

Supplementary Online Content

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eTable 1. Participant Characteristics

eTable 2. Health Care Accessibility Issues in the Previous 12 Months for Cancer Survivors and Control Respondents

eTable 3. Health Care Affordability Issues in the Previous 12 Months for Cancer Survivors and Control Respondents

eTable 4. Ability to Afford All Six Health Care Services in the Previous 12 Months for Cancer Survivors and Control Respondents

eTable 5. Questions Related to Healthcare Access and Affordability from the National Health Interview Survey (NHIS)

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

Supplemental Table 1. Participant Characteristics

Characteristic	Cancer Survivors*	Control Respondents*	P*
	N=15,182	N=15,182	
	%	%	
Age in years			
18 to <40	7.0%	7.3%	[ref]
40 to <50	9.6%	10.1%	0.96
50 to <65	32.0%	32.9%	0.86
65 to <80	36.2%	35.4%	0.36
80+	15.2%	14.5%	0.24
Sex			<0.0001
Female	59.8%	54.9%	
Male	40.2%	45.1%	
Race			
White	86.5%	81.8%	[ref]
African-American	8.7%	11.1%	<0.0001
Other	4.8%	7.0%	<0.0001
Hispanic Ethnicity	6.7%	10.8%	<0.0001
Married	57.8%	57.7%	0.85
Year of NHIS Survey			
2010	13.9%	14.1%	[ref]
2011	13.4%	15.0%	0.11
2012	13.7%	15.1%	0.15
2013	14.3%	14.3%	0.89
2014	13.9%	13.3%	0.31
2015	14.8%	12.7%	0.006
2016	16.1%	15.5%	0.41
Region			
South	36.8%	36.8%	[ref]
Northeast	18.1%	18.4%	0.83
Midwest	24.4%	22.8%	0.30
West	20.7%	22.0%	0.30
Education			
Less than High School	13.6%	16.6%	<0.0001
Graduated High School/GED	28.5%	28.2%	0.31
More than High School	57.9%	55.2%	[ref]
Working for pay	31.4%	38.3%	<0.0001
Paid sick leave	59.4%	57.1%	0.0024
Household Income			
Under \$25,000/year	36.4%	34.1%	0.58
\$25,000 to \$54,999/year	32.3%	35.5%	0.04
\$55,000/year and up	31.3%	30.4%	[ref]
Insurance information			
Insured	94.8%	92.2%	<0.0001
Among those with insurance:			
Government-Sponsored Insurance	44.3%	38.8%	<0.0001
Private Health Insurance	57.5%	58.8%	0.14
Years since cancer diagnosis			
0-1	14.2%	N/A	

2-5	26.3%	N/A	
6-10	21.3%	N/A	
11-15	14.4%	N/A	
16+	23.8%	N/A	
Cancer Type¹			
Prostate	39.1%	N/A	
Breast	23.8%	N/A	
Cervical	14.0%	N/A	
Melanoma	9.8%	N/A	
Uterine	9.3%	N/A	
Colon	8.0%	N/A	
Ovarian	5.4%	N/A	
Lymphoma	4.2%	N/A	
Lung	3.9%	N/A	
Thyroid	3.8%	N/A	
Kidney	3.1%	N/A	
Testicular	3.1%	N/A	
Leukemia	1.7%	N/A	
Throat-pharynx	1.2%	N/A	
Bone	1.1%	N/A	
Liver	1.1%	N/A	
Brain	1.0%	N/A	
Other ²	11.3%	N/A	

* The total number of participants in the NHIS sample adult public use files from the 2010-2016 surveys is 232,650. After applying the study cohort inclusion/exclusion criteria, the sample size is 225,802, including 15,182 cancer survivors. After matching on age within one year, the total cohort sample size is 30,364 (15,182 cancer survivors, 15,182 control respondents).

* P-values from unadjusted binary logistic regression models.

¹ Percentages may add up to over 100% because each cancer type is a separate yes/no question and respondents may have had more than one cancer.

² Includes cancers of the rectum, stomach, pancreas, soft tissue, blood, esophagus, mouth/tongue/lip, larynx-windpipe, and gallbladder. Does not include skin (non-melanoma) cancers.

Supplemental Table 2: Health Care Accessibility Issues in the Previous 12 Months for Cancer Survivors and Control Respondents

Model Outcome Variable ¹	Medical care delayed			Needed but not get medical care		
	OR	95% CI	P	OR	95% CI	P
Cancer Survivors vs Control Respondents	1.38	1.16-1.63	0.0003	1.76	1.45-2.12	<0.0001
Age (years)						
18 to <40	-	-	-	-	-	-
40 to <50	1.27	0.96-1.67	0.0961	1.25	0.91-1.73	0.1768
50 to <65	1.01	0.80-1.28	0.9302	0.90	0.68-1.19	0.4580
65 to <80	0.27	0.19-0.37	<0.0001	0.20	0.13-0.32	<0.0001
80+	0.39	0.12-1.23	0.1078	0.20	0.04-1.03	0.0540
Female sex	1.24	1.04-1.48	0.0188	1.26	1.02-1.57	0.0314
Race						
White	-	-	-	-	-	-
Black	0.92	0.72-1.17	0.4856	1.19	0.91-1.55	0.2089
Other	0.78	0.57-1.06	0.1153	0.85	0.58-1.24	0.3882
Hispanic ethnicity	0.74	0.55-0.99	0.0413	0.99	0.71-1.37	0.9353
Not married	2.28	1.92-2.72	<0.0001	2.24	1.83-2.75	<0.0001
Year of NHIS Survey						
2010	-	-	-	-	-	-
2011	1.11	0.83-1.48	0.4885	1.17	0.82-1.66	0.3941
2012	1.00	0.76-1.31	0.9830	1.00	0.71-1.42	0.9826
2013	1.07	0.80-1.437	0.6531	1.08	0.73-1.58	0.7097
2014	0.93	0.66-1.31	0.6834	1.13	0.77-1.65	0.5470
2015	0.89	0.65-1.21	0.4534	1.01	0.72-1.42	0.9550
2016	0.99	0.72-1.35	0.9247	1.03	0.70-1.53	0.8709
Region						
South	-	-	-	-	-	-
Northeast	0.84	0.65-1.09	0.1990	0.84	0.59-1.21	0.3467
Midwest	1.08	0.87-1.33	0.4985	1.04	0.82-1.33	0.7335
West	1.27	1.00-1.60	0.0463	1.18	0.91-1.54	0.2110
Education						
Less than High School	0.90	0.65-1.24	0.5197	0.87	0.60-1.27	0.4756
Graduated High School/GED	0.71	0.58-0.87	0.0010	0.78	0.63-0.97	0.0249
More than High School	-	-	-	-	-	-
Not working for pay	1.08	0.87-1.34	0.4775	0.99	0.78-1.25	0.9158
No paid sick leave	1.41	1.15-1.72	0.0011	1.19	0.95-1.49	0.1285
Household Income						
Under \$25,000	2.99	2.29-3.90	<0.0001	3.95	2.74-5.69	<0.0001
\$25-55,000	2.08	1.62-2.66	<0.0001	2.65	1.90-3.70	<0.0001
\$55,000 and above	-	-	-	-	-	-
Insurance²						
Government-sponsored	0.24	0.17-0.33	<0.0001	0.22	0.15-0.31	<0.0001
Private	0.22	0.18-0.28	<0.0001	0.15	0.12-0.19	<0.0001

¹ Models adjusted for age, sex, race, ethnicity, marital status, survey year, region, education, employment, paid sick leave status, household income, and insurance type.

² Government-sponsored insurance reference group is no government-sponsored insurance; Private insurance reference group is no private insurance.

Supplemental Table 3: Health Care Affordability Issues in the Previous 12 Months for Cancer Survivors and Control Respondents

Model Outcome Variable ¹	Unable to afford prescription medication			Unable to afford at least one of six services [#]		
	OR	95% CI	P	OR	95% CI	P
Cancer Survivors vs Control Respondents	1.77	1.46-2.14	<0.0001	1.46	1.27-1.68	<0.0001
Age (years)						
18 to <40	-	-	-	-	-	-
40 to <50	1.35	1.01-1.80	0.0408	1.10	0.87-1.38	0.4387
50 to <65	0.93	0.71-1.21	0.5808	0.92	0.76-1.13	0.4254
65 to <80	0.37	0.25-0.54	<0.0001	0.33	0.25-0.43	<0.0001
80+	0.28	0.08-1.03	0.0544	0.16	0.05-0.49	0.0015
Female sex	1.39	1.14-1.69	0.0013	1.34	1.16-1.56	<0.0001
Race						
White	-	-	-	-	-	-
Black	1.16	0.91-1.48	0.2191	0.98	0.80-1.19	0.8066
Other	0.91	0.64-1.29	0.5824	0.88	0.67-1.15	0.3380
Hispanic ethnicity	1.02	0.74-1.48	0.9246	1.02	0.81-1.28	0.8644
Not married	1.67	1.39-2.01	<0.0001	1.74	1.51-1.99	<0.0001
Year of NHIS Survey						
2010	-	-	-	-	-	-
2011	0.93	0.68-1.26	0.6315	1.08	0.85-1.36	0.5333
2012	0.70	0.50-0.99	0.0419	0.95	0.75-1.21	0.6984
2013	0.79	0.59-1.07	0.1212	0.96	0.75-1.23	0.7375
2014	0.72	0.49-1.05	0.0907	0.83	0.65-1.07	0.1551
2015	0.55	0.38-0.80	0.0017	0.78	0.60-1.02	0.0654
2016	0.62	0.43-0.89	0.0104	0.83	0.65-1.07	0.1594
Region						
South	-	-	-	-	-	-
Northeast	0.77	0.58-1.01	0.0575	0.77	0.61-0.97	0.0277
Midwest	0.82	0.66-1.02	0.0796	0.86	0.72-1.02	0.0859
West	0.73	0.57-0.95	0.0171	1.06	0.88-1.28	0.5108
Education						
Less than High School	1.18	0.88-1.57	0.2762	1.14	0.90-1.44	0.2666
Graduated High School/GED	1.20	0.97-1.50	0.0993	1.00	0.84-1.19	0.9837
More than High School	-	-	-	-	-	-
Not working for pay	1.28	1.04-1.59	0.02124	1.08	0.92-1.27	0.3703
No paid sick leave	1.27	1.02-1.57	0.0293	1.25	1.06-1.48	0.0074
Household Income						
Under \$25,000	3.72	2.61-5.29	<0.0001	4.03	3.19-5.10	<0.0001
\$25-55,000	2.51	1.79-3.52	<0.0001	2.37	1.91-2.93	<0.0001
\$55,000 and above	-	-	-	-	-	-
Insurance²						
Government-sponsored	0.37	0.28-0.49	<0.0001	0.52	0.41-0.66	<0.0001
Private	0.29	0.24-0.36	<0.0001	0.33	0.27-0.39	<0.0001

¹ Models adjusted for age, sex, race, ethnicity, marital status, survey year, region, education, employment, paid sick leave status, household income, and insurance type.

² Government-sponsored insurance reference group is no government-sponsored insurance; Private insurance reference group is no private insurance.

Unable to afford at least one of the following: medications, follow-up care, specialist care, mental health care, dental care, eyeglasses.

Supplemental Table 4: Ability to Afford All Six Health Care Services in the Previous 12 Months for Cancer Survivors and Control Respondents

Model Outcome Variable ¹	Able to afford all six services [#]		
	OR	95% CI	P
Cancer Survivors vs Control Participants	0.68	0.60-0.79	<0.0001
Age (years)			
18 to <40	-	-	-
40 to <50	0.91	0.73-1.15	0.4387
50 to <65	1.09	0.89-1.33	0.4254
65 to <80	3.06	2.36-3.97	<0.0001
80+	6.40	2.04-20.09	0.0015
Female sex	0.74	0.64-0.86	<0.0001
Race			
White	-	-	-
Black	1.03	0.84-1.25	0.8066
Other	1.14	0.87-1.49	0.3380
Hispanic ethnicity	0.98	0.78-1.23	0.8644
Not married	0.58	0.50-0.66	<0.0001
Survey year			
2010	-	-	-
2011	0.93	0.74-1.17	0.5333
2012	1.05	0.83-1.33	0.6984
2013	1.04	0.82-1.33	0.7375
2014	1.20	0.93-1.55	0.1551
2015	1.28	0.98-1.68	0.0654
2016	1.20	0.93-1.55	0.1594
Region			
South	-	-	-
Northeast	1.30	1.03-1.63	0.0277
Midwest	1.16	0.98-1.38	0.0859
West	0.94	0.78-1.13	0.5108
Education			
Less than High School	0.88	0.70-1.11	0.2666
Graduated High School/GED	1.00	0.84-1.19	0.9837
More than High School	-	-	-
Not working for pay	0.93	0.79-1.09	0.3703
No paid sick leave	0.80	0.68-0.94	0.0074
Household Income			
Under \$25,000	0.25	0.20-0.31	<0.0001
\$25-55,000	0.42	0.34-0.52	<0.0001
\$55,000 and above	-	-	-
Insurance²			
Government-sponsored	1.94	1.53-2.46	<0.0001
Private	3.05	2.54-3.66	<0.0001

¹ Model adjusted for age, sex, race, ethnicity, marital status, survey year, region, education, employment, paid sick leave status, household income, and insurance type.

² Government-sponsored insurance reference group is no government-sponsored insurance; Private insurance reference group is no private insurance

Able to afford all of the following: medications, follow-up care, specialist care, mental health care, dental care, eyeglasses.

Supplemental Table 5. Questions Related to Healthcare Access and Affordability from the National Health Interview Survey (NHIS)

Variables *	description	Name	File
Medical care delayed previous 12 months	DURING THE PAST 12 MONTHS, has medical care been delayed for [person] because of worry about the cost? (Do not include dental care)	PDMED12M	person file
Need and not get medical care previous 12 months	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?	PNMED12M	person file
No usual place to go when sick	Is there a place that you USUALLY go to when you are sick or need advice about your health?	AUSUALPL	sample adult file
No usual place for routine/preventive care	What kind of place do you USUALLY go to when you need routine or preventive care, such as a physical examination or check-up?	AHCPLKND	sample adult file
Unable to pay medical bills	In the past 12 months did [fill1: you/anyone in the family] have problems paying or were unable to pay any medical bills? Include bills for doctors, dentists, hospitals, therapists, medication, equipment, nursing home or home care.	MEDBILL	person file
Not able to afford the previous 12 months:			
prescription medication	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	AHCAFYR1 or AHCAFY_1	sample adult file
follow-up 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...Follow-up care.	AHCAFYR6	sample adult file
specialist 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?...To see a specialist	AHCAFYR5	sample adult file
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	AHCAFYR2	sample adult file
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)	AHCAFYR3	sample adult file
eyeglasses	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? Eyeglasses	AHCAFYR4	sample adult file
Worried paying medical bills if sick/had an accident	If you get sick or have an accident, how worried are you that you will be able to pay your medical bills? Are you very worried, somewhat worried, or not at all worried?	AWORPAY	sample adult file
Skipped medication doses to save money	DURING THE PAST 12 MONTHS, were any of the following true for you?...You skipped medication doses to save money	ARX12_1	sample adult file
Took less medication to save money	DURING THE PAST 12 MONTHS, were any of the following true for you?...you took less medicine to save money	ARX12_2	sample adult file
Delayed filling prescription to save money	DURING THE PAST 12 MONTHS, were any of the following true for you?...You delayed filling a prescription to save money	ARX12_3	sample adult file
Asked doctor for lower cost medicine	DURING THE PAST 12 MONTHS, were any of the following true for you?...You asked your doctor for a lower cost medication to save money.	ARX12_4	sample adult file
Used alternative therapies to save money	DURING THE PAST 12 MONTHS, were any of the following true for you?...You used alternative therapies to save money.	ARX12_6	sample adult file

* NHIS data from 2010 to 2016 obtained from website of the National Center for Health Statistics (<https://www.cdc.gov/nchs/nhis/data-questionnaires-documentation.htm>)