

Health Affairs

At the Intersection of Health, Health Care and Policy

Cite this article as:
Jack Hadley and John Holahan
Covering The Uninsured: How Much Would It Cost?
Health Affairs published online June 4, 2003

The online version of this article, along with updated information and services, is available at:
<http://content.healthaffairs.org/content/early/2003/06/04/hlthaff.w3.250.citation>

For Reprints, Links & Permissions : http://content.healthaffairs.org/1340_reprints.php

Email Alertings : <http://content.healthaffairs.org/subscriptions/etoc.dtl>

To Subscribe : <https://fulfillment.healthaffairs.org>

Health Affairs is published monthly by Project HOPE at 7500 Old Georgetown Road, Suite 600, Bethesda, MD 20814-6133. Copyright © by Project HOPE - The People-to-People Health Foundation. As provided by United States copyright law (Title 17, U.S. Code), no part of may be reproduced, displayed, or transmitted in any form or by any means, electronic or mechanical, including photocopying or by information storage or retrieval systems, without prior written permission from the Publisher. All rights reserved.

Not for commercial use or unauthorized distribution

Covering The Uninsured: How Much Would It Cost?

The cost of additional medical care used by newly insured Americans would be lower than most people think, this analysis confirms.

by **Jack Hadley and John Holahan**

ABSTRACT: To provide benchmarks for evaluating the costs of alternative proposals to provide insurance coverage for the uninsured, this study presents two sets of cost estimates derived from medical spending patterns of lower- or middle-income people with private insurance plans and those of people with public insurance coverage during 1996–1998. The analysis suggests that the uninsured would use \$33.9–\$68.7 billion (in 2001 dollars) in additional medical care if they were fully insured. An increase in medical spending of this range would increase total health care spending by 3–6 percent and would raise health care’s share of GDP by less than one percentage point.

IT IS WELL DOCUMENTED THAT having insurance increases medical care use.¹ Consequently, a critical question in the ongoing national debate over whether and how to extend insurance to the uninsured is, “How much more will it cost to insure the uninsured, over and above what is being spent now for their medical care?” This question has several components. How much will the increased medical care used by newly insured people cost? How much will government spending go up, both to pay for the cost of the additional services used by the uninsured and to cover “cost transfers” for care that was either subsidized from private sources or paid for out of pocket by the uninsured? How much will government spending increase because of “crowding out,” which occurs when people switch from private insurance to expanded public insurance?

This paper focuses on the first of these questions: the cost of the additional care that would be used by people who obtain full-year coverage after being uninsured for either all or part of a year. It builds on a recent analysis of the current cost of medical care used by the uninsured and its sources of financing.² It does not address increased government costs that would inevitably occur because some people would give up their current private coverage to enroll in the new program, the crowding-out effect. The number of people who would switch would depend on the specific design of the expanded insurance program.

Jack Hadley, an economist, is a principal research associate at the Urban Institute in Washington, D.C., and a senior fellow at the Center for Studying Health System Change. John Holahan, also an economist, directs Urban’s Health Policy Center.

Our analysis estimates the cost of increased medical care used by the uninsured under two alternative assumptions: The newly insured's spending would be similar to that of either lower- or middle-income people covered by the "average" private insurance policy, or people covered by the "average" public insurance policy (primarily Medicaid and the State Children's Health Insurance Program, or SCHIP, but also including similar state-funded public insurance programs).

Prior studies have either (1) estimated the effects of insurance on the use of specific services and then applied estimates of the cost per service, or (2) specified the detailed services and benefits of hypothetical insurance plans, applied actuarial valuations to develop the "cost" of the plan, and then multiplied by the number of people who would be covered by the new plan. As an example of the first approach, Stephen Long and Susan Marquis estimated statistical models of the effect of insurance coverage on two services: ambulatory care contacts and hospital admissions.³ They estimated the cost by multiplying the projected increases in the numbers of contacts and admissions by national estimates of the cost per ambulatory contact and per hospital admission. According to their estimates, spending for these two services by the full-year uninsured would increase about 50 percent. In another example, Pamela Farley Short and colleagues expanded the list of services to ten.⁴ They estimated a somewhat larger increase in spending, 73 percent.

As examples of the latter approach, Lewin-VHI applied actuarial estimates of insured people's per capita spending by age, sex, health status, and income to corresponding categories of uninsured people to estimate the cost of President Clinton's Health Security Act.⁵ In a related analysis, the cost implications of a managed competition insurance plan were estimated by multiplying the number of affected people by the average annual premium of an efficiently operated health maintenance organization (HMO).⁶

Conceptual Approach

To simulate the health care spending of the uninsured if they should gain insurance coverage, we estimated a series of statistical models that relate annual health care spending to measures of insurance coverage, sociodemographic characteristics, and health status. We estimated separate models that alternatively combined a sample of uninsured people with samples of (1) lower- and middle-income people with private insurance, and (2) people with public insurance. By using nationally representative samples, this approach assumes that the uninsured would have coverage similar to the average private or public insurance policy. We adopted this strategy because the specifics of plan design, which reflect values about what health insurance should cover and how it should be paid for, are both complex and controversial. Our goal is to establish benchmarks that can be used to compare cost estimates for possible future specific proposals for expanding insurance coverage against the cost of an "average" private or public insurance plan.

Within this basic goal, we distinguished between private and public insurance

because the two typically have distinctive features. Private insurance generally incorporates cost sharing through deductibles, coinsurance, and copayments; offers a range of covered services; and provides access to a broad set of providers under varying payment rates. Public insurance other than Medicare typically incorporates very little patient cost sharing and covers a broad range of services but limits access to a more narrow set of providers who are willing to accept lower payment rates.

The coefficients of the statistical models estimated using the combined samples of uninsured and insured people implicitly assume that the effects of socio-demographic and health characteristics reflect an average of the care-seeking and medical spending behavior of the uninsured and the comparison insured population (either private or public). An alternative approach, for example, could estimate a spending model using only data for privately insured people and then apply the coefficients from that model to the characteristics of the uninsured. However, this approach makes the unrealistic assumption that the sociodemographic and health characteristics of the uninsured have the same effects on their spending that the characteristics of the privately insured have on their spending. In other words, this approach ignores possible differences in care-seeking behavior that are attributable to sociodemographic differences between the uninsured and the privately (or publicly) insured. Thus, in our simulations, differences in predicted expenditures between the private and public insurance models are attributable to a combination of (1) differences in the effects of each type of insurance coverage on medical spending, and (2) differences in the characteristics of the uninsured relative to people with full-year private or public insurance.

We excluded higher-income people from the full-year privately insured sample, to avoid confounding from possible differences in care-seeking behavior resulting from differences in socioeconomic status between the uninsured and higher-income people with full-year private coverage. For example, people with higher incomes might be more likely to use more costly, out-of-network providers than would lower-income people with the same insurance coverage, and they should in general be less deterred by cost sharing. Thus, their behavior would not be a good basis for predicting how the uninsured would respond to having coverage.

We next simulated predicted spending by setting the value of the insurance coverage variable to full-year coverage (either private or public) and dropping the full-year insured population from the prediction sample. Thus, the predictions are based on the characteristics of the uninsured population under the assumptions that they have coverage for a full year and that the effects (coefficients) of socio-demographic and health characteristics reflect the average behavior of the uninsured and of the specific insured sample used to estimate the statistical models.

Study Methods

■ **Data and sample.** All data for this analysis are from the Medical Expenditure Panel Surveys (MEPS) conducted in 1996, 1997, and 1998. MEPS is a nationally representative sample of the noninstitutionalized population, which contains detailed information on annual total charges and payments for health care used, monthly information on insurance coverage, and detailed demographic and health characteristics.⁷ The analysis sample excludes people age sixty-five or older and nonelderly people covered by Medicare, as well as privately insured families with incomes higher than 400 percent of the federal poverty level.⁸ People who are in the sample for only a portion of the year (newborns, people who died, and people who became institutionalized) are included for the part of the year they were in the sample. Data from the three surveys were pooled to form a single analysis file. Expenditures were inflated to 2001 dollars using the annual percentage increase in the National Health Accounts (NHA) of the Centers for Medicare and Medicaid Services (CMS).⁹

■ **Aligning MEPS data with the NHA.** MEPS defines expenditures as explicit payments (as opposed to charges) made for health care services provided to a specific patient. MEPS does not count provider revenues from general government appropriations and from programs such as the Medicare and Medicaid disproportionate-share hospital (DSH) programs, since they are not payments for specific patients. As a result of these and other definitional differences, the MEPS estimate of total national health spending is much lower than the NHA estimates.

To correct for MEPS's systematic underreporting, we used information from a detailed comparison of the MEPS and NHA estimates to develop an adjustment factor to align the MEPS estimates with the NHA.¹⁰ We first subtracted the estimates of Medicare spending from both sources, since they are not direct payments for care received by the uninsured. We also subtracted from the NHA expenditures attributed to the Department of Defense for military personnel, revenues from non-patient care activities reported by providers, and expenditures for long-term nursing home and long-term hospital care, which are not likely to be included as covered services by a program to extend coverage to the uninsured. These adjustments reduce the NHA total from \$912 billion to \$556.1 billion. The MEPS/NHA adjustment factor we use to inflate the MEPS estimates is 1.25, the ratio of the revised NHA spending level to the comparable MEPS spending level.

■ **Simulation model and statistical estimation.** We used a standard two-part approach to estimate the simulation model, to account for the fact that a large proportion of people incur no health care expenses.¹¹ The first part uses a logistic model to estimate the probability of having any spending during the year. The second part estimates the effects of insurance and other characteristics on spending, given that the person has incurred some expenses. We estimated separate models for children (under age 19) and adults (ages 19–64), because we used different measures of health conditions for children and adults and because health insurance affects children's and adults' medical spending differently. All data were weighted using the MEPS

person weights for both estimating the models' coefficients and simulating predicted spending. We used the STATA software program for statistical estimation and computations.¹²

To simulate spending for the uninsured under the assumption that they have either private or public coverage, we assigned the variable measuring the percentage of time covered by either private or public coverage a value of 1.0, which represents full-year coverage. We then combined the estimated coefficients from the expenditure models with the uninsured's values of the independent variables to predict both the probability of having any spending and the amount spent (for people with positive expenditures).¹³

■ **Independent variables in the statistical models.** *Insurance coverage.* The key independent variables in the statistical models are the percentage of months that a person has private insurance coverage and the percentage of months that a person has public insurance coverage. Measuring insurance coverage in this way improves the accuracy of the predictions because a substantial number of Americans are uninsured for only a portion of a year.¹⁴ Being uninsured for only one or two months may have little impact on health spending, while being uninsured for ten or eleven months increases the likelihood of forgoing care for financial reasons. Both measures were included in all of the models because the population of uninsured people includes people who have some private or public coverage, or both, for a portion of the year. In addition, a very small proportion of people with full-year coverage had a combination of private and public coverage over the course of the year.¹⁵

Sociodemographic characteristics. The statistical models for adults include sets of dichotomous variables for sex, age, race and ethnicity, education, family income relative to poverty, and marital status. The models for children control for sex, age, race and ethnicity, family income relative to poverty, and parents' education and marital status. All models also include controls for census region.¹⁶

Health characteristics. Although MEPS contains detailed information on the presence of both acute and chronic conditions, there is some concern that these may be underreported for the uninsured because they tend to have fewer contacts with medical care providers. Therefore, for adults we used a combination of self-reported general health, mental health, and functional status measures, along with measures of acute and chronic conditions derived from contacts with providers. We used a smaller and different set of health measures for children because they have a much lower incidence of specific medical conditions. Finally, we included a dichotomous indicator of whether the person died or was institutionalized for some portion of the year.¹⁷

Study Results

■ **Differences in population characteristics by insurance status.** Exhibits 1 (adults) and 2 (children) report the mean values of total spending and population characteristics of the different samples of people used to estimate the statistical

EXHIBIT 1
Weighted Means Of Dependent And Selected Independent Variables For Adults, By Insurance Status

	Full-year uninsured	Part-year uninsured	Privately insured	Publicly insured
Number	8,003	5,587	13,398	2,509
Any health care spending	58.2%	79.8%	85.2%	86.8%
Total health care spending (2001 dollars)	\$1,158	\$2,241	\$2,970	\$4,850
Age and sex				
19-24	20.7%	24.6%	11.4%	18.4%
25-29	16.3	18.9	11.7	14.0
30-34	12.6	14.5	13.9	14.3
35-39	13.2	12.4	16.0	13.2
40-44	11.6	10.9	15.3	11.3
45-49	9.0	6.5	10.9	9.0
50-54	6.9	5.2	8.0	7.5
55-59	5.0	3.9	6.1	7.2
60-64	4.6	3.1	6.8	5.3
Female	49.8	48.3	49.2	48.9
Race/ethnicity				
White non-Hispanic	54.3	66.4	74.0	46.2
White Hispanic	22.1	11.8	9.2	15.7
Black	17.0	15.8	12.4	30.4
Other	6.5	6.0	4.4	7.8
Education				
Less than high school	31.1	18.7	11.7	42.5
High school graduate	37.4	34.5	38.7	38.5
Some college	20.1	27.6	28.7	15.2
College graduate	11.4	19.3	21.0	3.8
Income relative to poverty				
Less than 100%	23.2	17.2	6.4	59.4
100-199%	29.9	24.4	21.1	25.2
200-399%	29.6	33.3	72.4	9.9
400% or more ^a	17.3	25.0	0.0	5.6
Marital status				
Married	41.5	45.2	62.0	30.8
Widowed, divorced, separated	20.4	17.9	16.5	27.7
Never married	38.0	37.0	21.5	41.5
Self-reported health status				
Excellent	28.6	30.6	31.5	15.4
Very good	28.6	31.9	34.4	21.6
Good	28.9	25.6	25.5	28.8
Fair	10.5	9.0	6.9	19.6
Poor	3.4	2.9	1.8	14.6
Fair or poor mental health	6.7	6.1	3.5	24.0

models. The uninsured sample is divided into people uninsured for the full year and for part of the year. The part-year uninsured have coverage for about 55 percent of the year, and most of that coverage is private insurance (tabulations not shown).

Full-year uninsured adults and children are much less likely than any of the

EXHIBIT 1
Weighted Means Of Dependent And Selected Independent Variables For Adults, By Insurance Status (cont.)

	Full-year uninsured	Part-year uninsured	Privately insured	Publicly insured
Functional/activity limitations				
ADL/IADL screener	2.1%	2.9%	2.3%	18.5%
Difficulty lifting, walking, or with steps	3.0	3.6	2.5	14.8
Social or cognitive limitations	4.5	4.9	3.4	21.8
Any limitations	3.2	3.6	2.3	9.8
Unable to perform activity	2.3	2.5	1.6	17.1
Deceased or institutionalized	1.1	0.3	0.5	2.6
Acute and chronic conditions				
Diabetes	3.1	2.5	3.3	8.7
Otitis media	1.7	2.0	2.5	3.2
Hypertension	5.7	6.7	9.4	15.2
Asthma	2.5	3.6	3.2	7.8
Back disorder	6.5	6.8	7.4	10.1
Infectious	16.5	22.4	22.8	19.2
Malignant neoplasms	0.8	0.9	1.6	2.5
Endocrine	4.7	6.0	10.3	10.2
Blood	0.6	1.1	0.9	2.3
Cerebrovascular	2.3	2.2	3.2	7.3
Bronchitis	9.0	10.6	12.2	12.1
Digestive	10.8	13.9	13.6	20.0
Genitourinary	8.0	11.7	13.6	16.1
Skin	4.6	7.9	9.2	9.1
Musculoskeletal	11.6	13.4	16.2	22.9
Fracture	2.0	2.9	2.2	3.2
Pregnancy	1.4	7.1	3.8	9.2

SOURCE: Authors' calculations from the 1996–1998 Medical Expenditure Panel Surveys.

NOTES: Means for all variables are available in Exhibit A of the authors' technical appendix, www.kff.org/content/2003/20030604. ADL is activities of daily living. IADL is instrumental activities of daily living.

^aExcludes the privately insured.

EXHIBIT 2
Weighted Means Of Dependent And Selected Independent Variables For Children, By Insurance Status

	Full-year uninsured	Part-year uninsured	Privately insured	Publicly insured
Number	3,164	3,594	8,390	5,139
Any health care spending	64.2%	79.6%	86.0%	80.8%
Total health care spending (2001 dollars)	\$475	\$943	\$1,492	\$1,034
Age and sex				
0	6.4%	5.1%	3.7%	7.6%
1–4	16.2	23.7	20.2	26.5
5–9	23.4	28.9	27.5	30.2
10–12	15.6	15.0	16.3	15.3
13–19	38.4	27.4	32.3	20.5

EXHIBIT 2
Weighted Means Of Dependent And Selected Independent Variables For Children, By Insurance Status (cont.)

	Full-year uninsured	Part-year uninsured	Privately insured	Publicly insured
Race/ethnicity				
White non-Hispanic	51.2%	54.1%	73.0%	35.6%
White Hispanic	27.4	19.6	9.8	22.7
Black	16.0	21.0	13.0	35.2
Other	5.4	5.3	4.1	6.4
Parents' education				
Less than high school	33.7	26.3	10.5	43.0
High school graduate	36.6	36.3	37.8	38.4
Some college	21.4	26.3	31.2	16.4
College graduate	8.3	11.2	20.4	2.2
Family income relative to poverty				
Less than 100%	24.4	30.5	8.2	64.6
100–199%	36.4	31.4	23.9	25.6
200–399%	26.9	26.8	68.0	7.7
400% or more ^a	12.0	11.2	0.0	2.1
Parents' marital status				
Married	65.2	60.0	77.8	37.8
Single parent, female	32.2	37.4	18.9	60.1
Single parent, male	2.6	2.7	3.2	2.2
Self-reported health status				
Excellent	48.8	47.8	53.8	42.1
Very good	28.0	29.4	29.4	27.2
Good	19.6	19.1	13.8	23.7
Fair	2.8	3.2	2.5	5.9
Poor	0.9	0.5	0.4	1.2
Fair or poor mental health	2.2	2.4	2.0	5.4
Functional activity limitations				
ADL/IADL screener	0.3	0.9	0.8	2.7
Limited in any activity (age <5 years)	1.0	2.0	1.6	2.2
In special program (age <5 years)	6.5	9.0	7.6	11.0
Acute and chronic conditions				
Asthma	4.5	6.3	5.7	9.4
Infectious	24.7	29.2	33.8	23.4
Bronchitis	11.6	11.7	12.1	9.8
Digestive	8.9	8.8	8.6	8.1
Genitourinary	3.4	3.5	4.2	2.9
Skin	4.2	6.9	8.9	5.5
Musculoskeletal	2.8	3.5	3.9	2.3
Fracture	2.1	2.7	3.2	2.3

SOURCE: Authors' calculations from the 1996–1998 Medical Expenditure Panel Surveys.

NOTES: Means for all variables are available in Exhibit A of the authors' technical appendix, www.kff.org/content/2003/20030604. ADL is activities of daily living. IADL is instrumental activities of daily living.

^a Excludes the privately insured.

other groups are to have any expenditures over a year, and they spend much less per person. Among the full-year uninsured, 58 percent of adults and 64 percent of

children have any expenses, and average spending per person is \$1,158 for adults and \$475 for children.¹⁸ Among the privately insured, 85 percent of adults and 86 percent of children had expenses, and average spending per person was \$2,970 for adults and \$1,492 for children.

Adults with full-year public insurance coverage have the highest spending per person, but this largely reflects their much higher incidence of fair and poor self-reported health status, as indicated by their higher proportions with functional and activity limitations and specific medical conditions (Exhibit 1). Although there are more full-year-uninsured adults who report being in fair or poor health than among the full-year privately insured, smaller proportions of the full-year uninsured report having specific health conditions. This paradox may be the result of this group's fewer contacts with health care providers and subsequent underreporting of diagnosed acute and chronic conditions.

Compared with the privately insured, the uninsured are more likely to be racial and ethnic minorities, have lower educational attainment, and have lower family incomes relative to poverty. People covered by public insurance also have very different sociodemographic characteristics than privately insured people have.

■ **Simulated increases in per capita and total medical spending.** The complete statistical models are reported elsewhere.¹⁹ The insurance coverage variables were positive and statistically significant ($p < .01$) in all models, which indicates that having coverage raises total spending and that people with full-year coverage spend more than those with part-year insurance coverage spend. Although coefficients vary from model to model, it is generally the case that racial and ethnic minorities and people with less education have lower expenditures. Poor health—whether measured by self-reported health status, activity and functional limitations, or specific acute or chronic conditions—is associated with greater spending.

Exhibit 3 reports the simulated impact of insurance coverage on medical expenditures per uninsured person. Baseline figures include out-of-pocket payments, insurance payments for people with part-year coverage, and identified sources of uncompensated care (such as from public hospitals and clinics, workers' compensation, and local welfare programs), but they do not include uncompensated care paid for by implicit sources, such as general government payments (appropriations, grants, Medicare and Medicaid DSH) to private providers, private philanthropy, or providers' financial surpluses. Prior research indicates that this would add about 15 percent to the estimate of baseline per capita spending by people uninsured any part of the year.²⁰ (The value of all uncompensated care is accounted for in projecting the aggregate increase in incremental spending associated with complete insurance coverage.)

Estimates of simulated spending in Exhibit 3 reflect the effects of insurance on increasing both the likelihood of having any spending and a higher level of spending, given that some spending occurs. Combining adults and children who are uninsured for at least one month of the year, the simulations predicted that annual

EXHIBIT 3
Simulated Medical Spending Per Uninsured Person Under Two Alternative Insurance Approaches, By Age And Baseline Insurance Status, 2001 Dollars

Age and baseline insurance status	Baseline (actual) ^a	Simulated spending	
		“Average” private coverage	“Average” public coverage
All uninsured	\$1,383	\$2,676	\$2,121
Full-year uninsured	989	2,650	2,068
Part-year uninsured	1,813	2,705	2,178
Uninsured adults	1,644	3,187	2,568
Full-year uninsured	1,158	3,069	2,419
Part-year uninsured	2,241	3,331	2,751
Uninsured children	733	1,408	1,008
Full-year uninsured	475	1,374	996
Part-year uninsured	943	1,434	1,016

SOURCE: Authors' calculations from the 1996–1998 Medical Expenditure Panel Surveys.

^a Does not include the value of implicit uncompensated care.

spending nearly doubles, from \$1,383 to \$2,676 per person, under the assumptions that the expanded insurance coverage is like an average private insurance plan and that the effects of other characteristics (age, sex, health, education, and marital status) reflect an average of the effects for the uninsured and the privately insured.

Under the alternative assumption that the expanded coverage is similar to the average public insurance plan, simulated spending per person increases by 53 percent, to \$2,121. As expected, the increases for the full-year uninsured are larger than those for the part-year uninsured. However, the simulated percentage increases in spending for adults and children are fairly similar, although children's level of spending is much lower, both simulated and at baseline.

Exhibit 4 presents estimates of total simulated spending for the populations of people who would gain coverage under universal insurance. Our baseline estimate of the amount of medical care used by the uninsured is \$98.9 billion, which includes all uncompensated care (explicitly and implicitly financed), insurance payments for people with part-year coverage, payments from other identified sources, and the insured's out-of-pocket payments.²¹ Under the assumption that coverage expansion would provide insurance similar to the average private insurance policy observed for lower- and middle-income people in the base period, total spending for all people uninsured any part of the year would increase to \$167.6 billion, split almost evenly between the full-year (\$86.7 billion) and the part-year uninsured (\$80.9 billion). However, the increase in total spending, \$68.7 billion, is more heavily weighted toward the full-year uninsured, whose total spending more than doubles, while that for the part-year uninsured increases less than 40 percent.

Under the assumption that the expanded coverage would be similar to the average public insurance plan observed at baseline, the simulated total spending is

EXHIBIT 4
Simulated Total Spending Under Two Alternative Insurance Approaches, By Baseline Insurance Status, Billions Of 2001 Dollars

Insurance status	Baseline spending ^a	Simulated spending			
		“Average” private coverage		“Average” public coverage	
		Total	Change in spending	Total	Change in spending
All uninsured	\$98.9	\$167.6	\$68.7 (69.5%)	\$132.8	\$33.9 (34.3%)
Full-year uninsured	40.6	86.7	46.1 (113.5%)	67.6	27.0 (66.5%)
Part-year uninsured	58.3	80.9	22.6 (38.8%)	65.2	6.9 (11.8%)

SOURCE: Authors' calculations from the 1996–1998 Medical Expenditure Panel Surveys.

^a Includes uncompensated care; see J. Hadley and J. Holahan, “How Much Medical Care Do the Uninsured Use, and Who Pays for It?” 12 February 2003, www.healthaffairs.org/WebExclusives/Hadley_Web_Excl_021203.htm.

\$132.8 billion, which reflects an increase in total spending that is about half as large, \$33.9 billion, as under the assumption of expanded private insurance coverage. For people with part-year coverage, the simulated increase is relatively small, only about 12 percent, reflecting the assumption that existing private coverage would be replaced by the average public insurance plan.

■ **Simulated increases in total charges and services used.** The regression-adjusted simulations in Exhibit 3 suggest that spending per uninsured person would be 26 percent higher under the assumption of “average” private coverage (\$2,676 per capita) than under a plan reflecting “average” public coverage (\$2,121 per capita). As a result, the increase in aggregate spending under a plan that mimicked average private coverage is twice as large as the simulated increase under the assumption of public coverage (Exhibit 4).

This observation raises the question of whether the public-private difference is attributable to differences in service use or to differences in payment rates. To address this question, we simulated the effects of complete insurance coverage on total office visits (to any provider and to physicians), total hospital days, and total charges for all medical care using the same basic approach used to simulate increased medical spending. Office visits and hospital days are direct measures of service use. Total charges for all care received are a better measure of the quantity of care than total payments (expenditures) are, because payments reflect the effects of contractual allowances, insurer discounts and fee schedules, and unpaid balances (including charges for uncompensated care). If simulated total charges, office visits, and hospital days are similar under the alternative assumptions about the type of coverage, then the differences in simulated expenditures in Exhibit 4 would be attributable to differences in plans' payment rates and policies, not to differences in service use.

The results of these simulations (Exhibit 5) indicate that the difference in simulated total charges for medical care is relatively small, just over 5 percent greater

EXHIBIT 5
Simulated Total Charges For Medical Care (In 2001 Dollars) And Service Use, All Uninsured, Under Private And Public Coverage Assumptions

Total charges and service use	Baseline (actual)	Simulated	
		Private coverage	Public coverage
Total charges	\$2,532	\$4,376	\$4,139
Office visits per person			
Any provider	2.7	3.5	3.8
Physicians	1.8	2.5	2.5
Hospital days per 100	38.6	46.6	52.8

SOURCE: Authors' calculations from the 1996–1998 Medical Expenditure Panel Surveys.

for private coverage. They also show that the simulated increases in service use are actually slightly greater under the assumption of public coverage than under private coverage, especially for hospital days per 100 people.

The finding that simulated total charges are somewhat higher under the private coverage assumption but service quantities are higher under the public coverage assumption could result from the fact that privately insured people use providers who charge more (that is, more specialists than primary care physicians) or receive more-intensive care per visit or hospital stay (that is, more diagnostic or surgical procedures). The key point, however, is that the simulations reported in Exhibit 5 imply that most of the difference in simulated payments between private and public insurance plans reported in Exhibit 4 is attributable to differences in payment rates. In other words, they reflect the fact that Medicaid programs typically pay hospitals, clinics, and physicians much lower rates than private plans pay.²²

Discussion

As shown in our statistical appendix, the estimates are sensitive to specific assumptions about sample specification, estimation method, variable definitions, and model specifications.²³ These variations could affect the estimates by ± 10 –20 percent (based on variations in per capita estimates from preliminary analyses). However, the estimates of the total increases in spending we report are very similar to unpublished estimates made by researchers at the Agency for Healthcare Research and Quality (AHRQ), who also used MEPS data but used a number of different methodological assumptions.²⁴ Our estimates of the percentage increase in total health spending are also similar to projections from earlier studies that simulated the cost of increases in the use of specific services.²⁵ Thus, in spite of methodological variations across studies, our estimates are consistent with the results of other studies that predicted an increase in total health spending of 3–6 percent associated with expanding insurance coverage to the uninsured.

■ **Limitations.** One methodological limitation is that the underlying statistical

models do not adjust for possible bias attributable to people's selecting into various types of coverage or choosing to be uninsured because of their underlying health characteristics. For example, low-income people with serious health problems have a strong incentive to seek public insurance coverage, while those who are healthy may opt to forgo the expense of private coverage. In other words, those who choose to be uninsured may be likely to use less medical care than we estimate if there are unobservable factors that influence both their insurance coverage and their likely use of medical care if insured. The available MEPS public-use data make it very difficult, if not impossible, to incorporate insurance choice into the formal model, although this should be a high priority for future research. However, to the extent that there is bias from this source, it should be to exaggerate the effect of coverage on the increase in medical spending by the uninsured.

Another limitation is that our simulations do not make any assumptions about specific features of potential plans—that is, specific services covered, cost sharing, and provider payment method—all of which could have a substantial impact (either positive or negative) on our estimates which are based on “average” plan characteristics.²⁶ For example, if expanded private coverage were “catastrophic only” or incorporated substantial cost sharing, then spending would presumably be less than under an average private insurance plan because of smaller increases in service use. Moreover, high cost sharing could make private plan premiums much lower than the costs of public plans.

It is also important to emphasize that the simulations only provide estimates of the cost of expanding coverage to those who are uninsured. Plans to expand coverage will typically entail larger cost increases for government because some privately insured people will inevitably switch to the government-subsidized plan. The estimate of increased government spending depends on both the cost of covering the uninsured (which we estimate) and the cost of crowding out or displacement. The more “target-efficient” the plan (that is, the better it addresses the costs of its target population), the lower the amount of costs that would be transferred from private to public coverage; the less target-efficient, the greater the transfer costs and the higher the overall costs of a plan. While target-efficient plans have lower public costs, they raise equity issues—not providing government subsidies to those with current coverage despite their being in similar economic circumstances. In the end, the design of plans represents difficult political judgments.

From our perspective, increased government spending as a result of crowding out is important because it affects who pays for care, but it does not represent new resources drawn into the medical care system and does not add inflationary pressure to the existing delivery system. In fact, depending on the structure of the expanded coverage, total spending might not be affected very much if people switch from private to subsidized public coverage.

■ **Two approaches.** Our simulations reflect two “generic” approaches to structuring health insurance. These estimates provide a benchmark against which to

“The cost of additional care is much lower than the average annual revenue loss from federal tax cuts enacted since 2001.”

compare specific proposals. They should not be interpreted to mean that public insurance is necessarily less expensive than private insurance. In particular, if Medicaid enrollment were to double, there could be a substantial increase in political pressure to make provider payments more generous, to induce more providers to treat people covered by public insurance.

Similarly, although we have referred to the two generic approaches as an “average private plan” and an “average public plan,” our analysis does not address how expanded coverage under either approach would be financed. Combinations of federal income tax credits, income-related premiums, and federal and state appropriations could be used under either scenario. “Private” and “public” in our analysis refer primarily to a structure of covered services, cost-sharing arrangements, and provider payment approaches. Thus, even though most of the people with public coverage in the baseline analysis are in fact covered by Medicaid, the extra spending we simulate under expanded coverage would not necessarily be in the form of an expanded Medicaid program or a program financed in the same way that Medicaid (and SCHIP) are financed now.

■ **Effects of coverage expansions.** Even with these caveats, however, the overall impact of expanded coverage on total health care costs, an increase of \$35–\$70 billion, is actually relatively small, accounting for roughly 3–6 percent of total health care spending. An expansion of this magnitude would increase health spending’s share of gross domestic product (GDP) by less than one percentage point, from 14.1 percent of GDP to 14.5–14.9 percent.

Given the growing evidence of the beneficial effects of having insurance on health, labor-force participation, earnings, and education, the cost of expanding insurance coverage may be a relatively small or at least a very worthwhile investment when considered against the benefits of improved health, increased longevity, and potentially greater national income.²⁷

These benchmark cost estimates should reassure policymakers that the cost of additional care that would be used by the newly insured, in spite of its large absolute value, is much lower than the expected average annual revenue loss of almost \$170 billion from federal tax cuts enacted since 2001. Total federal government costs of actual proposals may very well exceed the magnitudes of recent and proposed tax cuts.²⁸ However, total government costs include substantial offsets or transfers of costs that correspond to savings to employers, workers, state and local governments, and individuals under the current system of financing health insurance. Our cost estimates suggest that the magnitude of forgone tax revenues is comparable to the cost of the additional medical care that would be used by a fully insured population over the next ten years.

ALTHOUGH WE HAVE EMPHASIZED THE COST of additional medical care used by the uninsured, our analysis noted that a substantial amount is already being spent on care received by uninsured people (Exhibit 4).²⁹ Much of this money flows through an elaborate and often hidden network of grants, indirect payments, and subsidies from a variety of primarily public sources to medical care providers. A potentially important implication of a comprehensive rather than incremental approach to covering all of the uninsured is that the existing public money already being used to pay for care received by the uninsured will be very difficult to capture or reallocate if insurance expansion is piecemeal. Providers treating the uninsured will be loath to relinquish their existing subsidies unless they are assured that everyone will be insured.

.....
 This research was supported by a grant from the Henry J. Kaiser Family Foundation under the Cost of Not Covering the Uninsured Project. Diane Rowland, Catherine Hoffman, David Rousseau, and Barbara Lyons of the Kaiser Commission on Medicaid and the Uninsured as well as the members of this project's Advisory Group provided useful comments on earlier drafts. The authors gratefully acknowledge the contributions of Willard Manning, Sherry Glied, and Emmet Keeler, who commented on the statistical analysis. Marc Rockmore provided excellent research and programming assistance.

NOTES

1. For comprehensive summaries of this extensive literature, see J. Hadley, "Sicker and Poorer," *Medical Care Research and Review* 60, no. 2 (Supp., June 2003): 3S-75S; J. Hadley, *Sicker and Poorer: The Consequences of Being Uninsured*, May 2002, www.kff.org/content/2002/20020510/4004.pdf (12 May 2003); Institute of Medicine, *Care without Coverage* (Washington: National Academies Press, 2002); and American College of Physicians, *No Health Insurance? It's Enough to Make You Sick* (Philadelphia: ACP, 1999).
2. J. Hadley and J. Holahan, "How Much Medical Care Do the Uninsured Use, and Who Pays for It?" 12 February 2003, www.healthaffairs.org/WebExclusives/Hadley_Web_Excl_021203.htm (12 May 2003).
3. S.H. Long and M.S. Marquis, "The Uninsured 'Access Gap' and the Cost of Universal Coverage," *Health Affairs* (Spring II 1994): 211-220.
4. P.F. Short et al., "The Effect of Universal Coverage on Health Expenditures for the Uninsured," *Medical Care* 35, no. 2 (1997): 95-113.
5. Lewin-VHI, *The Financial Impact of the Health Security Act* (Reston, Va.: Lewin-VHI, 1993).
6. J.F. Sheils, L.S. Lewin, and R.A. Haught, "Potential Public Expenditures under Managed Competition," *Health Affairs* (Supplement 1993): 229-242.
7. See J.W. Cohen, *Design and Methods of the Medical Expenditure Panel Survey Household Component*, MEPS Methodology Report no. 1, Pub. no. 97-0026 (Rockville, Md.: Agency for Healthcare Research and Quality, 1997).
8. About 15 percent of uninsured adults and 8 percent of uninsured children have family incomes exceeding 400 percent of poverty. We retained these cases in the analysis in order to have a representative sample of all uninsured people. We also retained the approximately 2 percent of full-year publicly insured people with incomes greater than 400 percent of poverty.
9. Centers for Medicare and Medicaid Services, "Table I: National Health Expenditures Aggregate and Per Capita Amounts, Percent Distribution, and Average Annual Percent Growth, by Source of Funds: Selected Calendar Years 1980-2001," 8 January 2003, cms.hhs.gov/statistics/nhe/historical/tl.asp (12 May 2003).
10. T.M. Selden et al., "Reconciling Medical Expenditure Estimates from the MEPS and the NHA, 1996," *Health Care Financing Review* 23, no. 1 (2001): 161-178. For details, see J. Hadley and J. Holahan, *Who Pays and How Much? The Cost of Caring for the Uninsured*, 12 February 2003, www.kff.org/content/2003/4088/4088.pdf (12 May 2003).
11. A. Jones, "Health Econometrics," in *Handbook of Health Economics*, vol. 1a, ed. A.J. Culyer and J.P. Newhouse (Amsterdam: Elsevier, 2000), 268-344; and W. Manning and J. Mullahy, "Estimating Log Models: To Transform or Not to Transform?" *Journal of Health Economics* 20, no. 4 (2001): 461-494.

12. We did not adjust the estimates of the standard errors for the effects of MEPS's complex sampling design because we were not interested in testing any hypotheses about the statistical significance of any of the parameter estimates. Details regarding the statistical procedures and model coefficients are provided in a statistical appendix. See J. Hadley and J. Holahan, "Estimates of the Cost of Covering the Uninsured: Statistical Appendix," 4 June 2003, www.kff.org/content/2003/20030604.
13. Letting S^* be predicted spending and S be actual spending, the formula for simulating spending for the uninsured, assuming that they have full-year coverage, is $S^* = \text{Prob}[\text{anyexp} | X_u] * E(S | S > 0, X_u)$, where the first part of the expression is the logistic model for the probability of having any spending and the second part is expected spending, given that actual spending was greater than zero. X_u represents the values of the independent variables for the uninsured, with the insurance coverage variable set to full-year coverage, either private or public.
14. More than thirty-five million Americans were uninsured for less than a full year in 2001–2002. Families USA, *Going without Health Insurance*, Pub. no. 03-103 (Washington: Families USA, 2003).
15. They were assigned to the private full-year coverage group if they had private coverage for six months or more.
16. Hadley and Holahan, "Estimates of the Cost of Covering the Uninsured: Statistical Appendix."
17. Data are collected only for the noninstitutionalized portion of the year.
18. These estimates are not adjusted for the value of uncompensated care that is subsidized by general payments to providers—that is, payments that are not specifically linked to an individual, identified patient. However, they are adjusted for the differences between MEPS and the NHA.
19. Hadley and Holahan, "Estimates of the Cost of Covering the Uninsured: Statistical Appendix."
20. Hadley and Holahan, "How Much Medical Care Do the Uninsured Use?"
21. Ibid.
22. S. Norton and S. Zuckerman, "Trends in Medicaid Physician Fees, 1993–1998," *Health Affairs* (July/Aug 2000): 222–232; and Medicare Payment Advisory Commission, *Report to the Congress: Medicare Payment Policy* (Washington: MedPAC, March 2002), 156.
23. Hadley and Holahan, "Estimates of the Cost of Covering the Uninsured: Statistical Appendix."
24. E. Miller, J. Banthin, and J. Moeller, "Covering the Uninsured: Estimates of the Impact on Total Health Expenditures for 2002" (Unpublished manuscript, AHRQ, 2003).
25. S. Long and M.S. Marquis, *Universal Health Insurance and Uninsured People: Effects on Use and Cost* (Washington: U.S. Congress, Office of Technology Assessment, 5 August 1994); and Short et al., "The Effect of Universal Coverage."
26. For an example of the variation in cost estimates associated with specific proposals, see U.S. Congress, Office of Technology Assessment, *Understanding Estimates of National Health Expenditures under Health Reform*, Pub. no. OTA-H-594 (Washington: U.S. Government Printing Office, May 1994).
27. Hadley, "Sicker and Poorer"; and IOM, *Care without Coverage*.
28. "Breaux Proposes Universal Care—American Style," *Medicine and Health* 57, no. 4 (2003): 4; and D. Balz, "Gephardt Health Plan to Cover All," *Washington Post*, 24 April 2003.
29. Hadley and Holahan, "How Much Medical Care Do the Uninsured Use?"