

Medicare Annual Wellness Visits: A Scoping Review of Current Practice Models and Opportunities for Pharmacists

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Abstract

Objective: To explore the existing practice models and practice opportunities surrounding pharmacist-delivered Medicare Annual Wellness Visits (AWVs), with the goal of improving patient access through advanced pharmacy-based health services.

Data Sources: English-language articles published in peer-reviewed journals from January 2011 to March 2018 were reviewed by searching PubMed and Google Scholar databases using permutations of terms such as “pharmacist/pharmacy,” “Medicare,” “Annual Wellness Visit,” “develop/development,” and “implement/implementation.”

Study Selection and Data Extraction: Original articles reporting resources (inputs), processes, and programmatic outcomes (uptake and delivery, interventions made, financial models, satisfaction) of pharmacist-delivered AWV services were retained.

Data Synthesis: Eight articles describing 6 unique studies representing current pharmacist-delivered AWV practices were included in the final review. All identified articles used observational study designs and were published in peer-reviewed journals from 2014 to 2017. Five studies utilized staff (in-house) pharmacists working in internal or family medicine clinics via collaborative practice agreements; one study described a model for outsourcing AWV services through a community pharmacy. Pharmacists completed 37 to 300 AWVs and performed both medication- and non-medication-related interventions, with a mean of 3.5 to 5.4 interventions/patient. Quarterly revenue ranged from \$3750 to \$22 340 (USD), with 40 pharmacist-hours required for initial program development.

Implications for Patient Care and Clinical Practice: This scoping review will serve as a guide for pharmacists wishing to implement AWV services in their own practices. **Conclusions:** There is opportunity for ambulatory/community pharmacists to expand their practices to include AWV services in states that allow collaborative practice agreements. Interprofessional collaboration between physicians and pharmacists can optimize and aid adoption of pharmacist-delivered AWV services.

Keywords

preventative medicine, community pharmacy, family medicine, health-care policy, geriatrics

Background

Chronic Conditions and Preventive Services

Preventive health care is increasingly important in today’s medical landscape.^{1,2} Chronic conditions like diabetes and heart disease are highly prevalent, with almost 120 million Americans having at least one chronic condition in 2012 and 25% having multiple chronic conditions.³ In addition to increased mortality and decreased quality of life resulting from these conditions, the financial burden to patients and the health-care system is huge, leading to \$260 billion in lost productivity per year and over \$2 trillion in health-care expenditures.^{1,4,5} Services such as diabetes screenings, cardiovascular disease screenings, and wellness examinations could help prevent some of the morbidity, mortality, and economic burden associated with these chronic conditions.^{1,6} However, research has shown that lack of access and high cost sharing limit patients’

utilization of these preventive services in some cases.^{1,7-10} Indeed, utilization of preventive screenings has been shown to increase by almost 10% when cost sharing like co-pays and deductibles is waived.^{1,8,10}

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Table 1. Free Preventive Services Offered Through Medicare Part B.

All Medicare Part B Preventive Services		
1. Advance Care Planning (ACP) as an optional element of an AWW	13. Human immunodeficiency virus (HIV) screening	20. Screening for cervical cancer with human papillomavirus (HPV) tests
2. Alcohol misuse screening and counseling	14. Influenza, pneumococcal, and hepatitis B vaccinations and their administration	21. Screening for lung cancer with low dose computed tomography (LDCT)
3. Annual wellness visit (AWV)	15. Intensive behavioral therapy (IBT) for cardiovascular disease (CVD), also known as a CVD risk reduction visit	22. For sexually transmitted infections (STIs) and high-intensity behavioral counseling (HIBC) to prevent STIs
4. Bone mass measurements	16. Intensive behavioral therapy (IBT) for obesity	23. Screening mammography
5. Cardiovascular disease screening	17. Welcome to Medicare visit or Initial Preventive Physical Examination (IPPE)	24. Pap tests
6. Colorectal cancer screening	17. Welcome to Medicare visit or Initial Preventive Physical Examination (IPPE)	25. Screening pelvic examination (includes clinical breast examination)
7. Counseling to prevent tobacco use	18. Medical nutrition therapy (MNT)	26. Ultrasound screening for abdominal aortic aneurysm (AAA)
8. Depression screening	19. Prostate cancer screening	
9. Diabetes screening		
10. Diabetes self-management training (DSMT)		
11. Glaucoma screening		
12. Hepatitis C virus (HCV) screening		
Basic Components of Medicare Part B Wellness Examinations		
Initial Preventive Physical Examination (IPPE)		Annual Wellness Visit (AWV)
Eligibility: Enrolled <1 year		Eligibility: Enrolled ≥1 year
Components		Components
1. Acquire patient information		1. Acquire/update patient information
<ul style="list-style-type: none"> Review medical history, risk factors, functional ability 		<ul style="list-style-type: none"> Administer/update a health risk assessment (HRA) before or during the visit (~20 minutes). This includes patients' demographic information and self-assessment of health status and may be completed in-person, by mail, or telephone
2. Assess patient		2. Assess patient
<ul style="list-style-type: none"> Assess routine measures Discuss end-of-life planning if desired by patient 		<ul style="list-style-type: none"> Assess routine measures Screen for cognitive impairment
3. Counsel patient		3. Counsel patient
<ul style="list-style-type: none"> Educate, counsel, refer based on previous steps/findings Create a brief written plan/checklist for the patient to obtain other preventive services (once-per-lifetime ECG, etc) as appropriate 		<ul style="list-style-type: none"> Establish/update a written screening schedule for the next 5 to 10 years, based on appropriate preventive services for age and health status/history (patient report) Provide appropriate referrals to health education or preventive programs (eg, tobacco cessation)
Billing: File claims with Medicare Part B using HCPCS codes		• Review advance care planning services at the patient's discretion
<ul style="list-style-type: none"> G0402: face-to-face IPPE visit G0403/404/405: ECG performed as part of the IPPE Plus ICD-9/10 consistent with the examination 		Billing: File claims with Medicare Part B using HCPCS codes
		<ul style="list-style-type: none"> G0438: Initial (1st) AWV G0439: Subsequent AWVs Plus ICD-9/10 consistent with the exam

Abbreviations: ECG, electrocardiogram; ICD-9/10, international classification of diseases, ninth/tenth revision.

Recognizing the importance of preventive services, the US Affordable Care Act (ACA) of 2010 aimed to alleviate this problem by mandating that private insurers cover certain preventive health services at no charge to the patient.^{1,11} Examples of these services included women's wellness examinations and domestic violence counseling.¹ The ACA, in conjunction with the Medicare Improvement for Patients and Providers Act of 2008, also established preventive health services for older adults and certain disabled individuals enrolled in Medicare.¹ In fact, Medicare Part B (Medicare's optional outpatient medical insurance program for disabled individuals and older adults ≥65 years) offers 26 preventive health services for which coinsurance and deductibles are waived for the enrollee (Table 1).^{12,13} A broad array of services are offered, including

diabetes screening, medical nutrition therapy, mammograms, and prostate cancer screening.^{12,13} Key among these preventive services are the Initial Preventive Physical Examination (IPPE; also known as the Welcome to Medicare visit) and the Annual Wellness Visit (AWV). These wellness examinations/consultations are offered during the first and subsequent years of enrollment in Medicare Part B, respectively, with the goals of identifying, providing, or recommending needed preventive health services; thus, these visits provide a medium to assist enrollees in identifying and receiving appropriate preventive care from among the plethora of options offered through Medicare Part B.^{12,13} According to current Medicare guidelines, IPPEs can only be provided by physicians and qualified non-physician practitioners including nurse practitioners and

physician assistants; however, AWWs can also be provided by additional licensed medical professionals, including pharmacists, and will thus be the focus of this article.

Medicare AWWs

The AWW, in particular, includes several unique aspects targeted at identifying and mitigating preventable health conditions for which enrollees are at risk.¹³⁻¹⁵ The Medicare AWW is not the same as a routine physical examination, as the AWW typically lasts about 1 hour and has several components that must be fulfilled in order to claim reimbursement from Medicare Part B (Table 1).^{13,15} One unique component required for the AWW is completion of a health risk assessment (HRA), which is used to gather patients' demographic information, self-assessment of health status, risk factors, and activities of daily living.^{13,16} The HRA may be completed prior to or during the AWW appointment by telephone, mail, or in-person and takes no more than 20 minutes to complete.¹³ A second unique component required for the AWW is the Personalized Preventive Plan of Services report. Although medications are reviewed and routine measures such as body mass index and blood pressure are assessed during the visit, the goal of each AWW is to create or update a personalized preventive care screening plan for the next 5 to 10 years for each patient, which is known as the Personalized Preventive Plan of Services report ("Patient Report").^{13,17} This screening schedule, or checklist, is constructed according to age- and condition-based guidelines and represents an opportunity for referral to and collaboration between multiple members of the health-care team, including physicians, physician assistants, nurse practitioners, registered nurses, and pharmacists.¹³

Uptake and Barriers Surrounding AWW Services

Since its creation in 2011, the uptake of the Medicare AWW has been slow.^{13,17-19} In 2012, less than 10% of eligible beneficiaries received an AWW, and the rate has not improved much in recent years despite the fact that it is offered at no cost to Medicare enrollees.^{15,17} Specifically, out of 33.1 million eligible beneficiaries throughout the United States in 2015, only 5.9 (17.7%) million received an AWW.²⁰ Disparities also exist among geographical regions; for example, the rates of AWW provision were highest in the Northeastern states of Rhode Island (31.9%) and Massachusetts (30.7%) in 2015.²⁰ On the other hand, fewer enrollees in Southern and Midwestern states, such as Alabama, Louisiana, and Iowa, tended to receive this service (13.8%, 9.4%, and 13%, respectively).²⁰ This may be due to a complex mix of patient and provider barriers.^{17,18,21-23}

In regard to patient-level barriers, individual and sociodemographic factors affect access and uptake of preventive services, including AWWs.^{17,18,21-23} Indeed, patient unfamiliarity with the AWW service plays a major role in limiting demand for and acceptance of AWW services^{17,18}; emphasizing that Medicare Part B deductibles and coinsurance are waived for these services may help to increase uptake.^{18,10} Furthermore,

previous studies documented disparities in receipt of preventive services, including AWWs, based on patients' race, ethnicity, education, and household income.^{18,21-23} In fact, blacks and individuals with lower income and education level are less likely to receive AWWs compared to whites and those with higher income and education.¹⁸ Given that health-care provider (physician or other ancillary provider) recommendation is one of the most important factors in determining patient uptake of preventive services,²⁴ methods to increase provider adoption and implementation of AWW services across all patient populations are crucial.

In regard to physician-level barriers, individual and system factors affect adoption and implementation of the service.^{17,18} Physicians are often unfamiliar with AWWs in general as well as the multiple elements comprising an AWW, which in turn prevent them from offering AWWs to their patients.^{17,18} In particular, and similar to many other preventive services, physicians are unfamiliar with "reverse engagement," that is, proactively contacting the beneficiary to initiate an AWW and/or previsit HRA rather than depending on the beneficiary to initiate a visit, thus limiting AWW service implementation to a smaller pool of patients.^{17,18} Furthermore, system barriers play a key role, including: (1) lack of a structured template for performing the HRA, (2) difficulty incorporating the AWW into existing workflow, and (3) lack of time.^{17,18} Given that providers are reimbursed about \$170 on average for initial AWWs and \$120 for subsequent AWWs (depending on state), not to mention reimbursement for additional age- or condition-appropriate screenings performed as a result of the AWW, there are multiple opportunities to sustain a thriving practice.¹⁷ Thus, by finding strategies to overcome the aforementioned barriers, physicians can potentially increase practice revenue by over \$200 per completed AWW and improve the health outcomes of their patients.¹⁷ This represents an opportunity for allied health professionals to fill a gap in patient care and streamline the provision of care in their medical communities.

Strategies to Increase Uptake of AWW Services

Utilizing nonphysician, allied health professionals who are allowed to perform AWWs including nurse practitioners, physician assistants, registered nurses, and pharmacists is a strategy to efficiently overcome barriers to implementing AWWs in physician offices.^{17,25} Allied health professionals already employed in physician clinics and working with the physician under a standing order or collaborative practice agreement (in-house) can be trained to implement AWW services.¹⁷ Another approach is for a physician office to contract (often at an hourly rate) with an allied health professional or a team of medical professionals (which may include management service organizations or MSOs) who come in from outside the organization to perform the AWW (outsourcing).¹⁷ As long as they operate under the supervision of a physician (meaning that a physician is on the premises), these nonphysician medical professionals can perform AWWs and free up physician time.¹³ Allied health

professionals can perform all aspects of the AWW as permitted by state law and clinic guidelines, including particularly time-consuming elements such as previsit phone calls and HRAs, scheduling, and recommendations/referrals for further preventive services in the Personalized Preventive Plan of Services report ("Patient Report").¹⁷ This represents an opportunity for interprofessional collaboration, especially for pharmacists working in ambulatory care or community settings and looking to expand their practice.

Pharmacist-Delivered AWW Services

The Centers for Disease Control and Prevention (CDC) recommends pharmacists as an optimal choice for performing AWWs.²⁶ As long as they are working under the supervision of a physician, with patient care activities specified via standing order or collaborative practice agreement and conforming to state law, pharmacists can perform any part of the HRA or preventive assessment. The benefits of pharmacists performing AWWs have been shown in several studies.²⁷⁻²⁹ For example, the identification of inappropriate medications was doubled compared to nonpharmacist providers,²⁷ which not only improved care for older adult patients but also opened up additional reimbursement opportunities through Medicare Part B for more complex AWWs requiring extensive medication reconciliation/management using the 25-modifier Current Procedural Terminology code.²⁷ In general, patients and physicians were satisfied with pharmacist care,²⁸ and incorporating pharmacist-delivered AWWs into the workflow was found to free up physician and nurse practitioner time for other clinical tasks, improve appropriate medication management for patients, and increase revenue for clinics.²⁹ Importantly, incorporation of pharmacists as AWW service providers led to the implementation of additional profit-generating services such as medication therapy management (MTM)^{28,29} or chronic care management (CCM) services,²⁶ representing an additional opportunity to expand patient care and advance the clinical pharmacy field.

However, in order to capitalize on this opportunity and promote continued advances in clinical pharmacy and patient care, we need to understand current AWW adoption and implementation practices among pharmacists. This information may be useful for pharmacists working in outpatient or ambulatory care clinics and wanting to expand their services or for community pharmacists looking to adopt or implement AWW services in collaboration with local physician offices.

Objective

We focused on one strategy to increase AWW service implementation, namely, utilization of pharmacists as AWW service providers. Accordingly, the purpose of this article was to explore existing practice models and highlight practice opportunities surrounding pharmacist-delivered Medicare AWWs.

Data Sources

In order to obtain a broad picture of current pharmacist involvement in AWW delivery and existing pharmacist-based practice models, we conducted a scoping review³⁰ of existing literature and synthesized findings regarding development and/or implementation of pharmacist-delivered AWW. English-language articles published in peer-reviewed journals from January 2011 to March 2018 were obtained by searching PubMed and Google Scholar online databases using permutations of the terms "pharmacist/pharmacy," "Medicare," "Annual Wellness Visit," "develop/development," and "implement/implementation." Reference lists of published articles were also hand-searched to identify additional studies.

Study Selection and Data Extraction

Experimental, quasi-experimental, or observational studies were eligible for inclusion if they (1) described the development of a pharmacist-delivered AWW program in terms of resources or inputs and/or (2) described the implementation processes of a pharmacist-delivered AWW program as well as programmatic outcomes including uptake and delivery, interventions made, financial models, or patient/provider satisfaction. Systematic reviews, articles published outside the United States, and articles evaluating or describing AWWs delivered via team-based care (of which pharmacists were a member, but not the lead) were excluded from our review. Database searches were conducted by a single reviewer (L.A.H.), and final articles to be included in the review were discussed and confirmed with a second independent researcher (T.J.H.). To ensure consistency, data were extracted by one reviewer (L.A.H.), including study design, setting, population, inputs, processes, and programmatic outcomes. Our intention was not to systematically and exhaustively evaluate all published literature on the topic, but rather to gather information broadly representing the current practice landscape in order to characterize existing practice models with the goal of identifying opportunities for pharmacists to improve services for older adults and expand their own practices.

Data Synthesis

Eight articles were found describing the results of 6 unique studies matching our broad inclusion criteria (Table 2).^{27-29,31-35} In 2 cases, additional results from the same study were published in separate articles.^{28,33-35} All used observational study designs and were published in peer-reviewed journals between 2014 and 2017. The majority (4/6) of the studies were conducted in southern US states, including South Carolina, North Carolina, and Virginia, with one study conducted in Arizona and one in Maryland. Five studies took place in family or internal medicine clinic settings, with only one³² in a community pharmacy setting. Furthermore, 5 studies reported results of pharmacist-delivered AWWs over a range of 3 to 10 months in a population of 66 to 308 Medicare patients; one

Table 2. Summary of Study Characteristics.

Study	Study Design	Setting	Study Period	Study Population
Alhossan et al ³¹	<ul style="list-style-type: none"> Retrospective single-center chart review (observational) 	<ul style="list-style-type: none"> Accountable care organization (ACO) in a federally qualified health center in Arizona 	<ul style="list-style-type: none"> 3 months (October to December 2013) 	<ul style="list-style-type: none"> 308 AWV patients
Beliard and Merrey ²⁷	<ul style="list-style-type: none"> Multicenter retrospective case-control study (observational) Intervention group: AWV patients seen by pharmacist Control group: AWV patients seen by PCP Primary outcome measure: number and type of medication and non-medication-related interventions made by pharmacists vs nonpharmacists 	<ul style="list-style-type: none"> Two primary care internal medicine clinics in Maryland 	<ul style="list-style-type: none"> 10 months (January 2015 to October 2015) 	<ul style="list-style-type: none"> 66 AWV patients
Evans et al ³²	<ul style="list-style-type: none"> Program evaluation and cross-sectional survey (observational) Budget impact analysis 	<ul style="list-style-type: none"> One independently owned community pharmacy and 6 family medicine practices in South Carolina 	<ul style="list-style-type: none"> 2013 (exact time frame not reported) 	<ul style="list-style-type: none"> Key contacts at 6 family medicine clinics (office managers, clinical coordinators, or physicians)
Thomas ²⁹	<ul style="list-style-type: none"> Retrospective single-center chart review (observational) 	<ul style="list-style-type: none"> One family practice office in Virginia 	<ul style="list-style-type: none"> 6 months (September 2012 to February 2013) 	<ul style="list-style-type: none"> 174 AWV patients
^a Warshany et al ³³ ; Sherrill ³⁴	<ul style="list-style-type: none"> Retrospective single-center chart review (observational) 	<ul style="list-style-type: none"> One academic internal medicine clinic in North Carolina 	<ul style="list-style-type: none"> 10 months (August 2011 to May 2012) 	<ul style="list-style-type: none"> 98 AWV patients
^b Wilson et al ²⁸ ; Park et al ³⁵	<ul style="list-style-type: none"> Retrospective single-center chart review and cross-sectional survey²⁸ (observational) Financial analysis³⁵ 	<ul style="list-style-type: none"> Multidisciplinary academic family medicine practice in North Carolina 	<ul style="list-style-type: none"> 10 months (April 2012 to January 2013) 	<ul style="list-style-type: none"> 69 AWV patients

Abbreviations: EHR, electronic health record; FTE, full-time equivalent; MA, medical assistant; NP, nurse practitioner; PA, physician assistant; PCP, primary care provider

^aUptake and delivery, intervention, and financial measures reported by Warshany; satisfaction measures reported by Sherrill.

^bUptake and delivery, intervention, and satisfaction measures reported by Wilson; financial measures reported by Park.

study³² reported AWV program development and implementation guidelines among a population of pharmacists and providers but did not deliver AWVs to patients. Inputs and resources (personnel, pharmacist full-time equivalents [FTEs], facilities, and expenses), implementation processes (pharmacist authority, identification of eligible patients, planned pharmacist interventions, HRA completion, workflow, and business operations), and programmatic outcomes (uptake and delivery, interventions made, economic impact, and patient/physician satisfaction) of these pharmacist-delivered AWV services are described in the following sections. Clinical outcomes of pharmacist-delivered AWVs were not reported in the included studies.

Inputs and Resources

Pharmacist-delivered AWV service inputs and resources were reported in all identified studies (Table 3). Service inputs were categorized into site personnel, pharmacist FTEs employed for AWVs, source of pharmacist personnel, and facilities and expenses. Studies varied in their reports of site personnel

involved in AWV services, with some discussing only pharmacist personnel³³ and others describing all staff members present at the site including physicians, nurse practitioners, physician assistants, registered nurses, receptionists, and ancillary staff.²⁹ The number of pharmacist personnel used to conduct services ranged from 1 to 2, with an average of 0.22 pharmacist FTEs dedicated to AWVs across all reported studies.^{29,32,33} Five studies utilized in-house pharmacist personnel (mean: 0.24 FTEs)^{29,33} and only 1 study outsourced pharmacist personnel (0.20 FTEs).³²

Furthermore, required facilities and/or expenses were reported in 4 of 6 studies, with main expenses including pharmacists' salary and time dedicated to AWVs (\$2600/quarter for pharmacy residents or \$7150/quarter for pharmacists).³² One study reported 160 total pharmacist hours (mean: 6.67 h/wk) expended during the first 6 months of AWV program development and implementation, with 40 hours (mean: 1.67 h/wk) of this spent on one-time development of AWV electronic health record (EHR) templates and approximately 5 h/wk devoted to AWV implementation.²⁹ Outsourced pharmacists reported additional nonsalary expenses including liability insurance,

Table 3. Program Inputs and Resources.

Study	Inputs and Resources			Source of Pharmacist Personnel	
	AWV Personnel	Pharmacist FTEs for AWVs	Facilities and Expenses	In-House	Outsource
Alhossan et al ³¹	<ul style="list-style-type: none"> Clinical pharmacists (# not reported) employed by one ACO/federally qualified health center with 14 clinic locations serving over 80 000 patients per year 	<ul style="list-style-type: none"> Not reported 	<ul style="list-style-type: none"> Not reported 	✓	
Beliard and Merrey ²⁷	<ul style="list-style-type: none"> 2 clinical pharmacists employed by clinics to provide chronic disease state management (CCM) services; PCPs employed by clinics (mean 8/clinic); medical assistants (MAs); licensed practical nurses (LPNs) 	<ul style="list-style-type: none"> Not reported 	<ul style="list-style-type: none"> Not reported 	✓	
Evans et al ³²	<ul style="list-style-type: none"> 1 community pharmacy resident 4 d/mo; 1 pharmacy resident program director; pharmacy owner; PCPs employed by local family medicine clinics (range of 1-6, mean 3.5 providing AWV) 	<ul style="list-style-type: none"> 0.20 FTEs 	<ul style="list-style-type: none"> Facilities: not reported Expenses: \$17 963/year (pharmacy resident salary \$52 000/year including benefits [pharmacist \$143 000/year]; liability insurance \$75/year; mileage to physician clinic \$576/year; clinical reference \$500/year; supplies \$105/year; profit sharing with physician office \$6307.20/year); pharmacy resident time (45 minutes/AWV once per week) 		✓
Thomas ²⁹	<ul style="list-style-type: none"> 1 clinical pharmacist already employed by office to provide CCM and education programs (hours extended from 8 h/d, 1/ day week to 16 h/wk); 2 physicians (1 full-time, 1 part-time); 3 NPs; 1 PA; 10 nurses; 2 receptionists; 7 ancillary staff 	<ul style="list-style-type: none"> 0.20 FTEs 	<ul style="list-style-type: none"> Facilities: one practice office open 6 d/wk with evening hours on 2 days. Examination room designated for the pharmacist Expenses: pharmacists' fixed hourly salary (monetary values not reported); pharmacist time (30-45 min/AWV); nurse time (3-5 min/visit); provider time (5-10 min/visit); mailing supplies (invitation letters and HRA forms); facility overhead. 160 pharmacist-hours used during first 6 months of service development and implementation (40 hours for one-time development of EHR templates). 	✓	
^a Warshany et al ³³ ; Sherrill et al ³⁴	<ul style="list-style-type: none"> 1 clinical pharmacist practitioner (CPP) already employed by the clinic to provide chronic care management (CCM) 	<ul style="list-style-type: none"> 0.27 	<ul style="list-style-type: none"> Facilities: sixteen 40-minute time slots available for AWVs per month Expenses: not reported 	✓	
^b Wilson et al ²⁸ ; Park et al ³⁵	<ul style="list-style-type: none"> 1 clinical pharmacist practitioner (CPP) already employed by the practice to provide CCM, comprehensive medication management, and patient education; at least 1 MA; 17 PCPs (total/ practice) 	<ul style="list-style-type: none"> Not reported 	<ul style="list-style-type: none"> Facilities: already-established pharmacist-run pharmacotherapy clinic within the larger practice (patient volume = 2000 patients/year); clinic capacity = seven 30-minute visits/clinic half-day; practice size = 2000 patients/physician (20% Medicare patients) Expenses: pharmacist salary including benefits = \$120 000/year; pharmacist time = 376 clinic half-days/year (FTEs devoted to AWVs unclear) 	✓	

Abbreviations: EHR, electronic health record; FTE, full-time equivalent; MA, medical assistant; NP, nurse practitioner; PA, physician assistant; PCP, primary care provider.

^aUptake and delivery, intervention, and financial measures reported by Warshany; satisfaction measures reported by Sherrill.

^bUptake and delivery, intervention, and satisfaction measures reported by Wilson; financial measures reported by Park.

mileage, and clinical reference materials totaling \$1890.75/quarter.³²

Implementation Processes

Service processes were grouped into 6 categories: method of pharmacist authority, method to identify eligible patients, planned pharmacist interventions, HRA completion, workflow, and business operations (Table 4). Pharmacist authority was enabled via collaborative practice agreements in all reported cases.^{28,31-35} In 2 studies in North Carolina, pharmacists were able to perform additional medication adjustments via advanced practice certification authority, and one study also reported the development of standing orders specifically for pharmacist-delivered AWP services.^{28,35}

Methods to identify patients who were eligible for AWP included: screening medical charts for age ≥ 66 years and sending mailed invitations (eligibility for the initial AWP begins 1 year after enrollment in Medicare Part B, with typical enrollment at age 65); flagging eligible patients in the EHR prior to scheduled appointments; primary care provider referral to pharmacists; and patient request. Practices using medical charts to screen for eligibility combined with mailed invitations were most successful in recruiting patients for AWP appointments.²⁹ Planned AWP interventions included medication- and non-medication related interventions such as medication adjustments, ordering lab tests, providing referrals for preventive screenings, and vaccination recommendations. HRAs were mailed to patients to complete prior to the AWP in 2 studies.^{29,33,34} and completed in the office after check-in on the day of the visit in 2 studies,^{27,29} with entry of responses into the EHR by a pharmacist or nurse mentioned in 2 studies.^{27,29} Scheduled appointment times ranged from 30 to 45 minutes, with provision of pharmacist-delivered AWP services once weekly for 8 h/d in reported cases.^{29,32}

In regard to business operations, only one study reported specific steps taken to build a collaborative AWP practice between a pharmacist and physician office, with an explicit business plan for pharmacist-physician profit sharing.³² Six steps undertaken to form this business proposal/plan included: pharmacist self-learning, needs assessment of the local area, creation of a marketing kit, making initial contact with potential business partners (physician offices), meeting with interested contacts, and developing a contractual/collaborative practice agreement. A key part of the marketing and contractual discussions involved creation of a profit-and-loss projection, which is a tool used to predict financial profits from the AWP service over specified time frames.³²

Programmatic Outcomes

Programmatic outcomes were grouped into 4 categories: uptake and delivery, interventions made, economic, and patient/physician satisfaction (Table 5). No included studies described patients' clinical outcomes resulting from pharmacist-delivered AWP implementation. Five of the 6

included studies were able to conduct AWP, ranging from 37 to 300 AWP completed by pharmacists. Evans et al projected 292 AWP per year, but a collaborative agreement between the authors' community pharmacy setting and a physician's office was not able to be made and thus no AWP were able to be conducted; perceived lack of time, resources, or legal issues were reported as reasons why physician offices decided not to collaborate with the pharmacy.³² As a result of the AWP completed by pharmacists in these studies, a variety of interventions were made, with the average number of interventions ranging from 3.5 to 5.4 per patient. The majority of pharmacists' interventions were referrals to other specialty providers (nutrition, audiology, etc) and referrals/orders for additional procedures (mammography, colon cancer screening, etc). Additional interventions included laboratory tests ordered, vaccinations offered, education provided, and medication and dosage changes. Further, Thomas incorporated MTM into each AWP,²⁹ and 3 studies discussed adding AWP services to existing pharmacotherapy or CCM clinic visits,^{27,28,33} increasing the reimbursement potential of each visit.

The total quarterly revenue from completed AWP utilizing in-house pharmacists ranged from \$3750 to \$22340, with one study reporting total quarterly revenue from ancillary services provided during the AWP of \$36379.^{31,35} Evans et al projected that outsourcing pharmacists from community pharmacies would result in quarterly revenue of \$7884 (7.5-10 AWP/d, 1 d/week) with a 60/40 pharmacy/clinic profit share needed for minimum profitability for both parties.³²

Additionally, 2 studies examined patient satisfaction with the AWP,^{28,34} reporting that over 70% of patients were very satisfied with the pharmacist-delivered AWP overall and over 80% agreed or strongly agreed that they would like to see the same provider for their AWP again the following year. Wilson et al also examined physician satisfaction, reporting that, on average, physicians agreed that patients were willing to see a pharmacist for the AWP. Physicians also strongly disagreed that they preferred to conduct the AWP themselves as opposed to pharmacists conducting the AWP.²⁸

Implications for Patient Care and Clinical Practice

Despite being offered at no cost to Medicare enrollees, the percentage of Medicare patients receiving an AWP remains low at less than 20% nationally.³⁶ The potential barriers to increased uptake include a lack of awareness and understanding of the AWP among patients, physicians, and other prescribers, as well as the time-consuming nature of the AWP and its disruption to physicians' workflow.²⁹ In order to overcome these barriers, recommendations have been made to incorporate pharmacists who can conduct these visits under a physician's supervision.³⁷ However, a scoping review of the literature found only 6 studies reporting development and implementation of pharmacist-delivered AWP services to date, which shows that the development of this role for pharmacists is still in its infancy.^{27-29,31-35} As such, this review should

Table 4. Program Implementation Processes.

Study	Processes					
	Pharmacist Authority	Patient Identification	Pharmacist Interventions	HRA Completion	Workflow	Business Operations
Alhossan et al ³¹	<ul style="list-style-type: none"> Collaborative practice agreement within accountable care organization (ACO) 	<ul style="list-style-type: none"> Not reported 	<ul style="list-style-type: none"> Medication and non-medication-related interventions; order lab tests; referrals for preventive screenings; provide preventive services like vaccinations; make medication changes 	<ul style="list-style-type: none"> Not reported 	<ul style="list-style-type: none"> Pharmacist conducted AWWs; primary care physician (PCP) seen for AWW by referral only 	<ul style="list-style-type: none"> Not reported
Beliard and Merrey ²⁷	<ul style="list-style-type: none"> Specified NO collaborative practice agreement (specific method not reported) 	<ul style="list-style-type: none"> 1. MA or LPN identified and flagged in EHR patients eligible for AWW the day prior to already-scheduled PCP or pharmacist visits; or 2. Outreach to patients on a list of overdue AWWs (method of outreach not specified) 	<ul style="list-style-type: none"> Address medication and non-medication-related concerns identified in HRA 	<ul style="list-style-type: none"> Developed own paper HRA form to scan/enter into EHR. Patient completed paper HRA in waiting room after checking in for AWW appointment. HRA data entered into EHR by nurse or MA for PCP-delivered AWWs and by pharmacist for pharmacist-delivered AWWs 	<ul style="list-style-type: none"> AWW conducted at the same time as regular appointment (time not extended, 15-30 minutes for PCPs, 30 minutes for pharmacists). Standard AWW progress note template used in EHR. All pharmacist AWW and Vs and interventions or referrals co-signed by PCPs 	<ul style="list-style-type: none"> Not reported
Evans et al ³²	<ul style="list-style-type: none"> Collaborative practice agreement 	<ul style="list-style-type: none"> Not reported 	<ul style="list-style-type: none"> Not reported 	<ul style="list-style-type: none"> Not reported 	<ul style="list-style-type: none"> Proposed AWW workflow: community pharmacy resident performs 45-minute AWWs at physician practice site 1 d/wk with 8-hour work day (max 10-11 AWWs/day) 	<ul style="list-style-type: none"> 6 steps developed to collaborate with physician offices: <ol style="list-style-type: none"> Self-learning. Educate pharmacy personnel on AWW basics Needs assessment. Identify physician offices within 15 miles of pharmacy and assess current AWW provision using Medicare Provider Utilization and Payment Database

(continued)

Table 4. (continued)

Study	Processes					
	Pharmacist Authority	Patient Identification	Pharmacist Interventions	HRA Completion	Workflow	Business Operations
						<ol style="list-style-type: none"> 3. Create marketing kit to present to physician offices 4. Make initial contact with target offices by telephone. Pharmacist should first contact office manager 5. Contact each physician office to set up a meeting via phone, e-mail, or in-person. In-person found to be most effective 6. Collaborate with physician office. Develop collaborative practice agreement and financial plan. Set goal start date and plan training • 2 financial models developed using percent share between pharmacy and physician office. Profit-and-loss projection created using 80/20 pharmacy/office split of AWW profit; for use in contractual discussions
Thomas ²⁹	<ul style="list-style-type: none"> • Not specified 	<ul style="list-style-type: none"> • EHR used to identify patients >66 with no AWW billed in previous year. Letters of invitation sent to identified patients every month 	<ul style="list-style-type: none"> • Address medication and non-medication-related concerns identified in HRA; medication therapy management (MTM) 		<ul style="list-style-type: none"> • Pharmacist conducted 30-45 minutes of AWWs 1 d/wk; PCP seen for AWW by referral only. MTM incorporated into AWW. Next 	<ul style="list-style-type: none"> • Not reported

(continued)

Table 4. (continued)

Study	Processes					
	Pharmacist Authority	Patient Identification	Pharmacist Interventions	HRA Completion	Workflow	Business Operations
				<ul style="list-style-type: none"> Created customized paper HRA form for patients to complete at home before the visit or in the waiting room. Nurse entered HRA results into EHR template 	AWV automatically scheduled for the following year. AWV progress notes co-signed by PCP. Diagnosis code V0.70 (routine examination without symptoms) billed	
^a Warshany et al ³³ ; Sherrill et al ³⁴	<ul style="list-style-type: none"> Collaborative practice agreement; advanced practice certification authority (CPP) 	<ul style="list-style-type: none"> Medicare patients over 65 were sent AWV invitations by mail (unclear if any screening was performed to determine AWV eligibility based on ≥ 1 year of enrollment in Medicare Part B). 	<ul style="list-style-type: none"> Medication and non-medication-related interventions "based on prespecified criteria"; authority to initiate medications; order laboratory tests; patient education; complete referrals; administer vaccines 	<ul style="list-style-type: none"> Scheduled patients were sent HRA packet via mail to complete prior to AWV 	<ul style="list-style-type: none"> 40-minute time slots for AWVs. Pharmacist reviewed HRA packet and made interventions 	<ul style="list-style-type: none"> Not reported
^b Wilson et al ²⁸ ; Park et al ³⁵	<ul style="list-style-type: none"> Collaborative practice agreement; advanced practice certification authority (CPP); standing orders 	<ul style="list-style-type: none"> 1. PCP referral to pharmacist for AWV; or 2. Patient request 	<ul style="list-style-type: none"> Medication and non-medication-related interventions; order lab tests; make referrals; order vaccinations; authority via CPP license to initiate, adjust, discontinue medications and order medication-related tests 	<ul style="list-style-type: none"> Not reported 	<ul style="list-style-type: none"> Pharmacist conducted 30-minute AWVs upon PCP referral or patient request. If vaccines ordered by pharmacist, they were administered by an MA. Comprehensive medication management services offered at same time as AWV as an additional service 	<ul style="list-style-type: none"> Not reported

Abbreviations: EHR, electronic health record; FTE, full-time equivalent; MA, medical assistant; NP, nurse practitioner; PA, physician assistant; PCP, primary care provider

^aUptake and delivery, intervention, and financial measures reported by Warshany; satisfaction measures reported by Sherrill.

^bUptake and delivery, intervention, and satisfaction measures reported by Wilson; financial measures reported by Park.

Table 5. Programmatic Outcomes.

Study	Programmatic Outcomes			
	Uptake and Delivery	Interventions Made	Economic ^a	Satisfaction
Alhossan et al ³¹	<ul style="list-style-type: none"> 300 AWWs completed by pharmacists 	<ul style="list-style-type: none"> 1608 AWWs interventions made (mean: 5.4 interventions/patient) 272 referrals made (ophthalmology > mammography > colon cancer screening > DEXA) 183 laboratory tests ordered for diabetes and lipid screening 370 vaccinations offered (influenza > shingles > pneumococcal > Tdap) 24 medication and dosage changes 45%, 83% ($P < .0001$), and 49% ($P < .001$) of all referrals, laboratory tests, and vaccinations, respectively, were completed within 1 month of the visit 	<ul style="list-style-type: none"> Quarterly revenue from AWWs: \$22 340 Quarterly revenue from ancillary services during AWW: \$36 379 	<ul style="list-style-type: none"> Not reported
Beliard and Merrey ²⁷	<ul style="list-style-type: none"> 37 AWWs completed by pharmacists 43 AWWs completed by nonpharmacists (PCPs) 	<ul style="list-style-type: none"> Pharmacists made 37 medication-related interventions PCPs made 20 medication-related interventions Pharmacists made more medication-related interventions/patient compared to PCPs (median 2 vs 0, $P < .00001$). Pharmacists made 61 (median: 5/patient) non-medication-related interventions versus PCPs made 60 (median: 2/patient) ($P < .0013$) Median 3.5 interventions/patient overall Additional pharmacist services resulting from AWW: 31% of all pharmacist-led AWWs resulted in PCP referrals to pharmacist medication management clinic 	<ul style="list-style-type: none"> Not reported 	<ul style="list-style-type: none"> Not reported
Evans et al ³²	<ul style="list-style-type: none"> Pharmacist met with 3/6 physician offices 0 physician offices adopted the pharmacy AWW service 	<ul style="list-style-type: none"> N/A 	<ul style="list-style-type: none"> Reported projected revenue from AWWs: \$31 536/year Quarterly revenue from AWWs: \$7884 Projected pharmacy net profit: \$13 572/year Projected physician office net profit: \$6307.20/year 	<ul style="list-style-type: none"> N/A

(continued)

Table 5. (continued)

Study	Programmatic Outcomes			
	Uptake and Delivery	Interventions Made	Economic ^a	Satisfaction
Thomas ²⁹	<ul style="list-style-type: none"> Physician offices cited perceived lack of time, resources, or legal issues as reasons for not adopting the pharmacy AWW service Projected number of AWWs = 292/year 		<ul style="list-style-type: none"> Minimum profitable pharmacy/office split using pharmacy resident AWW delivery = any split other than 50/50 Minimum profitable pharmacy/office split using pharmacist AWW delivery = 60/40 (7.5-10 AWWs/day, 4 d/mo) 	
	<ul style="list-style-type: none"> > 2000 eligible patients identified 150-200 letters of invitation sent to eligible patients every month 174 AWWs completed 	<ul style="list-style-type: none"> Additional pharmacist services resulting from AWWs: medication therapy management (MTM) incorporated into all AWWs 	<ul style="list-style-type: none"> Reported revenue from AWWs: \$27 880.98/6 months Quarterly revenue from AWWs: \$13, 940.49 	<ul style="list-style-type: none"> Not reported
^b Warshany et al ³³ ; Sherrill et al ³⁴	<ul style="list-style-type: none"> 3281 eligible patients identified 2106 eligible patients invited to AWW; 98 patients (4.6%) accepted invitation to schedule AWW 98 AWWs completed Mean AWW appointment time of 73 minutes (check-in to check-out) 	<ul style="list-style-type: none"> 441 interventions made Mean: 4.5 interventions/ AWW 98 referrals made to other providers (most often nutrition, physical therapy, audiology) 91 education interventions (mean 1.4/AWW): 62% for home safety concerns; 27% for advance directives; and 4% for smoking cessation 97 lab tests or procedures ordered 125 vaccinations recommended and 28% administered: 19 tetanus, 9 pneumococcal, 7 influenza; herpes zoster recommended but not given 4 patients prescribed new medications based on HRA results 	<ul style="list-style-type: none"> Reported projected revenue from AWWs: expected total revenue of \$15 619.24/10 months based on reimbursement of \$159.38/initial AWW and \$106.35/subsequent AWW (actual revenue not reported) Quarterly revenue from AWWs: \$4685.77 	<ul style="list-style-type: none"> 100% survey response rate 72% of patients were very satisfied with the care they received from the CPP (n = 46, mean 4.7 where 1 = very dissatisfied and 5 = very satisfied) 70% of patients were very satisfied with the visit as a whole (mean 4.6 where 1 = very dissatisfied and 5 = very satisfied) 98% of patients agreed or strongly agreed that they were comfortable discussing their health information with a CPP (mean 4.4 where 1 = strongly disagree and 5 = strongly agree) 87% of patients agreed or strongly agreed that they were just as comfortable discussing their health information for this visit with a CPP as with their PCP and that they would like to see the same provider next year (mean 4.1 where 1 = strongly disagree and 5 = strongly agree) 35% of patients agreed or strongly agreed that they would rather see their PCP for the AWW, while 44% of patients disagreed or strongly disagreed (mean 3.0 where 1 = strongly disagree and 5 = strongly agree)

(continued)

Table 5. (continued)

Study	Programmatic Outcomes			
	Uptake and Delivery	Interventions Made	Economic ^a	Satisfaction
Wilson et al ²⁸ , Park et al ³⁵	<ul style="list-style-type: none"> 69AWVs completed 	<ul style="list-style-type: none"> 589 total interventions made 247 medication-related interventions (mean 3.6/patient) 342 non-medication-related interventions (mean 4.9/patient) Mean 4.25 interventions/patient overall Most frequent medication-related intervention: correcting medication list discrepancies (69.6%) Most frequent non-medication-related intervention: ordering or prescribing a vaccine (28.4%, mean: 1.4 vaccines/patient); referral to PCP for advance care planning (17%) Patients' number of medications positively associated with number of medication-related interventions ($r = 0.37$, $P < .01$) but not with total number of interventions ($r = -0.13$, $P = .14$) 	<ul style="list-style-type: none"> Reimbursement/AWV: \$162.15/initial and \$107.25/subsequent Reported revenue from AWVs: \$10 000/8 months (2.4 AWVs/clinic half-day required to support pharmacist salary) Quarterly revenue from AWVs: \$3750 Hypothetical AWV utilization rates needed to support pharmacist salary based on varying practice sizes (assuming 10/90% initial/subsequent AWVs): small-size practice = 100%; medium-size practice = 54%; large-size practice = 18%; regardless of practice size = 1070 AWVs/year (2.9 visits/clinic half-day) 	<ul style="list-style-type: none"> 62.7% patient and 100% physician survey response rates Patients were very satisfied with the AWVs on average ($n = 32$, mean 4.7 where 1=very dissatisfied and 5=very satisfied) Patients were neutral about whether they preferred to see a PCP or pharmacist for the AWV (mean 2.8 where 1=strongly disagree and 5=strongly agree) Patients strongly agreed that they would like to see the same provider (pharmacist) again for their AWV the following year (mean 4.8 where 1=strongly disagree and 5=strongly agree) Physicians agreed that patients were willing to see a pharmacist for the AWV ($n=10$, mean 4.2 where 1=strongly disagree and 5=strongly agree) Physicians strongly disagreed that they preferred to conduct the AWV themselves instead of the pharmacist (mean 1.5 where 1 = strongly disagree and 5 = strongly agree) Physicians strongly agreed that patients benefited from pharmacist providing AWV (mean 5.0 where 1 = strongly disagree and 5 = strongly agree)

Abbreviations: CPP, clinical pharmacist practitioner; EHR, electronic health record; FTE, full-time equivalent; MA, medical assistant; NP, nurse practitioner; PA, physician assistant; PCP, primary care provider.

^aIn cases where revenue was not reported quarterly, quarterly revenue was calculated from reported values for purposes of comparison across studies.

^bUptake and delivery, intervention, and financial measures reported by Warshany; satisfaction measures reported by Sherrill.

^cUptake and delivery, intervention, and satisfaction measures reported by Wilson; financial measures reported by Park.

provide preliminary guidance to pharmacists who are interested in providing AWVs as they consider resources, implementation plans, and indicators for measuring success. Furthermore, although the articles included in this review were limited to the United States due to a focus on the Medicare payment system, pharmacists and health-care practitioners in other countries can learn from the discussed implementation strategies and adapt them to their own practices in the context of their country's health-care system in order to streamline services for the older adult population.

Pharmacist-delivered AWV practice models identified in this review primarily differed based on utilization of in-house versus outsourced pharmacist personnel. The decision to choose between in-house versus outsourcing mechanisms is common among business practices; these decisions sometimes are referred to as "make-or-buy" decisions.³⁸ The majority of included studies utilized an in-house model by using clinical pharmacists who were the current staff of the clinics. Utilizing in-house pharmacists who already function as an employee overcomes many of the barriers to physician and pharmacist

collaboration. Pharmacists embedded within the care team have the advantage of being able to communicate more frequently with the physician, either verbally or electronically, developing greater trust within the team that is often difficult to achieve when outsourced.^{39,40} Further, this model allows the pharmacist-delivered service to be integrated into the site's workflow, with same-day co-visits being more convenient for both patients and physicians.³⁹ From the organizational perspective, the in-house model allows for greater degree of integration of the service to its core functions, which in turn increases its sustainability.⁴¹ This model may therefore be very useful for pharmacists practicing in ambulatory care settings and wishing to enhance their clinical services.

While in-house pharmacists may be the most commonly used mechanism among the identified studies, outsourcing AWP delivery to community pharmacists is a viable approach, especially for clinics that do not have a staff pharmacist or are located in underserved or rural areas.⁴² As only one study identified in this review reported creation of an AWP service in a community pharmacy setting, this also represents a gap or niche that can be filled by community pharmacists. For example, collaborative practice agreements (defined as formalized arrangements between physicians and pharmacists that give pharmacists the ability to perform a wide array of patient care services)⁴³ between a pharmacy and a local physician can be established to offer a community pharmacy AWP service, as described by Evans and colleagues.³² Despite interest in the program, clinics did not adopt the community pharmacist-delivered AWP program due to lack of an established collaborative relationship with the pharmacy.³² Therefore, in addition to methods of developing and implementing new AWP services in the community pharmacy setting, education on the process of establishing a working relationship between community pharmacists and local medical clinics is warranted. The CDC guidelines detailing implementation of pharmacist-physician collaborative practice agreements may aid in this endeavor.⁴⁴ This guide highlights methods to approach prescribers and the activities needed to create a functional clinical and business partnership, including: (1) meeting with clinic managers to discuss pharmacists' contribution toward improved clinical and financial quality metrics, (2) modifying a template to specify allowed clinical services performed by the pharmacist, and (3) registering the agreement with the state Board of Pharmacy.⁴⁴

In order to optimally implement pharmacist-delivered AWP services and form interprofessional collaborations, however, the broader health policy environment must be understood. As pharmacists cannot independently bill for the provision of an AWP unless they are under the direct supervision of a physician, collaborative practice agreements will be required for most community pharmacists interested in providing AWP.⁴³ Laws governing collaborative practice agreements can vary between states. Pharmacists interested in establishing a collaborative relationship should first seek to understand the policies surrounding these agreements within their state and identify prescribers with whom a relationship can be built.⁴⁴

The templates and financial models described within the studies in this review may be helpful to ambulatory care and community pharmacists in demonstrating the advantages of physician-pharmacist collaboration in order to facilitate uptake of AWP services. Pharmacists and other health-care professionals wishing to learn more about AWP and preventive services reimbursed by Medicare may find the education materials provided by the Centers for Medicare and Medicaid Services Medicare Learning Network useful.⁴⁵ Moving forward, policy changes allowing pharmacists to be recognized as providers would enable pharmacists to more easily deliver services such as the AWP, which they are ideally suited to implement in the community setting.

Conclusions

Although uptake of Medicare AWP has been slow across the United States, novel pharmacist-physician practice models exist to guide those wanting to implement their own AWP services. The current practice landscape is dominated by AWP services utilizing in-house clinical pharmacists delivering care within internal or family medicine clinics. However, there is opportunity for community pharmacists to expand their practice to include AWP services in states allowing collaborative practice agreements, which may help increase access and uptake of AWP among older adults. Pharmacists working in ambulatory care settings may also find the AWP practice models highlighted in this review of use in enhancing their own services. Further pharmacist and physician education is needed to promote interprofessional collaboration and aid adoption of pharmacist-delivered AWP services.

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