research, and biotechnology-- and which organizations and individuals pay the cost? As linkages grow between physicians and hospitals, on one hand, and drug companies and biotechnology firms on the other, these questions demand better answers. Both sides of this equation demand further quantification. Certainly, we can no longer be satisfied by mouthing of catch phrases, vague waving of hands, or smiling assertions of jobs, profits, and other economic benefits.

Consider another aspect of this matter. Begin by assuming that service to patients from out-of-state generates \$242 million in inpatient revenue, as estimated earlier. Add the \$486 million in higher NIH research funds. (Add the total of additional private research funds, which is not yet available.) The two figures sum to \$728 million in revenue from out-of-state earned by and in Massachusetts hospitals, medical schools, and universities. Conservatively, assume further that we would not have earned any of this revenue had not many of our hospitals become such specialized, tertiary, teaching institutions.

Then consider some of the offsetting burdens we bear because so many of our hospitals have become just the sorts of institutions that attract a small number of patients residing out-of-state and such great shares of biomedical research. Begin with \$280 million in higher current costs of medical training in teaching hospitals, as estimated in Section IV-C. Add to the training costs the higher health insurance and other payments we all make to support hospital care in so great a number of costly teaching hospitals. Add, further, the extra costs we pay for physician and other services occasioned by our great numbers of specialized physicians. Also add the harm to the economy associated with the loss of jobs and investment when firms go out of business, fail to expand, or choose not to move to Massachusetts in part because health insurance costs are so high here. Finally, add the loss of wages and production associated with ongoing disputes and occasional strikes over the division of health insurance costs.

We should ask whether the physicians and hospitals that attract biomedical research funds and patients from out-of-state are too expensive for many of us to afford when we need care. For example, have we so multiplied and enlarged our tertiary teaching hospitals, with their specialized programs and costly equipment and staff, that

there is a shortage of patients who actually need their care? If so, are Massachusetts teaching hospitals over-serving Massachusetts residents? Could our hospitals, medical schools, and universities continue to attract research funds and patients from out-of-state even if they took steps to make themselves more affordable for the rest of us?

The challenge is to win more economic benefits while reducing economic costs. This will require breaking the link that apparently prevails today between importing patients and bringing in research money, on the one hand, and high hospital and health insurance costs for Massachusetts citizens and employers, on the other. More efficient hospital care for Massachusetts patients would clearly be better for all who pay for it. Also, greater efficiency would probably attract more research and technology funds in the long run, as payors nationally and world-wide give more attention to innovations that reduce health care spending. Some NIH research priorities and values may stand in the way of such changes today, but they are not immutable. Massachusetts could become the leader in developing low-cost, high-quality standards of care and medical innovations.

Hospitals and health care are so important to the state's economy that they must be made more economic and efficient. If this is not done soon, out-of-control hospital costs will bump up against revenue ceilings, destabilizing hospitals' finances, throwing thousands of hospital workers out of work, disrupting research, and depriving many patients of needed care.

In summary, high spending on hospital care means high revenues for those who give health care. So, too, for spending on research. That is good for them. For the rest of us, the value of the high spending must be judged by what it does. Is high spending on health services improving our health commensurately?

### III. ARE HIGH COSTS INEVITABLE IF WE WANT HIGH-QUALITY CARE?

The MHA's reply to our September 1990 report asserts that "Massachusetts hospitals are at the center of a health delivery system providing, at unsurpassed quality, the full spectrum of services...."

What is the evidence? Are high costs a burden we must all bear to win high-quality care? Are we getting our money's worth?

**Interstate and international comparisons.** One recent comparison by Wennberg and his colleagues showed that 1985 mortality rates of Medicare enrollees living in the Boston and New Haven areas were *almost identical*<sup>28</sup> even though total hospital expenditures per capita (for all residents) were *twice as high* in Boston (in 1982).<sup>29</sup> Wennberg and his colleagues noted that there may have been differences in morbidity, complications, and quality of life, which they did not measure. They pointed out that the residents of the two cities were similar demographically.

According to National Center for Health Statistics data, the age- and race-adjusted mortality rate in Massachusetts was only 16th-best in the nation for 1985-1987, the most recent years available. Similarly, we were only 15th-best in overall health outcomes (disease, disability, and mortality). Strikingly, Massachusetts ranked only 24th in preventing deaths-- many of them avoidable-- from nine chronic diseases studied by investigators from the Centers for Disease Control.<sup>30</sup>

Our state did better by other measures, such as overall infant mortality, in which we showed the nation's lowest race-adjusted rate, but we suffered the greatest black-white differential.<sup>31</sup> In 1988, Boston had the third-highest black infant mortality rate among ten major cities nationally that were surveyed for a Boston *Globe* report.<sup>32</sup>

Thus, the overall picture of quality is mixed, but it appears that health outcomes here are not commensurate with spending.

The picture becomes darker when international comparisons are viewed. In 1987, for example, longevity at birth for women in the United States was 78.6 years. Eight of the eleven other OECD nations reporting women's longevity in that year show a superior outcome. The average of all eleven nations' women's life expectancy was 79.4 years.<sup>33</sup> This shows that it is possible to enjoy superior longevity while spending much less on hospital and health care. Real per capita health spending in these eight nations, adjusted for purchasing power,<sup>34</sup> averaged \$1,073 in 1987, only 41.8 percent of the estimated Massachusetts figure of \$2,564.

**Will slower increases in hospital spending harm our health?** Pretending that current rates of increase in hospital spending can continue constitutes the *greatest* threat to quality of care in the Commonwealth. As argued elsewhere in this report, sustaining hospital spending increases at current rates is impossible. Slower rates of increase are inevitable at some point. Spending is so high today that our state's hospitals can accommodate slower increases without harming patients, if increases are slowed gradually. Failure to do this will necessitate ill-considered clinical judgments to balance hospitals' books in an atmosphere of financial crisis. This will inevitably hurt patients. When exiting from the Mass Pike, we all know how to brake a car slowly, so we can turn on to an ordinary road and continue at 30 or 40 miles per hour. It is not safe to decelerate from highway speeds by hitting a tree. The surest harm to quality of hospital care in Massachusetts is that which will result from a hospital cost crisis that threatens to bankrupt numbers of fine institutions. And bankruptcy will inevitably result from hospital efforts to secure more money to continue business as usual.

Many of us are tempted to equate more health care or more costly health care with better health care, higher-quality health care. Most of us human beings are frightened of pain, illness, disability, and death. We all want the best medical care for our families and ourselves. But there is no clear link between higher hospital spending and better medical

outcomes, as the Boston - New Haven comparison indicates. Further, providing more medical care is not without risks. This "iatrogenic" harm, damage resulting from medical treatment, is doubly tragic when associated with diagnostic or therapeutic work that was unnecessary in the first place.

It is widely believed that many Massachusetts hospitals can provide superb care. We share this belief. The challenge is to ensure that all patients get appropriate and high-quality care, and that the right types of hospitals provide it. Arguably, for reasons discussed later, an inappropriately high share of health care in Massachusetts is provided by specialist physicians in tertiary teaching hospitals.

In the past, a number of factors shaped the evolution of a Massachusetts medical culture that encouraged provision of more care than was medically appropriate. There were the usual national factors of fee-for-service (piecework) payment of doctors, cost reimbursement of hospitals, and fear of malpractice suits. The effects of these national forces were magnified in our state by the large number of physicians (or the shortage of patients) here, the very high proportion of them who were specialists, the suppression of physicians' fees (giving incentives to increase volumes of care), and the prestige of our non-profit hospitals, which were widely viewed as doing good.<sup>35</sup> These special factors seem to have shaped a dominant-- though not exclusive-- medical culture that endorses elaborate, aggressive, and expensive patterns of care. This culture sets a standard of what constitutes good care, though uninsured or Medicaid patients will tend to get less care, and face serious risks of under-service.

Is it good for Massachusetts to have a surgery rate almost one-fifth above the national average? Is it good that our hospitals are first in the nation in their rates of providing outpatient and emergency room care?<sup>36</sup> The answers depend on the results achieved, and on whether these results could have been won at lower cost.

Certainly, it is good to obtain surgery when it is needed. But there is a danger that a duplication of esoteric tertiary hospital services, especially in Boston, is both expensive in itself and an incentive to provide unnecessary care.

Many parts of our state seem to have so many specialist physicians and so many well-equipped hospitals that they may suffer a shortage of patients who actually need the services that physicians are trained and hospitals are equipped to provide. Certainly, it is better to receive primary care in outpatient departments or emergency rooms than not at all. But these are not the best places to provide coordinated and continuous primary care (see Section IV-E).

In other states, and in other circumstances, less elaborate and aggressive medical cultures evolve. These can achieve results as good as those in Massachusetts, but at much lower cost.

This is a question of balance. If we all seek as much health care as possible,

we will all end up with less. Our government and our employers will institute harsh controls on what is covered by health insurance. Many of us will lose coverage.

Further, we should not seek as much health care as possible. As just noted, medical procedures are not risk-free. We should want the care that works, when we need it. Massachusetts health care is not yet geared to delivering this sort of appropriate and high-quality care.

A hospital that buys equipment to widen its scope of services, to win revenue, and to compete with other hospitals then has reasons to encourage physicians to use that equipment more often, to cover its costs. If a doctor-- with the hospital's subtle encouragement-- performs an invasive diagnostic procedure that is not needed, he or she puts a patient at risk unnecessarily. Patients are also jeopardized if a surgeon's clinical judgment is distorted by the prospect of earning another fee, or if an internist prescribes medications at the behest of a drug company operative.

Similarly, if cardiac catheterization laboratories are allowed to proliferate in many hospitals throughout the state, more patients may be catheterized than need the procedure. This is dangerous in itself. And despite this artificial increase in care, volumes at many laboratories may remain low, which further undermines quality of care.

Today, increased "competition" in health care is leading some payors to give hospitals and doctors financial incentives to provide less care. This is just as bad as the old incentives that encouraged provision of more care.

At its best, Massachusetts hospital care is among the best in the world. But quality is more than the best available to some. It is also the average level of care available to the average citizen. It is the level of care we can afford for the future.

Pursuing high-quality but appropriate care will help Massachusetts hospitals adapt to inevitable reductions in the rate of increase in their revenues. But eliminating unnecessary care is vital for other reasons. It reduces iatrogenic harm. It frees resources to serve other patients. Today, many well-insured patients are over-served while many uninsured or Medicaid-sponsored patients can find it difficult to obtain adequate care.

Other nations have paid hospitals and doctors in ways that make them more financially neutral in their clinical judgments. This seems to liberate caregivers elsewhere to provide care because it is clinically appropriate-- not because it is financially remunerative— and to achieve superior clinical outcomes while spending less money and protecting all citizens.

For all these reasons, it is difficult to conclude that Massachusetts hospitals are providing care "at unsurpassed quality." Some might then claim that hospitals can't do much to improve some of these health measures, so it is not fair to hold them accountable

for outcomes that are not commensurate with expenditures. But in that case, why are we spending so much on hospitals?

#### **IV. CONVENTIONAL EXPLANATIONS OF EXCESS MASSACHUSETTS HOSPITAL COSTS**

Because excess hospital costs in Massachusetts are so great, because they are not demonstrably associated with net economic benefits, because they are borne overwhelmingly by state residents, and they do not seem to be associated with markedly better health outcomes, we should return our attention to the high costs themselves.

What factors explain the huge differential in hospital expenses per person between Massachusetts and the nation? Are these factors appropriate and legitimate--are they justified? That is, can and should we accept them? This section considers the conventional explanations of high costs offered by the MHA.

The MHA attempts to explain away the \$1.75 billion hospital cost excess by claiming that A) Massachusetts imports patients (and exports services) to people who live outside the state; B) medical research brings in huge sums; C) our hospitals train a great number of physicians, and this is a cost we must and should bear; D) older people, who need more health care, make up a greater share of the Massachusetts population; E) hospitals provide vast amounts of outpatient care; and F) higher wages in Massachusetts are associated with higher costs of living.

We distinguish between naming or identifying factors that are currently associated with part of the Massachusetts excess, on the one hand, and accepting these factors as durably appropriate and legitimate explanations of the excess, on the other hand.

Table 3 summarizes our estimates of the share of the Massachusetts hospital cost excess associated with each of these six factors in 1989. These estimates total \$1,203,440,000. The table also shows the dollar amount and percentage share of the excess that we consider appropriate and legitimate justifications for the long haul. We conclude that these factors are durably appropriate and legitimate justifications for a total of \$936,477,000 of the excess. (In Section V, we identify some \$349 million in offsets against these explanations.)

Such factors as service to out-of-state patients, biomedical research, and service to a Massachusetts population that is slightly older than the national average, clearly are durably appropriate and legitimate explanations of part of the excess. None of these represents waste or inappropriate care. But other factors, such as high rates of medical teaching and outpatient care by Massachusetts hospitals are very questionable justifications, in part, for reasons noted shortly.

Our work differs from that of the MHA in this regard. The MHA constantly asserts that the costs associated with high rates of medical training and hospital outpatient care are automatic and sufficient justifications for large shares of excess hospital costs in Massachusetts. But namining a cause should not require fatalistic resignation. We therefore take a further step, and analyze whether these factors are durably appropriate and legitimate justifications for high costs. Put another way, we go beyond diagnosing the current sources of the Massachusetts hospital cost excess by identifying which of the diagnoses warrant and permit treatment. We suggest a few therapies.

Table 3

**Summary of Six Conventional Sources of the \$1,750,028,000 Gross Excess in Massachusetts Hospital Costs, HFY 1989**

<u>Possible Sources</u>	<u>share (\$000)</u>	<u>legitimate source of excess (\$000)</u>	<u>percent legitimate</u>
patient importing, net	\$100,000	\$100,000	100%
research	234,386	234,386	100
training	280,230	140,115	50
more older citizens	98,182	98,182	100
OPD/ER care	220,518	147,695	67
higher wages	270,124	216,099	80
Total	\$1,203,440	\$936,477	78

**Note:** The "share" column indicates the current sum associated with this possible source of the Massachusetts excess. The "legitimate source of excess" column indicates the sums that we conclude are appropriate and legitimate long-term sources of the 1989 Massachusetts excess. (While sources of today's excess that are not deemed legitimate would be hard to change immediately, they are amenable to reform if we decide we cannot continue to afford them.)

**A note on methods.** We treat each of the six factors systematically: first, by analyzing the dollar amount of the excess associated with that factor; and second, by offering our judgment of the proportion of that dollar amount that is durably legitimate and appropriate.

Throughout, we have tried to be as precise as the available data permit in estimating the size of current sources of the Massachusetts excess. We have also described the

methods and assumptions underlying each step in calculating the dollar share of the excess associated with a given factor. In this way, those with alternative viewpoints can come forward and offer their alternative assumptions and quantitative evidence.

We value each factor's share of the excess at national average hospital costs. The alternative, to use Massachusetts costs, would allow our state's high costs to justify and explain away much of themselves. (Some double-counting remains possible, however, to the extent that some of the six factors overlap.) See the specific applications of this approach to factors like service to out-of-state patients for additional explanation.

Clearly, any estimate of the legitimate percent of the excess cost associated with each factor is partly a matter of judgment. We have tried to be generous in considering a large share of the medical teaching and outpatient factors as durably appropriate and legitimate. Others will doubtless disagree, some asserting that all of the excess associated with these two factors is durably appropriate and legitimate and others asserting that none is. As elsewhere in this document, we aim to begin to quantify elements of the Massachusetts excess that previously had been dismissed or rationalized by vague assertions and benign-seeming polemics. Continued explorations of the size of each element will yield better estimates and more informed public decisions. But the estimates of the size of the unexplained Massachusetts hospital cost excess that follow are large and robust enough to support *immediate* steps to slow hospital cost increases and to divert some of the savings to financing health care for all.

We now analyze the six conventional explanations of excess Massachusetts hospital costs offered by the MHA.

#### **A. Importing patients/exporting services**

*Estimated excess costs associated with this factor: \$100 million.*

*Durably legitimate and appropriate share: \$100 million (100 percent).*

There is no question but that net service to patients from out-of-state appropriately and legitimately explains some share of excess Massachusetts hospital costs. We estimate this share at \$100 million.

In Section II, we calculated that Massachusetts hospitals earned \$242 million in revenue on service to patients residing out of the state. But this *revenue* figure substantially overstates out-of-staters' share of the Massachusetts *cost* excess.

When considering net service to patients from out-of-state as a possible explanation of hospital costs, it is necessary to take three steps. The first step is to assume that the \$242 million in revenues from net service to out-of-state patients is associated with \$242 million in average cost in Massachusetts. This is reasonable

because total hospital cost and total revenue were almost identical here in 1989. (See Section V-A.)

The second step is to value the \$242 million at the United States average cost--not at Massachusetts cost. This reflects our view that the costs of all services provided in Massachusetts in hospital fiscal year 1989 inevitably are increased by many factors. In serving patients from out-of-state, we incur additional costs, but those costs are themselves inflated by others of the six factors considered in this section (research, training, and higher wages, for example). Thus, to isolate the added costs associated with out-of-state patients themselves, we must avoid double-counting the effects of other factors that are considered independently. Therefore, the second step is to deflate the existing estimate, thus far valued in Massachusetts costs, to an estimated grounded in average United States hospital costs. Doing so yields a deflated average cost of this care of \$200 million.<sup>37</sup>

The third step is to estimate the incremental (that is, marginal or variable) cost of actually caring for net patients from out-of-state. (Fixed costs, by contrast, would persist even if the out-of-state patients were not served here.) Patients from out-of-state make up so small a share of the discharges from the great majority of Massachusetts hospitals that it is probably reasonable to estimate variable costs at half of the total. Assuming the total cost estimated above of \$200 million, incremental cost is only \$100 million. This, then, is the net cost associated with serving patients from out-of-state. It is the fair estimate of the cost that would go away if the net flow of patients from out-of-state were to drop to zero.

## **B. Medical research**

*Estimated excess costs associated with this factor: \$234 million.*

*Durably legitimate and appropriate share: \$234 million (100 percent).*

We estimate the share of the \$1.75 billion Massachusetts excess associated with NIH-funded research at \$234,386,000, and consider that full amount durably appropriate and legitimate.

To estimate the share of the total excess in Massachusetts hospital spending associated with our hospitals' success in winning National Institutes of Health funds, we included all NIH funds (research grants, research and development contracts, and grants for training, construction, and medical libraries) awarded to hospitals.<sup>38</sup>

In hospital fiscal year 1989, Massachusetts hospitals received \$250,538,368 from NIH, or \$42.41 per citizen. This compares to a national average of \$2.73 per citizen. Had Massachusetts hospitals garnered NIH funds at the national average, they would have received only \$16,126,000. Thus, the differential cost of NIH-funded research in HFY 1989 is estimated at \$234,386,000.

This rests on the assumption that the cost of all such research has been reported to the American Hospital Association as part of hospital expenditures. To the extent that NIH-funded research is not included in reports of total hospital expenditures to the AHA, this estimate over-corrects; it assigns an excessive share of the Massachusetts excess to NIH-funded research. Offsetting this possible over-correction is our inability to include any research funded by sources other than NIH that hospitals might have included in their reports of total expenses to the American Hospital Association. Such sources do tend typically to be less important.<sup>39</sup>

We reviewed the 1989 Medicare Cost Reports for hospitals receiving NIH research grants. We found a highly varied pattern of reporting grant revenues and expenditures, one that makes it impossible to assess systematically the ways in which hospitals treat NIH and presumably other grant and contract revenues and expenditures. Nonetheless, assuming that all this cost is reported to the American Hospital Association as part of hospital expenditures, and that therefore no adjustment in this estimate is necessary, NIH-funded research should be considered an appropriate and legitimate explanation of \$234,386,000 of the Massachusetts excess. (It would be useful to prepare a systematic accounting of the research grants and contracts awarded to health care organizations in Massachusetts, to divide these between hospitals and other organizations, and to learn which of these are reported to the AHA. This would improve the accuracy of estimates of the total share of the Massachusetts hospital cost excess associated with research.)

Massachusetts leads the nation in total NIH dollars per capita at \$106.58, about four times the national average. (Maryland is in second place at \$96.73 per capita.) What is most striking here is the high share of Massachusetts NIH funds that are awarded to hospitals; here we are about fifteen times the national average, as just noted. In other states, universities, medical schools, and other entities are much more important as recipients of NIH funds. In Massachusetts, hospitals have established themselves historically as the parties able to apply for NIH funds. This speaks to the relative power of Massachusetts hospitals, on one hand, and their affiliated medical schools, on the other.

It may be unwise to expect our state to persist in securing so high a share of NIH research dollars. Medical research capacity is steadily diffusing more evenly into many parts of the nation, as institutions elsewhere expand. As noted in Section II, the Massachusetts share of NIH-funded research is very slightly below the level of the mid-1980s. If NIH research funds are capped or even fall in real dollars, can Massachusetts continue to win a disproportionate share of these funds?

### C. Teaching/training

*Estimated excess costs associated with this factor: \$280 million.*

*Durably legitimate and appropriate share: \$140 million (50 percent).*

We estimate the total cost associated with Massachusetts hospitals' disproportionate training of medical residents at \$280,230,000 in HFY 1989. But how much of this is a legitimate and appropriate long-term justification for high hospital costs here? We conclude, for reasons discussed shortly, that half of the total disproportionate cost, or \$140 million, could be considered legitimate and appropriate for the long-term. Note that this applies only to half of the excess over the national average level of training.

The decision to train a great number of residents in Massachusetts hospitals reveals a choice by those hospitals and by their associated medical schools, not something inevitable or inherently natural in itself. Most of the cost of residency training is paid by Massachusetts workers and employers and taxpayers. Yet most of the residents trained here practice elsewhere.<sup>40</sup> Decisions are made to train physicians in hospitals. Costs are passed on to all of us through higher health insurance premiums. This is very close to taxation without representation, and it is especially troubling if too few of the right physicians are being trained and if very concentrated training in Boston helps to engender elaborate patterns of practice.

Therefore, the first question concerning Massachusetts hospitals' decisions to train physicians in numbers far in excess of those needed to practice here is, Who should pay for the training? Arguably, it is no more fair to require Massachusetts health insurance premium payors to finance the cost of training medical residents who ultimately practice in Oklahoma or California than it would be to require Massachusetts taxpayers to finance the graduate training of lawyers or bankers who work in those states.

The second question is, Does a concentration of medical training in Massachusetts hospitals, especially in Boston, help to push the overall pattern of care in teaching hospitals in elaborate and expensive directions? Does a concentration of competing teaching hospitals help lead to expensive duplication of services? Does the supply of esoteric and costly services, in which our large numbers of teaching hospitals and their physicians specialize, exceed the need? Do some patients admitted to teaching hospitals for relatively routine problems receive a richer pattern of care than they need because this is the pattern of care that those hospitals offer? It may be that too great a concentration of tertiary teaching hospitals in a community is *bad in itself* to the extent that it crowds out less costly and less esoteric services and the caregivers who might provide them. Thus, a concentration of teaching hospitals can be costly to a community, in the way that a concentration of computer manufacturing is not.

Similarly, are there spillover effects, such that patients admitted to teaching hospitals with *routine* problems receive more services than are clinically appropriate, or such

that teaching hospitals' styles or levels of clinical service-- medical culture-- inappropriately color what physicians do at other hospitals?

A strong argument could be made that no disproportionate cost of training physicians should be allowed to burden health insurance premium-payers here, and that national financing of physician training is the only appropriate method. While it might be proper and affordable for Massachusetts to continue to train more than its fair share of the nation's physicians, we assert that it is inappropriate for Massachusetts health insurance premium payors to continue to underwrite so great a share of the cost of training. We conclude, perhaps conservatively, that half of the 1989 disproportionate cost of medical training in Massachusetts, or \$140,115,000, is appropriate and legitimate as an explanation of excessive Massachusetts hospital costs, and that the other half is not.<sup>41</sup> Note that this is not necessarily to assert that half of the residency training in Massachusetts is inappropriate. This half of the *excess cost* of training, above the national average, should certainly not be financed with in-state funds. The further question of the extent to which concentrations of residents in competing teaching hospitals distort Massachusetts hospital care in inappropriately elaborate directions must be addressed, to inform a decision about the level of training that is tolerable in this state.

The MHA asserts that heavy reliance on teaching hospitals for care explains much of our state's high cost. Is this true and, if so, is it appropriate and acceptable? The studies of Wennberg and his colleagues, cited elsewhere, suggest that teaching, *in itself*, is neither an important nor a legitimate justification for high costs, since New Haven relies very heavily on teaching hospitals yet its hospital care is only half as costly as Boston's.

What is the cost of teaching, itself, in Massachusetts hospitals? Hospitals bear costs in training both residents and medical students. The latter are very difficult to quantify. In HFY 1989, Massachusetts hospitals employed 3,955 medical and dental residents, or 67.0 per 100,000 citizens, a rate 255.0 percent as high as the national average of 26.3 residents per 100,000 citizens. If Massachusetts hospitals trained residents at the national rate, we would have had 1,554 residents, or 2,401 fewer than were employed in our hospitals in HFY 1989.

According to HFY 1989 data from the Council of Teaching Hospitals of the American Association of Medical Colleges, the total allowable graduate medical education expense (for stipends and benefits, organization costs for office space and administration, and allocated overheads) per full-time resident averaged \$63,450 nationally.<sup>42</sup> This sum, multiplied by the excess of 2,401 residents in Massachusetts hospitals, yields a product of \$152,343,450-- the direct costs associated with the high rate of training of residents by Massachusetts hospitals.

But there are indirect costs associated with training residents as well. These include the extra tests, extra time of workers, and other resources devoted to supporting training. Medicare's Prospective Payment System aims to compensate hospitals for the share of indirect costs of medical education associated with service to

Medicare patients. Medicare increases DRG payments by a factor that rises with hospitals' ratio of residents to beds. Using methods paralleling those of the Prospective Payment System, and relying on the difference between our state's indirect medical education payments' share of PPS payments and the nation's, we calculate total indirect cost associated with excess graduate medical education in Massachusetts at \$127,886,550.<sup>43</sup>

Thus, the total cost of excess teaching in Massachusetts is the direct cost estimate of \$152,343,450 plus the indirect cost estimate of \$127,886,550, or \$280,230,000.

These analyses may be allowing teaching to explain away or justify too great a share of the Massachusetts excess. If our hospitals did not employ residents, they would arguably need other physicians to provide care. These would probably need to be salaried or other physicians employed by the hospital, since few hospitals are likely under current circumstances to extract substantial increases in voluntary effort from their privately practicing attending physicians. Since residents are asserted to be "cheap labor," the cost of the non-resident alternative would probably be greater than the current cost of giving the type and level of inpatient care now provided in tertiary hospitals in Massachusetts. This is probably not a factor worth considering independently here, since it is so clearly tied to the high costs of patient care that seem to be associated with concentrations of competing teaching hospitals.

Reductions in residency positions in Massachusetts hospitals could save money for all of us who pay for health insurance in our state. But there is more. If it is true that the United States is in danger of training too many physicians, and particularly if too many of our physicians-in-training are specialists, cuts in residency positions by Massachusetts hospitals (if performed thoughtfully and selectively) could benefit the nation as a whole. Both our hospitals and those who design our formulas for paying teaching hospitals have some obligations to act as trustees for citizens of Massachusetts and other states who will be served by the physicians trained here.

We could complement reduced specialist training with increased training of primary care physicians. In-state funds already available could help to finance residency training for the primary care and other physicians our state and other states need. The current requirement to re-write Massachusetts statutes governing hospital payment provides an opportunity to do just this. Many parties contemplate calibrating basic hospital payments to a case mix-adjusted cost per discharge, with additions for teaching, community service, and other factors. If so, the teaching add-on could be proportional to the share of the residents being trained for primary care. It would also be possible to put a ceiling on the funds raised in Massachusetts that could be added to basic hospital payments to finance residency training.

#### **D. A greater proportion of older patients**

*Estimated excess costs associated with this factor: \$98 million.*

*Durably legitimate and appropriate share: \$98 million (100 percent).*

We estimate that \$98,182,080 is the share of the Massachusetts excess in hospital spending that is associated with care to a population that is slightly older than the national population. We conclude that all of this sum is a durably legitimate and appropriate explanation of higher hospital costs in Massachusetts.

Here is how we made this estimate. About 814,000 Massachusetts residents were aged 65 and above in 1989, or 13.8 percent of the total, compared with 12.5 percent nationally.<sup>44</sup> Massachusetts ranked eleventh among the states. If the Massachusetts elderly population were 12.5 percent of our total (no different from the nation as a whole), we would have had about 739,000 citizens aged 65 and above, a difference of 76,000. What is the estimated cost of hospital care associated with these 76,000 citizens aged over 65 rather than under 65? This has been calculated by computing the cost of serving 76,000 typical people aged 65 and above, and then subtracting the cost of serving 76,000 typical people aged under 65.<sup>45</sup> (Once again, this cost is valued at the national average, to avoid double-counting.)

The meaning of a slightly older population of Massachusetts for hospital costs demands closer scrutiny. Yes, Massachusetts is a bit "older" than the nation, and our state's hospital costs are higher. But residents of the United States are appreciably younger than those of the nineteen OECD nations considered earlier, which provide care to all yet spend less. The 1987 United States percentage of the population aged 65 and above (12.3 percent) was one full percentage point below the average of the nineteen.<sup>46</sup> In 1987, thirteen of these nations exceeded the United States in the share of their populations aged 65 and above. Only six were lower.

A final point worth considering here is that many older persons counted as residents of Massachusetts may well be out-of-state for much of the year, especially in winter months. Having earned above-average incomes, and facing below-average winter temperatures, retired residents of Massachusetts may spend disproportionately large shares of their time elsewhere. The population estimates, for 1 July of each year, may therefore over-state the average monthly number of persons aged 65 and over who reside in the state, and therefore their share of the year-round population using hospitals.

## E. Outpatient and emergency room care

*Estimated excess costs associated with this factor: \$221 million.*

*Durably legitimate and appropriate share: \$147 million (67 percent).*

As noted in our September 1990 report, Massachusetts hospitals provide much more outpatient and emergency room care per citizen than hospitals nationally. We have calculated that \$220,518,310 in higher revenues for hospital care were associated with this excess in HFY 1989. It may be that this differential is appropriate today because ready alternatives are lacking.

Some might argue that little or none of the differential is a durably legitimate and appropriate justification for high costs. We conclude that a substantial share-- perhaps one-third-- is not justified in the long-term because, as noted shortly, hospitals are costly sites for providing physician services, even after controlling for patient characteristics. Note, again, that this applies only to one-third of the excess over national levels of reliance on outpatient departments and emergency rooms. The remaining sum, \$147 million, is our estimate of the share of the Massachusetts excess that is durably, legitimately, and appropriately associated with high reliance on hospitals for outpatient department and emergency room care.

We calculated the base cost of \$221 million first by learning the outpatient/emergency share of hospital gross revenues nationally (21.3 percent) and in Massachusetts (26.3 percent) in hospital fiscal year 1989<sup>47</sup>; second by multiplying the difference in these shares (5.0 percentage points) by the United States average hospital cost per person of \$746.67; and third by multiplying this product by the Massachusetts population. This is the gross sum associated with the differential reliance on Massachusetts hospitals for ambulatory care.

It is not surprising to find that a share of excess Massachusetts hospital costs is associated with heavy reliance on hospitals for emergency room and other outpatient care. In hospital fiscal year 1989, Massachusetts was again first in the nation in total outpatient visits per capita, providing over ten million patient encounters, or 1,717 for every 1,000 residents (almost two per person), a rate 48.8 percent above the national average.<sup>48</sup>

Indeed, use of outpatient department care at hospitals has soared under provisions of Chapter 23, the 1988 universal health insurance law.<sup>49</sup> These mean that hospitals are now paid at 100 percent of average cost for increased outpatient department or emergency room visits (and they lose 100 percent of average cost if the number of visits drops). This is well in excess of the marginal or incremental costs of such care, resulting in substantial revenue gain for hospitals that increase volume. This is an absurd financial incentive to provide more ambulatory care in the most costly setting.

Once again, diagnosing one source of the cost problem does not diminish the

problem. The legitimacy of high rates of visits to outpatient departments and emergency rooms as justifications of excess costs depends on whether we consider those rates to be clinically and financially appropriate. The underlying problem remains that hospitals are costly-- and often medically second-best-- sites to provide ambulatory care, especially primary care.

**Why so much hospital outpatient care?** Hospitals fill a vital need when they provide outpatient and emergency room care. These patients might otherwise go unserved.

But why do residents of Massachusetts rely so heavily on costly ambulatory care provided in hospitals? The answer to this question bears on the durable legitimacy and appropriateness of today's high rates of outpatient department and emergency room use.

One explanation might be that patients prefer hospital-based care. A second might be that more Massachusetts physicians simply locate their offices in hospitals or their outpatient departments or provide care under hospital licenses. This includes one-half or more of care provided by community health centers, because many operate under hospital licenses. We estimate from data provided by the Massachusetts League of Community Health Centers that centers operating under hospital licenses provided roughly 475,000 medical visits and roughly 800,000 total visits in hospital fiscal year 1989, or 4.7 to 7.9 percent of the more than ten million visits to Massachusetts hospitals' outpatient departments and emergency rooms in that year. On 1 January 1988, according to American Medical Association data, 11.5 percent of Massachusetts patient care physicians were hospital-based, compared with 10.3 percent nationally. This amounts to a differential of 190 more Massachusetts physicians practicing on hospitals' staffs than would have been the case had national rates prevailed here.<sup>50</sup>

A third possible explanation might be that physician care is in short supply outside the hospital, but this is clearly not the case. On 1 January 1987, Massachusetts led the nation in physicians per capita, and has 46.0 percent more active physicians per 100,000 citizens than the national average and 38.0 percent more patient care physicians.<sup>51</sup>

A fourth might be that Massachusetts physicians are over-specialized, so we therefore lack enough primary care physicians. Although Massachusetts was lowest in the nation in primary care physicians' percentage of all patient care physicians (31.2 percent--meaning that almost seventy percent of our physicians were specialists), we were nonetheless fourth-highest in the nation in the number of primary care patient care physicians per 100,000 citizens, 21.4 percent above the national average.<sup>52</sup> And this is what matters.

One caution: internists are considered primary care physicians here, but many are actually sub-specialists. The share of internists who are sub-specialists may well be greater in Massachusetts than in most other states.

Possibly, the pattern of financing and organizing hospital and physician care in the Commonwealth has evolved to undermine much of the well-distributed network of office-based physicians in primary care like those who apparently provide more services in other states. Some possible explanations include fees that discriminate against primary care physicians; primary care physician reluctance or unwillingness to practice in some communities; teaching hospital dominance of urban medical care, depriving potential urban primary care physicians of both a sufficient base of well-insured patients and a community hospital offering admitting privileges-- coupled with some teaching hospitals' denial of admitting privileges to health center and other physicians; and a general devaluing of office-based primary care associated with teaching hospital dominance. These forces could interact. A pattern of heavy reliance on hospitals for physician services can emerge; once present, it can make it hard for newly-trained physicians to compete with hospitals.

As a result of these forces, some patients are obliged disproportionately to rely on hospitals for outpatient and emergency room care. This seems particularly true of lower-income, minority, or uninsured patients who lack routine and steady access to a family physician. In a study of one Boston emergency room, Curry and his colleagues found that Medicaid patients were the likeliest to report their usual source of medical care as a hospital ER or outpatient department.<sup>53</sup> This suggests that at least some substantial share of our state's high rates of reliance on the hospital does not reflect patient choice. (Also, reducing potentially high Medicaid costs for ambulatory services requires expanding Medicaid patients' access to alternative sources of care. Many people protected by Medicaid may now have no choice but to seek health care from inherently expensive caregivers.) The MHA itself notes that "the reliance of inner city [populations] on hospital-based ambulatory care is often a response to an absence of primary care alternatives."<sup>54</sup>

All this is especially surprising since a very large share of Massachusetts residents belong to health maintenance organizations (HMOs). On 1 January 1990, Massachusetts ranked second among the states, with 25.1 percent of its citizens enrolled in HMOs.<sup>55</sup> Given many HMOs' requirements that members seek prior approval for non-emergency visits to hospitals, those members can be expected to make relatively few such visits. Thus, the rate of emergency room/outpatient department visits by the rest of the state's residents is astonishingly high.

**Medical inappropriateness and cost.** Heavy reliance on emergency rooms for non-acute episodes has been criticized by some as medically inappropriate and as costly.<sup>56</sup> An emergency room visit for non-acute care is much better than no care, but clearly inferior to genuine, continuous, and coordinated primary care. In most cases, reliance on hospital outpatient departments for primary care is also medically inferior to more coordinated and continuous primary care. In most hospital emergency rooms and many or most outpatient departments (excepting those organized as physician offices), the patient seldom sees the same physician twice. Care is often chaotic and medical records incomplete.

Considering total costs, complaints about over-reliance on hospital emergency rooms on cost grounds are somewhat overstated because the marginal or incremental cost of a non-emergent emergency room visit (when the patient waits until a physician is available) is only a small fraction of the charge. But from the standpoint of an individual payor, such as Medicaid, the financial burden can be substantial. One useful reform in this area would be to pay for outpatient department and emergency room care in ways that recognize the difference between marginal and average cost, and that therefore make hospitals financially neutral regarding the volume of such care they provide.

Despite the MHA's assertion that they benefit from economies of scale, hospital outpatient departments remain costly sites for ambulatory care, even after controlling for differences in patient characteristics. In 1983, Lion and her colleagues compared the cost of a visit for hypertension at the office of a general practitioner in a small private practice and to an internist at a hospital OPD. They estimated the total costs at \$32.74 and \$93.71, respectively-- a 286 percent differential. Disaggregating the total, they estimated that the cost of physician time in the OPD was about 70 percent higher, the facility costs in the OPD were about 150 percent higher, and the cost of tests in the OPD were about 450 percent higher.<sup>57</sup> These disparities were not justified by differences in patient need as measured by case mix.<sup>58</sup>

For these medical and financial reasons, continued heavy reliance on in-hospital provision of outpatient and emergency care, particularly of primary care, does not seem to be medically or financially justifiable. It is a choice that local conditions may originally have made a necessary second-best.

One element of more affordable health care in Massachusetts must be reduced reliance on hospitals for direct delivery of primary care unless its cost can be kept low, and increased provision in more affordable settings, such as small group practices, health centers, and the like. With the right leadership and motivation, many hospitals can and should play a leading or cooperative role in organizing or sponsoring these more affordable patterns of care in and for the communities they serve, and they and their physicians should be paid fairly and fully for the incremental costs of this effort.<sup>59</sup>

One vital step we could take in this direction would be to work to ensure that each citizen and family of the Commonwealth has a primary care physician they can reach conveniently by telephone, who can help to coordinate care and ensure its continuity over time. This would mean better medical care. And it would probably mean lower costs as well, if physicians are paid in ways that make them financially neutral in their clinical decisions, because a primary care physician who knows the patient well would be in a good position to reduce unnecessary diagnostic and therapeutic procedures.<sup>60</sup> All this amounts to nothing more than a return to a basic and simple form of "managed care."

It is unreasonable to say that heavy reliance on hospitals to provide ambulatory care makes part of our high hospital costs understandable and therefore acceptable. It is

wrong, for example, for the MHA to note and simply accept "the absence of primary care alternatives" to the hospital. It amounts to asserting that our state's health care can and should be saddled with this source of our high costs in perpetuity. Medically, it is often second-best. The bill is too high; we cannot afford it. There are alternatives; we don't have to continue paying it.

## **F. Higher wages and benefits**

*Estimated excess costs associated with this factor: \$270 million.*

*Durably legitimate and appropriate share: \$216 million (80 percent).*

In hospital fiscal year 1989, \$270,124,275 of the excess in Massachusetts hospital costs was associated with higher wages and benefits here. We estimate that 80 percent of this, or \$216,099,420, is the effect of wages and benefits themselves, with the remainder reflecting differences in the make-up of the hospital work force and short-term labor market conditions. We conclude that higher wages and benefits here are a legitimate and appropriate explanation of \$216 million of the Massachusetts excess.

We calculated the gross cost of higher wages and benefits here by taking the difference between Massachusetts and United States wages and fringe benefits per full time equivalent hospital worker (\$33,109 minus \$29,681 equals \$3,428 per worker) and multiplying it by the number of workers (78,799) that would have been employed in Massachusetts hospitals had they hired workers at the national rate of 13.34 hospital workers per 1000 citizens.<sup>61</sup> We use the national rate once again, to avoid double-counting the effects of other factors-- such as research, training, or heavy reliance on hospitals for out-patient care-- on excess costs.

Massachusetts hospital workers' actual wages and benefits in 1989 were 11.5 percent above the national level, more than double the average difference between the state and national figures that prevailed in the rest of the 1980s. This is attributable in part to recent rapid Massachusetts wage increases, which were in part associated with the nursing shortage, and in part with Chapter 23's deliberate policy of generous hospital revenue increases. But how much did the shortage itself reflect low wages and how much did it reflect an unusual or inappropriately high level of demand by hospitals for nurses?<sup>62</sup>

Between 1980 and 1988, Massachusetts hospital workers' wages and benefits averaged 5.5 percent above the national level. How much of this reflected higher costs of living here, and how much a more highly-trained hospital work force? It seems likely that some of each was involved. Massachusetts costs of living, on average, do seem to be above the national average. And Massachusetts hospitals do seem to employ more highly-trained workers.<sup>63</sup>

For these reasons, we conclude that perhaps 20 percent of the gross differential between Massachusetts and United States hospital wages is associated with a more skilled labor force in Massachusetts and with temporary labor market conditions that led to 1989 Massachusetts average wages per FTE that exceeded the national average by twice as much as prevailed between 1980 and 1988. We are not calling for actions to hold down wage increases here. Rather, we are predicting that Massachusetts wages are likely to revert to levels closer to the national average.

\* \* \*

**TO RECAPITULATE:** Out of the \$1.75 billion excess in Massachusetts acute hospital costs in HFY 1989, we estimate that \$936,477,000 is durably, legitimately, and appropriately explained by the six factors just examined (Table 2). This sum reflects a reduction in the explained share of the excess by \$266,963,000, those parts of the costs of training, outpatient and emergency room care, and higher wages that we did not consider legitimate and appropriate long-term explanations of excess Massachusetts hospital costs. We soon analyze excess hospital costs in ways that reflect both figures--the gross explained share of the excess, or \$1,203,440,000 (this includes the \$266,963,000) and the durably, legitimately, and appropriately explained share of the excess, or \$936,477,000.

## V. TWO REASONS WHY HOSPITAL COSTS SHOULD BE LOWER HERE

Two additional factors, low Massachusetts hospital financial margins and low case mix, work in the other direction. They should have made Massachusetts hospital costs per capita lower than the national average. Hospitals nationally enjoy *greater* financial margins and treat patients who are slightly *more* seriously ill, yet they cost less than Massachusetts hospitals. We would therefore expect both of these factors to act to depress hospital costs per capita in Massachusetts.

These two factors therefore act to *offset* the explained share of the Massachusetts excess associated with or justified by the six factors discussed in the preceding section.

### A. Low financial margins

In HFY 1989, Massachusetts acute hospitals collectively experienced an overall surplus of \$22.8 million and a total financial margin of 0.37 percent, compared to a total margin of 3.37 percent for all acute hospitals nationally.<sup>64</sup> Margins here have been low historically, antedating hospital rate regulation by decades. (These margins do not take into account activities of corporations apart from the hospital itself, nor do they embody

questions about the assumptions incorporated into hospitals' accounting practices.)

Assume for now that the MHA is correct in its assertions that our state's high hospital costs are entirely understandable and acceptable. Further assume for now that hospitals' margins nationally represent an appropriate level of financial surplus, one sufficient to generate replacement capital and the like. Reaching this 3.37 percent margin in our state would therefore require higher payments to hospitals. If we had boosted Massachusetts hospitals' revenues to levels sufficient for them to enjoy total margins at the national average in HFY 1989, their revenues would have risen by \$185,503,000. This sum, roughly equal to that by which costs would have had to have been lowered to obtain the same margin, therefore represents an offset against the six factors that help legitimately and appropriately to explain the Massachusetts excess.

We do not assert that, in practice, hospital revenues should be raised to improve margins. There are several reasons. Margins may poorly register hospitals' actual financial conditions. The usual needs cited for earning surpluses-- preservation or improvement of capital-- can be better addressed by direct public financing of capital spending, leaving hospitals to finance only operating costs from annual budgets. And if higher margins were thought socially desirable for some reason, the best way to achieve them would be by lowering costs.

## **B. Low case mix**

Surprisingly, it appears that Massachusetts hospitals' Medicare patients were less seriously ill, on average, than Medicare patients admitted elsewhere in the nation, in the latest year for which data were available. This is hardly in line with most people's understanding of the performance of our state's hospitals.

Despite its many problems, Medicare's DRG case mix index is probably the best way to compare case mix differences across states. In HFY 1988, the Massachusetts median case mix index was 1.165, or 2.66 percent below the national median of 1.196.<sup>65</sup> Assuming that this ratio holds across all hospital care and for hospital fiscal year 1989, Massachusetts hospitals' costs should be inflated by 2.66 percent to put them on a par with those of the nation as a whole. This sum, \$163,872,173 (\$6,160,608,000 in total expenses multiplied by 2.66 percent), is a second offset against the factors that help to explain the Massachusetts excess.

It is worth noting that the Massachusetts DRG case mix does seem to fluctuate slightly above and below the national average. But for the three years, 1986 through 1988, for which we have data, there was a steady fall in the Massachusetts Medicare case mix index relative to the national average.<sup>66</sup> Although the causes of the lower case mix index have not yet been studied, it may be that the declining intensity of the Massachusetts case mix is associated with the rising rate of admissions here. An increase in

admissions to Massachusetts hospitals in 1989, when admission rates were declining nationally, could point to an even larger differential between Massachusetts and national case mix indices in that year.

<u>Sum of the two offsets:</u>	
low financial margins	\$185,503,000
low case mix	\$163,872,173
<u>total</u>	<u>\$349,375,173</u>

## VI. WHAT SHARE OF THE \$1.75 BILLION EXCESS IS EXPLAINED?

The share of excess Massachusetts hospital costs associated with the six durably legitimate and appropriate explanations, \$936,477,000, must be reduced by the \$349,375,173 associated with the two offsets just analyzed. Thus, the net explained share of the Massachusetts excess is:

legitimately and appropriately explained share	\$936,477,000
minus low financial margin and case mix offsets	\$349,375,000
<u>net total explained share of excess</u>	<u>\$587,102,000</u>

The gross excess in Massachusetts hospital costs in hospital fiscal year 1989 was \$1,750,028,000. The net legitimately explained share of \$587,102,000 is only one-third of the gross excess (33.5 percent). This leaves fully \$1,162,926,000 unexplained-- substantially over \$1 billion, about \$200 per citizen, and almost one dollar in five expended on acute hospital care in the Commonwealth in 1989.

This information is summarized in Table 4. Figure 2 contrasts the explained and unexplained share of the \$1.75 billion excess, using the net explained share of \$587 million and the unexplained share of \$1,163 million, as just calculated. Figure 3 breaks out the six factors' proportions of the explained share. Note that the full circle in Figure 3 represents the explained share only.

Table 4

### Summary of Analyses of the 1989 Massachusetts Hospital Cost Excess

1. Massachusetts gross hospital cost excess, HFY 1989	\$1,750,028,000
2. Minus the net explained share of the excess, which is the difference between	

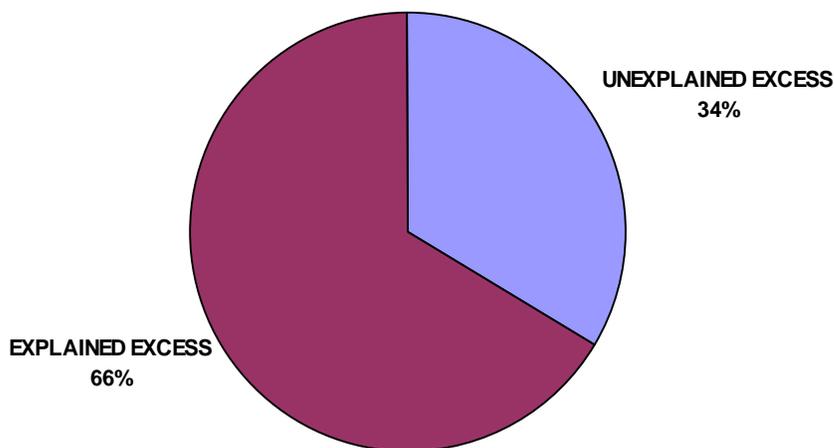
-- the share of the excess that is durably and legitimately explained by the six factors ( \$936,477,000 )

-- and the offsets associated with low profit margin and low case mix \$349,375,000

( \$587,102,000 )

3. Equals the net unexplained hospital cost excess \$1,162,926,000

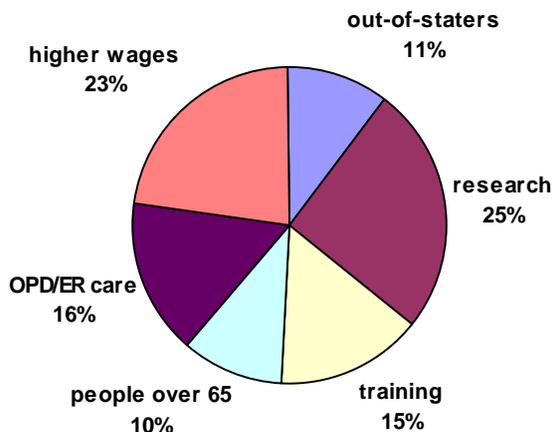
Figure 2  
**DURABLY AND LEGITIMATELY EXPLAINED SHARE OF THE EXCESS,  
 CONTRASTED WITH UNEXPLAINED SHARE OF EXCESS,  
 HOSPITAL FISCAL YEAR 1989**



For those who question our assessment of the share of the Massachusetts excess that is durably, legitimately, and appropriately explained by medical training, heavy reliance on outpatient departments and emergency rooms, and higher wages, we have also calculated the unexplained share of the Massachusetts excess without introducing those considerations of durable legitimacy. The gross excess in hospital costs associated with these six factors was \$1,203,440,000 (Table 3). Reduce this by the low financial margin and low case mix offsets totaling \$349,375,000. The "explained" share then rises to a net of \$854,065,000, still less than one-half (48.8 percent) of the Massachusetts excess. This leaves fully \$895,963,000 entirely unexplained, or one dollar in seven expended on acute hospital care in the Commonwealth in 1989.

\* \* \*

Figure 3  
COMPARATIVE IMPORTANCE OF THE DURABLY LEGITIMATE SOURCES OF  
EXCESS HOSPITAL COSTS IN MASSACHUSETTS



**IN SUMMARY:** \$1,163,000,000 (66.5 percent) of the 1989 excess Massachusetts hospital spending and almost one hospital dollar in five remains durably unexplained by any of the factors we have considered. Similarly, \$896,000,000 (51.2 percent) of the excess is currently unexplained. What other factors could explain these sums?

## VII. ELABORATE AND COSTLY PATTERNS OF PRACTICE

Possibly, one way to make sense of a substantial share of this huge unexplained excess lies in how care is given in some, many, or most Massachusetts hospitals. The work of Wennberg and his colleagues strongly suggests that care in Boston hospitals has evolved to become more elaborate and expensive than either patient needs or the requirements of teaching and research would justify. If this is true, it becomes important to inquire whether such elaborate patterns prevail in some or all Boston teaching hospitals, whether they have spilled over to other teaching hospitals (particularly in Worcester and

Springfield), and whether they have also spilled over into non-teaching hospitals.

McClure has highlighted the importance of physicians' decisions in shaping patterns of care. He distinguished between aggressive and conservative medical cultures, one using a great deal of hospital and other resources, and the other much less. He hypothesized circumstances under which each could evolve. And he asserted the importance of medical culture in socializing physicians and perpetuating patterns of care. If, for various reasons, an aggressive, elaborate, and costly pattern of caregiving has arisen in some areas in Massachusetts, and if it is legitimated as the best practice in and by prestigious teaching hospitals and medical school-based physicians that have traditionally been insulated from cost considerations, it can spill over and shape medical practices in much of a state.

McClure has written of the circumstances under which physicians' practice styles could evolve in aggressive and elaborate directions. These include some of the characteristics prevailing in much of Massachusetts, particularly a high physician-to-population ratio.<sup>67</sup> McClure wrote further that good medical care is consistent with a wide range of rates of use of health services (and, by implication, with a wide range of rates of hospital spending per person). But-- other things equal-- why would one not prefer to obtain the same good care at the lowest possible cost? Conservative practice styles can win superior medical results. McClure and colleagues found that the high-quality care provided to the county served by the Mayo Clinic consumed relatively few resources. For example, the rate of hospital discharges was only about two-thirds the national average, and rates of surgery were well below the national average.

In effect, McClure asserted that physicians come to believe in the pattern that they practice. Thus, their tendency not to question that pattern is much like, say, the tendency of an Italian child waking up in Italy to refrain from questioning whether Italian is the proper language to speak.

If McClure is correct and if it is appropriate to apply his insights to Massachusetts, the cost of hospital care here-- and of probably other services as well-- could be reduced substantially without harming quality and effectiveness of care. But McClure's work also suggested that it is unreasonable to expect patterns of physician decisions to change unless the financial and non-financial forces that shape the culture of medical care themselves change-- or are deliberately changed.

Those who wish to dispute McClure's view need to offer credible alternative explanations of the sources of high Massachusetts costs.

The MHA persistently ignores one of the single most powerful examinations of the sources of high cost of hospital care in Massachusetts, the comparison of hospital costs for citizens of Boston with the costs for citizens of New Haven. This study by Wennberg, Freeman, and Culp is so important that its published summary is worth citing in full:

The populations of New Haven and Boston are demographically similar and receive most of their hospital care in university hospitals, but in 1982 their expenditures per head for inpatient care were \$451 and \$889, respectively. The 685 400 residents of Boston incurred about \$300 million more in hospital expenditures and used 739 more beds than they would have if the use rates for New Haven residents had applied. Most of the extra beds were invested in higher admission rates for medical conditions in which the decision to admit can be discretionary. The overall rates for major surgery were equal, but rates for some individual operations varied widely. These findings indicate that academic standards of care are compatible with widely varying patterns of practice and that medical care costs are not necessarily high in communities served largely by university hospitals. They also emphasise the need for increased attention to the outcome and cost implications of differences in practice styles.<sup>68</sup>

Thus, Boston's inpatient hospital costs per citizen were almost double-- 97.1 greater-- than those in New Haven. Wennberg and his colleagues considered only hospital service to residents of the two cities, excluding care to outsiders. Hospitals in both cities were very heavily invested in teaching and research. Health outcomes in the two cities seemed similar, and the follow-up study cited earlier found no differences in mortality rates among Medicare patients. This fits with the finding that much of the extra care in Boston was associated with higher admission rates for problems for which physicians tended to disagree about the need for hospitalization (the more discretionary decisions). Access to care seemed unaffected by New Haven's low costs. New Haven physicians did not report denying needed care.

All of these results suggest that Boston's high costs are not some *necessary* result of a commitment to high-quality hospital care, with heavy teaching and research components. Rather, our high costs seem more to be a consequence of choices about which patients to admit, and how to treat them. These findings undermine the credibility of those who assert that Boston's high costs are acceptable and appropriate, and the prices we must pay for high-quality care. Rather, we have a choice. The New Haven example means that we can choose to reshape our health care so that it remains superb but becomes more affordable. While Boston's residents required many more beds than would have been necessary had they used as much hospital care as New Haven residents, over-bedding does not seem to explain excessive Massachusetts costs. Indeed, our state's ratio of acute hospital beds per capita-- only 2.6 percent above the national level in 1982-- finally fell below the national average in 1989.<sup>69</sup>

It appears that care provided in Massachusetts hospitals is costly in large part for a number of reasons that manifest an aggressive and elaborate pattern of clinical practice: a rate of surgery more than 19 percent above the national average in 1989, a hospital staffing level that is 33.5 percent above the national average, and recently a rising rate of ad-

missions (arguably in large part a response to Chapter 23's financial incentives).<sup>70</sup> Rising rates of admissions and of surgery in Massachusetts do not alone signal inappropriate care. But there is strong cause for questioning them in light of the risk of iatrogenic harm and the demonstrated ability in other areas to provide high-quality and appropriate levels of care at lower rates of service and at lower cost.

**Implications for reform.** If the empirical findings of Wennberg and his colleagues are valid, and if the hypotheses of McClure are correct and applicable to much of Massachusetts medicine, then there are clear opportunities for reform. Once an aggressive and elaborate pattern of clinical practice is recognized as one of many choices, and once the likely sources of that pattern are understood, we can propose reforms that will yield equally good clinical results at lower cost.

In recent years, Massachusetts physicians have been making clinical decisions in light of a number of factors: methods of payment, training, community standards, fear of malpractice suits, a desire to do as much as possible for the patient, patient desires, and others. Hospitals have been making decisions that bear on costs in light of a number of different factors: methods of payment, physician desires or demands, prestige, desires to provide a wide variety of services, competitive motives aimed at winning out over other hospitals and increasing the institution's surplus, and others.

Hospitals, for example, pursue higher revenue and bigger surpluses in large part because they fear bankruptcy if they do not. Cost control is a more difficult short-term path to higher margins. Pursuit of higher revenue can appear at once easier and more exciting. Administrations at many hospitals question their abilities to control the bulk of their costs, because costs are influenced most heavily by physicians' decisions in diagnosing and treating patients. Hospitals that offend physicians by questioning their clinical decisions or by requesting more conservative patterns of practice risk losing admissions. Declining admissions harm a hospital drastically under current financing methods that take away sums equal to 100 percent of the hospital's average cost per admission when admissions decline. The drop in revenues thus greatly exceeds the drop in costs as admissions declines. The reverse is also true. Hospitals that gain admissions win new revenue well in excess of the associated cost of treating more patients. Hospitals therefore have incentives to provide more care. So do physicians, most of whom are still paid fee-for-service. Both parties adapt to their financial circumstances.

Many of these factors could lead to unnecessary care throughout the country. Why, then, is Massachusetts medicine apparently so elaborate? These practices could originate in a number of related elements:

-- a long-standing very high physician-to-population ratio (and high percentage of physicians trained as specialists) so there is a relative shortage of patients, perhaps leading physicians to do more for the average patient they see;

- a long-standing Blue Shield ban on balance billing, which can hold down physicians' effective total fees for individual services, perhaps again leading physicians to perform more services;
- evolving and generous methods of paying Massachusetts hospitals;
- a relatively well-insured population, often-- in the past-- with first-dollar coverage, perhaps lowering caregivers' reluctance to provide services of marginal value;
- the prestige of physicians and hospitals in Massachusetts, perhaps buttressing hospitals' revenues while quieting questions about costs of care;
- competition among densely packed tertiary teaching hospitals, perhaps multiplying both intensity of care and costly duplication of programs and capital; and
- the benign philanthropic tradition with which many hospitals and their associated physicians and medical schools are imbued, perhaps reducing hospitals' and physicians' proclivities to question what they are doing and why they are doing it.

Some of these elements, such as methods of paying hospitals, have been influenced strongly by hospitals themselves. But aspects of payment methods have come to have the effects of increasing costs while failing to satisfy many physicians and hospitals themselves. Improving the methods by which doctors and hospitals are paid offers one of the best opportunities to reform our state's costly pattern of clinical practice. It is much easier through state law to change methods of paying hospitals in Massachusetts than to alter physician compensation methods. In the next section, we propose some strategic reforms designed to exert leverage on this state's elaborate and costly pattern of hospital care. These reforms aim to refocus hospitals' efforts away from pursuing higher revenue and toward working with physicians to provide high-quality care at lower cost.

We think that raising out-of-pocket payments (reducing insurance coverage) is not an effective way to combat high cost even if relatively good insurance coverage played some role in the origin of an elaborate pattern of practice in Massachusetts. Patients are often not good judges of the care they need, and can be deterred from seeking needed care if they must pay more when sick. Higher out-of-pocket costs do more to shift costs to patients than to reduce inappropriate use. Skilled caregivers are in a far better position to take on the job of weeding out the care that is not needed. Payors will be more motivated to reform financing methods in ways that control health spending if they face the full, concentrated costs of caregivers' clinical decisions.

Some may assert that other factors, in addition to elaborate practice patterns, explain a share of the unjustified Massachusetts hospital cost excess. It has been suggested, for example, that an above-average proportion of the Massachusetts

population has some form of health insurance coverage, and that this may encourage or enable more people here to obtain needed services, raising hospital costs somewhat. Similarly, Massachusetts teaching and other hospitals may be more willing to serve the remaining numbers of uninsured people than is the case in other states, in part because some share of free care is financed through the Massachusetts uncompensated care pool.

While these suggestions seem reasonable, they do not seem to fit the facts on hospital admissions. Until very recently, hospital admissions per capita in Massachusetts were very close to the national average, even before adjusting for our state's slightly older population mix.<sup>71</sup> One would expect a of higher rate of admissions here if access were superior. Better access may be one reason for high rates of outpatient department and emergency room use in Massachusetts. But, if so, this has already been accounted for in the analysis of that source of the excess. Our estimate that fully two-thirds of the outpatient department and emergency room excess is legitimate is generous enough to cover any share of the excess associated with superior access.

#### **VIII. CAN ANYONE AFFORD TO CONTINUE BUSINESS AS USUAL?**

We call for a gradual but steady reduction in the rate of increase in state-wide payments to hospitals, and for a moderate redistribution of hospital revenues. Together with other reforms, these steps will make available funds adequate to provide high-quality and appropriate care to all in need and to keep open all needed hospitals-- without increasing the burden on people who pay for health care.

Constant pursuit of more money to allow hospitals to continue business as usual does not advance the long-term interests of most Massachusetts hospitals. It also harms those who pay for health care and those who need health care in the Commonwealth. Responsible hospital trustees and administrators, physicians, legislators, businesspeople, union leaders, access advocates, and others won't-- and can't-- accept the MHA's assertions that more money for business as usual is desirable or even possible.

Most of today's excess hospital spending in Massachusetts is not justified. Perhaps more important, those who pay for health care cannot sustain increases in hospital spending at rates double-- or more than double-- those for the state's economy as a whole. This is especially true when the level of hospital spending in Massachusetts is already so high. Recall our earlier calculations showing the doubling (from \$296 to \$593) in the dollar gap between Massachusetts and United States hospital costs per capita from 1989 to 1998, assuming identical annual percentage increases from 1989 on. High rates of increase in hospital spending were much more affordable in the past, when the hospital sector was a much smaller share of the state's economy. Then, large percentage increases translated into relatively small annual dollar increases.

Also, our state was able to tolerate costly annual increases in hospital spending during the 1980s in large part because personal incomes here were rising so fast as well. Personal income growth slowed dramatically between 1988 and 1989, perhaps further still between 1989 and 1990, and is likely to remain relatively low for several years. If hospital spending does not slow during the present recession, it will soar as a share of personal income in our state. As the hospital cost burden increases, both access to care and the state's economic climate will suffer.

Loss of access is a widely-held concern. While two-thirds of Americans, in one recent survey, said they were certain that their major health care costs would be taken care of today, fully three-fifths worry that their future health care costs will not be taken care of.<sup>72</sup>

If hospital spending continues to grow at rates well over general inflation, such that hospitals' share of GNP rises steadily, we will eventually reach a point at which all would agree that the share cannot rise further. Where is that point located? We believe it will soon be reached in Massachusetts. Regardless of the point's location, the sooner cost increases are modulated, the less disruptive the cost deceleration will prove.

We all have reason to worry. The Health Care Financing Administration has projected that health spending will rise to 15 percent of GNP by the year 2000 even if nothing is done to improve access to care.<sup>73</sup> Worse, the National Committee for Quality Health Care has estimated that United States health care spending will reach fully 17.5 percent of GNP in the year 2000 without changes in the current system.<sup>74</sup>

Consider the consequences if we continue to pay extraordinarily high increases in health and hospital costs, both nationally and especially in Massachusetts:

- the cost of insuring people who are today unprotected will continue to soar out of our financial reach;
- all levels of government will have more serious budget problems;
- more people will be unable to afford health care;
- more businesses will be unable to compete with their competitors elsewhere;
- more money will be drained away from other vital needs; and
- a chance to put our hospitals and health services on a durably affordable financial footing-- secure from financial destabilization and bankruptcy-- will vanish.

Slower increases in hospital spending are good because of what they allow us to

do with the savings. We need to recognize the trade-offs before us. Consider the seven major hospital capital projects now before the state's Public Health Council. Together, they would add between \$100 million and \$200 million to annual hospital costs in Massachusetts. For even \$100 million a year, we could, for example, secure 500 new primary care physicians, assuming a total cost per physician of \$200,000 per year (including malpractice and office support costs). When assured of hospital admitting privileges, these physicians would be sufficient to provide full primary care services to 1,000,000 under-served citizens of the Commonwealth. Does \$100 million for improved primary care seem an extravagant sum? It is less than one-fifth of the *increase* in hospital spending in the Commonwealth during fiscal year 1989. Hospital spending here increased by \$1.2 billion between 1987 and 1989 alone.

Today, money available to pay for new hospital capital is often not readily available for other purposes. But other ways can be identified to mobilize some of the existing excess in hospital spending to meet pressing primary care needs. For example, the private sector "Medicare shortfall payments" that were built into hospitals' rate base by Chapter 23 are providing Massachusetts hospitals with some \$63 million in revenue in the current hospital fiscal year.<sup>75</sup> AAMP analyses show that these payments are inefficiently and unfairly targeted and are virtually without justification. They should be suspended under the new hospital financing law to take effect 1 October 1991; the revenues associated with them should be placed directly in the state's uncompensated care pool and used to hire needed primary care physicians or for similar valuable purposes.

The MHA's argument, when the rhetoric is stripped away, is that very high health and hospital spending are good for Massachusetts. But if higher costs are not good for our state financially, and if they are not good for us medically, what good are they? In attempting to justify ever-higher hospital costs, the MHA is attending not to the public interest but to hospitals' short-term interests. This spares hospitals the pain of confronting physicians over those sources of high costs for which physicians may be responsible. It spares the MHA and hospitals the tough job of building a more equitable method of paying hospitals, one that supports all needed hospitals at a price our state's workers, employers, and taxpayers can afford.

Our conclusion that two-thirds of the Massachusetts excess is simply not durably legitimate and appropriate means that this money represents a chance to do better without harming quality of care and without increasing spending. It is money that can be used to entitle people who are uninsured today-- without increasing the burden on all who already pay such huge sums for health care. Also, the savings it represents can help keep health insurance affordable for workers and employers.

**Elements of incremental reform.** This report has aimed to analyze the sources of the Massachusetts hospital cost excess, not to propose detailed solutions. These will be forthcoming. For now, we offer a few suggested methods of interim reform that advance high-quality care for all citizens of Massachusetts while both slowing the rate of

increase in spending on hospitals and providing financial security for all needed institutions.

Unless Chapter 23's hospital financing provisions are extended beyond their 30 September 1991 termination date, a new law governing payment of hospitals will be drafted. It will seek ways of paying hospitals more fairly, of reducing the inter-hospital inequities that have persisted for too long. The outcome of the debate over this law will be vital to the future of Massachusetts health care. If the new law allows hospitals to continue business as usual, it will fuel hospitals' accelerating race straight toward the edge of the financial cliff that awaits them. If it slows hospital revenue growth in ways that give administrators and physicians greater tools to control costs while maintaining quality and improving access, it will be a durable blessing. The *Titanic* would have made port had it altered course a few degrees and slowed its speed at the right time.

State government, private employers, unions, and other groups that worry about soaring health costs have an enormous stake in this debate. Higher health costs drive up private insurance premiums, premiums for state government and municipal workers, and premiums for both workers compensation and auto insurance. As a recent Federal Reserve Bank of Boston report noted, "the driving force behind the rapid growth in Medicaid expenditures has been soaring medical costs..."<sup>76</sup> High costs also make fulfilling our state's commitment to universal access increasingly difficult to afford.

Payors can control costs effectively and responsibly only through joint action.

There is a clear need for state government to deal with the pressures driving up overall health costs. Without a coordinated strategy, cutting state government's health spending merely shifts costs to other payors or reduces the amounts of care available to state-insured patients.

One generation of cost control efforts has already failed. Hopes of controlling spending by closing hospitals or beds should be abandoned. Over 40 acute care hospitals-- disproportionately the less expensive ones-- have closed in Massachusetts since 1960. Our state's bed-to-population ratio has actually fallen below the national average. It should be assumed that all remaining acute care hospitals are needed unless proven otherwise because this would tend to protect access to care. Just as important, it focuses attention on the need to control costs with the scalpel of better clinical decisions and trade-offs, not with the chain saw of crude administrative actions.

The latest generation of efforts to slow cost growth through private techniques like managed care and competition has been winning one-time savings at best. Independent efforts by individual employers to manage their health costs seem to promise control, but this control is mainly an illusion. In Massachusetts, hospital cost increases have exceeded those nationally even though we are second in the nation in the share of the population enrolled in HMOs, as noted earlier. Perhaps the elaborate culture of Massachusetts medicine is imbued in managed care providers as well. Nationally, the U.S. Chamber of Commerce found that employee medical benefits' share of payroll rose from 8.0 percent in

1987 to 9.3 percent in 1989, an increase in share of 16.5 percent during only two years-- during a time of vigorous private cost control efforts.

The new hospital financing law could incorporate incremental methods-- methods that build on recent or existing Massachusetts regulation-- to control spending, simplify payments, give administrators better tools to control their own costs, increase fairness to hospitals, and improve access simultaneously. Annual hospital spending should be capped statewide, and allowed to grow only as fast, at most, as the market basket of goods and services that hospitals themselves purchase. (Safeguards against shifting costs outside the hospital need to be developed.) The unfair 1981 hospital cost base for setting individual hospitals' maximum allowable revenues should be abandoned. Statewide cost per discharge, adjusted for case mix, should become the standard of payment. Future changes in case mix intensity and volume would have to be absorbed under the annual statewide cap. Increments for training should be allowed, up to a maximum ratio between a hospital's residents and the number of patients it serves. Similarly, the payment formula should reward hospitals undertaking innovative or vital efforts to meet important health care needs of patients vulnerable to under-service.<sup>77</sup> This approach can be used to convert the bulk of hospitals' streams of revenues into the equivalent of an assured budget, sufficient to guarantee financial stability to a well-run hospital. Hospital trustees and administrators, physicians, and other parties would then need to work together to spend this money carefully.

This approach could be combined with specific provisions to encourage and oblige hospitals and physicians to find new ways of mobilizing *existing* resources to serve all of us well. One method of doing this would be to revive the productivity squeeze on hospital revenues of the early- to mid-1980s, but at one or two percent annually. (Improved productivity should be expected for two reasons: to match productivity gains in the national economy generally, and to squeeze some inappropriate care out of hospitals.)

The sums-- \$75 to \$150 million in annual increments-- could be placed in the uncompensated care pool and used to back "insurance cards" newly-issued to previously uninsured citizens of the Commonwealth. Were this strategy pursued for a few years, all currently uninsured residents could receive a pool-backed insurance card, enhancing up-front entitlement with dignity. To encourage equitable single-class care, all citizens might receive identical-appearing cards, as has been proposed in New York State.<sup>78</sup> Payors would cover the bills of their own insureds through a clearinghouse.

All this means a bigger uncompensated care pool *without* a higher surcharge on employers and workers. (Circumstances permitting, public funds might replace those raised through the productivity squeeze and the existing surcharge, perhaps as part of a phased set of reforms in health care financing.) The sums squeezed out of hospital revenues would be returned to the hospitals and other caregivers that increased service to previously uninsured citizens. If this route to universal access and cost control were pursued, hospitals and other caregivers could be held accountable for providing or-

ganizing all needed care for cardholders. They could be paid in ways that encourage provision of primary care in affordable, continuous, and coordinated settings.

These approaches to hospital payment reform, cost control, and universal access are neither regulatory nor competitive. Rather, they aim to introduce more and more elements of self-regulation into Massachusetts health care. The debate of recent years between competition and regulation advocates in health care is sterile. Both approaches have failed. Neither has recognized the need to neutralize clinicians' financial motives, so we can trust them to make clinical decisions in light only of patients' clinical needs and the total resources available to serve all patients. Without this financial base for trusting hospitals' and doctors' decisions, we will inevitably regulate more.

In the past, we reimbursed hospitals' costs and paid doctors' fees for their services. Both were motives to give more care. More care was given. Payors then tried to build in regulatory protections against too much care. Many payors lost hope that regulation could control costs, and have begun paying caregivers prospectively, and often "competitively," in ways that inevitably give caregivers financial temptations to provide less care. This just as inevitably prompts regulation to protect adequacy of care. This is absurd. It does nothing to control clinical costs responsibly, and multiplies administrative costs astronomically.

Because we have not paid hospitals and doctors in ways that allow us to trust them to spend our money carefully, we have tried to regulate and manage their clinical decisions in detail. It is sometimes said that only one nation has "socialized medicine"-- the United States. Only here are doctors and hospitals so mistrusted that their individual clinical decisions are microscopically scrutinized by hordes of public and private regulators. In most of the nineteen OECD nations whose costs were analyzed earlier, caregivers are much more trusted and administrative waste is much reduced. The latter is accomplished in part through universal entitlement, which obviates eligibility determinations and medical under-writing; and in part through single- or few-payor systems that obviate detailed financial record-keeping or patient-level billing.

All of the money spent on health care passes through the hands of hospitals, doctors, and other caregivers. The challenge is to pay caregivers in ways that allow us all to trust them to spend our money well. This means asking hospitals and doctors to be mindful of the need to protect the health of all citizens with the funds available.

By capping hospital payments statewide and by obliging hospitals gradually to serve all citizens of the Commonwealth, hospitals would be forced to work with their physicians to identify patterns of care that are effective. They would have incentives to weed out unnecessary diagnostic and therapeutic services. They would make clinical trade-offs, to reallocate the vast resources already available in health care to cover all citizens. Cost control would be combined with both universal access and more appropriate and effective care. Regulatory and administrative costs would be reduced, as mistrust of hospitals' and doctors' motives and decisions declined.

This is but one approach among many, and a partial one at that. It needs to be coordinated with reforms in medical malpractice compensation, physician compensation and training, and other areas. It has the advantages of recognizing that high-cost health care seems to have evolved in Massachusetts for specific reasons, and of addressing some of those reasons. It does not blame hospitals or doctors for making the best of the world they have found, or for trying to shape that world to their advantage. Rather, it works to build a world in which caregiver interests are made more compatible with the public interest in affordable high-quality care for all citizens.

Regardless of the specific path chosen, it would be helpful for hospitals and physicians to focus less on their own clinical preferences and financial needs and desires, and more on helping to rebuild Massachusetts health care in the public interest. Possibly, one of the main barriers to reform in our state is so many parties' deeply-felt belief that they are doing what is right for their patients, that someone else is causing the cost problem, or that payors will simply have to come up with more money.

Our great non-profit hospitals, in particular, have an institutional obligation to discharge a public trust. All hospital trustees, administrators, physicians, and others who influence the shape of Massachusetts health care have an obligation to make it work well for all citizens at a cost all of us can afford. We urge all parties to give closer attention to shaping high-quality and affordable health care for all, and to recognize that any increase in hospital spending means that other vital needs inside and outside health care will necessarily go unmet.

In the long run, building high-quality and affordable health care for all Massachusetts citizens requires coordinating a host of changes in how hospitals and doctors are paid, in the services provided, and in how they are organized and delivered to patients. With the cooperation of payors, access advocates, and other parties, state government must take on the jobs of designing individual reforms and planning their coordination. There is no alternative, because federal action is unlikely and the free market is largely (and inevitably) absent in health care. After years of neglect, this capacity must be rebuilt in state government.

Although the main focus of this report has been on evaluating the Massachusetts hospital cost excess, we have sketched a number of short-term individual financing and delivery reforms that do not need to await coordinated action. The need to act is clear, and the money is already at hand.

## NOTES

<sup>1</sup>Access and Affordability Monitoring Project, *Hospital Expenses: Massachusetts vs. the United States*, Boston: The Project, Boston University School of Public Health, 11 September 1990.

<sup>2</sup>Data prepared by the Blue Cross Blue Shield Association, Chicago, personal communication. Each metropolitan area's insurance premium costs reflect undiscounted charges. BCBSA considers that this best allows fair comparison among similar benefit packages. Originally, data were sought on one dozen metropolitan areas selected for broad geographic representation. Six metropolitan areas were included because they were the only ones for which necessary data were readily available to BCBSA.

<sup>3</sup>Katharine R. Levit, "Personal Health Care Expenditures, by State: 1966-82," *Health Care Financing Review*, Vol. 6, No. 4 (Summer 1985), pp. 1-49. Note that personal health spending specifically excludes construction, research, government public health activities, and program administration and the net cost of insurance. Thus, use of the HCFA data strips away the research factor mentioned in the MHA's recent Information Advisory.

<sup>4</sup>Families USA Foundation, *Emergency! Rising Health Costs in America: 1980-1990-2000*, A Families USA Foundation Report in Cooperation with Citizen Action, Washington: The Foundation, October 1990.

<sup>5</sup>American Hospital Association, *Hospital Statistics*, 1989-90 edition, Chicago: The Association, 1989.

<sup>6</sup>American Hospital Association, *Hospital Statistics*, 1990-91 edition, Chicago: The Association, 1990.

<sup>7</sup>Assuming that 1987 Massachusetts per capita personal health spending was 25 percent above the USA average, and that personal health spending (which excludes research, construction, and government public health activities) has a roughly similar relation to total health spending across nations. All international comparisons reflect the OECD's published gross national product purchasing power parities. See "Health Care Expenditure and Other Data," *Health Care Financing Review*, 1989 Annual Supplement, pp. 111-194, Table 67.

<sup>8</sup>"Health Care Expenditure and Other Data," *Health Care Financing Review*, 1989 Annual Supplement, pp. 111-194. Excluded are Greece, Turkey, Portugal, and Spain; including them would have further increased the USA's percentage of the international average of health spending per citizen.

<sup>9</sup>Note that for Massachusetts - USA - OECD comparisons, the term "hospital" is used here as a shorthand for the OECD's own term of "institutional health services," the great bulk of which are devoted to hospital care. This is apparently done by OECD because many nations do not distinguish between hospital and nursing home care as the United States does. See Organization for Economic Cooperation and Development, *Measuring Health Care, 1960-1983: Expenditure, Costs, and Performance*, Paris: OECD, 1985, pp. 20-25.

<sup>10</sup>Note that hospital spending in the Massachusetts - USA- OECD comparison is for all hospital care, not the acute hospital care that is the main subject of the work here. The 1987 Massachusetts hospital spending per capita of \$1,309.51, 35.7 percent above the USA average, was calculated by taking three-quarters of the HFY 1987 figure and one-quarter of the HFY 1988 figure.

<sup>11</sup>See forthcoming AAMP report.

<sup>12</sup>American Hospital Association, *Hospital Statistics, 1989-90*, Chicago: The Association, 1989, Tables 5-A and 5-C; American Hospital Association, *Hospital Statistics, 1990-91*, Chicago: The Association, 1990, Tables 5-A and 5-C; "State Personal Income, Summary Estimates for Fourth Quarter and Year 1988," *Survey of Current Business*, April 1989, p. 63; and "State per Capita Personal Income growth in 1989," Department of Commerce News, BEA 90-36, 22 August 1990.

<sup>13</sup>Andrew Sum, Center for Labor Market Studies, Northeastern University, Cited in Charles Stein, "Living in the Shadow of the '80s: The Era's Excesses Set the Stage for the Misery that Followed," Boston *Sunday Globe*, 30 December 1990.

<sup>14</sup>Emphasis in original.

<sup>15</sup>We have just obtained a revised 1987 Massachusetts Health Data Consortium figure for non-Massachusetts residents served in Massachusetts hospitals. This is 50,381, or 273 fewer than their original number. We have retained the original figure because time did not permit recalculation and because the change seems fairly inconsequential. It appears that other 1987 data may change as well, but not by so much as to raise or lower our estimates by more five percent.

<sup>16</sup>Blue Cross Blue Shield of Massachusetts, unpublished data, 7 January 1991.

<sup>17</sup>Katharine R. Levit, "Personal Health Care Expenditures, by State: 1966-82," *Health Care Financing Review*, Vol. 6, No. 4 (Summer 1985), pp. 1-49, Table 2.

<sup>18</sup>Office of National Cost Estimates, "National Health Expenditures, 1988," *Health Care Financing Review*, Vol. 11, No. 4 (Summer 1990), pp. 1-54, Table 21.

<sup>19</sup>In hospital fiscal year 1989, for example, Massachusetts hospitals' gross charges to patients totaled \$7,422,915,000, 34.2 percent greater than net patient revenues of \$5,532,749,000. American Hospital Association, *Hospital Statistics*, Chicago: The Association, 1990, Table 11. Charges exceed costs because the Medicare program ignores hospitals' charges entirely in setting its payments by DRGs, and other payors receive discounts from charges.

<sup>20</sup>Insured or wealthy self-insured patients from out-of-state or out-of-country were probably somewhat likelier to pay charges than in-state insured patients-- unless they belonged to HMOs or were covered by insurers that negotiated discounted prices with Massachusetts hospitals. But uninsured low-income patients from out-of-state or out-of-country were probably less likely to be able to pay at all. Without detailed study, the net effect of these factors is hard to gauge. The neutral assumption is probably that these two factors cancelled each other.

<sup>21</sup>American Hospital Association, *Hospital Statistics 1990-1991*, Chicago: The Association, Table 11.

<sup>22</sup>The flows of persons seeking hospital outpatient care into and out of Massachusetts should also be considered, but this is likely to be a small factor, and we have not been able to find the necessary data.

<sup>23</sup>Clare Cotton, Association of Independent Colleges and Universities of Massachusetts, personal communication, 5 November 1990.

<sup>24</sup>John E. Avault and Mark R. Johnson, "Boston's New Economy: Medical Services and Research, Biotechnology and Other Emerging Growth Industries," Boston: Boston Redevelopment Authority, 27 April 1990 (discussion draft, still in circulation November 1990).

<sup>25</sup>Economic Development and Industrial Corporation of Boston, *Who Benefits from Biomed? Real Jobs for Boston Residents*, Boston: The City, December 1990.

<sup>26</sup>National Institutes of Health, *Research Grants, R&D Contracts, Grants for Training, Construction, and Medical Libraries*, FU 1989 Funds, Vol. II, Washington: USDHHS, 1990, NIH Pub. No. 90-1043.

<sup>27</sup>John E. Avault and Mark R. Johnson, "Boston's New Economy: Medical Services and Research, Biotechnology and Other Emerging Growth Industries," Boston: Boston Redevelopment Authority, 27 April 1990 (discussion draft, still in circulation November 1990), Table 4; and AAMP analyses of 1989 NIH data, discussed in Section IV-B of this report.

<sup>28</sup>John E. Wennberg, Jean L. Freeman, Roxanne M. Shelton, and Thomas Bubolz, "Hospital Use and Mortality among Medicare Beneficiaries in Boston and New Haven," *New England Journal of Medicine*, Vol. 321, No. 17 (26 October 1989), pp. 1168-1173.

<sup>29</sup>John E. Wennberg, Jean L. Freeman, and William J. Culp, "Are Hospital Services Rationed in New Haven or Over-utilised in Boston?" *The Lancet*, 23 May 1987, pp. 1185-1189.

<sup>30</sup>Robert A. Hahn, Steven M. Teutsch, Richard B. Rothenberg, and James S. Marks, "Excess Deaths from Nine Chronic Diseases in the United States, 1986," *Journal of the American Medical Association*, Vol. 264, No. 20 (28 November 1990), pp. 2654-2659.

<sup>31</sup>Northwestern National Life Insurance Company, *The NWNL State Health Rankings*, 1990 Edition, Minneapolis: The Company, 1990.

<sup>32</sup>Dolores Kong, "Black Infant Mortality Soars," *Boston Globe*, 9 September 1990.

<sup>33</sup>"Health Care Expenditure and Other Data," *Health Care Financing Review*, 1989 Annual Supplement, pp. 111-194. Again excluded are Greece, Turkey, Portugal, and Spain (only one of which reported longevity data in 1987).

<sup>34</sup>We again employed the OECD's purchasing power parities. These are calculated by measuring the cost of comparable products in each nation's currency.

<sup>35</sup>Alan Sager, *The Sky Is Falling: The Massachusetts Medical Society Reports on the Physician Shortage*, Boston: Boston University School of Public Health, 7 September 1988

<sup>36</sup>See forthcoming AAMP report.

<sup>37</sup>The \$242 million is multiplied by the ratio of USA to Massachusetts hospital cost per adjusted admission to achieve this deflation. American Hospital Association, *Hospital Statistics, 1990-1991*, Chicago: The Association, 1990, Tables 5A, 5C.

<sup>38</sup>National Institutes of Health, *Research Grants, R&D Contracts, Grants for Training, Construction, and Medical Libraries*, FY1989 Funds, Vol. 2, Bethesda: NIH, 1990, DHHS Pub. No. 90-1043. This over-estimates research funding because it includes NIH subsidies for physician training. The latter funds are also included in the estimates of costs of teaching that appear later. But this is an under-estimate because it excludes non-NIH research funds.

<sup>39</sup>"NIH finances the lion's share of US biomedical research." Richard Saltus, "NIH Soon to Have Its New Leader-- at Last," *The Boston Globe*, 7 January 1991.

<sup>40</sup>It is far from clear whether Massachusetts teaching hospitals, or their counterparts in other states, are training the mix of physicians the nation's patients needs, but this problem will not be taken up here.

<sup>41</sup>In hospital fiscal year 1989, Medicare paid Massachusetts hospitals \$123 million for its estimated share of the indirect cost of medical education. Access and Affordability Monitoring Project analyses of 1989 Medicare Cost Reports (HCFA-2552).

<sup>42</sup>Council of Teaching Hospitals, American Association of Medical Colleges, "Survey of Academic Medical Centers: Financial and General Operating Data, 1989," Washington: The Council, 1990.

<sup>43</sup>The federal Prospective Payment System (PPS) specifically attempts to compensate hospitals for Medicare's proportionate share of these indirect costs. The Prospective Payment Assessment Commission has estimated that indirect medical education payments were 4.8 percent of total PPS payments nationally in HFY 1987. (See Prospective Payment Assessment Commission, *Medicare Prospective Payment and the American Health Care System: Report to the Congress*, Washington: ProPAC, June 1989, Table 5-3.) Assume this national figure held for HFY 1989. In that year, Massachusetts hospitals' indirect medical education payments were 7.7 percent of PPS payments, 2.9 percentage points above the national average of 4.8 percent. Access and Affordability Monitoring Project analyses of HFY 1989 Medicare Cost Reports (HCFA-2552) submitted by Massachusetts acute care hospitals. Assume that it is as appropriate to apply this to care of all patients and to total hospital revenues as it is to Medicare patients and revenues from PPS. The 2.9 percent difference between the Massachusetts and national levels of indirect medical education payments would then be the indirect cost of medical education in Massachusetts associated with the state's high concentration of residents. The difference of 2.9 percent should be applied to the national average hospital cost per citizen, and the resulting product should be multiplied by the Massachusetts population to estimate the statewide dollar cost associated with indirect medical education. (To apply the 2.9 percent differential to the Massachusetts hospital cost per citizen would over-state the share of the Massachusetts excess associated with indirect medical education by valuing it at the high Massachusetts base.)

<sup>44</sup>U.S. Bureau of the Census, *Current Population Reports*, P-25-158, Resident Population of the United States, 1 July 1989. U.S. Bureau of the Census, *Current Population Reports*, P-25-1044, State Population and Household Estimates, with Age, Sex, and Components of Change, 1981-88.

<sup>45</sup>In calendar 1988, Medicare paid \$58.3 billion or 27.5 percent of the cost of hospital care in the United States. Office of National Cost Estimates, "National Health Expenditures, 1988," *Health Care Financing Review*, Vol. 11, No. 4 (Summer 1990), pp. 1-41, Table 22. This under-estimates service to people aged 65 and above by excluding care financed by

other insurance and patient out-of-pocket payments but over-estimates it by including costs of care for younger patients eligible for Medicare because they are permanently and totally disabled or because they suffer from end-stage renal disease. If these factors offset one another (and they may not; the former may well be larger), then average calendar year 1988 hospital spending per person aged 65 and above nationally can be estimated at \$1919.85. Increase this by seven percent to shift it forward nine months to hospital fiscal year 1989. The resulting sum, \$2054.24, multiplied by the 76,000 Massachusetts citizens aged 65 and above in excess of the national average, yields an estimate of \$156,122,202 as the gross cost of hospital care associated with an older population. From this must be subtracted the cost of caring for these citizens had they been younger than 65, again valued at the national average. This is because we are not measuring here the gross cost of serving 76,000 additional people, but rather the net cost associated with a slightly greater share of the Massachusetts population aged 65 and above. Dividing non-Medicare hospital spending, estimated in the same way, by the under-65 population, and inflating the result by seven percent, we estimate this cost per person at \$762.37, and the total at \$57,940,122. Thus, the net estimated cost associated with serving 76,000 older citizens is \$98,182,080. (This may well be a slight underestimate, for the reason noted earlier.)

<sup>46</sup>*Demographic Yearbook of the United Nations*, 1988 edition, Table 7.

<sup>47</sup>American Hospital Association, *Hospital Statistics, 1990-1991*, Chicago: The Association, 1990, Table 11.

<sup>48</sup>Access and Affordability Monitoring Project analyses of data compiled in American Hospital Association, *Hospital Statistics, 1990-1991*, Chicago: The Association, 1990, tables 5-A and 5-C.

<sup>49</sup>See forthcoming Access and Affordability Monitoring Project report on 1989 costs.

<sup>50</sup>Residents and fellows are excluded. American Medical Association, "Federal and Non-federal Physicians in the United States and Possessions, by Specialty and Activity, January 1, 1988," Tables 1 and 9, Chicago: The Association, 1990 (unpublished tabulations).

<sup>51</sup>See analysis of American Medical Association data in Alan Sager, *The Sky Is Falling: The Massachusetts Medical Society Reports on the 'Physician Shortage*, Boston: Boston University School of Public Health, 7 September 1988, Table 3.

<sup>52</sup>Access and Affordability Monitoring Project calculations from American Medical Association, *Physician Characteristics and Distribution of Physicians in the United States, 1987*, Chicago: The Association, 1987, Tables 1 and 9; and from U.S. Bureau of the Census, "Estimates of the Resident Population of States, July 1, 1986 and 1987. Primary care physicians were defined consistently as internists, family practitioners, pediatricians, and general practitioners.

<sup>53</sup>Curry, David G., John S. Coldiron, P. O'Dea Culhane, and Roberta Gantz, "Urban Emergency Room Patients: An Analysis of Their Usual Source of Care, Source of Payment and Acuteness of Chief Complaint," July 1981.

<sup>54</sup>Massachusetts Hospital Association, *Information Advisory No. 194*, 12 October 1990.

<sup>55</sup>*Medical Benefits*, 15 July 1990, p. 9 (data provided by InterStudy).

<sup>56</sup>See, for example, "The Wrong Door: The Hospital Emergency Room as a Gateway to Primary Care," National Health Policy Forum Issue Brief No. 536, Washington: The Forum, 12 December 1989; Richard A. Halperin, Allan R. Meyers, and Joel J. Alpert, "Utilization of Pediatric Emergency Services," *Pediatric Clinics of North America*, Vol. 26, No. 4 (November 1979), pp. 747-757.

<sup>57</sup>Joanna Lion, Alan Malbon, Robert Friedman, and Mary G. Henderson, "A Comparison of Case Mix, Ancillary Services, and Cost per Visit in Hospital Outpatient Departments and Private Practices," Waltham: Heller School, Brandeis University, June 1983, Discussion Paper-52.

<sup>58</sup>Lion, Joanna, "Case Mix Differences among Ambulatory Patients Seen by Internists in Various Settings," *Health Services Research*, Vol. 16, No. 4 (Winter 1981), pp. 407-413.

<sup>59</sup>See, for example, Normand E. Girard, "Massachusetts Community Hospitals: Problem or Solution?" Community Hospitals Conference, Sonesta Hotel, Cambridge,

Massachusetts, 18 December 1990.

<sup>60</sup>See, for example, the collection of papers published in the current issue of the *Annals of Internal Medicine*. Cited in Richard A. Knox, "More Doctors-to-be Want to Specialize," *Boston Globe*, 11 January 1991.

<sup>61</sup>Wages, benefits, and full time-equivalent workers are as reported by hospitals to the AHA. See American Hospital Association, *Hospital Statistics 1990-1991*, Chicago: The Association, 1991, Tables 5A and 5C.

<sup>62</sup>For an exploration of some of these issues, see Linda H. Aiken and Connie Flynt Mullinix, "The Nurse Shortage: Myth or Reality?" *New England Journal of Medicine*, Vol. 317, No. 10 (3 September 1987), pp. 641-645.

<sup>63</sup>For example, in hospital fiscal year 1989, licensed practical nurses made up only 12.9 percent of the total of registered nurses and licensed practical nurses in Massachusetts, compared with 17.9 percent nationally. See American Hospital Association, *Hospital Statistics, 1990-1991*, Chicago: The Association, 1990, Tables 5A, 5C.

<sup>64</sup>American Hospital Association, *Hospital Statistics, 1990-1991*, Chicago: The Association, 1990, Tables 5A, 5C, and 11.

<sup>65</sup>Kenneth E. Thorpe and Susan Haber, "Trends in Massachusetts Hospital Expenses," Hand-out to Special Commission on Health Care Financing," Boston: Harvard School of Public Health, n.d., citing data from "HCIA."

<sup>66</sup>In hospital fiscal year 1986, the median Massachusetts Medicare case mix was 1.148, 0.3 percent above the national median of 1.144. In 1987, the Massachusetts mix of 1.154 was 0.8 percent below the national median. See Thorpe and Haber, just cited.

<sup>67</sup>Walter McClure, "Toward Development and Application of a Qualitative Theory of Hospital Utilization," *Inquiry*, Vol. 19 (Summer 1982), pp. 117-135.

<sup>68</sup>John E. Wennberg, Jean L. Freeman, and William J. Culp, "Are Hospital Services Rationed in New Haven or Over-utilised in Boston?" *The Lancet*, 23 May 1987, pp. 1185-

1189.

<sup>69</sup>See forthcoming AAMP report.

<sup>70</sup>See forthcoming AAMP report.

<sup>71</sup>Massachusetts rates of hospital admissions per capita have risen relative to the national average recently, but mainly because the national rate of admissions per capita fell more rapidly between 1984 and 1988 than the Massachusetts rate, according to AAMP analyses of American Hospital Association data reported in the *AHA Guide and Hospital Statistics*, 1961 through 1990-91. In hospital fiscal year 1989, however, the Massachusetts admissions per capita rate actually rose, arguably reflecting the new financial incentives offered in the state's hospital payment law.

<sup>72</sup>Northwestern National Life Insurance Company, *Americans Speak out on Health Care Rationing*, Minneapolis: The Company, November 1990.

<sup>73</sup>Division of National Cost Estimates, "National Health Expenditures, 1986-2000," *Health Care Financing Review*, Vol. 8, No. 4 (Summer 1987), pp. 1-36.

<sup>74</sup>"Annual U.S. Health Bill to Hit \$2 Trillion by 2000, Coalition Projects," *American Hospital Association News*, Vol. 26, No. 46 (19 November 1990).

<sup>75</sup>Access and Affordability Monitoring Project, "Expenditures on Massachusetts Hospitals and Access: Original Promises/Expectations vs. Actual Costs/Current Projections," Boston: Boston University School of Public Health, 30 August 1989, Fact Sheet No. 2.

<sup>76</sup>Alicia H. Munnell, Lynn E. Browne, and others, *Massachusetts in the 1990s: The Role of State Government*, Boston, Federal Reserve Bank of Boston, November 1990 (Research Report No. 72), p. 8.

<sup>77</sup>See, for example, Normand E. Girard, "Massachusetts Community Hospitals: Problem or Solution?" Community Hospitals Conference, Sonesta Hotel, Cambridge, Massachusetts, 18 December 1990.

<sup>78</sup>Dan E. Beauchamp and Ronald L. Rouse, "Universal New York Health Care: A Single-Payer Strategy Linking Cost Control and Universal Access," *New England Journal of Medicine*, Vol. 323, No. 10 (6 September 1990), pp. 640-644.