

# Effects of Managed Competition and HMO Enrollment 3

**M**any health reform bills before Congress are asserted to reduce health care expenditures by introducing competition to the health care marketplace through “managed competition.” For example, the Health Security plan press packet states that “reform will encourage competition—forcing costs down as health plans compete by offering high-quality care at an affordable price” (207). Similarly, the press conference statement for the Managed Competition Act of 1993 states that “[i]f costs are to be controlled, the government must encourage the market to fundamentally restructure the way health care is provided” (187). To validate these assertions, policymakers and others have looked, in part, to formal economic analyses.

Alain Enthoven, one of the original architects of managed competition, defines it as a “purchasing strategy to obtain maximum value for consumers and employers, using rules for competition derived from macroeconomic principles” (31). Under managed competition “a sponsor” (either an employer, government entity, or purchasing cooperative), acting on behalf of a large group of subscribers, structures and adjusts the market to overcome attempts by insurers to avoid price competition (31). Other elements of managed competition, such as limiting employer contributions to the cost of the lowest priced plan available, aim to increase consumers’ sensitivity to the price of health insurance and to encourage more active shopping for health

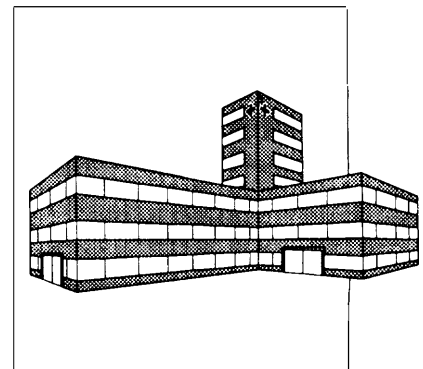


TABLE 3–1: Features of Managed Competition in the Health Security Act and the Managed Competition Act of 1992<sup>a</sup>

General feature of the plans	Specific features of the plans	
	Health Security Act (H.R. 3600/S. 1757)	Managed Competition Act of 1992 (H.R. 5936)
<b>Health plan purchasing cooperatives</b>	States must establish regional health alliances that offer a choice of state-certified plans. Participation is mandatory for businesses with less than 5,000 employees and for individuals. Large employers may join regional alliances or form corporate alliances. A corporate alliance must offer to participants at least three plans. These plans may be certified, self-insured, or third-party plans,	<b>States establish health plan purchasing cooperatives that offer a choice of accountable health plans.<sup>b</sup> Employers with 1,000 employees or less must offer, but not pay for, enrollment opportunity in a health plan purchasing cooperative. Large employers do not have to offer coverage through a health plan purchasing cooperative. They must offer coverage from at least one, but not necessarily more than one, plan on their own. As with small employers, there is no obligation to pay for coverage.</b>
<b>Risk-adjusted payments to insurers</b>	Regional alliances adjust payments to insurers to account for risk selection using a method established by the National Health Board.	Each health plan purchasing cooperative would pay accountable health plans risk-adjusted premiums based on a methodology to be established by the National Health Board.
<b>Employer contributions tied to lower priced plans</b>	Requires all employers to pay at least 80% of the cost of the average priced plan in the regional alliance area,	No requirement to limit employer contributions, although health plan expenses would be tax deductible only up to the cost of the lowest priced accountable health plan in the area.
<b>Standard benefit package</b>	Requires a standard benefit package,	Requires a standard benefit package.
<b>Community rating and open enrollment</b>	Health plans must have open enrollment and community rating with specific rating procedures to be established by the National Health Board,	Accountable health plans must have open enrollment. Large employers may have closed plans. All accountable health plans have modified community rating.

(continued)

plans.<sup>1</sup> In response to the greater price competition, health plans are expected to reduce health care costs by using the tools of managed care.<sup>2</sup>

Although there is general agreement on the broad outlines of managed competition, various

managed competition proposals would establish different regulations and entities to restructure the market for health insurance and health care. Features common to the managed competition proposals include:

<sup>1</sup>The term *health plan* has no standard definition, and different insurer organizations and health reform proposals define it differently (e.g., the Health Security Act (S. 1757); the Managed Competition Act of 1993 (H.R. 3222); The Health Equity and Access Reform Today Act of 1993 (S. 1770)). The term *health plan* was coined, in part, because the term *insurance plan* does not indicate that many plans both provide insurance—that is they finance health care through premiums collected from employers and individuals—and are involved in the delivery of care (e.g., through utilization management, by hiring providers, and/or by providing settings). Thus, the term *health plan* is more general than the term *insurance plan* and includes a wide spectrum of private health care financing and delivery arrangements, ranging from traditional *fee-for-service* plans to traditional health maintenance organizations.

<sup>2</sup>In some descriptions of managed competition, health plan purchasing cooperatives, or *health alliances*, are expected to aggressively negotiate and selectively contract with health plans, thus reducing health care expenditures. In other proposals, alliances or cooperatives must contract with all qualified plans and are not allowed to negotiate.

TABLE 3-1: Features of Managed Competition in the Health Security Act and the Managed Competition Act of 1992<sup>a</sup> (cont'd.)

General features of the plans	Specific features of the plans	
	Health Security Act (H.R. 3600/S. 1757)	Managed Competition Act of 1992 (H.R. 5936)
<b>Changes in the tax deductibility of health insurance</b>	Employer contributions for benefits and services outside the scope of the standard package would be taxed starting in 2004. The self-employed may deduct 100% of the amount paid for health Insurance, limited to the cost of the standard benefit package	Employer payments for health plans above the cost of the lowest priced accountable health plan, as well as payments to a plan that is not an accountable health plan, would be subject to a <b>3470 excise tax</b> . Individuals are allowed tax deductions for premiums paid to an accountable health plan, but the individual and the employer could together deduct no more than the cost of the cheapest accountable health plan,
<b>Reports on plan quality</b>	Requires each regional all lance to make available information on prices, providers, and services, The information requirements would be established by the National Health Board	Requires each health plan purchasing cooperative to analyze and distribute Information on accountable health plans to eligible individuals and employers, including Information on prices, health outcomes, and enrollee satisfaction,

<sup>a</sup>This table is meant to be illustrative and is not a detailed analysis of the proposals.

<sup>b</sup>Accountable health plans are health insurance plans that must meet standards set by the National Health Board and offer a uniform set Of benefits

Two types of accountable health plans would exist closed plans which would be limited to employees of large firms and open plans which would be required to accept all applicants

SOURCE Off Ice of Technology Assessment, 1994

- health plan purchasing cooperatives or sponsors that offer several health insurance plans and adjust payments to insurers to account for risk selection,
- incentives to limit employer contributions to the price of the least expensive plans or a fixed dollar amount,
- standard benefit packages,
- community rating<sup>3</sup> with open enrollment<sup>4</sup> and limited underwriting and exclusions,
- limits on the tax deductibility of employer contributions to employee health insurance, and
- reports on health plan quality.

Proposals vary in how these aspects of managed competition would be implemented, whether they would be voluntary or mandatory, and how extensively they would be applied. Table 3-1 describes the features in proposals that have been

<sup>3</sup>Definitions of *community rating* vary. According to one definition, it is a method of determining premium rates that is based on the allocation of total costs without regard to past claims experience. According to another definition, it is an approach to pricing health insurance premiums that requires an insurer to accept all applicants at virtually the same rates. The second definition is the one used in this chapter and the one most applicable to the health reform proposals referred to in the chapter.

<sup>4</sup>*Open enrollment* is defined as a health insurance enrollment period during which coverage is offered regardless of health status and without medical screening,

analyzed in terms of their effects on national health expenditures (NHE).

Managed competition would attempt to change the incentives faced by consumers, health plans, and providers, and to create new organizations to improve how health insurance markets function. Because the impact of managed competition hinges on how multiple actors in the health care system would react and interact, modeling the dynamics of managed competition presents a daunting task. The second section of this chapter describes the assumptions used in simulations of the impact that managed competition proposals would have on NHE. The analyses of proposals reviewed in this chapter are summarized in table 3-2. Analysts' key assumptions are summarized in table 3-3.

The third section of the chapter describes research and experiences that form the basis for predicting how managed competition could influence NHE.

## ANALYSES OF REFORM PROPOSALS

Two proposals that contain features of managed competition have been estimated in terms of their impact on NHE: the Managed Competition Act of 1992 (H.R. 5936) and the Health Security Act (H.R. 3600/S. 1757).<sup>5</sup> Both the Congressional Budget Office (CBO) and the Economic and Social Research Institute (ESRI) estimated the impact of the Managed Competition Act of 1992 on NHE. CBO, Lewin-VHI, and the Clinton Administration estimated the impact of the Health Security Act on NHE. Lewin-VHI estimated the impact of the Health Security Act both with and without the premium limits. All of the analyses reviewed are relatively simple and use a few key ex-

plicit, quantitative assumptions. To estimate the impact of the Managed Competition Act on NHE, analysts posit that managed competition will stimulate enrollment in health maintenance organizations (HMOs) and that this will result in a reduction in NHE. (See box 3-1 for a definition of HMOs and managed care.) Analyses of the Managed Competition Act of 1992 make different assumptions as to whether managed competition will influence the growth rate in national health expenditures beyond the *one-time* impact of HMO enrollment, although all analysts indicate this determination is extremely difficult and subject to serious uncertainties.<sup>6</sup>

Analyses of the Health Security Act differ from those of the Managed Competition Act in that the key simplifying assumption is not savings from HMOs, but rather the impact of government cost containment. Assumptions about managed care and managed competition are not explicitly used in the quantitative analyses of the Health Security Act.<sup>7</sup>

### ■ Analyses of Managed Competition Proposals Without Government Cost Controls

The Managed Competition Act of 1992 (H.R. 5936 in the 102d Congress) and of 1993 would require each state to establish a health plan purchasing cooperative through which individuals could choose from several health plans. A national health board would develop criteria for the specific types of plans, called *accountable health plans*. Accountable health plans would be required to offer at least a minimum set of specified benefits; charge all subscribers similar premiums (premiums could vary only by the geographic loca-

<sup>5</sup>The **Managed** Competition Act of 1992 (H.R. 5936) is very similar to the Managed Competition Act of 1993 (H.R. 3222/S. 1579). CBO released an analysis of NHE under The Managed Competition Act of 1993 (174) too late for inclusion in this report.

<sup>6</sup>The term *one-time* impact means a short-term or limited effect on the level of health expenditures. Another interpretation of this assumption is that HMOs have a limited ability to control the factors that are causing health care costs to increase. For example, analysts may implicitly think that although HMOs can reduce inpatient admissions, HMOs have no ability to continue to reduce costs through other means.

<sup>7</sup>Lewin-VHI does use assumptions about managed care and managed competition to estimate what NHE might be under the Health Security Act if implemented without the government cost controls.

**TABLE 3–2: Analyses of the Impact of Health Reform Proposals on National Health Expenditures Reviewed in This Report**

Proposal	Analyses <sup>a</sup>			
	Applying government cost controls (chapter 2)	Encouraging managed competition (chapter 3)	Providing universal coverage to uninsured people (chapter 4)	Reducing administrative costs (chapter 5)
American Health Security Act of 1993 (H. R. 1200/S. 491) <sup>b</sup>	CBO		CBO	CBO
Comprehensive Health Reform Act of 1992 (H. R. 5919) <sup>c</sup>				CBO
Health Care Cost Containment and Reform Act of 1992 (H. R. 5502) <sup>c</sup>	CBO		CBO	CBO
Health Security Act (H. R. 3600/S. 1757) <sup>b</sup>	CBO Clinton Administration Lewin-VHI	<b>CBO</b> Clinton Administration Lewin-VHI Lewin-VHI	CBO Clinton Administration Lewin-VHI	CBO Clinton Administration Lewin-VHI
Health Security Act (H. R. 3600/S. 1757) <sup>b</sup> , Lewin-VHI scenario without government cost controls				
Managed Competition Act of 1992 (HR. 5936) <sup>c</sup>		CBO ESRI	CBO	CBO
Managed competition plan, Starr version			Sheils et al.	
National health plan, full savings scenario				ESRI
National health plan, administrative savings scenario				ESRI
Single-payer plan, CBO version with patient cost-sharing			CBO	
Single-payer plan, CBO version without patient cost-sharing			CBO	CBO
Single-payer plan, GAO version				GAO
Single-payer plan, Grumbach et al version				Grumbach et al
Single -payer plan, Lewin-VHI version				Lewin-VHI <sup>d</sup>
Single-payer plan, Woolhandler and Himmelstein version				Wool handler and Himmelstein
Universal Health Care Act of 1991 (H R. 1300) <sup>c</sup>	CBO		CBO	CBO

KEY CBO = U S Congress Congressional Budget Off Ice GAO U S General Accounting Office ESRI= Economic and Social Research Institute

aFull citations for the analyses are in appendix B

bBill numbers are for 103d Congress

<sup>c</sup>Bill numbers are for 102d Congress

dAnalysis was conducted by Lewin-ICF The company was acquired and expanded in 1992. For purposes of this report all Lewin analyses are Identified as Lewin-VHI.

SOURCE Office of Technology Assessment, 1994

**TABLE 3–3: Key Assumptions in Estimates of Managed Competition and HMO Enrollment by Privately Insured Individuals in the Health Security Act and the Managed Competition Act of 1992**

Proposal	Analysis <sup>a</sup>	Key assumptions					Change in growth rate of NHE due to managed competition (percent)
		Savings from enrollment in HMOS by year (\$ billions) <sup>b</sup>	Increase in individuals' enrollment in HMOS (millions) <sup>c</sup>	Amount spent in non-HMO plans	Average savings from HMOS (percent) <sup>d</sup>		
The Health Security Act (HR. 3600/S. 1757)	CBO	No explicit estimates	No assumption	No assumption	No assumption		No assumption
	Clinton Administration	No explicit estimates	No assumption	No assumption	No assumption		No assumption
	Lewin-VHI	No explicit estimates	No assumption	No assumption	No assumption		No assumption
The Health Security Act (H.R. 3600/S. 1757), Lewin-VHI scenario without government cost controls	Lewin-VHI	1998 \$149	All individuals not in HMOS at the time of reform will join HMOS	\$499.9 billion	3%		No explicit assumption
The Managed Competition Act of 1992 (H.R. 5936)	CBO	1995 1.50	94e	\$2,130 per enrollee	7.5%		0% reduction
		1996 1.66	9.6	2,300 per enrollee			
		1997 1.69	9	2,500 per enrollee			
		1998 1.62	8	2,700 per enrollee			
		1999 1.77	8	2,950 per enrollee			
		2000 1.87	7.8	3,200 per enrollee			
	ESRI <sup>f,g</sup> optimistic	1994 993	169	\$3,916 per enrollee	15%		2% reduction
		1995 993	169				
		1996 9.93	169				
		1997 188	3.2				
		1998 188	3.2				
	ESRI <sup>h</sup> pessimistic	1994 247	63	\$3,916 per enrollee	10%		1% reduction
		1995 247	63				
		1996 247	63				
		1997 247	6.3				
		1998 247	63				
		1999 031	0.8				
		2000 031	0.8				
		2001 031	0.8				
		2002 031	0.8				
		2003 031	0.8				

(continued)

**TABLE 3-3: Key Assumptions in Estimates of Managed Competition and HMO Enrollment by Privately Insured Individuals in the Health Security Act and the Managed Competition Act of 1992 (cont'd.)**

KEY: CBO = U.S. Congress, Congressional Budget Office, ESRI = Economic and Social Research Institute HMO = health maintenance organization, NHE = national health expenditures

\*Full citations of the analyses are in appendix B

bFigures exclude Medicaid The amount saved through managed care would be higher if Medicaid were included For example, under the Managed Competition Act of 1992, CBO estimated that Medicaid enrollment in HMOs would increase from approximately 12 to 80 percent Savings from having Medicaid enrollees join HMOs were assumed to be \$6 billion from 1995 to 2000

cFigures exclude Increased enrollment in HMOs by Medicaid recipients

dThis column only indicates what HMOs were assumed to save *on average. Some analysts made different* assumptions about how much particular forms of HMOs would save (i.e. group- and staff-model HMOs versus individual practice associations) and how savings would differ for specific types of services (e.g., inpatient versus outpatient care)

eCBO assumed 75 percent of the nonpoor, urban population would join HMOs Increased enrollment is phased in over 6 years

fThe savings from HMOs do not include its *growth rate* assumptions. ESRI assumed that the growth rate of health care expenditures would be reduced under managed competition by 1 to 2 percent

gESRI assumed an additional 75 percent of workers in small firms and an additional 50 percent of workers in large firms would join HMOs Increase in enrollment is phased in over 4 years

hESRI assumed an additional 50 percent of workers in small firms and an additional 25 percent of workers in large firms would join HMOs. Increase in enrollment is phased in over 10 years

SOURCE Office of Technology Assessment 1994

tire, family status, or age); and report on quality. Accountable health plans would either be closed *plans* that would be limited to groups of at least 1,000 people in the act of 1992 and 100 people in the act of 1993, or *open plans* that would be required to have open enrollment and could not deny coverage on the basis of poor health.

Changes in the tax code would be used to encourage the purchase of coverage through accountable health plans. Small employers, defined as those with fewer than 1,001 employees in the act of 1992 and fewer than 101 in the act of 1993, would be required to enter into agreements with health plan purchasing cooperatives that would allow employees coverage through accountable health plans. Employer contributions to health insurance above the cost of the lowest priced accountable health plan, and payments for plans that were not accountable health plans, would be taxed.

### ***Congressional Budget Office's Analysis of the Managed Competition Act***

In a July 1993 publication, *Estimates of Health Care Proposals from the 102nd Congress*, CBO reported estimates of the impact of the Managed

Competition Act of 1992 (H.R. 5936) on NHE (168).

CBO states that one of the principal ways that the bill would reduce NHE from current levels would be through increasing HMO enrollment (168). CBO estimated savings from enrollment in HMOs by privately insured individuals of \$1.5 billion in 1995, and \$10.1 billion in total from 1995 through 2000. It also estimated that enrollment in HMOs by Medicaid recipients would save \$6 billion over the same period (59).

To estimate the savings that would accrue from HMO enrollment, CBO:

1. *Estimated premiums of non-HMO plan for 1995 through 2000.* It estimated that in 1995, non-HMO plan premiums would be \$2,130 per enrollee (for those under age 65), and assumed premiums would increase at the rate of baseline per capita national health expenditures thereafter (59, 168).
2. *Estimated how many individuals would leave their non-HMO plan and join an HMO.* CBO assumed that several factors would encourage people to join HMOs. First, it assumed that group- or staff-model HMOs would offer the lowest priced plan in the area. Second, CBO as-

## BOX 3-1: Managed Care and Health Maintenance Organizations

Managed care can refer to both the elements of managing care and the institutional structures within which care is managed. To some, managed care means the process of managing, whether using the simpler tools of utilization management or the more sophisticated techniques of continuous quality improvement. To others, the term is equated with alternative delivery systems that are variously known by such names as HMOs, PPOs, IPAs.

In contrast to traditional indemnity insurance plans where the insurer simply reimburses the insured individual for incurred health expenses and has no direct relationship with the providers of care, alternative delivery systems create a direct relationship between the insurer and the provider of care. Whether physicians are salaried employees or contractors, they have a relationship with the HMO or PPO wherein they give up some clinical and financial autonomy to that organization. The consumer who joins a managed-care organization also surrenders some freedom of choice in making that decision. The HMO or PPO in turn takes on a managerial role with the hope of containing costs and enhancing the quality of care.

The organizational forms that fit under the rubric of managed care are becoming increasingly difficult to distinguish. Although an understanding of the current organizational forms of managed care remains important, it may be necessary in the future to develop new definitions and new typologies to describe the evolving world of managed care.

**FORMS OF MANAGED CARE**

**Fee-for-service plan:** Used in this report to mean a traditional or conventional health insurance plan that permits employees to select providers of services and pays the providers according to the fees charged for such services. The term is used to distinguish such plans from HMOs, under which the enrollee generally must obtain services from the HMO providers whose payments from the HMO are not necessarily directly related to the type or quantity of services actually provided.

**Group-model HMO:** An HMO that contracts with one independent group practice to provide health services.

**Health maintenance organization (HMO):** A health care organization that acts as both insurer and provider of health care. A defined set of physicians (and, often, other health care providers such as physician assistants and nurse midwives) provide services to an enrolled population. Benefits are usually provided with minimal patient cost-sharing. Types of HMOs include group-model HMOs, staff-model HMOs, and individual practice associations.

**Independent (or individual) practice associations (IPA):** A type of HMO that contracts directly with physicians in independent practice, with one or more associations of physicians in independent practice, and/or with one or more multi-specialty group practices to provide health services.

**Managed care:** A general term applied to a range of initiatives from organized health care delivery systems (e.g., HMOs) to features of health care plans (e.g., preadmission certification programs, utilization review programs) that attempt to control or coordinate enrollees' use of (and thus the cost of) services.

**Network-model HMO:** An HMO that contracts with two or more independent group practices to provide health services.

**Preferred provider organizations (PPO):** A term that refers to a variety of different insurance arrangements under which plan enrollees who choose to obtain medical care from a specified group of participating providers receive certain advantages, such as reduced cost-sharing charges. Providers usually furnish services at lower than usual fees in return for prompt payment by the health insurance plan and a certain assured volume of patients.

**Staff-model HMO:** An HMO in which physicians practice solely as employees of the HMO and are usually paid a salary.

SOURCE: Adapted from the Physician Payment Review Commission Annual Report (123)



sumed that H.R. 5936 would increase the difference in effective prices to the enrollee between HMOS and non-HMO plans because enrollees would have to pay for the cost of more expensive plans with aftertax rather than pretax income. In addition, CBO assumed that the standardization of benefits would make the price differences much more apparent. Due to these factors, CBO predicted that three-quarters of the nonpoor, urban population would leave their non-HMO plans and join an HMO over the 6 years following the bill passage. In total, CBO predicted that 51.8 million people would switch from fee-for-service (FFS) plans to HMOS between 1994 and 2000 (59). To support this assumption, CBO referred to the experience of California and Wisconsin—states whose health insurance programs for public employees have similarities to managed competition and who have a relatively high percentage of employees in HMOS.

3. *Predicted that eventually 80 percent of the Medicaid population would join HMOS.*<sup>8</sup>
4. *Assumed that group- and staff-model HMOs would reduce personal health expenditures by about 15 percent compared with traditional private health insurance with higher patient cost-sharing* (168). However, CBO stated that the evidence that other forms of HMOS can reduce costs is much less conclusive. Therefore, CBO assumed that enrolling additional people in various types of HMOS would, on average, reduce their personal health expenditures by 7.5 percent. The CBO assumption of HMO savings appears to be based on three studies, although it is not clear how the assumptions of a

15 or 7.5 percent savings were derived from the studies (161, 163).<sup>9</sup>

5. *Multiplied the 7.5 percent cost difference by the estimated cost per covered person in non-HMO plans and by the number of individuals expected to switch to an HMO plan to arrive at HMO savings.* For example, CBO assumed that in 1991, 9.4 million people would switch to HMO plans and that persons in non-HMO plans would spend \$2,130. Therefore CBO calculated that increased HMO enrollment by privately insured people would save \$1.5 billion in 1991.<sup>10</sup>
6. *Did not predict any reduction in the growth rate of health expenditures under managed competition, except for the estimated savings from increased enrollment in HMOS.* CBO states, however, that “by restructuring the market for health insurance . . . this version of managed competition might produce additional savings over a longer time period” (168). In other publications, CBO has written that “[although] the overall effect [of managed competition] could be to reduce national health expenditures in the longer term, the available evidence does not permit one to forecast changes in magnitude or timing with any precision. Moreover, important behavioral responses to these changes have not yet been quantified” (166).

#### Economic and Social Research Institute's Analysis of the Managed Competition Act

ESRI provides a second example of how the effects of managed competition have been estimated. In a May 1993 report, *Managed*

<sup>8</sup>Under H.R. 5936, the federal government would subsidize the health insurance premiums of poor people. The subsidy would cover any premium not paid by the individual's employer, up to the cost of the lowest-priced accountable health plan. CBO assumed that this would increase HMO enrollment by those who received Medicaid prior to the act.

<sup>9</sup>The CBO review seemed to rely on some of studies of HMOs with the strongest methodologies, including those of Manning and colleagues (98), Brown, 1987 (101), and Greenfield and colleagues, 1992 (46).

<sup>10</sup>Information on how [his calculation was made and the specific “line items” were provided through personal communications with CBO staff (59).

*Competition in Health Care: Can It Work?*, the authors analyze the impact on NHE of a managed competition plan proposed by the Conservative Democratic Forum and introduced in the 102d Congress as H.R. 5936 (108).

Separate analyses were conducted using “optimistic” and “pessimistic” assumptions. Under an optimistic scenario, ESRI estimated that increasing enrollment in HMOS would save approximately \$10 billion in 1994. Under pessimistic assumptions, it estimated savings of \$2.5 billion in 1994. To arrive at these figures (108,149),<sup>11</sup> ESRI:

1. *Estimated expenditures in non-HMO plans to be \$3,916 per enrollee in 1994 or approximately \$403 billion in total.*
2. *Assumed the proposal would **cause** employees to switch from non-HMO plans to HMOS.* It estimated that, before the reform, 10 percent of employees in small firms and 28 percent of employees in large firms are enrolled in HMOS. After reform, under the pessimistic scenario, it assumed that 50 percent of workers in small firms would switch to HMOS over a 5-year period, and that 25 percent of workers in large firms would switch to HMOS over a 10-year period. This assumption translates into about 35.5 million workers joining HMOS over a 10-year period. Under the optimistic scenario, ESRI assumed that 70 percent of workers in small firms would switch to HMOS over a 3-year period, and 50 percent of workers in large firms would switch to HMOS over a 5-year period (for a total of 57 million people over 5 years).<sup>12</sup>
3. *Assumed that some proportion of Medicaid enrollees would enroll in HMOS.*
4. *Assumed that HMOS offered savings of 15 percent over non-HMO plans under the optimistic scenario, and 10 percent under the pessimistic scenario.*

5. *Multiplied the number of people who would switch to an HMO by the cost of a non-HMO plan (\$3,916) and by HMO savings (10 or 15 percent).* This resulted in total savings of approximately \$34 billion over 5 years under optimistic assumptions, and \$14 billion over 10 years under pessimistic assumptions.

6. *Assumed that there is “likely to be some deceleration in the growth of health care spending over the long-run” due to other elements of managed competition, such as price competition, administrative cost savings, and monop-sonistic buying power* ESRI posited that these factors will reduce the growth rate of personal health expenditures for the nonelderly population by 1 to 2 percentage points below the baseline (i.e., the growth rate under current law) by 2003. The growth rate assumption was applied after taking into account the reductions in the level of expenditures. This assumption contributed to ESRI’S considerably higher savings under managed competition than CBO’S. As with other examples, ESRI’S growth rate assumption is not based on an explicit model of individual or organizational responses to managed competition, or on any explicitly cited evidence, but rather represents the judgment of the analysts. Indeed, the authors note that their assumptions are “highly speculative.”

### ***Lewin-VHI’s Analysis of the Health Security Act Without Government Cost Controls***

As part of its overall analysis, Lewin-VHI estimated the impact of the Health Security Act on NHE if the Health Security Act were implemented without the premium limits (89). To arrive at its estimate of savings from increased HMO enrollment under the Health Security Act (equal to \$14.9 billion in 1998), Lewin-VHI:

<sup>11</sup> The methods used in the ESRI analyses to estimate savings under managed competition were described in a published report and were elaborated upon through personal communication with the authors.

<sup>12</sup> ESRI assumed the managed competition proposals would give employees of small firms more of an incentive to enroll “HMOs and therefore more employees would be enrolled at a faster rate.

1. *Determined how much money would be spent on non-HMO plans in 1998 under current law.* The expenditure estimates were based on 1987 National Medical Expenditure Survey data projected forward to 1998 using a variety of sources, primarily the March 1992 Current Population Survey and Health Care Financing Administration's (HCFA) health expenditure projections. The market shares of HMOs and non-HMO plans were projected to 1998 using either data from the Group Health Association of America or the Health Insurance Association of America (it is unclear from the document which was used). The analysis seemed to assume that the market share of HMOs would not change from 1992 to 1998 under current trends.<sup>13</sup> Lewin-VHI estimated that spending by non-HMO plans for inpatient and outpatient services and prescription drugs would be \$499.9 billion in 1998.
2. *Assumed that "under managed competition, people would be able to choose among a variety of plans with differing levels of effectiveness in controlling utilization."* Further it assumed that "savings under these plans would be consistent with the overall average savings achieved by the current mix of all types of HMOs."
3. *Estimated the average difference in health service utilization between HMO and non-HMO members.*<sup>14</sup> For persons younger than age 65, the estimate was based on a Lewin-VHI study that used the 1989 National Health Interview Survey Health Insurance Supplement data (89). For persons 65 and older, the estimated change in utilization was based on the Medicare Tax Equity and Fiscal Responsibility Act (TEFRA) evaluation results (1995).<sup>15</sup>
4. *Determined the savings that would occur if all individuals were enrolled in plans with savings "consistent with the overall average savings achieved by the current mix of all types of HMOs."* It did this by multiplying the average percent difference in utilization in hospital days and physician visits in HMOs compared with non-HMO plans—found in a Lewin-VHI study (for under 65) and the Medicare TEFRA evaluation (for over 65)—by the estimated baseline expenditure on care on inpatient and outpatient care in non-HMO plans in 1998. Note that there is an implicit assumption of a linear, one-to-one relationship between changes in utilization and expenditures. For example, Lewin-VHI assumes that every 1 percent decrease in hospital days will reduce inpatient expenditures by 1 percent.
5. *Calculated separate expenditure estimates by location (metropolitan/nonmetropolitan), age (under 65/over 64), inpatient/outpatient category, and for prescription drugs.* For example, inpatient care in metropolitan areas for persons under 65 and not enrolled in HMOs was estimated to cost \$188.9 billion in 1998 under current policy. This number was then multiplied by 11.7 percent, the assumed percent reduction in inpatient days in HMOs. The resulting figure, \$22.1 billion, is the estimated reduction in expenditures for inpatient care in metropolitan areas in 1998 for individuals under age 65. Using an assumption about the percent increase in physician visits in HMOs, the same method was repeated for outpatient care provided in metropolitan areas to individuals under age 65, inpatient and outpatient care provided in non-metropolitan areas to individuals under age 65, inpatient and outpatient care provided to indi-

<sup>13</sup> If the market share of HMOs grows over these years under current law, as it has in previous years, Lewin-VHI's estimated savings from managed care are overstated since some of the potential savings assumed from HMOs would occur anyway, without reform.

<sup>14</sup> Utilization was measured in terms of hospital days and physician visits.

<sup>15</sup> Under the aegis of the Tax Equity and Fiscal Responsibility Act, Medicare allowed HMOs to enroll Medicare beneficiaries and Medicare paid them a capitated payment in return for providing or arranging for their Medicare-covered services.

viduals age 65 and older, and for prescription drugs. The totals were then added to arrive at total savings from moving the entire non-HMO population to HMOS, or \$14.9 billion in 1998. This is equal to approximately 3 percent of estimated expenditures in non-HMO plans.<sup>16</sup>

In a section labeled “caveats” in an appendix to the report, Lewin-VHI stated that: “[t]hese estimates are based upon observed experience in existing managed care environments. It is possible that changes in the delivery system envisioned under the Health Security Act will result in substantially more managed care savings than estimated here.”

## ■ Analyses of Managed Competition Proposals With Government Cost Controls

The Health Security Act incorporates many features of Enthoven’s original concept of managed competition. A key distinction, however, is that it would impose a government-enforced limit on the growth rate of premiums. The act and analysis of the act are described in greater detail in chapter 2.

### *Congressional Budget Office’s Analysis of the Health Security Act*

The CBO analysis of the Health Security Act did not make any explicit, quantitative assumptions about savings from managed care or managed competition (132, 172). Rather, CBO projected NHE under the proposal by assuming expenditures would grow at either the legislated growth rate for services covered by the act’s standard benefit package; at the growth rate expected in the federal programs for services covered by these programs (e.g., Medicare and Medicaid); or at baseline growth rates for services not covered under the comprehensive benefit package or other government programs.<sup>17</sup>

### *Clinton Administration’s Analysis of the Health Security Act*

Similar to CBO, the Administration’s analysis of the Health Security Act did not make any explicit, quantitative assumptions about savings from managed care or managed competition (202). Rather, like CBO, the Administration projected NHE under the proposal by assuming that expenditures would grow at either the legislated growth rate for services covered by the standard benefit package; at the growth rate expected in the federal programs for services covered by these programs (e.g., Medicare and Medicaid); or at baseline growth rates for services not covered under the standard benefit package or other government programs. The Administration explained that assumptions about savings from managed care and managed competition entered implicitly into the model. Specifically, the anticipated effects of managed care and managed competition were thought to support the assumption that the legislated growth rate for the premiums could be achieved.

### *Lewin-VHI’s Analysis of the Health Security Act*

Consistent with CBO and the Administration, the overall Lewin-VHI analysis of the Health Security Act (i.e., with government cost controls) did not explicitly consider the impact of managed competition or HMO enrollment on NHE.

## ■ Summary

Estimates of managed competition proposals without government cost controls are based on the assumption that the proposals will increase HMO enrollment. In turn, this is expected to reduce health care costs. Analysts typically use several calculations and assumptions to estimate the potential savings from encouraging individuals to join HMOS.

<sup>16</sup> Note that \$14.9 billion is 3 percent of \$500 billion, estimated by Lewin-VHI to be total expenditures in non-HMO plans in 1998 under current law, or 1 percent of \$1,394 billion (total projected baseline NHE in 1998).

<sup>17</sup> See chapter 2 for more discussion on government cost controls.

First, an estimate is made of non-HMO plan expenditures at the time of reform. For example, in its estimate of the Health Security Act without government cost controls, Lewin-VHI assumes \$500 billion would be spent on non-HMO plans in 1998. Second, a prediction is made of the number of individuals who would switch to HMOS.

All of the analyses assume that increasing enrollment in HMOS can reduce utilization and that this will translate into a *one-time* reduction in expenditures. Estimates of the savings from greater HMO enrollment vary. For example, Lewin-VHI calculated that, on average, moving individuals to HMOS would save about 3 percent of health care expenditures spent in traditional fee-for-service plans. CBO puts the savings at 7.5 percent of expenditures, on average. ESRI figured the savings for privately insured would come to 10 to 15 percent.

Lewin and CBO indicate that, in their judgment, managed competition might reduce the growth rate of NHE. However, analysts cite a lack of explicit research evidence to support this prediction and only ESRI makes a quantitative prediction of how managed competition might reduce the growth rate in health expenditures after taking into account savings from managed care enrollment. Table 3-3 summarizes analysts' estimates of savings from HMO enrollment and the key assumptions used in the estimates of managed competition.

The analyses of managed competition with government cost controls do not use any explicit assumptions about the effect of HMO enrollment or managed competition on national health expenditures.

## REVIEW OF THE EVIDENCE

Analysts of managed competition proposals make assumptions about current expenditures in traditional FFS plans, the number of individuals that will enroll in HMOS as a result of managed competition, and the difference in expenditures between FFS and HMO plans. One analysis reviewed (ESRI) assumed that managed competition might lower the growth rate in health care expenditures beyond the impact of HMO enrollment, while another did not (CBO).<sup>18</sup> The following section reviews the empirical evidence on enrollment in HMOS, savings from HMOS, and the impact of managed competition on the growth rate in national health expenditures.

### ■ Will People Join HMOS?

In its analysis of the Managed Competition Act of 1992, CBO assumed that 75 percent of the non-poor, urban population would join HMOS, or that 51.8 million people would switch from non-HMO to HMO plans between 1995 and 2000. ESRI assumed that 50 to 70 percent of workers in small firms and 25 to 50 percent of workers in large firms would switch to HMOS (35.5 million to 57.3 million people). (Only CBO cites specific evidence in support of its enrollment estimate, based on two health insurance programs for public employees in California and Wisconsin.)

Do these estimates imply a relatively large or small shift in HMO market share as a result of managed competition? In 1992, approximately 41 million individuals were enrolled in HMOS, making up approximately 19 percent of the insured population and 16 percent of the total population

<sup>18</sup> In their most recent analysis of the Managed Competition Act of 1993, CBO did assume that the act would reduce the growth rate in health care expenditures in later years due to competition among plans (174).

(49).<sup>19</sup> Figure 3-1 shows the percentage of insured persons who might be enrolled in HMOS in the year 2000 under current policy, assuming enrollment increases at 3 million enrollees per year.<sup>20</sup> It also shows the HMO market share under the Managed Competition Act as projected by various analysts.<sup>21</sup> In general, analysts predict that a large number of individuals will join HMOS compared with current policy.

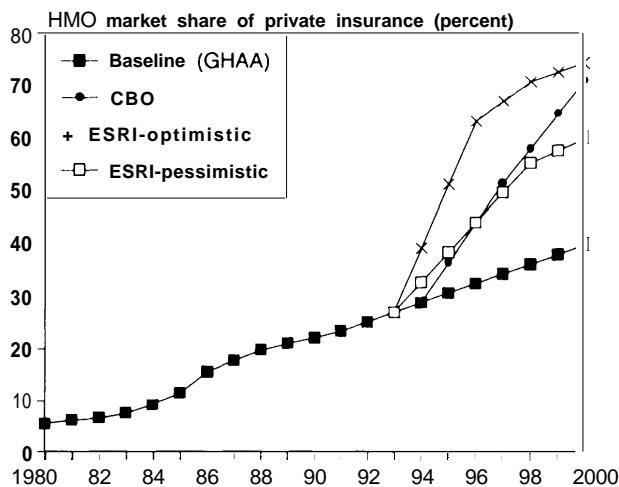
Three implicit assumptions underlie aggregate assumptions about the size of HMO enrollment:<sup>22</sup>

- Managed competition will create incentives for plans to compete on price and HMOS will offer the lowest priced plans.
- Managed competition will create incentives for consumers to switch to lower-priced plans.
- Enough is known about insurance plan pricing and the demand for insurance to make a quantitative prediction about HMO enrollment under reform.

Research evidence supports the contention that consumers are responsive to the price of health insurance (16,34,92,99, 106,113, 148,206). Thus increasing the effective price of insurance to consumers is likely to encourage them to switch to lower-priced plans. Moreover, research provides some indication of the size of the price differentials between HMO and FFS plans needed to cause consumers to switch from FFS to HMO plans (33).

Whether HMOS will offer the lowest priced plan, and more importantly the size of the price differences between various plans that would result under managed competition, are less certain. The prices charged by a particular health plan will

FIGURE 3-1: Projected HMO Market Share of Private Insurance for the Year 2000 in Various Analyses, 1980–2000



KEY: CBO = U S Congress, Congressional Budget Office, ESRI= Economic and Social Research Institute, GHAA= Group Health Association of America, HMO = health maintenance organization

SOURCE Office of Technology Assessment, 1994, based on data from Group Health Association of America, prepared by S. Palsby (49), J A Meyer, S Snow-Carroll, and E Wicks (108), U S Congress, Congressional Budget Office (168)

depend on many factors, including the other characteristics of the plan (e.g., benefits offered and patient cost-sharing); degree of consumers' responsiveness to price differences; degree of consumers' responsiveness to other characteristics of the plan (e.g., access to specialists); how actively consumers shop for plans; the number, type, and prices of other plans offered; the market share of

<sup>19</sup>Group Health Association of America includes staff-, group-, and network-model HMOs and Individual practice Organizations (IPAs) in its definition of HMOs (49).

<sup>20</sup> According to data from the Group Health Association of America, enrollment in HMOs grew by approximately 3 million persons annually from 1986 to 1992 (49).

<sup>21</sup> Estimates were calculated by the Office of Technology Assessment (OTA) based on analysts' assumptions and OTA assumptions about the baseline growth rate of HMO enrollment.

<sup>22</sup> It should be noted that none of these assumptions are explicitly used. That is, no analyst used assumptions about the price elasticity of demand for insurance or about price differentials in its models.

plans; health status of plan members; and the behavior of employers and health plan purchasing cooperatives.<sup>23</sup> Because of the difficulty in determining consumer behavior and HMO pricing under reform, the magnitude of the shift to HMOS that will occur under reform is difficult to predict.

### ***Evidence from Public Employee Insurance Programs Used as Examples of Managed Competition***

Some evidence on HMO enrollment maybe available from public employee insurance programs that incorporate some of the features of the managed competition proposals. The CBO analysis cites two state employer insurance programs—the California Public Employees’ Retirement System (CalPERS) and the insurance program for Wisconsin State employees—as the basis for its enrollment assumptions. Other state and federal health insurance programs that are looked to as examples of managed competition include the Minnesota and Missouri State employee health insurance programs and the Federal Employees Health Benefits Program (FEHBP).<sup>24</sup> However, none of these programs incorporates all of the features of the managed competition proposals, complicating attempts to make inferences from them.

Table 3-4 shows HMO market share in 1993 for the public employee insurance programs sometimes used as examples of managed competition. The table also shows HMO market share for the relevant State’s insured population as a whole. As table 3-4 indicates, the market share of HMOS in the state public employee insurance programs is

substantially higher than the HMO market share in the relevant state overall, suggesting that the programs resulted in a higher level of HMO enrollment than would have otherwise occurred. Both the Wisconsin and Missouri programs experienced dramatic increases in HMO enrollment a year after employer contributions were limited to the lower cost plans and other changes were instituted. In the Missouri program, HMO market share went from 35 to 65 percent in counties with HMOS in 1 year. In the Wisconsin program, HMO market share grew from 18 to 62 percent of active employees (74). In contrast, the HMO market share has remained relatively low in FEHBP.

Table 3-5 describes the elements of managed competition proposals in relation to the characteristics of the state and federal employee insurance programs. Features of managed competition proposals include the opportunity for individuals and employers to join a health plan purchasing cooperative and to choose from several plans; community rating and open enrollment; standardized benefits; employer contributions limited to the cost of the lowest priced plan (or at least limited to a fixed dollar contribution); limits on the tax deductibility of employer contributions (usually tied to the lowest-cost plan); risk-adjusted insurance plan payments; and reports on plan quality. The state programs and FEHBP have some, but not all, of these features. For example, all allow employees to choose from several plans offered through a sponsor or “health alliance.” In addition, most plans are required to use community rating, which means that every plan must accept all applicants at virtually the same rate.

<sup>23</sup> For example, such factors as how many plans employers or alliances offer and how aggressively they negotiate Premiums may influence HMO prices and HMO enrollment.

<sup>24</sup> This chapter reviews the known published research on programs similar to managed competition, and provides some additional information that has not been previously published. It includes all of the State programs that are known to have several of the features of managed competition proposals. There may be other examples that are claimed to be managed competition not reviewed in this chapter. For example, many private employers have banded together to form insurance purchasing groups and even individual private employers may have adopted some of the features of managed competition proposals. These models have to be considered carefully, however, since they may differ in significant ways from the reforms described in some managed competition proposals (e.g., they may not offer employees a choice of plans, they may aggressively negotiate with plans, they may not limit employer contributions to the cost of the lowest priced plan). In any event, none have been subjects of research published in peer-reviewed journals.

TABLE 3–4: HMO Market Share of Public Employee Insurance Programs, 1992–93

	HMO market share for all participants (percent)	HMO market share for participants in urban areas (percent)	HMO market share in the state (1992) (Percent) <sup>b</sup>
<b>CalPERS<sup>a</sup></b>	89	NA	41
<b>FEHBP</b>	25	NA	na
<b>Minnesota</b>	55	86	33
<b>Missouri</b>	25	65	15
<b>Wisconsin</b>	84	NA	25

KEY: CalPERS = California Public Employees' Retirement System, FEHBP = Federal Employees Health Benefits Program, HMO = health maintenance organization; NA = not available, na = not applicable

aFigures exclude retirees and out-of-state members. Otherwise, approximately 75 percent of CalPERS participants are enrolled in HMOS if retirees and out-of-state members are included

bData are from the Group Health Association of America, Inc.

SOURCES Off Ice of Technology Assessment, 1994, based on information from R Cleverly (21 ), R. Gresch (48), Group Health Association of America, Inc. (49), J. Klein (73), T. Korpady (76), R Meyer (109)

However, neither CalPERS nor FEHBP limits employer contributions to the cost of the lowest priced plan (although CalPERS is getting close since it froze its contribution to 1991 levels). The Wisconsin program limits contributions to 105 percent of the lowest-cost HMO premium available in the county of residence or to 90 percent of the conventional insurance premium, whichever is less. Only the Missouri and Minnesota programs limit employer contributions to the cost of the lowest priced HMO or plan in a given area. HMO enrollment might have been greater in CalPERS, FEHBP, and the Wisconsin program had they limited employer contributions to the lowest priced plan.

Another difference between the state and federal programs and one of the managed competition proposals (i.e., H.R. 5936 in the 102d Congress) is that state and federal employees automatically participate in the “health alliance” or “health plan purchasing cooperatives.” In contrast, under the Managed Competition Act of 1992 only employees of small firms would be offered tax incentives to enroll in a health plan offered through a health plan purchasing cooperative. Employees in

large firms would be offered tax incentives to enroll in certain types of certified plans (e.g., accountable health plans, which could not deny coverage on the basis of health status and would have to use community rating), but the employees would not be encouraged to purchase plans through a health plan purchasing cooperative or to choose from several plans.<sup>25</sup>

Another problem in generalizing about HMO enrollment based on these public programs is that the relative prices of plans may differ under the managed competition proposals from that experienced in the public employee programs. Unlike the managed competition proposals, the public employee programs have not paid plans risk-adjusted premiums (21,73,76). Currently, premiums of plans in public insurance programs reviewed above reflect differences in the characteristics of plan members, “administrative efficiency,” and in some cases, the benefits provided. Therefore, HMOS may have lower premiums because of favorable risk-selection (that is, because they have a healthier population of members) rather than because of greater efficiencies. For example, analy-

<sup>25</sup> The Health Security Act would require that large firms that form corporate alliances offer at least three plans.



TABLE 3-5: Public Employee Insurance Programs as Examples of Managed Competition

Features of managed competition proposals	Public employee Insurance programs with managed competition features				
	CalPERS	FEHBP	Minnesota	Missouri	Wisconsin
Consumers can buy insurance through an "alliance" and can choose from several plans.	Yes	Yes	Yes	Yes	Yes
Plans have community rating and open enrollment	Yes	Yes	Yes	Yes	Yes
Plans have standardized benefits	Yes <sup>a</sup>	No	Yes	Yes	Yes <sup>b</sup>
Employers' contribution is limited to cost of the lowest priced plan	No <sup>c</sup>	No <sup>d</sup>	Yes <sup>e</sup>	Yes <sup>f</sup>	No <sup>g</sup>
Consumers are provided with information on the "quality" of competing health plans	No <sup>h</sup>	No	Yes <sup>i</sup>	No <sup>j</sup>	No
Tax deductibility of premiums is limited	No	No	No	No	No
Plans are paid risk-adjusted payments.	No	No	No	No <sup>k</sup>	No

KEY: CalPERS = California Public Employees Retirement System; FEHBP = Federal Employees Health Benefits Program

aThe CalPERS program required health maintenance organizations (HMOs) to provide a standard package of benefits in 1993

bIn 1994, the Wisconsin program required uniform benefits for all HMOs and preferred provider organizations but not for the fee-for-service plans. Previously, the HMO plans had very similar benefits.

<sup>c</sup>Prior to 1991, CalPERS paid an amount equal to 100 percent of the weighted average premiums in the four largest plans (1 82) Since 1991, the State agreed to set the contribution in collective bargaining agreements with State employee unions From 1991 through 1994, the State paid a fixed amount frozen at the 1991 level (1 82)

dUnder FEHBP, the government contribution for each enrollee's premium is a fixed dollar amount equal to 60 percent of the average premiums in six plans 1) the two government-wide plans (Blue Cross and Blue Shield and Aetna) 2) the two employee organization plans with the largest number of enrollees, and 3) the two HMOs with the largest number of enrollees (48,1 83) The government contribution cannot exceed 75 percent of the cost of any plan's premium, and in most plans of the FEHBP, the government contribution is at or near the maximum (48)

eThe employer contribution in the Minnesota program is limited to the lowest priced health plan in a given county (as of 1985)

The employer contribution in the Missouri program is limited to the lowest priced HMO in each service area (as of 1993).

9The employer contribution in the Wisconsin program equals 105 percent of the lowest priced HMO premium available in the county of residence or 90 percent of the conventional insurance premium, whichever is less (as of 1983) Administrators of the program argue that this formula has significantly impeded price competition and incentives to join the cheaper plans relative to a contribution of 100 percent of the lowest priced plan

hIn 1994 CalPERS will require plans to submit data on a list of quality indicators. Beginning in 1995 published information on plan quality will be distributed to members

<sup>i</sup>The Minnesota program conducts surveys of enrollee satisfaction with providers and plans The results of these surveys are distributed in the form of a brochure during open enrollment (73)

<sup>j</sup>The Missouri program will distribute information on plan quality

kThe Missouri program is planning on paying plans risk-adjusted payments in the future (49).

SOURCE Office of Technology Assessment 1994

ses of the FEHBP program have found that selection had a significant impact on the premiums charged (126, 184). If plans are paid risk-adjusted payments, their premiums may differ from those currently charged in the public employee insurance programs and HMO enrollment could be reduced.

Finally, cities with public employee insurance programs tend to have relatively high HMO penetration rates and may have experienced greater and more rapid HMO enrollment than might occur elsewhere (49). In other areas, providers may be less willing to join an HMO and plans may have more difficulty recruiting providers.

### Summary

There is some research on consumers' sensitivity to the price of health insurance and the size of the price differences that will lead them to join HMOS. Moreover, evidence from state employee insurance programs that have implemented some aspects of the managed competition proposals indicate that these reforms could significantly increase enrollment in HMOS. However, given the complexity of the reforms and the market for health insurance, it is difficult to predict the magnitude of HMO enrollment.

### ■ Will Increasing HMO Enrollment Save Money?

As stated previously, estimates of the potential reduction in NHE under managed competition proposals rest on three key premises, namely that:

- Individuals will leave non-HMO plans and join HMOS.
- After switching to HMOS, individuals will pay less for health care than they would have if they had remained in a non-HMO plan.

- HMOS will, or will not, have a limited *one-time* effect on NHE.

The previous section examined the first premise that individuals would join HMOS. This next and the following sections examine the premise that NHE would decline after individuals joined HMOS and whether this is likely to be a *one-time* effect. This section reviews the evidence on savings from HMOS and from the public employee insurance programs often deemed to exemplify managed competition.

### *HMO and Non-HMO Expenditure Differences*

The simulation models reviewed above made various assumptions about savings from HMOS. In its analysis of the Managed Competition Act of 1992, CBO assumed that HMOS could save 7.5 percent of non-HMO expenditures, on average (for all types of HMOS). CBO based this assumption on a CBO review of published studies, although exactly how the estimated savings were derived is unclear. Lewin-VHI estimated that HMO enrollment could save, on average, 3 percent of health expenditures in non-HMO plans, based on its own analysis of utilization differences using the National Health Interview Survey and the National Medical Expenditure Survey (142). ESRI assumed that HMOS could save 10 to 15 percent of non-HMO expenditures and stated that its assumption was based on CBO'S review and studies "conducted by Rand and others" (107).

Several comprehensive reviews have been done of studies comparing utilization in HMOS to FFS plans (62,95,104,110).<sup>26</sup> The studies consistently show that enrollees in IPAs, and staff-, and group-model HMOS have lower hospital utilization (i.e., hospital admission rates, length of stay, days per enrollee) than FFS plans, although stud-

<sup>26</sup>Of these four reviews, the one by Miller and Luft was the most comprehensive. They selected studies that met the following criteria: data from 1980 forward, private insurance or Medicare enrollees, a comparison group, a reasonable attempt at statistical adjustment for noncomparable HMOs and indemnity insurance enrollees, and peer-reviewed findings (with two exceptions) (11 O). Andrews and Lake reviewed studies published in the last 10 years. Most of the studies reviewed were published in refereed journals, although a small number of unpublished papers were also included (104). Health Care Strategy Associates, Inc., reviewed studies conducted from 1985 to the present, found using literature searches of computerized databases and other sources. They included only studies that contained "reasonable attempts to control for important confounding variables such as selection bias" (62).

ies vary in the magnitude of the difference (95,104,110). Comparisons of physician visits per enrollee in HMOs and FFS plans produce mixed results, with some studies showing HMO members make fewer visits and an equal number of studies finding the opposite (110). Several studies have found that HMOs use fewer expensive procedures, tests, and treatments (110).

Researchers continue to debate what aspects of HMOs are necessary to reduce overall expenditures. For example, in their 1992 review, CBO found insufficient evidence to assess the effect of IPAs and stated that savings from IPAs are generally thought to be appreciably smaller than those from staff- and group-model HMOs (161). However, some studies have found no difference between IPAs and group- and staff-model HMOs (105), although the data are limited. Since IPAs and other hybrid forms of managed care plans make up the largest and fastest growing portion of the HMO market (49,63), determining which features of health plans are necessary to control costs, and which types of plans subscribers will join under reform, is critical.

Most observers assume that because HMO members use fewer services than members of FFS plans, they also have lower health care expenditures. However, the relationship between utilization and expenditures may not be straightforward. HMOs could have lower expenses for patient care but higher administrative expenses. Alternatively, HMOs might reduce the number of hospital days or physician visits, but increase the intensity of services received during each day or visit. In their recent review, Miller and Luft found almost no studies on total expenses per enrollee by plan type (110). In part the difficulty arises because, unlike FFS plans, HMOs do not need to generate billed or paid charges. In addition, data on plan members' costs and characteristics are not reported.

Plan premiums are one source of data on expenditures. In fact, premium data indicate that HMOs may, on average, have lower premiums than FFS plans; however, unadjusted average premium levels are not good indicators of the savings that increased HMO enrollment might produce. This is

because the data are not adjusted for the level of benefits, patient cost-sharing, and the population covered (63,78). Moreover, they do not reflect the out-of-pocket costs of services used but not covered by the plan.

As a result of the limited direct data on expenditures, researchers have to translate utilization differences between HMO and FFS plans into expenditure differences.

Some studies that have measured utilization differences between FFS and HMO plans have imputed expenditures for those differences. For example, data from the Rand Health Insurance Experiment were used to impute an expenditure difference of 28 percent between members of the HMO and FFS plans without cost-sharing. Similarly, data from the Medicare TEFRA demonstration were used to impute an expenditure difference of 10 percent between the HMOs and the FFS plans. Neither of these calculations included administrative costs.

Other analysts have synthesized the findings from a number of studies of utilization differences between HMO and FFS plans and attempted to apply them more broadly to estimate the magnitude of potential savings from increased HMO enrollment. These analysts confront a voluminous and diverse literature on utilization differences by plan type. The exercise of assigning a dollar value to the utilization differences presents serious obstacles (62). The issues include:

- How the various studies on each type of service should be synthesized. For example, should the results be based on the "best" study or on a combination of some or all of the studies?
- Whether to assume that managed care affects various health services differently (e.g., hospital, physician, dentist, home health).
- How to combine estimates for different types of services. Should one assume that the differences are additive (e.g., that the reductions in length of stay should be added to the reduction in hospital admissions)? Should one assume that there are offsetting effects (e.g., that a de-

crease in hospital days will be offset by an increase in outpatient or nursing home use)?

- Whether to assume that utilization effects differ by type of HMO (e.g., IPA, or group-, staff-, and hybrid models).
- Whether to assume that the effect of managed care differs by insurance status (e.g., private insurance, Medicare, Medicaid, and uninsured) or by other population characteristics?
- What to assume about the intensity of services received. Should every decrease in a unit of service be multiplied by the average cost of that service, or should a unit of service be valued at less or more than the average cost?
- Whether to assume that administrative costs, including profits, are equivalent across HMOS and FFS plans.

The problems of synthesizing the literature and determining how much HMOS would save are illustrated by three studies of potential savings from enrolling into HMOS all persons who are not already members of HMOS (62, 142, 163). The estimates range from savings of 3.3 to 27.1 percent (see table 3-6).<sup>27</sup>

In some ways, each of the three studies took a relatively similar approach to estimate savings from HMO enrollment. All estimated the extent to which utilization differs between managed care plans and traditional FFS plans. Then they applied those utilization differences to expenditures for persons not currently enrolled in HMOS. The studies differ, however, in other important ways that make them difficult to compare. All of the analysts note that the estimates are very uncertain. For example, CBO writes that its “illustrative estimates should be interpreted with considerable caution. . . . By necessity, the analysis incorporates a large number of assumptions, but the data or evidence supporting them have many limitations” (163). Similarly, Health Care Strategy Associates, Inc., notes “[i]t is a tenuous exercise to distill a

simple savings number from a large and diverse literature” (62).

### *Generalizing to Health Reform*

Analysts who estimate savings from greater HMO enrollment make the implicit assumption that past evidence on savings will apply equally to the new population of subscribers and providers that might join HMOS under reform. However, HMO enrollees may not be demographically representative of the population as a whole. For example, they tend to be younger than members of FFS plans (46, 102). Since older individuals tend to use more health care services, increasing enrollment of older individuals may increase savings from HMOS if HMOS can reduce their health care expenditures for new, older, enrollees. Alternately, a review found that service use by people who subsequently join an HMO is significantly lower than use by those who choose to remain in a conventional plan (64). Therefore, savings for the new subscribers could be lower than that found in studies based on the current population of subscribers if part of HMO savings previously found are derived from favorable selection.

As HMO enrollment increases, the number of providers serving the plan must increase, and these new providers may be less conservative in their practices and less responsive to administrative controls than providers already in HMOS (3). Alternatively, as HMO enrollment increases plans may have more leverage with individual providers and thus be able to generate more savings.

Finally, HMOS may be structured differently under reform than they are now. For example, in the Health Security Act, HMOS must offer an “out-of-network” option. Since, there is little research on which aspects of managed care plans are necessary to control costs, it is difficult to predict with certainty how policies that alter the structure

<sup>27</sup> The largest estimate is very optimistic relative to other estimates. It is almost equivalent to the difference in expenditures imputed in the Rand Health Insurance Experiment, which only looked at one, well-established group-model HMO.

TABLE 3-6: Estimates of Savings for Total Enrollment in HMOs from Selected Studies<sup>a</sup>

Authors	Total savings estimated (\$ billions)	Estimated savings as proportion of expenditures that could be affected (percent)	Enrollment assumption	Source for assumptions about HMO savings	Key assumptions	
					Assumptions about how HMO difference in utilization translate into differences in expenditures	Assumptions regarding HMO savings
CBO, Aug. 1992	\$51 to \$64 (1 990 dollars)	108 to 135	All individuals enroll in group or staff-model HMOs	Literature review	Multiply utilization differences by expenditures indicated in the national health accounts according to category of insurance status (i.e., Medicare, Medicaid, privately insured) and by category of service (e.g., hospital, physicians, dentists)	Staff and group-model HMOs reduce personal health expenditures by 15% for privately insured persons and Medicare beneficiaries Staff- and group-model HMOs reduce personal health expenditures by 7.5% for Medicaid beneficiaries "Effective forms" of utilization review reduce personal health expenditures by 1 to 4% under traditional insurance and Medicare "Effective forms" of utilization review reduce personal health expenditures by 0.5 to 2% under Medicaid
Health Care Strategy Associates, Inc., 1993	\$81.4 (1 990 dollars)	271	All individuals enroll in HMOs. No distinction is made by HMO model type. All HMOs are assumed to provide an equivalent level of savings,	Literature review	Multiply utilization differences by expenditures indicated in the national health accounts according to category of insurance status (i.e., Medicare, Medicaid, privately insured) and by category of service (e.g., hospital, physicians, dentists)	All forms of HMOs reduce hospital expenditures by 39.4% for privately insured persons All forms of HMOs increase physician expenditures by 3.3% for privately insured persons. All forms of HMOs reduce expenditures on dentists, other professionals, vision products and durables, and other personal health care by 16% for privately insured persons All forms of HMOs increase expenditures on home health and nursing home care by 15% for privately insured persons All forms of HMOs reduce expenditures on drugs and medical nondurable by 75% for privately insured persons HMOs increase costs to Medicare by 5.7%. HMOs decrease costs to Medicaid by 7.5%.

(continued)

TABLE 3–6: Estimates of Savings for Total Enrollment in HMOs from Selected Studies<sup>a</sup> (cont'd.)

Authors	Total savings estimated (\$ billions)	Estimated savings as proportion of expenditures that could be affected (percent)	Enrollment assumption	Key assumptions		
				Source for assumptions about HMO savings	Assumptions about how HMO difference in utilization translate into differences in expenditures	Assumptions regarding HMO savings
Lewin-VHI, Mar 18, 1993	\$342 (1 994 dollars)	33	Individuals in metropolitan areas enroll in group-model HMOS. Individuals in nonmetropolitan areas enroll in IPA-model HMOS.	Lewin-VHI econometric analysis of National Health Interview Survey	Multiply utilization differences by expenditures Indicated in the 1987 National Medical Expenditure Survey aged to 1994. Divide expenditures into categories according to whether metropolitan or nonmetropolitan, inpatient or outpatient, and over or under age 65, and by type of service (e.g., prescription drugs)	Group-model HMOS reduce hospital days by 19.1% and increase outpatient visits by 6.6% for privately insured persons IPA-model HMOS reduce hospital days by 69% and increase outpatient visits by 9.9% for privately insured persons. All forms of HMOS reduce hospital admissions by 16% for Medicare beneficiaries. All forms of HMOS increase physician services by 12% for Medicare beneficiaries,

KEY: IPA = individual practice association

<sup>a</sup>These estimates were calculated independently by each analyst. The estimates have not been incorporated into any of the legislative proposals examined by OTA.

SOURCE Off Ice of Technology Assessment, 1994; based on sources shown. Full citations can be found in the list of references at the end of this report

of MOS will affect their ability to reduce expenditures (104).

### Summary

Although a substantial amount of research points to lower utilization in HMOS, no research has directly measured total per capita expenditures for demographically similar members of HMO and FFS plans. Using the research on utilization differences by plan type to estimate expenditure differences between HMOS and FFS plans raises thorny issues and requires a number of assumptions. Given the uncertainties raised by using the incomplete research on HMO and FFS plans, future analyses of managed competition might be improved by using a range of probable savings from HMOS. However, efforts to find an appropriate range of savings confront difficulties similar to those encountered in developing a point estimate. A simple approach is to base the range of estimated savings on the assumptions used in the simulation model analyses—that is, that HMO plans can save 3 to 15 percent relative to non-HMO plans. Although this range is somewhat ad hoc, it is relatively wide and thus could indicate the uncertainty that surrounds estimates of HMO savings.

### ■ Will Managed Competition Have a Continuing Impact on the Growth Rate of National Health Expenditures?

Some of the analyses reviewed assume that managed competition will result in *one-time* or limited savings. This implies that although greater enrollment in HMOS will reduce the level of health care spending, once these savings are achieved, costs will grow at the same rate as in current FFS plans. One-time savings might occur, for example, if HMOS reduced hospital admissions compared with FFS plans, but adopted new technologies and procedures at the same rate as FFS plans. Conse-

quently, in later years hospital costs would grow at the same rate in both types of plans.<sup>28</sup>

Proponents of managed competition assert that the growth rate in national health expenditures will slow over time as consumers choose plans based on price and quality, and as health plans compete for enrollees by offering the best care at the lowest price. None of the estimating approaches OTA reviewed explicitly models this process; rather the analysts simply offer a judgment as to whether the process would succeed. Lewin-VHI and CBO indicate that managed competition might reduce the growth rate of NHE, although CBO notes that the magnitude and timing of any decreases are highly uncertain. ESRI assumes that managed competition would reduce the growth in NHE by 1 to 2 percent, although it called this assumption speculative. In general, as the following section indicates, very little research has been done to explore the question of whether HMOS or managed competition is likely to substantially reduce the growth rate in health care expenditures.

There are only two peer-reviewed studies comparing the growth rate in spending for HMO and FFS plans. Both used data collected prior to 1982, before the widespread growth in HMOS and other forms of managed care. One of the studies (19) found no difference in the growth rate of HMO premiums and premiums in conventional plans. The other study found very weak and mixed evidence of differences (94).

Recent employer health insurance surveys provide some weak and preliminary indication that HMOS may have experienced a lower rate of premium increases than conventional FFS plans (38,41,110,181). These data **must** be interpreted cautiously, however. Premium information has only been collected by benefits consulting firms and the samples have been relatively small and may not be representative. Moreover, higher

<sup>28</sup> *One-time savings should not be confused with one-year's savings.* For example, if expanding the market share of HMOS reduces costs by \$10 billion in 1 year, then savings over 5 years would be over \$50 billion. However, the assumption of (one-time savings implies that plans cannot continuously or significantly limit factors that are causing health care costs to rise substantially each year.

growth rates of FFS plan premiums might be due to an increase in benefits or to a change in the population mix within different types of plans. Overall, a much more careful analysis of premiums by type of plan needs to be completed before any conclusions can be drawn about the differential growth rate of premiums.

Some studies have examined how the growth of health care costs is influenced by HMOS and competition by comparing the rate of growth of total health care expenditures in markets with greater HMO enrollment to the growth rate in markets with less HMO enrollment.<sup>29</sup>

Empirical studies based on data from before 1985 consistently have failed to find an association between HMO enrollment and either average hospital costs per admission or average health care costs per capita (11 O). However, a study that used data from private non-HMO-plan hospitals in California for 1983-88 concluded that a 10 percent increase in HMO market penetration lead to a 9.4 percent lower increase in total hospital costs per admission over the 6-year period (138). However, overall hospital costs per admission grew by 74.5 percent over the same period (138).

Another source of evidence about the impact of managed competition on the growth rate of national health expenditures might come from programs that have implemented some of the reforms proposed under managed competition. Unfortunately, little evidence from such programs currently exists (1,3 1,1 66). The most commonly cited examples are the state employee insurance programs discussed above—including those in California, Minnesota, and Wisconsin—and the FEHBP. The experiences of these programs, in terms of their growth rate of health expenditures, might provide some basis for predicting the effects of managed competition.

A General Accounting Office (GAO) study of CalPERS found that for contract years 1989

through 1991, the average CalPERS premium grew by 16.7 percent annually, compared with increases of 15.3 percent per year reported by employers nationally (182). For contract year 1992, CalPERS negotiated premiums that increased by an average of 6.1 percent compared with a 10.1 percent increase in employer premiums nationally. For the 1993 contract year, CalPERS negotiated rate increases averaging 1.4 percent, compared with 8 percent for other employers.<sup>30</sup> For contract year 1994, CalPERS negotiated an overall rate change of -1.1 percent (21).

GAO wrote that:

... several factors contributed to CalPERS recent success in negotiating health insurance rates: 1 ) a budget crisis led the state of California to freeze its premium contribution in 1992; 2) CalPERS began exercising its purchasing power by negotiating more aggressively, for example, asking HMOS not to increase their rates [e.g., CalPERS froze enrollment in the plan with the largest market share when the plan refused to hold down its premiums]; and 3) CalPERS introduced a standard benefit package for HMOS in 1993 that requires patient copayments for certain health services, thereby allowing some plans to restrain the growth in premiums.

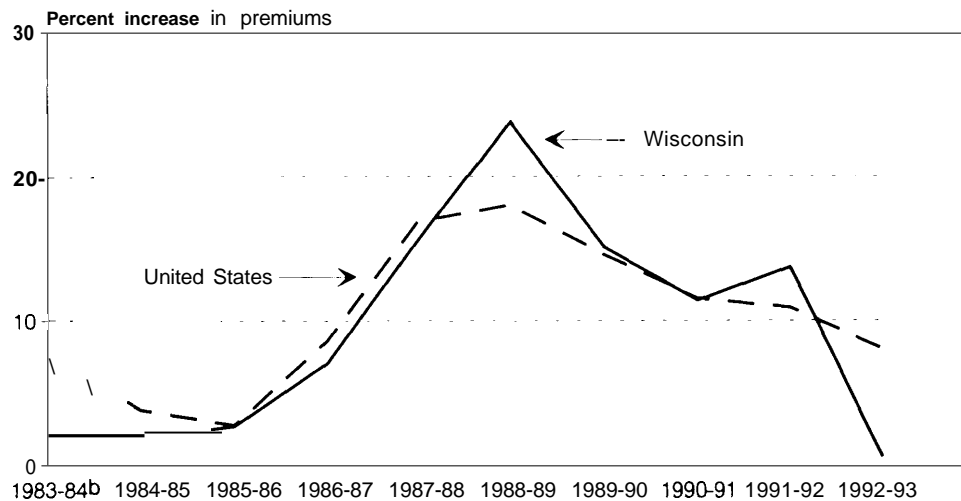
Drawing conclusions based on the CalPERS experience is difficult. There are a number of possible explanations for the lower premium increases over the last 3 years, including: greater patient cost-sharing, tougher negotiations, and a standardized benefit package. It is not clear whether the success over the past 3 years will continue, nor is it clear whether the experience would be recreated under the managed competition proposals. For example, under most managed competition proposals, the extent to which health alliances would have the desire or ability to aggressively negotiate premiums are either not clear or are limited.

<sup>29</sup> Analysts have questioned whether HMOs may reduce health care costs for their members but leave total, system-level health care expenditures unchanged (e.g., because of cost-shifting). These studies address the issue of cost-shifting by examining total expenditures.

<sup>30</sup> CalPERS premium increases were also below those for other employers in California for 1992 and 1993.



**FIGURE 3-2: Comparison of U.S. and State of Wisconsin<sup>a</sup> Growth Rates for Employee Premiums, 1983-93**



<sup>a</sup>Wisconsin Employees Health Insurance Program  
<sup>b</sup>Indicates the year the program started

SOURCES T Korpady (76), KPMG Peat Marwick (77), KPMG Peat Marwick (78), C B Sullivan and T Rice (153), Congressional Research Service (1 84)

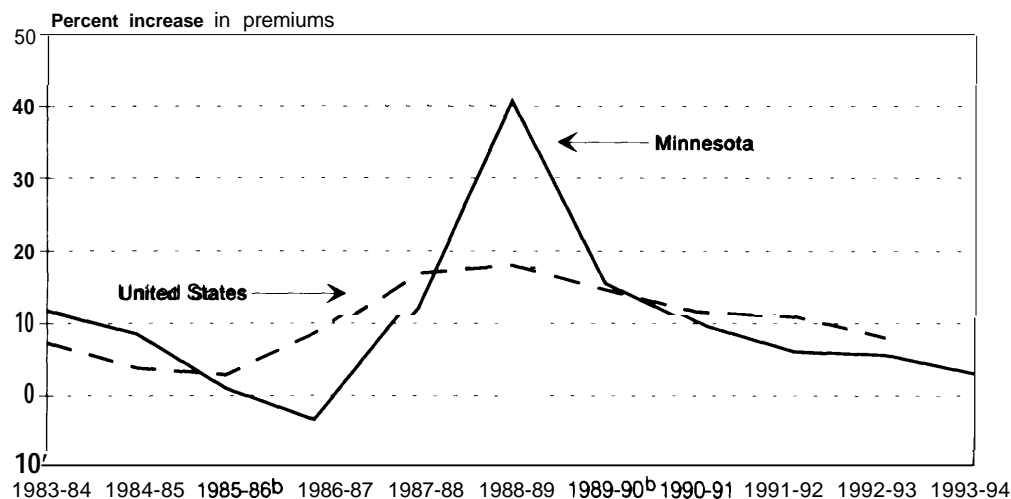
A Congressional Research Service (CRS) study of FEHBP for the period 1980 to 1989 found that premiums rose by 12 percent, compared with 14 percent nationwide (1 84). The CRS attributed much of the difference to a 1982 benefit reduction mandated by the Office of Personnel Management. It also noted that a reduction in reserves in 1986 reduced premiums. A more recent analysis also compared the growth rate of premiums in the FEHBP for the period 1980 to 1990 (37). It found that total premiums grew by 9 percent a year in FEHBP and at around 12 percent per year for private employers nationwide.

Figures 3-2 and 3-3 show the rate of increase in premiums in the Wisconsin and Minnesota state employee insurance programs, respectively, compared with the rate of increase nationally.

Wisconsin implemented features of managed competition in 1983 (see table 3-5). Over the period 1984 to 1993, premiums rose an average of approximately 10 percent a year in the Wisconsin state employee program as a whole (75). Nationally, premiums rose an average of 11 percent per year (39,184).<sup>31</sup> This could be interpreted as evidence that managed competition may reduce the growth rate in premiums slightly. However, premium increases have been cyclical (40,42) and therefore the time period of comparison matters greatly. When compared for the period 1985 to 1993, premiums rose 10 percent a year nationally, and 11 percent in Wisconsin. Thus, there does not appear to be convincing evidence of any difference in the growth rate of premiums.

<sup>31</sup>The data from Gabel (39) is from a personal communication. He derived national premium growth rates using data from the Department of Labor's Bureau of Labor Statistics, Hay/Huggins, the Health Insurance Association of America (HIAA), and KPMG Peat Marwick. The Congressional Research Service (CRS) data were for the period 1984-88 and reported in a Committee Report (1 84). Data for later years came from HIAA and KPMG Peat Marwick.

FIGURE 3-3: Comparison of U.S. and State of Minnesota<sup>a</sup> Growth Rates for Employee Premiums, 1983-94



<sup>a</sup>Minnesota Employee Health Insurance Program

<sup>b</sup> Indicates the year the program started. It is not clear whether the Minnesota program started in 1985 or 1989.

SOURCES: J. Klein (73), KPMG Peat Marwick (77), KPMG Peat Marwick (78), C. B. Sullivan and T. Rice (153), Congressional Research Service (184).

Similarly, there is evidence that the Minnesota program did not reduce the growth rate in premiums, although different interpretations of the evidence lead to different conclusions (73). The State of Minnesota Employee Group Insurance Program implemented aspects of managed competition beginning in 1985. From 1985 through 1993, premiums grew by approximately 10 percent a year in the nation and in the Minnesota program. From 1986 through 1993, premiums grew by approximately 12 to 13 percent a year in the nation and by approximately 12 percent in the Minnesota program. Administrators of the Minnesota program argue that the program really did not get going until 1990 and therefore premiums should be compared beginning in 1989, not 1985. Before 1989, the FFS plan had the lowest cost. In 1989, the FFS plan raised premiums substantially, in part to make up for very low premiums in previous years. At that point the viability of the FFS plan seemed questionable and it was subsequently reorganized as a preferred provider organization (PPO). The premium increases from 1989 to 1993

in the Minnesota program have remained below the national average.

Administrators of the Minnesota program review health plans' rates and negotiate with plans over their premiums. Administrators of the program describe this process as an active review and negotiation process and explain that they will challenge rates that seem excessive. Moreover, administrators use the review process as a way to discover causes of cost increases and to develop responses (e.g., an increase in utilization of chiropractic services might cause administrators to negotiate a change in benefits or to encourage greater controls on chiropractic services). The administrators state, however, that negotiations are not heavy-handed in the sense that rate increases are dictated with the threat of discontinuing plans or freezing enrollment. The influence that this process has had on rate increases, as opposed to the other aspects of the program, is not clear (19).

As discussed in the previous section, although the experiences of these programs may provide

useful lessons, generalizing from these programs must be done cautiously. Potentially important differences between the programs and the reform proposals—such as risk-adjusted payments and the ability to negotiate with plans—may limit their generalizability. Moreover, the results to date are subject to different interpretations as to what actually caused or prevented the program from having an impact on health expenditures. For example, simple observations leave open the question of whether consumer choice, premium review and regulation, a change in benefits, or some other factor influenced health care expenditures.

### **Summary**

An important question is whether savings from increased HMO enrollment can be sustained over time or whether they reflect a “one-time” effect. There are limited data to address this question.

There are only two relatively old peer-reviewed studies of differential growth rates in costs between HMOS and FFS plans. Premium comparisons by private consulting firms do not control for important differences between plans.

However, more data may be forthcoming from studies examining the effect of HMO market penetration on health care costs and from studies on programs with elements of managed competition.

## **FINDINGS AND POLICY IMPLICATIONS**

Quantitative predictions of the impact of proposed managed competition plans on NHE have been based on a relatively simple framework. The three critical assumptions are that: 1) managed competition will increase enrollment in HMOS, 2) HMOS will reduce the health expenditures of those new enrollees, and 3) managed competition will, or will not, reduce the growth rate in NHE beyond the one-time impact of increased HMO enrollment. It is important to understand that this framework is a highly simplified model of a very complex market proposal.

The review of the research supporting the three key assumptions found that although evidence exists on which to base HMO enrollment assumptions, there are still uncertainties that make this

prediction difficult. Evidence indicates that consumers are responsive to the price of insurance and will switch to lower priced plans, although it is difficult to foresee what choices they will face under reform. State and federal employee health insurance programs indicate that as many as 90 percent of employees may join HMOS and these programs may serve as examples of what will occur under health reform. However, the population, location, and elements of these programs may limit the extent to which they are appropriate models for managed competition. In the absence of empirical evidence, simulations that attempt to be evidence-based should probably use a relatively wide range of enrollment assumptions.

A number of studies have found that HMO enrollees use fewer of some types of services than individuals in FFS plans, suggesting that HMOS may reduce the health expenditures of those in HMOS. Yet no direct evidence exists on per capita expenditures by plan type. To generate savings estimates, analysts impute expenditure differences from the large and diverse literature on HMO and FFS utilization differences. The process of imputing expenditures requires a number of assumptions that influence the size of the estimated savings. The difficulties inherent in this process have not been explicitly recognized in the simulation models reviewed. The analyses were either based on one study or referenced a few more rigorous studies but did not explain how the studies were used to estimate savings from greater HMO enrollment. Future estimates might better reflect the degree of uncertainty about HMO savings if they used alternative and explicit assumptions to synthesize the research literature. In the absence of such a synthesis, using a range of 3 to 15 percent savings would reflect the range of assumptions used in the simulation models reviewed and would indicate that there is considerable uncertainty about HMO savings.

At this time there is almost no direct empirical evidence on which to base predictions as to whether managed competition is likely to reduce the growth rate in national health expenditures beyond a “one-time” impact. This is because very little data exist on expenditures by plan type and

very little recent research has been done on the issue of differences in expenditures by plan type over time.

Managed competition would rely largely on the private sector to allocate resources. For example, proponents of the concept have written that “[i]n an environment of managed competition, doctors, hospitals, and health plan administrators would figure out how many resources are needed to take good care of an enrolled population” (81). Moreover, proponents have explained that the “primary justification for private insurance is the hypothesis that a health care delivery system in which competing health plans vie for patients will cause physicians and hospitals to make better decisions regarding resource consumption than would a system in which the public sector makes direct payments to providers” (81). Because the market for health care and health insurance is so complex,

and involves the decisions of multiple actors, it is extremely difficult to predict how NHE would be affected. For example, will providers and plans be willing to forego the latest technology to contain costs or will new, less expensive technology be invented? Will consumers continue to choose less expensive plans knowing that their choice may result in longer waits for procedures or appointments, less choice of providers, older technologies, lower-paid providers, and less investment in capital improvements, or will new efficiencies limit the necessity of these tradeoffs? How will health care providers react if health plans and health plan purchasers attempt to substantially curtail their incomes? These questions are not addressed within the relatively simple framework used to estimate NHE under managed competition reforms.