Preventive Medicine 116 (2018) 126–133

Contents lists available at ScienceDirect

Preventive Medicine

journal homepage: www.elsevier.com/locate/ypmed

The effect of Medicare's Annual Wellness Visit on preventive care for the elderly

Miao Jiang[a,b,*], Danny R. Hughes[c,d], Wenyi Wang[e]

[a] Health Economics and Outcomes Research, IQVIA, 8280 Willow Oaks Corporate Drive, Suite 775, Fairfax, VA 22034, United States of America
[b] Department of Health Administration and Policy, George Mason University, Fairfax, VA 22030, United States of America
[c] Harvey L. Neiman Health Policy Institute, 1891 Preston White Drive, Reston, VA 20191, United States of America
[d] School of Economics, Georgia Institute of Technology, Atlanta, GA 30332, United States of America
[e] MedStar Institute for Quality and Safety, 3007 Tilden St, NW, Suite 5N, Washington, DC 20008, United States of America

ARTICLE INFO

Keywords:
Annual Wellness Visit
Medicare
Preventive care
Healthy aging

ABSTRACT

The study aim was to assess the effect of receiving an Annual Wellness Visit (AWV) between 2011 and 2013 on the annual rate of eight preventive services recommended for the Medicare population following the AWV.

We used retrospective Medicare claims from 2009 to 2014 for a 5% national sample of fee-for-service beneficiaries in the United States. Propensity score-adjusted logistic regressions were performed to estimate the log odds of the probability of receiving the preventive services between beneficiaries who received AWVs during 2011–13 and those who did not during the same period. The average marginal effect was also reported.

Among 845,318 patients who met the inclusion and exclusion criteria, 23% had an AWV in 2011–2013. In a propensity-matched sample of 381,934 patients, AWV participants are more likely to undergo subsequent preventive services within a year (adjusted odds ratio ranges from 1.46 (95% CI, 1.44, 1.49) to 2.43 (95% CI, 2.38, 2.49). The findings are consistent using secondary outcomes or with subgroups defined by baseline primary care provider visits or baseline preventive services.

These analyses showed that AWV is associated with a significant increase in all the preventive services examined. As Healthy People 2020 has established a target goal to increase the proportion of older adults who receive a core set of clinical preventive services by 10%, AWV represents a promising opportunity to facilitate the delivery of preventive care for the elderly and to advance our knowledge about effective strategies for healthy aging.

1. Introduction

The U.S. public health and healthcare systems are facing serious challenges with the arrival of the “silver tsunami” (Rubin, 2015). By 2060, the number of Americans aged 65 and older is projected to reach 23% of the overall population, more than double the number in 2015 (U.S. Census Bureau, 2014). Although preventive services have been shown to slow the progression of disease and maintain elderly health and wellbeing (German et al., 1995; U.S. Department of Health & Human Services, 2012), significant gaps exist in preventive services for older adults. According to the Centers for Disease Control and Prevention (CDC), fewer than half of people age 65 and older are up-to-date with recommended clinical preventive services (Centers for Disease Control and Prevention, n.d.).

As the nation's largest public health insurance program and the primary insurance for the elderly, Medicare plays an essential role in promoting healthy aging, defined as “promoting health, preventing injury, and managing chronic conditions; optimizing physical cognitive, and mental health; and facilitating social engagement” (National Prevention Council, 2016). To better coordinate chronic and preventive care, Medicare started covering a Welcome-to-Medicare visit in 2005 for new beneficiaries within 6 months of beginning their Part B coverage (Centers for Medicare and Medicaid Services, n.d.), which is the standard fee-for-service coverage provided to Medicare enrollees for physician services.

The passage of the Patient Protection and Affordable Care Act (ACA) in 2010 strengthened Medicare's focus on preventive care by covering many preventive services without cost-sharing and providing a free annual wellness visit (AWV) to beneficiaries beyond their first 12 months of Part B coverage. This yearly wellness visit assesses patients' health risk factors, reviews medical and family history, and more importantly, develops or updates a personalized prevention plan that

* Corresponding author at: IQVIA, 8280 Willow Oaks Corporate Drive, Suite 775, Fairfax, VA 22034, United States of America.
E-mail addresses: miao.jiang@iqvia.com (M. Jiang), dhughes@neimanhpi.org (D.R. Hughes), Wenyi.Wang@medstar.net (W. Wang).

https://doi.org/10.1016/j.ypmed.2018.08.035
Received 30 December 2017; Received in revised form 21 August 2018; Accepted 28 August 2018
Available online 31 August 2018

includes a screening schedule for appropriate preventive services. The AWV thus serves to facilitate the delivery of preventive services to Medicare beneficiaries and supplements the once-a-lifetime Welcome-to-Medicare visit.

Previous studies have broadly assessed the change in preventive care since the passage of the ACA (Chung et al., 2015; Han et al., 2015; Jensen et al., 2015).These studies may include AWV as part of the treatment or as an outcome. For example, Jensen and colleagues used the Medical Expenditure Panel Survey of 2009–2010 and 2012 to examine change in eight self-reported preventive services before and after the elimination of patient cost-sharing under Part B and the new coverage of AWV (Jensen et al., 2015). They found no difference in preventive services among patients covered by traditional Medicare only, Medicare managed care, and traditional Medicare with private or public insurance. The authors explained that three factors—patients' unawareness of the new benefits, lack of appropriate physician counseling about the new coverage, and that many of the services were already covered without cost sharing—may account for their findings. Another study by Chung et al. compared trends in preventive visits and preventive services among Medicare fee-for-service, Medicare managed care, and privately insured patients in Palo Alto Medical Foundation in northern California during 2007–13 (Chung et al., 2015). They found a substantial increase in the use of AWV among Medicare enrollees. Two other studies examined the trends in the use of AWV among Medicare population either on a single institution (Hu et al., 2015) or a national sample (Ganguli et al., 2017), with a primary focus on describing AWV utilization pattern by patient and physician characteristics.

To the best of our knowledge, no prior studies have specifically examined whether patients' receiving AWVs increase their use of preventive care or mitigate health risks. This evidence is needed to determine whether the expanded coverage of preventive care in Medicare is effective in promoting healthy aging and should be retained in the face of future health care reforms (Ganguli et al., 2017). Therefore, the objective of this study is to assess the effect of receiving an AWV on the utilization of several covered preventive services using a national sample of Medicare fee-for-service beneficiaries.

2. Methods

We conducted a retrospective cohort study to compare patients who had any AWV between 2011 and 2013 with those who have no Welcome-to-Medicare visit or AWV during the same period on their utilization of eight preventive services. The data come from the Medicare Research Identifiable Files (RIF), which contain the billing claims for a 5% nationally representative sample of Medicare beneficiaries. We used 2009–2014 RIF file to ensure that we have complete claims data two years prior to the study period for baseline preventive services and one year after the study period for measuring the outcomes. In addition, we obtained county-level median household income and health care resource information from the Area Resource Health Files linked by the beneficiary's zip code in 2010.

The inclusion criteria included people who are 65 or older, had continuous part A and B coverage and no managed care enrollment between 2009 and 2014, resided in the 50 U.S. states and the District of Columbia, and were alive as of Dec. 31, 2014 (n = 846,950). We further excluded patients who only have a Welcome-to-Medicare visit in 2009 or 2010 with no AWV during the study period (n = 1009, 0.1%) or who are missing census level variables (n = 623, 0.07%). These 845,318 patients composed our Initial Cohort.

As patients who received an AWV and those who did not may be systematically different, we used a propensity score approach to remove the effects of confounding when estimating the effects of treatment on outcomes. The propensity score in this study is the predicted probabilities of undergoing an AWV between 2011 and 2013 conditioning on observed characteristics. As Rosenbaum and Rubin pointed out, under the assumption of no unmeasured confounders and nonzero probability of treatment assignment, conditioning on the propensity score will allow one to obtain unbiased average treatment effects (Rosenbaum and Rubin, 1983).

Propensity scores can be used in four ways: matching, stratification, inverse weighting, and regression. A good description and the pros and cons of each approach can be found in many papers (for example, Austin, 2011). In this study, we used one-to-one nearest neighbor matching without replacement, with exact matching on age groups, race, and sex, and a caliper of 0.5. This choice reflected our considerations regarding the trade-offs between bias and precision, the relevance of the research question, the popularity of the method in practice, the simplicity of implementing and interpreting, and whether good covariate balance was achieved.

Matching created matched pair where each treatment case was matched to a control case with the same or close propensity score. Each control was then assigned a pseudo AWV date using the same date as their matched treatment case. Doing so creates an exposure date for the control group to define the baseline and follow up period. The approach to assign a proxy event date to unexposed individuals in observational studies has been applied in many studies (for example, Jonk et al., 2015; Liang et al., 2017; Sasieni et al., 2003). Our Propensity Score Matched Cohort included 190,967 treatment cases and 190,967 matched controls for a total of 381,934 patients. Fig. 1 provides the cohort creation process.

2.1. Outcomes

The primary outcomes are six binary indicators of whether patients receive: 1) screening mammography, 2) Pap smear testing, 3) bone mass measurement, 4) colorectal cancer screening, 5) prostate cancer screening, and 6) influenza vaccination within one year since their initial or pseudo AWV date. These outcomes are selected from the list of preventive services that Medicare covers based on the following rules: 1) they apply to a broad Medicare population; 2) they have been covered throughout the study period; 3) they are not one-in-lifetime; and 4) they are usually performed outside the routine office-based evaluation and management visit and thus easy to identify via claims data. Among them, Pap smear tests and bone mass measurement are covered every 24 months for normal risk people, while screening mammogram, prostate cancer screening, and influenza vaccine are covered annually. Colorectal cancer screening intervals vary depending on the procedure received.

As the primary outcomes are mostly cancer screening services that have been covered by Medicare long before the availability of AWVs, we further examined two secondary outcomes that Medicare started covering on October 14, 2011. These are screening for depression and screening for behavioral counseling interventions in primary care to reduce alcohol misuse. Examining these secondary outcomes provides us another perspective of how the two groups may differ because Medicare enrollees may have been unaware of these newly covered services that were introduced around the same time as the AWV.

2.2. Covariates

When creating the propensity score-matched sample, we adjusted for the following covariates obtained from the 2010 data: patient age group (65–69, 70–74, 75–79, and > 80 years), sex, race (white, black, and other), state of residence, urban or rural division, Medicaid receipt, and the total number of chronic conditions (0, 1–2, 3+). As prior studies have demonstrated that previous preventive service and primary care visits are highly associated with an uptake of health checkups (Labeit et al., 2013), we further included variables capturing patients' baseline primary care access and preventive services utilization. Specifically, we included the total number of evaluation and management visits performed by primary care providers between 2009 and 2010 (0, 1–3, 4–6, and 7+ visits), and six indicators of whether the patient has