Initiative to Minimize Pharmaceutical Risk in Older Veterans (IMPROVE) Polypharmacy Clinic

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This article is part of a series that illustrates strategies intended to redesign primary care education at the Veterans Health Administration (VHA), using interprofessional workplace learning. All have been implemented in the VA Centers of Excellence in Primary Care Education (CoEPCE). These models embody visionary transformation of clinical and educational environments that have potential for replication and dissemination throughout VA and other primary care clinical educational environments. For an introduction to the series see Klink K. Transforming primary care clinical learning environments to optimize education, outcomes, and satisfaction. Fed Pract. 2018;35(9):8-10.

In 2011, 5 VA medical centers (VAMCs) were selected by the Office of Academic Affiliations (OAA) to establish CoEPCE. Part of the VA New Models of Care initiative, the 5 Centers of Excellence (CoE) in Boise, Idaho; Cleveland, Ohio; San Francisco, California; Seattle, Washington; and West Haven, Connecticut, are utilizing VA primary care settings to develop and test innovative approaches to prepare physician residents and students, advanced practice nurse residents and undergraduate nursing students, and other professions of health trainees (eg, pharmacy, social work, psychology, physician assistants [PAs], physical therapists) for primary care practice in the 21st century. The CoEs are developing, implementing, and evaluating curricula designed to prepare learners from relevant professions to practice in patient-centered, interprofessional team-based primary care settings. The curricula at all CoEs must address 4 core domains (Table). Health care professional education programs do not have many opportunities for workplace learning where trainees from different professions can learn and work together to provide care to patients in real time. Because of the emphasis on patient-centered medical homes (PCMH) and team-based care in the Affordable Care Act, there is an imperative to develop new training models that provide skills to future health professionals to address this gap.1

The VA Connecticut Healthcare System CoEPCE developed and implemented an education and practice-based immersion learning model with physician residents, nurse practitioner (NP) residents and NP students, pharmacy residents, postdoctorate psychology learners, and PA and physical therapy learners and faculty. This interprofessional, collaborative team model breaks from the traditional independent model of siloed primary care providers (PCPs) caring for a panel of patients.

**TABLE** Center of Excellence in Primary Care Education Core Domains

<table>
<thead>
<tr>
<th>Shared Decision Making (SDM)</th>
<th>Performance Improvement (PI)</th>
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<tr>
<td>Care is aligned with the values, preferences, and cultural perspectives of the patient. Curricula focus is on communication skills necessary to promote patient self-efficacy.</td>
<td>Care is designed to optimize the health of populations; curricula focus is on using the methodology of continuous improvement in redesigning care to achieve quality outcomes.</td>
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**PLANNING AND IMPLEMENTATION** IMPROVE has its origins in a scholarly project developed by a West Haven CoE physician resident trainee. Development of the IMPROVE program involved VA health psychology, internal medicine faculty, geriatric medicine faculty, NP faculty, and geriatric pharmacy residents and faculty. Planning started in 2013 with a series of pilot clinics and became an official project of the West Haven CoE in September 2014. The intervention required no change in West Haven VAMC policy. However, the initiative required buy-in from West Haven CoE leadership and the director of the West Haven primary care clinic.

**Curriculum** IMPROVE is an educational, workplace learning, and clinical activity that combines a 1-hour trainee teaching session, a 45-minute group visit, and a 60-minute individual clinic visit to address the complex problem of polypharmacy. It emphasizes the sharing of trainee and faculty backgrounds by serving as a venue for interprofessional trainees and providers to discuss pharmacologic and nonpharmacologic treatment in the elderly and brain storm strategies to optimize treatment regimens, minimize risk, and execute medication plans with patients.

All CoEPCE trainees in West Haven are required to participate in IMPROVE and on average, each trainee presents and sees one of their patients at least 3 times per year in the program. Up to 5 trainees participate in each IMPROVE session. Trainees are responsible for reviewing their panels to identify patients who might benefit from participation, followed by inviting the patient to participate. Patients are instructed to bring their pill bottles to the visit. To prepare for the polypharmacy clinic, the trainees, the geriatrician, and the geriatric pharmacist...
perform an extensive medication chart re-
view, using the medication review worksheet
developed by West Haven VAMC providers.8
They also work with a protocol for medica-
tion discontinuation, which was compiled by
West Haven VAMC clinicians. The teams use
a variety of tools that guide appropri-
ate prescribing in older adult populations.5,6

During a preclinical conference, trainees pres-
et their patients to the interprofessional
team for discussion and participate in a short
discussion led by a pharmacist, geriatrician,
and health psychologist on a topic related to
prescribing safety in older adults or non-
pharmacologic treatments.

IMPROVE emphasizes a patient-centered
approach to develop, execute, and monitor
medication plans. Patients and their family
members are invited by their trainee clinician
to participate in a group visit. Typically, train-
ees invite patients aged ≥ 65 years who have
≥ 10 medications and are considered appropri-
ate for a group visit. Patients can decline
to participate in the group visit and instead
discuss medications at the next regular visit.

Participating veterans receive a reminder call
1 to 2 days before the visit. During the group
visit, topics addressed include medication
management, adherence, AEs, and disposal.
The recommended minimum number of pa-
ients for a group visit is 3 in order to gener-
ate discussion. The maximum is 8 patients,
to ensure everyone has adequate opportunity
to participate. Five patients in a group visit
are typical.

The group visit process is based on health
psychology strategies, which often incorpo-
rate group-based engagement with patients.
The health psychologist can give advice to
facilitate the visit and optimize participant
involvement. There is a discussion facilita-
tor guide that lists the education points to
be covered by a designated trainee facilita-
tor and sample questions to guide the dis-
cussion.9 A health psychology resident and
other rotating trainees cofacilitate the group
visit with a goal to reach out to each group
member, including family members, and have
them discuss perceptions and share
concerns and treatment goals. There is
shared responsibility among the trainees to
educate the educational material as well as
involve their respective patients during the
sessions.

Immediately following the group visit,
trainees conduct a 1-hour clinic session
that includes medication reconciliation, a
review of an IMPROVE questionnaire, or-
thostatic vital signs, and the St. Louis Univer-
sity Mental Status (SLUMS) exam to assess
changes in cognition.10 Discussion involved
the patient’s medication list as well as pos-
ible changes that could be made to the list.
Using shared decision-making techniques,
this conversation considers the patients’
treatment goals, feelings about the medica-
tions, which medications they would like
to stop, and AEs they may be experienc-
ing. After the individual visit is completed,
the trainee participates in a 10-minute in-
terprofessional premeeting session, which
may include a geriatrician, a pharmacist,
and a health psychologist. In the session they
may discuss adjustments to medications and
a safe follow-up plan, including appropriate
referrals. Trainees discuss the plan with the
patient and send a letter describing the plan
shortly after the visit.

IMPROVE combines didactic teach-
ing with experiential education. It embodies
the 4 core domains that shape the CoEPC
curriculum. First, trainees learn interpro-
essional collaboration, including
highlighting the roles of each profession and
working with an interprofessional team to
solve problems. Second, CoEPC trainees
learn performance improvement under the
supervision of faculty. Third, IMPROVE al-
lows trainees to develop sustained rela-
tionships with other team members while
improving the quality of the clinic experience
as well as with patients through increased
continuity of care. Trainees see patients on
their panel and are responsible for outreach
before and after the visit. Finally, with a focus
on personalized patient goals, trainees have
the opportunity to continue to develop skills in
shared decision making (SDM).

The IMPROVE model continues to evolve.
The original curriculum involved an hour-
long preclinical session before the group
visit in which trainees and faculty dis-
cussed the medication review for each pa-
tient scheduled that day. This preparation
session lasted about 20 to 40 minutes, and
a 20-minute didactic component was
added to create the current preclinical ses-
tion. The didactic component focused on a
specific medication that is appropriate prescribing for
older patients. For example, one didactic les-
son is on a particular class of medications,
its common AEs, and practical prescribing
and “deprescribing” strategies for that class.
Initially, the oldest patients or patients who
could be grouped thematically, such as those
taking both narcotics and benzodiazepines,
were invited to participate, but that limited
the number of appropriate patients within
the CoEPC. Currently, trainees identify pa-
tients from their panels who might benefit,
based on age, number of medications, or po-
tential medication-related concerns, such as
falls, cognitive impairment, or other con-
cerns for adverse drug effects. These trainees
have the unique opportunity to apply interpro-
essional strategies to their patients to continue to op-
timize the medication regimen even after the
IMPROVE visit. Another significant change
was the inclusion of veterans who are co-
manged with PCPs outside the VA, because
we found that patients with multiple provid-
ers could benefit from improved coordina-
tion of care.

Faculty Role
CoEPC faculty and non-CoE VA faculty par-
ticipate in supervisory, consulting, teaching
and precepting roles. Some faculty mem-
bers such as the health psychologists are
already located in or near the VA primary
care clinic, so they can assist in curriculum
development and execution during their
regular clinic duties. The geriatrician re-
views the patients’ health records before the
patients come into the clinic, participates in
the group visit, and coprecepts during the
1:1 patient visits. Collaboration is inher-
ent in IMPROVE. For example, the geria-

trician works with the geriatric pharmacist
to identify and teach an educational topic.
IMPROVE is characterized by a strong fac-
ulty/trainee partnership, with trainees play-
ing roles as both teacher and facilitator in
addition to learning how to take a team ap-
proach to polypharmacy.

Resources
IMPROVE requires administrative and ac-
ademic support, especially faculty and
trainee preparation of education sessions. The
CoEPC internal medicine resident and the internal medicine chief resident
work with the health technicians for each
patient aligned care team (PACT) to enter
the information into the VA medical sched-
uling system. Trainee clinic time is blocked
for their group visits in advance. Patients
are scheduled 1 to 3 weeks in advance.
Trainees and faculty are expected to review
the medication review worksheet and re-
sources prior to the visit. One CoEPC fac-
ulty member reviews patients prior to the
preclinical session (about an hour of prepa-
ation per session). Sufficient space is required: a room large enough to accom-
modate up to 10 people for both didactic
sessions and preclinical sessions, a faculty pa-
tient education conference room for the
group visit, and up to 5 clinic exam rooms.
CoEPC staff developed a templated note in
the VA Computerized Patient Record System (CPRS), the VA electronic health rec-
dord system to guide trainees step-by-step
through the clinic visit and allow them to
directly enter information into the system.9

Monitoring and Assessment
CoEPC staff are evaluating IMPROVE by
building a database for patient-level and
trainee-level outcomes, including changes
in trainee knowledge and attitudes over
time. The CoEPC also validated the poly-
pharmacy knowledge assessment tool for
medicine and NP trainees.

PARTNERSHIPS
IMPROVE has greatly benefited from part-
nerships with facility department leader-
ship, particularly involvement of pharmacy
staff. In addition, we have partnered with
both the health psychology and pharmacy

Online Resources
National VA Academic Patient Aligned Care Team
www.va.gov/oaacoe/apa
National VA Center of Excellence in Primary Care Education
www.va.gov/oaa/coace
VA Connecticut Center of Excellence in Primary Care Education
www.va.gov/oaa/coace/westhaven.asp
IMPROVE Polypharmacy Project
improvepolypharmacy.yale.edu

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Patient-Centered Case Study

CHALLENGES AND SOLUTIONS

The demand for increased direct patient care pressures programs like IMPROVE, which uses an intensive process with high impact on a few complex patients. The assumption is that managing medications will save money in the long run, but in the short-term, it is clear that making the added time manageable requires a strong case has to be made for securing resources. Additionally, inpatient care typically involves a team of nurses, doctors, and pharmacists, and the CoEPCE model can often be more labour-intensive than other approaches. This has resulted in a situation where additional time and resources are required for managing medications. To accommodate these needs, the model included additional time and resources dedicated to managing medications, specifically through the use of medication reconciliation and medication education.

FACTORS FOR SUCCESS

The commitment to support new models of trainee education by West Haven CoEPCE faculty and leadership, and West Haven VAMC and primary care clinic leadership facilitated the implementation of IMPROVE. Additionally, for an internal medicine resident to be successful, the CoEPCE collaboration at all levels—faculty, and trainees—for the high-interprofessional trainee interest, organizational insight, and an academic orientation were critical for developing and launching IMPROVE.

Additionally, there is synergy with other team-based professions. Geriatrics has a tradition of working in multidisciplinary teams, as well as working with SDM concepts as part of care discussions. High interest and collaboration by a geriatrician and an experienced pharmacist has been key. The 2 specialties complement each other and address the complex health needs of participating veterans. Health psychologists transition patients to nonpharmacologic treatments such as sleep hygiene education and cognitive-behavioral therapy, in addition to exploring barriers to behavior change. Another factor for success has been the CoEPCE framework and expertise in interprofessional education. While refining the model, program planners tapped into existing expertise in polypharmacy within the VA from the geriatrics, pharmacy, and psychology residents. The success of the individual components—the preparation session, the group visit, and the 1:1 patient visit—is in large part due to the collective effort by CoEPCE staff and the integration of CoEPCE staff through coordination, communications, logistics, quality improvement, and faculty involvement from multiple professions.

The IMPROVE model is flexible and can accommodate diverse patient interests and issues. Model components are based on sound practices that have been demonstrated success in other arenas, such as diabetes mellitus group visits. The model can also accommodate diverse trainee levels. Senior residents can be more independent in developing and launching IMPROVE. Additionally, there is synergy with other team-based professions. Geriatrics has a tradition of working in multidisciplinary teams, as well as working with SDM concepts as part of care discussions. High interest and collaboration by a geriatrician and an experienced pharmacist has been key. The 2 specialties complement each other and address the complex health needs of participating veterans. Health psychologists transition patients to nonpharmacologic treatments such as sleep hygiene education and cognitive-behavioral therapy, in addition to exploring barriers to behavior change. Another factor for success has been the CoEPCE framework and expertise in interprofessional education. While refining the model, program planners tapped into existing expertise in polypharmacy within the VA from the geriatrics, pharmacy, and psychology residents. The success of the individual components—the preparation session, the group visit, and the 1:1 patient visit—is in large part due to the collective effort by CoEPCE staff and the integration of CoEPCE staff through coordination, communications, logistics, quality improvement, and faculty involvement from multiple professions.

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A structured forum for discussing patients and their care often supports the utilization of the full scope of their practice. Trainees learn and apply team skills, such as communication and the warm handoff, which can be used in other clinic settings. A warm handoff is often described as an intervention in which “a clinician directly introduces a patient to another clinician at the time of the patient's visit and often a brief encounter between the patient and the health care professional occurs.” An interprofessional care plan supports trainee clinical performance, providing a more robust approach to patient care than individual providers might on their own.

**Patient Outcomes**

IMPROVE is an enriched care plan with the potential to improve medication use and provide better care. Veterans also are receiving better medication education as well as access to a health psychologist who can help them with goal setting and effective behavioral interventions. On average, 53 patients participated each month. As of December 2013, 68 patients have participated in IMPROVE.

The group visit and the 1:1 patient visits focus exclusively on medication issues and solutions, which would be less common in a typical primary care visit with a complex patient who brings a list of agenda items. In addition to taking a thorough look at their medications and related problems, it also educates patients on related issues such as sleep hygiene. Participating veterans also are encouraged to share their concerns, experiences, and solutions with the group, which reinforces the saliency of the message beyond what is offered in counseling from a provider.

To date, preliminary data suggest that in some patients, cognition (as measured by SLUMS after 6 months) has modestly improved after decreasing their medications. Other outcomes being monitored in follow-up are utilization of care, reported history of falls, number of medications, and vital signs at initial and follow-up visits.

Patients experience increased continuity of care because the patient now has a team focusing on his or her care. Team members have a shared understanding of the patient's situation and are better able to establish therapeutic rapport with patients during the group visit. Moreover, CoEPCE trainees and faculty try to ensure that everyone knows about and concurs with medication changes, including outside providers and family members.

**Satisfaction Questionnaire**

Patients that are presented at IMPROVE can be particularly challenging, and there may be a psychological benefit to working with a team to develop a new care plan. Providers are able to get input and look at the patient in a new light.

Results of postvisit patient satisfaction questionnaires are encouraging and result in a high level of patient satisfaction and perception of clinical benefit. Patients identify an improvement in the understanding of their medications, feel they are able to safely decrease their medications, and are interested in participating again.

**CoEPCE Benefits**

IMPROVE expands the prevention and treatment options for populations at risk of hospitalization and adverse outcomes from medical complications, such as AEs and drug-drug or drug-disease interactions. Embedding the polypharmacy clinic within the primary care setting rather than in a separate specialty clinic results in an increased likelihood of implementation of pharmacist and geriatrician recommendations for polypharmacy and allows for direct interprofessional education and collaboration.

**IMPROVE also combines key components of interprofessional education—an enriched clinical training model and knowledge of medications in an elderly population—into a training activity that complements other CoEPCE activities. The model not only has strengthened CoEPCE partnerships with other VA departments and specialties, but also revealed opportunities for collaboration with academic affiliates as a means to break down traditional silos among medicine, nursing, pharmacy, geriatrics, and psychology.**

CoEPCE combines key components of interprofessional education, including all 4 CoEPCE core domains, to provide hands-on experience with knowledge learned in other core aspects of the CoEPCE training program (eg, shared decision-making strategies for eliciting patient goals, weighing risks and benefits in complex clinical situations). Physican and NP trainees work together with trainees in pharmacy and health psychology in the complex approach to polypharmacy. IMPROVE provides the framework for an interprofessional clinic that could be used in the treatment of other complex or high-risk chronic conditions.

**THE Future**

An opportunity for improvement and expansion includes increased patient involvement (as patients continue to learn they have a team working on their behalf). Opportunities exist to connect with patients who have several clinicians prescribing medications outside the CoEPCE to provide comprehensive care and decrease medication complexity.

The CoEPCE has been proactive in increasing the visibility of IMPROVE through multiple presentations at local and national meetings, facilitating collaborations and greater adoption in primary care. Individual and collective IMPROVE components can be adapted to other contexts. For example, the 20-minute geriatrics education session and the forms completed prior and during the visit can be readily applied to other complex patients that trainees meet in clinic. Under stage 2 of the CoEPCE program, the CoEPCE is developing an implementation kit that describes the training process and includes the medication workflow, assessment tools, and directions for conducting the group visit.

It is hoped that working collaboratively with the West Haven CoEPCE polypharmacy faculty, a similar model of education and training will be implemented at other health professional training sites at Yale University in New Haven, Connecticut. Additionally, the West Haven CoEPCE is planning to partner with the other original CoEPCE program sites to implement similar interprofessional polypharmacy clinics.

**Author disclosures**

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**Disclaimer**

The opinions expressed herein are those of the authors and do not necessarily reflect those of Federal Practitioner, Frontline Medical Communications Inc., the US Government, or any of its agencies.

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**References**


