Using "Risk Factors" to Assess Health Care Access in a Community

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Introduction

With the number of uninsured in the United States now at 43 million and health care costs apparently resuming a recently dormant inflationary path, access to health insurance and health care, and anxiety about encroaching barriers to access, are creeping into the general public's consciousness. For some, it has never been otherwise: health services researchers have been documenting inequities in access for years, state and federal policy makers have recently made some strides in improving access, and health activists across the country have been busy securing and improving access in local communities.[1]

There is no single measure of access that is available to all who would want to know how their area – state, county, or town – stacks up, either in an absolute sense or in comparison with other areas. Scores of studies have established what good access measures are, but those measures often are only obtainable by conducting a research study. Fortunately, this literature has also documented that certain population and economic characteristics, for which data are more readily obtainable, are associated with primary measures of access.

This paper will introduce these associated characteristics as "risk factors" for access to health coverage and health care. It will then examine the variation across states of these risk factors and suggest how this information might be used at a state or sub-state level to identify opportunities to improve access.

Eleven Characteristics That Affect Access

1. Uninsurance Rate

There is little doubt that lack of health insurance is a barrier to access. This is borne out by numerous studies comparing insured and uninsured individuals on such measures as the likelihood of having a non-hospital usual source of care, of forgoing needed care or prescriptions, and the frequency of physician visits.[2] An area with a high proportion of uninsured is an area with substandard access to care.

Where it is difficult to know the actual uninsured rate (in a sub-state area, for example), a preponderance of the remaining risk factors would serve as a strong proxy. A

[1] The Access Project (1999)
[2] Weissman and Epstein (1994)

substantial body of literature associates a variety of characteristics with a greater or lesser likelihood of being without health insurance. Certain demographic groups, for example, or employees of firms in particular industries or of a particular size, are represented among the uninsured in disproportion to their presence in the general population. It follows, therefore, that these characteristics, aggregated over a geographic area, would tell us something about the collective rate of insurance (and lack of insurance) among the population in that area, and what factors were more or less influential in the incidence of insurance in the population.

Important as insurance is in whether or not someone can receive health care, however, getting insurance does not mean getting care. There are other significant barriers as well – the presence of providers within a reasonable distance, transportation, cultural divides, to name but a few. Again, certain population characteristics, as embodied in some of the remaining risk factors, indicate where these barriers are more likely to be significant.

2. Poverty rate

The association of health insurance with income is strong and well documented.[3] Lower income individuals and families are much less likely to have health insurance than their higher income counterparts. This may be because of intermittent employment, because low-income workers are less likely to be offered coverage, or because they are less able to afford the cost sharing requirements of offered coverage.[4] The poverty rate – the percentage of an area's residents with family incomes below the federal poverty line – indicates the area's relative prevalence of low-income individuals.

3. Unemployment rate

About three-quarters of insured individuals are covered through their own employment or that of a spouse or parent. While it is true that most of the uninsured are employed, it is also the case that being employed makes it more likely that one will have insurance.[5] In 1998, working-age adults who had no work experience at all were half again as likely to be uninsured as adults who had any work during the year.[6] An area's unemployment rate is therefore suggestive of the degree to which its residents may be without health insurance.

4. Percent minority population

Numerous studies have documented disparities by race and ethnicity in access to primary and preventive care and the use of medical care for certain conditions, such as heart disease, asthma and HIV/AIDS.[7] While some disparities are narrowing or else may reflect underlying socioeconomic differences, race and ethnicity remain important determinants of access.[8] An area with a large racial and ethnic minority population is therefore more likely to have access barriers as well.

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[3] Campbell (1999)
[4] Cooper and Schone (1997)
[5] Rhoades et al. (2000)
[6] Campbell (1999)
[7] Kaiser Family Foundation (1999)
[8] Collins et al. (1999)

Other studies have also demonstrated that members of racial and ethnic minorities are more likely to be uninsured.[9] National data show that Blacks, Asians and Pacific Islanders, and Hispanics are more likely to be uninsured than non-Hispanic whites by factors of two, two and three, respectively.[10] Areas with greater concentrations of minority racial and ethnic groups will probably have larger uninsured populations as well.

5. Percent metropolitan population

People living outside of metropolitan areas are more likely to be uninsured, according to the Medical Expenditure Panel Survey.[11] Areas with higher proportions of non-metropolitan residents, therefore, are at risk for greater levels of uninsurance.

6. Percent employed in service and trade industries

Workers in the service and wholesale/retail trade industries are less likely to be offered insurance than are workers in other industries.[12] Agricultural and construction workers also have a high rate of uninsurance, but account for only a small portion of the entire workforce. For comparison purposes, then, looking at areas with larger portions of their workforce in service and trade industries will suggest areas with potentially lower levels of insurance coverage.

7. Percent employed in firms with fewer than 100 employees

Small firms are less likely to provide health insurance to employees and their families.[13] Among employees who work for employers who offer coverage, those in smaller firms are less likely to accept that offer, either for themselves or their dependents.[14] Areas with a greater concentration of small businesses might therefore have relatively lower rates of coverage.

8. Generosity/inclusiveness of public insurance programs

The low-income population most likely to lack private health insurance is also the group most likely to be covered by a state's Medicaid program. Not all low-income people are eligible for Medicaid, however, and states' rules vary widely about who is included. It stands to reason that a state with less inclusive standards would have a relatively smaller portion of its residents in Medicaid and therefore more uninsured, all other things being equal. Low-income residents of that state would be at greater relative risk for being uninsured. The measure used here to indicate "generosity" of a state's Medicaid program is the percentage of Medicaid eligibles in the population, adjusted for the state's poverty rate (because a greater concentration of poor people would increase the Medicaid-eligible population irrespective of the characteristics of the state's program).

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[9] Weinick et al. (1998); Hall et al. (1999)
[10] Campbell (1999)
[11] Rhoades et al. (2000)
[12] McDonnell et al. (1997); Thorpe (1997)
[13] McDonnell et al. (1997); Thorpe (1997); Branscome et al. (2000)
[14] Cooper and Schone (1998)

9. Overall HMO penetration

Some research has found an empirical association between the high levels of HMO penetration in an area and the level of uninsurance.[15] This is the result of market segmentation by which HMOs attract healthier, lower cost members, thus increasing costs and premiums in the rest of the market. If this effect is large enough it offsets the cost saving effects of HMOs and increases the average premium over the entire market. Higher premiums, in turn, mean more uninsured.

10. Medicaid managed care penetration

Recent research found that the uninsured have worse access to care in health care markets where managed care—in general, and for Medicaid—is more prevalent. Physicians who derive more of their income from managed care and who practice in areas with high managed care penetration are less likely to provide uncompensated care to the uninsured. The research further suggests that access to care—as measured by frequency of ambulatory care visits, having a usual source of care, and having unmet medical needs—is worse for the uninsured in areas where more of the Medicaid population is in managed care.[16]

11. Percent of population underserved by primary care physicians

This risk factor is self-evident, if not self-referential. The federal Health Resources and Services Administration designates certain areas as "underserved" based on the ratio of primary care physicians to population. People who live in these underserved areas have limited access, at least to primary care.

Attentive readers will observe that many of these risk factors are related to one another, and that most get in some way to the major themes of health insurance and economic status. This is as it should be. These factors, after all, are not intended to be used for statistical estimates, so correlation among independent variables is not an issue. Rather, we present the risk factors as a tool for activists to get a general sense of the local dimensions of an access problem. For this purpose, correlation in the data can actually be helpful, because not all of the measures will be available in all localities.

A simple representation of risk factors across states

Combining all of the risk factors, even in an elementary fashion, can provide a good picture of a region's access situation, relative to other regions. While not a single "measure" of access, the aggregation of these factors is highly suggestive and, further, can facilitate a discussion of what actions in a community might be appropriate to improve access.[17]

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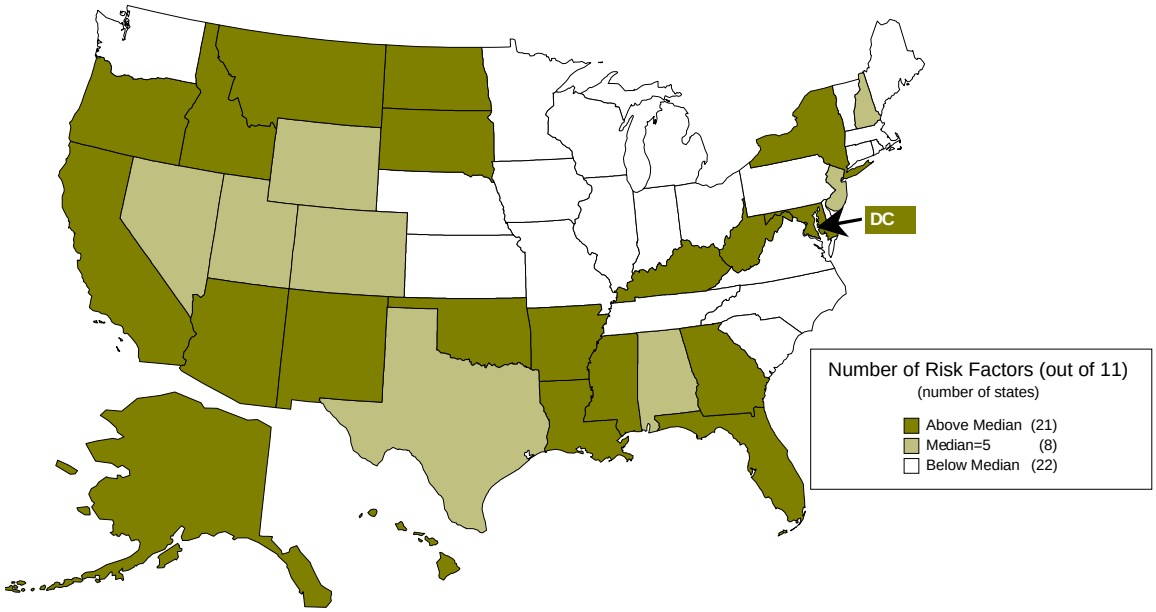
[15] Marsteller et al. (1998); Baker and Corts (1995)

[16] Cunningham et al., (1999); Cunningham (1999)

[17] Though this paper is not, at its heart, a statistical analysis, we performed a simple test of correlation, using a single measure of access that is available at the state level, to demonstrate some empirical evidence that these factors actually reflect variations in access. The test of the correlation between a state's total number of risk factors and the percentage of a state's population reporting having forgone needed care in 1998 (Centers for Disease Control) yielded a Pearson's correlation coefficient of 0.46.

Figure 1 illustrates the distribution of risk factors at the state level. In this display, a state is considered to have a particular risk factor present if its measure simply exceeds (or, in the cases of two of the measures, is exceeded by) the national measure. This comparison does not consider mitigations such as the statistical significance of a state's difference from the national mean, nor is any special weight given to any of the factors. It is intended for use as a "first cut" in characterizing states. In addition, it is possible that the national mean is not the appropriate threshold for some or all of the factors; an analyst with a more demanding standard of what constitutes "risk" might choose a fraction of the national measure, a regional mean, or a threshold determined in an altogether different way.

Figure 1. Distribution, by State, of 11 Access "Risk Factors"



This representation gives a basic, aggregated picture of how access to health care differs across the country. It allows us to say, for example, that a "typical" resident of Arkansas is more likely to face barriers to access than a resident of Missouri. Such a statement is of general interest, but is of limited use from a local policy or advocacy standpoint because, in fact, it is almost certainly true that people in *certain parts* of Missouri face greater access problems than people in certain parts of Arkansas. With the risk factor construct and the data behind this map as a starting point, however, someone interested in pursuing improvements in access might proceed in at least two possible directions: focusing in on one or more of the individual risk factors at the state level, or performing an analysis within a state by compiling risk factor data for sub-state regions.

How to Use this Information

Mapping the total number of risk factors to compare states is one use of the risk factor concept. Another is to compare states on specific measures that might be susceptible to adjustment by state policy. One such measure is the "Medicaid Generosity Index." The Medicaid program provides state policy makers with a lever for reducing the number of uninsured, thus improving access to health care. The index can give a state a sense of "how far" its Medicaid program goes, relative to other states. Other risk factors might suggest state policy levers as well. Of course, the desire and ability to use these levers are subject to a larger political and economic calculus on the part of policy makers.

At a local level, discussions of how to improve access in a particular area may break down because insufficient data exist for that particular area on generally accepted access measures: usual source of care, incidence of foregoing care, or avoidable hospitalizations, for example. Information on lack of health insurance in a population, a strong indicator of sub-standard access, is often not available below the state level either. Many of the other risk factor measures, however, are available: employment and labor force statistics, population statistics, managed care penetration rates, estimates of Medicaid eligibility and poverty rates, medically underserved areas. If one accepts that these measures provide a good relative sense of access in an area, particularly when more direct measures are not available, then it is possible to generate a useful access map *within* a state – at the county, town or even ZIP code level.

An Example

For example, suppose a health access advocacy group in Franklin County, Mississippi wants to document the access situation in its community relative to the rest of the state. Mississippi has an above-average uninsured rate; about one in five in the state had no health insurance in 1997-98. The number and percentage of uninsured in the county is not available, however, from either national or state sources. The Franklin County group might nevertheless assess the local health access situation, relative to the rest of the state, by using risk factor data as proxies.

Health Access Risk Factors, Franklin County and Mississippi

	Data Year	Franklin Co.	Mississippi	Source
Uninsured Rate	1997-98	n.a.	20%	Census Bureau, Current Population Survey
Poverty Rate	1995	25%	21%	Census Bureau state profiles, www.census.gov
Unemployment Rate	1999	8%	6%	Bureau of Labor Statistics, Local Area Unemployment Statistics
% Minority Population	1996	38%	37%	Census Bureau, USA Counties General Profile
% Employed in Service & Trade	1997	41%	59%	Census Bureau County Business Patterns Economic Profiles
% Employed in Firms <100	1997	70% [1]	36%	**County:** Census Bureau, County Business Patterns; **State:** Census Bureau, Statistics of U.S. Businesses
Medicaid "Generosity" Index	1997	0.89 [2]	1.07	**County:** MS Division of Medicaid Annual Report; **State:** HCFA
Metropolitan Population	1990	0%	47%	1990 U.S. Census www.census.gov
HMO Penetration	1998	n.a.	4%	National Center for Health Statistics, *Health United States 1999*
Medicaid Managed Care Penetration	1998	49% [1]	40%	**County:** MS Division of Medicaid; **State:** HCFA
Ratio of Population to Primary Care Physicians[3]	1996	2,770:1	3,185:1	Health Resources and Services Administration

n.a. not available
[1] Estimate
[2] Adjusted by 1995 poverty rate, the most recent available for the county
[3] Substitute for "Percent of Population Underserved by Primary Care Physicians"; HRSA considers a ratio of 3,500:1 to be "underserved."

In terms of insurance risk factors, poverty rates and unemployment rates are slightly higher in Franklin than in the state as a whole, and the county is completely rural. A smaller portion of the population works in service and trade jobs, but Franklin has a considerably greater concentration of people working for small firms, which are less likely to insure their employees.

Franklin County's income and employment characteristics, as well as its geography, suggest that it is slightly disadvantaged, compared with the entire state, on issues of health insurance and access. This information can be useful to county advocates when arguing for policies and resources to improve access. The information about the relatively high proportion of small employers might lead to further discussion with local employers about their coverage practices and potential incentives to expand coverage. The information could also be used to persuade state policy officials responsible for allocating resources intended to promote access, such as disproportionate share hospital funds, tobacco settlement proceeds, and outreach grants.

- A word on data sources

Many of the county level data in the Franklin County example come from various surveys conducted by the U.S. Census Bureau. The main source of demographic data, the Decennial Census, is being conducted during 2000 and data will be available to the public beginning in early 2001. The data will be released in stages, beginning with state counts and racial and ethnic data within states, through the "American FactFinder" on the Census Bureau's website. Other Census Bureau data are available through the FactFinder as well.

Where to focus advocacy efforts

For local health care and access activists, the presence of particular risk factors may point to avenues for activity in local areas. Compiling, analyzing and discussing the risk factor data can provide opportunities for organization building and raising awareness within a community. Beyond that, using risk factor data can motivate further activity in these (and other) areas:

- Data collection

Use existing risk factor data to demonstrate the need to find out if the presence of risk factor does actually indicate worse access to care or coverage. Partner with the local or state department of health, another government agency or an academic institution to conduct a survey, focus groups, or other data collection activities.

- Organization or coalition building

Use risk factors as a guide to targeting certain groups for inclusion in coalitions to advocate for improved access. Demonstrating a problem using hard data is a good way to secure the participation of important stakeholder groups, such as the employees of small businesses or service industry employers, safety net providers, unemployed or low-income people, or even non-traditional allies such as small businesses themselves.

A data collection effort, in addition to the direct benefits it provides, can also be an effective organization building activity.

- Advocacy efforts

Risk factor information can also supply the "handle" for direct advocacy to improve access. Depending upon what factors appear to be most prevalent, advocates might use the data as a starting point in efforts to expand public programs, work with employers to find or develop possibilities for low-cost coverage, or promote the inclusion and support of safety net providers in managed care networks, to name just a few possibilities.

Conclusion

A paradox of health access advocacy at a local level is that, while data that document access barriers help to persuade and build support for action, the necessary data are frequently not available. This discussion of risk factors has introduced the idea that, absent direct measures of access, casting a broader net for measures *associated* with access barriers can help to make the case. The strengths of these particular risk factors are that their association with insurance and access are backed up by credible research, and that some form of the measures is usually available for a fairly localized population. They are not perfect, of course, nor are they the only possible ways to quantify a community's relative risk of gaps in access. They are, however, a solid starting point for planning and dialogue toward action to effect meaningful improvements in the health care system.

Appendix: Risk Factors, by State

	Uninsurance Rate[i]	Unemployment Rate[ii]	Poverty Rate[i]	% Minority Population[iii]	% employed in service & trade industries[iv]	% employed in firms <100[v]	Medicaid "Generosity" Index[vi]	Metropolitan population[iii]	HMO Penetration[vii]	Medicaid mgd care penetration[viii]	Population underserved by primary Care MDs[ix]
	1997-98	1998	1997-98	1998	Aug-99	1993	1997	1997	1998	1998	1998
US	**16.2**	**4.5**	**13**	**27.5**	**53.2**	**43.4**	**1.15**	**79.7**	**28.6**	**53.6**	**9.6**
Alabama	16.2	3.7	15.1	27.3	47.3	41.9	0.97	67.7	10.8	70.9	18.9
Alaska	17.7	5.2	9.1	28.4	46.0	49.9	1.57	41.2	0	0	14.1
Arizona	24.3	3.6	16.9	31.4	54.2	40.3	0.80	85.2	30.3	85.1	9.2
Arkansas	21.5	4.9	17.2	18.1	46.5	43.7	0.84	45.4	10.7	56	11.9
California	21.8	5.6	16	50.3	54.4	47.3	1.19	96.6	47.1	45.8	6.8
Colorado	15.1	3.3	8.7	21	54.6	47.7	0.95	81.1	36.4	99	7.9
Connecticut	12.3	2.9	9	19.3	53.2	42	1.20	91.2	42.9	71.9	6.4
Delaware	13.9	3.3	10	23.6	49.8	37.1	1.53	81.7	48.1	76.7	4.7
D.C.	16.6	8	22	71.2	52.9	36.5	1.26	100.0	33	45.3	21
Florida	18.5	4	13.7	30.8	61.9	44.8	1.00	92.8	31.5	64.5	7.6
Georgia	17.5	3.7	14	32.5	52.0	39.7	1.13	68.6	15.5	76.3	13.7
Hawaii	8.8	5.5	12.4	70.7	57.5	45.4	1.31	73.3	32.8	80.5	2.9
Idaho	17.7	4.4	13.8	9.5	49.2	56.5	0.71	31.7	5.7	34.8	20.2
Illinois	13.7	4.2	10.6	28.3	53.0	37.3	1.35	84.1	20.8	13.4	8.1
Indiana	12.9	2.6	9.1	11.4	48.1	41.6	1.24	71.7	14	57.7	9.5
Iowa	10.7	2.4	9.3	5.3	50.9	50.4	1.17	44.5	4.9	92.1	8.4
Kansas	11	3.3	9.6	13.5	50.2	46	0.96	56.0	14.4	49.4	9.4
Kentucky	14.6	4	14.7	8.7	49.5	44.1	1.04	48.3	35.1	62.7	13.1
Louisiana	19.2	5.4	17.7	36.4	50.7	45	0.94	75.2	16.6	5.4	24
Maine	13.8	3.8	10.2	2.2	55.3	49.6	1.41	39.9	19.1	10.7	8.3
Maryland	15	4	7.8	35.1	57.3	43.5	0.94	92.7	43.6	67.1	2.4
Massachusetts	11.4	3	10.4	15.4	58.9	42.9	1.18	98.5	54.2	62.7	5.4
Michigan	12.4	3.6	10.6	19.1	51.6	38.5	1.33	82.6	25.3	68	13
Minnesota	9.2	2.1	10	8.6	52.8	44.7	1.29	69.9	32.4	52.6	4.2
Mississippi	20.1	4.8	17.1	37.6	44.8	41.2	1.07	31.5	3.6	40	21.9
Missouri	11.6	3.7	10.8	14.1	51.8	46	1.35	67.9	33.7	41.5	13.7
Montana	19.5	5	16.1	9.1	56.0	67.4	0.65	23.3	3.9	98.4	11.8
Nebraska	9.9	2.3	11.1	9.3	51.2	95	1.20	51.5	16.9	72.8	7.9
Nevada	19.3	3.8	10.8	25.9	63.5	46.5	0.80	85.8	26.8	38.7	11.2
New Hampshire	11.5	2.4	9.4	3.2	55.9	51.7	1.12	62.5	33.8	10.1	5.6
New Jersey	16.5	4.2	8.9	30.9	56.3	41	1.16	100.0	31.3	58.6	5.1
New Mexico	21.9	5.5	20.8	50.6	52.6	49.3	0.83	56.9	32.3	79.7	16.3
New York	17.4	5.3	16.6	34.9	54.7	42.2	1.07	91.8	37.8	29.6	11.3
North Carolina	15.2	3.1	12.7	25.9	47.6	41.9	1.37	66.9	17.1	68.6	11.1
North Dakota	14.7	2.7	14.4	7.2	54.1	56.8	0.81	42.9	2.2	51.9	16
Ohio	11	4	11.1	14.2	52.0	40.1	1.13	81.0	23.4	28.4	8.2
Oklahoma	18.1	3.9	13.9	20.8	51.4	51.3	0.86	60.4	13.8	49.7	9.7
Oregon	13.8	5	13.3	11.4	51.6	56.9	1.45	70.3	45.3	88.7	10
Pennsylvania	10.3	4.3	11.2	13.9	54.9	40.2	1.25	84.5	37.1	68.3	5.5

	Uninsurance Rate[i]	Unemployment Rate[ii]	Poverty Rate[i]	% Minority Population[iii]	% employed in service & trade industries[iv]	% employed in firms <100[v]	Medicaid "Generosity" Index[vi]	Metropolitan population[iii]	HMO Penetration[vii]	Medicaid mgd care penetration[viii]	Population underserved by primary Care MDs[ix]
	1997-98	1998	1997-98	1998	Aug-99	1993	1997	1997	1998	1998	1998
US	**16.2**	**4.5**	**13**	**27.5**	**53.2**	**43.4**	**1.15**	**79.7**	**28.6**	**53.6**	**9.6**
Rhode Island	10.1	4.3	12.2	13.8	56.1	48.1	1.25	91.6	29.8	63.2	9.6
South Carolina	16.1	3.3	13.4	31.9	48.1	41.1	1.19	69.8	9.9	3.6	13.6
South Dakota	13.1	2.5	13.7	9.9	50.7	58.7	0.79	33.6	5.1	70.6	19
Tennessee	13.3	3.7	13.9	18.3	50.5	36.6	1.75	67.7	24.1	100	10.1
Texas	24.5	4.5	15.9	43.1	52.1	40.5	0.87	84.3	17.8	25.5	11
Utah	13.7	3.3	8.9	10.7	51.4	45.8	1.17	76.5	35.6	91.3	21.6
Vermont	9.6	2.9	9.6	2.4	53.2	56.5	1.92	32.4	13.6	48.3	7.2
Virginia	13.4	2.5	10.8	27	53.3	42.2	0.84	78.0	16.9	60	6.1
Washington	11.8	4.2	9.1	16	52.0	50.8	1.54	82.8	26.3	91	7.5
West Virginia	17.2	5.9	17.1	4.4	52.2	48.5	1.22	41.8	10.7	42.5	12.7
Wisconsin	9.9	2.9	8.5	10.7	48.8	45.6	1.30	67.7	30.8	49.1	10.3
Wyoming	16.2	4.2	21.1	10	45.3	61.5	0.84	29.6	0.7	0	16.6

Sources for Table:

i U.S. Bureau of the Census, March 1998 and March 1999 Current Population Surveys

ii U.S. Bureau of Labor Statistics [1998 Annual Averages]

iii American Association of Retired Persons, "Reforming the Health Care System: State Profiles 1998." ["Minority" defined as Black, Amer. Indian, Asian/Pacific Islander, Hispanic (any race)]

iv U.S. Bureau of Labor Statistics

v Centers for Disease Control and Prevention, National Employer Health Insurance Survey

vi Health Care Financing Administration, HCFA-2082 Reports; U.S. Bureau of the Census. Index is Medicaid eligibles in a state as a percentage of the total state population, divided by the state poverty rate.

vii National Center for Health Statistics, "Health, United States 1999"

viii Health Care Financing Administration, "Medicaid Managed Care State Enrollment," June 30, 1998

ix See reference iii. "Underserved," defined by the U.S. Health Resources and Services Administration, means a population to practitioner ratio greater than 2,000:1.

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