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# Cancer Outcomes Among Medicare Beneficiaries And Their Younger Uninsured Counterparts

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**ABSTRACT** Proposals for expanding Medicare insurance coverage to uninsured Americans approaching the Medicare eligibility age of sixty-five has been the subject of intense debate. We undertook this study to assess cancer survival differences between uninsured patients younger than age sixty-five and older Medicare beneficiaries by using data from the National Cancer Database from the period 2004–16. The main outcomes were survival at one, two, and five years for sixteen cancer types in 1,206,821 patients. We found that uninsured patients ages 60–64 were nearly twice as likely to present with late-stage disease and were significantly less likely to receive surgery, chemotherapy, or radiotherapy than Medicare beneficiaries ages 66–69, despite lower comorbidity among younger patients. Compared with older Medicare patients, younger uninsured patients had strikingly lower five-year survival across cancer types. For instance, five-year survival in younger uninsured patients with late-stage breast or prostate cancer was 5–17 percent lower than that among older Medicare patients. We conclude that survival after a diagnosis of cancer is considerably lower in younger uninsured patients than in older Medicare patients. Expanding comprehensive health insurance coverage to people approaching Medicare age eligibility may improve cancer outcomes in the US.

Cancer is a leading cause of death in the US, with approximately 1.8 million new cancer cases and 600,000 cancer deaths expected in 2020.<sup>1</sup> Historically, cancer death rates rose until 1991, followed by a steady decline between then and 2017, resulting in approximately 2.9 million fewer cancer deaths than would have been expected if the peak rates had persisted. The American Cancer Society reported the largest-ever one-year decline in the overall cancer death rate—2.2 percent during 2016–17—since the steady decline in mortality began in 1991.<sup>1</sup> This steep decline is largely attributable to reductions in smoking prevalence coupled with improvements in treatment.

However, improvements in cancer outcomes have not been equally distributed across populations, and persistent disparities remain by race/ethnicity and geography and among those living in poverty.<sup>2–5</sup> Although multiple factors contribute to disparities in cancer outcomes, lack of health insurance coverage has been identified as a major contributing factor.<sup>6,7</sup>

Insurance coverage among nonelderly adults improved after full implementation of the Affordable Care Act (ACA), which was passed in 2010. Multiple provisions improved coverage options and access to care, including the introduction of health insurance Marketplaces and the expansion of Medicaid eligibility in some states. After the implementation of the ACA pro-

visions, an estimated twenty million Americans gained insurance coverage.<sup>8</sup> However, by 2014 twenty-five states had not yet expanded Medicaid, and in those states the proportion of people insured was much lower than in states where Medicaid was expanded. In addition, in 2017 the number of uninsured people began to steadily rise, increasing by 2.2 million people between 2017 and 2019.<sup>8</sup> In contrast to many other developed countries that have national health insurance coverage for all of their citizens, about 13 percent of nonelderly adults (ages 18–64) in the US were uninsured in 2019.<sup>9</sup> During the 2020 US presidential election cycle, proposals for expanding health insurance coverage, including Medicare for all, Medicare for all who want it, and expansion of Medicare age eligibility, were vigorously debated among candidates, policy makers, pundits, and the American people.<sup>10–13</sup> The benefit of expanded coverage for patients with cancer who are younger than age sixty-five may be substantial, as nearly a quarter of all new cancers diagnosed yearly in the US occur among those ages 55–64—before eligibility for Medicare. Cancer remains the leading cause of death in this age group.<sup>14</sup>

Adults ages 60–69 are well suited for an examination of the implications of expanding age eligibility for Medicare coverage because the major socioeconomic differences between those younger and older than age sixty-five is their differential access to uniform health insurance coverage through the Medicare program.

In general, younger patients with similar stages and types of cancer have better outcomes than their older counterparts. We hypothesized that a younger population without insurance might lose any benefits attributable to age and, in fact, do worse than older patients with insurance. We undertook this study to assess the influence of health insurance on cancer survival and to better inform the health care community, policy makers, and the American public about the potential benefits of extending Medicare to a younger population.

## Study Data And Methods

**DATA SOURCE AND PATIENT COHORTS** Data from the National Cancer Database, a national, hospital-based cancer registry database that captures approximately 72 percent of newly diagnosed patients with cancer in the US, were used for this study.<sup>14</sup> The National Cancer Database is jointly sponsored by the American College of Surgeons and the American Cancer Society. For our study, we included patients diagnosed with single primary American Joint Committee on Cancer clinical or pathologic stage (where clinical stage was

unavailable) I–IV for sixteen major cancer types. Patients were defined on the basis of primary sites and histology codes (*International Classification of Diseases for Oncology*, Third Edition) for each cancer type, as shown in online appendix exhibit A1.<sup>15</sup> In addition, we included people ages 60–69 who were treated between 2004 and 2016. Patients age sixty-five at diagnosis who were newly age-eligible for Medicare were excluded to allow time for enrollment in the insurance program. Appendix exhibit A2 contains a flow chart illustrating how patients were selected.<sup>15</sup> The study received exempt status from the Institutional Review Board of the Morehouse School of Medicine.

The main outcomes of interest were one-, two-, and five-year overall survival. The main independent variable of interest was insurance coverage categorized by age group (insurance-age) as uninsured (ages 60–64), Medicaid (ages 60–64), Medicaid and Medicare (ages 60–64), private insurance (ages 60–64), Medicare only (ages 66–69), Medicare with Medicaid or other public insurance (ages 66–69), and Medicare with private insurance (ages 66–69). The analysis then focused on four categories to specifically compare younger patients (ages 60–64) who either were uninsured or had private coverage with those ages 66–69 with either Medicare only or Medicare and private insurance. Other characteristics included race/ethnicity (non-Hispanic White, non-Hispanic Black, Hispanic, or other or unknown), comorbidity score (categorized as a score of 0, 1, or 2 or more, using the sum of weighted Deyo-Charlson Comorbidity Index Score),<sup>16</sup> cancer type, sex, diagnosis year, US census division (New England, Middle Atlantic, South Atlantic, East North Central, East South Central, West North Central, West South Central, Mountain, or Pacific), facility type (community cancer program, comprehensive community cancer program, teaching or research center, National Cancer Institute–designated program, or other program), and stage (early versus late).

**STATISTICAL ANALYSIS** A descriptive analysis was used to show patient characteristics by insurance-age categories. The Kaplan-Meier method with a log-rank test for statistical significance was used to calculate all-cause one-, two-, and five-year survival rates. We further generated five-year survival curves for each cancer type stratified by stage (early and late). Follow-up time for calculating survival probabilities was from date of diagnosis until the end-of-study date (December 31, 2016), last contact date, or death, whichever occurred first. The latest calendar diagnosis years included in the survival analysis were 2015, 2014, and 2011 for one-, two-, and five-year survival, respectively.

For survival curves by cancer type, we displayed curves for the four insurance-age categories (uninsured [ages 60–64], private insurance [ages 60–64], Medicare only [ages 66–69], and Medicare and private insurance [ages 66–69]). Cox proportional hazards models were used to determine one-, two-, and five-year adjusted hazard ratios of all-cause mortality in patients with each insurance-age category compared with patients in the ages 66–69, Medicare-only category by cancer type. We also generated one-, two-, and five-year crude and adjusted hazard ratios for patients in each racial/ethnic group compared with non-Hispanic White patients by cancer type. The covariates included in the adjusted Cox proportional hazard models are detailed in the respective tables. Statistical significance was determined on the basis of two-sided  $p$  value less than 0.05. All statistical analyses were performed using SAS, version 9.4.

**LIMITATIONS** This study had several limitations. Our study was observational, and we report associations rather than causality. Although the National Cancer Database includes data representing more than 70 percent of newly diagnosed patients with cancer in the US, it is hospital based, rather than population based, and findings may be less generalizable to all US patients with cancer.<sup>17</sup> However, previous studies have shown that the sociodemographic and clinical characteristics of patients within the National Cancer Database were generally similar to those of patients in the population-based Surveillance, Epidemiology, and End Results (SEER) data.<sup>14,17</sup> For this study we evaluated all-cause mortality, not cancer-specific mortality. Although all-cause versus cancer-specific mortality is similar for some cancers,<sup>17,18</sup> they are not comparable for cancers with good prognosis, as a result of deaths from other causes.

Associations between lack of health insurance and all-cause mortality reflect access to all aspects of health care, not just cancer care. Although improving insurance coverage for uninsured patients approaching Medicare eligibility age could improve survival, providing access to insurance alone is unlikely to completely eliminate the survival differences, as the relationship between access and cancer outcomes from lack of insurance is complex, and other social determinants associated with being uninsured are likely to worsen patient outcomes as well. Finally, insurance status was documented only at the time of diagnosis. We thus could not measure insurance status longitudinally and were unable to isolate important subgroups for comparison, such as those who were uninsured and younger but then moved to Medicare when they reached age sixty-five.

## Study Results

**PATIENT CHARACTERISTICS** Exhibit 1 shows characteristics for 1,206,821 patients ages 60–64 and 66–69 with sixteen different cancers in the four insurance-age categories, of whom 3.7 percent were uninsured (ages 60–64), 56.0 percent were privately insured (ages 60–64), 17.6 percent had Medicare only (ages 66–69), and 22.6 percent had both Medicare and private insurance (ages 66–69). Compared with those without insurance in the group ages 60–64, those with insurance were more likely to be non-Hispanic White (78.4 percent versus 57.7 percent), whereas non-Hispanic Black (9.0 percent versus 19.4 percent) and Hispanic (3.3 percent versus 13.1 percent) patients were disproportionately represented in the uninsured group ( $p < 0.0001$ ). Younger uninsured patients were nearly twice as likely to present with late-stage disease and had a significantly lower median income and higher social deprivation index than their older Medicare counterparts. Furthermore, uninsured patients had lower rates for receipt of surgery, chemotherapy, and radiation treatment.

**SURVIVAL OUTCOMES BY INSURANCE STATUS** Exhibits 2–4 display five-year survival curves for younger uninsured patients (ages 60–64), younger patients with private insurance (ages 60–64), Medicare-only patients (ages 66–69), and patients with Medicare and private insurance (ages 66–69) with lung, colorectal, and prostate cancer types by stage. Across the cancer types, younger uninsured patients had notably lower survival compared with their older Medicare-only or Medicare and private insurance counterparts. The five-year survival curve for breast cancer is in appendix exhibit A3.<sup>15</sup>

Survival differences were more pronounced among patients diagnosed with some cancer types than with others. For example, five-year survival rates for late-stage breast or prostate cancer were 5–26 percent lower in younger uninsured patients compared with patients with Medicare only or Medicare and private insurance. Similarly, uninsured patients showed considerably worse five-year survival than those with Medicare only or with Medicare and private insurance for many other cancer types. Conversely, five-year survival rates between patients with and without insurance did not differ much for pancreatic and esophageal cancer. Appendix exhibit A4 displays the probability of survival among patients ages 60–69 diagnosed with major cancer types by insurance-age categories, and appendix exhibit A5 displays five-year survival curves for insurance-age categories among patients ages 60–69 by cancer type and stage.<sup>15</sup>

There was also markedly worse one- and two-year survival in younger uninsured patients com-

**EXHIBIT 1**
**Characteristics of US patients ages 60–69 diagnosed with 16 major cancer types, by insurance-age categories**

Variables and subcategories	Total (N = 1,206,821)	Ages 60–64		Ages 66–69	
		Uninsured (n = 44,039)	Private (n = 678,634)	Medicare only (n = 211,908)	Medicare and private (n = 272,240)
Percent of total	100.0%	3.7%	56.0%	17.6%	22.6%
Race/ethnicity					
Non-Hispanic White	77.1	57.7	78.4	74.4	79.0
Non-Hispanic Black	9.9	19.4	9.0	12.2	8.7
Hispanic	4.0	13.1	3.3	4.9	3.3
Other/unknown	9.1	9.7	9.2	8.5	9.0
Sex					
Male	56.0	54.2	55.5	55.8	57.6
Female	44.0	45.8	44.5	44.2	42.4
Comorbidity score					
0	76.1	73.4	79.1	70.3	73.6
1	18.0	19.5	16.4	20.9	19.5
2+	5.9	7.1	4.5	8.8	7.0
Stage <sup>a</sup>					
Early stage	69.7	45.6	72.0	65.5	71.1
Late stage	30.3	54.4	28.0	34.5	28.9
Surgery					
No surgery	38.8	55.5	35.1	44.3	41.0
Surgery	61.2	44.4	64.9	55.6	59.0
Missing	0.0	0.1	0.0	0.0	0.0
Chemotherapy					
No chemotherapy	66.2	58	65.6	67.1	68.2
Chemotherapy	32.8	41.2	33.3	32.0	30.8
Missing	1.0	0.8	1.0	0.9	1.0
Radiation treatment					
No radiation therapy	61.8	65.3	62.0	62.3	60.5
Radiation therapy	37.1	33.0	37.0	36.6	38.4
Missing	1.1	1.7	1.0	1.1	1.0

**SOURCE** Authors' analyses of data from the National Cancer Database, 2004–16. **NOTES** This exhibit details the characteristics of patients in the four insurance categories and includes information on race, sex, comorbidity score, stage of disease, and type of treatment received. Cancer types are listed in appendix exhibit A1 (see note 15 in text). Patients age sixty-five at diagnosis and newly age-eligible for Medicare were excluded to allow time for enrollment in the program. Chi-square tests were used to determine statistical significance across insurance categories. All *p* values were <0.0001. <sup>a</sup>Pathologic stage used if clinical stage was missing.

pared with Medicare-only or Medicare and private insurance patients by cancer type, even in those cancers without much of a survival difference at year 5, as shown in appendix exhibits A4 and A5.<sup>15</sup> For instance, large one-year survival differences from 12 percent to 17 percent between younger uninsured and Medicare-only patients were evident for patients with lung cancer, esophageal cancer, bladder cancer, and melanoma (appendix exhibit A4).<sup>15</sup> Similarly, two-year survival differences between 12 percent and 20 percent were seen between younger uninsured and Medicare-only patients with the same group of cancers. Even in cancers for which five-year survival was similar between insured and uninsured patients, one- and two-year survivorship was better in older patients with Medicare as opposed to younger patients without insurance (appendix exhibit A5).<sup>15</sup> Overall, there were demonstrable hierarchical survival differences

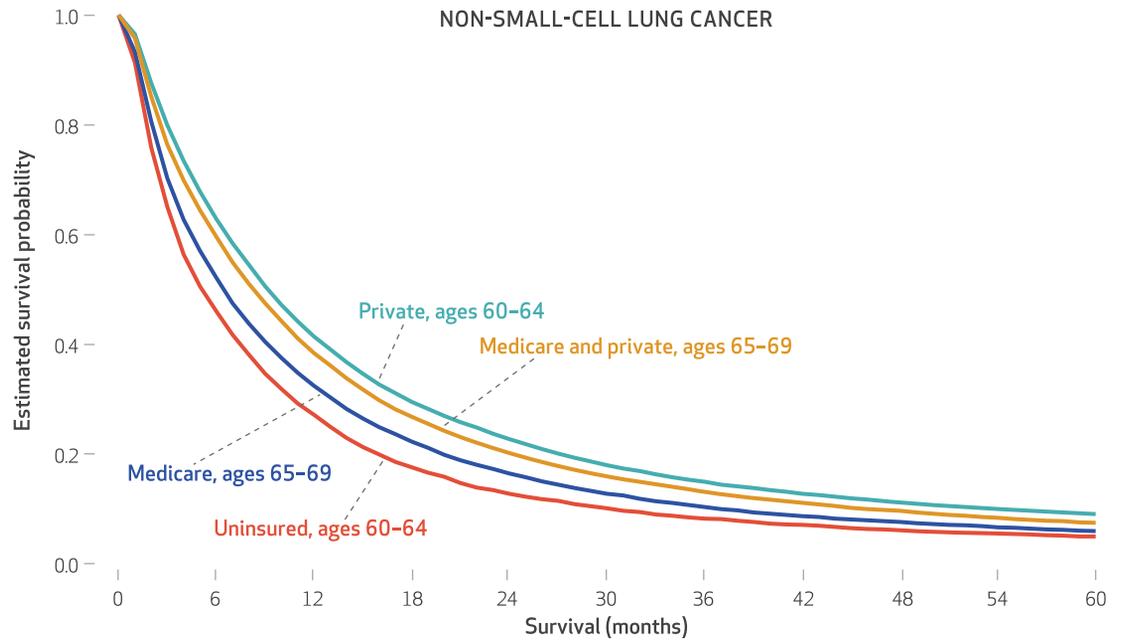
by insurance coverage gradient such that, within the ages 60–64 category, those without insurance had worse survival than those with Medicaid alone, who in turn had worse survival than those with both Medicare and Medicaid, who had worse survival than privately insured patients (appendix exhibit A4).<sup>15</sup>

Younger uninsured patients had higher risk of one-, two-, and five-year all-cause mortality across all cancer types compared with older Medicare-only patients. Exhibit 5 shows the adjusted hazard ratios of all-cause mortality risk for insurance-age categories among patients ages 60–69 diagnosed with lung, colorectal, breast, or prostate cancer, and appendix exhibit A6 displays similar data for twelve additional cancers.<sup>15</sup>

The five-year excess risk for death was higher in younger uninsured patients for the four major cancer types and ranged from 9 percent (hazard ratio: 1.09) among patients with colorectal can-

**EXHIBIT 2**

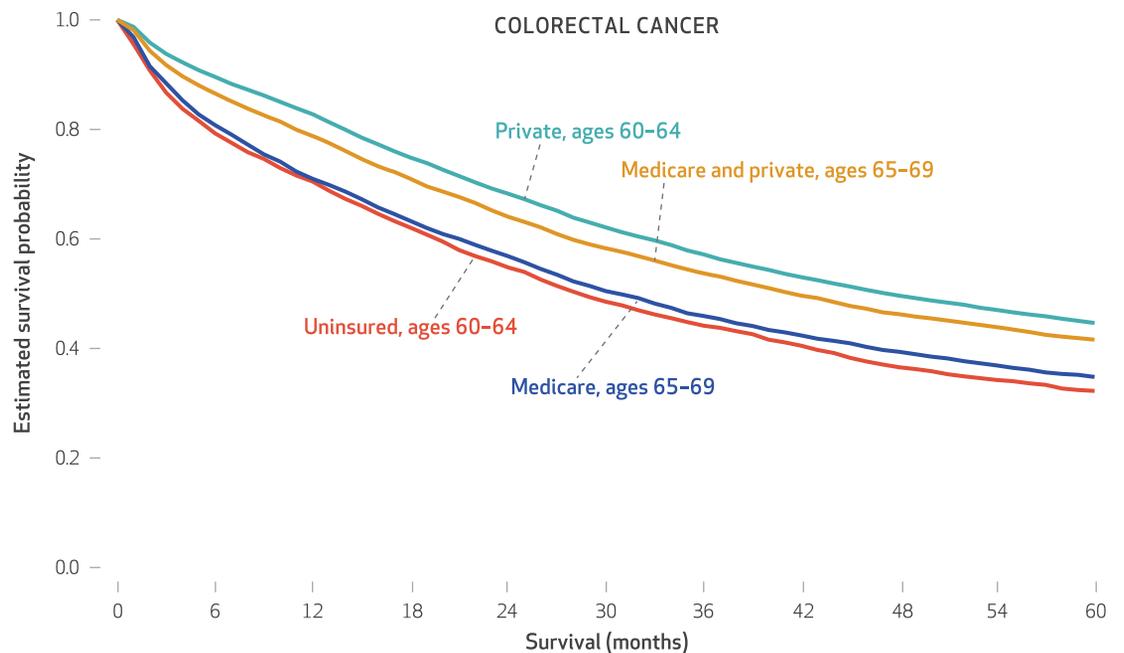
**Overall five-year survival curves for insurance-age categories among US patients ages 60–69 diagnosed with late-stage non-small-cell lung cancer**



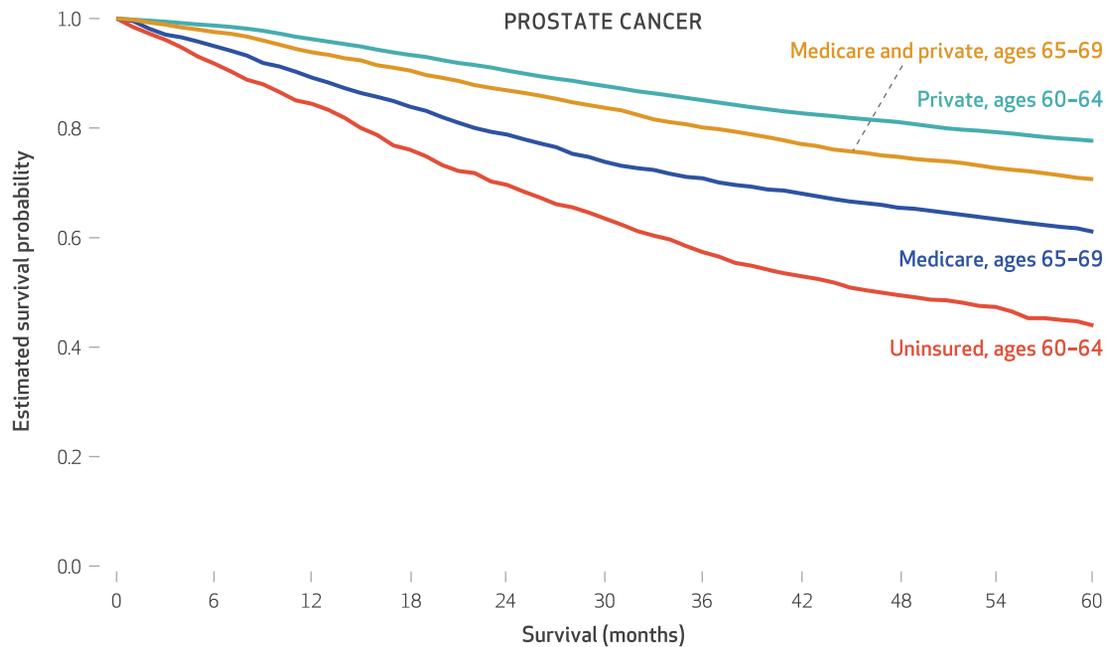
**SOURCE** Authors' analyses of data from the National Cancer Database, 2004–16. **NOTE** This graph shows that younger uninsured patients with lung cancer have much worse outcomes than their older insured counterparts at one, two, and five years.

**EXHIBIT 3**

**Overall five-year survival curves for insurance-age categories among US patients ages 60–69 diagnosed with late-stage colorectal cancer**



**SOURCE** Authors' analyses of data from the National Cancer Database, 2004–16. **NOTE** This graph shows that younger uninsured patients with colorectal cancer have much worse outcomes than their older insured counterparts at one, two, and five years.

**EXHIBIT 4****Overall five-year survival curves for insurance-age categories among US patients ages 60–69 diagnosed with late-stage prostate cancer**

**SOURCE** Authors' analyses of data from the National Cancer Database, 2004–16. **NOTE** This graph shows that younger uninsured patients with prostate cancer have much worse outcomes than their older insured counterparts at one, two, and five years.

cer to 24 percent (hazard ratio: 1.24) among those with prostate cancer (exhibit 5). This finding was also evident to varying degrees across twelve other cancer types (appendix exhibit A6).<sup>15</sup>

**COMPARISONS BY RACE/ETHNICITY** Non-Hispanic Black patients had higher risk for mortality compared with non-Hispanic White patients for all cancer types, even after we adjusted for stage. Accounting for insurance partially reduced but did not eliminate the risk for excess death for most cancers. Appendix exhibit A7 shows the hazard ratios of all-cause mortality for race/ethnicity among patients ages 60–69 diagnosed with major cancer types.<sup>15</sup>

## Discussion

This study assessed survival among younger insured and uninsured patients with cancer compared with older Medicare beneficiaries for sixteen cancers. The findings add to the understanding of the significantly negative association between a lack of health insurance coverage and cancer survival. Younger uninsured patients approaching Medicare age eligibility (ages 60–64) had strikingly worse one-, two-, and five-year survival when compared with immediately older Medicare beneficiaries (ages 65–

69) across all sixteen cancer types. Worse outcomes were present even after adjustment for stage, race/ethnicity, comorbidity score, sex, US census division, and reporting facility type. Although we expected younger uninsured patients to have worse survival than younger insured patients, our finding of considerably lower survival for younger uninsured patients compared with older Medicare beneficiaries is both novel and important because older patients usually suffer from more comorbidities and, as a group, have poorer survival than their younger counterparts.

In this and other studies, patients without health insurance coverage were far more likely than their insured counterparts to present with advanced versus localized stage disease, and as such were much less likely to receive surgery with curative intent as part of their treatment course and less likely to receive systemic treatment for their disease.<sup>19–21</sup> Others have also reported that uninsured patients were 1.5 to 3 times more likely than their insured counterparts to present with advanced cancer.<sup>6</sup>

Approximately 114,000 patients are diagnosed with cancer each year in the decade before they become age-eligible for Medicare. Findings from prior research from multiple cancer sites suggested that stage at diagnosis would likely im-

## EXHIBIT 5

## Adjusted hazard ratios of all-cause mortality risk for insurance-age categories among patients ages 60–69 diagnosed with 4 major cancer types, by survival time and cancer type

Insurance-age category and cancer type	One year		Two years		Five years	
	HR	(95% CI)	HR	(95% CI)	HR	(95% CI)
<b>NON-SMALL-CELL LUNG CANCER</b>						
Medicare only, ages 66–69 (ref)	1.00	— <sup>a</sup>	1.00	— <sup>a</sup>	1.00	— <sup>a</sup>
Uninsured, ages 60–64	1.18	(1.14, 1.22)	1.16	(1.12, 1.19)	1.14	(1.11, 1.18)
Private, ages 60–64	0.75	(0.73, 0.76)	0.77	(0.76, 0.78)	0.77	(0.76, 0.79)
Medicare and private, ages 66–69	0.81	(0.79, 0.83)	0.83	(0.81, 0.85)	0.84	(0.83, 0.86)
<b>COLORECTAL CANCER</b>						
Medicare only, ages 66–69 (ref)	1.00	— <sup>a</sup>	1.00	— <sup>a</sup>	1.00	— <sup>a</sup>
Uninsured, ages 60–64	1.14	(1.07, 1.22)	1.10	(1.04, 1.16)	1.09	(1.03, 1.15)
Private, ages 60–64	0.56	(0.54, 0.59)	0.63	(0.61, 0.65)	0.69	(0.66, 0.71)
Medicare and private, ages 66–69	0.70	(0.67, 0.74)	0.76	(0.72, 0.79)	0.79	(0.76, 0.83)
<b>BREAST CANCER</b>						
Medicare only, ages 66–69 (ref)	1.00	— <sup>a</sup>	1.00	— <sup>a</sup>	1.00	— <sup>a</sup>
Uninsured, ages 60–64	1.47	(1.31, 1.64)	1.34	(1.22, 1.47)	1.21	(1.11, 1.31)
Private, ages 60–64	0.56	(0.52, 0.60)	0.61	(0.58, 0.65)	0.61	(0.58, 0.64)
Medicare and private, ages 66–69	0.65	(0.59, 0.71)	0.69	(0.64, 0.73)	0.71	(0.68, 0.76)
<b>PROSTATE CANCER</b>						
Medicare only, ages 66–69 (ref)	1.00	— <sup>a</sup>	1.00	— <sup>a</sup>	1.00	— <sup>a</sup>
Uninsured, ages 60–64	1.34	(1.16, 1.55)	1.32	(1.19, 1.47)	1.24	(1.13, 1.35)
Private, ages 60–64	0.47	(0.43, 0.51)	0.48	(0.45, 0.51)	0.47	(0.45, 0.49)
Medicare and private, ages 66–69	0.63	(0.57, 0.69)	0.66	(0.61, 0.71)	0.72	(0.69, 0.76)

**SOURCE** Authors' analyses of data from the National Cancer Database, 2004–16. **NOTES** Patients age sixty-five at diagnosis and newly age-eligible for Medicare were excluded to allow time for enrollment in the program. Data were adjusted for race/ethnicity, comorbidity score, diagnosis year, sex, stage, US census division, and facility type. Cancer stage was not included in the models comparing Medicare only, ages 66–69, and Medicare and private, ages 66–69. CI is confidence interval. <sup>a</sup>Not applicable.

prove if patients younger than age sixty-five were provided even basic Medicare coverage (without supplemental insurance).<sup>22</sup> The constellation of these findings suggests that expanding age eligibility for Medicare to at least age sixty may improve cancer outcomes in the US.

Other policies expanding coverage options can also improve cancer outcomes. Medicaid expansion as part of the ACA was associated with reductions in uninsurance among patients with cancer and led to patients presenting with earlier-stage disease at diagnosis.<sup>23,24</sup>

Early studies on the effects of Medicaid expansion show that the proportion of uninsured patients with cancer decreased more rapidly in states that expanded Medicaid compared with those that did not.<sup>23</sup> One recent study that examined mortality for newly diagnosed breast, lung, and colorectal cancer found a lower mortality rate in states where Medicaid was expanded as opposed to those where it was not, and research examining survival and mortality in other cancer sites is ongoing as data mature.<sup>24</sup> Despite the benefits of expansion of Medicaid eligibility to 138 percent of the federal poverty level, many uninsured adults in their sixties will not qualify because their incomes exceed that eligibility

threshold (\$17,608 for a single adult and \$23,791 for two adults in the household).<sup>25</sup>

Previous work has also documented that people without health insurance are less likely to participate in effective cancer screening programs that can detect early-stage treatable disease<sup>26</sup> or to have a usual source of primary care who might recommend screening or assess early signs and symptoms.<sup>7</sup> Others have noted that the provision in the ACA that eliminated cost sharing for effective preventive services could lead to diagnosis of early-stage colorectal cancers in a Medicare population.<sup>27</sup>

Although we focused on a comparison of younger patients without insurance versus older patients with Medicare, we did find that any insurance was better than none. This was true in a dose-response fashion, with younger privately insured patients having the best outcomes and younger uninsured patients the worst, with patients with Medicaid, Medicare plus Medicaid, Medicare alone, or Medicare plus supplemental insurance falling in between.

Even in cancers for which five-year survival did not differ much by insurance status and age, this study showed that people with insurance had better one- and two-year survival, suggesting a

lack of access to effective new treatments among uninsured people.<sup>28</sup> For most patients facing a cancer diagnosis, even one or two years of extra survival would be welcomed.

Compared with younger adults, adults approaching Medicare eligibility are more likely to lose their employer-sponsored insurance, be denied insurance at ACA Marketplaces, and face increasing out-of-pocket expenses.<sup>29,30</sup> They may also face the difficult decision of whether to take early retirement or postpone retirement if they are faced with acute or chronic health conditions such as cancer.<sup>30</sup> As such, they are a vulnerable population that could benefit from specific policies that expand health insurance coverage.

Our findings of reduced differences in racial/ethnic cancer outcomes after adjustment for differences in insurance status underscore the importance of health insurance coverage in efforts toward reducing racial/ethnic survival disparities. There is a plethora of evidence in the scientific literature showing that high uninsurance in racial/ethnic minorities contributes to poorer access to screening, effective treatments, and survival.<sup>31,32</sup> For example, studies reported that insurance coverage differences accounted for up to half of the disparity in survival rates of Black versus White patients for breast and colorectal cancer.<sup>31,33</sup> African American patients diagnosed with cancers have also been shown to be more likely to be younger, poorer, and unemployed or underemployed compared with their White counterparts.<sup>34</sup> Expanding uniform health insurance to younger patients approaching Medicare age eligibility may not only improve overall survival but also reduce racial/ethnic disparities. However, adjusting for insurance status did not completely eliminate the disparities in outcomes suffered by African American patients in our study. This suggests that there are other social determinants of can-

cer outcomes not accounted for here. Other studies have shown that substantial socioeconomic disparities in cancer survival remain even in the egalitarian Nordic countries with long-standing universal health care coverage.<sup>35,36</sup>

Other chronic conditions, such as heart disease and diabetes, are also prevalent in the group ages 60–64, although to date, little research has compared health outcomes in younger uninsured adults with those in slightly older Medicare beneficiaries. Although this study focused on outcomes in cancer, analyses such as this can be used to consider the health benefits that lowering Medicare age eligibility might have on other common, costly, and life-threatening diseases.

## Conclusion

Nearly a quarter of all new cancers diagnosed each year in the US occur among people in the decade before eligibility for Medicare, and cancer remains the leading cause of death in this age group, accounting for 114,000 deaths per year.<sup>14</sup> Although younger patients with similar cancers at the same stage have better survival than their older counterparts, this study found noticeably worse survival when younger uninsured patients approaching Medicare age were compared with their immediately older Medicare counterparts. Expanding comprehensive health insurance coverage to people approaching Medicare eligibility age down to at least age sixty may improve cancer outcomes. Although insurance alone would not eliminate the health disparities facing underserved Americans with cancer, our findings underscore the importance of having genuine policy discussions to expand universal health insurance to uninsured patients before they reach Medicare age eligibility. ■

## NOTES

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