CHAPTER 3. HEALTH CARE USE BY THE UNINSURED RELATIVE TO THE INSURED

BACKGROUND

There exists a substantial literature that attempts to measure the access gap between the uninsured and the insured. Tables 5 and 6 summarize results from our review of the research literature of studies that measure the gap using data from one of several major national household surveys: the Survey of Income and Program Participation (SIPP), the Health Interview Survey (HIS), the National Medical Care Expenditure Survey (NMCES), the National Medical Care Utilization and Expenditure Survey (NMCUES), the National Medical Expenditure Survey (NMES), and the Access to Health Care Surveys (ACCESS) sponsored by the Robert Wood Johnson Foundation. The tables report the estimates of relative use by the uninsured for physician and inpatient hospital services, respectively. Each table measures the access gap for the probability of receiving any care and the total quantity of care. The former measure is the ratio of the proportion of uninsured who receive that type of care during the year (or other time period) to the proportion of the insured who receive care. The gap in the quantity of doctor visits is the ratio of the average annual number of hospital days for the uninsured to that for the insured.

Several conclusions can be drawn from the tables. The literature is almost universally consistent in finding that the uninsured receive less care than the insured. The studies also provide some evidence that insurance status affects both the likelihood of receiving care and the intensity of care received by those who do obtain care. Despite these consistent findings, however, the literature yields a very wide range of estimates about the actual magnitude of the access gap. Based on this research literature, the uninsured have between 46 and 100 percent as many physician visits as the insured, and between 12 and 81 percent as many inpatient hospital services.

This variation among the studies could result from a variety of causes, including:

- changes in relative use over time reflected in data from different years,
- different populations or different control variables in the analysis,
- different definitions of health care use,
- different definitions of insurance and lack of it, and
- different data collection methods among the surveys.

TABLE 5. Measures of Use of Ambulatory Care by Uninsured Relative to Insured

REFERENCE	SURVEY DATA	POPULATION	INSURANCE	NET/TOTAI.	ESTIMATES OF RELATIVE USE (IN PERCENT PROB. VISIT	NUMBER VISITS
CURRENT INSURANCE/LAST YEAR UTILIZATION						
Yeclin et al., (1983)	1976 HIS	All persons	Private/public	Net		N.S.
	1976 HIS	Sick persons	Private/public	Net	--	> 100
Berk et al.. (1983)	1977 NMCES	All persons	Private	Net	87	95
	1977 NMCES	All persons	Public	Net	88	70
Aday and Anderson (1984)	1982 Access	All persons	Private	Total	82	--
	1982 Access	All persons	public	Total	79	--
Freeman et al. (1987)	1982 Access	Under 65	Private/public	Total	--	81
Chen and Lyttle (1 987)	1982 Access	Under 65	Private	Net	91	91
	1982 Access	Under 65	Public	Net	89	88
Woodhandler and Himmelstein (1988)	1982 HIS	Women 45-64	Private/public	Total	78-92(a)	--
	1982 HIS	Women 45-64	Private/public	Net	88-95(a)	-.
Anderson et al., (1 987)	1984 HIS	All persons	Private/puhlic	Total	80	--
Rowland and Lyons (1989)	1984 HIS	<65, low income	Private	Total	80	79
	1984 HIS	<65, low income	Private	Net	71	46
Long and Rodgers (1990)	1984 SIPP	Adults <65	Private	Net	82	72
Freeman et al., (1987)	1986 Access	Under 65	Private/public	Total	--	73
Hayward et al., (1988)	1986 Access	Age >21, <65	Private/public	Total	86	--
Long and Rodgers (1990)	1986 HIS	Adults <65	Private	Net	--	75
LAST YEAR INSURANCE/LAST YEAR UTILIZATION						
Davis and Rowland (1983)	1977 NMCES	Under 65	Private/puhlic	Total	--	65
	1977 NMCES	Under 65	Private/pubic	Net	-.	60
Wilensky and Berk (1982)	1977 NMCES	Poor/nearpoor	Private (b)	Total	78	68
	1977 NMCES	Poor/ nearpoor	Private (b)	Net		53-65(c)
	977 NMCES	Poor/ nearpoor	Public	Total	72	46
	977 NMCES	Poor/nearpoor	Public	Net	-.	57-65(c)
Rosenbach (1989)	980 NMCUES	<18, poor	Private (b)	Net	91	86
	980 NMCUES	<18, poor	Public (d)	Net	86	85
Long and Rodgers (1990)	984 SIPP	Adults <65	Private	Net	75	63
Short and Lefkowitz (1992)	987 NMES	Children <5	Private	Total	88	--

REFERENCE	SURVEY DATA	POPULATION	INSURANCE	NET/TOTAL	ESTIMATES OF RELATIVE USE (IN PERCENT) PROB. VISIT	NUMBER VISITS
	987 NMES	Children < 5	Private	Net	85 (well visit)	--
	1987 NMES	Children < 5	Public	Total	98	--
	1987 NMES	Children < 5	Private	Net	73 (we l visit)	--
Spillman (1992)	1980 NMCUES	Males 17-64	Private	Net	71	48
	1980 NMCUES	Females 17-64	Private	Net	79	55
	1980 NMCUES	Children < 17	Private	Net	86	71
LAST MONTH INSURANCE/LAST MONTH USE						
Long and Settle (1985)	1980 NMCUES	Under 65, poor	Private	Net	68	-
	1980 NMCUES	Under 65, poor	Public	Net	62	-

n.s. not significant
(a) screening procedures: hypertension, pap test, breast exam, glaucoma.
(b) includes part year private.
(c) three poor health status groups: those with more than 8 bed days; in poor or fair heal h; health limits activities.
(d) includes part year public.

TABLE 6. Measures of Use of Hospital Care by Uninsured Relative to Insured

REFERENCE	SURVEY DATA	POPULATION	INSURANCE	NET/TOTAL	ESTIMATES OF RELATIVE USE (IN PERCENT) PROB. ADMIT	NUMBER DAYS
CURRENT INSURANCE/LAST YEAR UTILIZATION						
Aday and Anderson (1984)	1982 Access	All persons	Private	Total	67	
	1982 Access	All persons	Public	Total	35	
Freeman et al. (1987)	1982 Access	Under 65	Private/public	Total	61	--
Chen and Lyttle (1987)	1982 Access	Under 65	Private	Net	59	59
	1982 Access	Under 65	Public	Net	50	50
Anderson et al. (987)	1984 HIS	All persons	Private/public	Total	69	
Rowland and Lyons (989)	984 HIS	<65, low income	Private	Total	73	
	1984 HIS	<65, low income	Public	Total	50	
Long and Rodgers (1990)	1984 SIPP	Adults <65	Private	Net	63	56
Freeman et al. (1987)	1986 Access	Under 65	Private/public	Total	81	--
Long and Rodgers (990)	1986 HIS	Adults <65	Private	Net	--	63
LAST YEAR INSURANCE/LAST YEAR UTILIZATION						
Davis and Rowland (1993)	1977 NMCES	Under 65	Private/public	Total		53
Wilensky and Berk (1982)	1977 NMCES	Poor/nearpoor	Private (a)	Total		55
	1977 NMCES	Poor/nearpoor	Private (a)	Net		39-62 (b)
	977 NMCES	Poor/nearpoor	Public	Total		35
	1977 NMCES	Poor/nearpoor	Public	Net		47-68 (b)
Long and Rodgers (1990)	1984 SIPP	Adults <65	Private	Net	46	31
Spillman (1992)	1980 NMCUES	Males 17-64	Private	Net	26	12
	1980 NMCUES	Females 17-64	Private	Net	30	20
	1980 NMCUES	Children <17	Private	Net	25	--
LAST MONTH INSURANCE/LAST MONTH USE						
Long and Settle (985)	1980 NMCUES	Under 65, poor	Private	Net	33	
	1980 NMCUES	Under 65, poor	Public	Net	30	

(a) Includes part year private.

(b) Three poor health status groups: those with more than 8 bed days; in poor or fair health; health limits activities.

We do not have enough data points in the published studies to factor out these disparate causes; that is, we do not have studies that differ from each other in only one of these factors and so the effects of the different causes are confounded, However, narrowing the estimate of the access gap is important because the true difference in relative use among the groups has important implications in terms of the numbers of the uninsured who receive health care and the cost of health care reforms to equalize coverage for the insured and uninsured. For example, the range in the measure of the access gap of seeing a physician from 62 percent to 98 percent implies a difference of 9.4 million additional currently uninsured individuals who would contact a physician under health reform which guaranteed universal coverage. The range in the access gap for the probability of a hospital admission from 25 percent to 81 percent is a difference of 2.1 million additional hospital admissions for the currently uninsured under reform.

One purpose of this study is to obtain a more precise estimate of the gap and evaluate the causes of the disparate estimates that we observe. To do this, we analyze a number of the databases that have been used by the studies shown in Tables 5 and 6, applying standard definitions and methods to each. We do find changes overtime in the ambulatory gap and differences in the gap between healthy and less healthy persons that might be a source of discrepancies in the literature.

DATA AND METHODS

Data

The databases that we use in our analysis include the 1987 National Medical Expenditure Survey, the Survey of Income and Program Participation for the years 1984 through 1988, and the Health Interview Survey for the years 1980, 1083, 1984, 1986, and 1989.[8] We have included a time series from the SIPP and HIS to test our hypothesis that a change in the access gap over time might be a source of the different estimates that are found in the literature. The large sample sizes from the time series also facilitate more precise estimates of the utilization behavior of the uninsured, particularly for inpatient hospital services, than would be obtained from only one year's sample. All three surveys are administered to a representative sample of the American population and collect information about each person's health, health care use, insurance status, and economic and demographic characteristics. We restrict our analysis to persons who are age 64 or younger at the time of the survey.[9]

We examine four different measures of health care use: the probability of having an ambulatory care contact with a medical provider in a year, including a visit to a doctor's office, a clinic, or hospital emergency room and telephone contacts; the number of such

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[8]These years of the HIS were selected because the survey included questions about health insurance coverage, our key explanatory variable.

[9]Data about health and health care use in the SIPP are collected in a special supplement that is administered only to adults. Therefore. our analyses of the SIPP data are restricted to persons age 18 to 64.

contacts; the probability of having a hospital admission during the year; the total number of hospital days of care in a year.

In this paper, we focus on differences in use between those who are uninsured and those who have private employer group insurance coverage. Our estimate of increased use and the consequent cost of health reform is based on the access gap in use by the uninsured relative to what they would use if covered by the same mix of plans and benefits held by those presently covered by employer-sponsored benefit plans. Although we do not have details about the generosity of benefits provided to those who are insured in our sample, other analyses have shown that there is limited variation among employer-sponsored plans. For example, the premium for the plan at the lowest tenth percentile of employer plans when ranked on generosity is only about 20 percent lower than the median plan, and the plan at the ninetieth percentile has a premium only about 20 percent above the median.

The SIPP and NMES are both panel studies that provide information about health insurance coverage over the full course of the year for which health care use is measured. Our measure of the uninsured access gap in these studies is based on a contrast between those who were uninsured for the full year and those who were covered by employer group coverage for the full year, We do include other insurance groups in our analysis sample and our estimation models, differentiating among the groups using indicator variable (O, 1 variables) to designate the group to which the individual belongs. The other groups include those on Medicaid for a full year, those with individually purchased private insurance policies that were in force for the full year, those uninsured for part of the year and with employer coverage for part of the year, and those uninsured for part of the year and on Medicaid for part of the year. 10

In contrast, the HIS collects information about insurance only at the time of the interview. Because individuals move into and out of the state of being uninsured, a contrast of use in the past year by those currently uninsured and those currently covered by an employer group plan will likely understate the access gap based on the measures of insurance status over the full year (Long and Rodgers, 1990). This was one of the factors we hypothesized above might have produced the discrepant estimates of the access gap that we find in the literature. We test this by contrasting the estimates of the access gap based on the full year measure in the NMES and SIPP with the access gap based on current insurance measured in all three of our surveys. Our HIS analysis sample includes persons who were uninsured at the time of the survey, covered by an employer group plan, covered by an individually purchased plan, or covered by Medicaid, with insurance status indicator variables to distinguish among the groups, [11] Because the HIS is a very large

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[10] We exclude those who are covered by both Medicaid and private coverage at any one time, those covered by Medicare, CHAMPUS, or other Department of Defense (DoD) insurance. and those who have other combinations of coverage over time that are not included in the list above. These groups are excluded because they comprise only about 15 percent of the population in total and so we have too few observations in any one of these categories to reliably estimate the effect of these status categories.

[11] Again, we exclude those on Medicare. CHAMPUS, or other DoD benefit plans. and those who are covered by more than one source at a given time.

survey and because we are studying multiple years of data, we have sampled from the full database for our analyses. For adults, we randomly selected from each year a 20 percent sample of those covered by employer group policies, a 50 percent sample of those uninsured or with individually purchased policies, and the full sample of cases with other insurance status. For children, our sample includes a random selection of 30 percent of those with employer group coverage in each year and all of the children in each of the remaining insurance groups.

The SIPP sample that we analyze includes all adults who completed all waves of their panel and the NMES sample includes all persons under age 65 who completed that full panel. We require data from all waves of the SIPP and NMES panels to construct the measure of insurance throughout the year. Requiring the full year of data, however means that newborns are not in our estimation sample. This exclusion does not bias our estimate of the access gap, if the effect of insurance status on the quantity of services consumed does not differ for newborns and other children.[13] Our final analysis sample sizes for each of the databases are shown in Table 7.

Statistical Methods

We use multivariate regression to estimate the relationship between insurance status and health care use. For each type of use -- ambulatory care and inpatient hospital care -- we fit a two-part model of use. The first part of each model is a logic regression for the probability of receiving that type of care during the year. Thus, this equation separates users from non-users. The second equation is a linear regression for the logarithm for the total quantity of care for the users of the service -- the number of ambulatory visits for those who have at least one visit and the number of inpatient hospital days for those with an admission. Two characteristics of the distribution of medical care use lead to this type of model. The first is that there are many individuals with no use in a year. Distinguishing between the decision to use and the quantity of use for those who do have care deals with this problem. The second characteristic is that the distribution of visits and days among users is highly skewed, and therefore we use the logarithmic transformation in the second part of each model to reduce the skewness and provide more efficient parameter estimates.

TABLE 7. Analysis Sample Sizes

Survey	Adults	Children
SIPP (1984-1988)	54,198	--
HIS (1980, 83, 84, 86, 89)	74,895	61,122
NMES (1987)	13,196	6,329

[12] For the analysis of the number of hospital days for people with a hospital admission, however, we have used the full HIS sample in each year.

3also omits those who die during a year. However, since we restrict our analysis to those under 65, this is a small omission for the purpose of gap analysis.

We fit separate utilization models for adults (those age 18 to 64) and for children. Each of our models includes covariates for age, sex, race and ethnicity, income as a percent of poverty, urban vs. rural area, and health status. Indicators to capture time trends (specified as a 0,1 variable for each year in the time series) are included in the models fit to thc pooled time-series for the HIS and SIPP. The models include indicator variables to indicate insurance status: full year coverage under employer-plan, full year coverage under Medicaid, full year coverage under individually purchased coverage, and combinations of part-year insurance and uninsurance. The omitted category is for those who are uninsured for the full year. Thus, our equations contrast the full-year uninsured with individuals in other insurance status groups. Our predictions of the access gap, described below, are based on the contrasts of the full-year uninsured and those who have a full year of coverage under an employer group plan. We also test for some important interactions between insurance status and covariates to investigate whether the gap in use between the insured and uninsured differs among certain population groups, especially groups differing in health status and income, and whether the gap has been changing over time.

We use the fitted model on each data set to estimate health care use for each member of the uninsured population and to predict or simulate what each person's use would be if he or she were covered by a plan typical of those covering persons with employer group coverage. To simulate use for the uninsured in this way requires an input or prediction database of individuals with the characteristics of the uninsured. [15] We use the NMES sample of uninsured persons as our input database in predicting from each fitted model. [16] That is, we predict for a standard population using each of our fitted utilization models in order to compare the results from the models. The average values of the NMES uninsured sample for the individual characteristics in our regression models are given in Table 8.

The difference in the predicted current use for the uninsured averaged over our prediction sample and the average predicted use for that sample if they were insured is our measure of the uninsured access gap. This measures the marginal effect of insurance; that is, the effect of changing insurance status but holding other characteristics constant.

We also report predicted values to investigate whether the access gap has changed over time or differs for some subgroups of the uninsured. In these predicted values, we simulate use for the sample of the uninsured as if they all belonged to the subgroup under study. For example, to investigate whether the access gap differs for those in good health and in poor health, we predict the gap for the uninsured sample as if they all reported that

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[14]Contrasts of the uninsured and other insurance status groups are available from the authors.

15Because our model is nonlinear. we require data about individuals rather than statistics on the average value of the characteristic for the population of interest: the predicted value for an individual with average characteristics differs from the average predicted value over all individuals due to nonlinearity.

16We selected the NMES as our prediction sample because it provides data for both adults and children who are uninsured and because it provides data on an expanded set of health status measures needed to evaluate the effects of using different control variables on estimates of the access gap as we discuss below.

they were in good health and compare this to the magnitude of the gap that we would expect if the uninsured sample all reported to be in poor health. This measures the marginal effect of health on the access gap, controlling for other characteristics that differ between healthy and less healthy uninsured individuals.

Some studies in the research literature reported earlier use observed differences between an uninsured and insured population as a measure of the access gap. This difference measures the total effect of being uninsured baking account of both insurance status and other characteristics that vary by insurance status. We also calculate the total effect of being uninsured to examine whether the marginal and total effect differ and might be a factor in the discrepant results that we have found in the research literature. We measure the total effect as the difference in the average predicted value for the uninsured with the average predicted value for the sample of individuals in NMES who have employer group insurance.

TABLE 8. Average Values on Individual Characteristics in Models for Prediction (NMES) Sample

	Adults		Children	
Model Characteristics	Uninsured	Insured	Uninsured	Insured
Education			NA	NA
Less high school	39%	15%		
Complete high school	40	38		
Some college	15	22		
Complete college	3	14		
Age and Sex Adult			NA	NA
Male 25-44	29	28		
Male 45-54	5	9		
Male 55-64	6	8		
Female 18-24	12	7		
Female 25-44	20	27		
Female 45-54	7	8		
Female 55-64	7	8		
Age Child	NA	NA		
Less than 6			29%	29%
6-14			51	53
Male child	NA	NA	51	51
Family Income as %-Poverty				
Less than 100%	32	3	52	6
100-200%	32	10	29	17
200-400%	25	38	15	48
Not married	59	31	NA	NA
Race/ethnicity				
Hispanic	34	13	41	14
Black (not Hispanic)	18	8	19	9
Asian	2	2	1	2
Other non-white	3	1	3	2
Reported health status				
Good	56	56	48	42
Fair	17	10	7	4
Poor	3	1	1	[a]
Gave birth in year	1	2	NA	NA
Lives in urban area	71	78	68	74

NOTE: NA =not applicable. Omitted indicators include excellent or very good health; white: family income 400% of poverty or more; male 18-24; post college education (adult): and age 15-17 (children).

[a]less than 0.5 percent

The predicted value of ambulatory contacts or of inpatient days for a sample person in our prediction database from one of the fitted models is given by:

$$\text{Predicted Use} = P\,(\exp(X\beta))\,S,$$

where P is the estimated probability of having some use from the logistic regression, (exp(Xß)) S is the estimate of the conditional quantity of care consumed, XB is the product of the B coefficients from the regression on the logarithm of quantity and the value of the individual's X characteristics, and S is a factor to retransform from the logarithmic scale to the raw quantity scale. Our retransformation factor is a nonparametric estimate developed by Duan (1982) and is equal to the sample average of the exponentiated least squares residuals. We use the nonparametric factor because the error in our quantity of use regressions does deviate some from a normal distribution, even though we applied the logarithmic transformation to approximate a normal distribution. Therefore, using the normal theory retransformation would yield inconsistent predictions. We also found that the distribution of the errors in the quantity of use equation differ by insurance status, and so have estimated and applied separate retransformation factors, S, by insurance status to account for heteroskedasticity (that is, differences in the distribution of errors).

RESULTS

This section describes the results of our estimation. We first consider several factors that we hypothesized might account for the discrepant estimates in the literature -- temporal changes, sample selection and control variables, definitions of insurance status, and the definition of use. Then we present our estimates of the gap from the different data sources, correcting for the most important of these factors.

Effects of Time on the Access Gap

Our estimate of the change in the uninsured access gap over time from our analysis of the time series of SIPP and HIS data is shown in Table 9. The table compares the predicted access gap for the most recent year for which we had survey data and for 1984 (which was the earliest year we studied that was common to both studies). The measure shown in the table is the predicted average difference for the year shown in actual use and simulated use with employer group coverage for the uninsured population. The t-statistic in the table tests whether this access gap has changed over time. A negative t-statistic shows that a negative effect on use of being uninsured has increased over time whereas a positive t-statistic shows that this gap has decreased. In the case of the length of hospital stay for those with an admission, we typically find that the uninsured have a longer stay than the insured -- perhaps because the uninsured are less likely to be admitted to the hospital and so those who are admitted have more serious health problems than those insured who have admissions, When the "gap" is positive, a negative t-statistic indicates that the difference has diminished over time and a positive t-statistic that it has increased,

TABLE 9. Difference in Health Services Access Gap Over Time

Data Source and Year	Ambulatory Contacts			Hospital Days		
	Gap in Probability of Use (in percent)	Gap in Contacts per User	Gap in Contacts per Person	Gap in Probability of Use (in percent)	Gap in Days per User	Gap in Days per Person
			Adults			
SIPP						
1988	-17%	-0.6	-1.2	-2%	1.4	-0.07
1984	-14	-0.6	-1.O	-4	1.1	-0,35
t difference	-1.7	0.1	-0.8	2.0’	0.3	1.6
HIS						
1989	-14	-0.5	-1,0	-3	0.4	-0.19
1984	-12	-0.1	-0.6	-3	0.7	-0.20
t difference	-3.3	-4,4’	-4.8’	-0.8	-1.1	0.8
			Children			
HIS						
1989	-11	-0.6	-0.8	-1	-0.7	-0.05
1984	-9	-0.4	-0.6	-1	0.7	-0.06
t difference	-2.5	-3.4	-4. l[a]	0.4	-(). 1	(). 1

‘Significantly different gap at p=. 10.

The estimates for adults and children show a consistent pattern of an increase in the access gap over time in the probability of obtaining ambulatory care. The proportion of the uninsured who do not obtain care because of the lack of insurance has increased about 2 to 3 percentage points between the mid-1980s and the late 1980s. The different data sets in our time series analysis, however, produce different findings about the effect of time on the quantity of ambulatory care delivered to those who obtain some care (contacts per user in Table 9). The SIPP data suggest that there is a small decrease in the access gap in the quantity of care delivered to those who have at least one ambulatory contact. This offsets to some degree the increased gap in the likelihood of use and so there is only a small increase over time in the gap in the number of contacts averaged over all persons -- both users and nonusers of care (contacts per person in Table 9). This would be consistent with the hypothesis that the relative increase in the proportion of the uninsured who do not obtain care is among those with less severe health problems and so the average sickliness of the uninsured who contact a provider has increased relative to the insured. In the HIS data, however, the gap in the amount of ambulatory care received by the insured and uninsured who obtain care has also increased, adding further to the total access gap in ambulatory contacts across all persons.

The access gap in hospital care, in contrast, appears not to have changed over time. We do not find consistent nor, in general, significant changes in the gap between the insured and uninsured between the two time periods. this is not to say that hospital use has not changed over the period. Indeed, both data sets evidenced that hospital lengths of stay for those with an admission decreased about 10 percent from 1984 to the late 1980s. But the decrease occurred among both the insured with admissions and the uninsured with admissions, and there was no discernible change in the access gap.

Effects of Patient Characteristics on the Access Gap

Some of the research studies look at special population groups such as the poor or those in poor health. If the access gap differs among population groups, this might be a factor accounting for the variation in the estimates of the access gap. We investigated whether there is an interaction between these patient characteristics and use. Below wc look at whether the access gap differs by income and by health status -- that is, whether there is a significant interaction between income or health and being insured on use of services relative to use by the uninsured, We report the marginal effects of each characteristic on the access gap, controlling for other differences in demographic, economic, and health factors that distinguish between low and high income or healthy and sickly individuals.

Family income. One might expect that the lack of insurance would be less of a barrier to receiving care for higher income families than for lower income families. However, among children, our analysis shows that the gap in the probability of ambulatory care for the uninsured in families with income above 200 percent of poverty (who account for a little more than 1/5 of children who are uninsured) is greater than the gap for the uninsured in families with income below poverty (who account for about 2/5 of the uninsured children). Similarly, the gap in the quantity of use is greater between the uninsured and insured children in families with higher income than for those with lower income (Table 10).

One possible explanation for this finding is that we have not controlled for the level of insurance coverage. The larger gap among the higher income children may indicate that the high income insured have more generous insurance coverage than the lower income insured, Another possible explanation is that most employer group coverage currently includes an initial deductible that must be paid by the family before the health insurance pays a share of benefits. A deductible maybe more of a constraint to access for the low income insured than the high income insured. This would be especially consistent with our finding that the lack of insurance has a much smaller effect on the likelihood of having any ambulatory contact among low income families than among higher income families. A third possible explanation is that the availability of free or subsidized care -- for example, through health department clinics, community health centers, and public hospital outpatient departments -- is greater the neighborhoods of the lower income uninsured,

Although our results do control for self-reported differences in health status between income groups, a fourth explanation for the larger gap for higher income uninsured families may be that these families have information about their health needs that we do not measure and choose not to purchase insurance because they know they will not use services. This hypothesis suggests that self-selection accounts for the larger gap, Although there are statistically significant differences in the access gap by income group for children, the effect of these differences on the estimate of the overall gap is small, The "best estimate" of the average access gap based on a model that includes the interaction of income and insurance is 0,8 visits per person per year in contrast to a "best estimate" of 1 visit based on a model that does not specify the interaction. 17

For adults, we do not find consistent evidence of a difference in the access gap for the uninsured with income below poverty (who account for about 1/4 of the uninsured adults) and those with income above 200 percent of poverty (who account for about 40 percent of the uninsured adults), Only the HIS data set suggests that there is a significantly different access gap for the two groups. The other two data sets show access gaps that are of similar magnitude for low and high income uninsured. The "best estimate" of the overall average access gap in ambulatory care for adults is only 0.1 visits (about 5 percent) lower when we account for differences by income group than the estimate that assumes the access gap is the same for the different uninsured groups.

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[17]0ur "best estimate" is the average estimate from the different sources. The "best estimate" methods are discussed below.

TABLE 10. Difference In Access Gap for Uninsured by Income
(Marginal Effects)

Data Source and Income	Ambulatory Contacts			Hospital Days		
	Gap in Probability of use **(in percent)**	Gap in **Contacts** Per **User**	Gap in Contacts Per **Person**	Gap in Probability of Use **(in percent)**	**Gap** in **Days Per user**	Gap in Days **Per Person**
			Adult,			
SIPP						
Below poverty	-15%	-0.9	-1.3	-4%	1.4	-0.20
Above 200% poverty	-14	-0.9	**-1.4**	**-5**	1.5	-0.25
t difference	-0.2	0.1	0.3	**0.8**	-0.2	0.7
NMES						
Below poverty	-17	**-2.1**	**-2.4**	**-4**	-2.0	-0.53
Above 200% poverty	-21	-1.3	**-2.1**	**-2**	0.3	-0.16
t difference	1.4	-1.1	-0.5	**-0.8**	-0.9	1.2
HIS						
Below poverty	-lo	0.4	-0.2	**-3**	0.9	-0.11
Above 200% poverty	-14	-0.4	-1.0	**-3**	0.6	-0.21
t difference	**3.8'**	4.0'	**5.** l[a]	1.1	1.1	1.4
			Children			
NMES						
Below poverty	-4	-0.4	-0.4	-1	**1.5**	-0.01
Above 200% poverty	-13	-1.1	-1.4	**-2**	0.5	-0.02
t difference	2. l[a]	1.0	**1.8a**	0.3	0.9	0.2
HIS						
Below poverty	**-4**	-0.1	-0.1	-1	0.9	-0.02
Above 200% poverty	**-14**	**-0.8**	-1.1	-1	0.8	-0.05
t difference	**8.3'**	**6.7**[a]	**9. l**[a]	0.5	0.3	0.6

'Significantly different gap at p=. 10.

We do not find significant effects of income on the difference in use of inpatient hospital care by the insured and uninsured, Moreover, there is no consistent pattern of difference by income. We conclude that income differences in the access gap are not an important factor accounting for the range of estimates of relative hospital use found in the literature,

Health Status. About 20 percent of uninsured adults and 7 percent of uninsured children report that their health is fair or poor. The gap between use of health care by less healthy uninsured individuals and otherwise similar insured adults is greater than the access gap for healthier individuals. This is shown in Table 11, which gives the marginal effect of differences in health status on the access gap. It contrasts the predicted access gap for the uninsured population if all reported to be in good health with the predicted gap if all report fair health. That is, the difference in the predicted access gap for the different health groups holds other characteristics constant across the groups. The greater access gap for the uninsured in fair health as compared to healthier individuals who lack insurance is primarily due to a greater gap in the number of ambulatory visits per user and in hospital admission rates and not to a greater gap in the likelihood of some contact with the health care system during the year. Except for the SIPP database, the difference in the gap in the probability of use between those in good and fair health among adults is very small and not significant. For children, the point estimates of this difference suggest a smaller gap in the probability of ambulatory use for those in fair health, though the differences are not statistically significant. In contrast, we find generally significant and substantially larger differences between the insured and uninsured in fair health in the number of ambulatory contacts than we see for those in good health. Although we did not find significant differences by health status in the gap in the probability of admission, we do see that the gap is consistently and substantially larger for those in fair health.

In sum, the data suggest that the effect of a lack of insurance on the patient decision to initiate care does not vary by health status. However, lack of insurance appears to have a greater effect on the intensity of care -- as measured by the number of visits and referrals for hospitalization -- delivered to less healthy patients who do contact a medical provider than to healthier adults. This may reflect differences in the way physicians adjust their practice styles to the insurance status of healthy and sicker patients, or it may reflect less follow-up of prescribed regimens by the uninsured in poor health who cannot afford to pay for their care.

TABLE 11. Difference in Access Gap for Uninsured **in** Good Health and Fair Health (Marginal Effects

Data Source and Health Status	Ambulatory Contacts			Hospital Days		
	Gap in Probability of Use (in percent)	**Gap in Contacts Per User**	**Gap in Contacts Per Person**	**Gap in Probability of Use (in percent)**	**Gap in Days Per User**	**Gap in Days Per Person**
			Adults			
SIPP						
Fair health	**-19%**	-1.8	**-2.6**	**-7%**	**1.4**	-0.46
Good health	**-17**	-0.2	-0.7	-1	0.9	-0.04
t difference	**-2.8'**	-3.6'	-4.4'	**-2.** l[a]	0.8	-1 .8'
NMES						
Fair health	-20	**-2.8**	**-3.5**	**-7**	-0.3	**-0.49**
Good health	-20	**-1.3**	-2.0	**-2**	0.6	**-0.07**
t difference	-0.7	**-1.1**	-1.4	-1.2	-0.2	**-1.1**
HIS						
Fair health	-11	**-1.2**	-1.8	**-6**	-0.4	**-0.47**
Good health	-14	0.3	-0.7	**-2**	-0.1	**-0.14**
t difference	0.2	**-2.0'**	-1 .7'	-1.3	-0.5	**-1.0**
			Children			
NMES						
Fair health	-8	-3.9	-3.5	-5	-1.6	-0.39
Good health	-12	-0.6	-0.9	-2	-1.9	-0.04
t difference	0.4	-2. l[a]	-1.0	-0.8	0.8	-1.2
HIS						
Fair health	-4	-2.5	-2.4	-6	-1.1	-0.52
Good health	-11	-0.4	-0.6	-1	0.8	-0.01
t difference	1.0	-3.0[a]	-1.8[a]	-0.7	-1.8[a]	-1.6

[a]Significantly different gap at $p = .1^n$.

Control Variables and Estimates of the Access Gap

Total vs. **marginal effects.** Some studies in the research literature compare actual health care use by the insured and the uninsured to measure the access gap, This reflects any differences between the insured and uninsured in demographic, economic, or health characteristics that influence service use as well as the differences in use due to insurance -- it measures the *total effect* associated with insurance, The total effect reflects differences between the insured and uninsured in the resources currently consumed. Others, as is our practice, measure the gap by comparing health service use by the uninsured with what a population with the same characteristics could be expected to use if they were insured. That is, we control and adjust for differences in the economic and demographic characteristics of those who are observed to be insured and uninsured in measuring the gap -- this is the *marginal @feet* of insurance, The marginal effect reflects the change in the resources the uninsured would consume if insured.

As Table 12 illustrates, the marginal effects of insurance on ambulatory use, controlling for other characteristics that influence use, are smaller than the total effect. For adults the difference is due primarily to a difference in the probability of having a contact whereas for children the marginal effect of having an ambulatory care visit and the conditional number of visits are both smaller than the corresponding total effect. These differences reflect the lower income and education (for adults) of the uninsured, both characteristics that also influence health care use and are controlled for in estimating marginal effects but not total effects (see Table 8).

For adults, the marginal effect of insurance on hospital days per year is greater than the total effect, This is because a smaller proportion of admissions among the uninsured are for deliveries, which have a lower than average length of stay.

Health status control variables. Our estimates of the access gap control for a number of important observed characteristics of individuals that affect decisions about health care use. However, there may be unobserved differences between the insured and uninsured that we cannot control for. Our estimates of the health care costs of reform assume that these unobserved factors do not affect health care use. lf these unobserved factors are differences in health, however, such an assumption may be too strong. We have included a measure of health status in our estimation models; however, it is a fairly simple rating of the individual's health, which may not adequately capture all health differences.[18]

[1g]The variable we have used in our models is a measure of whether the individual rates his or her health excellent, very good, good. fair, or poor. In the NMES, the categories are limited to excellent. good, fair, or poor.

TABLE 12. Difference in Marginal and Total Effects of Insurance

Data Source and Type of Effect	Ambulatory Contacts			Hospital Days		
	Gap in Probability of Use (in percent)	Gap in Contacts Per User	Gap in Contacts Per Person	Gap in Probability of Use (in percent)	Gap in Days Per User	Gap in Days Per Person
			Adults			
SIPP						
Marginal effect	-17%	-0.6	-1.2	-3%	1.2	-0.16
Total effect	-25	-0.6	-1.5	-3	1.4	-0.12
NMES						
Marginal effect	-20	-1.6	-2.2	-3	-0.2	-0.24
Total effect	-26	-2.0	-2.8	-3	0.1	-0.14
HIS						
Marginal effect	-14	-0.5	-1.0	-3	0.7	-0.15
Total effect	-18	-0.4	-1.1	-2	0.9	-0.06
			Children			
NMES						
Marginal effect	-12	-0.8	-1.1	-2	1.9	-0.02
Total effect	-20	-1.6	-2.0	-1	1.9	-0.01
HIS						
Marginal effect	-1o	-0.6	-0.6	-1	0.7	-0.04
Total effect	-18	-0.7	-0.8	-1	1.1	0.02

See p. 29 for definitions of “marginal” and “total” effect.

The NMES database, however, includes a much richer set of health variables that allows us to investigate how sensitive the estimate of the access gap is to the use of only a simple measure of health status versus a more comprehensive characterization of health differences, Table 13 shows the results, It compares the estimate of the access gap from the NMES database including the single health status variable in our model with estimates that also include a measure of whether the individual is limited in any way in his or her activities because of health, a measure of the individual's general perception of his or her health based on 4 questionnaire items (3 for children) and, for adults, a measure of mental health based on 5 questionnaire items, As Table 13 indicates, our measure of the access gap for ambulatory care controlling for the simple health rating may overstate the gap by about 10 percent for both adults and children. The estimated gap in the probability of having ambulatory care and in the number of contacts by those who have at least one is smaller when we control for the richer set of health measures. For hospital days, however, the estimated gap is slightly higher when we include the additional health measures as control variables, Since the effects work in opposite ways on our estimates of total cost described below, on balance our estimate of induced demand and the cost of universal coverage is probably not seriously biased by unobservable health differences between the insured and uninsured.

Effect of **Insurance Definition on** the Access Gap

In many surveys, insurance is measured at the time of the interview, and estimates of the access gap compare use over the preceding year by those who are uninsured at that time with those who are insured at that time. Such is the case with the HIS database. In other surveys insurance corresponds to the period of use, or can be constructed to do so. Such is the case with the SIPP and NMES data in which we measure the access gap as the difference in use among those who were and were not insured over the full year period. Because people move into and out of the state of being uninsured, the first approach is likely to understate the access gap. A comparison of the studies reviewed in the earlier Tables 5 and 6 seems to support this hypothesis. The median relative use estimate for number of physician visits for those studies using a current insurance measure is 77 percent, compared to 64 percent using an annual insurance measure. The corresponding medians from the hospital days estimates are 58 to 43 percent.

A comparison of our estimates based on the HIS with those based on the SIPP and NMES also seem to support this (see Table 12). The HIS estimates of the access gap for ambulatory care are consistently lower than the estimates from the other two databases. The hospital results, however, do not provide this consistent finding.

A more direct test of the effect of insurance definition, however, can be made by comparing the estimates of the access gap in the NMES and SIPP using the alternative insurance definitions, since both databases allow us to construct a measure of current insurance in addition to the measure of last year's insurance. To evaluate the effect of insurance definition, we re-estimate our utilization models using a measure of current insurance and compare the predicted insured and uninsured use rates from the models with the different insurance definitions. Thus, we control for population characteristics and methodological differences between surveys in the comparison.

TABLE 13. Difference in Estimated Access Gap for Uninsured with Controls for Health Status in NMES

Health Controls	Ambulatory Contacts			Hospital Days		
	Gap in Probability of Use (in percent)	Gap in Contacts per User	Gap in Contacts per Person	Gap in Probability of Use (in percent)	Gap in Contacts per User	Gap in Contacts per Person
			Adults			
Limited set	-20%	-1.6	-2.2	-3%	-0.2	-0.24
Expanded set	-19	-1.4	-2.0	-3	-0.4	**-0.26**
			Children			
Limited set	-12	-0.8	-1.1	-1	1.9	0.03
Expanded set	-14	-0.6	-1.0	-1	1.8	0.04

NOTE: See p. 31 for definitions of “limited” and “expanded” health controls.

Table 14 summarizes our findings; it reports our average predicted use rate based on insurance in the prior year relative to the average prediction using the current variable. As we hypothesize, estimated use rates for the insured are higher when insurance status is defined over the full year rather than the current period, because the latter definition will include the experience of some individuals who had periods of uninsurance in the previous year. Estimated use rates for the uninsured are lower when insurance status is defined over the full year rather than the current status, because the latter will include the experience of some individuals who experience periods of insurance. The table suggests that estimates of the use by the uninsured relative to the insured based on the current insurance status will overstate the full year access gap in the probability of an ambulatory contact by about 7 percent for adults and children and the estimate of the relative quantity of ambulatory contacts by users by 7 percent for adults and 5 percent for children. For hospital care, the admission rate for the uninsured relative to the insured is overestimated by about 10 percent for adults and 7 percent for children using the current insurance status, and the relative use of the hospital for the uninsured with a hospitalization is overestimated by 4 percent,

Effect of Utilization Definition on Estimate of the Gap

Estimates of the relative use of care by the uninsured and insured could vary substantially depending on the scope of services included in the measure of use, especially the measure of use of ambulatory care. For example, several studies have shown that restricted access to care in physicians offices leads to a substitution of care in alternative settings such as emergency rooms, hospital outpatient clinics, and other public clinics (Long et al., 1986). Thus, estimates of relative use of physicians' care might differ substantially depending on whether use in only office settings or in all settings is included in the measure. Similarly, other substitutes for direct physician care might include contacts with non-physician providers (for example, nurse practitioners) or telephone contacts; the inclusion or exclusion of such contacts might lead to different estimates of the access gap. Unfortunately, none of the studies in the published literature provides us with information to classify the study according to its definition of the explanatory variable and so we are unable to determine from the published data whether or to what extent this factor might account for the wide range of estimates.

TABLE 14. Ratio of Predicted Insured and Uninsured Use Rates Using Different Insurance Variables

Population and Source of Estimate	Ratio of Predicted Values Using Last Year Coverage vs. Current Coverage			
	Probability of Use		Quantity of Use for Those With Use	
	Insured Use Rate	Uninsured Use Rate	Insured Use Rate	Uninsured Use Rate
		Ambulatory Contacts		
Adults				
SIPP	103	**96**	101	**94**
NMES	101	93	103	**96**
Average	102	95	102	**95**
Children				
NMES	101	**94**	**102**	**97**
		Hospital Days		
Adults				
SIPP	105	**89**	101	**99**
NMES	100	94	99	**93**
Average	102	92	100	**96**
Children				
NMES	100	**93**	100	**96**

We examine this issue here by comparing the magnitude of the access gap using several alternative definitions of ambulatory care use derived from the NMES data. The concept of ambulatory care that we have used throughout this study includes contacts with physicians and other medical providers in all outpatient settings and telephone contacts. This is the concept that is intended in the single question about the prior year utilization asked of respondents to the SIPP and HIS. The NMES includes a series of questions about contacts in different settings and we have aggregated responses to these questions to obtain a measure of ambulatory use that reflects our concept.

In addition, we have applied our estimation methodology to two alternative concepts of ambulatory care based on the responses to the NMES question series. One alternative definition covers all contacts with physicians in any setting; thus, it excludes visits to chiropractors, psychologists and psychiatric social workers, physical therapists, nurse practitioners, podiatrists, and other non-physician medical care providers. The second alternative definition looks at the access gap in office visits to all providers -- that is, it excludes telephone contacts and visits to clinics and hospital emergency rooms.

Table 15 displays the estimates of the access gap using different definitions of ambulatory contacts in the NMES. For both children and adults, the estimated access gap is highest when we include all practitioners and all settings, and lower when we restrict the definition of ambulatory care to treatment by a physician or to treatment in an office setting. This implies that the uninsured receive a higher proportion of their ambulatory care treatment from physicians and a smaller share from non-physician practitioners than do the insured and that the uninsured receive a higher proportion of their ambulatory treatment in the office setting and a smaller proportion in other settings than do the insured. This is counter to the hypothesis that the uninsured substitute care in alternative settings or by alternative providers for care by a physician in the office. Rather it may suggest that there are certain types of treatment for which the access gap is larger than others.

TABLE 15. Difference **in Access Gap Using Different Definitions of Ambulatory Contacts in NMES**

Definitions	Gap in Probability of Use (in percent)	Gap in Contacts Per User	Gap in Contacts Per Person
		Adults	
All sites and practitioners	-20%-	-1.6	-2.2
All sites, physicians only	-20	-1,3	-1.6
Office visits, all practitioners	-22	-1.3	-1,9
		Children	
All sites and practitioners	-12	-0.8	-1.1
All sites, physicians only	-13	-0.6	-0.8
Office visits, all practitioners	-12	-006	-0.8

NOTE: Ambulatory contacts include visits at all sites, including physicians' offices, clinics, and hospital outpatient departments.

The Uninsured Access Gap

Uninsured adults receive about 60 to **75** percent of the care that they would if insured. The access gap is about 1 to 2 ambulatory care contacts per person per year and about 16 to 25 inpatient days of care per 100 uninsured adults. These estimates are shown in Table 16 which reports our estimates of the access gap from the three databases, The table reports predicted current use for the uninsured population (labeled uninsured), the predicted use by the uninsured population if they were covered by employer-sponsored insurance (labeled insured), and the difference in the predictions (access gap). These estimates adjust for the primary factors that we found that might explain the variation in the results in the research literature. Namely, our estimate of the access gap is the marginal effect of insurance controlling for other characteristics that distinguish the insured from the uninsured. We have adjusted the estimates of the access gap in the HIS data based on the measure of current insurance to a measure of the full year gap, (We multiply predicted values of use for an insured or uninsured person by the average factors

TABLE 16. Uninsured Access Gap for Adults: Estimates from Three Surveys
Predicted Use Rates for Uninsured Adults

Data Source and Insurance Status of Person	Ambulatory Contacts			Hospital Days		
	Adults in Fair or Poor Health	Adults in Excellent or Good Health	All Adults	Adults in Fair or Poor Health	Adults in Excellent or Good Health	All Adults
SIPP						
Uninsured	**4.5**	1.9	**2.4**	1.07	0.30	0.45
Insured	**‘7.2**	2.8	**3.6**	1.64	0.36	0.61
Access Gap	**-2.7**	-0.9	**-1.2**	-0.57	-0.06	-0.16
Relative Use	**63%**	68%	**67%**	65%	83%	74%
NMES						
Uninsured	5.0	**2.3**	**2.9**	**0.78**	**0.23**	0.34
Insured	9.0	**4.1**	**5.1**	**1.54**	**0.34**	0.58
Access Gap	-4.0	**-1.8**	**-2.2**	**-0.76**	**-0.11**	-0.24
Relative Use	56%	**56%**	**57%**	**51%**	**68%**	59%
HIS[a]						
Uninsured	**5.2**	**2.3**	**2.8**	**1.23**	**0.32**	0.50
Insured	**8.0**	**3.4**	**4.3**	**1.91**	0.44	0.73
Access Gap	**-2.8**	**-1.1**	**-1.5**	**-0.68**	-0.12	-0.23
Relative Use	**65%**	**68%**	**65%**	**64%**	73%	69%

[a] Adjusted for different definition of insurance status

shown in Table 14). The access gap is corrected for differences in the gap between those in good and poor health, for the temporal change in the gap in ambulatory care, and for the declining length of hospital stays over time; that is, our estimates come from a model that includes an interaction between health status and insurance, between time and insurance, and a shift in the overall level of use over time. [19]

The literature we reviewed earlier provided a range of estimates of relative use that varied by about 50 percentage points for ambulatory care and by about 70 percentage points for hospital care. Our current estimates, based on many of these same data sources and with the adjustments noted, substantially narrow this range to a 10 percentage point spread for ambulatory care and a 15 percentage point spread for inpatient care. Nonetheless, some differences remain for which we have no ready explanation; differences in survey methods may account for the remaining spread,

All three data sources show that the absolute magnitude of the gap is greater for adults in poor health than those in good health, The results shown in Table 16 are the total effects of health among the uninsured. In contrast to the marginal effects of health that we reported earlier that control for other differences in characteristics between the uninsured in good and poor health, the measure of the access gap in Table 16 incorporates those differences. It provides a comparison of the incremental care that the population of uninsured who are in fair or poor health as compared to those in excellent or good health would receive under national reform. Under reform, the additional ambulatory care for an uninsured adult in good health would be about 1 to 2 visits whereas an adult in poor health would have about 2 to 4 additional visits per year. Additional hospital days of care for the uninsured in poor health would number about 60 to 80 per 100 persons under universal coverage; for the uninsured in good health the increased hospital days would average about 6 to 12 per 100 persons.

We are able to measure the access gap for children in two of the data sources studied. Our estimates from these two studies are reported in Table 17. The access gap for children is slightly less than that for adults; uninsured children receive about 70 percent as many ambulatory care services as otherwise similar insured children and have about 75 to 85 percent as many inpatient days. As with adults, the gap is greater for the uninsured in poor health than for those in good health.

[19] Because our Utilization models use indicator variables for each year rather than a parametric specification of the effect of time, we predict the access gap to the most recent year of observation for each data source.

TABLE 17. Uninsured Access Gap for Children: Estimates from Two Surveys
Predicted Use Rates for Uninsured Children

Data Source and Insurance Status of Person	Ambulatory Contacts			Hospital Days		
	Children in Fair or Poor Health	Children in Excellent or Good Health	All Children	Children in Fair or Poor Health	Children in Excellent or Good Health	All Children
NMES						
Uninsured	**3.3**	**2.4**	**2.4**	0.15	0.18	0.18
Insured	**6.5**	**3.2**	**3.5**	0.53	0.18	0.21
Access Gap	**-3,2**	**-0.8**	**-1.1**	-0.38	0.00	-0.03
Relative Use	**51%**	**75%**	**69%I**	28%	100%	85%
HIS[a]						
Uninsured	**3.6**	**1.9**	**2.1**	**0.66**	**0.20**	**0.24**
Insured	**6.2**	**2.9**	**3.1**	1.14	**0.24**	**0.31**
Access Gap	**-2.6**	-1.0	-1.0	-0.48	**-0.04**	**-0.07**
Relative Use	**58%**	**66%**	**68%**	58%	**83%**	**77%**

‘Adjusted for different different of insurance status.

For our estimates of the costs of guaranteed universal coverage under national reform, we have used a "best" estimate of the access gap which is the average across the three estimates for adults and the two estimates for children. Tables 18 and 19 report these "best" estimates.

These estimates of the access gap and of the demand that would be induced by universal coverage derive from a comparison of health care use by the uninsured and insured individuals who are alike in their demographic and economic characteristics and who are similar on some gross measures of health status. We assume that the currently uninsured would use at the same rates as these insured counterparts under national reform. However, there may be unobserved characteristics that differentiate the currently uninsured from the insured that would affect health use and for which we cannot adjust. One comparison of health care use by previously uninsured individuals once they acquired insurance with those who were continuously insured suggests that the uninsured might continue to use at somewhat lower rates even when they acquire insurance (Marquis and Harrison, 1992). That study suggested that the currently uninsured might continue to use care at a rate equal to only about 85 percent of use by those currently insured, even under universal coverage. That study was based on small samples and reflects utilization patterns of the late 70s, Nonetheless, the results of that study do suggest that our estimate of induced demand might be as much as 50 percent too high. If this were the case, the added spending under universal coverage would be smaller than the increase of less than 3 percent that we estimate.

TABLE 18. Best Estimates[a] of Uninsured Access Gap for Adults
Predicted Use Rates for Uninsured Adults

Insurance status of Person	Adults in Fair or Poor Health			Adults in Excellent or Good Health			All Adults		
	Probability of Use	Quantity per User	Quantity per Person	Probability of Use	Quantity per User	Quantity per Person	Probability of Use	Quantity per User	Quantity per Person
				Ambulatory Contacts					
Uninsured	64%	7.3	4.9	49%	4.1	2.2	52%	4.8	2.7
Insured	82	9.6	8.1	67	4.9	3.4	**70**	**5.9**	**4.4**
Access Gap	-18	**-2.3**	**-3.2**	-18	-0.8	-1.2	-18	-1.1	-1.7
Relative Use	78%	76%	60%	73%	83%	65%	74%	81%	61%
				Hospital Days					
Uninsured	11	9.1	1.03	**5**	**6.1**	0.29	6	6.7	0.43
Insured	19	8.6	1.70	7	5.7	0.38	9	6.3	0.64
Access Gap	-8	0.5	-0.67	-2	0.4	-0.09	-3	0.4	-0.21
Relative Use	58%	106%	61%	71%	107%	76%	67%	106%	67%

'Source: Average of estimates from SIPP, NMES, and HIS.

TABLE 19. Best Estimates' of Uninsured Access Gap for Children Predicted Use Rates for Uninsured Children

Insurance status of Person	Children in Fair or Poor Health			Children in Excellent or Good Health			All Children		
	Probability of Use	Quantity per User	Quantity per Person	probability of Use	Quantity per User	Quantity per Person	Probability of Use	Quantity per User	Quantity per Person
				Ambulatory Contacts					
Uninsured	69%	4.8	3.5	59%	3.5	2.1	60	3.5	2.3
Insured	79	7.9	6.4	73	4.0	3.1	73	4.3	3.3
Access Gap	10	-3.1	-2.9	-14	-0.5	-1.0	-13	-0.8	-1.0
Relative Use	87%	61%	55%	81%	88%	68%'	82%	81%	70%
				Hospital Days					
Uninsured	6	5.8	0.41	3	6.3	0.19	3	6.2	0.21
Insured	10	7.3	0.84	4	4.9	0.21	4	5.1	0.26
Access Gap	-4	-1.5	-0.43	-1	1.4	-0.02	-1	1.1	0.05
Relative Use	60%	79%	49%	75%	128%	90%	75%	122%	81%

[a] **%urox** Average of estimates from NMES and HIS.