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Changes in Health Insurance Coverage Associated With the Affordable Care Act Among Adults With and Without a Cancer History:

Population-based National Estimates

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Abstract

Background: The Affordable Care Act (ACA) improved health care coverage accessibility by expanding Medicaid eligibility, creating insurance Marketplaces, and subsidizing premiums. We examine coverage changes associated with ACA implementation, comparing adults with and without a cancer history.

Methods: We included nonelderly adults from the 2012 to 2015 National Health Interview Survey. Using information on state Medicaid policies (2013), expansion decisions (2015), family structure, income, insurance offers, and current coverage, we assigned adults in all 4 years to mutually exclusive eligibility categories including: Medicaid-eligible pre-ACA; expansion eligible for Medicaid; and Marketplace premium subsidy eligible. Linear probability regressions estimated pre-post (2012–2013 vs. 2014–2015) coverage changes by eligibility category, stratified by cancer history.

Results: The uninsured rate for cancer survivors decreased from 12.4% to 7.7% ($P < 0.001$) pre-post ACA implementation. Relative to income $> 400\%$ of the federal poverty guideline, the uninsured rate for cancer survivors decreased by an adjusted 8.4 percentage points [95%

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confidence interval (CI), 1.3–15.6] among pre-ACA Medicaid eligible; 16.7 percentage points (95% CI, 9.0–24.5) among expansion eligible, and 11.3 percentage points (95% CI, –0.8 to 23.5, with a trend $P=0.069$) for premium subsidy eligible. Decreases in uninsured among expansion-eligible adults without a cancer history [9.7 percentage points (95% CI, 7.4–12.0), were smaller than for cancer survivors (with a trend, $P=0.086$)]. Despite coverage gains, ~528,000 cancer survivors and 19.1 million without a cancer history remained uninsured post-ACA, yet over half were eligible for Medicaid or subsidized Marketplace coverage.

Conclusions: ACA implementation was associated with large coverage gains in targeted expansion groups, including cancer survivors, but additional progress is needed.

Keywords

insurance; health care reform; eligibility; medicaid; cancer survivors

Lack of health insurance is associated with a variety of adverse health outcomes.^{1,2} A cancer diagnosis may compound these challenges as cancer survivors may face increased need for diagnostic, therapeutic, and supportive care services across multiple settings. Lack of insurance among cancer survivors has been associated with worse access to guideline-consistent therapy,³ high out-of-pocket burdens,⁴ reduced access to surveillance,⁵ and increased morbidity and mortality.⁶ Ensuring access to insurance coverage for cancer survivors is of critical importance to improve cancer-related outcomes. Before the enactment of the Affordable Care Act (ACA), an estimated 14.7% of cancer survivors aged below 65 years (1.4 million) lacked insurance.⁷ This situation is largely due to loss of employment-based insurance and/or because of unavailable or unaffordable health insurance in the individual market due to history of cancer.^{8,9} Most state Medicaid programs provided coverage only for adults with dependent children, low-income seniors, pregnant women, and the disabled,¹⁰ and because most cancer survivors are not of child bearing age¹¹ relatively few qualified on this basis. State Medicaid programs provided coverage for treatment of breast or cervical cancer, but coverage was limited in scope and duration.¹²

Several ACA coverage provisions implemented in January 2014, were intended to increase demand, and improve access to health insurance, including insurance for cancer survivors.¹³ The ACA established health insurance Marketplaces which offer individual plans with standard levels of coverage and provide income-based tax credits to reduce premiums and cost-sharing subsidies. The ACA also prohibited basing premium prices on health history in many private insurance markets. Potentially most important, the ACA expanded Medicaid to adults without dependent children at higher incomes. Although 5 states plus Washington, DC undertook early expansions (between 2010 and 2012) as permitted by the ACA or through a Section 1115 waiver, 19 states¹⁴ implemented Medicaid expansions in 2014, with an additional 7 states joining by 2016.¹⁰ Among uninsured cancer survivors aged below 65 years, an estimated 31% would be eligible for tax credits to purchase insurance in the Marketplaces and another 30% would become Medicaid-eligible under the ACA.⁷ The ACA included an individual coverage mandate with tax penalties, which was expected to increase coverage across eligibility categories. Evidence from the first 2 years of the program indicates that the ACA was associated with reduced uninsured rates among adults not eligible for Medicare, with estimates ranging from 7.8 to 14.9 percentage points.^{14,15} The

decrease was evident in all states and sociodemographic groups though more pronounced for adults in states that expanded Medicaid,^{16,17} in persons with low socioeconomic status, and in racial and ethnic minorities.^{18,19} The decline in uninsured rates nationally comes from a 5.5 percentage point increase in private coverage, and a 2.2 percentage point increase in public (Medicaid) enrollment.²⁰

Previous studies documented that Medicaid expansion was associated with reduced uninsured rates among adults with mental health and other chronic conditions^{16,21,22} and newly diagnosed cancers.^{23,24} However, little is known about how insurance coverage for adult cancer survivors changed after implementation of the ACA. Furthermore, most estimates of coverage increases reflect averages across the income spectrum, rather than specific criteria for coverage or subsidies, or are limited to poor adults, comparing those in states that expanded Medicaid to those in nonexpansion states. In this study, we begin to fill the information gap along these 2 dimensions. We used data from a large nationally representative survey that captures information on both health status and insurance to assess changes in coverage for cancer survivors before and after implementation of the ACA. We assessed changes overall, and specific to the type of coverage or subsidy for which the cancer survivor is newly eligible. We hypothesized that the percent uninsured would decrease with ACA implementation particularly among those expansion eligible for Medicaid and those eligible for premium subsidies, relative to those with incomes > 400% federal poverty guideline (FPG), who faced the insurance mandate, but otherwise did not benefit from subsidized coverage. We examined characteristics of cancer survivors who remained uninsured after implementation of the ACA. Finally, we compared cancer survivors and adults without cancer. We further hypothesize that the effects of ACA coverage provisions would be larger for adults with a cancer history, as they are expected to have greater demand for coverage, and the ACA includes a provision to reduce coverage barriers for individuals with preexisting health conditions.

METHODS

Data

We pooled data from 2012 to 2015 National Health Interview Survey (NHIS), a household survey representative of the civilian, noninstitutionalized US population. The NHIS includes ~100,000 people in 40,000 households each year, and collects information on demographic and socioeconomic characteristics, health insurance, health status, access to care, and health care utilization. A sample adult from each household provides more detailed information on health conditions, labor force participation, and other characteristics. We accessed confidential geographic identifiers available through the National Center for Health Statistics Research Data Center, and linked state-year-specific policies on Medicaid eligibility.¹⁰

Sample

We selected adults aged 19 through 64 years who reported ever being told they had cancer (including melanoma but excluding other skin cancer types), and a comparison group without a cancer history.

Measurement

The key outcome in this study was insurance coverage at the time of the survey. We created indicators for private insurance (including employment related, civilian military, and privately purchased), public insurance [Medicaid, Children's Health Insurance Program (CHIP), other government non-Medicare], and uninsured. Although Medicaid and privately purchased coverage are the 2 categories that we expect to be affected most directly by the ACA coverage provisions, we used broader measures (for example, augmenting our Medicaid measure with responses about Children's Health Insurance Program and other government coverage), as individuals may be confused about the source of their insurance coverage. The public and private coverage indicators were not mutually exclusive. The key independent variables were eligibility for Medicaid before ACA expansion in 2014, and eligibility for various types of coverage (Medicaid, private insurance purchased through the Marketplace) once the ACA coverage provisions were implemented in 2014. There is no observable measure of insurance eligibility in the NHIS. To assess eligibility, we linked state-specific Medicaid eligibility rules to each individual based on the state of residence and survey year. The eligibility rules specify the lower and upper income thresholds, expressed as a percent of FPG. Using data on income and family structure from the NHIS we constructed measures of income as a percent of FPG, employment status, and presence of a dependent child for each sample adult. We compared the characteristics for each sample adult to the relevant state and time period-specific thresholds to assess likely eligibility. We assessed eligibility for the Marketplace premium subsidies and costsharing reductions based on state-specific lower thresholds (138% FPG in states expanding Medicaid, 100% FPG in nonexpansion states), but the upper income eligibility thresholds were applied nationally. We used information on current insurance (employer-sponsored insurance or Medicare) or offers of insurance from a current employer to further assess eligibility for Marketplace premium subsidies. Table 1 indicates the income eligibility groups used and mechanism for ACA coverage effects. For individuals living in states with early Medicaid expansions (between 2010 and 2012) we assessed eligibility and assigned them to the pre-ACA eligibility category; in sensitivity analyses we excluded them.

Analysis

We described sample characteristics, patterns of eligibility, and trends in coverage pre-post implementation of ACA coverage provisions overall and by eligibility category, comparing adults with and without a cancer history using Student's *t* or χ^2 tests. Pooling data from the pre-ACA and post-ACA periods, with stratification by cancer history, we estimated multivariable linear probability models (ordinary least squares) with the dichotomous dependent variable defined as being uninsured. The models included a categorical measure of ACA eligibility status, an indicator for observations in the post-ACA period, and an interaction between the 2. The interaction terms capture the association between eligibility category in the postperiod and coverage. The analyses also controlled for current adult age, sex, race, marital status, presence of other chronic conditions, region, and metropolitan statistical area size. We included county-specific and year-specific measures of the unemployment rate to control for variation in the economy geographically and over time. We tested for parallel trends, finding limited deviations from the assumption (see Appendix, Supplemental Digital Content 1, <http://links.lww.com/MLR/B530> for estimates and

discussion). Finally, we examined characteristics of adults who remained uninsured in 2014–2015, comparing those with and without cancer.

We conducted analyses using Stata 14. All analyses were weighted and SEs were adjusted to address the complex survey design of the NHIS. All statistical tests were 2-sided with an alpha of 0.05. Selected additional details related to the sample selection, measurement and analysis are provided in the Appendix (Supplemental Digital Content 1, <http://links.lww.com/MLR/B530>).

RESULTS

Over all study years (2012–2015), and after excluding observations with missing values for key variables, our sample of adult cancer survivors ($n = 4115$, weighted $N = 6.9$ million annually) was older (46.2% vs. 18.4% aged 56–64 y), without dependent children (77.9% vs. 64.7%), and with family income $> 400\%$ FPG (42.2% vs. 36.9%), when compared with adults without a cancer history ($n = 89,015$, weighted $N = 162.1$ million) (Table 2). As a result of the different socioeconomic characteristics, adults with a cancer history were less likely to have been eligible for Medicaid before the expansions (4.4% vs. 6.6% for adults without cancer), less likely to have affordable alternative coverage (27.0% vs. 29.6%) and more likely to exceed the 400% FPG maximum for premium tax credits (42.7% vs. 37.1%). All differences were significant at $P < 0.001$ (Table 2).

Before implementation of ACA coverage provisions, 12.4% of cancer survivors were uninsured, 68.4% reported private coverage, and 15.4% reported public insurance (Fig. 1). Pre-post changes reveal a decline of 4.7 percentage points ($P < 0.001$) in the uninsured rate, and a 3.3 percentage point increase in public coverage ($P = 0.026$) (Fig. 1). Adults without a cancer history had a higher uninsured rate (17.2%) before ACA implementation, a similar private coverage rate (70.5%), but a lower percent with public coverage (11.0%). Pre-post changes reveal a significant decline in the uninsured rate of 5.4 percentage points, and increases in both private and public coverage of 3.1 and 2.6 percentage points, respectively.

Uninsured rate decreases in the targeted eligibility groups were substantially larger. For example, among cancer survivors who became newly eligible for Medicaid, the uninsured rate declined from 25.8% to 7.4% ($P < 0.001$); the uninsured rate trended downward (from 43.8% to 32.5%, $P = 0.071$) among those eligible for Marketplace subsidies (full estimates are presented in Appendix Table 2, Supplemental Digital Content 1, <http://links.lww.com/MLR/B530>). Notably, among adults without a cancer history, the uninsured rate declined significantly for all eligibility categories, with magnitudes ranging from 1.6 percentage points among adults with alternative affordable coverage to 19.7 percentage points among adults eligible for premium subsidies in the insurance Marketplace ($P < 0.001$).

The estimated effects of the ACA coverage provisions on the uninsured rates by eligibility category, adjusted for demographic characteristics, health status, geographic characteristics and unemployment rate are presented in Table 3. Full model results are presented in Appendix Table 3 (Supplemental Digital Content 1, <http://links.lww.com/MLR/B530>).

Relative to the high-income category (income over 400% FPG), the interaction terms between eligibility category and post-ACA indicate that cancer survivors experienced significant decreases in the probability of being uninsured among those previously eligible for Medicaid [−8.4 percentage points; 95% confidence interval (CI), −15.6 to −1.3], newly eligible for Medicaid (−16.7 percentage points; 95% CI, −24.5 to −9.0). There was also an estimated decrease for those subsidy eligible (−11.3 percentage points; 95% CI, −23.5 to 0.8) but it did not reach statistical significance ($P=0.069$). For adults without a cancer history, the point estimates associated with eligibility for Medicaid pre-ACA and Medicaid expansion eligible are smaller than for cancer survivors. In contrast, the estimated effects associated with premium subsidy eligibility are larger for adults without a cancer history. The difference in estimated effects of the ACA implementation for cancer survivors and adults without a cancer history trends toward significance ($P=0.086$) only for expansion-eligible adults (we provide estimates for the pooled sample of cancer survivors and adults without a cancer history as Appendix Table 4, Supplemental Digital Content 1, <http://links.lww.com/MLR/B530>). Sensitivity analyses that exclude early expansion and late adopting states (Appendix Table 5, Supplemental Digital Content 1, <http://links.lww.com/MLR/B530>) reveal small differences in estimated effect sizes but no qualitative changes in results.

Despite the gains in coverage, ~528,000 adults with a cancer history and 19.1 million without a cancer history remained uninsured in the post-ACA observation period nationally. Among uninsured cancer survivors, 32.7% reported being in fair/poor health, and 36.2% reported limitations associated with chronic conditions (Table 4). Over half (55.2%) of the uninsured were identified as likely eligible for either Medicaid (11.5%) or subsidized Marketplace plans (43.7%); whereas 16.2% were in the eligibility gap, 9.9% had alternative affordable coverage options, and 18.6% had income over 400% FPG. A slightly larger proportion of uninsured adults without a cancer history (58.9%) were eligible for Medicaid or Marketplace subsidies.

DISCUSSION

Insurance coverage provides access to care and can protect all enrolled, including cancer survivors, from over-whelming financial burden associated with care.^{4,6} The results of this study provide new information and insights into how coverage changed after implementation of the ACA coverage provisions for adult cancer survivors. Specifically, the 4.7 percentage point reduction in the uninsured rate for cancer survivors translates into a substantial 38% decrease in the percentage uninsured. Furthermore, the gains in coverage are substantially larger when we focus on the subgroups who became eligible for specific provisions of the ACA. We find that the largest absolute gains in coverage for cancer survivors occurred among those newly eligible for Medicaid, representing an 18.3 percentage point or 71.1% relative decrease in the percent uninsured.

Compared with adults without a cancer history, cancer survivors had somewhat different patterns of coverage at baseline. After adjusting for demographic and other characteristics, the point estimates for the ACA coverage expansion effects suggested greater coverage gains for cancer survivors eligible for Medicaid, but smaller effects for those eligible through

premium subsidies, relative to adults without a cancer history. However, the difference in effects on coverage between cancer survivors and those without a cancer history only trended toward significance for the Medicaid expansion eligible, and otherwise did not approach significance. We had hypothesized greater gains in coverage for cancer survivors, due to their elevated need for care and historical barriers to gaining private insurance, but the study results only partially support that hypothesis. There are several possible reasons. First, the NHIS provides a prevalent sample of adults with a cancer history, including many who are long-term survivors, and are likely quite heterogeneous with respect to their need for ongoing cancer care. This may dampen the magnitude of the estimated associations. The NHIS does not provide information that would allow us to limit our sample of cancer survivors requiring active treatment or surveillance. Second, cancer survivors showed evidence of lower uninsured rates prior to the ACA implementation. Despite barriers to coverage, it is possible that some cancer survivors used all means (paying large premiums, buying in to high-risk pools, and/or adjusting labor force participation by the survivor or spouse) to sustain or gain coverage, resulting in a smaller than expected increase associated with eligibility for Marketplace subsidies. Our NHIS measure of private insurance did not distinguish between plans from different sources.

Despite increases in coverage, 7.7% of individuals with a cancer history still did not have insurance after the ACA coverage provisions were implemented, representing just under two-thirds of the pre-ACA levels. A large portion of those uninsured were not eligible for insurance expansions. In particular, 16% of adults with a cancer history had incomes below the federal poverty guideline, but because they lived in states that did not expand Medicaid, they remained ineligible for Medicaid after January 2015. Although additional states expanded Medicaid in 2016, the likely impact on cancer survivors is unclear. An additional 10% met income eligibility requirements for Marketplace premium subsidies, but because they had employer-sponsored insurance offers that were deemed to be affordable alternatives, they could not take advantage of those subsidies. Some of these individuals may be unable to afford the employment-related insurance offered, particularly if they need to purchase coverage for family members, a problem known as the “family glitch.”²⁵ Several policy strategies have been considered to address this barrier to coverage,²⁶ which could be considered as part of a broader effort to strengthen access to health insurance.

This is the first study, to our knowledge, to compare changes in insurance coverage among adults aged below 65 years with a cancer history before and after the implementation of 2 major provisions (expansion of Medicaid and Marketplace insurance exchange with subsidies) of the ACA using nationally representative survey data. A number of studies have examined the effects of the ACA expansions on the general population, finding gains similar to those of our noncancer history subgroup.^{15,18,20} One previous study by Parsons et al²⁷ focused on the coverage effects of the 2010 expansions that allowed young adults up to age 26 to be covered on a parent’s family policy. That study found higher coverage rates among young adults newly diagnosed with cancer compared with a slightly older group who could not be covered under a parent policy. Several recent studies have examined changes in insurance coverage for newly diagnosed cancer patients^{23,24} but they have not yet assessed long-term effects on treatment, and there is no relevant comparison with adults without cancer.

Despite many strengths to our study, the analysis is subject to several limitations. First, the NHIS data are based on self-report of a number of key measures used in the analysis including income, health status, and health insurance, and hence, are subject to reporting error. There is no direct measure of eligibility for Medicaid or Marketplace premium subsidies in the NHIS or any other dataset, so it was necessary to generate an algorithm to assess likely eligibility, similar to prior studies evaluating insurance expansions.^{7,28,29} As the algorithm used self-reported information on income and family structure, there may be errors in the eligibility assignments, biasing some of the estimated associations toward the null. Second, our sample size for adults with a cancer history may have limited statistical power when assessing coverage changes by eligibility category. Finally, the analysis examines changes in coverage during the 2 years before and after implementation of the Medicaid expansions and insurance Marketplaces in January 2014, but we are unable to demonstrate a definitive causal relationship. We note that our multivariable analyses control for county-year-specific unemployment rates, which might otherwise explain some changes in insurance coverage. In addition, our study design explicitly compares changes in coverage for adults by eligibility category. Results consistent with hypothesized effects of eligibility category provide strong support for a causal relationship.

The implementation of the ACA was associated with substantial reductions in the uninsured rate for adult cancer survivors aged below 65 years. Evidence from previous adult coverage expansions, and early evidence from the ACA coverage provisions suggest important and potentially lifesaving shifts to earlier stage cancer diagnoses,^{30–34} improved access to cancer treatment,³⁵ and better surveillance and survivorship care. Given the potentially longer term time frame to observe some health benefits, it is essential to monitor the ongoing effects of health care reform on insurance coverage and impacts on cancer stage at diagnosis, treatment and outcomes and to continue to explore ways to improve cancer care.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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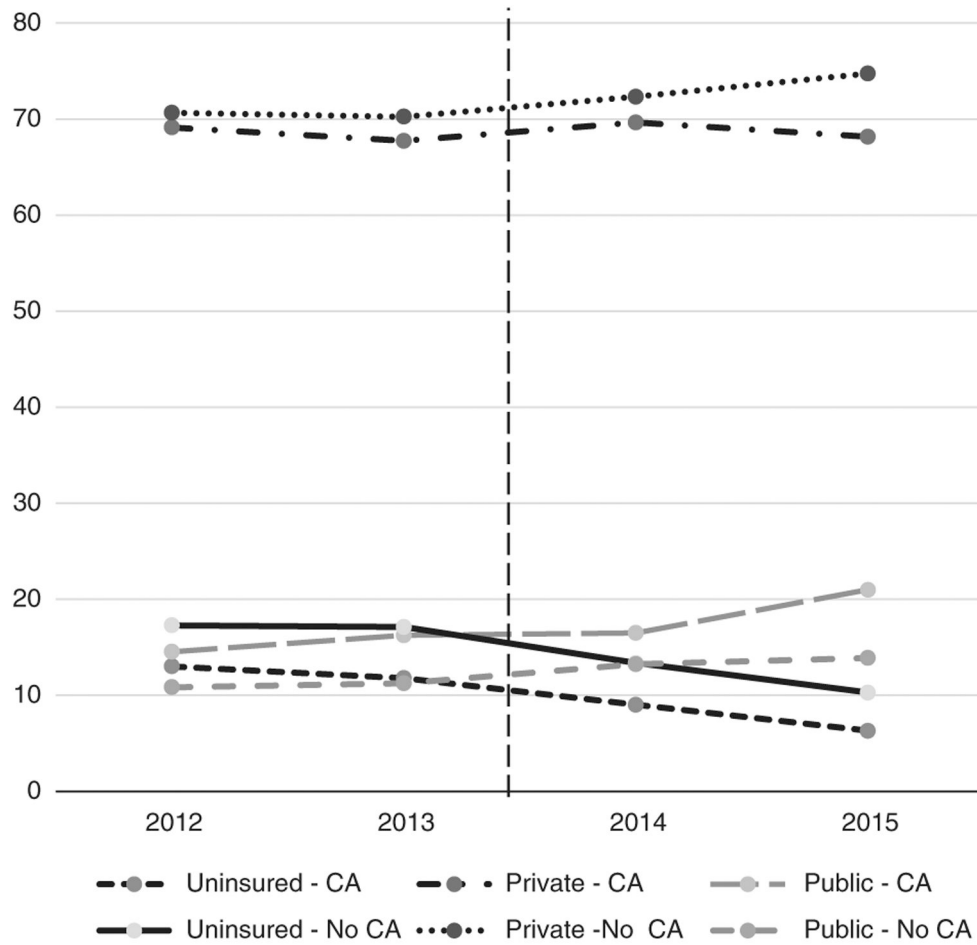


FIGURE 1. Insurance coverage before and after implementation of the ACA coverage provisions for adult cancer survivors and adults without a cancer history age below 65 years. ACA indicates Affordable Care Act.

TABLE 1.

Treatment and Comparison Groups Defined by Income and State Policy

Eligibility Category	Description	Possible Mechanism for ACA Coverage Effect
Pre-ACA Medicaid eligible	Adults eligible for Medicaid before ACA Medicaid expansion. Eligibility commonly limited to adults with disabilities, low-income seniors, pregnant women, and some low-income adults with dependent children. Upper income limits in many states extremely low. Several states undertook early expansions (2010–2012)	Increased awareness of Medicaid and simplified application process may increase applications and enrollment. Individual coverage mandate should increase effort to enroll, but many individuals eligible for Medicaid pre-ACA would be exempt from any penalty
Expanded Medicaid eligible	Adults newly eligible for Medicaid, up to 138% FPG in expansion states	New zero or low-cost coverage; expect larger effect for cancer survivors. ^{22,25} Individual mandate would increase takeup for adults in this category, but the effect would be similar for adults with and without a cancer history
Poor adults, not Medicated eligible	Adults with income <100% FPG, not Medicaid-eligible pre-ACA and residing in nonexpansion states. Not eligible for Marketplace premium subsidies	Small indirect benefits. May experience increased offers of coverage through employers, or may purchase unsubsidized Marketplace plans. Latter effect may be greater for cancer survivors. Adults who fall in this category are exempt from the individual mandate
Marketplace premium subsidies	Adults eligible for premium subsidies for purchase of private plans. In Medicaid expansion states, from 138% to 400% FPG; in states not expanding Medicaid, from 100% to 400% FPG	Newly available subsidized private insurance without healthrelated underwriting. Cancer survivors expected to have higher demand for coverage ^{22,25}
Alternative affordable coverage	Adults who are income eligible for Marketplace premium subsidies, but with employment-sponsored insurance offers or coverage, or Medicare enrolled	Small indirect benefits. Individual mandate may encourage takeup of employer-sponsored insurance offers, or purchase of unsubsidized Marketplace plans. Both effects expected to be greater for cancer survivors ^{22,25}
Income >400% FPG	Adults not eligible for Marketplace subsidies.	Individual mandate may encourage purchase of unsubsidized Marketplace plans. Effect may be slightly larger for cancer survivors, who benefit from reduced medical underwriting

ACA indicates Affordable Care Act; FPG, federal poverty guideline.

TABLE 2.

Characteristics of Adults Aged 19–64 Years, With and Without Cancer History, 2012–2015

	Cancer Survivor		No Cancer History		<i>P</i>
	Mean or %	SE	Mean or %	SE	
Unweighted (n)	4115		89,015		
Weighted (N)	6,896,199F		162,079,261		
Age (y)					< 0.001
19–25	2.4%	0.004	16.6	0.003	
26–35	8.6%	0.007	21.5%	0.002	
36–45	14.6%	0.008	20.5%	0.002	
46–55	28.2%	0.011	23.1%	0.002	
56–64	46.2%	0.011	18.4%	0.002	
Sex, female	65.3%	0.010	50.8%	0.002	< 0.001
Race/ethnicity					< 0.001
Non-hispanic white	80.7%	0.008	69.2%	0.004	
Hispanic	7.2%	0.005	11.9%	0.002	
Non-hispanic black	8.5%	0.006	13.5%	0.003	
Non-hispanic Asian, other	3.6%	0.005	5.5%	0.002	
Highest educational attainment					0.747
No HS diploma	9.1%	0.006	8.7%	0.002	
HS graduate, some college	46.5%	0.010	46.7%	0.003	
College degree	33.2%	0.010	33.9%	0.003	
Graduation or professional degree	11.2%	0.007	10.8%	0.002	
Marital status					< 0.001
Married	60.0%	0.010	52.4%	0.003	
Widowed, separated, or divorced	21.9%	0.007	13.1%	0.002	
Never married or unknown	18.1%	0.008	34.5%	0.003	
Health insurance unit income as % FPG					< 0.001
< 100%	15.5%	0.008	17.2%	0.003	
100%–199%	16.5%	0.008	18.5%	0.002	
200%–299%	13.4%	0.007	14.8%	0.002	
300%–399%	12.4%	0.007	12.6%	0.002	
400%	42.2%	0.011	36.9%	0.004	
Chronic health conditions					
Diabetes (all types)	13.5%	0.007	6.2%	0.001	< 0.001
Cardiovascular disease	18.0%	0.007	7.6%	0.001	< 0.001
Respiratory condition	26.8%	0.009	16.4%	0.002	< 0.001
Other (liver, kidney, stroke)	43.6%	0.010	19.0%	0.002	< 0.001
Region					0.716
Northeast	17.7%	0.009	17.4%	0.003	

	Cancer Survivor		No Cancer History		P
	Mean or %	SE	Mean or %	SE	Cancer-No Cancer
Midwest	23.6%	0.010	24.0%	0.004	
South	37.8%	0.011	36.9%	0.005	
West	21.0%	0.009	21.8%	0.004	
MSA size					< 0.001
Metro (< 1 million)	50.3%	0.012	54.9%	0.007	
Metro (0.25–1 million)	23.9%	0.014	22.8%	0.010	
Small metro, adjacent, rural	25.8%	0.013	22.3%	0.009	
Eligibility category (2015 rules)					
Medicaid-eligible pre-ACA	4.4%	0.004	6.6%	0.002	< 0.001
Expanded Medicaid-eligible post-ACA	10.1%	0.007	10.3%	0.002	
Poor, Medicaid eligibility gap	5.7%	0.005	5.7%	0.001	
Subsidy eligible	10.1%	0.006	10.8%	0.002	
Alternative affordable coverage	27.0%	0.009	29.6%	0.003	
Income > 400% FPG	42.7%	0.011	37.1%	0.004	

ACA indicates Affordable Care Act; FPG, federal poverty guidelines; HS, high school; MSA, Metropolitan Statistical Area.

TABLE 3.

Adjusted Estimates of Change in Probability of Being Uninsured in Post-ACA Period by Coverage Eligibility

	Cancer Survivors				Without Cancer History			
	Coefficient	95% Confidence Interval	Interval	$P > t $	Coefficient	95% Confidence Interval	Interval	$P > t $
Eligibility category (ref = income > 400% FPG)								
Medicaid-eligible pre-ACA	0.040	-0.027	0.107	0.240	0.088	0.070	0.106	<0.001
Expanded Medicaid-eligible post-ACA	0.186	0.112	0.260	<0.001	0.164	0.146	0.183	<0.001
Poor, Medicaid eligibility gap	0.229	0.127	0.332	<0.001	0.215	0.187	0.242	<0.001
Premium subsidies [†]	0.379	0.294	0.464	<0.001	0.494	0.475	0.513	<0.001
Alternative affordable coverage	0.008	-0.039	0.054	0.741	-0.024	-0.032	-0.015	<0.001
Postperiod	-0.006	-0.031	0.019	0.632	-0.015	-0.021	-0.008	<0.001
Eligibility × postperiod								
Medicaid-eligible pre-ACA	-0.084	-0.156	-0.013	0.021	-0.040	-0.062	-0.018	<0.001
Expanded Medicaid-eligible post-ACA [‡]	-0.167	-0.245	-0.090	<0.001	-0.097	-0.120	-0.074	<0.001
Poor, Medicaid eligibility gap	-0.106	-0.243	0.032	0.132	-0.046	-0.084	-0.008	0.017
Premium subsidies	-0.113	-0.235	0.008	0.068	-0.177	-0.202	-0.153	<0.001
Alternative affordable coverage	-0.025	-0.078	0.028	0.360	0.002	-0.008	0.012	0.721

Source: National Health Interview Survey, 2012–2015. Models control for age, race, sex, education, marital status, chronic conditions, region, MSA size, and unemployment rate. Full model results are available in Appendix Table 2 (Supplemental Digital Content 1, <http://links.lww.com/MLR/B530>).

Difference in estimated effects for cancer survivors and adults without a cancer history.

ACA indicates Affordable Care Act; FPG, Federal Poverty Guidelines, MSA, Metropolitan Statistical Area.

[†]Significant at $P < 0.001$.

[‡]Trending toward significance at $P < 0.086$.

TABLE 4.

Characteristics of Uninsured Adults Aged 19–64 Years After ACA Implementation, 2014–2015

	Cancer Survivor		No Cancer History		P
	%	SE	%	SE	
Unweighted (n)	180		5651		
Weighted (N)	527,559		19,141,904		< 0.001
Age (y)					
19–25	4.0	0.019	21.1	0.008	
26–35	21.4	0.047	28.5	0.009	
36–45	18.1	0.037	19.3	0.007	
46–55	19.5	0.044	19.1	0.007	
56–64	37.0	0.047	12.0	0.006	
Sex, female	71.0	0.052	44.2	0.009	< 0.001
Race/ethnicity					< 0.001
Non-hispanic white	75.0	0.042	58.3	0.010	
Hispanic	5.4	0.017	17.9	0.007	
Non-hispanic black	16.7	0.037	18.9	0.007	
Non-hispanic Asian, other	2.9	0.013	5.0	0.004	
Highest educational attainment					0.40
No HS diploma	17.2	0.037	16.8	0.007	
HS graduate, some college	57.0	0.047	60.0	0.009	
College degree	20.5	0.036	20.7	0.008	
Graduate or professional degree	5.3	0.027	2.5	0.003	
Marital status					0.001
Married	43.9	0.055	32.5	0.009	
Widowed, separated, or divorced	25.1	0.039	16.5	0.006	
Never married or unknown	31.0	0.050	51.0	0.010	
Health insurance unit income as % FPG					0.69
< 100%	25.2	0.046	27.5	0.008	
100%–199%	29.0	0.054	30.3	0.009	
200%–299%	20.2	0.043	19.4	0.007	
300%–399%	7.0	0.027	9.2	0.006	
400%	18.6	0.036	13.7	0.007	
Chronic health conditions					
Diabetes	11.3	0.036	4.4	0.004	0.005
Cardiovascular disease	21.2	0.040	6.2	0.005	< 0.001
Respiratory condition	31.1	0.044	16.1	0.007	< 0.001
Other (liver, kidney, stroke)	49.9	0.055	14.4	0.006	< 0.001
Region					0.39
Northeast	7.1	0.0286	11.3	0.007	
Midwest	23.8	0.0461	20.9	0.009	
South	54.4	0.0499	49.4	0.011	

	Cancer Survivor		No Cancer History		<i>P</i>
	%	SE	%	SE	
West	14.8	0.0292	18.4	0.009	
MSA size					0.23
Metro (< 1 million)	43.6	0.0519	49.6	0.012	
Metro (0.25–1 million)	20.9	0.0452	23.2	0.013	
Small metro, adjacent, rural	35.5	0.0503	27.3	0.014	
Eligibility category					0.072
Medicaid-eligible pre-ACA	1.7	0.0068	7.8	0.004	
Expanded Medicaid-eligible post-ACA	9.8	0.0278	13.1	0.006	
Poor, Medicaid eligibility gap	16.2	0.0404	13.7	0.006	
Subsidy eligible	43.7	0.0525	38.0	0.008	
Alternative affordable coverage	9.9	0.0992	13.7	0.006	
Income > 400% FPG	18.6	0.1863	13.7	0.007	

ACA indicates Affordable Care Act; FPG, federal poverty guidelines; HS, high school; MSA, Metropolitan Statistical Area.