Interdisciplinary Collaboration in Medication-Related Falls Prevention in Older Adults

Lisa Huang, PharmD, MPH; Jazmin Turner, PharmD, BCGP; and Nicole J. Brandt, PharmD, MBA, BCGP, BCPP, FASCP

ABSTRACT
The older adult population continues to steadily increase. Largely attributed to longer life spans and aging of the Baby Boomer generation, continued growth of this population is expected to affect a multitude of challenging public health concerns. Specifically, falls in older adults are prevalent but overlooked concerns. Health care providers are well-positioned to provide valuable interventions in this aspect. An interdisciplinary, team-based approach of health care providers is required to maximize falls prevention through patient-centered and collaborative care. The current article highlights the implications of inappropriate medication use and the need to improve care coordination to tackle this public health issue affecting older adults. [Journal of Gerontological Nursing, 44(4), 11-15.]

In the United States, the older adult population—defined as those 65 and older—is projected to grow to 83.7 million by 2050 (Ortman, Velkoff, & Hogan, 2014). Within this population, one in four older adults falls annually and one dies every 19 minutes as a result of falling (National Council on Aging, 2017). Older adults who fall contribute to an estimated 2.8 million emergency department visits, 800,000 hospitalizations,
and more than 27,000 deaths annually (National Council on Aging, 2017). In 2015, in terms of direct medical costs to the U.S. health care system, fatal falls cost $637.2 million and non-fatal falls cost $31.3 billion (Burns, Stevens, & Lee, 2016). These costs are striking increases from 2000, when costs were approximately $200 million and $19 billion for fatal and non-fatal falls, respectively (Stevens, Corso, Finkelstein, & Miller, 2006). Indirect costs related to falls are more difficult to measure, with few studies assessing their societal consequences, including productivity losses from caregivers (Fu, n.d.; Henrich, Rapp, Rissmann, Becker, & König, 2010). Moreover, the physical and mental consequences of falls are often detrimental. In addition to increased mortality, older adults may experience a decrease in activities of daily living associated with physical decline, and a loss of independence as a result (Centers for Disease Control and Prevention [CDC], n.d.a; National Council on Aging, 2017). The psychological and emotional burden stemming from falls—including depression and social isolation—may further contribute to a cycle of diminished quality of life (Burns et al., 2016; National Council on Aging, 2017).

### MEDICATION-RELATED RISK FACTORS

Falls are associated with myriad risk factors, including intrinsic and extrinsic influences (Ambrose, Paul, & Hausdorff, 2013; O’Loughlin, Robitaille, Boivin, & Suissa, 1993). In addition to medical conditions and environmental hazards, certain medications are known to have a role in increasing fall risk (CDC, 2015; Tinetti, Speechley, & Ginter, 1988). These medications, collectively known as falls risk increasing drugs (FRIDs), include but are not limited to: psychotropic, opioid, antihypertensive, hypoglycemic, and anticholinergic agents, and are recognized by the American Geriatrics Society (AGS; AGS 2015 Beers Criteria Update Expert Panel, 2015) as potentially inappropriate for use in older adults (Table 1). These medications are potentially inappropriate for the older adult population, as their side effects may include ataxia, impaired psychomotor function, syncope, additional falls; shorter-acting benzodiazepine agents are not safer than long-acting ones. Compounded side effects may pose a significant fall risk (AGS 2015 Beers Criteria Update Expert Panel, 2015). Moreover, the use of multiple FRIDs may contribute to polypharmacy—another risk factor for falls (O’Loughlin et al., 1993). Attention must be given to the collective drug burden aspect, not just one class of medication.

### ROLE OF INTERDISCIPLINARY COLLABORATION

Health care providers play a vital role in falls prevention. Studies have demonstrated the importance of an interdisciplinary or multidisciplinary approach in reducing fall rates and building trust among those involved in providing care (Baxter & Markle-Reid, 2009; Choi & Hector, 2012; Close et al., 1999). Choi and Hector (2012) conducted a meta-analysis of randomized controlled trials to assess the effectiveness of falls prevention initiatives and demonstrated that these programs reduced fall rates by 9% to 12% depending on the type of program. Hanley, Silke, and Murphy (2010) further established that such programs were cost-effective in reducing costs associated with falls in countries including Australia and New Zealand. In contrast, studies conducted by Hendriks, Bleijlevens, et al. (2008) and Hendriks, Evers, et

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<tr>
<th>Geriatric Syndrome</th>
<th>Medication Class</th>
<th>Rationale</th>
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<td>History of falls or fractures</td>
<td>- Anticonvulsant&lt;br&gt;- Antidepressant (e.g., SSRI, TCA, SNRI)&lt;br&gt;- Antipsychotic&lt;br&gt;- Benzodiazepine&lt;br&gt;- Nonbenzodiazepine, benzodiazepine receptor agonist hypnotics&lt;br&gt;- Opioid</td>
<td>May cause ataxia, impaired psychomotor function, syncope, additional falls; shorter-acting benzodiazepine agents are not safer than long-acting ones</td>
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Note. FRIDs = falls risk increasing drugs; SSRI = selective serotonin reuptake inhibitor; TCA = tricyclic antidepressant; SNRI = serotonin-norepinephrine reuptake inhibitor.

Adapted from American Geriatrics Society 2015 Beers Criteria (Table 3) (AGS 2015 Beers Criteria Update Expert Panel, 2015).
al. (2008) in the Netherlands have concluded that multidisciplinary programs are ineffective and failed to demonstrate a reduction in falls, as well as decrease falls-associated costs. However, the majority of studies reviewed provided overwhelming support for an interdisciplinary approach to falls prevention, with evidence suggesting a decrease in fall rates (Baxter & Markle-Reid, 2009; Choi & Hector, 2012; Close et al., 1999; Hanley et al., 2010).

Although many of the above studies evaluated an interdisciplinary or multidisciplinary approach, few exist that evaluate the specific role of the pharmacist in falls prevention programs. Recommendations made by U.S. agencies, including the CDC and National Institute on Aging (NIA), state that medication reviews and management may reduce falls risk; however, the U.S. Preventive Services Task Force is hesitant to recommend medication discontinuations, based on insufficient evidence (Moyer, 2012). The few studies that investigated such practices had moderate or inclusive findings. For example, Royal, Smeaton, Avery, Hurwitz, and Sheikh (2006) conducted a meta-analysis of medication-related hospital admissions and found evidence to suggest that pharmacist-led medication reviews were moderately effective in reducing hospital admissions. In addition, research by Casteel, Blalock, Ferreri, Roth, and Demby (2011) demonstrated that the lack of coordination of care and communication between community pharmacists and prescribers impedes the potential benefits of a medication-centered interdisciplinary falls initiative.

A recent exploratory study by Turner, Brandt, Whittaker, Huang, and Simoni-Wastila (2017) examined the impact of a falls prevention education seminar for pharmacists and found that pharmacists were more likely to consider the feasibility of implementing a falls prevention initiative in their practice site after learning pertinent skills and tools. Research by Mott et al. (2014) further details the ongoing development of community-based, pharmacist-led falls prevention initiatives, and the efforts required to create an effective program. In an environment that encourages care coordination between health care professionals, pharmacists may provide an additional channel of care for older adults. For example, community pharmacists are optimally situated in practice settings that encourage communication and collaboration with patients. They can bridge gaps in care coordination between primary care providers and patients regarding polypharmacy, medication adherence and compliance, and inappropriate use of medicines. In addition, pharmacists can provide medication reconciliation, screen for FRIDs, and optimize medication use through medication therapy management. Furthermore, they can provide point-of-care services, such as falls prevention education and blood pressure monitoring. Providing such services to patients is a screening process that identifies those at risk for falls and brings potential concerns to the forefront for other providers.

International, federal, and nonprofit organizations have increasingly recognized the potential positive impact that pharmacists may have on falls prevention. Globally, the World Health Organization has recognized the need for interdisciplinary coop-

### TABLE 2

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<th>Resource</th>
<th>Description</th>
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<tr>
<td>Centers for Disease Control and Prevention Stopping Elderly Accidents, Deaths, and Injuries (STEADI) Toolkit</td>
<td>A toolkit that includes printable case studies, pocket guides, brochures, assessment tests, fact sheets, and educational handouts about falls prevention. It also offers free accredited Continuing Education training for providers. Educational materials for patients are also available.</td>
<td><a href="https://www.cdc.gov/steadi/index.html">https://www.cdc.gov/steadi/index.html</a></td>
</tr>
<tr>
<td>National Council on Aging</td>
<td>Provides resources on healthy aging, including falls prevention, chronic disease management, nutritional assistance, and financial security for older adults.</td>
<td><a href="https://www.ncoa.org">https://www.ncoa.org</a></td>
</tr>
<tr>
<td>National Institute on Aging</td>
<td>Provides free publications regarding older adult health. These may include exercise guides, and brochures on safe medication use, dietary supplements, aging and eye health, and other resources. Publications are also available in Spanish.</td>
<td><a href="https://www.nia.nih.gov">https://www.nia.nih.gov</a></td>
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Risk of falls poses a challenge to all facets of society, and efforts for prevention span across caregivers, health care providers, and policymakers.

References
Growdon, M.E., Shorr, R.I., & Inouye, S.K. (2017). The tension between promoting mobility and preventing falls in the hospital. JAMA Internal Medicine, 177, 759-760.


