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Practices Caring For Underserved Less Likely to Adopt Medicare's Annual Wellness Visit

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Abstract

In 2011, Medicare introduced the Annual Wellness Visit (AWV) – a preventive check-up designed to address health risks in aging adults. For primary care practices, the visit presents an opportunity to generate revenue and may help those within Accountable Care Organizations attract healthier patients and achieve greater stability of patient assignment. However, the AWV has had uneven uptake, likely due in part to complex visit requirements. Using 2008–2015 national Medicare data, we assessed practices' ability and motivation to adopt AWVs. In 2015, 51.2% of practices provided no AWVs (non-adopting practices) while 23.1% provided them to at least a quarter of their eligible beneficiaries (adopting practices). AWV-adopting practices replaced problem-based visits with AWVs and saw increases in primary care revenue. Compared to non-adopting practices, AWV-adopters had greater stability of patient assignment and slightly healthier patient mix. At the same time, AWV rates were lower among practices caring for underserved populations, potentially worsening disparities.

Keywords

Medicare; Annual Wellness Visit; preventive care; Accountable Care Organization; primary care innovation

Introduction

National policies to improve primary care often require practices to adopt new care delivery approaches that entail substantial investment of time, money, or personnel. What enables and

motivates practices to make such changes? To explore this question, we studied the adoption of a new type of visit in primary care. In 2011 through the Affordable Care Act (ACA), Medicare introduced the Annual Wellness Visit (AWV) – the first yearly check-up offered at no cost to fee-for-service (FFS) beneficiaries.¹ The AWV was designed to promote evidence-based preventive care and address health risks in aging patients, with requirements such as depression and fall screening that are beyond the scope of other preventive visits.

AWV use among eligible beneficiaries grew modestly from 7.5% in 2011 to 15.6% in 2014.² This slow uptake may be explained in part by the AWV's complex and sometimes confusing visit requirements (See online Appendix I).^{3–5} In order to provide AWVs, practices have reported relying on new workflows, electronic health record (EHR) templates, and non-physicians to facilitate the visits.^{3,4,6,7} Certain practices - for example those with greater EHR capabilities or larger size - could be better equipped to adopt AWVs using such mechanisms. Practices caring for a larger fraction of disadvantaged or high-risk populations may offer fewer AWVs due to limited resources or because their patients have more pressing needs.^{8–12} Meanwhile, practices with a greater focus on providing primary care or those with more Medicare beneficiaries per doctor may have greater incentive to overcome the challenges of adoption.

Despite the complexities of adopting AWVs, practices might be motivated by potential benefits of adoption. First, it may increase revenue.^{3,6} Medicare pays more for an AWV than for the typical problem-based visit (Appendix II)⁵ and allows clinicians to bill an AWV concurrently with a problem-based visit, for example if a patient brings up an acute concern. Roughly 40% of AWVs are co-billed.²

Beyond revenue, the AWV may present additional benefits that are particularly important to practices participating in alternative payment models such as the Accountable Care Organization (ACO) - a group of providers incentivized to provide high quality care within a budget for a defined set of Medicare patients. In such models, and in pay-for-performance programs such as the Merit-based Incentive Payment System, primary care visits are used to assign patients to physicians or practices. The AWV represents an additional primary care visit that may improve the stability of beneficiary assignment^{6,13} so that practices get “credit” for any positive impact of their care. AWVs may improve stability through the visit itself as well as through downstream effects of engaging patients in their care, strengthening patient-clinician relationships, and establishing clinical plans that require subsequent encounters. Finally, because ACOs earn shared-savings bonuses if spending for their attributed patient population is sufficiently below their risk-adjusted financial benchmarks, practices might use wellness-oriented visits to attract younger, healthier patients, particularly those whose risk scores under-predict spending, or conversely, to record more diagnoses and thus increase their risk-adjusted benchmarks. The AWV's impact on stability of beneficiary assignment and on practices' patient mix has not been assessed.

To better understand factors underlying practices' ability and motivation to adopt these new visits, we examined national claims for a random 20% sample of Medicare FFS beneficiaries. We determined practice characteristics associated with AWV use in 2015. We then compared AWV adopters with non-adopters from 2008 to 2015, examining trends in

visit rates and practice revenue and using difference-in-differences models to assess whether AWV adoption was associated with greater stability of patient assignment or a younger healthier patient mix.

Study Data and Methods

STUDY POPULATION

We examined 2008–2015 national Medicare claims for a random 20% sample of beneficiaries enrolled in FFS Medicare continuously or until death in each given year. Consistent with Medicare's regulations, beneficiaries were considered AWV-eligible if they had 12 months of continuous prior enrollment (in the first year, beneficiaries are instead eligible for a one-time "Welcome to Medicare" visit).¹

Annual Wellness Visits were identified by Healthcare Common Procedure Coding System (HCPCS) codes G0438 (initial AWV) and G0439 (subsequent AWV). Problem-based (Evaluation and Management, E&M) visits were identified using codes 99201–99215 (Appendix III).⁵

ASSIGNING BENEFICIARIES TO PRACTICES

We identified practices using taxpayer identification numbers (TINs).^{13,14} We attributed each beneficiary to a practice based on the TIN that accounted for more of the individual's office visits with a primary care physician (PCP; defined by specialty in internal medicine, family medicine, general practice, or geriatrics) than any other TIN in a given year (Appendix IV).⁵

MEASURES

Practice AWV use —For each practice where at least one Medicare beneficiary was assigned, we measured the percentage of AWV-eligible beneficiaries attributed to the practice who received an AWV at that same practice in the given year.

Practice characteristics —We identified setting (eg. metropolitan or rural), practice site (hospital-based vs independent), specialty mix (percentage of a practice's physicians in a primary care specialty), number of PCPs in the practice, and number of attributed Medicare beneficiaries per PCP. To capture the patient population cared for by a practice, we measured the race (percent non-white),¹⁰ Medicaid dual-enrollment, and medical risk (based on Hierarchical Condition category (HCC) risk score) of practices' attributed beneficiaries in 2015. We also assessed practice participation in the Medicare Shared Savings Program or Pioneer ACO model through 2015 and, as a measure of EHR capability, the percentage of each practice's clinicians participating in Medicare's EHR Incentive Program (started in 2011) (Appendix VI).⁵

Potential outcomes of AWV adoption—As noted above, AWV adoption could impact practice revenue, stability of patient assignment, and patient mix. Therefore, we measured the mean number of primary care visits (AWV and problem-based visits by primary care physicians) received by attributed beneficiaries at their assigned practice in a given year. For

this purpose, AWVs concurrently billed as E&M visits were counted as AWVs alone (Appendix VII).⁵ We used standardized reimbursement rates to calculate mean practice-level Medicare payments for primary care visits (Appendix Exhibit 7),⁵ this time using all allowable visit charges including co-billed AWV and E&M visits. We measured stability of patient assignment by calculating the percentage of beneficiaries attributed to a given practice in any year of a three year period who remained attributed in all three years. Finally, we measured the mean age and HCC score of Medicare beneficiaries attributed to each practice in a given year.

ANALYSES

We began by estimating the variation in AWV rate across practices (Appendix V).⁵ Next, we assessed practice characteristics associated with AWV use in 2015 through a series of univariate analyses then with a multivariable linear regression model adjusting for all practice characteristics. The unit of analysis was the practice and we weighted practices by their number of attributed beneficiaries (Appendix VIB).

We created a patient-level logistic regression model with practice fixed effects to determine if certain patient characteristics were associated with lower odds of receiving an AWV within a given practice (Appendix IVB).⁵ We then created a second patient-level logistic regression model including both practice and individual patient-level characteristics as predictors of AWV receipt. This model allowed us to interpret the relationship between practice-wide patient characteristics (such as percentage of dual-enrollees) and AWV use after controlling for individual patient characteristics (Appendix VIC-D).⁵

Trend and Difference-in-Differences Analyses —For these analyses, we included all practices that were both present in claims data and had at least ten Medicare beneficiaries throughout 2008–2015. We categorized practices as AWV non-adopters if 0% of eligible beneficiaries received an AWV in our data (control group). Among the remaining practices, roughly half provided AWVs to >25% of their eligible beneficiaries; we designated these practices as AWV adopters (intervention group).

For AWV adopters and AWV non-adopters, we estimated annual primary care visit rates and practice-level primary care visit revenue, adjusting for patient age, sex, HCC risk score, and geography at the level of hospital referral region (HRR).

We then conducted a series of difference-in-difference analyses to assess the impact of AWV adoption on stability of patient assignment and patient mix (Appendix VIII).⁵ The difference-in-differences approach adjusted for baseline differences between practices that did vs did not adopt AWVs and thus isolated changes attributable to AWV adoption under the assumption that differences would have remained constant over time in the absence of AWV adoption. We defined 2008–2010 as the pre-AWV period and 2013–2015 as the post-AWV period. For each outcome, we compared how the outcome changed before and after AWV introduction between AWV adopters and non-adopters. Differences were adjusted for patient characteristics (age, sex, Medicaid enrollment, and risk score) and for geography at the level of HRR. Because these outcomes are particularly relevant to ACOs, we repeated these analyses among practices with ACO status.

Reported P values were two-sided and considered significant at <0.05 . We used SAS (version 7.12) to perform the analyses.

LIMITATIONS

Our work has several limitations. There is no publicly available database of US physician practices. Though we and others have used TINs to define practices,^{13,14} we acknowledge that TINs do not represent a consistent level of organization: multiple practices within a larger health system may use a single TIN to bill their services, while in other practices physicians may use individual TINs. Using Medicare claims, we underestimated the number of AWVs performed by non-physicians since they are often billed under a physician's identifier. We could not distinguish between part-time and full-time physicians. In addition, we could not capture if beneficiaries received a preventive visit through employer-based or supplemental insurance. We did not evaluate AWVs performed at Federally Qualified Health Centers; these practices use separate billing codes under Medicare Part A that are not organized by TINs.

Though we adjusted our difference-in-difference analyses for geographic and patient characteristics, our results may be biased by unmeasured confounders or trends that differentially affected adopting and non-adopting practices. For example, adopting practices may have been more involved in payment reform efforts starting around the same time as AWVs, such as Medicare's Comprehensive Primary Care Initiative (though such initiatives often involve no more than several hundred practices). Therefore, we cannot attribute a differential change in assignment stability or patient mix to AWV adoption alone.

Finally, we focus on practice-level predictors and drivers of AWV adoption in this paper, but do not assess the impact of AWVs on quality of care and patient outcomes. This will be an important focus for future work.

Results

In 2015, 18.8% of all eligible beneficiaries (N=6,186,679) received an Annual Wellness Visit. Among these AWV recipients, only 2.8% had no other visits that year. When we limited our analyses to beneficiaries who could be assigned to a practice (N=4,407,239), 24.8% received an AWV in 2015. Within this group, 90.6% received it at their assigned practice and 79.7% received it from their attributed primary care provider.⁵

Among all AWVs provided in 2015, 92.0% were done by physicians and 89.2% by primary care physicians specifically. Six percent were performed by a nurse practitioner and 1.9% by a physician assistant. Nearly half (44.6%) of AWVs were billed concurrently with a problem-based visit.

Among the 50,591 practices we examined in 2015, mean practice AWV rate was 17.4% (standard deviation 26.1%). Variation in AWV use across practices was similar when we estimated practice variation net of sampling error (standard deviation 25.1%) (Appendix V).

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In 2015, 51.2% (25,912) of the practices in our sample were AWV non-adopters while 23.1% (11,699) were AWV adopters. AWV adopting practices were clustered in urban areas and in the northeast (Appendix Exhibit 10).⁵

PRACTICE CHARACTERISTICS ASSOCIATED WITH AWV USE

Several practice characteristics were associated with AWV use (Exhibit 1, Appendix Exhibit 3).⁵ We found lower AWV rates among rural practices (8.1% vs 24.4% among urban practices), those caring for patients with high medical risk (18.2% vs 23.0%) and with higher rates of Medicaid enrollment (17.0% for 15–100% dual-enrolled vs 26.5% for 0–<15%). While a greater number of primary care physicians in a practice was not associated with AWV rate (Appendix VI), practices with more Medicare beneficiaries per PCP had higher AWV rates (26.8% in practices with >100 beneficiaries per PCP vs 8.8% in practices with 0–<10 beneficiaries per PCP). Hospital-based practices (9.8% vs 24.9%) and those with a specialty mix oriented less toward primary care (14.3% in practices with <25% PCPs vs 23.7% in practices with 75–100% PCPs) were less likely to provide AWVs.

Finally, practices with EHR capability (26.0% in practices with 50% participation in the Medicare EHR Incentive Program vs 15.0%) and those participating in Accountable Care (30.3% vs 20.1%) had higher AWV rates.

The associations between these practice characteristics and AWV rates remained consistent and statistically significant in our multivariable analysis.

Within practices, patients with dual enrollment (Odds ratio 0.64), non-white race (OR 0.95), and higher medical risk (OR 0.77) were less likely to receive an AWV compared to other patients in the same practice (Appendix Exhibit 4).⁵ When controlling for these patient characteristics, patients attributed to practices disproportionately serving non-white or dually enrolled beneficiaries still had lower odds of getting an AWV than patients at other practices (Appendix Exhibit 5).⁵

VISIT RATES, REVENUE, ASSIGNMENT STABILITY, AND PATIENT MIX AMONG ADOPTERS VS NON-ADOPTERS

Over the study period, we saw similar trends in number of primary care visits per attributed beneficiary among AWV-adopting practices (N=8,121) and AWV non-adopters (N=8,501) (Exhibit 2). The results were comparable when counting co-billed AWVs as two separate visits (data not shown). Beneficiaries attributed to adopting practices had fewer visits throughout the study period but a larger percentage of all of their primary care visits at their attributed practice than those in non-adopter practices (Appendix Exhibit 6).⁵

On average, AWV adopting practices generated greater primary care revenue and saw a rise in revenue over the study period while non-adopters saw a slight decline (Exhibit 3).

AWV adopters had higher stability of patient assignment at baseline than non-adopters (68.6% vs 62.4%) and saw a slower decrease in stability (–1.0% vs –4.8%, $p<0.0001$ for model) (Exhibit 4). We observed similar trends when we limited the sample to practices participating in ACOs.

Finally, AWV-adopting practices had slightly older yet lower medical risk beneficiaries at baseline (age 74.2 years vs 72.6; HCC score 1.16 vs 1.23) but in both sets of practices there was minimal change in mean beneficiary age (0 vs -0.1 years, $p=0.49$). AWV adopting practices had a slower rise in average risk compared to non-adopters (0.02 vs 0.04, $p<0.0001$ for model). We saw similar results when we limited the sample to practices who were in an ACO and when we used lagged risk scores to address the issue that AWVs can be used to generate higher HCC scores through documentation of more medical problems (Appendix Exhibit 9).

Discussion

Medicare introduced the AWV to promote preventive care and mitigate health risks in aging adults. While it is not yet clear if AWVs improve patient outcomes,^{15,16} these aspirations cannot be achieved unless practices are able and motivated to provide these visits in the first place. We found that AWV use varied widely across practices in 2015 – half of practices did not provide any AWVs while 23.1% of practices provided them to at least a quarter of their eligible beneficiaries. AWV rates were lower in practices caring for the underserved. Adopting practices appeared to replace what were previously problem-based visits with AWVs and these practices generated greater primary care revenue. AWV adoption was associated with improved stability of patient assignment and modestly healthier patient mix.

One of our most striking results was that while underserved patients were less likely to receive an AWV regardless of where they sought care, practices in rural areas and those caring for underserved and sicker populations were less likely to provide AWVs to any of their patients – suggesting that these practices may face resource constraints or have priorities competing with AWV adoption.^{10–12,17} Rural practices that disproportionately care for minority and low-income patients lag in EHR adoption¹⁷ and are more likely to have difficulty filling clinical positions¹² in addition to other resource challenges.¹⁰ Clinicians serving underserved populations have greater workloads that may make adoption of a new visit challenging.¹¹

In parallel, both medically and socially complex patients may receive fewer AWVs regardless of the practice because they place lesser value on prevention or have more urgent issues precluding preventive care (particularly given the prescriptive nature of an AWV).^{4,8,9} “Dual-enrollees,” for example, spend fewer of their annual visits on preventive care than those with private insurance or Medicare alone.¹⁸ Regardless of mechanism, and to the extent that AWVs are beneficial, these trends could worsen disparities in prevention and health outcomes among underserved patients.

Relatedly, ACOs and practices with higher rates of EHR incentive program participation were more likely to use the AWV – reflecting, for example, the use of EHRs to facilitate visit documentation and billing.^{3,6} As Medicare and other payers introduce an array of innovation programs and alternative payment models,¹⁹ practices previously engaged in such efforts may be more likely to take on new innovations in general.²⁰ This finding raises the possibility of widening gaps between practices that engage in innovation programs and those that do not.

We found that small and large practices had similar AWV rates, while non-hospital-based practices provided more AWVs. This is notable because small, physician-owned practices tend to have fewer resources such as staff and infrastructure to support quality improvement or other innovations.^{21,22} But what smaller practices lack in resources, they may compensate for in agility;²¹ while physician extenders and electronic health records are likely to be helpful, it might only take a single determined clinician to adopt the visit.

Our results also support the notion that specialist-oriented and hospital-based practices that can profit through investing in inpatient or specialty care may be less inclined to adopt AWVs. Conversely, practices with more Medicare beneficiaries per PCP and a larger fraction of primary care physicians had higher AWV rates, likely reflecting a greater return on investment in adopting these visits.

Consistent with trends observed in other nationally-representative data, we found that annual visit rates among seniors dropped during this period.¹⁸ AWV-adopting practices did not have a relative increase in visit rates, even when counting co-billed AWV/problem-based visits as two visits. This suggests that AWVs primarily replaced problem-based visits. Prior to 2011, preventive care may have been provided during problem-based visits without being billed as such (fee-for-service Medicare did not previously cover “physicals”).¹⁵ This might also be explained by a slightly healthier case mix among AWV-adopting practices or by clinicians addressing problems during AWVs without concurrently billing for an E&M visit.

Despite offering fewer visits, AWV-adopting practices generated greater primary care visit revenue, saw greater stability of patient assignment, and brought in patients who were slightly healthier on average. While it is unclear if these changes were driven by AWV adoption itself versus other changes implemented by AWV adopters during the same period, it does suggest some benefits for practices that adopt AWVs.

Medicare introduced the AWV as part of broader efforts to bolster primary care – a specialty which is relatively poorly reimbursed yet foundational to the U.S. health care system.¹⁹ We saw greater revenue among adopters, which may be partially explained by higher reimbursement rates for AWVs (compared to problem-based visits) as well as by co-billing which was more common among practices with high AWV rates (data not shown). Notably, AWV adopting practices were receiving more Medicare revenue than non-adopting practices even before AWVs were introduced, which likely reflects greater numbers of attributed Medicare beneficiaries or differing practice styles. Our results do not include revenue from tests and counseling that can accompany an AWV and therefore underestimate total gains.^{1,3}

Stability of patient assignment differentially improved among adopters, which cannot be explained by AWV-adopters providing more visits nor by AWVs serving as the sole visit for attribution – only 2.8% of beneficiaries who received an AWV in 2015 had no other visits that year. One possible mechanism is through AWVs bolstering clinician-patient relationships.^{23,24} In addition, most AWV recipients got the visit at their own practice and with their own PCP – somewhat dispelling concerns from physician groups about for-profit companies offering the visit at community events and therefore subverting the visit’s intended benefits of promoting detection and management of health risks at their usual

source of care.^{25,26} In future work, it will be important to understand how AWVs impact continuity of care as well as the use of both appropriate and inappropriate preventive services.

Policy Implications

AWV adoption may benefit practices financially, yet half of them are missing out on these benefits, particularly those caring for medically and socially complex patients. How to address these gaps? While AWV requirements serve to remind clinicians of evidence-based screenings and discussions, the complex requirements may be a greater challenge when treating underserved populations;^{1,3,4} Medicare could consider a less prescriptive form of the visit or even a new AWV for medically and socially complex patients. Medicare could also extend programs such as Comprehensive Primary Care Plus in which primary care practices are compensated to care for complex patients outside of traditional visits.

Policy makers could encourage nurse or pharmacist-led AWV delivery mechanisms within the context of a team-based care model,^{3,7,23} the use of shared resources to build IT capacity,²² and other financial or operational support to promote AWV uptake. As an example, Aledade, Inc uses a web-based platform with automated work lists and on-the-ground training to help small physician practices identify and reach out to AWV-eligible beneficiaries.⁶ In addition, patient incentives may be particularly meaningful to low-income beneficiaries: under the Next Generation ACO model, Medicare just introduced a \$25 patient engagement incentive paid directly to beneficiaries upon receiving their AWV - this could be expanded further if successful.²⁷

Conclusion

We found wide practice-level variation in adoption of Medicare's AWV. While practices caring for the underserved had lower rates of visit use, adopting practices saw increased revenue and greater stability of patient assignment. In order for these gains to be shared more equitably, policymakers might encourage AWV use through mechanisms adapted to underserved populations and the practices that serve them.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

Endnotes

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Exhibit 1:**AWV Use by Practice Characteristics in 2015**

Practice Characteristics	No. of practices (n = 50,591)	AWV Rate, %	Difference in AWV use in adjusted model [#] , %
Setting			
Metropolitan	40,682	24.4	Ref
Micropolitan	5,315	17.7	-4.2 ***
Small town	1,725	11.7	-7.9 ***
Rural	2,869	8.1	-9.5 ***
Practice site			
Hospital-based	4,346	9.8	Ref
Independent	44,917	24.9	9.1 ***
Specialty mix, % of physicians in primary care			
0-<25	1,579	14.3	Ref
25-<50	2,405	21.5	2.1 **
50-<75	3,532	21.9	2.7 ***
75-100	43,075	23.7	6.1 ***
Medicare beneficiaries per PCP			
0-<10	14,181	8.8	Ref
10-<100	34,827	22.9	7.5 ***
100	1,583	26.8	11.5 ***
Race, % of attributed patients who were non-white			
0- < 10	24,728	24.2	Ref
10- < 50	17,055	21.0	-3.1 ***
50-100	8,808	15.0	-2.8 ***
Medicaid enrollment, % of attributed patients			
0-<15	24,763	26.5	Ref
15-100	25,828	17.0	-2.9 ***
Medical risk of attributed patients			
High	12,991	18.2	-3.0 ***
Low	37,600	23.0	Ref
ACO participation			
No	42,878	20.1	Ref
Yes	7,713	30.3	7.8 ***
EHR Incentive Program participation, % clinicians			
0-<50	27,244	15.0	Ref

Practice Characteristics	No. of practices (n = 50,591)	AWV Rate, %	Difference in AWV use in adjusted model [#] , %
50–100	23,347	26.0	6.4***

SOURCE Authors' analysis.

NOTES These analyses are based on 20% Medicare claims data. PCP is primary care physician. ACO is Accountable Care Organization. EHR is electronic health record. We defined a practice as high medical risk if the mean risk score of its attributed beneficiaries was greater than the 75th percentile among all fee-for-service beneficiaries, as previously described (Chen LM, Epstein AM, Orav EJ, Filice CE, Samson LW, Joynt Maddox KE. Association of Practice-Level Social and Medical Risk With Performance in the Medicare Physician Value-Based Payment Modifier Program. JAMA.2017;318(5):453–61). All results are weighted by number of Medicare beneficiaries in the practice.

[#]We built a multivariable linear regression in which the outcome was practice level AWV rate and predictors included all characteristics included in the table as well as practice site (hospital-based or independent) and size (number of PCPs). For practice site, 1328 practices did not meet our definition criteria; we excluded them from the multivariable analysis.

*
p<0.05

**
p<0.01

p<0.0001

Exhibit 2:

Average Annual Primary Care Visits Per Patient Among AWV Adopters and Non-Adopters, By Visit Type

SOURCE Authors’ analysis.

NOTES We calculated primary care visits received at the practice per attributed beneficiary each year, adjusting for beneficiary age, sex, HCC risk score, and hospital referral region (HRR). AWVs co-billed with a problem-based visit were counted as one visit since they represented a single encounter.

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Exhibit 3:
Average Annual Primary Care Revenue Among AWV Adopter and Non-Adopters

SOURCE Authors' analysis.

NOTES We used standardized Medicare payments based on the 2015 Physician Fee Schedule to calculate average practice-level Medicare revenue for primary care visits among AWV adopters and non-adopters, adjusting for beneficiary age, sex, HCC risk score, and hospital referral region (HRR) (Appendix Exhibit 4).

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Exhibit 4:**Practice Outcomes Associated with AWV Adoption, Adjusted Difference-in-differences Analysis**

Practice outcome	Time period	AWV adopters, N=8,121		AWV non-adopters, N=8,501		Change in adopters	Change in non-adopters	Difference in Differences, p value
		2008–2010	2013–2015	2008–2010	2013–2015			
Stability of patient assignment, %	All practices	68.6	67.6	62.4	57.6	−1.0	−4.8	3.8 ***
	ACO N=3,118	68.7	67.8	62.0	55.6	−0.9	−6.4	5.5 ***
Patient age, mean	All practices	74.2	74.2	72.6	72.5	0	−0.1	0.1
	ACO N=3,118	74.2	74.2	72.5	72.5	0	0	0
HCC risk score, mean	All practices	1.16	1.18	1.23	1.27	0.02	0.04	−0.02 ***
	ACO N=3,118	1.17	1.19	1.28	1.31	0.02	0.03	−0.01 ***

SOURCE Authors' analysis.

NOTES We defined stability of patient assignment as the percent of beneficiaries attributed to a given practice in any year of a period who were attributed for the entire period. We calculated the mean age and the mean HCC risk score (using previous year's claims) of practice-attributed beneficiaries. All analyses were adjusted for beneficiary age, sex, dual enrollment, risk score, and geography at the level of Hospital Referral Region. The significance of the difference-in-differences models was assessed based on the interaction of post-AWV (vs pre-AWV) and AWV adopter (versus non-adopters) terms.

*
p<0.05

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p<0.01

p<0.0001