

BRIEF REPORT

Outcomes of A Virtual Practice-Tailored Medicare Annual Wellness Visit Intervention

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Introduction: Interventions are needed to promote utilization of the Medicare Annual Wellness Visit (AWV), an underused opportunity to perform screenings and plan individualized preventive health services.

Method: Using remote practice redesign and electronic health record (EHR) support, we implemented the Practice-Tailored AWV intervention in 2021 (during the COVID-19 pandemic) in 3 small community-based practices. The intervention combines EHR-based tools with practice redesign approaches and resources. Outcomes included completion of AWV and fulfillment of recommended preventive services.

Results: At baseline the 3 practices had 1,513 Medicare patients with at least 1 visit in the past 12 months. AWV utilization went from 7% at baseline to 54% 8 months postintervention implementation; advance care planning increased 10.7% (from 7.9% to 18.6%); depression screening increased 16.3% (from 51.7% to 68.0%); and alcohol misuse screening increased 17.3% (from 42.6% to 59.9%). Every individual preventive health service was received more often by patients with an AWV than those without. At the patient level, fulfillment of all eligible preventive services (of a maximum of 12 evaluated) went from 47.5% to 53.8% ($P < .001$). Subgroup analyses showed that patients with AWVs completed a greater percentage of their total recommended preventive health services than those without an AWV.

Conclusion: Virtual implementation of an intervention that combined EHR-based tools with practice redesign approaches increased AWV and preventive services utilization in Medicare patients. Given the success of this intervention during the COVID-19 pandemic (when practices had many competing demands), greater consideration should be given to delivering future interventions virtually. (J Am Board Fam Med 2023;36:501–509.)

Keywords: Early Medical Intervention, Geriatrics, Medicare, Preventive Health Services, Virtual Systems

Introduction

The Medicare Annual Wellness Visit (AWV) is an underutilized opportunity to increase patient use of evidence-based preventive health services. The

AWV is a free-to-the-patient benefit that gives clinicians dedicated time to focus on evidence-based preventive care and perform health risk assessments. Despite its promise for increasing preventive health services, uptake of AWVs has been low, going from 7.8% of beneficiaries in 2011 to 24% in 2017.^{1–7} This study, conducted in the midst of COVID-19, aimed to test the effect of a virtually

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implemented intervention on increasing AWW and preventive health services utilization.

Methods

The Practice-Tailored AWW intervention is a multi-component intervention addressing barriers to completion of AWWs and preventive health services. Tailored to each practice, delivered virtually, the intervention couples electronic health record (EHR)-based tools (to help identify patients who need AWWs) with practice redesign tools and approaches aimed to change practice culture and attitudes toward AWWs. EHR-based tools, coupled with practice redesign approaches and resources, help practices identify and contact patients in need of AWWs and ascertain the preventive health services needed by individual patients. Practice redesign approaches (delivered via a video-conferencing platform) included developing workflows for use of the EHR-based tools, supporting AWW-associated tasks, and improving clinician and staff efficiency. Resources included templates for the collection and documentation of required AWW components such as health risk assessments and patient personalized health plans. Table 1 describes the components of the intervention and options for tailoring in greater detail.

We implemented the intervention in 3 community-based practices in Colorado that belong to a single organization. Each practice had 2 to 5 clinicians, of which at least 1 was a nurse practitioner. During a 3-month active implementation period (from April to June 2021) we met with a practice champion and other practice leads and worked with them to develop workflows to incorporate AWW-related procedures; trained staff on the use of EHR-based tools; socialized clinicians and staff on the importance of AWWs, required documentation and billing strategies; and met with selected clinicians and staff regarding their perceptions and experiences with AWWs. We tailored the intervention to the needs of the practices by scheduling training sessions to accommodate their requests (eg, including training for both clinicians and staff), adapting the length of the sessions to their needs, helping them select the resources they wished to use in their practice, and tailoring workflows to their practice.

We provided practices with feedback reports describing patient AWW and preventive health services utilization at the conclusion of the implementation and 3 months postimplementation. These

reports were reviewed with clinicians and administrators during a clinician meeting immediately postimplementation, and with a practice champion and practice lead 3 months postimplementation, during which we discussed obstacles to AWW utilization and potential strategies for maintaining the momentum that the practices had achieved.

Outcomes

Outcomes were assessed through EHR data extractions. Outcome measures were: AWW completion in the past 12 months, receipt of preventive health services and screenings (being up-to-date at the time of assessment); and percentage fulfillment of all recommended preventive health services at the patient level (out of a maximum of 12 recommended: influenza, herpes zoster and pneumococcal vaccinations; screenings for colorectal, cervical and breast cancers; screenings for osteoporosis, hepatitis C, alcohol misuse, depression, tobacco use; and advance care planning). Prostate cancer screening was assessed primarily as evidence of overuse of a nonrecommended activity. Outcomes were assessed at baseline (4 months before intervention implementation) and 8 months postimplementation for patients aged 50 and older with Medicare insurance and at least 1 encounter in the past 12 months. We planned to assess outcomes 6 months postimplementation, but our data extractions included data up to 8 months postimplementation, so we present all available data.

Statistical Analyses

We calculated descriptive statistics to examine patient characteristics and preventive health service fulfillment on all patients and performed subgroup analyses to compare patients with and without an AWW using Chi-square and *t* tests (as appropriate for categorical and continuous variables). Repeated measures analyses were used to compare patient fulfillment of preventive health services at baseline and 8 months postintervention implementation, since some subjects are in both cohorts. Within subject correlations are likely high if a service is up to date for a long time after it is fulfilled, thus resulting in small standard errors when estimating changes. We also graphically depicted the percentage of AWWs completed per month among eligible patients across all 3 practice sites, and by individual site.

Table 1. Major Intervention Tools and Approaches and Options for Tailoring*

Tools / Approaches to address identified barriers to AWW use	Examples of Options for Tailoring
EHR-based tools (implementation of tools depends on EHR capabilities and potential for modification)	
Patient registry that identifies those without an AWW in the past 12 months and that includes information on preventive health services use**	<ul style="list-style-type: none">Registry can be embedded in EHR or presented in a separate electronic “dashboard”Practices may choose to receive EHR notifications
Point-of-care information regarding AWW and preventive service completion **	<ul style="list-style-type: none">Practices select to receive point-of-care information electronically (e.g., in EHR, through dashboard) or on paper
Individualized patient preventive health plans **	<ul style="list-style-type: none">Practices can select delivery format (paper, electronic) of preventive health plans
Message patients about need for services	<ul style="list-style-type: none">Practices can select timing and delivery method (EHR patient portal, postal mail, text message) of patient messages and reminders
Patient reminders if ordered services not completed	
Practice redesign tools and approaches	
Workflows (developed iteratively based on practice preferences and feedback)**	
For using EHR-based patient registry	Practices develop desired workflows for using patient registry to invite and schedule patients for AWWs - may invite patients for AWWs by phone, text message, or via patient EHR portal
For recommending / scheduling patients for AWWs when patients present in-person	Practices choose who should recommend / schedule patients for AWWs when they present for other types of office visits
For accommodating AWWs in provider schedules	<ul style="list-style-type: none">Practices decide type of provider(s) who will conduct AWWs (physician, physician assistant, nurse practitioner, other)Practices determine whether they will add AWWs to existing follow-up visits for other issuesPractices decide whether AWWs will be conducted in-person versus by telehealthPractices choose amount of time allocated for AWWs
For performing tasks associated with AWWs	<ul style="list-style-type: none">Practices choose how much time before AWW to ask patients to arrivePractices define strategies to complete time-consuming required health risk assessment. Approaches include:<ul style="list-style-type: none">- Send form to patients via email, postal mail, EHR portal- Staff to complete by phone- Complete in office (practices opt to complete on paper, iPad or phone, verbally; who should complete with patient)
For performing assessments such as for fall risk, dementia screening (instruments and trainings for select tasks are available)	<ul style="list-style-type: none">Practices can choose who will perform assessments, what instruments to use; whether to offer training for staff on selected instruments
Templates for documentation, collection, and delivery of Medicare-required information for AWWs (practices/providers may elect to use only selected elements of templates)	
Health risk assessment templates (includes question bank)**	<ul style="list-style-type: none">Practices can choose which questions they want to askCan include assessment of social determinants of health
Documentation templates that include required components of AWWs**	<ul style="list-style-type: none">Providers tailor content of their templates based on personal preferences
EHR data collection package (e.g., SmartSet for Epic EHR)	<ul style="list-style-type: none">Practices can modify content of EHR data collection package and order of components
Preventive health summary templates**	<ul style="list-style-type: none">Practices may choose content and formatting of preventive health summaries from existing examples or modify based on practice/provider/patient preferences

Table 1. Continued

Provider and staff training sessions**	
Provider and staff PowerPoint presentations (contain information on benefits of AWVs, terminology, billing strategies, visit requirements, presentation of practice-developed workflow and role-specific tasks)	<ul style="list-style-type: none">• Practices select number of training sessions, duration, participants (e.g., provider, staff, combined)• Training sessions can be group, individual, or both
Other tools	
Provider-targeted	
Opportunity to use data to fulfill AAFP Maintenance of Certification practice improvement activity	<ul style="list-style-type: none">• Providers can choose data/metric they want to use to fulfill practice improvement activity
FAQs about AWVs (for providers)	<ul style="list-style-type: none">• Practices can select frequency and modes (e.g., email, text messaging) chosen for dissemination of written materials
Summary of elements of IPPE and AWVs	
Provider billing tips**	
Patient-targeted	
Messaging for contacting / informing patients about importance of AWVs (from AAFP)**	<ul style="list-style-type: none">• Practices can choose whether / how / when to send patients information• Practices may choose to make patient-facing materials available in waiting room, have office staff or provider hand to patient during visits, mail to those on registry• Information provided to patients about preventive health screenings can be tailored by patient race/ethnicity
FAQs about AWVs (for patients)	
Educational materials on common cancer screenings, vaccinations (pulled from existing sources such as the CDC)	
Feedback reports on rates of AWV and preventive health services completion**	
Practice-level reports	<ul style="list-style-type: none">• Practices may elect to receive reports monthly or quarterly• Practices may choose different metrics to review
Provider-level reports	<ul style="list-style-type: none">• Reports may compare providers to other providers in their practice (either de-identified or identifiable), or to others in the study

Abbreviation: EHR, electronic health record.

*Practices choose which tools they want to use and how they want to tailor each selected tool; selection and tailoring is based on individual practice needs and existing resources; practices are not required to use any specific tools

**Tools selected by practices taking part in this study

Results

At baseline the practices cared for 1,513 AWW-eligible patients, versus 1,167 8 months postintervention implementation. Table 2 depicts patient demographics at baseline and 8 months postimplementation. The baseline cohort was younger than the postimplementation cohort, but in both cohorts those who completed an AWW were older than those who did not have an AWW.

Overall, rates of AWW completion in the past 12 months increased from 7% at baseline to 54% 8 months postimplementation (Figure 1). The 2 larger practices each increased their rates of AWW completion by over 50%; the smallest practice doubled its rates (from 15% at baseline to 30% 4 months postimplementation) before dropping to a 6% increase from baseline at 8 months postimplementation. Table 3 compares fulfillment of different preventive

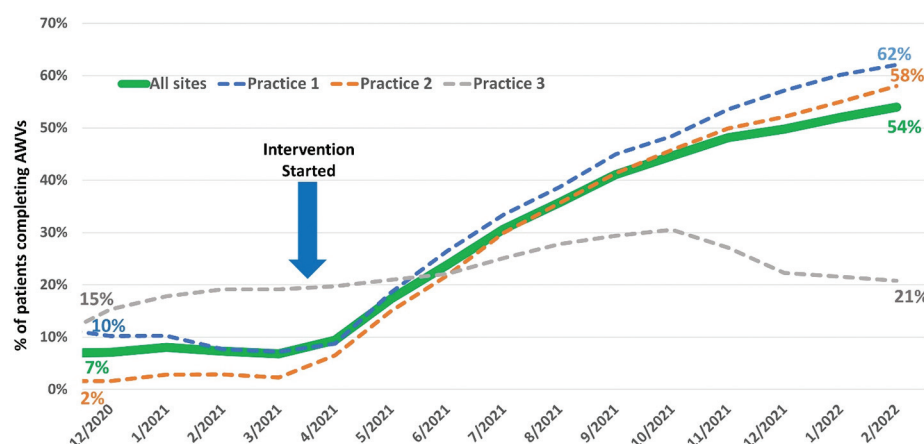
health services at baseline and 8 months postimplementation. Utilization of the majority of preventive health services increased, with the exception of tetanus vaccination (not routinely covered by Medicare Part B), colorectal and prostate cancer screening, and tobacco use screening. Fulfillment of recommended preventive services on the patient level increased from 47.5% to 53.8% ($P < .001$).

Eight months postintervention implementation, patients who completed an AWW fulfilled all individual preventive health care metrics at higher rates than those without an AWW in the past 12 months (Table 4). On a patient level, those completing AWWs fulfilled more recommended preventive health services (of a maximum of 12 services) than those without an AWW, both at baseline (61.5% vs 46.4%, $P < .001$) and 8 months postimplementation (65.7% vs 39.7%, $P < .001$).

Table 2. Characteristics of Patients Eligible for AWVs at Baseline and 8 Months Post-Intervention Implementation, Overall and by AWV Completion in the past 12 Months

Characteristic	Baseline				8 Months Post-Implementation			p-Value for comparison of those with and without AWVs
	All Patients N = 1513	AWV Not Completed, n = 1406	AWV Completed, n = 107	p-Value for comparison of those with and without AWVs	All Patients (n = 1167)	AWV Not Completed, n = 537	AWV Completed, n = 630	
Age, mean (S.D.)*	71.5 (11.3)	71.3 (11.5)	73.6 (8.1)	0.05	72.5 (11.1)	71.0 (12.3)	73.7 (9.8)	0.001
Gender, n (%)				0.005				0.81
Women	864 (57.1)	789 (56.1)	75 (70.1)		648 (55.5)	296 (55.1)	353 (55.9)	
Men	649 (42.9)	617 (43.9)	32 (29.9)		519 (44.5)	241 (44.9)	278 (44.1)	
Race, n (%)†				1.00				0.47
White	1101 (93.1)	1014 (93.0)	87 (93.5)		867 (94.4)	393 (95.2)	474 (93.9)	
Non-White (Asian, Black, Hispanic, other)	82 (6.9)	76 (7.0)	6 (6.5)		51 (5.6)	20 (4.8)	31 (6.1)	
Type of Medicare insurance, n (%)*				0.04				0.75
Fee-for-service Medicare	1344 (88.8)	1256 (98.5)	88 (37.0)		1073 (91.9)	492 (91.6)	581 (92.2)	
Medicare Advantage	169 (11.2)	19 (1.5)	150 (63.0)		94 (8.1)	45 (8.4)	49 (7.8)	
Medicaid insurance, n (%)	199 (13.2)	189 (13.4)	10 (9.3)	0.30	159 (13.6)	84 (15.6)	75 (11.9)	0.07

Abbreviation: AWV, medicare annual wellness visit, S.D., standard deviation.
* $P < .01$ for the comparison of patient characteristics at Baseline and 8-month post-implementation.
†Race was unknown or declined by 330 (21.8%) patients at baseline and by 249 (21.3%) 8 months post-implementation.

Figure 1. Effect of practice-tailored medicare annual wellness visit (AWV) Intervention on rates of AWVs, overall and by practice site.

Discussion

A practice-tailored, virtually delivered intervention combining practice redesign and EHR tools and approaches increased AWV and preventive health

service delivery in small community-based practices, with AWV use going from 7% at baseline to 54% 8 months postintervention implementation. The intervention improved AWV and preventive

Table 3. Preventive Health Services Completion Among Eligible Patients at Baseline and 8 Months Post-Intervention Implementation

Preventive Health Service	Baseline		8 Months Post-Implementation		p-Value for difference in % fulfillment
	Eligible Cohort, n	Fulfilled, n (%)	Eligible Cohort, n	Fulfilled, n (%)	
Vaccinations					
Influenza	1512	840 (56.3)	1166	693 (59.6)	0.032
Herpes zoster (shingles)	1431	622 (43.5)	1119	530 (47.4)	<0.001
Pneumococcal (PPSV23)	1149	831 (72.3)	1000	744 (74.4)	<0.001
Tetanus (Td or Tdap)	1512	862 (57.0)	1166	662 (56.8)	<0.001
Cancer screening					
Colorectal cancer	945	324 (34.3)	675	222 (32.9)	0.026
Breast cancer screening (mammogram)	517	215 (41.6)	340	153 (45.0)	0.777
Cervical cancer screening*	116	64 (55.2)	75	46 (61.3)	0.357
PSA (prostate)**	320	204 (63.8)	308	174 (56.5)	0.028
Other screening					
Osteoporosis	317	120 (37.9)	231	103 (44.6)	<0.001
Hepatitis C	1179	275 (23.3)	861	249 (28.9)	<0.001
Alcohol misuse screening	1492	635 (42.6)	1161	696 (59.9)	<0.001
Depression screening	1279	661 (51.7)	954	649 (68.0)	<0.001
Tobacco use screening	1498	1266 (84.5)	1161	926 (79.8)	<0.001
Advance care planning	1234	97 (7.9)	1026	191 (18.6)	<0.001
Fulfillment of recommended preventive health services†	1513	47.5 (S.D. = 25.2)	1167	53.8 (S.D. = 25.8)	<0.001

*% females aged 65 and younger who are up to date on cervical cancer screening (pap smear and/or HPV testing).

**% males over age 70 (without prostate cancer, a previous elevated PSA in the past year, or a prescription for a 5-alpha reductase inhibitor) who received prostate specific antigen testing in the past year.

†% fulfillment of all recommended preventive health services listed in this table computed at the patient level [except for tetanus vaccination (since Medicare Part B does not routinely cover it) and PSA screening (a measure of overuse)] (maximum of n = 12 services).

Table 4. Preventive Health Services Completion Among Eligible Patients by Completion of Annual Wellness Visits (at Baseline and 8 Months Post-Intervention Implementation)

Preventive Health Service	Baseline			8 Months Post-Implementation		
	Completed AWW, % (n = 107)	Did Not Complete AWW, % (n = 1406)	p-Value	Completed AWW, % (n = 630)	Did Not Complete AWW, % (n = 537)	p-Value
Vaccinations						
Influenza	55.1	55.9	0.249	62.7	56.3	0.036
Herpes zoster (shingles)	60.0	42.2	<0.001	53.5	39.9	<0.001
Pneumococcal (PPSV23)	85.1	71.2	0.004	83.2	63.4	<0.001
Tetanus (Td or Tdap)	74.8	55.7	<0.001	63.0	49.4	<0.001
Cancer screening						
Colorectal cancer	22.2	35.1	0.037	37.5	27.7	0.006
Mammogram	48.8	41.0	0.331	49.5	39.5	0.065
Pap smear	100.0	54.0	0.113	77.4	50.0	0.014
PSA (prostate)	71.4	63.4	0.542	74.7	35.2	<0.001
Other screening						
Osteoporosis	36.0	38.0	0.843	54.5	33.6	0.001
Hepatitis C	24.1	23.3	0.852	37.1	20.2	<0.001
Alcohol misuse screening	90.7	38.8	<0.001	91.4	23.0	<0.001
Depression screening	93.9	48.2	<0.001	97.5	33.8	<0.001
Tobacco use screening	89.7	84.1	0.122	86.4	71.9	<0.001
Advance care planning	10.1	7.7	0.388	27.4	7.5	<0.001
Fulfillment of recommended preventive health services*	61.5	46.4	<0.001	65.7	39.7	<0.001

Abbreviation: AWW.

*% fulfillment of all recommended preventive health services listed in this table computed at the patient level [except for tetanus vaccination (since Medicare Part B does not routinely cover it) and PSA screening (a measure of overuse)] (maximum of n = 12 services).

service use despite the impact of COVID-19 on practice demands during implementation. These increases may partially reflect improved documentation of AWW and preventive service completion. Better documentation often results in short-term improvements that wane over time, so it is encouraging to note that rates of AWW completion continued to increase throughout the measurement period. For the approximately 10% of patients in this study with Medicare Advantage insurance, providers may have replaced annual physical examinations with AWWs. Our intervention was likely effective because it met a demand – the practices and providers were already motivated to perform AWWs, but lacked tools to assess whether patients needed an AWW and to ensure fulfillment of all Medicare requirements for the AWWs.

Unexpected challenges arose during the study, largely resulting from the COVID-19 pandemic. The practices became COVID-19 vaccination sites,

requiring attention to be diverted from performing AWWs. Surrounding communities were heavily affected by COVID-19, creating increased demand for acute care. The practices were further impacted when they began caring for COVID-19 patients without a regular primary care clinician. We addressed these issues by ensuring that all aspects of the intervention were tailored to the practices' needs (eg, timing and duration of meetings with clinicians and staff), and developing workflows in which staff/scribes collected most of the information required for AWW documentation. An additional challenge uncovered by the study, but outside the scope of the intervention, was the mismatch between patients' and clinicians' expectations for comprehensive, integrated care, and the limited scope of the AWW.⁸

Before intervention implementation, these practices already received reminders regarding gaps in preventive service fulfillment at every patient visit. Yet after implementation, patient fulfillment of recommended preventive health services (of a maximum

of 12) increased by a mean of 6.3%, or almost 1 additional preventive service per person. The greatest increases occurred for clinician-driven services (eg, advance care planning, depression screening, and alcohol misuse screening). These services incur no patient cost-sharing when performed in conjunction with an AWW, but clinicians rarely bill for them⁹ because they require specific documentation to satisfy billing requirements, as well as separate billing. These results suggest that the intervention's focus on using the AWW as a means to deliver and bill for preventive health services can drive increased utilization of services. The COVID-19 pandemic may have attenuated the intervention's effect, as patients may have been unwilling to make return visits for non-emergent screenings (eg, mammogram, colonoscopy). This is suggested by the decrease in preventive services received in patients not experiencing an AWW.

Patients who completed an AWW received more preventive health services than those without an AWW. Though our intervention did not specifically address the preventive service delivery process, patients in this study were more likely to complete each of the recommended services assessed. This is consistent with studies using Medicare claims data, which have demonstrated that AWWs increased the use of multiple different preventive services.¹⁰ Despite the USPSTF's recommendation against PSA-based screening in men over the age of 70, prostate cancer screening in this population occurred more frequently when they had an AWW (Medicare covers annual PSA testing). This untoward effect warrants further study, and could be directly addressed during future efforts to promote AWWs.

Study limitations include possibly underestimating the intervention effect due to the short postintervention implementation follow-up, which may have limited our ability to capture patients who intended but had not yet completed preventive health services that required follow-up appointments or actions. The smallest site (practice 3), which had only 2 clinicians, experienced staffing issues during the assessment period that likely contributed to a smaller increase in AWW rates compared with the other sites. Generalizability is limited by implementation in 3 practices that belonged to the same organization. Most of the patients in the practices were white. We did not assess whether increased preventive service delivery was accompanied by increased billing for the

services, but this warrants future exploration because practices' ability to bill for screening and counseling services may drive increased utilization of these services. We also were unable to examine the quality or actual content of AWWs. Eight months postimplementation, the practices had several hundred fewer AWW-eligible patients than at baseline. Reasons for this could include patient attrition due to death or lack of patient visits in the past 12 months due to COVID-19.

The majority of the interventions described in the literature to promote AWWs focus on enlisting nonphysician health care providers (as opposed to primary care providers) to perform AWWs.^{11–18} These interventions may be difficult and costly for small and midsize practices with limited resources to implement. This study supports the use of an EHR-based intervention, coupled with virtually delivered practice-redesign approaches and tools, to enhance patient preventive health services utilization, and might serve as a model for virtual intervention implementation. Future studies are needed to rigorously evaluate the uptake and effectiveness of various intervention components.

This work is worthy of further evaluation in diverse practice settings. In the meantime, these findings support use of a practice-tailored remote redesign and electronic medical record support intervention to improve use of the Medicare Annual Wellness Visit and preventive service delivery and advance care planning.

To see this article online, please go to: <http://jabfm.org/content/36/3/501.full>.

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