Objectives: To examine the convergence of an aging population and a decreased

availability of dental care coverage using data from the Health and Retirement Study

Methods: We calculate national estimates of the number and characteristics of those

persons age 51 years and above covered by dental insurance by labor force, retire-

ment status, and source of coverage. We also estimate a multivariate model control-

Results: We show that being in the labor force is a strong predictor of having dental

coverage. For older retired adults not in the labor force, the only source for dental

Conclusions: Dental care, generally not covered in Medicare, is an important factor

in the decision to seek dental care. It is important to understand the relationship

between retirement and dental coverage in order to identify the best ways of improv-

coverage is either a postretirement health benefit or spousal coverage.

ing oral health and access to care among older Americans.

Dental care coverage and retirement

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ling for potentially confounding variables.

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Abstract

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Keywords

dental; utilization; dentistry; insurance; coverage; retirement.

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Introduction

Having dental insurance has been shown to be an important factor in the decision to seek dental care (1). Failure to receive treatment early may make necessary the provision of less definitive, less than adequate, and more costly care. A growing number of US adults are retaining an increasing number of their teeth throughout their life span (2). As a result, a relative increase in coronal and root caries, periodontal diseases, inadequate or absent prostheses, and preventive needs may result from a greater number of retained teeth among the elderly (3).

Despite the importance of dental insurance, Medicare, which provides health insurance coverage to virtually all Americans age 65 and older, generally does not cover dental care. With the exception of dental care required for other specific medical conditions or made more complicated by a concomitant medical problem, Medicare insurance does not pay for dental care.¹ Despite past interest in expanding Medicare to include dental coverage, this is unlikely in the near future because of macroeconomic conditions, unless it is part of a broader health reform package. Indeed, while 54 percent of the non-elderly population had private dental insurance in 2004, only 24 percent of those age 65 and older had private dental coverage (4). Public coverage via Medicaid and other sources covers a small fraction, but 70 percent of adults age 65 and older lacked dental coverage altogether in 2004, compared with 35 percent of younger adults. Among older adults,

¹ http://www.cms.hhs.gov/MedicareDentalCoverage/

older cohorts were less likely to have dental coverage than younger cohorts with the youngest cohort rates approaching that of the general population (5).

While the transition to Medicare is partially responsible for declining rates of dental insurance coverage among the elderly, the loss of employer-based insurance coverage at the time of retirement also contributes to higher dental uninsurance. By Medicare eligibility at age 65, more than half are no longer working full-time (6). Most workers do not have access to postretirement health benefits, and dental coverage may not be included in the fringe benefit packages even among those who do have retiree health insurance. Indeed, in the 20 years since 1988, firm offers of retiree health benefits have fallen by 50 percent, meaning that an increasing fraction of retirees face a lack of dental coverage in retirement (7). Individuals without public or employer-based coverage are left to purchase coverage in the non-group market, or to self-insure, paying out of pocket for care when it is obtained. For a retired population relying on limited resources for retirement, these options can be potentially costly and financially risky.

The purpose of this article is to further examine the convergence of an aging population and a decreased availability of dental care coverage using data from the Health and Retirement Study (HRS). In particular, we consider more closely the impact of retirement on the likelihood of having dental coverage.

Methods

The HRS, administered by the Institute for Social Research at the University of Michigan and sponsored by the National Institute on Aging, is a longitudinal household survey useful for the study of aging, retirement, and health among older populations in the United States.^{2,3} Every 2 years, individuals over age 50 and their spouses are surveyed by the HRS; approximately 20,000 interviews are completed in each survey wave. Each respondent is asked a large battery of questions including information about demographics; income and assets; physical and mental health; cognition, family structure and social supports; health-care utilization and costs; health insurance coverage; labor force status and job history; and retirement planning and expectations.

This analysis focuses on dental insurance coverage reported in the HRS for the 2-year period prior to the most

³ This analysis uses Early Release data from 2006. These data have not been cleaned and may contain errors that will be corrected in the Final Public Release version of the dataset.

recent survey in 2006. Dental coverage in the 2006 HRS was identified in one of two ways: either a) the respondent reported seeing a dentist for dental care during the 2-year period preceding the survey and having expenses at least partially covered by insurance; or b) the respondent did not see a dentist but reported that they would expect any costs to be covered by insurance if he or she did need to see a dentist. Using this information, we calculate national estimates of the number and characteristics of those persons age 51 years and above covered by dental insurance by labor force and retirement status, and source of coverage.

Because dental insurance is oftentimes tied to one's employer, understanding how coverage relates to retirement under various definitions is important. We base the retirement status on survey questions regarding retirement status and employment class, and on the derived labor force status from the RAND HRS. For this reason, we split retirement status into two categories - fully or partially retired. Survey respondents are designated as fully retired if at the time of the survey interview they were not working for pay and either a) said that they were completely retired; or b) reported their sole employment status as retired; or c) were assigned a labor force status of retired. Partial retirement is used for individuals who are not fully retired but either a) reported their employment status as retired along with another employment status (such as working, disabled, or unemployed); or b) said they were partly retired; or c) were assigned a partly retired labor force status.

Individuals not classified as fully or partly retired are designated as either in or out of the labor force. Those classified as in the labor force report a) report working for pay; or b) have a labor force status of working full- or part-time or unemployed. Those identified as not in the labor force have a labor force status of disabled or not in the labor force. This latter category also includes individuals who have never been in the labor force.

For those individuals reporting dental coverage in the 2006 HRS survey period, we identified the self-reported coverage source from the HRS health insurance data. We then divided coverage source into three categories: a) own coverage;

b) spousal coverage; and c) coverage source undetermined.

Along with calculating the bivariate relationship between dental coverage and retirement status, we also estimate a multivariate model controlling for other potentially confounding variables. Given the dichotomous dependent variable for dental coverage, we use logistic regression to measure the association of retirement status on dental coverage while controlling for potential demographic and other confounders in the dental coverage equation.

In order to assure sufficient numbers to produce reliable national estimates, variable categories were combined when necessary. Observations with missing data for specific cat-

² RAND HRS Data, Version H. Produced by the RAND Center for the Study of Aging, with funding from the National Institute on Aging and the Social Security Administration. Santa Monica, CA (February 2008).

egorical variables were too few in number to show separately in the tables, so they are not shown and were omitted from the regression analysis. The HRS core sample design is a multistage area probability sample of households, so all estimates and statistics reported were computed taking into account this design with the use of the software packages SUDAAN and STATA (8,9).

Results

There were 16,955 total participants in the 2006 HRS representing 76,543,869 members of the community-based population age 51 and above. Of these, more than half of the participants were female (57 percent, n = 9,742). Fourteen percent (n = 2,360) of the participants were non-Hispanic Black and 9 percent (n = 1,529) were Hispanic. Twenty-eight percent (n = 4,712) of the participants were age 75 or older, 36 percent (n = 6,171) were between the ages of 65 and 74, and 36 percent (n = 6,072) were between the ages of 51 and 64.

Tables 1-3 show dental coverage status by retirement status, labor force status, and source of coverage as defined above. Table 1 shows the number and characteristics of persons age 51 years and above in 2006 with dental coverage by retirement status for each of several selected population characteristics. Overall, forty-eight percent of all older adults had dental coverage during 2006, but the coverage rate drops steeply for persons 65 years and older, consistent with our previous findings. Moreover, older adults not retired are more likely (P < 0.05) to have dental coverage than retired older adults, though coverage rates only differed significantly by retirement status for the elderly between 51 and 64 years of age. We also noted differences (P < 0.05) in coverage rates for race/ethnicity, income, age, marital status, family size, health status, education categories, and presence of teeth. Non-Hispanic Whites and Hispanics were less likely (P < 0.05) to have dental coverage than were non-Hispanic Blacks. Highincome older adults were more likely (P < 0.05) to have dental coverage than middle income, low income, and poor older adults. While poor older adults were more likely (P < 0.05) to have dental coverage than low-income older adults, they were no more likely (P > 0.05) to have dental coverage than middle-income adults. In addition, college graduates were more likely (P < 0.05) to have coverage than were high school graduates. Both college graduates and high school graduates were more likely (P < 0.05) to have coverage than were older adults with less formal education (less than high school education). Married older adults, older adults with a larger family, and those in excellent health were more likely to have dental coverage than widowed or divorced older adults, older adults from a smaller family, or those in poorer health. For adults age 51 to 64, males and females, non-Hispanic Blacks, non-Hispanic Whites, high- and middleincome older adults, high school graduates and college graduates, all marital status family size and health status categories, older adults not retired were more likely (P < 0.05) to have dental coverage than retired older adults. On the other hand, retirement status appears to have no effect on the likelihood of having dental coverage among older adults age 65 and above, Hispanics and other race/ethnic groups, persons without high school degrees, and poor older adults.

Table 2a shows the number and characteristics of nonretired persons age 51 years and above in 2006 with dental coverage by labor force status for each of several selected population characteristics. Labor force status appears to have no effect on the likelihood of having dental coverage among older adults age 75 and above, poor older adults, persons in the "other" race/ethnicity group, and adults who have never married. For each other demographic and socioeconomic category, non-retired older adults in the labor force were more likely (P < 0.05) to have dental coverage than nonretired older adults not in the labor force.

Table 2b shows the number and characteristics of retired persons age 51 years and above in 2006 with dental coverage by extent of retirement status for each of several selected population characteristics. The extent to which a person is retired (partially versus fully) appears to have a variable effect on the likelihood of having dental coverage among older adults. Overall, partially retired older adults were more likely (P < 0.05) to have dental coverage than fully retired older adults. Partially retired male and female older adults; non-Hispanic White older adults; high-income older adults; high school and college graduate older adults; married older adults; older adults in excellent, very good, or good health; older adults in households of size two; and older adults who have not lost all of their permanent teeth are more likely to have dental coverage than similar fully retired older adults.

Table 3 shows the number and characteristics of persons age 51 years and above in 2006 with dental coverage, by source of coverage (as previously defined) and selected characteristics. For each demographic and socioeconomic category, the source for coverage was overwhelmingly (P < 0.05) obtained from one's own dental coverage. While spousal dental coverage appears to decline (P < 0.05) with age, age has no effect on the likelihood of obtaining dental coverage from one's own plan. Males are more likely (P < 0.05) than females to receive their coverage from their own plan; females are more much more likely to receive their dental coverage from their spouse. Poorer adults were less likely (P < 0.05) to obtain their dental coverage from a spousal plan and more likely (P < 0.05) to receive their dental coverage from their own plan than higher-income older adults.

Retired persons were slightly less likely to have their own dental coverage than non-retired older adults, but this differ-

Dental care coverage and retirement

Table 1	Weighted Estimates:	Number and Characteristics of Persons Age 51	Years and Above in 2006 with Dental C	overage by Retirement Status

		% population with dental coverage	Not retired		Retired	
Population characteristic	Total population		Total population	% population with dental coverage	Total population	% population with dental coverage
Total	76,543,869	47.46	35,799,754	58.28	40,744,115	37.94
A		0.74		0.87		1.04
Age in years	40 141 264	C1 C2	20 545 200	64.65	11 625 074	F 4 0 4
51-64	40,141,264	0.86	28,515,290	64.65	11,625,974	54.21
65 74	10 106 569	0.00	1 262 520	0.98	11 712 010	1.49
03-74	19,100,508	1.06	4,505,520	40.08	14,743,046	1 17
75 and over	17 296 037	25.95	2 920 944	23 37	14 375 093	26.47
	.,,230,007	1.13	2,520,511	2.05	1 1/0 / 0 / 000	1.12
Sex						
Male	34,916,092	49.39	15,427,907	62.93	19,488,185	38.68
		0.81		1.08		1.10
Female	41,627,777	45.83	20,371,847	54.77	21,255,930	37.27
		0.81		1.00		1.21
Race						
Black non-Hispanic	6,989,255	56.83	3,437,237	63.22	3,552,018	50.64
		1.64		1.90		2.08
Hispanic	5,385,252	42.35	3,564,229	41.07	1,821,023	44.86
		2.83		3.51		2.47
White non-Hispanic	62,180,178	46.67	27,649,082	59.91	34,531,096	36.06
	4 070 000	0.75	4 4 40 766	0.86	024.024	1.10
Other	1,972,600	53.30	1,140,766	57.87	831,834	47.03
Family income*		3.87		5.26		4.47
Poor	6 055 008	27 / 2	2 752 722	35.03	3 301 286	38.65
FUUI	0,055,008	2.03	2,133,122	3 01	5,501,280	2 37
Lowincome	12 278 548	2.05	3 885 630	32 74	8397918	2.37
Low meonie	12,270,540	1 19	5,005,050	1 71	0552510	1 46
Middle income	22.117.199	39.09	8,160,943	48.77	13.956.256	33.42
	, , , , , ,	1.00	.,, .	1.43		1.51
High income	36,093,114	60.31	20,999,459	69.64	15,093,655	47.33
-		0.86		0.93		1.10
Education						
Some or no school	13,615,564	33.12	5,568,401	35.41	8,047,163	31.54
		1.50		2.16		1.64
High school graduate	44,472,004	46.76	20,591,787	57.95	2,388,0217	37.12
		0.77		0.91		1.21
College graduate	18,394,802	59.79	9,613,950	72.27	8,780,852	46.11
		1.18		1.59		1.42
Marital status	10 200 070	54.94		60.40		
Married	48,388,976	51.24	23,990,935	62.19	24,398,041	40.48
Mideused discovered	22 702 102	0.85	0 741 057	1.02	12 061 225	1.11
vvidowed, divorced	22,703,192	39.71	8,/41,85/	49.59	13,961,335	33.52
Novor married	5 111 103	1.07	3 050 754	1.44	2 384 730	1.20
Nevel married	5,444,455	2 10	5,055,754	2 80	2,504,755	2 47
Family size		2.10		2.00		2.47
One	16 325 100	39 29	5 942 381	49 52	10 382 719	33 43
20 ° ° ° 199	, ,	1.02	-,2,50.	1.92	, _ > _ ,	1.17
Two	40,678,811	46.87	17,517,517	58.50	23161294	38.07
		0.85	- •	1.14		1.13
Three or more	19,539,958	55.51	12,339,856	62.20	7,200,102	44.05
		1.46		1.60		1.98

			Not	Not retired		Retired	
Population characteristic	Total population	% population with dental coverage	Total population	% population with dental coverage	Total population	% population with dental coverage	
Teeth							
Has teeth	63,900,652	50.88	31,618,073	61.46	32,282,579	40.52	
		0.78		0.94		1.16	
Has no teeth	12,621,952	30.21	4,172,789	34.33	8,449,163	28.17	
		0.94		1.56		1.21	
Health status							
Excellent/very good	33,127,770	53.84	17,795,850	64.16	15,331,920	41.88	
		0.80		1.06		1.29	
Good	22,851,838	46.11	10,098,719	59.38	12,753,119	35.61	
		1.06		1.55		1.32	
Fair/poor	20,468,535	38.63	7,868,740	43.71	12,599,795	35.45	
		1.10		1.74		1.28	

Table 1 Continued

* Where low income refers to persons in families with incomes, 101-199 percent of the poverty line; middle income, 201-400 percent of the poverty line; and high income; over 400 percent of the poverty line. Poor persons are at or below 100 percent of the poverty line, including persons in families with negative income.

Note: Persons with missing data for race/ethnicity, education, marital status, and health status are included in the population total but excluded from the respective categories. Persons never in the labor force are classified as not retired.

Source: RAND HRS Data, Version H. Produced by the RAND Center for the Study of Aging, with funding from the National Institute on Aging and the Social Security Administration. Santa Monica, CA (February 2008).

ence was not offset by higher spousal coverage for the retired group compared with the non-retired group.⁴

Table 4 shows the adjusted odds ratio of the probability of having dental care coverage during the year 2006. Overall, estimates from our multivariate model confirm the stability of the bivariate relationship between retirement status and dental coverage controlling for other potentially confounding variables, though it indicates some differences. For instance, when controlling for confounding variables we find that females, widowed older adults, and older adults in poor health are no less likely to have dental coverage than males, married older adults, or older adults in excellent health. We also find that older adults living in a household of three or more and older adults who were never married are no more likely to have dental coverage than married older adults or older adults living alone.

Discussion

Analyses show that being in the labor force is a strong predictor of having dental coverage for older adults between the ages of 51 and 64. Older adults who are retired are less likely to have dental coverage than non-retired older adults in the same age group and partially retired older adults were more

⁴ The small percentage of persons with spousal coverage in the never married category listed their marital status as partnership which was lumped in with the never married category.

likely to have dental coverage than fully retired older adults. Unlike medical care coverage, dental coverage is generally not included in Medicare and minimally provided by Medicaid. For older retired adults no longer in the labor force, the only source for dental coverage is either a postretirement health benefit or spousal coverage.

More than one-third of fully retired older adults have dental coverage and about 68 percent of retired older adults with dental coverage receive their coverage from their own source. Only 23 percent of retired older adults with dental coverage receive their coverage from a spouse.

Non-Hispanic Blacks were more likely to have dental coverage than were non-Hispanic Whites. Although a similar difference had been found in 2004 for the elderly 65 years and over, the unexpected size of the difference observed in the HRS data appears to be driven by the relatively high percentage of non-Hispanic Blacks, classified as covered who had no dental use but expected coverage if they had use (40.0 percent, not shown) compared with the much smaller percentage for White non-Hispanics (18.9 percent, not shown). The racial differences in coverage rates observed in the HRS data may well depend on how realistic these expectations of coverage might be, including differences in perceptions about Medicare coverage of dental services, across racial groups. We note that non-Hispanic Blacks, classified as covered without dental use had a higher percentage of likely dental coverage from public sources than comparable non-Hispanic White (32.7 versus 23.1 percent, not shown)

 Table 2
 Weighted Estimates: (a) Number and Characteristics of Persons Not Retired Age 51 Years and Above in 2006 by Labor Force Status, and (b) Number and Characteristics of Persons Retired Age 51 Years and Above in 2006

(a)						
		Not retired	in labor force	Not retired not in labor force		
Population characteristic	Total population	Total population	% population with dental coverage	Total population	% population with dental coverage	
Total	35,799,754	27,078,401	65.38 0.90	8,721,353	36.25	
Age in years			0.00			
51-64	28,515,290	24,093,960	67.85 0 97	4,421,330	47.21	
65-74	4,363,520	2,602,363	49.03	1,761,157	26.86	
75 and over	2,920,944	382,078	21.28 4.93	2,538,866	2.25 23.68 2.21	
Sex						
Male	15,427,907	14,112,697	65.14 1.08	1,315,210	39.19 3.29	
Female	20,371,847	12,965,704	65.64 1.29	7,406,143	35.73 1.50	
Race						
Black non-Hispanic	3,437,237	2,414,971	69.67	1,022,266	48.00	
Hispanic	3 564 220	2 014 043	1.99	1 5/10 286	30.00	
Tispanic	5,504,225	2,014,945	3 57	1,349,200	J0.90	
White Non-Hispanic	27 649 082	21 793 329	66.67	5 855 753	34 77	
White Worth hispanic	27,013,002	21,733,323	1.03	5,055,755	1.40	
Other	1,140,766	849,504	59.68	291,262	52.61	
Family income*			0.02			
Poor	2,753,722	888,042	35.82	1,865,680	35.98	
Low income	3,885,630	1,705,339	39.23	2,180,291	27.66	
			3.01		2.27	
Middle income	8,160,943	5,775,303	54.75	2,385,640	34.30	
			1.80		2.37	
High income	20,999,459	18,709,717	72.45 1.01	2,289,742	46.68 2.01	
Education						
Some or no school	5,568,401	2,433,549	41.20	3,134,852	30.92	
			2.83		2.31	
High school graduate	20,591,787	15,835,115	63.87	4,756,672	38.26	
			1.06		1.63	
College graduate	9,613,950	8,795,028	74.80	818,922	45.12	
N de side l'adade se			1.59		4.24	
Marital status		10 200 466	(7.00	4 700 400	20.40	
Married	23,990,935	19,200,466	07.88	4,790,469	39.40	
Widowed diversed	0 741 057	E 400 72E	1.08	2 222 122	1.92	
widowed, divorced	0,/41,05/	5,409,725	2.00	5,552,152	29.04	
Nover married	3 050 754	2 463 114	2.00	596 640	2.09	
Nevermanieu	5,059,754	2,405,114	3.17	590,040	5.52	
Family size						
One	5,942,381	3,935,612	59.86	2,006,769	29.25	
			2.60		2.36	
Two	17,517,517	1,3593,565	65.01	3,923,952	35.95	
			1.20		1.64	
Three or more	12,339,856	9,549,224	68.19 1.60	2,790,632	41.70 2.86	

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Table 2 Continued

(a)					
		Not retired	in labor force	Not retired n	ot in labor force
Population characteristic	Total population	Total population	% population with dental coverage	Total population	% population with dental coverage
Teeth status					
Has teeth	31,618,073	24,922,063	67.45	6,696,010	39.16
			0.96		1.61
Has no teeth	4,172,789	2,151,012	41.53	2,021,777	26.68
			2.18		2.37
Health status					
Excellent/very good	17,795,850	15,461,117	68.22	2,334,733	37.25
			1.14		2.39
Good	10,098,719	7,960,774	65.65	2,137,945	36.04
			1.53		2.45
Fair/poor	7,868,740	3,640,278	52.78	4,228,462	35.91
			2.37		1.84

		Fully re	etired only	Partially retired only	
Population characteristic	Total population	Total population	% population with dental coverage	Total population	% population with dental coverage
Total	40,744,115	33,801,606	36.50	6,942,509	44.99
A			1.12		1.59
Age in years	11 COE 074	0 200 705	F 4 00	2 220 170	F 4 7C
51-64	11,625,974	8,396,795	54.00	3,229,179	54.76
	14 742 040	12 070 200	1.83		2.00
65-74	14,743,048	12,070,265	35.83	2,072,783	38.43
7E and over	14 275 002	10 004 E46	1.24	1 040 547	1.97
75 driu over	14,575,095	15,554,540	20.00	1,040,547	2 41
Sov			1.12		5.41
Male	19 488 185	15 606 115	36 59	3 882 070	47.08
Wale	19,400,105	13,000,113	1 29	5,002,070	1 69
Female	21 255 930	18 195 491	36.42	3 060 439	42 33
- emaile	21,200,000	10,100,101	1.29	5,000,155	2.41
Race					
Black non-Hispanic	3,552,018	3,018,565	50.54	533,453	51.25
			2.03		4.70
Hispanic	1,821,023	1,582,033	44.11	238,990	49.81
			2.93		6.65
White non-Hispanic	34,531,096	28,518,834	34.29	6,012,262	44.49
			1.17		1.77
Other	831,834	674,030	49.71	157,804	35.55
			4.97		9.04
Family income*					
Poor	3,301,286	3,039,139	37.77	262,147	48.95
			2.44		8.69
Low income	8,392,918	7,578,406	27.69	814,512	33.89
			1.53		3.40
Middle income	13,956,256	11,932,419	33.07	2,023,837	35.51
			1.68		2.80
High income	15,093,655	1,1251,642	45.72	3,842,013	52.06
			1.20		1.86

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Table 2 Cor	ntinued
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/1- 3

		Fully re	tired only	Partially	Partially retired only	
Population characteristic	Total population	Total population	% population with dental coverage	Total population	% population with dental coverage	
Education						
Some or no school	8,047,163	7,279,706	31.80	767,457	29.11	
			1.72		3.59	
High school graduate	23,880,217	19,979,101	35.86	3,901,116	43.55	
			1.34		2.05	
College graduate	8,780,852	6,506,916	43.78	2,273,936	52.80	
			1.47		2.80	
Marital status						
Married	24,398,041	19,619,320	38.78	4,778,721	47.44	
			1.21		1.96	
Widowed, divorced	13,961,335	12,258,616	32.78	1,702,719	38.85	
			1.41		3.04	
Never married	2,384,739	1,923,670	36.91	461,069	42.25	
			2.58		7.20	
Family size						
One	10,382,719	9,067,928	32.62	1,314,791	39.08	
			1.25		3.43	
Two	23,161,294	18,913,681	36.34	4,247,613	45.75	
			1.14		2.05	
Three or more	7,200,102	5,819,997	43.05	1,380,105	48.26	
			2.39		3.21	
Teeth status						
Has teeth	32,282,579	26,374,030	39.00	5,908,549	47.29	
			1.25		1.69	
Has no teeth	8,449,163	7,415,203	27.66	1,033,960	31.80	
			1.33		3.43	
Health status						
Excellent/very good	15,331,920	11,439,741	39.85	3,892,179	47.82	
		10 667 000	1.44	2 005 424	2.14	
Good	12,753,119	10,667,988	34.58	2,085,131	40.87	
- : /	42 500 705	44 634 596	1.45	0.05 4.00	2.62	
Fair/poor	12,599,795	11,634,596	34.87	965,199	42.47	
			1.33		3.67	

* Where low income refers to persons in families with incomes, 101-199 percent of the poverty line; middle income, 201-400 percent of the poverty line; and high income, over 400 percent of the poverty line. Poor persons are at or below 100 percent of the poverty line, including persons in families with negative income.

Note: Persons with missing data for race/ethnicity, education, marital status, and health status are included in the population total but excluded from the respective categories. Persons never in the labor force are classified as not retired, not in the labor force.

Source: RAND HRS Data, Version H. Produced by the RAND Center for the Study of Aging, with funding from the National Institute on Aging and the Social Security Administration. Santa Monica, CA (February 2008).

and a lower percentage of likely private coverage (52.8 versus 67.6 percent, not shown) than comparable non-Hispanic Whites.

Poor older adults were more likely to have dental coverage than low-income older adults, suggesting that the minimally available Medicaid dental coverage may be reaching some poor older adults.

Some bivariate relationships did not hold up in our multivariate model. For instance, while married older adults, older adults with a larger family, or older adults in excellent health appeared to be more likely to have dental coverage in our bivariate model, these differences disappeared in the multivariate model.

While spousal dental coverage appears to decline with age, age has no effect on the likelihood of obtaining dental coverage from one's own plan. Spousal coverage could decline with age because the likelihood that one's spouse is retired and therefore less likely to be covered by an employer plan increases with age, and also because the likelihood of widowhood increases with age. The decline in spousal coverage as a

Table 3	Weighted Estimates:	Number and Characteristics	of Persons Age 51 Year	s and Above in 2006 with Denta	l Coverage by Sou	irce of Coverage

			Self		Spouse		Source not known		
Population characteristic	Total Population	Total population with coverage	Total population with coverage	Total population with coverage	% population with dental coverage	Total population with coverage	% population with dental coverage	Total population with coverage	Percent population with dental coverage
Total	76,543,869	36,325,340	254,924,09	70.18	8,658,987	23.84	2,173,944	5.98	
Age in years				0.62		0.55		0.33	
51-64	40,141,264	24,736,970	17,179,482	69.45 0.78	6,636,116	26.83 0.71	921,372	3.72 0.37	
65-74	19,106,568	7,100,767	5,103,744	71.88	1,291,947	18.19	705,076	9.93 0.77	
75 and over	17,296,037	4,487,603	3,209,183	71.51 1.55	730,924	16.29 1.17	547,496	12.20 1.27	
Sex									
Male	34,916,092	17,245,880	13,489,236	78.22	2,772,174	16.07 0.79	984,470	5.71	
Female	41,627,777	19,079,460	12,003,173	62.91	5,886,813	30.85	1,189,474	6.23	
				1.02		0.99		0.41	
Race			2 007 000	75.40	F11 COO	12.00	462 261	11 (4	
васк поп-нізрапіс	0,989,255	3,972,020	2,997,969	1 39	511,690	12.88	462,361	0.97	
Hispanic	5,385,252	2,280,784	1,755,515	76.97	372,702	16.34	152,567	6.69	
- F	-,,-	, , .	, ,	1.95		1.60		1.04	
White non-Hispanic	62,180,178	29,018,349	19,953,866	68.76	7,607,204	26.22	1,457,279	5.02	
				0.62		0.54		0.36	
Other	1,972,600	1,051,401	782,273	74.40	167,391	15.92	101,737	9.68 2.72	
Family income*				4.45		5.45		2.72	
Poor	6,055,008	2,265,527	1,831,722	80.85	178,373	7.87	255,432	11.27	
				2.26		1.35		1.58	
Low income	12,278,548	3,646,529	2,597,812	71.24	468,552	12.85	580,165	15.91	
Middle income	22 117 100	9 <i>C 1 1</i> 9 F F	6 170 222	1.59	1 947 016	1.49	627 607	1.3/	
Middle income	22,117,199	0,044,000	0,170,552	1 13	1,647,010	0.98	627,507	0.65	
High income	36,093,114	21,768,429	14,892,543	68.41	6,165,046	28.32	710,840	3.27	
5				0.75		0.70		0.36	
Education									
Some or no school	13,615,564	4,510,011	3,127,968	69.36	758,128	16.81	623,915	13.83	
High school graduate	44 472 004	20 202 002	14 109 252	1.83	E 447 044	1.59	1 151 701	1.25	
	44,472,004	20,797,097	14,190,552	0.81	5,447,044	0.75	1,131,701	0.43	
College graduate	18,394,802	10,997,502	8149475	74.10	2,449,699	22.28	398,328	3.62	
5 5				1.00		0.95		0.48	
Marital status									
Married	48,388,976	24,796,148	15,876,614	64.03	789,6137	31.84	1023,397	4.13	
Widowed diversed	22 202 102	0.014.795	7 222 067	0.69	710 657	0.59	062 161	0.35	
vvidowed, divorced	22,705,192	9,014,765	1,552,907	1 16	/19,05/	7.98	902,101	0.86	
Never married	5,444,493	2,509,311	2,282,828	90.97	43,193	1.72	183,290	7.30	
				1.48		0.80		1.29	
Family size									
One	16,325,100	6,414,239	5,267,921	82.13	521263	8.13	625,055	9.74	
Turo	10 670 011	10.064.750	10 705 501	1.18	E 212 220	U./J	1 005 200	U.9/	
IVVU	40,070,011	19,004,700	12,733,331	0.76	5,525,528	0.67	1,000,090	0.45	
Three or more	19,539,958	10,846,351	7,488,957	69.05	2,814,395	25.95	542,999	5.01	
				1.01		0.99		0.53	

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Table 3 Continue

		Total Total population Population with coverage	Self		Spouse		Source not known	
Population characteristic	Total Population		Total population with coverage	% population with dental coverage	Total population with coverage	% population with dental coverage	Total population with coverage	Percent population with dental coverage
Teeth status								
Has teeth	63,900,652	32,512,761	22,861,972	70.32	8,038,800	24.73	1,611,989	4.96
				0.63		0.58		0.33
Has no teeth	12,621,952	3,812,579	2,630,437	68.99	620,187	16.27	561,955	14.74
				1.74		1.30		1.16
Health status								
Excellent/very good	33,127,770	17,837,372	12,414,386	69.60	4,672,764	26.20	750,222	4.21
				0.79		0.70		0.41
Good	22,851,838	10,538,022	7,440,611	70.61	2,491,311	23.64	606,100	5.75
				0.98		0.87		0.51
Fair/poor	20,468,535	7,906,740	5,603,680	70.87	1,485,438	18.79	817,622	10.34
				1.42		1.06		0.88
Retirement status								
Not retired	35,799,754	20,865,777	14,852,123	71.18	5,153,963	24.70	859,691	4.12
				0.86		0.77		0.43
Retired	40,744,115	15,459,563	10,640,286	68.83	3,505,024	22.67	1,314,253	8.50
				0.80		0.76		0.55

* Where low income refers to persons in families with incomes, 101-199 percent of the poverty line; middle income, 201-400 percent of the poverty line; and high income, over 400 percent of the poverty line. Poor persons are at or below 100 percent of the poverty line, including persons in families with negative income.

Note: Persons with missing data for race/ethnicity, education, marital status, and health status are included in the population total but excluded from the respective categories. Persons never in the labor force are classified as not retired.

Source: RAND HRS Data, Version H. Produced by the RAND Center for the Study of Aging, with funding from the National Institute on Aging and the Social Security Administration. Santa Monica, CA (February 2008).

result of widowhood would be more likely for women as they have longer life expectancies, but we did not stratify our results by gender. In addition, poorer adults were less likely to obtain their dental coverage from a spousal plan and more likely to receive their dental coverage from their own plan than higher-income older adults. If lower-paying jobs provide dental insurance for the worker but not the spouse or dependents, this result would be expected, though we cannot confirm it with the data.

The HRS data are useful, comprehensive, and provide estimates that are nationally representative. Nonetheless, they do have limitations, and analyses of data from different survey sources have historically resulted in national estimates of dental coverage that vary. The self-reporting of data, as is done in the HRS, is less accurate than collection by observation. Further, data available in the HRS do not disaggregate results by benefit plan generosity, or show the extent to which public coverage or individual dental health insurance purchased directly from an insurance company is included. Despite these limitations, the richness of the dataset and importance of dental coverage in an aging population warrants additional study. Future work should explore coverage type and coverage dynamics of older Americans as they transition from fulltime employment to retirement. Health insurance coverage in the 55- to 64-year-old cohort has been shown to be quite volatile, though overall rates of uninsurance are lower than in younger cohorts (10,11). Dental care has been shown to be sensitive to insurance coverage and the price of care, and therefore understanding insurance transition dynamics may help predict the likelihood of pent-up demand and delayed dental care among near-elderly populations (12,13).

Understanding the dynamics of retirement and dental insurance transitions and the associated effect on utilization is particularly important in the current economic climate. It is possible and indeed likely that the economic downturn will affect both the retirement decisions of individuals and the offering of dental benefits to either current or retired workers by firms. In this environment, it is imperative that we better understand the relationship between retirement and dental coverage, including the availability of individual dental health insurance products, in order to identify the best ways of improving oral health and access to care among older Americans.

Population characteristic	Odds ratio	95% Wald confidence limits	
		Low	High
Age			
51-64	Omitted		
65-74	0.492	0.438	0.552
75 and over	0.345	0.308	0.387
Sex			
Male	Omitted		
Female	1.036	0.968	1.109
Ethnic/racial background			
Black non-Hispanic	1.916	1.686	2.177
Hispanic	0.978	0.761	1.256
White	Omitted		
Other	1.147	0.785	1.676
Family income by poverty status*			
Poor	0.504	0.414	0.612
Low income	0.428	0.383	0.479
Middle income	0.569	0.508	0.637
High income	Omitted		
Education			
Some or no school	0.691	0.571	0.836
High school graduate	0.797	0.720	0.882
College graduate	Omitted		
Marital status			
Married	Omitted		
Widowed, divorced	0.971	0.825	1.143
Never married	0.812	0.628	1.051
Family size			
One	Omitted		
Two	0.872	0.749	1.014
Three or more	1.066	0.912	1.245
Teeth status			
Has teeth	Omitted		
Has no teeth	0.691	0.629	0.760
Health status			
Excellent/very good	Omitted		
Good	0.942	0.874	1.016
Fair/poor	0.932	0.831	1.044
Retirement status			
Not retired in labor force	Omitted		
Fully retired	0.747	0.662	0.842
Not retired not in labor force	0.625	0.543	0.718
Partially retired	0.679	0.585	0.789

 Table 4
 Adjusted Odds Ratios with 95% Confidence Intervals for Predictors of Dental Care Coverage During the 2-Year Survey Period, 2006 Health and Retirement Study Estimates

* Where low income refers to persons in families with incomes, 101-199 percent of the poverty line; middle income, 201-400 percent of the poverty line; and high income, over 400 percent of the poverty line. Poor persons are at or below 100 percent of the poverty line, including persons in families with negative income.

Note: Reference groups: Dental Coverage – Age – 51-64; Sex – Male; Race/Ethnicity – White, non-Hispanic; Family income – High income; Education – College graduate; Marital status – Married; Family size – One; Edentulism – Not missing all permanent teeth; Health status – Excellent/very good; Retirement status – Not retired. Persons with missing values for race/ethnicity, education, marital status, edentulism, and health status were omitted from the regression.

Source: RAND HRS Data, Version H. Produced by the RAND Center for the Study of Aging, with funding from the National Institute on Aging and the Social Security Administration. Santa Monica, CA (February 2008).

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