Appendix: Implications of Uncertainty in Selected Estimates of NHE Under Health Reform

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Chapter 1 of this report presented examples of how changing certain plausible alternative assumptions can affect estimates of national health expenditures (NHE) and possible policy implications drawn from those estimates. This appendix provides more detail on how sensitivity analyses summarized in chapter 1 were calculated.

The first sensitivity analysis is based largely on Congressional Budget Office (CBO) publications. The other two examples were calculated by OTA using the original analytic framework but substituting one different assumption. In both examples, the alternative assumptions are plausible in the sense that they appear to be equally well supported by the empirical literature. OTA only had enough information about the analytic approaches to perform these calculations for some of the analyses.

CBO'S ANALYSIS OF THE AMERICAN HEALTH SECURITY ACT AND THE HEALTH SECURITY ACT

According to CBO,

> . . . its approach to estimating the potential impact of limits on expenditures in legislative proposals [that have provisions for such limits] is to examine the proposal with respect to both the stringency of the limits and the specified enforcement mechanisms. Based on its best judgment, CBO then assigns a rating of effectiveness (168).

CBO notes that the ratings are "difficult and imprecise." This example shows how this imprecision might influence the relative ranking of two plans.

To estimate NHE under the American Health Security Act of 1993 (H.R. 1200), CBO assumed that the spending controls in the American Health Security Act would only be "75 percent effec-

tive" (171). Under this assumption, CBO predicted that NHE would be $1,429 billion in 1998. However, CBO also presented an estimate under the alternative assumption that the spending limits in the American Health Security Act would be "100 percent effective,*' as opposed to 75 percent effective. Under an assumption of 100 percent "effectiveness," CBO predicted that NHE would be $1,372 billion in 1998.

Changing the assumptions about the effectiveness of the spending limits could alter how the American Health Security Act is viewed in relation to another proposal later examined by CBO, the Health Security Act (H.R. 3600/S. 1757) (172). For example, CBO estimated that under the Health Security Act, NHE would be $1,411 billion in 1998. Thus, according to CBO, the American Health Security Act would leave NHE $18 billion higher in 1998 than the Health Security Act. However, under the assumption that the spending limits in the American Health Security Act were "100 percent effective," also presented by CBO, the American Health Security Act would leave NHE $39 billion lower than the Health Security Act. By changing the assumption about effectiveness, the ranking of the two bills would switch. Thus, the key determinant of which bill would save more money in 1998 is the analyst's educated guess about the effectiveness of the cost containment mechanisms in the two bills. A more detailed explanation of CBO's justification for the 75-percent effectiveness rating, and the possible reasons why some might disagree with the 75-percent rating are discussed in box C-1.

GAO'S ANALYSIS OF A "CANADIAN-STYLE SYSTEM"

Altering key assumptions in certain analyses can yield different predictions about the direction of change in national health spending. For example, varying the General Accounting Office's (GAO) assumptions about administrative costs under a single-payer system would change GAO's conclusion that a "Canadian-style system" would decrease NHE in year 1991 (relative to baseline), to the conclusion that it would increase NHE in that year (relative to baseline).

GAO estimated that under a "Canadian-style system" overall health spending would fall $3 billion from baseline. To make this estimate, GAO determined that a "Canadian-style system" would have lower administrative overhead, but would add additional costs by providing coverage to the uninsured and eliminating patient cost-sharing. GAO's overall estimate represents the sum of administrative savings and additional costs from expanded and enhanced insurance coverage. For administrative savings, GAO assumed that insurer overhead would fall to Canadian levels. An alternative assumption is that insurer overhead would fall only to the Medicare rate (an assumption CBO has used to estimate the impact of single-payer plans). [1]Under the assumption of insurer overhead at the Medicare rate, OTA calculated that the "Canadian-style system" would be predicted to *increase* national health spending by $3.6 billion in 1991 (table C-1).

LEWIN-VHI'S ANALYSIS OF THE HEALTH SECURITY ACT

Another example of the implications of changing an assumption can be constructed using Lewin-VHI'S analysis of the Health Security Act (H.R. 3600/S. 1757), and substituting a CBO assumption about managed care savings. Lewin-VHI estimated that under the Health Security Act (H.R. 3600/S. 1757), savings from increasing enrollment in HMOS might equal $14.9 billion (89).

Lewin-VHI's estimate of savings from managed care is summarized in table C-2 (column 5). Lewin-VHI based its estimate in part on an assumption that group- and staff-model HMOS reduce inpatient expenditures by 11.7 percent and increase outpatient expenditures by 8.4 percent.

[1]See chapter 5 in this report for a full discussion of alternative assumptions and estimates of administrative costs under current proposals.

BOX C-1: Effectiveness Rating for the American Health Security Act of 1993

The American Health Security Act of 1993 would create a single-payer program of national health insurance modeled after the Canadian system. All legal U.S. residents would be eligible for comprehensive health benefits. The national health insurance program would be financed largely by the federal government although states would administer the program and pay all providers in the state. To receive federal funding, states would have to set up a program approved by the Federal Health Board created by the act. Each program would have to meet the requirements of the act, such as benefits offered, quality standards, enrollment procedures, portability of benefits, adequate administration, provider payment methodologies, and so forth. The act would supersede Medicare and Medicaid, the Federal Employees Health Benefits Program, and benefits for military personnel under the Civilian Health and Medical Program of the Uniformed Services (CHAMPUS). The Department of Veterans Affairs' health care system and the Indian Health Service would continue. H.R. 1200 would limit the rate of growth of spending for the national health insurance program to the rate of increase of gross domestic product (GDP) for the previous year plus population growth.

States would receive federal grants averaging 86 percent of the state's approved budget for covered health services. The other 14 percent of the approved state budget for covered health services would be funded from state sources. Because approved state budgets would be allowed to increase, on average, at the rate of GDP growth for the previous year plus population growth (the national budget limit), the federal government's share of spending on covered health services would also increase at this rate. However, states would be allowed to spend more on covered health services than their approved budget. If a state exceeds its approved budget in a given year, it must continue to fund covered services from its own revenues. The bill contains no penalties to limit excess state spending. If a state provides all covered health services for less than the budgeted amount, it may retain the full federal payment. Therefore, while the federal share of state budgets would increase by a maximum of the national budget limit, states' shares may grow faster than, slower than, or equal to that rate. In addition, states may provide benefits to residents of the state in addition to the covered services at the expense of the state. CBO's effectiveness rating for the American Health Security Act referred to H.R. 1200's statutory limit on the rate of growth of spending for the national health insurance program.[1]

In applying a 75-percent effectiveness rating, CBO assumed that the open-ended nature of state budget shares would likely cause 25 percent of the potential savings from a fully effective limit to go unrealized. CBO appears to have based its 75-percent effectiveness rating primarily on the lack of penalties to states for failing to live within the budget (171). However, it may be just as plausible to assume that since states must fund any excess spending from their own revenues by running a deficit or raising taxes, states would have a strong incentive to stay within their share of the national health budget and the national budget limits would be 100 percent effective. Alternatively, state spending could cause 50 percent of potential savings from a fully effective limit to go unrealized if states faced strong political pressure to fund more services. How states will behave under the proposed budgeting mechanism does not seem answerable through empirical evidence. CBO's report on NHE under H.R. 1200 in fact provides spending calculations under alternative scenarios of 100-percent, 50-percent, 25-percent, and 0-percent effectiveness because it says the "assumption about the effectiveness of the spending limit in the bill is highly uncertain" (171).

[1] See chapter 2 in this report for an explanation and discussion of CBO's rating of effectiveness of statutory limits

SOURCE: Office of Technology Assessment, 1994

TABLE C–1: Changes in Estimates of NHE Using GAO's Model With Alternate Administrative Costs Assumptions ($ billions)

	GAO's assumption (Insurer overhead at Canadian level)	Alternate assumption (insurer overhead at Medicare level)
Administrative savings	($66.9)	($60.3)
Increased utilization	$63,9	$63.9
Net change in NHE	**($3.0)**	**$3.6**

KEY GAO = U S General Accounting Off Ice, NHE = national health expenditures

SOURCE Off Ice of Technology Assessment, 1994, based on assumptions from CBO (165) and GAO (178). Full citations are in appendix B and at the end of this report

Lewin-VHI's analysis further assumed that independent practice associations (IPAs)[2] *reduce* inpatient expenditures by 6.9 percent and *increase* outpatient expenditures by 9.9 percent.

Further, Lewin-VHI assumed that under the Health Security Act individuals in metropolitan areas would enroll in group- and staff-model HMOS (or in plans with equivalent savings) and that individuals in nonmetropolitan areas would enroll in IPAs (or in plans with equivalent savings). Lewin-VHI's analysis made additional assumptions regarding managed care savings for people 65 and older and for prescription drug expenditures under managed care. Lewin-VHI's analysis assumed that prescription drug expenditures would be reduced in proportion to overall managed care savings. It also made assumptions about the change in utilization for people 65 and older based on Medicare TEFRA[3] evaluation results.

In contrast, CBO has assumed in past reports that staff- and group-model HMOS can reduce expenditures by 15 percent (table C-2, column 4) (163). CBO has stated that there is no evidence that IPAs can reduce expenditures and therefore it has made the conservative assumption that no savings can be achieved by increasing enrollment in IPAs.[4] Given the extreme difficulty in trying to synthesize the diverse literature on HMO savings, and the questions that are left unanswered by this literature (e.g., do HMOS have higher administrative costs?), CBO'S assumptions seem as plausible as those used by Lewin-VHI.[5]

OTA calculated what might happen if Lewin-VHI'S managed care savings estimates were replaced with CBO'S assumptions that 1) group- and staff-model HMOS reduce expenditures 15 percent below fee-for-service plans, and 2) IPAs have expenditures equivalent to fee-for-service plans. OTA's calculation suggests that total estimated savings from managed care would be increased in the Lewin-VHI analysis from $14.9 billion to approximately $48.8 billion (table C-2).

[2] As discussed in chapter 3 in this report, IPAs are one type of managed care organization.

[3] TEFRA is the Tax Equity and Fiscal Responsibility Act of 1982 (Public Law 97-248). The act included provisions for a "Medicare risk program" that was intended to be a means of reducing costs to Medicare by encouraging enrollment of individuals with Medicare coverage in HMOs (105).

[4] CBO has just revised its assumptions about the effects of managed care (173).

[5] The research literature on cost savings from managed care is reviewed in chapter 3 of this report.

TABLE C–2: Implication of Substituting CBO's Plausible Assumption Regarding Managed Care Savings for Lewin–VHI's Plausible Assumption in Lewin–VHI's Analysis of HMO Savings Under the Health Security Act

Population or service affected	Baseline Expenditures for those not now in HMOS ($ billions)	Percentage change in expenditures for those not now enrolled in HMOS: Percent change under Lewin-VHI analysis	Percentage change in expenditures for those not now enrolled in HMOS: Percent change under "CBO and Lewin-VHI's assumptions"	Dollar change in expenditures for those not now enrolled in HMOS: Dollar change under Lewin-VHI analysis ($ billions)	Dollar change in expenditures for those not now enrolled in HMOS: Dollar change under "CBO and Lewin-VHI's assumptions" ($ billions)
People under age 65, by area of residence and setting for care					
Metropolitan areas					
inpatient care	$1889	-11.770	- 155zoa	($22.1)	($28.3)
Outpatient care	$1201	8.4%	- 15Yoa	$100	**($18.0)**
Nonmetropolitan areas					
inpatient care	$81,2	-6.9%	O[a]	($5 6)	o
Outpatient care	$516	9.9%	O[a]	$51	0
People 65 and eider, metro and nonmetropolitan areas combined, by setting					
inpatient care	$137	-16.0%	-16.0%	($2.2)	($2 .2)
Outpatient care	**$71**	**13.0%**	**13.0'XO**	$0.9	$0.9
Prescription drugs	$37,2	-3.1%	-3.1%	($1.2)	($1 .2)
Total	$499.9	-3.3%	-10.9%	($149)	($48.8)

KEY: CBO = U.S. Congress, Congressional Budget Office, HMO = health maintenance organization

aCBO assumption

SOURCE Off Ice of Technology Assessment, 1994, based in part on Lewin-VHI (89) and CBO (163) Full citations are in appendix B and at the end of this report