



Original research

Medicaid is associated with increased readmission and resource utilization after primary total knee arthroplasty: a propensity score–matched analysis

David Shau, MD, MBA ^{a,*}, Neeta Shenvi, MS ^b, Kirk Easley, MAppStat, MS ^b,
Melissa Smith, MS, ATC ^a, George Guild III, MD ^a

^a Emory University Department of Orthopaedic Surgery, Atlanta, GA, USA

^b Emory University Department of Biostatistics and Bioinformatics, Rollins School of Public Health, Atlanta, GA, USA

ARTICLE INFO

Article history:

Received 28 March 2018

Received in revised form

30 April 2018

Accepted 1 May 2018

Available online 18 July 2018

Keywords:

Primary total knee arthroplasty

Medicaid

Insurance status

Resource utilization

Readmission

ABSTRACT

Background: Medicaid payer status has been shown to affect resource utilization across multiple medical specialties. There is no large database assessment of Medicaid and resource utilization in primary total knee arthroplasty (TKA), which this study sets out to achieve.

Methods: The Nationwide Readmissions Database was used to identify patients who underwent TKA in 2013 and corresponding “Medicaid” or “non-Medicaid” payer statuses. Demographics, 15 individual comorbidities, readmission rates, length of stay, and direct cost were evaluated. A propensity score–based matching model was then used to control for baseline confounding variables between payer groups. A chi-square test for paired proportions was used to compare readmission rates between the 2 groups. Length of stay and direct cost comparisons were evaluated using the Wilcoxon signed-rank test.

Results: A total of 8372 Medicaid and 268,261 non-Medicaid TKA patients were identified from the 2013 Nationwide Readmissions Database. A propensity score was estimated for each patient based on the baseline demographics, and 8372 non-Medicaid patients were propensity score matched to the 8372 Medicaid patients. Medicaid payer status yielded a statistically significant increase in overall readmission rates of 18.4% vs 14.0% ($P < .0001$, relative risk = 1.31, 95% confidence interval [1.23–1.41]) with non-Medicaid status and 90-day readmission rates of 10.0% vs 7.4%, respectively ($P < .001$, relative risk = 1.35, 95% confidence interval [1.22–1.48]). The mean length of stay was longer in the Medicaid group compared with the non-Medicaid group at 4.0 days vs 3.3 days ($P < .0001$) as well as the mean total cost of \$64,487 vs \$61,021 ($P < .0001$).

Conclusions: This study demonstrates that Medicaid payer status is independently associated with increased resource utilization, including TKA, readmission rates, length of stay, and total cost after TKA.

© 2018 The Authors. Published by Elsevier Inc. on behalf of The American Association of Hip and Knee Surgeons. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

Introduction

Over the last 6 decades, the Medicaid program has grown from a health-care coverage program for welfare recipients into a large public health insurance program for low-income and disabled

Americans [1]. Medicaid now provides coverage for over 72 million patients and is the single largest health insurance plan in the United States [2]. The Affordable Care Act (ACA) further expanded the Medicaid program by creating a national Medicaid minimum eligibility level of 133% of the federal poverty level beginning in 2014, which has been estimated to increase the number of covered individuals younger than 65 years of age by approximately 12 million [3,4]. Total knee arthroplasty (TKA) is among the largest and fastest growing health-care expenditures, accounting for nearly \$3 billion in Medicare reimbursement in 2013 alone [5,6]. Recent health-care reform has tasked hospitals, surgeons, and policymakers to reduce cost while maintaining quality in TKA. Medicare programs such as the Medicare Bundled Payment for Care Improvement Initiative and

No author associated with this paper has disclosed any potential or pertinent conflicts which may be perceived to have impending conflict with this work. For full disclosure statements refer to <https://doi.org/10.1016/j.artd.2018.05.001>.

* Corresponding author. 59 Executive Park South Suite 2000, Atlanta, GA 30329, USA. Tel.: +1 214 226 5292.

E-mail address: david.n.shau@gmail.com

<https://doi.org/10.1016/j.artd.2018.05.001>

2352-3441/© 2018 The Authors. Published by Elsevier Inc. on behalf of The American Association of Hip and Knee Surgeons. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

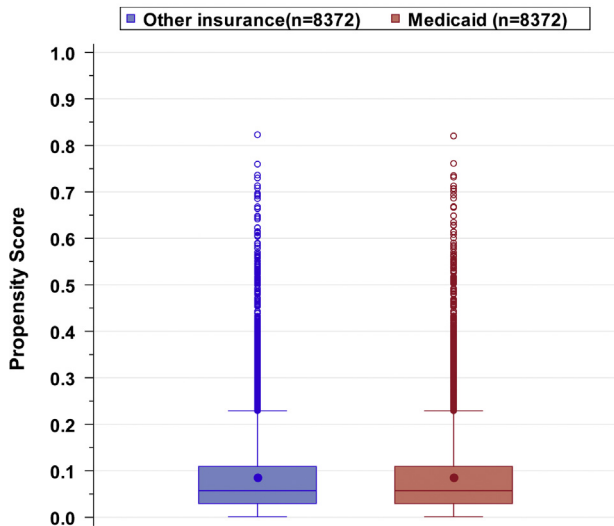


Figure 1. Evaluation of common support using distributions of propensity scores by type of insurance. The degree to which the propensity score has been appropriately specified was ascertained through evaluation of common support. Common support is defined by overlapping distributions of propensity scores between insurance groups. Overlap in the propensity score distributions indicates the potential for a patient in the Medicaid group to be in the “other” insurance group and that patients with each level of covariates may have either exposure status (ie, supporting the assumptions of exchangeability and positivity). A lack of common support or a complete separation of propensity scores without any overlap between the 2 exposure groups (ie, Medicaid patients and patients with “other” types of insurance) indicates severe differences between the 2 exposure groups and the possibility that confounding cannot be reduced using propensity methods. This boxplot demonstrates overlapping ranges of the boxplots of propensity scores between Medicaid patients and patients with “other” types of insurance, which indicates that the propensity model exhibits common support. Circles within each boxplot denote the mean score. The middle line within the box represents the median, the top line represents the 75th percentile, and the bottom line represents the 25th percentile. The upper fence is defined as the third quartile (represented by the upper edge of the box) plus 1.5 times the interquartile range. The lower fence is defined as the first quartile (represented by the lower edge of the box) minus 1.5 times the interquartile range. Observations outside the fences are identified with an open circle.

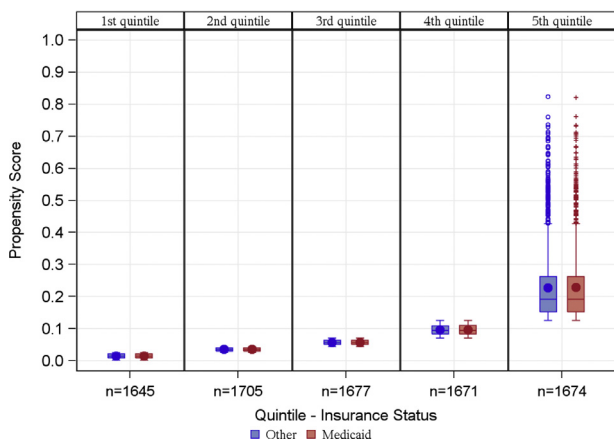


Figure 2. Distribution of propensity scores by quintiles and type of insurance. Boxplot demonstrates distribution of propensity scores among Medicaid patients and patients with other types of insurance by quintiles of propensity scores. Circles within each boxplot denote the mean score. The middle line within the box represents the median, the top line represents the 75th percentile, and the bottom line represents the 25th percentile. The upper fence is defined as the third quartile (represented by the upper edge of the box) plus 1.5 times the interquartile range. The lower fence is defined as the first quartile (represented by the lower edge of the box) minus 1.5 times the interquartile range. Observations outside the fences are identified with an open circle.

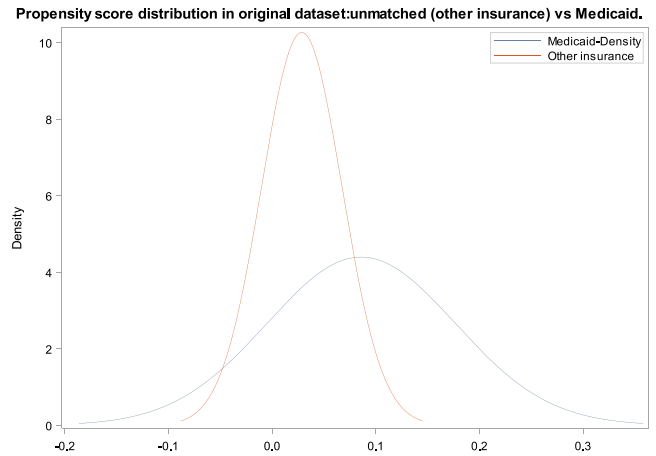


Figure 3. Propensity score distribution of Medicaid vs non-Medicaid insurance in original unmatched datasets and matched datasets.

the Comprehensive Care for Joint Replacement Model aim to align incentives to contain costs through bundling payments for an episode of care from the time of surgery through 90 days after discharge [7-9]. While the early results of these alternative payment models (APMs) seem promising [10], concern remains regarding patient selection and access to care [11].

Medicaid insurance status and lower socioeconomic status have repeatedly been shown to affect risk-adjusted outcomes and resource utilization across multiple medical specialties [12-14]. Varying explanations for this finding have described this disparity including complex interaction between socioeconomic status, access to care, patient factors, and clinical outcome measures. Data have been limited to small retrospective studies that suggest Medicaid patients who undergo total joint arthroplasty are more likely to have a longer length of stay, disposition to a rehabilitation facility, and increased readmission within 90 days [15,16]. Despite evidence that patients with Medicaid status require more resources at increased cost, payers have yet to provide adjustment in reimbursement based on Medicaid payer status. With the increasing prevalence of APMs, there may be a disincentive to perform TKAs on patients with Medicaid status.

The primary purpose of this study was to examine the 90-day readmission rates associated with Medicaid versus non-Medicaid payer status after TKA and a secondary purpose to assess overall readmission, length of stay, and total cost between the 2 cohorts. A large, national administrative database was used to achieve a comprehensive analysis and allow Medicaid patients to be matched one-to-one with control patients who differed only in payer status. This study uniquely examines Medicaid payer status as an independent risk factor for morbidity and increased resource utilization at a national level and is the largest patient sample to date. The primary hypothesis is that Medicaid payer status results increased 90-day readmission rates specific to knee replacement, increased all-cause 90-day comorbidity, longer length of stay with increased resource utilization and total cost compared with a matched cohort of control patients with other payer profiles.

Material and methods

The Nationwide Readmissions Database (NRD) was used to identify patients who underwent primary TKA (International Classification of Diseases-9 code 8154) in 2013 as well as corresponding “Medicaid” or “non-Medicaid” payer statuses. The NRD is

Download English Version:

<https://daneshyari.com/en/article/8958616>

Download Persian Version:

<https://daneshyari.com/article/8958616>

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