Disparities in Health and Health Insurance by Race, Ethnicity, and Sex on the Eve of Health Care Reform: Using Life Table Measures as Benchmarks for Progress

Millions of Americans have no health insurance coverage and racial/ethnic minorities make up a disproportionate number of the uninsured. Relative to Non-Hispanic (NH) Whites, Hispanics and NH Blacks are not only more likely to be uninsured, they are also more likely to have health conditions requiring medical care. At the same time, they are more likely to be socioeconomically disadvantaged compared to NH Whites. Low socioeconomic status, being uninsured and being unhealthy may combine to form a vicious cycle. Low socioeconomic status gives rise both to inadequate health insurance coverage and poor health. In turn, inadequate health insurance coupled with poor health make it more likely that an adverse health event will cause serious financial problems and, thus, further socioeocomic disadvantage. Measures that have been traditionally used to quantify racial and ethnic disparities in health insurance coverage have not adequately captured the disadvantage caused by this vicious cycle; they pertained to a point in time or relatively short durations of time. Furthermore, they did not consider the joint risk of being uninsured and having medical need. In recent work, we proposed new measures of insurance coverage, health- and insurance-specific life expectancies, based on life table techniques that ameliorated these limitations.

This study extends our previous work in which we examined Black-White differences in health- and insurance-specific life expectancies in two important ways. First, we take advantage of the first release of Hispanic life tables made available by the National Center for Health Statistics (NCHS). This enables us to estimate health- and insurance-specific life expectancies for Hispanics separately from NH Blacks and NH Whites. This is extremely important given that Hispanics most often identify their race as white, and that they are much more frequently uninsured than either NH Blacks or NH Whites. Consequently, our previous work not only could not show results for Hispanics, but it likely underestimated the White-Black difference in uninsured life expectancy. Second, we extend our previous work by reporting health- and insurance-specific life table values by sex for each racial/ethnic group. Insurance coverage differs markedly by sex, with women being more likely to have insurance coverage than men at every age. Women, on the other hand, report higher disability and worse subjective health than men at every age.

Life table techniques provide a powerful way to simulate the experiences of different racial/ethnic groups with insurance coverage and medical need over a typical life course using cross-sectional data. Using techniques originally developed to estimate disability-free life expectancy, we calculate life expectancies for different types of insurance coverage (private, Medicaid and SCHIP, Medicare, and no insurance) and at different levels of risk for medical need. We use nationally representative data from the Medical Expenditure Panel Survey and US Vital Statistics for 2006.

Data and Methods

We use two sources of data for this study. Mortality data come from published period life tables from the National Center for Health Statistics (NCHS) based on vital statistics for 2006. As mentioned earlier, we use separate life tables for NH Whites, NH Blacks, and Hispanics (regardless of race). Data on insurance status and medical need

come from the 2006 Medical Expenditure Panel Survey (MEPS). MEPS is a series of longitudinal surveys based on clustered and stratified samples of households that provide nationally representative estimates of health care use, insurance coverage, and sociodemographic characteristics for the U.S. civilian noninstitutionalized population.

Insurance Status

We measure insurance status based on coverage information available for each month of 2006 in the MEPS. For each month, we categorize individuals as having one of the following four types of insurance as their primary source of coverage: 1) private coverage, 2) Medicaid or other non-Medicare public insurance, 3) Medicare, or 4) no coverage. Except those having Medicare and private supplemental insurance, most individuals had only one type of insurance in any given month (98%). Many individuals over the age of 65, however, had both Medicare and private supplemental insurance. We include these individuals in the Medicare group as Medicare is generally their primary source of coverage.

Subjective Health and the Risk of Needing Medical Care

We measure the risk of having medical need in the near future with an indicator of subjective health. Previous studies have shown subjective health measures to be strongly associated with more objective health indicators across a wide variety of settings (Idler and Angel 1990; Jytha et al. 1998; Zimmer et al. 2000). Subjective health is also an excellent predictor of future morbidity and mortality, even after controlling for clinical health measures (Idler and Angel 1990; Idler and Benyami 1997). Thus, subjective health can be considered a "leading indicator" of health care need and can be used to identify individuals in a particularly risky category---those who are simultaneously uninsured and at risk of needing health care in the near future.

Subjective health status is based on responses to the question, "In general, compared to other people of your age, would you say that your health is excellent, very good, good, fair, or poor?" We distinguish between those who reported being in "excellent" or "very good" health and those who reported being in "poor", "fair" or "good" health. About 64% of the sample reported being in excellent or very good health and 36% reported being in poor, fair, or good health. For simplicity, we will refer to these groups as "healthy" and "less healthy", respectively. The MEPS respondents reported on their health three times during the study period. Preliminary analysis based on 2005 and 2006 MEPS data shows that this subjective health measure performed well as a leading indicator of health care need. We found that, compared to those who reported being in excellent or very good health in the last interview round in 2005, those who reported being in poor, fair, or good health were 1.4 times more likely to have an emergency room visit, three times more likely to be hospitalized, and spent, on average, $3,600 more on health care in 2006.

Analytic approach

We calculate expected years in different insurance states and at differing risk levels for medical need for Hispanics, NH Blacks and NH Whites using a life table approach based on the Sullivan method (Sullivan 1971). The starting point for this method is abridged, race/ethnicity-specific period life tables constructed using vital

statistics published by the National Center for Health Statistics. Using MEPS data, we then calculate the proportion of people in different health-specific insurance states at mid-year for each age interval. These proportions are then applied to the number of person-years lived between two ages ($_nL_x$), thereby partitioning the person-years lived into different health-specific insurance states. We then complete a new life table based on the health- and insurance-specific $_nL_x$ functions.

With two health states and four insurance states, we define eight possible health-specific insurance states for each person-month of 2006. For example, if an individual was coded as healthy in the first interview in 2006 and was insured privately in the months between the first and second interviews, then all months between the first and second interviews for this person are coded as "privately insured and healthy". If health status changed between two interviews, then the change is assumed to have occurred half-way between the interval and the person-months are assigned accordingly. Our main outcomes of interest are the life expectancies at birth in each of the eight health-specific insurance states.

Results

Our analysis shows that Americans, over a typical life time, can expect to live 12 years without health insurance, or 16% of their total life expectancy. Racial and ethnic disparities are stark; Hispanics can expect to live over 23 years without health coverage, NH Blacks 13 years, and NH Whites 9 years (Table 1). Furthermore, Hispanics not only spend more years uninsured than other groups, they spend disproportionately more of the uninsured years in the less healthy category and, therefore, at a high risk of medical need. The expected years of life spent uninsured and in the less healthy state is 10 years for Hispanics (13% of their total life expectancy), compared to only 4 years for NH Whites (5% of their total life expectancy) and 6 years for NH Blacks.

Looking at the health- and insurance-specific life expectancies by sex further reveals important racial/ethnic differences. While men on average spend more years uninsured than women across all racial/ethnic groups, the male disadvantage in uninsured life expectancy is larger among NH Blacks than among NH Whites and Hispanics. For example, NH Black men live four more years uninsured than NH Black women, whereas NH White and Hispanic men live only one year more than their female counterparts. Differences are much less pronounced with respect to the years uninsured and in the less healthy category. NH Black men can expect to live 1.2 more years uninsured and less healthy than NH Black women, while NH White and Hispanic men live only 0.5 more years than their female counterparts in this state.

These findings suggest that the measures currently used to describe racial/ethnic disparities in insurance coverage underestimate the disadvantage of racial and ethnic minorities, especially Hispanics. Eliminating racial and ethnic disparities in health and health care is a stated objective of the US Federal Government. Our life table-based measures provide a new way of quantifying these disparities and could be used as benchmarks for measuring progress of the coverage expansions under the Patient Protection and Affordable Care Act (PPACA).

Table 1. Insurance and Health-specific Life Expectancies at Birth by Race/ethnicity and Sex, 2006

	Total Life Expectancy		Healthy Life Expectancy		Less Healthy Life Expectancy	
	Total	Uninsured	Total	Uninsured	Total	Uninsured
NH Whites						
Total	78.07	9.40	51.19	5.75	26.88	3.66
Men	75.59	9.94	50.13	6.12	25.46	3.82
Women	83.12	8.85	52.22	5.36	28.23	3.49
NH Blacks						
Total	72.85	12.62	40.30	6.96	32.55	5.66
Men	69.25	14.83	40.21	8.53	29.04	6.30
Women	76.25	10.67	40.47	5.58	35.78	5.09
Hispanics						
Total	80.59	23.24	41.27	12.95	39.32	10.29
Men	77.89	23.76	42.10	13.81	35.80	9.96
Women	83.12	22.42	40.11	11.83	43.03	10.59