

SUPPLEMENTARY MATERIALS

Supplementary Table 1. National Health Interview Survey measures of medical financial hardship consistently collected 1997-2014

	Measures	Universe	Question
Financial hardship	Delayed medical care	All persons	DURING THE PAST 12 MONTHS, has medical care been delayed for {person} because of worry about the cost? (Do not include dental care) Response category: Yes or No
	Forgone medical care		DURING THE PAST 12 MONTHS, was there any time when {person} needed medical care, but did not get it because {person} couldn't afford it? Response category: Yes or No
	Unable to afford prescription medicines	Sample adults 18 years or older	DURING THE PAST 12 MONTHS, was there any time when you needed any of the following, but didn't get it because you couldn't afford it? Prescription medicines Response category: Yes or No
	Unable to afford mental health care		DURING THE PAST 12 MONTHS, was there any time when you needed any of the following, but didn't get it because you couldn't afford it? Mental health care or counseling Response category: Yes or No
	Unable to afford dental care		DURING THE PAST 12 MONTHS, was there any time when you needed any of the following, but didn't get it because you couldn't afford it? Dental care (including check-ups) Response category: Yes or No

Supplementary Table 2. Association of Financial Hardship with Mortality among Cancer Survivors (restricted to those diagnosed >5 years) with Sequential Adjustment for Health Insurance Coverage

Sample characteristics ^a	Adjusted Model		Adjusted Model + Health Insurance	
	HR (95% CI)	P-value ^b	HR 95% CI	P-value ^b
Ages 18-64 years (n = 7,946)				
Financial hardship ^c within 12 months of survey				
Financial hardship	1.20 (1.01, 1.43)	0.04	1.13 (0.93, 1.37)	0.23
No financial hardship	Ref		Ref	
Health insurance coverage	–	–		
Public only	–	–	1.67 (1.37, 2.04)	<.001
Uninsured or missing	–	–	1.11 (0.84, 1.47)	0.47
Any private	–	–	Ref	
Time since diagnoses				
>5 years and ≤10 years	Ref		Ref	
≥10 years	1.18 (0.99, 1.40)	0.06	1.18 (0.99, 1.41)	0.06
Selected cancer sites				
Prostate	0.49 (0.29, 0.83)	0.007	0.49 (0.29, 0.84)	0.009
Colorectal	1.06 (0.68, 1.67)	0.79	1.05 (0.67, 1.65)	0.84
Others	1.25 (1.00, 1.57)	0.05	1.24 (0.99, 1.55)	0.06
Female breast	Ref		Ref	
Number of cancers diagnosed				
≥2 cancers	1.78 (1.36, 2.32)	<.001	1.66 (1.27, 2.18)	<.001
Only 1 cancer	Ref		Ref	
Number of health conditions ^d				
1 condition	1.02 (0.85, 1.23)	0.81	1.00 (0.83, 1.21)	0.98
2 conditions	1.33 (1.06, 1.68)	0.01	1.24 (0.98, 1.58)	0.07
≥3 conditions	1.80 (1.41, 2.28)	<.001	1.62 (1.27, 2.06)	<.001
0 conditions	Ref		Ref	
Sex				
Female	0.59 (0.49, 0.72)	<.001	0.60 (0.50, 0.73)	<.001
Male	Ref		Ref	
Race and ethnicity				
Asian and others ^e	1.19 (0.74, 1.90)	0.48	1.12 (0.70, 1.79)	0.63
Hispanic	0.87 (0.62, 1.21)	0.40	0.81 (0.59, 1.13)	0.22
Non-Hispanic Black	1.14 (0.89, 1.46)	0.29	1.07 (0.83, 1.38)	0.60
Non-Hispanic White	Ref		Ref	
Current marital status				
Not married ^f	1.54 (1.32, 1.80)	<.001	1.42 (1.21, 1.66)	<.001
Married	Ref		Ref	
Education				

Less than high school	1.55 (1.26, 1.92)	<.001		1.40 (1.12, 1.75)		0.003
High school graduate	1.32 (1.11, 1.58)	0.002		1.28 (1.07, 1.53)		0.007
Some college or more	Ref			Ref		
Era						
1997-2000	Ref			Ref		
2001-2005	0.92 (0.77, 1.09)	0.32		0.90 (0.76, 1.08)		0.26
2006-2009	0.63 (0.49, 0.80)	<.001		0.61 (0.48, 0.78)		<.001
2010-2014	0.47 (0.36, 0.61)	<.001		0.45 (0.35, 0.58)		<.001
Region						
Midwest	0.96 (0.75, 1.24)	0.77		0.96 (0.74, 1.23)		0.72
South	1.07 (0.84, 1.36)	0.58		1.05 (0.82, 1.33)		0.70
West	0.92 (0.71, 1.19)	0.50		0.87 (0.67, 1.14)		0.31
Northeast	Ref			Ref		
Ages 65-79 years (n = 6,311)						
Financial hardship ^c within 12 months of survey						
Financial hardship	1.18 (0.99, 1.41)	0.06		1.18 (0.99, 1.41)		0.07
No financial hardship	Ref			Ref		
Health insurance coverage						
Medicare Advantage/HMO	–	–		0.96 (0.83, 1.11)		0.55
Medicare and other public	–	–		0.89 (0.70, 1.14)		0.36
Medicare only/other	–	–		1.09 (0.89, 1.33)		0.43
Medicare and private	–	–		Ref		
Time since diagnoses						
>5 years and ≤10 years	Ref			Ref		
≥10 years	1.06 (0.94, 1.20)	0.32		1.06 (0.94, 1.19)		0.34
Selected cancer sites						
Prostate	0.82 (0.65, 1.03)	0.09	0.82	0.65	1.03	0.08
Colorectal	0.74 (0.58, 0.94)	0.01	0.74	0.58	0.94	0.01
Others	1.26 (1.08, 1.46)	0.004	1.25	1.07	1.46	0.004
Female breast	Ref			Ref		
Number of cancers diagnosed						
2 or 3 cancers	1.22 (0.96, 1.55)	0.11	1.22	0.96	1.55	0.11
Only 1 cancer	Ref			Ref		
Number of health conditions ^d						
1 condition	1.12 (0.96, 1.32)	0.15		1.12 (0.96, 1.32)		0.16
2 conditions	1.45 (1.23, 1.71)	<.001		1.45 (1.22, 1.71)		<.001
≥3 conditions	2.05 (1.74, 2.41)	<.001		2.04 (1.73, 2.40)		<.001
0 conditions	Ref			Ref		
Sex						

Female	0.67 (0.58, 0.77)	<.001	0.67 (0.58, 0.77)	<.001
Male	Ref		Ref	
Race/ethnicity				
Asian and others ^e	0.75 (0.47, 1.20)	0.23	0.75 (0.47, 1.19)	0.22
Hispanic	0.64 (0.45, 0.90)	0.01	0.63 (0.44, 0.89)	0.008
Non-Hispanic Black	1.15 (0.95, 1.39)	0.17	1.13 (0.93, 1.37)	0.21
Non-Hispanic White	Ref		Ref	
Current marital status				
Not married ^f	1.18 (1.05, 1.33)	0.006	1.17 (1.04, 1.32)	0.01
Married	Ref		Ref	
Education				
Less than high school	1.23 (1.06, 1.42)	0.007	1.22 (1.05, 1.41)	0.01
High school graduate	1.17 (1.02, 1.35)	0.03	1.17 (1.02, 1.35)	0.03
Some college or more	Ref		Ref	
Survey Era (years)				
1997-2000	Ref		Ref	
2001-2005	0.99 (0.88, 1.11)	0.82	0.98 (0.87, 1.10)	0.71
2006-2009	0.82 (0.68, 0.98)	0.03	0.81 (0.68, 0.97)	0.02
2010-2004	0.61 (0.51, 0.74)	<.001	0.61 (0.50, 0.74)	<.001
Region				
Midwest	0.99 (0.83, 1.19)	0.94	0.99 (0.83, 1.19)	0.94
South	1.01 (0.86, 1.18)	0.92	1.00 (0.85, 1.17)	0.99
West	0.91 (0.75, 1.09)	0.30	0.91 (0.75, 1.10)	0.32
Northeast	Ref		Ref	

^aData from 1997-2014 National Health Interview Survey (NHIS) linked to NHIS Mortality Files with vital status through December 31, 2015. All models used age as the time scale and adjusted for financial hardship measure, time since diagnosis, major cancer site, multiple cancer status, number of health conditions, sex, race and ethnicity, marital status, educational attainment, survey year, and region. CI = confidence interval. HMO= health maintenance organization. Ref=reference category.

^bTwo-sided test of statistical significance of differences in hazards from multivariable Cox proportion hazards model

^cFinancial hardship in past 12 months measured as problems affording prescription medicine, mental health care/counseling, or dental care or delaying or forgoing any medical care due to cost (**Supplementary Table 1** lists exact wording of questions).

^dConditions included arthritis, asthma, cancer, diabetes, emphysema, heart disease (angina, coronary heart disease, heart attack, other heart condition/disease), high cholesterol, hypertension, and stroke.

^eOther race and ethnicity includes Native American and Alaska Natives, multiple races, Hispanic Black, and unknown race and/or ethnicity.

^fNot married includes widowed, divorced, separated, or never married.

Supplementary Table 3 . Sensitivity Analysis for Robustness of Associations between Medical Financial Hardship and Mortality to Unmeasured Confounding

Cancer survivor group	Adjusted Model	Adjusted Model + Health Insurance
	E-value ^a Point estimate (Upper CI)	E-value ^a Point estimate (Upper CI)
Age 18-64 years, all cancer survivors	1.604 (1.258)	1.415 (1.000)
Age 18-64 years, cancer survivors >5 years after diagnosis	1.683 (1.078)	1.508 (1.000)
Age 65-79 years, all cancer survivors	1.547 (1.152)	1.566 (1.184)
Age 65-79 years, cancer survivors >5 years after diagnosis	1.648 (1.000)	1.647 (1.000)

^aThe E-value represents the minimum strength of association, that an unmeasured confounder would need to have with both the treatment and outcome to fully explain a specific treatment– outcome association, conditional on the measured covariates. In models where the upper confidence interval (CI) includes 1.0, unmeasured confounding could explain the observed associations.