

Supplementary Online Content

Narang AK, Nicholas LH. Out-of-pocket spending and financial burden among Medicare beneficiaries with cancer. *JAMA Oncol*. Published online November 23, 2016. doi:10.1001/jamaoncol.2016.4865

eAppendix. Example of HRS Random Entry Bracketing, Components of Household Income and Wealth

eTable 1. Distribution of Supplemental Insurance by Wealth and Income in Patients Newly Diagnosed With Cancer

eTable 2. Adjusted Out-Of-Pocket Expenditures and Financial Burden in Patients With Cancer, Compared With Patients With Common Noncancer Conditions That Contribute to Mortality in the United States

eTable 3. Mean Out-Of-Pocket Expenditures by Service Category, Stratified by Supplemental Insurance Type

eTable 4. Decedent Characteristics

eTable 5. Adjusted Level Of Out-Of-Pocket Expenditures and Financial Burden in Decedents With Cancer at End of Life, by Type of Supplemental Insurance

eFigure. Relative Contribution of Individual OOP Cost Categories to Total OOP Costs for Decedents With Cancer at End of Life, Stratified by Whether Participants' Total OOP Costs Were At or Above the 90th Percentile

This supplementary material has been provided by the authors to give readers additional information about their work.

eAppendix. Example of HRS Random Entry Bracketing, Components of Household Income and Wealth

Example of HRS random entry bracketing:

As an example, an HRS participant who is unable to report a specific amount of OOP expenditures related to hospital bills may be asked whether the amount was above or below \$1000; if the participant indicates that the amount was below \$1000, the participant is subsequently asked whether the amount was above or below \$500, eventually resulting in a bracketed range.

Components of household income and wealth:

Household income includes earnings, capital income, employer pensions and annuities, Social Security retirement benefits, unemployment benefits, worker's compensation, income from the Social Security and Supplemental Security Income disability program, and other government transfers. Household wealth includes the value of primary and secondary residences, real estate, vehicles, businesses, financial instruments (IRA accounts, stocks, bonds, etc), and all other savings, less the amount of mortgage contracts, other home loans, and other debt.

eTable 1. Distribution of Supplemental Insurance by Wealth and Income in Patients Newly Diagnosed With Cancer

	Medicaid	VA	HMO	ESI	Medigap	None
Mean baseline wealth, \$	102,113	548,520	560,623	708,543	781,702	435,312
Baseline wealth quartile, %	25.9	4.1	17.2	16.0	14.8	22.1
First	7.5	6.6	19.7	25.1	23.1	18.0
Second	2.5	6.7	21.6	33.4	24.2	11.6
Third	1.1	6.5	19.8	35.6	26.5	10.5
Fourth						
Mean income, \$	20,082	71,193	52,434	77,042	64,605	44,767
Income quartile, %						
First	26.7	2.2	17.3	11.9	19.3	22.6
Second	5.7	4.8	22.4	23.3	26.6	17.3
Third	2.4	7.4	21.0	33.8	23.4	12.1
Fourth	1.3	9.3	17.8	41.8	20.3	9.5

Abbreviations: VA, Veterans Administration; ESI, employer-sponsored insurance; HMO, health maintenance organization

eTable 2. Adjusted Out-Of-Pocket Expenditures and Financial Burden in Patients With Cancer, Compared With Patients With Common Noncancer Conditions That Contribute to Mortality in the United States

	Mean ^{a,b}	Median	90 th
<i>Entire population</i>			
OOP expenditures, \$			
Cancer (ref.)	4,690	2,120	10,296
Heart disease	4,870	2,371*	9,747
Dementia	4,427	2,063	10,376
Stroke	4,995	2,280	10,464
Diabetes	4,097	2,147	9,016**
Lung disease	3,970	1,961	8,993**
None	3,507***	1,694***	7,662***
Financial burden, %			
Cancer (ref.)	12.7	5.7	35.7
Heart disease	13.6	7.0*	36.5
Dementia	13.0	5.7	37.5
Stroke	13.8	6.3	38.6
Diabetes	12.4	5.9	34.2
Lung disease	12.3	5.4	30.9**
None	10.7***	4.7**	29.1***
<i>Medicare HMO</i>			
OOP costs, \$			
Cancer (ref.)	4,422	2,136	8,855
Heart disease	3,911	2,233	9,117
Dementia	3,734	2,188	9,137
Stroke	4,356	2,448	10,798*
Diabetes	4,395	2,150	9,738
Lung disease	3,577	1,809	7,336
None	3,228*	1,601**	6,823*
Financial burden, %			
Cancer (ref.)	11.5	6.2	33.7
Heart disease	12.4	6.2	35.4
Dementia	11.8	5.7	31.0
Stroke	13.3	7.8*	37.8*
Diabetes	12.8	6.6	33.9
Lung disease	11.4	5.8	25.7
None	10.2	4.8*	25.4*
<i>Private supplemental insurance</i>			
OOP costs, \$			
Cancer (ref.)	5,176	2,515	10,713
Heart disease	5,545	2,800	10,208
Dementia	4,920	2,673	10,609
Stroke	6,199	2,815	10,661
Diabetes	4,380	2,500	9,586
None	4,421	2,502	9,848

Lung disease	3,970**	2,101**	8,364***
None			
Financial burden, %	12.0	5.5	31.6
Cancer (ref.)	13.2	6.6*	31.4
Heart disease	13.8	6.9*	41.8*
Dementia	14.0	7.4***	33.0
Stroke	11.9	6.2	29.9
Diabetes	12.9	5.8	28.9
Lung disease	10.3*	5.1	26.0*
None			
<i>No supplemental insurance</i>			
OOP costs, \$			
Cancer (ref.)	7,260	3,420	21,557
Heart disease	5,815*	3,252	13,238***
Dementia	6,461*	2,500**	16,312**
Stroke	5,165**	2,878*	12,094***
Diabetes	4,565**	2,454**	10,015***
Lung disease	3,689***	2,220**	9,485***
None	3,831***	1,802***	8,503***
Financial burden, %			
Cancer (ref.)	25.8	12.5	77.1
Heart disease	20.7*	11.0	60.6*
Dementia	19.1*	9.0*	57.4*
Stroke	19.8*	10.1*	57.1*
Diabetes	16.6**	8.8*	46.1***
Lung disease	15.5**	9.1*	46.8**
None	15.0***	7.1***	45.3***

^a * $P < .05$, ** $P < .01$, *** $P < .001$

^b Values represent estimates from multivariable generalized linear regression or quantile regression models. Regression models adjusted for age, sex, race, ethnicity, education, marital status, geographic region, self-assessed health, co-morbidities, smoking status, baseline wealth quartile (only for OOP expenditures), and survey wave.

Abbreviations: OOP, out-of-pocket; ref, reference category for regression analysis; HMO, health maintenance organization

eTable 3. Mean Out-Of-Pocket Expenditures by Service Category, Stratified by Supplemental Insurance Type

Insurance type	Inpatient hospitalization ^a	Prescription drugs	Dental	Physician/ clinic visits	Outpatient surgery	Home health/ other
Medicaid (ref.)	242	58	308	446	63	180
VA	355	130	750**	246	75	1,632**
Medicare HMO	1,024**	657**	453	364	99	245
Employer-sponsored	1,050**	452**	1203**	1,004*	399*	108
Medigap	738**	581**	900**	444	216*	407
None	2,982***	321**	859**	1,663*	499**	42

^a * $P < .05$, ** $P < .01$, *** $P < .001$, all numerical values represent dollar amounts

Abbreviations: ref, reference category; VA, Veterans' Administration; HMO, health maintenance organization

eTable 4. Decedent Characteristics

Characteristics	Non-cancer^{a,b} (N=4,818)	Cancer (N=1,489)	P Value
Median age, yrs (IQR)	83 (77-90)	79 (73-86)	<.001
Female, %	56.8	47.5	<.001
Race, %			.10
Caucasian	82.1	83.5	
Black	14.9	14.5	
Other	3.0	2.0	
Hispanic ethnicity, %	7.3	4.8	.001
Education			.005
Less than high school	40.1	35.5	
High school grad	32.9	33.8	
Some college	15.5	16.9	
College graduate	11.6	13.8	
Marital status, %			<.001
Married	36.0	50.7	
Separated/divorced	8.9	9.6	
Widowed	51.7	36.7	
Single	3.3	3.0	
Geographic region ^b , %			.58
New England	6.0	5.0	
Mid-Atlantic	11.3	11.9	
East North Central	16.8	16.7	
West North Central	8.0	8.3	
South Atlantic	26.7	28.2	
East South Central	4.8	5.3	
West South Central	11.3	11.3	
Mountain	4.4	3.7	
Pacific	10.8	9.5	
Co-morbidity			
Hypertension	70.0	61.5	<.001
Diabetes	29.2	24.5	<.001
Lung disease	24.7	26.3	.24
Heart disease	59.3	43.3	<.001
Stroke	31.1	18.7	<.001
Psychiatric	25.5	18.2	<.001
Arthritis	73.6	68.1	<.001
Active smoker	11.9	19.3	<.001
Insurance type			<.001
Medicaid	27.4	17.1	
VA	4.3	5.6	
Medicare HMO	13.8	16.9	
Employer-sponsored	16.8	20.8	
Medigap	24.4	27.0	
None	13.4	12.8	

^a $P < .05$, ** $P < .01$, *** $P < .001$

^b Geographic regions: New England (ME, NH, VT, MA, RI, CT), Mid-Atlantic (NY, NJ, PA), East North Central (OH, IL, IN, MI, WI), West North Central (MN, IA, MO, ND, SD, NE, KA), South Atlantic (DE, MD, DC, VA, WV, NC, SC, GA, FL), East South Central (KY, TN, AL, MS), West South Central (AR, LA, OK, TK), Mountain (MT, ID, WY, CO, NM, AZ, UT, NV), Pacific (WA, OR, CA, AK, HI)

Abbreviations: IQR, inter-quartile region; VA, Veterans Administration; HMO, health maintenance organization

eTable 5. Adjusted Level Of Out-Of-Pocket Expenditures and Financial Burden in Decedents With Cancer at End of Life, by Type of Supplemental Insurance

	Mean^{a,b}	Median	90th
OOP expenditures, \$			
Medicaid (ref.)	3,669	991	13,324
VA	6,132*	895	14,304
Medicare HMO	7,097**	2,028**	15,147
Employer-sponsored	7,109**	1,869*	17,215
Medigap	7,493***	2,205**	19,100**
None	8,331***	3,789***	21,400***
Financial burden ^c , %			
Medicaid (ref.)	13.5	2.4	46.9
VA	13.7	3.6	57.3
Medicare HMO	18.8*	6.3*	59.8
Employer-sponsored	15.6	5.5*	57.4
Medigap	20.4**	6.5**	71.9*
None	28.1***	11.9***	73.0*

^a $P < .05$, ** $P < .01$, *** $P < .001$

^b Values represent estimates from multivariable generalized linear regression or quantile regression models. Regression models adjusted for age, sex, race, ethnicity, education, marital status, geographic region, co-morbidities, smoking status, baseline wealth quartile (OOP expenditures only), and survey wave.

^c Financial burden = OOP expenditures/total household income

Abbreviations: ref, reference category for regression analysis; VA, Veterans Administration; HMO, health maintenance organization

eFigure. Relative Contribution of Individual OOP Cost Categories to Total OOP Costs for Decedents With Cancer at End of Life, Stratified by Whether Participants' Total OOP Costs Were At or Above the 90th Percentile

