



Original research

Proportion of patients with cancer among high-cost Medicare beneficiaries: Who they are and what drives their spending



Miranda B. Lam^a, Laura G. Burke^b, E. John Orav^c, Ashish K. Jha^{d,*}

^a Department of Health Policy and Management (MBL, LGB, AKJ) and Department of Biostatistics (EJO), Harvard T.H. Chan School of Public Health, United States

^b Department of Radiation Oncology (MBL), Brigham and Women's Hospital/ Dana Farber Cancer Institute, United States

^c Department of Emergency Medicine (LGB), Beth Israel Deaconess Medical Center, United States

^d Department of General Internal Medicine (AKJ), VA Boston Healthcare System; the Harvard Global Health Institute (AKJ), 42 Church St., Cambridge, MA 02138, United States

ABSTRACT

Background: A small proportion of patients account for the majority of health care spending. Of this group, little is known about what proportion have a cancer diagnosis and how their spending pattern compares to those without cancer.

Methods: Using national Medicare data of enrollees 65 or older, we identified patients in the top decile of spending in 2014 and designated them as high-cost. We used ICD-9 codes to identify patients with a cancer diagnosis and examined cancer prevalence among both high-cost and non-high-cost patients. We examined patterns of spending for high-cost patients with and without cancer.

Results: While 14.8% of all Medicare beneficiaries have a cancer diagnosis, we found that the prevalence of a cancer diagnosis was much higher among high-cost patients (32.5% versus 12.9% of non-high-cost patients). Thus, having a cancer diagnosis was associated with a 3.1 times greater odds of being high-cost, even after accounting for age (odds ratio 3.09, 95% CI 3.07–3.11; $P < 0.001$). High-cost patients with cancer had higher total annual spending than high-cost patients without cancer (\$66,685 vs. \$59,427; $p < 0.0001$); costs among high-cost cancer patients were driven by greater use of outpatient treatments (19.2% of total spending vs. 13.6% among non-cancer high-cost patients, $p < 0.0001$) and more prescription drugs (11.9% vs. 9.9%; $p < 0.0001$).

Conclusions: There is a high prevalence of cancer diagnoses among high-cost Medicare patients.

Implications: Programs that target high-cost patients may need to customize interventions based on whether the patient has a cancer diagnosis.

1. Introduction

Healthcare costs continue to pose a substantial challenge to both public and private payers in the United States,^{1,2} and there is still little consensus on how best to address the problem. We know that the majority of healthcare spending is concentrated among a small number of patients,³ suggesting that targeting the care of high-cost patients might be a good strategy to reduce national healthcare spending.^{4,5} Among Medicare beneficiaries, those in the top 10% of healthcare spending account for over 60% of all Medicare expenditures.² There has been substantial policy and clinical attention lately towards this high-cost group, including new care models that try to improve outcomes and lower spending for this population.

While we increasingly know more about this high-cost population, we know very little about the role that cancer might play. We lack even

the most basic data on the prevalence of cancer in this expensive population. As the U.S. population ages, with the projected increase in cancer prevalence⁶ and ongoing introductions of new and expensive treatments,^{7,8} patients with cancer are likely to be a bigger fraction of the high-cost population. However, cancer is still viewed by too many as an acute condition with a few highly expensive episodes. However, for a large bulk of the population, cancer can be considered as a chronic disease with many components of healthcare spending. As clinical leaders and policymakers craft interventions for high-cost patients, understanding the prevalence of those with cancer and whether (and how) their spending differs from other patients would be immensely helpful.

In this study, we took a population-based approach and sought to answer three questions: First, to what degree is having a cancer diagnosis associated with being a high-cost patient in the Medicare

* Corresponding author.

E-mail address: ajha@hsph.harvard.edu (A.K. Jha).

population? Second, which types of cancers are more likely to be in the high-cost group? And finally, what are the major drivers of spending (e.g. hospitalizations, physician services, or medications) among high-cost cancer patients and how does that differ, if at all, compared to high-cost patients without a cancer diagnosis?

2. Methods

2.1. Patients

This study uses 2014 Medicare Research Identifiable files. Beneficiary age, race (categorized in the Medicare data according to self-report), sex, and Medicaid eligibility were obtained from the Master Beneficiary Summary File. We identified all claims for eligible beneficiaries in the Inpatient, Outpatient, Carrier (provider claims for outpatient and inpatient services), Skilled Nursing Facility (SNF), Home Health (HHA), Hospice, Durable Medical Equipment (DME) and Part D files (pharmaceutical claims). Information on hospital payment was obtained from the claims files listed above.

We included a 20% sample of Medicare beneficiaries ages 65 and older, who were continuously enrolled for the entire year of 2014, or until death during the year 2014, in the traditional Medicare fee-for-service program. Patients with a diagnosis of only non-melanoma skin cancers (such as basal cell carcinoma of the skin) were excluded (Appendix Fig. 1). We used the Centers for Medicare & Medicaid Services Chronic Conditions Warehouse to assign comorbidities to each patient in our cohort based on their inpatient and outpatient diagnoses.

2.2. Identifying high-cost patients

We created total annual standardized costs for each beneficiary using methods previously published by CMS.⁹ This method uses published Medicare fee schedules to assign standardized Medicare costs to each outpatient and carrier file service, regardless of the actual amount Medicare paid for each service. The use of standardized costs allows us to compare service utilization and spending in different regions of the country after eliminating the variation in spending due to regional differences in the price/wage index. Consistent with prior studies,^{10,11} we defined high-cost patients as those in the top decile of total annual standardized cost in 2014.

2.3. Identifying patients with a cancer diagnosis

International Classification of Diseases, Ninth Revision (ICD-9) codes were used to identify patients with a diagnosis of cancer. We classified patients with multiple cancers into mutually exclusive primary cancer diagnoses according to a previously defined hierarchy:¹² lung, hematologic, gastrointestinal, breast, genitourinary, gynecologic, head and neck, sarcoma, melanoma, central nervous system, and metastatic disease of unknown primary (Appendix Table 1).

2.4. Analysis

We first compared baseline characteristics of patients with and without a cancer diagnosis, stratified by cost. Chi-square tests were used for categorical characteristics and a Wilcoxon test was used for age. Similar comparisons were carried out between high-cost and non-high-cost patients, stratified by presence or absence of a cancer diagnosis. To evaluate whether patients with a cancer diagnosis are over-represented in the high-cost group, we calculated the proportion of patients with a cancer diagnosis in the high-cost group and compared this to the proportion of patients with a cancer diagnosis in the non-high-cost group using a chi-square test. We then calculated the proportion of total Medicare spending by high-cost patients that was attributable to high-cost cancer patients. A similar calculation was done for the proportion of total Medicare spending by non-high-cost patients

that were attributable to non-high-cost cancer patients.

We performed multivariable logistic regressions using high-cost status as the outcome and presence of a cancer diagnosis as the predictor, adjusting for patient age in one model and adjusted for patient characteristics and chronic conditions in the second model. In order to determine if particular types of cancer are associated with a higher likelihood of being high-cost, we also ran logistic regression models with high-cost status as the outcome and individual cancer category as a predictor, also adjusting for age then patient characteristics and chronic conditions. The patients without cancer were the reference group for the second model.

To examine how having a cancer diagnosis impacts spending within the high-cost group, we compared costs for high-cost patients with a cancer diagnosis to high-cost patients without a cancer diagnosis. We also compared spending patterns among cancer patients who were high-cost to those cancer patients who were not high-cost. In order to do this, we first divided beneficiaries' spending into the following categories: inpatient care, outpatient care, physician services, home health, SNF, hospice, DME and pharmaceutical spending. All claims were assigned to one of these distinct categories. Physician services were broken down into evaluation and management, procedures, imaging, tests, radiation oncology, and chemotherapy. We compared standardized costs overall and for the individual components of spending using linear regression with standardized cost as the outcome and the patient's presence or absence of a cancer diagnosis as the predictor. Due to increased interest in hospice use among cancer patients, we also looked at hospice spending in the non-high-cost group.

Finally, as a sensitivity analysis, we repeated our analysis re-defining the cancer group as patients only with a primary cancer diagnosis on any claim during the year and the non-cancer group as any patient without cancer as a primary diagnosis on a claim during the year. All analyses were performed using SAS software, version 9.4 (SAS Institute Inc.). This study was approved by the institution's review board, and the requirement of informed consent was waived because of the de-identified nature of the data.

3. Results

3.1. Patient characteristics

Our final sample included 5,458,320 patients with 545,833 beneficiaries (10%) considered to be high-cost patients. Overall, 810,796 (14.8%) patients had a cancer diagnosis. Genitourinary cancers were the most common overall (262,996; 4.8%), followed by breast (169,860; 3.1%), hematologic (94,091; 1.7%), gastrointestinal (98,691; 1.8%), and lung (75,231; 1.4%). Only 2.0% of patients had more than one cancer diagnosis during the year.

Demographic characteristics and prevalence of chronic conditions and comorbidities differed among the four groups of patients (high-cost with cancer, high-cost without cancer, non-high-cost with cancer, and non-high-cost without cancer) (Table 1; Appendix Table 2). Within the high-cost group, cancer patients were less likely to be female (50.1% vs. 63.3%) and Medicaid eligible (16.7% vs. 26.6%) and more likely to be white (86.2% vs. 83.4%) than high-cost patients without cancer. Within the non-high-cost group, cancer patients were less likely to be female (48.4% vs. 58.3%) and Medicaid eligible (8.5% vs. 11.6%) and more likely to be white (88.2% vs. 85.0%) than non-high-cost patients without cancer. Patients with a cancer diagnosis in the high-cost group were less likely to have chronic conditions compared to patients without a cancer diagnosis in the high-cost group, including chronic kidney disease, heart failure, diabetes, ischemic heart disease, depression, and hypertension (Table 1). For a full list of comorbidities across the groups, please see Appendix Table 3.

Download English Version:

<https://daneshyari.com/en/article/6925758>

Download Persian Version:

<https://daneshyari.com/article/6925758>

[Daneshyari.com](https://daneshyari.com)