



The Role of Pharmacists in Preventing Falls among America's Older Adults

Mamta V. Karani*, Yara Haddad and Robin Lee

Division of Unintentional Injury Prevention, National Center for Injury Prevention and Control, Centers for Disease Control and Prevention, Atlanta, GA, USA

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Edited by:

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*Correspondence:

Mamta V. Karani
vpj3@cdc.gov

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Falls are the leading cause of both fatal and non-fatal injuries in people aged 65 years and older and can lead to significant costs, injuries, functional decline, and reduced quality of life. While certain medications are known to increase fall risk, medication use is a modifiable risk factor. Pharmacists have specialized training in medication management and can play an important role in fall prevention. Working in a patient-centered team-based approach, pharmacists can collaborate with the primary care providers to reduce fall risk. They can screen for fall risk, review and optimize medication therapy, recommend vitamin D, and educate patients and caregivers about ways to prevent falls. To help health-care providers implement fall prevention, the Centers for Disease Control and Prevention developed the Stopping Elderly Accidents, Deaths, and Injuries (STEADI) initiative. Based on the established clinical guidelines, STEADI provides members of the health-care team, including pharmacists, with the tools and resources they need to manage their older patients' fall risk. These tools are being adapted to specifically advance the roles of pharmacists in reviewing medications, identifying those that increase fall risk, and communicating those risks with patients' primary care providers. Through a multidisciplinary approach, pharmacists along with other members of the health-care team can better meet the needs of America's growing older adult population and reduce falls.

Keywords: accidental falls, older adult, polypharmacy, pharmacists, medication therapy management, STEADI

THE ISSUE

Falls are the leading cause of both fatal and non-fatal injuries in people aged 65 years and older and can lead to significant costs, injuries, functional decline, and reduction in the quality of life (1). In 2014, over 27,000 older adults died from a fall and 2.8 million more required treatment in emergency departments for non-fatal injuries (1). Nevertheless, falling is not a normal part of aging and can be prevented.

Falls can be attributed to a number of modifiable risk factors including gait and balance problems, vitamin D deficiency, vision impairment, foot ailments, and medication use (2–4). Polypharmacy, known as the use of multiple medications or the administration of more medications than clinically indicated, is common in older adults (5). Approximately 85% of older adults take at least one prescription medication and about 25% take five or more (6). Medications that affect the central nervous system can cause side effects that increase the chances of falling, such as dizziness, sedation, confusion, blurred vision, and orthostatic hypotension (7–10). Medication classes strongly

associated with falls include anticonvulsants, antidepressants, antipsychotics, benzodiazepines, opioids, and sedative hypnotics (11). Benzodiazepines, including alprazolam and clonazepam, are prescribed in about 8% of older adults (12). During 2005–2010, roughly 5–7% of adults aged 60 years and older reported using hypnotics and sleep aids in the past 30 days (13). Additionally, when taken together, some of the aforementioned medications can have a synergistic effect on cognition and physical function, leading to a more pronounced fall risk (5, 14–17). Therefore, reviewing medications to see if medications can be stopped, switched, or reduced and managing those that may be clinically necessary are a key component to preventing older adult falls.

Many resources exist for use by health-care providers to optimize their patient's medications and minimize polypharmacy and adverse events. Examples of resources include the Medication Appropriate Index (18), Beers criteria (11), Screening Tool of Older Person's Prescriptions (STOPP)/Screening Tool to Alert doctors to Right Treatment (START) (19, 20), and the Anticholinergic Burden Index (21). While these tools exist, no one tool is all inclusive or considered the gold standard. Additionally, there is inconsistency among use of the tools. Therefore, each of these tools are helpful only when coupled with a thorough medication review by the primary care provider or if possible, a pharmacist.

Pharmacists are highly skilled in understanding how medications work individually or in combination to affect the body. Through a broad range of health-care services known as medication therapy management (MTM), pharmacists aim to ensure that each medication is the most effective and safest therapeutic option for a specific individual (22). Although MTM is a relatively new term, pharmacists have always been involved in medication review and management, despite their practice sites. A thorough medication review by a pharmacist includes a review of age-related physical changes that predispose older adults to drug–drug interactions, drug–disease interactions, and medication side effects that can increase the patient's chances of falling (4, 23–25). For example, with age, the kidneys and liver may become less efficient, and the distribution of water and fat within the body changes. These physiological changes may affect the patient's ability to metabolize medications, leading to exposure to higher doses, and an increased risk of adverse events. With every review, clinical pharmacists evaluate renal and hepatic functions to account for acute changes, modifying dose and/or frequency as needed (25, 26). In managing therapy, they consider health priorities and patient concerns, but always put patient safety and injury prevention as a priority.

To help health-care providers implement fall prevention, the Centers for Disease Control and Prevention (CDC) developed the Stopping Elderly Accidents, Deaths, and Injuries (STEADI) initiative. The initiative is specifically focused on reducing falls among community dwelling older adults and is based on the American and British Geriatrics Societies' recommendations (27). STEADI provides members of the primary care team with the tools and resources they need to manage their older patients' fall risk (28). The initiative encourages providers to take three initial steps to begin addressing their patients' fall risks. They include (1) screening for fall risk by asking older adults if they

have fallen in the past, feel unsteady, or are afraid of falling; (2) reviewing and managing their medications to determine if any increase fall risk and may need to be stopped, switched, or reduced; and (3) recommending vitamin D supplementation to improve bone, muscle, and nerve health.

While primary care physicians are trained on how to review and manage patients' medications, research shows that physicians often lack a framework on how to do so and therefore are inconsistent when conducting medication reviews (29). Comprehensive medication reviews have also been mistaken for medication reconciliations, in which a medication list is updated by comparing the medical record to an external list of medications obtained from a patient, hospital, or other providers, but not necessarily evaluated for appropriateness (30). To assist primary care providers in conducting a comprehensive medication review, which includes a medication reconciliation in the process, CDC has developed a consistent approach called the Screen, Assess, Facilitate, and Educate (SAFE) method as part of the STEADI resources for providers (www.cdc.gov/STEADI). SAFE highlights four essential steps in conducting a medication review to reduce fall risk. Focusing on the patient and caregiver, this method is adapted from two reputable pharmacist practice tools, the pharmacist's MTM and patient care processes (22, 31), and encourages collaboration with a pharmacist.

CLINICAL FALL PREVENTION AS A TEAM-BASED APPROACH

Population growth, the aging population, and insurance expansions are projected to increase the demands for primary care physicians in the coming years (32). Due to time and resource constraints, the primary care physician's ability to deliver preventive clinical services is often affected by the need to address acute illnesses, chronic illnesses, and patient requests, among other demands (33). While primary care physicians can be trained to perform fall risk assessments, comprehensive medication reviews may require 30–45 min to complete and may be challenging to perform in busy primary care settings (29). Clinical fall prevention efforts do not need to be the sole responsibility of primary care physicians. Research shows that a collaborative multidisciplinary team can provide individualized patient interventions and reduce the rate and risk of falls (34, 35).

Trained specifically in pharmacotherapy and medication management, pharmacists have been effective in regularly reviewing medications, managing health conditions, providing education, and delivering direct patient care (36, 37). Pharmacist-provided direct patient care has favorable effects across various patient outcomes, health-care settings, and disease states (38). Through MTM, pharmacists have successfully reduced the number of fall-related medications, provided clinically significant recommendations, and educated patients (and care providing team members) about medications and the risk of falls (39–41). By utilizing the expertise of additional health-care providers including nurses and pharmacists, the multidisciplinary team-based approach can alleviate some of the demands on primary care physicians while still ensuring optimal patient-centered care.

In addition to offering MTM, pharmacists are well positioned to aid the health-care team in conducting other fall prevention services (42). A pharmacist, in collaboration with the primary care provider, can screen patients using a standardized protocol to determine fall risk, complete a thorough medication review, and recommend vitamin D supplementation (when appropriate). When conducting a thorough review, the pharmacist can work with the patients and caregivers to *screen* for medications that may increase fall risk, *assess* the patient to best manage health conditions, *formulate* the patient's medication action plan, and *educate* the patient and caregiver about medication changes and fall prevention strategies. If screening indicates a patient is at risk of falling, the pharmacist can coordinate with the primary care team to arrange a complete fall risk assessment. Understanding the various roles pharmacists may play, CDC is exploring options to gain a better understanding of how pharmacists in each setting can cost effectively provide fall prevention services.

FUTURE STEPS

Through the STEADI initiative, health providers, community organizations, and state health departments have come together to care for our older adult population. The CDC is currently developing educational tools and resources to specifically advance the role pharmacists and other health-care providers can play in providing fall prevention services. Pharmacists may

be motivated to engage in fall prevention for various reasons. While incentives can vary within each practice site, incentives include job satisfaction, patient safety, improved patient care, and financial incentives. Reimbursement varies depending on state laws and practice sites but may be possible through collaborative practice agreements, MTM billing, or structured payment models. Nevertheless, CDC is exploring options to better understand incentives, successes, and barriers to implementation of fall prevention. Conducting focus groups with pharmacists practicing in various sites, CDC is interested in understanding the falls related knowledge of pharmacists, learning potential barriers faced with providing fall prevention services, and developing a pharmacist-specific training on fall prevention services. CDC is also funding a project to learn best practices to improve collaboration and communication between community pharmacies and primary care offices. Through a multidisciplinary approach, pharmacists along with other members of the health-care team can better meet the needs of America's growing older adult population and reduce falls.

AUTHOR CONTRIBUTIONS

All the authors made substantial contributions to conceptualizing the framework for the paper and in drafting the text. All the authors have reviewed the final document and agree with its content.

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