Changes in the Incidence and Duration of Periods Without Insurance

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Accessibility
Changes in the Prevalence and Duration of Spells Without Insurance,
1983-86 vs. 2001-04

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ABSTRACT

Background. Policy-makers have recently proposed ways of covering more of the uninsured. However, little data indicate how the prevalence and duration of uninsured spells has changed over time.

Methods. Two Survey of Income and Program Participation (SIPP) datasets were used: one covering 1983-6 (N=25,946), the other 2001-4 (N=40,282). For each set of years, we estimated the probability of suffering an uninsured spell, along with a Cox competing risk model for obtaining private and public insurance. We calculated the implied probabilities that individuals in various demographic groups would be uninsured for different amounts of time.

Results. The share of the population with an uninsured spell rose from 33.9% in 1983-6 to 37.5% in 2001-4 (p<.001). The share with a spell increased markedly among the least educated, and decreased slightly among the most educated. The share of new spells ending within 24 months rose from 73.8% to 79.7% (p<.001). Increases were experienced for all age and education groups. Transition from uninsured to private insurance fell from 65.2% to 59.2% (p<.001). Transition to public insurance rose from 8.7% to 20.4% (p<.001).

Conclusions. In 2001-4, more people had spells without insurance, but these spells were shorter than they were in 1983-6. An increase in transitions onto public coverage offset a
reduction in transitions onto private coverage. Our results portend difficulties if private
coverage continues to decline and is not offset by further expansions of public insurance.

Abstract word count: 233
The number of Americans without health insurance has increased markedly in recent years. The most widely cited statistic is the share of people reporting no insurance coverage over an entire calendar year. That number grew from 32 million (15% of the non-elderly population) in 1988 to 46 million (18% of the non-elderly population) in 2005.\textsuperscript{1} The status of the uninsured has become even more important as policy-makers mull new options to cover more of the uninsured.\textsuperscript{2}

Lack of insurance for an entire year reflects only one dimension of insurance coverage, however. Data from the 1980s suggested that about twice as many people were uninsured at some point in a year as were uninsured throughout the year.\textsuperscript{3} Studies showed that being without insurance, even temporarily, could be harmful for health.\textsuperscript{4,5} At the same time, longer duration spells have a more immediate and larger adverse impact on health.\textsuperscript{6-8} Longer spells may also be concentrated among a group that is less healthy to begin with.\textsuperscript{4} The duration of uninsurance affects the consequences of being uninsured, the costs of addressing the problem, and the administrative ease in finding the uninsured.

Little is known about how uninsured spells have changed over time – both incidence and duration. Economic and social factors have pushed in both directions. As the prevalence of temporary and contingent work has increased,\textsuperscript{9} private insurance coverage has become harder to obtain. In addition, increases in the share of premiums that employees pay may discourage some workers from taking up private coverage.\textsuperscript{10} Each of these factors suggests there will be more long-term uninsured spells. On the other hand, eligibility for public insurance has expanded. In the early 1980s, Medicaid coverage for the non-elderly was limited to single women and children in low income families. Since then, Medicaid eligibility has been extended to dual parent families, and
families at higher income levels. The net change over time in the incidence and duration
of time without insurance is thus uncertain.

We examined changes over time in the prevalence and duration of spells without
insurance, using data from the 1983-86 and 2001-04 Surveys of Income and Program
Participation (SIPP). The overall economy was better in 2001-4 than in 1983-6, but in
each case it was in recovery from a recession. We controlled for employment changes to
examine the impact of economic factors. We differentiated population groups by age and
education and separately examined transitions to public and private insurance.

METHODS

Data

The data are from the Survey of Income and Program Participation (SIPP). The
SIPP is a stratified random sample of families in the United States that longitudinally
follows each family member for several years. The design and operation of the SIPP are
described elsewhere.11 The SIPP panel beginning in the fall of 1983 (the “1983-86
SIPP”) follows individuals for 32 months, whereas the SIPP panel beginning in 2001 (the
“2001-04 SIPP”) follows individuals for 36 months. We address this difference in panel
lengths by estimating a hazard model for the duration of uninsured spells. In considering
whether the person was uninsured at all, we consider only the first 32 months of the
2001-4 SIPP.

Survey participants are asked about a number of socioeconomic variables,
including age, race, sex, geographic location, education, income, wealth, labor supply,
and participation in government programs. Every four months, respondents are asked to
report whether each member of the family had health insurance in each of the past four
months, and if so, what type of health insurance.

We used the education level of the family’s highest earner as the main
socioeconomic variable of interest. We do not use income to sort families, since income
could be endogenous to health insurance. Education is also a better proxy for long-
run earning potential.

We sample people who were aged 61 or younger at the time of the first survey in
the panel. The restriction to the population 61 and under ensures that no one will age into
Medicare. Further excluding people who left the sample because the 1983-6 panel was
made smaller due to budget cutbacks, and excluding people in the military or receiving
veterans’ payments and their relatives (who are usually covered by CHAMPUS or
CHAMPVA), results in a final sample of 25,946 people in the 1983-86 panel and 40,206
people in the 2001-04 panel. These samples represent 189 million individuals in 1983-6
and 233 million individuals in 2001-4.

For the sample of people with an uninsured spell, we use the 8,706 people in the
1983-86 panel and the 14,443 people in the 2001-04 panel who report spending some
time uninsured (and who meet the other criteria above).

Analysis

We examined the fraction of different demographic groups with an uninsured
spell in 1983-6 and 2001-4. For each of the people who become uninsured in the 1983-
86 and 2001-04 SIPP surveys, we estimated a Cox competing risk model with
proportional hazards. We use a non-parametric baseline hazard, effectively allowing the
baseline hazard to vary by month. The dependent variable is one of three insurance groups: publicly insured; privately insured; and uninsured. We include dummy variables for two age groups (<18, 18-61), measured at the time of the first survey, four education groups (no high school diploma, exactly a high school diploma, some college, and college graduate +), three racial groups (black, white, other), and gender. Lunn and McNeil’s Method B was employed, so that the relationship between the baseline hazards for obtaining private and public health insurance was left unrestricted.

The regressions and summary statistics are weighted using population weights. Standard errors are adjusted for the complex survey design and are clustered by individual, using Stata 9.2. To examine population-constant trends in insurance coverage, we weight the age- and income-specific probabilities, using as weights the average of the population distribution in the 1983-6 data and the population distribution in the 2001-4 data.

RESULTS

Characteristics of the study sample are shown in Table 1. The population has more adults and more minorities in 2001-04 than in 1983-86. Average education increased over time. The share of the population uninsured in any month is slightly higher in 2001-04 than in 1983-86, though not statistically significantly so (15.9% vs. 15.8%, respectively, p = .075). More individuals experienced an uninsured spell in the first 32 months of the 2001-4 panel than in 1983-6, 37.3% vs. 35.4% respectively (p < .001).
Hazard model estimates for obtaining insurance among those who had an uninsured spell are reported for each survey in the appendix. The coefficient estimates were in the expected direction in all cases. Younger people are more likely to take up public coverage, and people with less education are less likely to join private coverage. Non-whites are more likely to become insured through public coverage.

The distribution of time spent uninsured is shown in Table 2. The percent without any uninsured spells is reported in the first column. The overall percentage continuously insured fell from 66.1% in 1983-6 to 62.5% in 2001-4 (p<.001). The declines were largest among those without a high school diploma, falling from 51.9% in 1983-6 to 36.5% in 2001-4 (p<.001). It fell a bit for those with exactly a high school diploma and stayed constant for those with some college. Among college graduates, the percentage insured the whole time actually rose slightly from 80.2% to 82.0% (p=.048). The percentage continuously insured fell slightly more for adults than for children.

Figure 1 shows the probability of becoming insured before a given month in 1983-6 and 2001-4, for those experiencing an uninsured spell. Shorter uninsured spells were more common in 2001-4 than in 1983-6, in the sense that the probability of obtaining insurance is higher in 2001-4 starting in month 8 after an uninsured spell begins (though before month 8, the probability of obtaining insurance is lower in 2001-4 in some cases). The increases in probability associated with “seam bias”—excessively large changes in health insurance at each SIPP new survey every four months—are also apparent.

The remaining columns of Table 2 show the duration uninsured for people experiencing an uninsured spell in 1983-6 and 2001-4. The share of people obtaining
insurance coverage is higher in the 2001-4 panel at every time period shown in Table 2.
In the 1983-86 panel, 59.2% of the uninsured gain insurance within a year, and 73.8% get
insurance within two years. In the 2001-4 panel, the comparable figures are 61.7% by
one year (p-value for difference from the 1983-86 panel <.001) and 79.7% by two years
(p<.001).

The final column of Table 2 reports the median duration of an uninsured spell in
1983-6 and 2001-4. The median length of a spell fell a bit, from 8 months 7 months (p =
.014). Changes in median spell length were substantial in some groups; for younger
people, the median spell length fell from 7 to 4 months, and for those with less than a
high school diploma, the median spell length fell from 10 to 7 months.

Figure 2 differentiates the coverage transitions into private and public coverage.
On the basis of the hazard model, we calculated the probability of obtaining insurance of
each type (public or private) by each month in each set of years. Figure 2 shows the
increase or decrease in these probabilities from 1983-6 to 2001-4. The probability of
obtaining private insurance within 24 months is 6.0 percentage points lower in the 2001-4
panel than it was in the 1983-86 panel: 65.2% of people who experienced an uninsured
spell in the 1983-6 panel will have transitioned onto private coverage, compared to
59.2% in the 2001-4 panel (p<.001). There was an increase in the probability of
obtaining public coverage, but that more than offset the decline in private coverage. At
24 months after the uninsured spell started, 8.7% of people will have transitioned onto
public coverage in the 1983-6 panel, compared to 20.4% of people in the 2001-4 panel,
an increase of 11.7 percentage points (p<.001).
Table 3 shows transitions into public and private insurance by age and education group. The percentage obtaining private insurance within 24 months fell substantially among both children and adults (with a larger decrease for adults), while the percentage obtaining public insurance rose greatly among both children and adults. The percent of people obtaining private insurance within 24 months fell dramatically among households whose head had no high school diploma, by 12.0 percentage points. This decline was more than completely offset by greater public coverage: Public coverage rose by 20.6 percentage points among those without a high school diploma. This parallels the large increase in the number with an uninsured spell in the group with less than a high school degree.

DISCUSSION

Spells without health insurance are more prevalent but shorter in 2001-04 than they were in 1983-86. 33.9% of people suffered an uninsured spell in 1983-6, compared to 37.5% in 2001-4. At the same time, the median duration of a spell without insurance fell from 8 to 7 months.

Increases in the percentage of individuals experiencing uninsured spells were largest among the least educated, and become progressively smaller at higher levels of education, with uninsured spells actually becoming less common among the most educated. This is coincident with a large reduction in the probability of transitioning onto private coverage, and an even larger increase in the probability of moving onto public coverage. The increased prevalence of uninsurance among the least educated, relative to the more educated, parallels the economy-wide expansion of inequality over this period.
Several factors may explain the reduction in transitions into private coverage. First, employers have charged employees increasing amounts for health insurance, and the incidence of these higher prices has led some to decline insurance when offered. In addition, there is more temporary and seasonal employment, each of which is associated with lower insurance coverage.

Many individuals become uninsured because they lose their job. It is possible, therefore, that a change in the average length of unemployed spells could impact the average length of uninsured spells. However, when we estimate our hazard models controlling for whether the individual and other members of their family (spouse for adults, parents for children) are employed, we find a decrease from 1983-6 to 2001-4 in uninsured spell lengths that is similar to the decrease indicated by the model that does not condition on employment status (results not shown). Similarly, we find that conditional on employment status, the predicted probability of losing insurance increased by a similar amount from 1983-6 to 2001-4 as the unconditional increase.

The decrease in spell duration is not surprising given the enormous increase in Medicaid coverage over time. Enrollment rates in Medicaid among the non-elderly population rose 53 percent between 1983-86 and 2004. Enrollment in Medicaid also increased most in precisely those groups—children and those without a high school diploma—for which we find the largest increases over time in spells ending in public coverage, which is consistent with the theory that the Medicaid increases were crucial in causing spell lengths to decrease. The large decrease in spell lengths and prevalence among these groups suggests that Medicaid expansions can be effective in shortening spell lengths. The increase in Medicaid coverage could also partly be responsible for the
relatively large decrease in private coverage in those groups, as public coverage crowded
out private.19

The greater prevalence of uninsurance and shorter uninsured durations noted here
could have significant impacts on health. For example, an individual’s probability of
being in poor or fair health is 11% when insured all year; 14% when the individual has
been uninsured for less than a year; and 20% when the individual has been uninsured for
greater than one year.6 Assuming that these figures represent causal effects of the length
of an uninsured spell on health, we find that the changes in uninsured prevalence and
duration from 1983-6 to 2001-4 that we document should have caused an increase of
1.1% in the probability that an individual is in poor or fair health.

LIMITATIONS

Our study has some limitations, which are important to note. As noted above, the
SIPP suffers from “seam bias,” in which individuals are prone to report the same
insurance status in blocks of four months. However, this would be the same in each
survey. In addition, our results focus only on spells of uninsurance; they do not directly
examine the health outcomes of the uninsured. Finally, we look at the uninsured without
examining the underinsured—those with insurance coverage that is not generous enough
to afford meaningful access to care.

CONCLUSION

Uninsured spells are now more prevalent, but shorter, than before. Spells have
changed the most for the least educated: More of them are uninsured, but public
insurance has offset the lower rate of private coverage. These findings illustrate the importance of public insurance in stemming the tide of decreased private coverage, as expansions of public coverage appear to have substantially reduced spell lengths and prevalence in the groups most affected by these expansions. They also suggest the significant problems that could lie ahead if employer-based coverage continues to decline but public coverage is stable or retrenches.
Table 1. Characteristics of the Study Sample

<table>
<thead>
<tr>
<th>Measure</th>
<th>1983-6 (N=25,946; wtd N = 189 million)</th>
<th>2001-4 (N=40,282; wtd N = 233 million)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (%)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;18</td>
<td>32.0</td>
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<td>18-61</td>
<td>68.0</td>
<td>71.3</td>
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<td>50.6</td>
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<td>Race (%)</td>
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<td></td>
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<td>White</td>
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<tr>
<td>Black</td>
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<td>13.4</td>
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</tr>
<tr>
<td>Other</td>
<td>3.1</td>
<td>5.8</td>
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<tr>
<td>Education (%)</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>&lt;High School Diploma</td>
<td>24.8</td>
<td>13.1</td>
<td>&lt;.001</td>
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<td>33.8</td>
<td>29.3</td>
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<tr>
<td>Some College</td>
<td>20.0</td>
<td>30.7</td>
<td></td>
</tr>
<tr>
<td>College Graduate +</td>
<td>21.4</td>
<td>26.9</td>
<td></td>
</tr>
<tr>
<td>Uninsured in Month (%)</td>
<td>15.8</td>
<td>15.9</td>
<td>.07</td>
</tr>
<tr>
<td>Any Uninsured Spell (%)</td>
<td>35.4</td>
<td>37.3</td>
<td>&lt;.001</td>
</tr>
</tbody>
</table>

Source: 1983-6 and 2001-4 SIPPs.
Table 2. Probability of Spending Different Amounts of Time Uninsured, 1983-6 and 2001-4

<table>
<thead>
<tr>
<th>Year</th>
<th>Group</th>
<th>Conditional Duration</th>
<th>Median Duration (Months)</th>
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<td></td>
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<td>0</td>
<td>1-4</td>
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<tr>
<td>1983-6</td>
<td>All</td>
<td>66.1</td>
<td>40.8</td>
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</table>

**Age (%)**

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<tr>
<th></th>
<th>&lt;18</th>
<th>66.8</th>
<th>42.0</th>
<th>19.1</th>
<th>15.2</th>
<th>23.8</th>
<th>7</th>
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</thead>
<tbody>
<tr>
<td>18-61</td>
<td>65.9</td>
<td>40.3</td>
<td>18.1</td>
<td>14.3</td>
<td>27.2</td>
<td>8</td>
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</table>

**Education (%)**

<table>
<thead>
<tr>
<th></th>
<th>&lt;High School Diploma</th>
<th>51.9</th>
<th>36.9</th>
<th>18.7</th>
<th>16.9</th>
<th>28.0</th>
<th>10</th>
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</thead>
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<tr>
<td>High School Diploma</td>
<td>36.5</td>
<td>41.0</td>
<td>18.6</td>
<td>14.8</td>
<td>25.7</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>Some College</td>
<td>67.2</td>
<td>43.1</td>
<td>18.4</td>
<td>14.0</td>
<td>24.6</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>Age (%)</td>
<td>2001-4</td>
<td>All</td>
<td>&lt;18</td>
<td>18-61</td>
<td></td>
<td></td>
<td></td>
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<tr>
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<td>----</td>
<td>------</td>
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<td></td>
</tr>
<tr>
<td>College Graduate +</td>
<td>80.2</td>
<td>41.2</td>
<td>18.0</td>
<td>13.8</td>
<td>27.0</td>
<td>8</td>
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<tr>
<td>2001-4</td>
<td>62.5*</td>
<td>42.0*</td>
<td>19.7</td>
<td>18.0*</td>
<td>20.3*</td>
<td>7*</td>
<td></td>
</tr>
<tr>
<td>Age (%)</td>
<td>2001-4</td>
<td>All</td>
<td>&lt;18</td>
<td>18-61</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>&lt;18</td>
<td>64.5*</td>
<td>51.2*</td>
<td>20.6*</td>
<td>16.4</td>
<td>11.8*</td>
<td>4*</td>
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<tr>
<td>18-61</td>
<td>61.5*</td>
<td>37.9*</td>
<td>19.3</td>
<td>18.7*</td>
<td>24.0*</td>
<td>9*</td>
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<tr>
<td>Education (%)</td>
<td>2001-4</td>
<td>All</td>
<td>&lt;High School Diploma</td>
<td>36.5*</td>
<td>41.9*</td>
<td>20.1*</td>
<td>18.7*</td>
</tr>
<tr>
<td>High School Diploma</td>
<td>34.2*</td>
<td>41.1</td>
<td>19.7*</td>
<td>18.3*</td>
<td>20.8*</td>
<td>7*</td>
<td></td>
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<tr>
<td>Some College</td>
<td>67.2</td>
<td>41.9*</td>
<td>19.6*</td>
<td>17.8*</td>
<td>20.3*</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>College Graduate +</td>
<td>82.0*</td>
<td>43.2*</td>
<td>19.5*</td>
<td>17.4*</td>
<td>20.0*</td>
<td>8</td>
<td></td>
</tr>
</tbody>
</table>

Note: Estimates are obtained for each demographic group and weighted by the average population share of the demographic group over both time periods. “*” indicates that the 2001-4 period is significantly different from the 1983-6 period at the 5% level.
Table 3: Predicted Probability of Insurance Coverage after 24 Months (%)

<table>
<thead>
<tr>
<th>Demographic Group</th>
<th>Private Insurance</th>
<th>Public Insurance</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1983-6</td>
<td>2001-4</td>
</tr>
<tr>
<td>All</td>
<td>65.2</td>
<td>59.2</td>
</tr>
<tr>
<td>Children (Under 18)</td>
<td>62.3</td>
<td>58.5</td>
</tr>
<tr>
<td>Adults (18-61)</td>
<td>66.4</td>
<td>59.6</td>
</tr>
</tbody>
</table>

**Education**

| <High School Diploma     | 53.2    | 41.2   | <.001   | 18.8    | 39.4   | <.001   |
| High School Diploma      | 64.7    | 56.2   | <.001   | 9.6     | 22.9   | <.001   |
| Some College             | 70.3    | 64.9   | <.001   | 5.1     | 14.4   | <.001   |
| College Graduate +       | 69.8    | 71.4   | .035    | 3.2     | 8.6    | <.001   |

Note: Estimates are obtained for each demographic group and weighted by the average population share of the demographic group over both time periods.
Figure 1. Probability of Obtaining Insurance by Month, 1983-6 and 2001-4

Note: Estimates are obtained for each demographic group and weighted by the average population share of the demographic group over both time periods.
Figure 2. Changes in the Probability of Obtaining Private and Public Insurance, 2001-4 minus 1983-6

Note: Estimates are obtained for each demographic group and weighted by the average population share of the demographic group over both time periods.
Appendix

This appendix displays estimated hazard ratios and standard errors for determinants of insurance status. The dependent variable (insurance status) takes on one of three values: uninsured, privately insured, or publicly insured. The independent variables are dummies representing several age, education, gender, and racial groups. Education is defined slightly differently in the 1983-86 and 2001-04 SIPP surveys. The 1983-86 SIPP asks for the highest grade the person attended, and whether the person completed that grade. The 2001-04 SIPP asks specifically about the highest grade completed or highest degree received. We code these to make them consistent across the surveys. The hazard ratios are obtained from a Cox competing hazard model with a non-parametric baseline hazard, using Lunn and McNeil’s Method B.
Appendix Table 1: Hazard Ratios of Obtaining Private and Public Insurance, 1983-6 and 2001-4

<table>
<thead>
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<th></th>
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</thead>
<tbody>
<tr>
<td>Hazard Ratio for Private Coverage</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age (relative to 18 ( \leq ) Age ( \leq 61 ))</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age &lt; 18</td>
<td>.98</td>
<td>(.02)</td>
<td>1.20</td>
<td>(.02)</td>
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<tr>
<td>Education (relative to No High School Diploma)</td>
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<td></td>
<td></td>
<td></td>
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<tr>
<td>Exactly a High School Diploma</td>
<td>1.27</td>
<td>(.03)</td>
<td>1.36</td>
<td>(.04)</td>
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<tr>
<td>Some College</td>
<td>1.42</td>
<td>(.04)</td>
<td>1.59</td>
<td>(.04)</td>
</tr>
<tr>
<td>College Graduate</td>
<td>1.37</td>
<td>(.04)</td>
<td>1.77</td>
<td>(.05)</td>
</tr>
<tr>
<td>Women (relative to Men)</td>
<td>1.03</td>
<td>(.03)</td>
<td>.97</td>
<td>(.02)</td>
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<td>Race (relative to Whites)</td>
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<tr>
<td>Blacks</td>
<td>1.03</td>
<td>(.03)</td>
<td>1.02</td>
<td>(.02)</td>
</tr>
<tr>
<td>Other Races</td>
<td>.95</td>
<td>(.05)</td>
<td>.99</td>
<td>(.03)</td>
</tr>
</tbody>
</table>

Hazard Ratio for Public Coverage

Age (relative to 18 \( \leq \) Age \( \leq 61 \))

Age < 18 2.19 (.16) 2.25 (.08)

Education (relative to No High School Diploma)
<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>Exactly a High School Diploma</td>
<td>.58</td>
<td>(.05)</td>
</tr>
<tr>
<td>Some College</td>
<td>.32</td>
<td>(.04)</td>
</tr>
<tr>
<td>College Graduate</td>
<td>.20</td>
<td>(.04)</td>
</tr>
<tr>
<td>Women (relative to Men)</td>
<td>1.44</td>
<td>(.10)</td>
</tr>
</tbody>
</table>

*Race (relative to White)*

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Black</td>
<td>1.65</td>
<td>(.14)</td>
</tr>
<tr>
<td>Other Races</td>
<td>1.37</td>
<td>(.23)</td>
</tr>
</tbody>
</table>

N 8,706 14,443
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Dr. Cutler and Mr. Gelber had full access to all of the data in the study and take responsibility for the integrity of the data and the accuracy of the data analysis.

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References


