

# Rural Promising Practice Issue Brief: IMPROVE: Integrated Management and Polypharmacy Review of Vulnerable Elders

## Executive Summary

An estimated 80 percent of older Americans live with at least one chronic condition, and more than 50 percent of older adults have been diagnosed with five or more chronic conditions.<sup>1</sup> As a result of comorbid conditions among older adults, providers often prescribe numerous medications to address chronic conditions, resulting in polypharmacy. Polypharmacy refers not only to taking multiple medications, but to taking more medications than clinically indicated. Due to the high prevalence of polypharmacy, older adults have a higher risk for adverse drug events, poor adherence, and negative drug interactions.<sup>2</sup> Overall, poor quality prescribing for older adults also results in use of Potentially Inappropriate Medications (PIMs), which have a high risk for adverse events due to their pharmacologic properties, physiologic changes of aging, or poor evidence for efficacy in older persons.



In addition, older adults, including older Veterans, have an increased susceptibility to morbidity and mortality related to adverse drug events associated with age-related changes, comorbid chronic conditions, and different pharmacodynamics.<sup>3</sup> Due to these risk factors, older adults are more likely to experience an adverse drug reaction.<sup>3</sup>

**80%**

of older Americans live with at least one chronic condition

**50%**

of older adults have been diagnosed with five or more chronic conditions

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Of Veterans who participated in the IMPROVE program with a face-to-face pharmacist visit:

**79%**

had at least one medication discontinued

**75%**

had one or more dosing or timing adjustments

**14%**

reduction in Potentially Inappropriate Medications (PIMs)

Another challenge facing older adults who take multiple medications is that they are less likely to comply and adhere to numerous, complex medication protocols. Lack of medication adherence negatively impacts the treatment process, exacerbates medical conditions, and increases the need for additional medications.<sup>3</sup>

## Success Story

Mr. A is a 93-year-old widowed Veteran who is diagnosed with lymphoma and early stage dementia. During the 12-month period prior to the IMPROVE intervention, medical records show that Mr. A had a total of 21 outpatient visits and one ER visit. At that time, he was taking 29 different medications and his 30-day supply of medication from VA cost a total of \$506.48. Mr. A's daughter, his primary caregiver, reported that her father sometimes stopped taking his medication when his symptoms were under control and occasionally forgot to take his medication.

Mr. A and his daughter agreed to meet with the geriatric clinical pharmacist in his primary care geriatrics clinic as a participant in the IMPROVE program. During the IMPROVE clinic session with Mr. A and his daughter, the clinical pharmacist, Dr. K, eliminated six medications, which included three medications that could interact adversely with one of his essential medications. Notably, the month following the IMPROVE intervention, Mr. A's VA medication costs decreased from \$506.48 to \$273.24 for a 30-day supply. These figures do not reflect several vitamins that were also eliminated. Mr. A's daughter said, *"Dr. K knew more about vitamins and how they interface with other drugs than anyone else I have talked with. Dad does not want to give up his Omega 3. Dr. K made us understand why we should cut from 3,000 mg to 1,500. She was not afraid to address the vitamin issue."*

One year after the intervention, Mr. A's medications had decreased from 29 to 18. His cost for a 30-day supply also decreased from \$506.48 to \$50.34. In addition, Mr. A's annual outpatient visits decreased from a 21 to nine. He also had no ER visits during this period.

Before she was contacted about the IMPROVE intervention, Mr. A's daughter said that she did not know that the VA Geriatric Clinic had a clinical pharmacist on staff. She said that Dr. K was "very helpful" and not only helped her father, but also helped her, the caregiver. She said that participating in the session had improved her (and her father's) ability to take medications as prescribed. She said that she now "has less stress and less anxiety" about managing her father's medication. When asked if she would recommend the IMPROVE program to another Veteran, Mr. A's daughter said: *"Definitely! This program has multiple benefits. It helped with my anxiety (as the caregiver). It was good for him (the Veteran). It also saved money by eliminating unnecessary medications and vitamins."*

Within the Veteran population, there is a similar incidence of comorbidity and, therefore, polypharmacy. Veterans with complex, multiple chronic and mental health conditions are frequently prescribed numerous medications. According to one study, outpatients taking five or more medications have an 88 percent increased risk of experiencing an adverse drug event.<sup>4</sup> Furthermore, a study evaluating Veterans found that patients who took five or more medications are four times more likely to be hospitalized from adverse drug event.<sup>4</sup>

To address these issues, a team of investigators, including a geriatrician, geriatric clinical pharmacist, medical sociologist, and health research psychologist at the Atlanta VA Medical Center and the Birmingham/Atlanta Geriatric Research Education and Clinical Center, established the IMPROVE program with funding from the Department of Veterans Affairs (VA) Office of Geriatrics and Extended Care 21<sup>st</sup> Century Transformational Initiative (T-21). This program is a successful pharmacist-led, patient-centered clinical program that improves medication management in high-risk older Veterans. In subsequent years, the team also translated the program, with funding from the VA Office of Rural Health, to reach rural VA Primary Care Providers (PCPs) and clinical pharmacists, through educational outreach (e.g., academic detailing, decision support tools, and individual provider prescribing feedback on quality prescribing practices for older Veterans). The preliminary analysis of the pilot IMPROVE program suggests that it is effective in reducing the number of medications taken by high-risk, rural, elderly Veterans; reducing VA pharmacy costs; and improving the overall quality of prescribing.

## Who Can Use This Rural Promising Practice?

The IMPROVE program is designed to support elderly Veterans who take multiple medications or have barriers to independent management of complex medication regimens as well as aid prescribers to avoid PIMs in older Veterans. A clinical pharmacist with experience in medication management can adopt this program to support PCPs who treat elderly Veterans and other elderly patients. In a clinical setting without geriatrics expertise, the IMPROVE program additionally provides academic detailing, which is educational outreach in a face-to-face format from an expert in the field of geriatric prescribing, to support evidence-based safe prescribing. This is combined with tailored, individual audit prescribing tools and feedback to providers on their prescribing practice relative to their de-identified peers, to promote engagement and quality improvement.

Findings suggest that when a clinical pharmacist reviews medications and counsels patients regarding their medication, it improves clinical outcomes, reduces the number of adverse drug events, and increases patient adherence.<sup>5</sup> Academic detailing, especially when combined with audit and feedback, has also been shown to produce practice change with reduction in inappropriate prescribing.<sup>6,7</sup>



## Need Addressed

The IMPROVE program uses a patient-centered approach to enhance the quality and safety of prescribing for older rural Veterans. Elderly patients taking multiple medications face increased risk for higher health care costs associated with adverse drug events and drug interactions. Research demonstrates that individuals taking multiple medications have an increased risk for a potential adverse medication event, resulting in a higher number of outpatient visits and hospitalization.<sup>4</sup>

Adverse drug events have been estimated to contribute to 4.3 million health care visits.<sup>4</sup> More specifically for older adults, roughly 35 percent of outpatients and 40 percent of hospitalizations are associated with adverse drug events.<sup>4</sup> In addition, patients who take between five and nine medication have a 50 percent probability for a drug interaction and patients who take 20 or more medications have a 100 percent probability.<sup>4</sup>

Health care professionals, including pharmacists, play a critical role in educating older adults regarding appropriate dosing of medications and potential side effects.<sup>7</sup> Pharmacists, specifically, provide critically important medication prescription information and self-management expertise to providers, patients, and families and their caregivers as well as experience related to self-management and medication prescriptions. Pharmacists are an essential component

of reviewing medications, providing medication counseling, and ensuring that medications are prescribed appropriately, which demonstrates the need for provider education and medication reconciliation at every level of health care interaction.<sup>7</sup>

## Implementation

The IMPROVE team developed and implemented a collaborative and sustainable approach to medication management for at-risk Veterans aged 65 or older taking multiple medications. The IMPROVE program can be adapted to other VA clinics throughout the VA health care system. To establish the IMPROVE program, the team engaged stakeholders, including Veterans, caregivers, and providers to identify needs and barriers to medication management.

During this process, the program team conducted individual qualitative, semi-structured interviews with clinical pharmacists and PCPs. These interviews focused on potential challenges related to medication management for older Veterans, individual needs and barriers, the role of the clinical pharmacist in providing recommendations to providers, and attitudes and preferences for communication. Through the interview process, the program team identified challenges related to time constraints during clinic visits, the importance of joint decision making, and addressing Veteran health literacy.

In addition, the program team also conducted focus groups with Veterans and their caregivers to understand their challenges related to medication management and self-management. During these focus groups, the program team identified poor recognition of limitations in medication self-management, challenges with health literacy, and a lack of knowledge related to the role of a clinical pharmacist. The program team used the data collected from stakeholders to develop the IMPROVE model, which was tailored to meet the identified barriers and challenges.

Each VA primary care Patient Aligned Care Team (PACT) includes a clinical pharmacist, who is trained in medication management and patient education. The IMPROVE program utilized the team clinical pharmacist to lead face-to-face clinical consults with enrolled Veterans and their caregivers. Initial recruitment of Veterans to the program focused on those aged 85 years and older taking 10 or more medications. To recruit Veterans and their caregivers, the program team sent letters to all high-risk Veterans and their caregivers, and then the program team followed up with potential participants through phone calls. If the Veterans and

their caregivers elected to participate in the IMPROVE program, the team scheduled appointments with the clinical pharmacists.

After the IMPROVE program was established, clinical pharmacists were provided with a list of high-risk Veterans over the age of 65 who take ten or more medications and had an upcoming appointment within the VA medical facility to recruit, and primary care providers were encouraged to refer Veterans they felt would benefit from a consultation with the pharmacist through a consult option in the electronic medical record. Veterans were instructed to bring all their medication to the appointment. At their appointment, the clinical pharmacist conducted a collaborative review of each Veteran's medication protocols with the Veteran and his or her caregiver. The clinical pharmacist also provided recommendations, education, and strategies and tools to improve the Veterans' adherence to their medication protocols.

To standardize these appointments, the program team developed several tools to assist the clinical pharmacist with the evaluation of a Veteran's medication management and quality of provider's prescribing practices. The program developed a quick reference card, which provides information on PIMs based on the 2012 Beers criteria and potentially beneficial medications based on the START-STOPP (Screening Tool to Alert doctors to the Right Treatment-Screening Tool of Older Person's potentially inappropriate Prescriptions) criteria, an evidence-based tool.<sup>7</sup> The Beers criteria, a validated screening tool, is often used to identify potential risk of adverse events.<sup>8</sup> In addition, an IMPROVE Computerized Patient Record System (CPRS) template (that includes information on medication reconciliation, systematic review of all medications for appropriateness, and proper therapeutic monitoring) was developed to assist the clinical pharmacists. The template also provides assessments for level of available medication assistance, goals of care, health literacy, and barriers to adherence.

Based on the success of the pilot clinic at the Atlanta VA, the IMPROVE program team further expanded the program to local VA Community-Based Outpatient Clinics (CBOCs) using academic detailing and audit and feedback on individual prescribing practices. At the rural CBOCs, the IMPROVE program provided support to PCPs that have a large population of elderly Veterans. Prior to implementing the IMPROVE program, the team conducted an additional assessment to identify potential barriers and developed a deeper understanding of the CBOCs' culture. Based on the information collected, the program team added an educational component and

submitted a monthly report to providers regarding their prescribing practices with benchmarks.

A clinical geriatric pharmacist, geriatrician, and gerontologist conducted face-to-face educational sessions with rural providers on best practices for medication management in elderly Veterans. The program team also developed a process for referring vulnerable Veterans to the CBOC team pharmacist for one-on-one consultations using an IMPROVE CPRS template. For the monthly data reports, a data analyst compiled monthly data on provider prescribing practices focused on avoidance of PIMs for older adults, as defined by the 2012 Beers list. These reports were shared with providers for confidential practice improvement and peer benchmarking



## Promising Results

During fiscal year 2014, the IMPROVE program provided educational site visits and monthly feedback regarding their prescribing practices. Between July 2014 and August 2015, these providers treated 7,035 unique Veterans aged 65 and older. The IMPROVE program demonstrates all the criteria to be considered a Rural Promising Practice.

**Increased Access:** The IMPROVE program increased rural older Veteran access to providers with enhanced knowledge of geriatric prescribing and improved care coordination for high-risk older Veterans.

**Evidence of Clinical Impact:** In surveys following IMPROVE's educational sessions, 87 percent of providers agreed that "*Confidence that I can provide patient-centric, individualized medication management*" had been impacted. Preliminary results demonstrated that, of Veterans who participated in the IMPROVE program with a face-to-face pharmacist visit, 79 percent had at least one medication discontinued and 75 percent had one or more dosing or timing adjustments; PIMs were reduced by 14 percent. Twenty PCPs in four rural CBOCs were followed for prescribing practice changes over 14 months after the IMPROVE academic detailing and received monthly feedback reports. This showed the incidence of PIM prescribing decreased from 9.6 percent to 8.7 percent ( $p=0.009$ ) and prevalence of PIMs declined from 22.6 percent to 16.7 percent ( $p<.001$ ). Prescriptions for benzodiazepines, one of the most commonly prescribed PIMs for older Veterans, declined from a rate of 26 per 1,000 encounters to a rate of 19 per 1,000 encounters ( $p<.001$ ).

**Customer Satisfaction:** Data from post-pilot surveys demonstrates a high level of satisfaction among all stakeholders (e.g., Veterans, family members and/or caregivers, primary care providers, and clinical pharmacists). In a customer satisfaction survey, 93 percent of Veterans and caregivers reported that the IMPROVE program was helpful and 100 percent would recommend the clinic to others.

**Return on Investment:** The IMPROVE program is a cost-effective concept, utilizing the existing VA PACT model with targeted education, training, and computerized tools which can be adopted by other VA medical facilities. VA pharmacy cost savings and reduced health care utilization were demonstrated in the initial clinical demonstration; an assessment of these important

### Office of Rural Health Rural Promising Practice Criteria

**Increased Access:** Measurable improvements in access to care and/or services. Examples include reduction in distance traveled to care, reduction in wait times, improved care coordination, and reduction in missed appointments.

**Evidence of Clinical Impact:** Positive results on outcomes of importance to rural Veterans based on evaluations conducted during the implementation of the program and at the end of the pilot period.

**Customer Satisfaction:** Increased patient, provider, partner, and/or caregiver satisfaction.

**Return on Investment:** Improvement in health system performance by 1) reducing the per capita costs of health care, and 2) improving or at least maintaining health outcomes, and/ or 3) positively impact the health care delivery system.

**Operational Feasibility:** Implementation is feasible and known barriers and facilitators of success could easily be shared across implementation sites.

**Strong Partnerships and/or Working Relationships:** Inclusion of VA and/or non-VA partners to maximize the efficacy of the intervention.

outcomes continues as the program continues to expand to rural settings. The average pharmacy cost savings was approximately \$64 per Veteran per month.

**Strong partnerships and/or working relationships:** During pre-implementation phone interviews, the program team learned that interviewees viewed the existence of clinical pharmacists and PACTs as potential structural facilitators for the IMPROVE intervention. The onsite educational visits brought together both groups to discuss quality prescribing for older patients. After the educational sessions, all 31 (100 percent) survey respondents agreed that their "*willingness to use a team-based approach to reduce harmful polypharmacy*" had a positive impact.

**Operational Feasibility:** The IMPROVE program was initially developed and implemented in a Geriatric Clinic at the Atlanta VA Medical Center. The program was expanded to additional locations and has demonstrated feasibility of implementation at rural CBOCs. The known barriers and facilitators of success have been documented and disseminated across implementation sites through face-to-face education sessions and use of online tools.

## Adoption Considerations

The IMPROVE program has been tailored to meet the needs of local rural CBOCs. Prior to implementing the IMPROVE program, the team gathered critical feedback from stakeholders, including Veterans and their caregivers and rural providers. The information that the team gathered helped to tailor the program to meet the needs of Veterans and providers. Working collaboratively with providers allowed the team to develop trusting relationships with providers that facilitated the successful implementation of the IMPROVE program.

For facilities considering implementing this program, key adoption considerations include: 1) leadership and provider support, and 2) staffing needs.

**Leadership and Provider Support:** To successfully implement the IMPROVE program at additional facilities, the program team would need to gain leadership and provider support. By gaining leadership and provider support prior to implementing the IMPROVE program, the team would be able to develop collaborative relationships that are critical to the success of the educational and provider prescribing practice components of the program.

In addition, with the support of facility leadership, the IMPROVE team would be able to address challenges facing providers and the clinical pharmacist regarding time dedicated to the program. The IMPROVE program also conducted a needs assessment before implementing the program to better understand the unique culture, barriers, and facilitators to practice change at the facility.

**Staffing Needs:** For the face-to-face pharmacist medication reconciliation component of the program, it is estimated that each appointment, on average, lasts one hour. Therefore, the clinical pharmacist would need dedicated time for appointments. The program team will also need to consider dedicated clinic time for rural providers.

# Conclusion and Next Steps

The IMPROVE program demonstrates an integrated approach to improving medication management requiring the involvement of both clinical pharmacists and PCPs. In addition, the program empowers Veterans and their caregivers to manage their medications and improve their overall health outcomes.

This program, which was initially developed and implemented at the Atlanta VA Medical Center, has been expanded to rural CBOCs, demonstrating feasibility of dissemination. The program team developed an implementation toolkit as part of this project and are available to assist other VA facilities who wish to implement the program. Continued dissemination and expansion of the IMPROVE model will contribute to future work needed to address all six promising practice criteria across the VA health system.

# Available Resources

The pilot program administrators of this Rural Promising Practice created several resources to aid in its replication at other sites of care, which are available upon request. They include:

- IMPROVE Toolkit
- 2012 American Geriatric Society Beers Criteria for Potentially Inappropriate Medication Use in Older Adults (<http://www.americangeriatrics.org/files/documents/beers/2012AGSBeersCriteriaCitations.pdf>)
- Polypharmacy Review of Vulnerable Elders: Can We IMPROVE Outcomes? (Mirk, A. et al., 2016)
- Introduction to IMPROVE and Tips for Dissemination

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## To Learn More

The Rural Promising Practices initiative is overseen by the U.S. Department of Veterans Affairs (VA) Office of Rural Health (ORH) as part of its targeted, solution-driven approach to improving care for the 3 million Veterans living in rural communities who rely on VA for health care. As VA's lead advocate for rural Veterans, ORH works to see that America's Veterans thrive in rural communities. To accomplish this, ORH leverages its resources to increase rural Veterans' access to care and services. To discuss implementing a Rural Promising Practice at your facility or to learn more, visit [www.ruralhealth.va.gov](http://www.ruralhealth.va.gov) or email [rural.health.inquiry@va.gov](mailto:rural.health.inquiry@va.gov)

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