Physician Compensation Method Effects on Preventive Service Delivery

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INTRODUCTION

Chronic disease is the leading cause of death, disability, and a leading driver of the \$3.5 trillion annual health care costs in the USA.¹ Preventive care guidelines, such as those published by the United States Preventive Services Task Force (USPSTF), have been shown to be important in the maintenance, alleviation, and prevention of chronic disease.² In addition, evidence has shown that preventive care plays a vital role in longevity and improved quality of life and in healthy individuals.³ However, studies have shown preventive service delivery rates by physicians are low, with physicians reporting lack of time, reimbursement structures, and financial considerations as barriers to service.^{4–6} The purpose of this study was to examine the association between physician compensation method and preventive service delivery rates. Additionally, this study examined the association between physician compensation and duration of office visit, as it has been reported in the literature as a barrier to preventive service delivery.^{4–6}

METHODS

Data

This study examined office visits using pooled data from the 2011–2016 National Ambulatory Medical Care Survey (NAMCS), a nationally representative survey of office-based visits to physicians in the USA. Office visits were limited to those by adults age 18–64 in which physicians self-identified as the patients' primary care physician and listed the major reason for the visit as preventive care. Only visits to physicians compensated by salaried, productivity-based, or mix (mix of salary and share of billings or other measures of performance (e.g., your own billings, practice financial performance, quality measures, practice profiling)) compensation models were included in the study. All analyses used the survey procedures of Stata SE, version 16.0.

Measures

For this study, the 101 preventive service recommendations published [as of April 2020] by the USPSTF were reviewed. The 101 recommendations were narrowed to 9 preventive services applicable to the majority of adults age 18–64 (Table 1). Only currently active recommended preventive services with a Task Force grade of “A” or “B” categorized as “screening” or “counseling” interventions were used for this study. Preventive services were further limited to those where at least 30 visits with those services to each of the three types of compensation methods were included in the sample, which is required to produce stable estimates, resulting in three preventive services being examined: blood pressure, cervical cancer screening, and obesity-related counseling.

RESULTS

The final sample consisted of 2575 office visits. Table 2 shows the weighted odds ratios of services provided by the physician compensation method. Visits by women had 2.36 times the odds of including cervical cancer screenings in salary-based visits, and 2.43 times the odds in mixed-compensation visits compared to productivity-based visits ($p < 0.10$). The odds of receiving a high blood pressure screening in mixed-compensation office visits was 2.42 times that of productivity-based office visits ($p < 0.10$), and 2.04 times that of salary-based office visits ($p < 0.15$). There were no statistically significant differences in the odds of providing obesity-related counseling by compensation method.

Visit duration varied by type of physician compensation. Overall, the average visit duration across all visits was 22.8 min (95% CI: 21.6–23.9). Salary-based physicians spent the most time, averaging 24.8 min (95% CI: 22.8–26.8), followed by mixed compensation at 21.4 min (95% CI: 20.1–22.7), and productivity-based physicians spent the least time, averaging 20.2 min (95% CI: 18.4–22.1).

DISCUSSION

The study showed variance in the rates of preventive service delivery by physician compensation methods. This study found that for two of the three services examined, the odds of receiving preventive care was higher in salary and mixed-compensation models when compared to productivity-based

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Table 1 Sample Demographics (Unweighted)

Service	All visits, <i>N</i> %	Salary, <i>n</i> %	Productivity, <i>n</i> %	Mixed, <i>n</i> %
Patient visits (<i>n</i> raw)	2575	1069 [42%]	577 [22%]	929 [36%]
Patient visits (<i>n</i> weighted)	120,947,733	56,561,241	23,896,665	40,489,827
Age (years)	44.3	44.1	44.2	44.7
Sex				
Male	937 (36%)	379 (35%)	235 (41%)	323 (35%)
Female	1638 (64%)	690 (65%)	342 (59%)	606 (65%)
Race-Ethnicity				
Non-Hispanic White	1631 (63%)	698 (65%)	339 (59%)	594 (64%)
Non-Hispanic Black	283 (11%)	133 (12%)	67 (12%)	83 (9%)
Non-Hispanic Other	661 (26%)	238 (22%)	171 (30%)	252 (27%)
Hispanic	191 (7%)	91 (9%)	32 (6%)	68 (7%)
Insurance type				
Private	1969 (77%)	824 (77%)	411 (71%)	734 (79%)
Medicaid	299 (12%)	110 (10%)	73 (13%)	116 (12%)
Medicare	128 (5%)	58 (5%)	31 (5%)	39 (4%)
Other	190 (7%)	80 (7%)	65 (11%)	45 (5%)
Uninsured	65 (3%)	28 (3%)	20 (3%)	17 (2%)
Physician specialty				
General and Family Practice	1132 (44%)	508 (58%)	226 (39%)	398 (43%)
Internal Medicine	869 (34%)	395 (37%)	216 (37%)	258 (28%)
OB/GYN	377 (15%)	120 (11%)	71 (12%)	186 (20%)
Other	197 (8%)	46 (4%)	64 (11%)	87 (9%)

models, although results were not significant at the $p < 0.05$ level. This was observed for high blood pressure screenings and for cervical cancer screenings. Mixed-compensation visits showed higher odds of high blood pressure screenings compared to salary-based visits. A possible explanation for differences in the likelihood of providing preventive services could be differences in visit duration by compensation method. Both salary-based physicians and mixed-compensation physicians averaged more time with patients during office visits compared to productivity-based physicians. A major limitation of this study was the sample size, which significantly limited statistical power and the ability to examine other preventive services. Additionally, this was a cross-sectional study; therefore, only associations could be assessed. Future studies are

needed to understand the association of physician compensation with other types of preventive services. Physicians should be aware of the association between compensation and services provided, as it could be driving how they practice.

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Table 2 Odds of Receiving Services

Service	Salary [95% CI]	Productivity [reference = 1.0]	Mixed [95% CI]	^a Salary: Mixed
High blood pressure	1.19 [0.46, 3.05]	—	2.42 [†] [0.84, 7.00]	0.49 ^{††}
Cervical cancer	2.36 ^{††} [0.85, 6.51]	—	2.43 ^{††} [0.95, 6.22]	0.97
Weight loss to prevent obesity-related morbidity and mortality	0.94 [0.43, 2.05]	—	1.16 [0.48, 2.80]	0.81

Note. Productivity visits are the reference group. Values represent odds of receiving each service in relation to productivity-based physicians

^aOdds ratio comparing salary visits to mixed visits, with Salary as the reference

*The National Ambulatory Medical Care Survey (NAMCS) states for all estimates, other than estimates of proportion, at least 30 observations should be present

[†] $p < 0.15$

^{††} $p < 0.10$

^{†††} $p < 0.05$

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