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Brief Communication

BRIEF COMMUNICATION

Patterns of Coverage Gains Among Young Adult Cancer Patients Following the Affordable Care Act

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Abstract

The dependent coverage expansion (DCE) and Medicaid expansions (ME) under the Affordable Care Act (ACA) may differentially affect eligibility for health insurance coverage in young adult cancer patients. Studies examining temporal patterns of coverage changes in young adults following these policies are lacking. We used data from the National Cancer Database 2003–2015 to conduct a quasi-experimental study of cancer patients ages 19–34 years, grouped as DCE-eligible (19- to 25-year-olds) and DCE-ineligible (27- to 34-year-olds). Although private insurance coverage in DCE-eligible cancer patients increased incrementally following DCE implementation (0.5 per quarter; $P < .001$), an immediate effect on Medicaid coverage gains was observed after ME in all young adult cancer patients (3.01 for DCE-eligible and 1.62 for DCE-ineligible, both $P < .001$). Therefore, DCE and ME each had statistically significant and distinct effects on insurance coverage gains. Distinct temporal patterns of ACA policies' impact on insurance coverage gains likely affect patterns of receipt of cancer care. Temporal patterns should be considered when evaluating the impact of health policies.

Cancer is a leading cause of death among young adults in the United States (1), a growing and vulnerable population with unique barriers to healthcare access and continuity of health insurance coverage (2). Despite advances in early detection and treatment of cancer, survival in young adult cancer patients has not improved as in other age groups, (3) largely because of inconsistent health insurance coverage (4).

In September 2010, the Affordable Care Act (ACA) introduced dependent coverage expansion (DCE), allowing individuals up to 26 years of age to maintain private health insurance coverage through their parents. In 2014, ACA provisions further expanded individual coverage options through the marketplace exchanges nationwide and Medicaid expansion (ME) in some states, potentially improving access among all adults. Prior studies have shown that DCE has increased insurance coverage and may improve early detection of cancer (5,6). However, little is known about the timing of insurance coverage gains associated with either DCE or ME, which may also affect cancer care and health outcomes. This study evaluates the impact of both DCE and ME on insurance coverage among newly diagnosed young adult cancer patients.

We used data from the National Cancer Data Base (NCDB), which captures approximately 70% of all US cancer cases (7), and a quasi-experimental design to compare insurance coverage of newly diagnosed young adult cancer patients ages 19–25 vs 27–34 (excluding 26-year-olds) by quarter during three time periods: pre-ACA (January 2003–September 2010), post-DCE (October 2010–December 2013), and post-ME (January 2014–December 2015). These two age groups are relatively similar in terms of comorbidity, workforce conditions, and health insurance market (5,6,8). This study was granted exempt review by the institutional review boards of the Morehouse School of Medicine in Atlanta, Georgia.

The outcome was insurance coverage, including private, Medicaid, or no coverage. Patients diagnosed in all 50 states and the District of Columbia were included in the analysis. Sensitivity analyses excluding individuals diagnosed before 2009, or individuals with unknown or missing coverage, did not change the results. We used an interrupted time series

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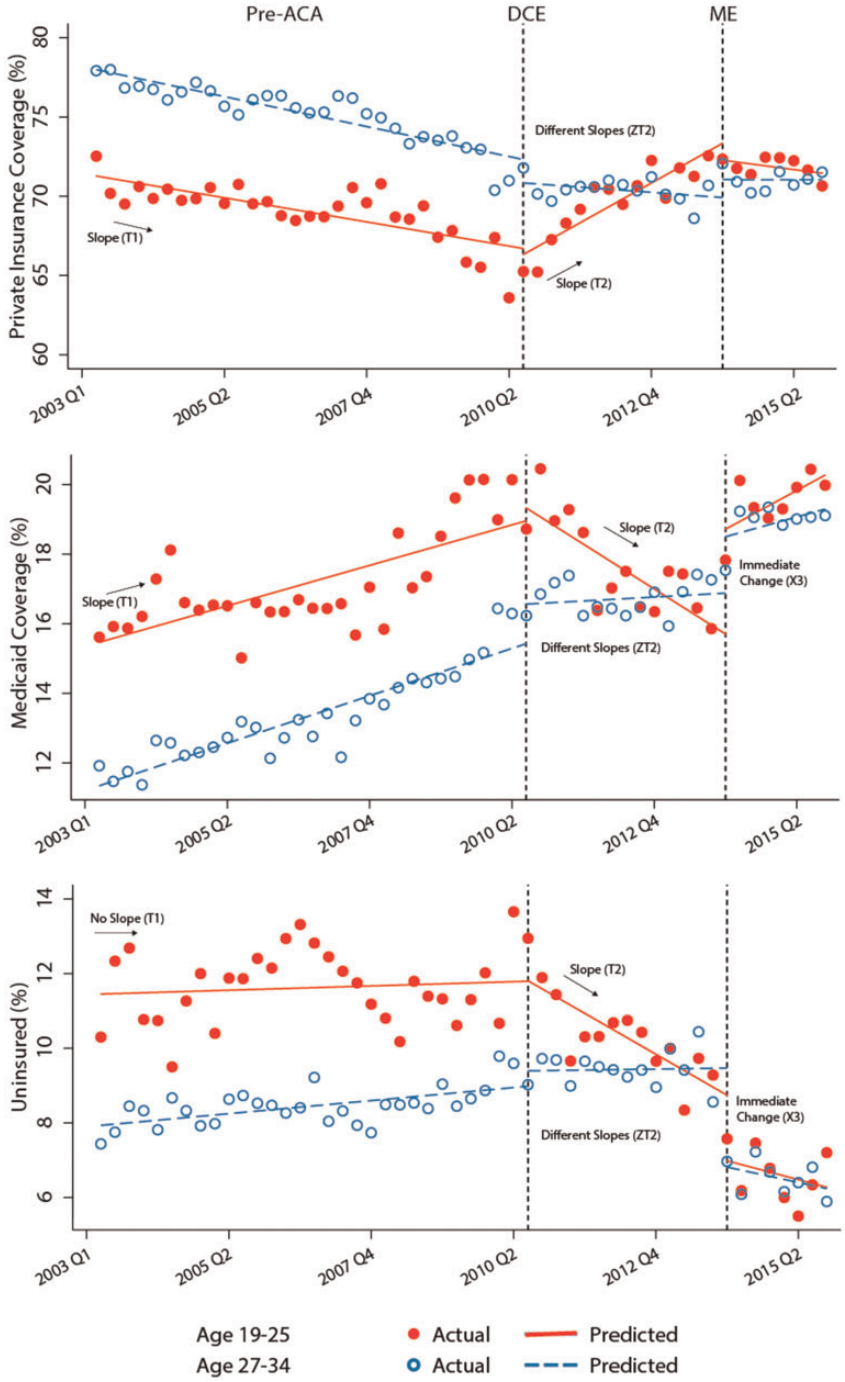

Figure 1. Change in insurance coverage for DCE-eligible and ineligible young adult cancer patients. Coverage types included private, Medicaid, and uninsured. January 2003 to September 2010 was the period before the Affordable Care Act (ACA) was enacted; October 2010 through December 2013 was the period after the dependent care expansion (DCE) was implemented; January 2014 through December 2015 was the period after Medicaid expansion (ME). Points represent the percent of young adult patients with each coverage type for each quarter. **Solid dots** represent DCE-eligible (19- to 25-year-olds) and **circles** represent DCE-ineligible (27- to 34-year-olds) cancer patients. **Horizontal lines** represent the predicted values for each group and **vertical dashed lines** indicate divisions between periods.

approach to assess rate of insurance coverage change after DCE and ME. Compared with difference-in-differences, the interrupted time series approach can capture immediate changes after policy implementation and the rate of change (9). We estimated changes in coverage using linear generalized-estimating-equation models (9), which included an indicator variable for each age group (Z), a linear quarterly trend variable (T), indicator variables representing the post-DCE and the post-ME periods (X), and interaction terms for differences between age groups within each period (ZT).

Of the 428 692 patients, 41.3% were ages 19–25 years at cancer diagnosis (Supplementary Table, available online). There

Table 1. Change in health insurance coverage between 2003 and 2015 among patients with newly diagnosed cancer at ages 19–25 years and 27–34 years

Insurance	Time period	Estimate	Age at diagnosis, y		ZT - Difference between age groups
			19–25	27–34	
Private					
	Pre-ACA	T1 - Slope (95% CI)	−0.15 (−0.22 to -0.09)*	−0.19 (−0.24 to -0.14)*	0.04 (−0.04 to 0.12)
	Post-DCE	X2 - Immediate change (95% CI)	−0.38 (−2.18 to 1.43)	−1.48 (−2.85 to -0.1)†	
		T2 - Slope (95% CI)	0.5 (0.34 to 0.66)*	−0.07 (−0.17 to 0.04)	0.57 (0.38 to 0.76)*
	Post-ME	X3 - Immediate change (95% CI)	−1.07 (−2.32 to 0.19)	1.13 (−0.11 to 2.38)	
		T3 - Slope (95% CI)	−0.12 (−0.29 to 0.05)	0 (−0.21 to 0.21)	−0.12 (−0.38 to 0.15)
Medicaid					
	Pre-ACA	T1 - Slope (95% CI)	0.12 (0.06 to 0.17)*	0.14 (0.11 to 0.17)*	−0.02 (−0.08 to 0.04)
	Post-DCE	X2 - Immediate change (95% CI)	0.37 (−1.06 to 1.8)	1.14 (0.29 to 1.99)†	
		T2 - Slope (95% CI)	−0.26 (−0.36 to -0.16)*	0.02 (−0.05 to 0.09)	−0.28 (−0.4 to -0.16)*
	Post-ME	X3 - Immediate change (95% CI)	3.01 (1.84 to 4.19)*	1.62 (0.47 to 2.77)*	
		T3 - Slope (95% CI)	0.22 (0.05 to 0.39)*	0.11 (−0.05 to 0.28)	0.11 (−0.13 to 0.34)
Uninsured					
	Pre-ACA	T1 - Slope (95% CI)	0.01 (−0.03 to 0.06)	0.03 (0.01 to 0.06)†	−0.02 (−0.07 to 0.03)
	Post-DCE	X2 - Immediate change (95% CI)	0.02 (−1.1 to 1.13)	0.41 (−0.17 to 1)	
		T2 - Slope (95% CI)	−0.22 (−0.33 to -0.11)*	0.01 (−0.06 to 0.07)	−0.22 (−0.35 to -0.1)*
	Post-ME	X3 - Immediate change (95% CI)	−1.76 (−2.56 to -0.96)*	−2.65 (−3.39 to -1.91)*	
		T3 - Slope (95% CI)	−0.1 (−0.3 to 0.1)	−0.08 (−0.17 to 0)	−0.02 (−0.24 to 0.2)

*Estimate is statistically significant at $P < .001$. Time periods: pre-ACA = first quarter 2003 to third quarter 2010; post-DCE = fourth quarter of 2010 to fourth quarter of 2013; post-ME = first quarter of 2014 to fourth quarter of 2015. ACA = Affordable Care Act; DCE = dependent coverage expansion; ME = Medicaid expansion.
†Estimates is statistically significant at $P < .05$.

were no differences in insurance coverage trends between age groups during the pre-ACA period, during which the proportion with private insurance decreased, the proportion with Medicaid increased, and the proportion uninsured remained unchanged (Table 1 and Figure 1).

Before DCE, the proportion of 19- to 25-year-olds with private insurance decreased by -0.15 (95% confidence interval [CI] = −0.25 to −0.09, $P < .001$) per quarter. This trend was reversed after DCE, when the proportion of DCE-eligible patients with private insurance increased by 0.5 (95% CI = 0.34 to 0.66, $P < .001$) per quarter. Conversely, the opposite temporal pattern was observed for Medicaid coverage in this age group. The proportion of 19- to 25-year-olds covered by Medicaid increased by 0.12 (95% CI = 0.06 to 0.17, $P < .001$) per quarter pre-ACA, and this trend changed to decreasing by -0.26 (95% CI = -0.36 to -0.16, $P < .001$) per quarter post-DCE. No changes in trends were observed for 27- to 34-year-olds post-DCE. In contrast with the post-DCE period, in the period after ME the proportion of patients with Medicaid coverage increased immediately for both age groups (3.01 [95% CI = 1.84 to 4.19] for 19- to 25-year-olds, and 1.62 [95% CI = 0.47 to 2.77] for 27- to 34-year-olds, both $P<.001$).

Concordant with the post-DCE incremental and post-ME immediate insurance coverage changes, the proportion of uninsured gradually fell by -0.22 (95% CI = -0.33 to -0.11, $P < .001$) per quarter post-DCE among 19- to 25-year-olds only, whereas the proportion of uninsured patients decreased immediately after ME in both 19- to 25-year-olds (-1.76 [95% CI = -2.56 to -0.96, $P < .001$]) and 27- to 34-year-olds (-2.56 [95% CI = -3.39 to -1.91, $P<.001$)].

In our large national sample of young adult cancer patients, we found that the DCE and ME provisions of the ACA each had significant and distinct effects on insurance coverage gains. While the impact of DCE on insurance coverage gains was gradual among DCE-eligible patients, ME had an immediate impact in all young adults. It will be critical to monitor the effects of ACA policy changes on diagnosis, treatment, and health outcomes in this population, especially with the recent emergence of short-term insurance plans (10), the increasing prevalence of high deductible health plans (11), and waivers to grant states more flexibility in Medicaid work requirements.

Our findings are consistent with previous studies showing increased private and decreased uninsured rates for 19- to 25-year-olds after DCE (8). However, the temporal patterns of insurance gains associated with ACA policies we observed may have been obscured in previous comparisons of averages before and after DCE and ME. For example, a study solely evaluating net change in health insurance type reported no change in Medicaid coverage between 2010 and 2013 for cancer patients in both age groups (12), whereas we identified a statistically significant shift in Medicaid coverage trends from increasing to decreasing for 19- to 25-year-olds. Therefore, our results indicate that coverage gains for 19- to 25-year-olds during the post-DCE period come primarily from increases in private insurance coverage, reflecting the impact of DCE. Conversely, because there was no change in private insurance coverage in either age group immediately after ME implementation, the observed sudden coverage gains primarily come from increases in Medicaid coverage.

One limitation of our study was our inability to distinguish between marketplace versus employer-sponsored private insurance, but excluding patients with unknown insurance in sensitivity analysis did not change our findings. Additionally, we were not able to evaluate individual insurance changes over time, or changes in Medicaid eligibility due to cancer diagnosis, because insurance status is recorded only once in the NCDB. We also recognize that dependent coverage and Medicaid expansion occurred earlier in some states.

We demonstrated that the impact of ACA provisions on health insurance coverage can be gradual or immediate. Our findings illustrate the importance of considering temporal patterns of impact of recent healthcare reform efforts, and the need for better understanding of factors that drive these differences in future research.

Notes

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