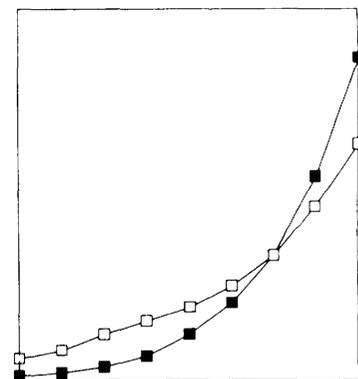


# Summary and Policy Implications | 1

**H**ealth care reform is at the top of the nation's domestic policy agenda. With national health expenditures continuing to grow faster than inflation and with an estimated 37 to 38 million Americans without health insurance, Members of Congress and others have proposed a wide variety of approaches to reform the delivery and financing of health care. A key concern in the ensuing debate is how various proposals would affect national health expenditures.<sup>1,2</sup>

As shown in figures 1-1 and 1-2, in the absence of reform, national health expenditures, now estimated at over \$900 billion (approximately 14 percent of gross domestic product (GDP)), have been projected to continue to climb to \$1.7 trillion (approximately 18 percent of GDP) by the year 2000. To estimate what impact the different proposals would have on national health expenditures, Congress and others have looked to quantitative analyses. Such analyses have been performed by the federal government (e. g., the Congressional Budget Office, the General Accounting Office, and the Clinton Administration), by private consulting firms, and by individual academics. Table 1-1 depicts changes in national health expenditures projected under health re -

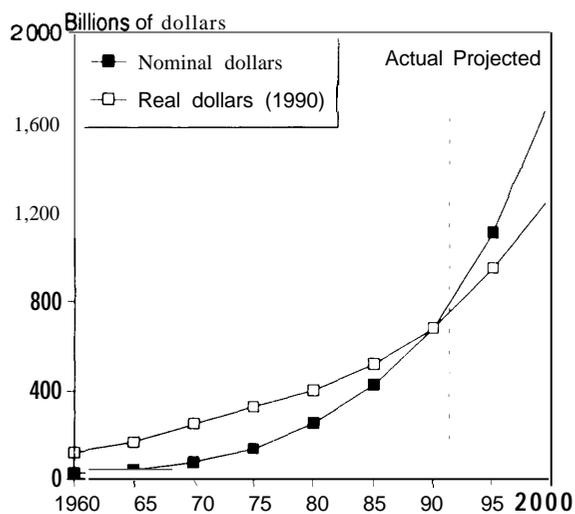


<sup>1</sup> The Department of Health and Human Services defines national health expenditures as the nation's total private and public spending for a defined but broad set of health services and supplies, and the medical research and construction of medical facilities associated with providing those health services and supplies.

<sup>2</sup> Public policy makers are also concerned about the impact of alternative reforms on the federal budget and the budget deficit. OTA w III examine analysts' approaches to estimating federal budget impacts in a forthcoming background paper (I 92).

## 2/Understanding Estimates of National Health Expenditures Under Health Reform

**FIGURE 1-1: National Health Expenditures, Nominal and Real Dollars, 1960-2000**



SOURCE: Office of Technology Assessment, 1994, based on data from Letsch, Lazenby, Levit et al. (86), and Burner, Waldo, and McKusick (17). Full citations are at the end of the report.

form in the currently available analyses known to the Office of Technology Assessment (OTA).<sup>3</sup>

A 1993 OTA study entitled *An Inconsistent Picture* reviewed the quantitative estimates of several impacts of various health reform proposals. The study found considerable variation in estimates of changes in national health expenditures for proposals that appeared to encompass similar policies (190). The study identified several potential reasons for the differences, including the fact that analyses appeared to be built on different key assumptions.<sup>4</sup>

<sup>3</sup>Some estimates of national health expenditures became available too late for consideration in this report (e.g., KPMG Peat Marwick (79); KPMG Peat Marwick (80); U.S. Congress, CBO (174)).

<sup>4</sup>Analyses are defined in this report as the processes used to analyze the impact of health reform proposals on national health expenditures (see box I-1). Analysts are those individuals or entities that perform analyses in order to come up with an estimate of national health expenditures under reform. Assumptions, broadly defined, are suppositions that something is true. Estimates are approximate calculations, or numerical values obtained from a statistical sample or economic model (in this report, the term *estimate* is used most often to refer to the outcome of simulations of national health expenditures).

<sup>5</sup>In this report, as in a recent reproof the National Research Council, the term *uncertainty* is used as “an umbrella term for the quantification of the differences between a model estimates and the truth” (20). No particular statistical definition of uncertainty should be inferred.

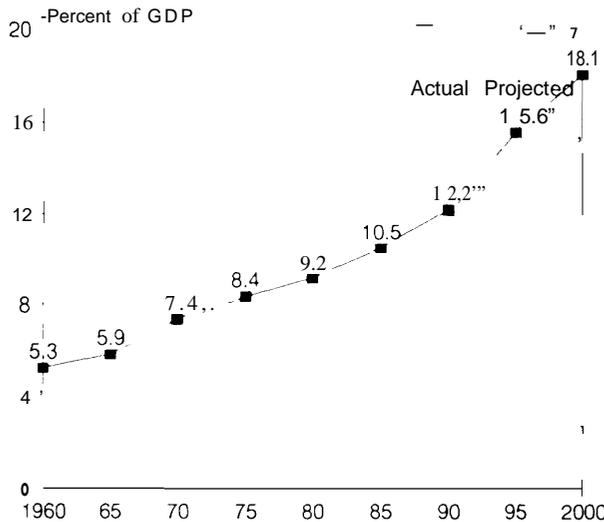
<sup>6</sup>Analysts have not incorporated assumptions about economic efficiency and health status effects in their quantitative estimates. However, analysts may attempt to bring these impacts to readers’ attention in a qualitative sense (e.g., Lewin-VHI (89); CBO (172)).

The present study was requested by the Technology Assessment Board and Senator Ted Stevens as a followup to OTA’s 1993 study. The report addresses the following questions:

- How do different analysts come to their estimates of national health expenditures under reforms? What assumptions and methods do they use to produce estimates?
- Does the available empirical evidence support analysts’ assumptions? Is there evidence that can resolve differences between assumptions made by different analysts?
- How much uncertainty surrounds analysts’ estimates of the effects of particular policy changes and of future national health expenditures?<sup>5</sup>
- What are the strengths and weaknesses of the models and estimates of national health expenditures?
- How much information about assumptions and methods should analysts provide to readers with varying interests and levels of expertise?

This report is intended to provide Congress and policy makers with guidance on the various predictions of national health expenditures under alternative health reform proposals. It is important to note that this report has a limited focus. The report was not intended to address the full array of concerns that policy makers may have about specific policies to reform the health care system. Critical issues such as the potential impacts of various proposed policy changes on individuals’ health status, or on the economic efficiency of the health system, are not addressed in this report.<sup>6</sup>

**FIGURE 1-2: National Health Expenditures as a Percent of GDP, 1960-2000**



SOURCE: Office of Technology Assessment, 1994, based on data from Letsch, Lazenby, Levit et al. (186) and Burner, Waldo, and McKusick (17). Full citations are at the end of the report.

Similarly, estimates of distributive impacts of the reforms, and the impact on federal, state and local government's budgets are not addressed. Finally, the report does not come to conclusions about the advantages and disadvantages of specific proposed policy changes or make recommendations.

As summarized in table 1-2, OTA examined 16 analyses of reform proposals by eight groups of analysts. This report does not examine and evaluate analyses of proposals in their entirety. Rather, the report examines how particular key policies were estimated in available analyses. OTA's key findings are summarized below, first concerning general approaches to estimation and the overall levels of uncertainty in the available estimates, and then for the analyses of specific proposed policy changes. Following the summary of key findings, the chapter discusses the implications of these findings for policy makers.

### SUMMARY OF KEY FINDINGS

The findings of this report can be summarized both generally and specifically. The next section

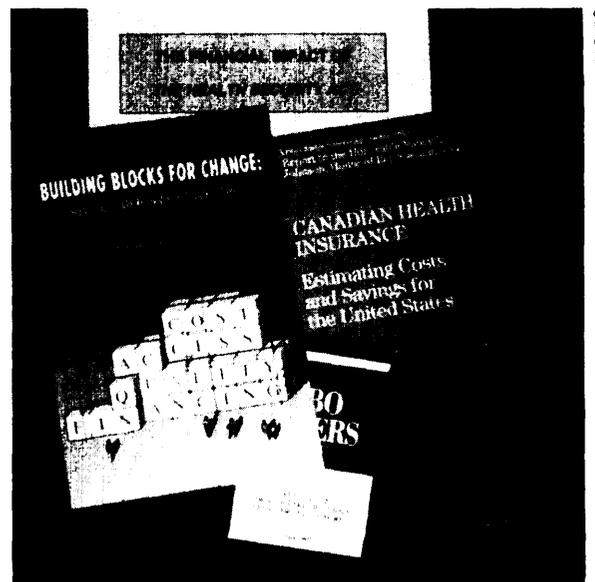
presents answers to the five questions addressed by this report in general terms; the section following presents OTA'S specific findings on the estimates of the proposed policy changes selected for more intensive analysis in this report.

### General Findings

**How do different analysts come to their estimates of national health expenditures under reforms? What assumptions do they make in order to produce estimates?**

A striking feature of the structure of the U.S. health care system is its complexity. Since it would be impossible to describe all features of the health care system in detail, analysts abstract from the vast complexities of the real-world and develop rather simple models that attempt to capture the "essentials" of the processes that determine health care expenditures (box 1-1).

Health reform proposals typically contain numerous general and specific policies, intended to change the health system, that analysts might take into account in estimating the overall effect of a particular proposal on national health expenditures.



To estimate what impact different proposals would have on national health expenditures Congress and others have looked to quantitative analyses



**TABLE 1-1: Various Analyses' Projected Changes in National Health Expenditures Under Health Reform Proposals Relative to Continuation of the Status Quo<sup>a</sup> (cont'd.)**

Proposal <sup>b</sup>	Analysis <sup>c</sup>	Projected change in national health expenditures under reform (\$billions) <sup>d</sup>													
		1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Single-payer plan, Grumbach et al. version	Grumbach et al.	-18													
Single-payer plan, Lewin-VHI version	Lewin-VHI <sup>e</sup>	314													
Single-payer plan, Woolhandler and Himmelstein version	Woolhandler and Himmelstein														
Universal Health Care Act of 1991 (H.R. 1300) <sup>f</sup>	CBO			E		20	5	-27	-63	-104	-150				

KEY: E - year the proposal was assumed to be enacted. If not specified, it is the same year as the year of the first estimate.

<sup>a</sup> National health expenditures comprise the nation's total spending both private and public, for a defined but broad set of health services and supplies, and the research activities and construction of medical facilities associated with the provision of those health services and supplies. (83) Changes in national health expenditures are often referred to as *savings* or *cost increases*. It is important to understand what these terms mean. Savings or cost increases are measures of changes in national health expenditures *relative to projections of a continuation of the status quo* (i.e., baseline spending). Projections of continuations of the status quo are themselves dependent on a host of assumptions and inputs about the past, the present, and the future absent major policy changes in the health sector. Such projections may be reasonable in the sense that they are based on the informed judgment, observations, and data available to analysts. As most analysts will acknowledge, both the baseline projections and the reform projections include a host of inherent uncertainties. (89:164-172)

<sup>b</sup> This column includes both specific legislative proposals and more general conceptual proposals.

<sup>c</sup> Full citations for the analyses are listed in appendix B.

<sup>d</sup> Current dollars unless otherwise noted.

<sup>e</sup> Bill numbers are for 103d Congress.

<sup>f</sup> Bill numbers are for 102d Congress.

<sup>g</sup> ESRI conducted two analyses of this proposal. The optimistic analysis was designed to generate a relatively large estimate of savings, while the pessimistic analysis was designed to generate a smaller estimate of savings.

SOURCE: Office of Technology Assessment, 1994.

## 6 / Understanding Estimates of National Health Expenditures Under Health Reform

The first simplification analysts make is to determine which aspects of health reform proposals may have some effect on national health expenditures. OTA inferred from the available documentation that estimates of the effects of four policies are among the most important factors considered in the analyses of national health expenditures under reform:

1. applying government cost controls,
2. encouraging managed competition and increased health maintenance organization (HMO) enrollment,
3. providing insurance coverage, and
4. administrative changes.

To estimate how each of these four policies will affect national health expenditures, analyses use other simplifying assumptions. Typically, estimates of each of the four policies are based on two or three key assumptions that allow analysts to make quantitative predictions about how the policies will influence national health expenditures under reform. in comparison to the status quo.

These assumptions include suppositions about how individuals will respond to specific incentives provided by the reform proposals. For example, how much individuals' use of health care will increase when they are insured; how much their use of health care will decrease when they have to pay more for services out-of-pocket; and whether they will join HMOS if HMO prices decrease relative to traditional fee-for-service plans. They also include assumptions about the effects of using different organizational structures to supply or finance health care services, and assumptions about how effective selected government cost controls will be given providers' responses to regulations of health care prices or expenditures.

Each chapter in this report describes the different assumptions and methods that various analysts used to estimate the impact of these four key policies on national health expenditures. Some of the critical assumptions are summarized in box 1-2.

*Does the available evidence support analysts' assumptions? Is there evidence that can help resolve differences between assumptions made by different analysts?*

The ultimate test of whether a given approach to simulating the impact of health reform is accurate is whether the prediction actually occurred. For a number of reasons, including the fact that the health reform proposals being modeled have never been implemented in their entirety, this type of evaluation is impossible. Another approach to understanding and evaluating particular models is to examine their assumptions.

OTA compared analysts' assumptions with evidence from available empirical research (box 1-1). The intent of this comparison was to find whether the empirical evidence supports the specific assumptions and whether evidence could be used to settle contradictions between different assumptions made by different analysts.

It is difficult to make a general statement about whether the research literature supports analysts' assumptions.<sup>7</sup> Research exists on many of the assumptions examined, although the quality and quantity of research varies across different assumptions and issues. In some cases, there is direct evidence on behavioral responses to specific policy changes or on the effect of different organizational structures. In other cases, research evidence indicates how individuals will respond generally or how organizational structures may influence health care costs, but there is contradictory evidence as to the size of the effect. Finally, for some areas there has been no research and no indication of how to model the impact of a particular policy. In general, the research evidence leaves many questions unanswered.

Even when research evidence does exist, it is not always clear how it should be interpreted. There is always the question of whether the results found will apply to the reforms being considered. For example, some people have argued that the

<sup>7</sup>Each chapter in the report describes the strengths and limitations of the research literature, and how it compares to particular assumptions.

**TABLE 1-2: 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	CBO	CBO	CBO
	Clinton Administration Lewin-VHI	Clinton Administration Lewin-VHI	Clinton Administration Lewin-VHI	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 (H.R.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 (HR. 1300) <sup>c</sup>	CBO		CBO	CBO

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

<sup>a</sup>Full citations for the analyses are in appendix B

<sup>b</sup>Bill numbers are for 103d Congress

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

<sup>d</sup>Analysis 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 Off Ice of Technology Assessment, 1994

## 8 / Understanding Estimates of National Health Expenditures Under Health Reform

### BOX 1-1: Analysts' Process of Coming to Estimates and OTA's Use of Empirical Research Literature

#### Analyses

The analyses of national health expenditures that OTA reviewed generally take a similar two-step approach. First, factors and policies that would change the level of national health care expenditures are identified. As shown below, these factors are used to determine the level of health expenditures under reform in the first full year of implementation.

Baseline national health expenditures (i.e., national health expenditures assuming no major policy changes)	\$ _____
Plus additions (e.g., expenditures expected for new programs, expanded benefits)	+ _____
Less subtractions (e.g., savings expected from enrollment in managed care plans or reduced administrative costs)	- _____
Product: estimated future national health expenditures under reform	\$ _____

Table 1-3 provides an example of how one analytic group estimated the *change* in national health expenditures under the Health Security Act.

Second, analysts consider factors that might influence national health expenditures in subsequent years.<sup>1</sup>

To estimate national health expenditures in future years under the reform proposals, analysts may again consider whether the proposal will result in new expenditures, and then add these to baseline national health expenditures. Similarly, they may consider whether the proposal will result in new savings and then subtract these from baseline national health expenditures. Alternatively, analysts may assume that after the first year of implementation, expenditures will grow at a given rate (e.g., some proportion of expenditures will grow at the rate set under a new regime of government cost controls). Analysts make different assumptions about the timing in which additional expenditures will be incurred or savings achieved. For example, some analysts make the simplifying assumption that the effect of all policies will be immediate, while others phase in the effect of particular policies, such as expanding coverage to uninsured people.

Factors that frequently have been assumed to affect national health expenditures are administrative costs, the costs of insuring uninsured people, health maintenance organization enrollment, managed competition, and government cost controls.

Economic models are by their nature simplified analytical frameworks for depicting particular economic phenomena (68). Models duplicate some—but not all—characteristics of the phenomena being modeled (68). Even so, the approach described above can be a difficult, time-consuming task that takes into account numerous aspects of health care delivery and financing. *Models* or *simulations* of the effects of complex health reform proposals on national health expenditures are typically based on a combination of new data analysis, reviews of published literature, consultations with experts, and analysts' accumulated general knowledge of the health care system. Analysts rarely document in detail the sources of their assumptions about how facets of the health care system will respond to new national policies.

<sup>1</sup> In calculating the impact of reform proposals on national health expenditures, analyses typically only consider factors that would have a relatively short-term effect on national health expenditures (i.e., in the 5 or so years subsequent to the proposal's full implementation). Potential second- or third-order effects that might have an impact in decades (e.g., increases (or decreases) in expenditures due to improved health and longer life spans of Americans, increases (or decreases) in the development of expensive technologies) are typically not considered.

### BOX 1-1: Analysts' Process of Coming to Estimates and OTA's Use of Empirical Research Literature (cont'd.)

#### Empirical research literature

OTA compared the assumptions made in analyses of the impact of health reform proposals on national health expenditures with the findings of studies from the empirical research literature. The empirical research literature is defined primarily as published studies on topics relevant to policy areas. For example, for the chapter on government cost controls, OTA searched for and examined studies on the government cost control mechanisms that appeared in proposals and that were the focus of analyses. These included studies of the impact on spending of price controls such as fee schedules and all-payer hospital rate-setting systems, foreign government-imposed or negotiated spending limits for nations as a whole, and foreign government-imposed or negotiated expenditure limits in various health sectors (e.g., hospitals, physician spending). OTA began with literature reviews of these topics and examined more critically the methods and findings of key studies.<sup>2</sup> OTA relied primarily on published research studies because they are more likely to have been conducted according to professional standards and to have been subjected to scientific peer review. In contrast, unreviewed written and oral reports of results of policy changes (e.g., changes in premium prices, simple reports of changes in national health expenditures of foreign countries) would require new and possibly extensive analysis of plausible alternative explanations for observed effects. Although OTA considered reports from the field of potential effects that have not yet been studied scientifically, an extensive analysis of all such data was beyond the scope of this report. The policy implications section of this chapter suggests that further attention might be paid to a research agenda that could inform policymakers and analysts on a more timely basis.

As noted in the main text, not all policy areas were replete with informative published literature (e.g., premium caps, managed competition, costs of covering uninsured people, administrative costs). Others (e.g., certain government cost controls) had extensive bodies of literature, although the quality and relevance to contemporary proposals varied considerably. Each chapter in this report provides a review of available literature and supplies references to the literature reviewed by OTA. Full bibliographic citations to the literature cited are found at the end of this report.

<sup>2</sup> In addition, as part of OTA's standard assessment process, authors of key reviews and studies and other knowledgeable experts were asked to review OTA's interpretation of their findings for accuracy. Responsibility for OTA's interpretations remain with OTA staff, however.

SOURCE: Office of Technology Assessment, 1994.

evidence on other countries' experience with government cost controls is not indicative of what would occur in the United States. Moreover, the research evidence rarely provides clear-cut answers. Measures of program success, standards of comparison, the sophistication of the analysis, and the time period of the study will all influence the conclusions drawn.

When research does not exist it is not clear whether analysts should base their estimates on judgment as to the possible effect of a proposed policy change, or assume no effect.

Despite these difficulties, overall, OTA found that very few of the analyses it reviewed used assumptions that were completely contrary to the results of available empirical research, especially in terms of the direction of an effect. In addition, when the analyses OTA reviewed supplied rationales for analytical choices, most of the rationales met standards of reasonableness, based on the evidence. However, in many cases, the evidence could also support alternative assumptions about the size of the effect (e.g., how many people will join HMOS).

### BOX 1-2: Selected Critical Assumptions in Estimates of Policy Changes

As noted in the text, one or two key assumptions typically underlie analysts' estimates of the effects of proposed policy changes. The following lists briefly the types of areas in which analysts make key assumptions. The list is organized by proposed policy change.

Each chapter in this report contains a summary of analysts' specific assumptions (e.g., how much are HMOs estimated to save relative to fee-for-service plans? How effective are specific government cost controls?). These details illustrate the sometimes wide divergence in assumptions used by different analysts in analyses of identical or similar proposals.

#### **Effects of Applying Government Cost Controls (chapter 2)**

- Share of national health expenditures falling under the growth rate expenditure limits
- Effectiveness of growth rate expenditure limits

*Assumptions guiding effectiveness ratings may include assumptions about payment mechanisms, administrative systems, and the presence and adequacy of penalties for cost overruns.*

#### **Effects of Managed Competition and HMO Enrollment (chapter 3)**

- Savings from HMOs relative to traditional fee-for-service plans
- Number of people who would enroll in HMOs
- Change in the growth rate of national health expenditures due to health plan competition

#### **Effects of Providing Coverage to Uninsured People (chapter 4)**

- Baseline spending on uninsured people
- Patient cost-sharing requirements<sup>1</sup>
- Likely utilization patterns by previously uninsured people once insured
- Extrapolation of current trends only versus adjustment for benefit provisions of the reform legislation
- Amount of expenditures due to cost-shifting that are recovered

#### **Effects of Administrative Changes (chapter 5)**

- Provider and insurer administrative overhead under the current system
- Provider and insurer administrative overhead under a system similar to the one proposed
- Effects of pooling to purchase insurance (e.g., health alliances, health plan purchasing cooperatives)

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<sup>1</sup> Patient cost-sharing is sometimes specified in proposed legislation, but sometimes an assumption is made about what patient cost-sharing is likely to be.

SOURCE: Office of Technology Assessment, 1994

*How much uncertainty surrounds analysts' estimates of the effects of particular policy changes and of estimates of future national health expenditures?*

Many analysts have emphasized that their estimates of future national health expenditures are highly uncertain, and thus are unlikely to represent an accurate prediction of what the United States can expect to spend on health care under various reform proposals (e.g., CBO (172),

Lewin-VHI (89)). However, analysts rarely quantify the degree of uncertainty of their estimates. Moreover, OTA did not have access to the models or complete analytic frameworks used to estimate national health expenditures, and was only able to perform limited sensitivity analyses.

While OTA cannot draw bands of uncertainty around estimates of national health expenditures under reform proposals, OTA did find that assumptions used in particular analyses could be

### BOX 1-3: Implications of Uncertainty in the Estimates of National Health Expenditures Under Health Reform

What difference does uncertainty in the four policy areas OTA reviewed make to projections of national health expenditures? Analysts are increasingly acknowledging that their analyses contain high levels of uncertainty (e.g., Lewin-VHI (89); U.S. Congress, CBO (172)). However, while they warn about uncertainty, analysts typically do not provide information about the level of uncertainty in their overall estimates, nor about the uncertainty of particular assumptions (e.g., the effectiveness of particular government cost control mechanisms or the ability of health maintenance organizations to control costs). Typically, analysts do not report how their projections of national health expenditures could change as a result of changing particular assumptions by, for example, publishing "sensitivity analyses."

Because OTA found a wide range of plausible assumptions, OTA analyzed how changing certain assumptions could affect projections of national health expenditures under reform. The following examples show that substituting certain plausible alternative assumptions may have important effects.

- Changing a single assumption in the Congressional Budget Office's (CBO's) analysis reverses the interpretation of which bill—the American Health Security Act (H.R. 1200) or the Health Security Act (H.R. 3600/S. 1757)—would leave national health expenditures higher in 1998. The prevailing interpretation of CBO's analysis is that the American Health Security Act would increase national health expenditures *more* than would the Health Security Act in the initial years following enactment. In its analysis of the American Health Security Act, CBO's "best guess" assumption was that the spending limits of the act would be only "75-percent effective" (CBO (170)). Using this assumption, CBO estimated that 1998 national health expenditures under the American Health Security Act would be \$1,429 billion, or \$18 billion more than the figure projected for the Health Security Act. Under an alternative assumption that the spending limits would be "100-percent effective," CBO estimated that 1998 national health expenditures under the American Health Security Act would be \$1,372 billion, or \$39 billion *less* than the figure for the Health Security Act (CBO (172)). The difference between an assumption of 75 or 100 percent effectiveness is \$57 billion, or approximately 4 percent of national health expenditures in 1998, according to CBO's baseline.
- Varying assumptions about administrative costs in the General Accounting Office's (GAO's) analysis of a generic Canadian-style single-payer system would change GAO's conclusion that a Canadian-style system would have *decreased* national health expenditures in 1991 (relative to baseline) (178), to the conclusion that it would have *increased* national health expenditures in that year (relative to baseline).
- Lewin-VHI performed two sets of estimates of the Health Security Act (H.R. 3600/S. 1757), one with the premium limits and one without (table 1-3). In the estimate that did not take into consideration the premium caps, Lewin-VHI assumed that expenditures for individuals enrolled in health maintenance organizations would be approximately 3 percent less than expenditures for individuals enrolled in fee-for-service plans. Changing Lewin-VHI's assumptions to assumptions made by CBO about managed care savings (i.e., that group- and staff-model HMOs save 15 percent over traditional fee-for-service plans and individual practice associations offer no savings) would change Lewin-VHI's estimates of savings from managed care under the Health Security Act (without government cost controls) from \$14.9 billion to \$48.8 billion in 1998. This is a difference of \$33.6 billion or approximately 2 percent of national health expenditures.

SOURCE: Office of Technology Assessment, 1994.

replaced with equally plausible assumptions, thus changing the estimates (box 1-3). In one case, OTA noted that plausible changes in assumptions about the effectiveness of government cost con-

trols could change how two proposals with government cost controls were ranked in terms of their effects on national health expenditures. The different assumptions lead to estimates of national

## 12 | Understanding Estimates of National Health Expenditures Under Health Reform

health expenditures that differed by \$57 billion, equal to approximately 4 percent of baseline national health expenditures. In another case, OTA found that altering an assumption could produce opposite conclusions about whether a proposal would increase or decrease national health expenditures.

These analyses suggest that it maybe important to examine the assumptions and uncertainty that underlie analyses, particularly if they are extensively used in the development or evaluation of policies. Quantifying the levels of uncertainty may provide more of a basis for understanding the strengths and limitations of models and empirical estimates of national health expenditures, and their potential role in policy analysis (20).

It is also important to note that quantifying the degree of uncertainty raises other questions. How much uncertainty is too much? How much uncertainty is substantial and how much is relatively minor? Is a range of uncertainty of \$50 billion large? Is a range of 4 percent of national health expenditures large? The answers to these questions will depend on the context in which they are considered and the ways that the estimates are used.

*What are the strengths and weaknesses of the models and estimates of national health expenditures ?*

The process of estimating the quantitative impact of health reform proposals can be an important and informative part of policy analysis, particularly if it is described in a manner accessible to nontechnical audiences. Some research and data do exist that maybe useful for understanding the impact of different policies, even if the research provides imprecise answers. Documentation of attempts to use research, data, and judgment to model reform proposals may highlight for policy makers what analysts believe are the key determinants of national health expenditures, what effects seem relatively well known, and where knowledge is weakest. A complete description of analysts' rationales for particular estimates (e.g., their basis in theory, research, or experience) may be as informative, or more informative, as the estimates themselves.

A weakness of models and the way in which their results are sometimes reported may be that they can shift the focus from important policy questions to a discussion of the "numbers." Whether a model is "good" or "bad" maybe less important than the underlying issue of what policies can limit the growth in national health expenditures and meet other important policy objectives.

Another potential drawback of estimates that are provided in the absence of meaningful qualifications as to their degree of uncertainty is that they may lead policymakers and others to a false sense of optimism regarding analysts' ability to accurately predict the impact of health reform. If policymakers rely extensively on quantitative estimates without knowing the levels of uncertainty surrounding the estimates or their basis, they could draw misleading conclusions.

*How much information about assumptions and methods should analysts provide to readers with varying interests and levels of expertise?*

By examining the assumptions and methods analysts use to estimate effects of selected key policies, and attempting to determine the implications of uncertainty about the effects of the policies, OTA was able to come to some general conclusions about the overall process of estimating national health expenditures under reform. OTA found that analysts' published reports vary considerably in the level and types of information they provide, and that this variation can have implications for potential users of the reports.

For example, OTA found that analysts may not provide information about the steps of the analyses (i.e., the key algorithms) or about the sources of their assumptions for analyses of particular proposals (see table 1-3 for a partial exception). Some analysts provide a general description of their methods in separate reports. However, readers may find it difficult to locate and reconcile written information about analysts' general beliefs and information sources with analyses of particular proposals. Analysts vary in their willingness to provide additional information other than what they publish. To their credit, analysts try to use

TABLE 1-3: Lewin-VHI's Detailed Estimate of NHE in 1998 (\$ 1998 billions)

		Changes in spending
Total health spending (Includes administration) <sup>a</sup>	\$1.3950	
<b>Changes in health services utilization</b>		
Increase in utilization due to expanded coverage		\$ 640
Utilization Increase for previously uninsured <sup>b</sup>	41 6	
Expanded coverage for those already insured <sup>c</sup>	5 4	
Long-term care utilization	11 6	
Public health activities (including WIC)	5 4	
Impact of managed care <sup>d</sup>		(14.9)
<b>Net change in utilization</b>		<b>49.1</b>
<b>Change in administrative cost</b>		
Insurer administration (Includes administration for newly insured) <sup>e</sup>		(48)
Provider administrative savings <sup>f</sup>		(1 9)
Federal operations		
Program administration <sup>g</sup>	1 7	
Medical education <sup>h</sup>	1 3	
Veterans hospitals <sup>o</sup>	1 7	
State alliance		8 9
All lance administration	<b>5 0</b>	
Guarantee fund reserve accumulation	<b>3 9</b>	
<b>Net change in administrative costs</b>		<b>6.9</b>
<b>Change in provider reimbursement</b>		
<b>Net change in provider reimbursement</b>		<b>32.5</b>
Uncompensated care savings	2 3 2	
Increased reimbursement for Medicaid recipients	4 5 7	
Reduction in cost shift	(36 4)	
<b>Net change in spending with spending cap</b>		
Preempt reimbursement windfall		(32 5)
<b>Impact of spending cap</b>		<b>(56.6)</b>
Medicare spending limits	(13 1)	
All lance premium caps	(47 3)	
Medicaid (net of offsets) <sup>i</sup>	3 8	
<b>Net change</b>		<b>(0.6)</b>

(continued)

**TABLE 1–3: Lewin–VHI’s Detailed Estimate of NHE in 1998 (\$ 1998 billions) (cont’d.)**

KEY NHE = national health expenditures; WIC = Special Supplemental Food Program for Women, Infants and Children

<sup>a</sup>Includes spending for acute care, spending for long-term care, public health, research, and construction

<sup>b</sup>Assumes that utilization of health services by previously uninsured persons will rise to levels reported by insured Persons with similar age, sex, income, and health status characteristics

<sup>c</sup>Assumes that utilization of newly covered health services for insured persons whose coverage is upgraded (prescription drugs, etc ) will rise to the levels reported by persons who have such coverage

<sup>d</sup>Assumes that competing health plans will affect utilization in ways comparable to HMO plans Estimates are based on age- and sex-adjusted comparison of hospital utilization for HMO enrollees compared with those enrolled in fee-for-service plans The higher physician utilization is due largely to coverage for preventive care and substantially lower levels of patient cost-sharing

<sup>e</sup>These estimates are largely based upon administrative cost data provided by Hay/Huggins as presented in: U. S. Congress, Congressional Research Service, “Cost and Effects of Extending Health Insurance Coverage,” Library of Congress, October 1988 Reflects increased cost of covering uninsured persons

<sup>f</sup>Assumes that provider claims processing expenses and claims adjudication expenses are reduced in proportion to the reduction in insurer claims processing costs We assume that providers return half of these savings to consumers in the form of reduced charges.

<sup>g</sup>Based on administration estimates.

<sup>h</sup>Includes total funding for academic health centers under the program less reductions in current Medicare funding for medical education (direct and indirect amounts)

<sup>i</sup>Under a universal coverage program, hospitals and physicians will receive payments for care formerly provided as uncompensated care Much of this increase in reimbursement will be passed-on to consumers in the form of lower charges through the negotiation process

<sup>l</sup>Includes Medicaid savings under budget cap offset by changes in administrative costs, payment lags, and reserves

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new information to guide their assumptions, but refinements relevant to particular analyses may not be reflected in previously published background papers. As a result, nonexpert readers may find it hard to understand analysts’ decisionmaking processes, where the potential sources of uncertainty are, and how the uncertainties might affect overall estimates of national health expenditures.

Fuller descriptions of the methods used to estimate the impact of reform proposals may be informative to policy makers. Analysts disagree, however, about policymakers’ and other clients’ needs and desires for this kind of information, and there are legitimate questions about how comprehensive and detailed analysts’ reports should be. Given the complexity of the health system and the variation in interests, different readers will want answers to different questions. In addition, analysts often face time pressures that may limit their ability to provide full written documentation. These issues are touched upon further under “Policy Implications” later in this chapter.

## I Findings for Specific Policy Areas

Each of the following summaries first reviews the concept and proposals in question, then summarizes analysts’ assumptions about the effects of the concept, and finally compares analysts’ assumptions with the available empirical evidence.

### *Effects of Applying Government Cost Controls (chapter 2)*

Government cost controls are measures by which federal, state, or local governments impose or negotiate direct limits on: prices of health insurance; prices of particular health services (e.g., physicians’ fees); overall expenditures related to a particular health care sector (e.g., hospitals); or overall outlays related to a particular source of funding (e.g., federal, state, or local government). The aim of government cost controls is to reduce the level or rate of growth either in overall national health expenditures, in expenditures of specific payers (e.g., government), or in expenditures for

specific sectors of the health care system (e.g., hospitals).

In addition to making provisions for specific government cost control mechanisms, some proposals would specify in statute specific limits on the growth of expenditures for specific funding sources.<sup>8</sup>

To model proposals with government cost controls, analysts first determine what proportion of national health expenditures would be subject to regulation. Next they project that amount at the growth rate limit specified in the proposed statute or at some higher rate, depending on analysts' assumptions about the actual effectiveness of the controls.

All of the analyses of proposals that include provisions for government cost controls that OTA reviewed (see table 1 -2) assumed that the controls would reduce the growth rate in health care expenditures, though not always to levels specified in legislation.

Empirical evidence from the United States and other countries suggests that government cost controls have decreased the rate of spending for the particular categories or components of health services to which they were applied. Often studies only examine a short time period, and government controls are constantly changing, making it difficult to pinpoint their effect. Moreover, people have questioned whether evidence from particular states or countries is indicative of what could happen under the proposed reforms. Finally, neither the models nor the empirical evidence directly address the political feasibility of various controls.

The empirical evidence suggests that the effectiveness of government cost controls will depend on the mechanisms used. However, the empirical evidence may not provide straightforward answers to the question of whether specific types of government cost controls can reduce rates of spending to those specified in some of the current proposals (a question that is at the heart of "effectiveness ratings" for expenditure limits).<sup>9</sup> There may be no way to use empirical evidence to determine exactly at what rate health care expenditures will grow under any complex set of government cost controls, even if a target rate is specified in legislation.

### ***Effects of Encouraging Managed Competition and HMO Enrollment (chapter 3)***

Managed competition has been defined as a "purchasing strategy to obtain maximum value for consumers and employers, using rules for competition derived from macroeconomic principles" (31). Advocates argue that managed competition can reduce health expenditures by restructuring the market for health care. 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 and standardized benefits, aim to increase consumers' sensitivity to

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<sup>8</sup> For example, by 1999, the Health Care Cost Containment and Reform Act of 1993 (H.R. 200) would limit growth in almost all personal health expenditures to no more than gross domestic product growth. Personal health expenditures are expenditures that include all services and products purchased that are associated with individual health care, such as hospital services, physician services, drugs, and nursing home care. Personal health expenditures account for about 88 percent of national health expenditures (86). This category of national health expenditures excludes expenditures for government public health activities, research and construction, and administrative costs, which together account for the remaining 12 percent of national health expenditures. By 1999, the Health Security Act (H.R. 3600/S. 1757) would limit growth in regional health alliance premiums to consumer price index (CPI) growth. No proposal places a limit on all of national health expenditures. For example, according to Clinton Administration officials, the Health Security Act's limit on private premiums in the regional alliances would apply to about one-third of national health expenditures (155). GDP growth and CPI growth are indicators of general economic growth and inflation.

<sup>9</sup> Effectiveness ratings are analysts' judgments of the extent to which a proposal's package of government cost control mechanisms will be effective in meeting the proposal target rate of growth. Analysts differ in whether and how they apply effectiveness ratings.

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the price of health insurance and to encourage more active shopping for health plans.<sup>10</sup> In response to the greater price competition, health plans are expected to reduce costs, typically by “managing” care (as in HMOs).<sup>11</sup> Although there is general agreement on the broad outlines of managed competition, various managed competition proposals would establish different regulations and entities aimed at restructuring the market for health insurance and health care.

A key premise of the relevant analyses reviewed in this report is that HMOS have lower premiums than fee-for-service plans and, as a result, managed competition will increase the pace of enrollment in HMOS and reduce national health expenditures. To calculate savings from managed competition, analysts multiply the number of people expected to switch to HMO plans from fee-for-service plans by their estimate of the difference in the covered expenditures between HMO and fee-for-service plans. Analysts make different assumptions about how much HMOS can reduce the level of expenditures compared with fee-for-service plans, and analysts’ estimates of average savings range from 3 to 15 percent.

Analyses have come to differing conclusions about whether all of the savings will come from HMO enrollment (a “one-time” effect), or whether competition between plans will result in additional reductions in the growth rate in health care expenditures. One analysis OTA reviewed assumed no savings beyond a “one-time” effect due to HMO enrollment, the other assumed an additional 1 to 2 percent decrease in the rate of growth of health care expenditures.

Empirical evidence indicates that HMOS may reduce enrollees’ covered health expenditures relative to traditional fee-for-service plans, but there are a number of obstacles to estimating the magnitude of savings. Similarly, although research suggests that consumers are responsive to the price of health insurance, HMO enrollment will depend on the behavior of employers, health plans, and, perhaps, purchasing cooperatives, as well as consumers. Thus, although there is empirical evidence on the critical components of the models of managed competition—HMO enrollment and HMO savings—the evidence suggests it is difficult to develop exact savings estimates.

Very few empirical studies have examined the long-term effect of HMOS or managed competition and whether they can reduce the growth rate of health expenditures. Early studies found little difference in the rate of growth of expenditures between HMOS and fee-for-service plans. There are a few examples of programs that incorporate many of the features of managed competition proposals but almost no published research on those experiences. Limited observations from state and federal employee insurance programs suffer from methodological problems and are subject to different interpretations of what actually caused or prevented the programs from having an impact on health expenditures. How analysts should interpret the existing research and whether they should score savings in the absence of definitive evidence is a contentious issue.

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<sup>10</sup> The term *health plan* has no standard definition, and different insurer organizations and health reform proposals define it differently. The term *health plan* was coined, in part, because the term *health insurance plan* does not indicate that many plans both provide insurance, that is they finance 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 a setting). Thus, the term *health plan* is more general than the term *health 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>11</sup> *Managed care* is a general term applied to a range of initiatives from organized health care delivery systems (e.g., staff-model 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 to control the cost of) services. In most analyses, estimates of HMO savings refer to HMOs that are staff- or group-model HMOs or IPAs.

### ***Effects of Providing Coverage to Uninsured People (chapter 4)***

An estimated 37 to 38 million people in the United States lack access to regular third-party sources of payment for health services (e.g., private insurance, Medicaid, Medicare), and virtually all health reform proposals seek to address this problem. This report focused on analyses of proposals that would provide universal coverage.

In analyses of the effects of extending insurance to uninsured people on national health expenditures, the estimated increase in expenditures associated with covering uninsured people is typically calculated as the amount projected to be spent on insured people less the amount projected to be spent on similar uninsured people (if they were to remain uninsured). Analyses may differ substantially in how they estimate both amounts and analysts' quantitative estimates of the cost of covering uninsured people under reform are often unspecified in analyses. These differences make it difficult to compare analysts' estimates with each other. Differences center around four factors: where and how in the analysis cost-shifting for currently uncompensated care is dealt with; the use of different baseline levels of spending by uninsured people;<sup>12</sup> whether or not patient cost-sharing is assumed; and whether or not the reform benefit package is assumed.

Empirical evidence, though imperfect, suggests that analyses are correct in assuming that expanding coverage to currently uninsured people would increase national health expenditures. The range in the magnitudes of the increase and the total cost from available research is relatively narrow, but may be difficult to interpret and may not be relevant to determining what additional expenditures would be incurred under health reform.

### ***Effects of Administrative Changes Under Reform (chapter 5)***

Analysts usually define administrative costs to include private insurance load (the difference be-

tween premiums and claims paid, including profit), provider (hospital and physician) overhead, and the costs of operating public programs. Specific definitions within these categories may differ, however. Provider overhead, for example, can be viewed narrowly as just billing expenses or viewed broadly as all expenses associated with activities not directly related to patient care.

Almost all proposals aim to reduce administrative costs. The two most prominent policies aimed at reducing administrative costs are single-payer tax-financed systems, and reforms to the private insurance market (e.g., pooled purchasing of insurance and limiting of underwriting).

To calculate administrative savings under a single-payer system, most analysts assume that current administrative costs (i.e., insurer and provider overhead) would fall to the levels of single-payer systems (i.e., Canada or Medicare). All the analyses OTA reviewed estimated that administrative costs would be reduced substantially under a single-payer insurance system; however, the range of estimates is broad. Analysts use varying approaches to estimate administrative costs under reforms to the private insurance market. Proposals that retain the current private insurance market but change the way insurance is provided (e.g., create insurance purchasing pools) are typically estimated to result in relatively small changes in administrative costs.

The empirical evidence suggests that the analyses are correct in predicting that administrative costs could be reduced under a single-payer system and that relatively small changes in administrative costs would result from reforms to the private insurance market. The Medicare program and the Canadian national health insurance program have much lower insurer overhead than private insurance companies in the United States, suggesting that a single-payer system might be less expensive than the current multipayer system in terms of insurer administrative costs. Health care providers might reduce their overhead ex-

<sup>12</sup> Baselines are projections of expenditures assuming no reform (e.g., assuming the continuation of current policies).

penses if they dealt only with a single payer. Quantifying specific savings is difficult, however, and researchers' estimates of administrative costs have varied. Moreover, it is unclear whether administrative functions under a single-payer system in the United States would differ from those in Canada or under Medicare.

Studies have documented a difference in the size of administrative costs between small and large firms suggesting the opportunity for savings under proposals that would reform the private insurance market. However, no studies have yet documented whether buying insurance through purchasing pools lowers administrative costs to small firms. Moreover, it may be that potential savings would be offset, at least in part, by the new administrative costs associated with running the purchasing pools. The size of the offset will depend on the functions performed by the purchasing pools.

### **POLICY IMPLICATIONS**

#### **■ Understanding and Communicating Uncertainty**

Throughout the course of this assessment, OTA became increasingly aware of the importance of communicating information on the level of uncertainty in the analyses. Without information on the degree of uncertainty, policy makers may make decisions on the presumption that the estimates are reasonably accurate when, in fact, they maybe highly uncertain (20). For example, an analysis may indicate that one proposal would save \$17 billion more than another when the estimates are really too imprecise to make this determination.

Given the hazards of ignoring uncertainty in the estimates, it seems crucial for analysts to develop better methods to express the accuracy of their estimates of the impact of health reform on national health expenditures. A variety of approaches is available to describe and explore the uncertainty in simulation estimates, and new methods continue to be developed (20). This section will briefly describe two approaches, sensitivity analysis and detailed documentation.

#### ***Sensitivity Analysis***

Sensitivity analyses are carried out by estimating all or part of the analysis using alternative assumptions or specifications. By running various analyses using equally plausible assumptions, analysts can roughly quantify the range of uncertainty surrounding their predictions.

In this assessment, OTA identified some of the key assumptions used in analyses and attempted to indicate their likely range. Analysts can use this information as the foundation of sensitivity analyses. For example, analyses of managed competition could be estimated by using alternative assumptions about savings from HMOS. Similarly, analyses of single-payer systems could be run using different assumptions about provider overhead expenses. There are undoubtedly other key assumptions that could be used in sensitivity analyses.

Trying to quantify the degree of uncertainty in the estimates of the impact of health reform may not be easy, particularly in the case of relatively complex proposals and analytical models (20). Moreover, making several predictions based on different assumptions, rather than one “best guess” estimate, would require a substantial investment of time and resources. Finally, many of the analytic organizations that OTA spoke with suggested that busy policy makers want a single number rather than a range, even if the number is just a “best guess.”

Given the obstacles and the perceived lack of interest, many analysts have suggested that the motivation for estimating the degree of uncertainty, or a range of the probable impact, would have to come from their clients, including Congress.

#### ***Documentation***

The documentation accompanying many recent estimates of national health expenditures indicates that the estimates presented are “uncertain.” Although this serves as a warning to potential users, it does not indicate how uncertain the estimates are.

The foundations of the estimates and their degree of uncertainty might be better appreciated if users have access to documentation that details how the estimates were derived and the judgments and empirical evidence on which they are based. For example, analysts could be encouraged to indicate how they determined the effectiveness of government cost controls, whether the determination was based on empirical research or judgment, and the reasons why the determination of effectiveness might be uncertain. Some analyses present some of this information, but the presentation is selective, uneven, and may be too abbreviated to be useful to nonexperts.

Since there are many ways to express methods and estimates, analysts would require guidance from their clients on the degree of detail and style of presentation that would be most useful. For example, Congress could require federal entities to publish relatively standardized documentation explaining their analytical approaches and to publish sensitivity analyses.

Congress has more leverage over the federal entities that produce projections (e.g., the Congressional Budget Office, the General Accounting Office, and executive branch agencies) than it does over private consulting firms, private individuals, and state and local governments. Although Congress may encourage federal agencies to do a better job of describing the uncertainty surrounding their estimates, estimates will still be produced by nonfederal agencies and used to argue the merits of particular reform proposals. By requiring certain standards in the public estimates, however, Congress could have a basis for questioning, challenging, or even dismissing estimates from private sources that are not well documented or supported.

### ■ Improving the Estimation Process

Although this document is not meant to discuss in detail steps that might improve analyses of health reform proposals, two obvious approaches are greater collaboration between analytic organizations and the larger research community, and enhanced research and data collection.

### *Collaboration Between Analytic Organizations and the Larger Research Community*

Currently there is little opportunity for outside groups to verify or replicate estimates produced by other agencies. Creating such an opportunity may engender more checks and balances of the estimates. Moreover, encouraging greater communication between the relatively few organizations analyzing health reform costs and the larger research community may help to increase understanding of the strengths and weaknesses of the estimates. Of course, this approach may put the analytic organizations under more pressure from those with political interests. It may also be difficult given the time pressures that accompany most of the analyses.

### *Research and Data Collection*

Trying to quantify the precise effect of complex reforms on the health care system—which represents one-seventh of the nation’s economy—is a daunting task. In this report OTA reviews the empirical evidence available for making such predictions. Not surprisingly, the available empirical evidence leaves many questions unanswered. Thus, estimates of the impact of proposed health reforms on national health expenditures have been based, to a some extent, on subjective judgment. Additional research on policies to reduce health care expenditures and to expand insurance coverage would strengthen the foundation on which predictions could be based. Although the results of additional research may not be available in time for current efforts to reform the health care system, health financing and delivery are likely to remain policy issues for years to come.

## ORGANIZATION OF THIS REPORT

This report reviews and critiques assumptions and inputs underlying various predictions about the direction and magnitude of the effects on national health expenditures of four general policies: applying government cost controls (chapter 2); encouraging managed competition (chapter 3); providing coverage to uninsured people (chapter

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4); and administrative changes (chapter 5). All of the chapters are organized in parallel fashion. First, the chapters outline the policy reviewed. Second, they describe the various methods used to estimate the effect of the policy. Each chapter summarizes in table format the key assumptions

analysts appear to use. Third, they review the empirical literature on the impact of the particular policy, evaluate whether the assumptions about the policies correspond with empirical evidence, and discuss the attendant uncertainty. The final section of each chapter summarizes the findings.