



Primary care providers' discussion of fall prevention approaches with their older adult patients—DocStyles, 2014

Elizabeth R. Burns*, Yara K. Haddad, Erin M. Parker

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

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ABSTRACT

Falls are the leading cause of fatal and non-fatal injuries among older adults. The American and British Geriatric Societies recommend a fall risk assessment to identify risk factors and guide interventions to prevent these falls. This study describes the self-reported discussion of fall prevention approaches used by primary care providers (PCPs)—family practitioners, internists and nurse practitioners—who treat older adults. Results are described overall and by PCP type.

We analyzed a sample of 1210 U.S. PCPs who participated in the 2014 DocStyles survey. PCPs reported on their recommendation of fall prevention approaches including general exercise, Tai Chi, medication adjustments, home safety modifications, vitamin D supplements, assistive devices, alarm systems, and referral to physical therapy, foot specialist, or vision specialist. Frequencies and adjusted odds ratios for fall prevention approaches were assessed by provider and practice characteristics.

Self-reported discussion of any fall prevention approaches was 89.3%. Controlling for provider and practice characteristics, there were significant differences for some approaches by provider type. Family practitioners were more likely to suggest home modification [adjusted Odds Ratio: 1.8 (1.3–2.4)], exercise [aOR: 2.0 (1.5–2.5)], and Tai Chi [aOR: 1.5 (1.0–2.2)] than internists. Nurse practitioners were more likely to suggest home modification [aOR: 2.1 (1.3–3.4)] and less likely to suggest vitamin D [aOR: 0.6 (0.4–1.0)] than internists.

Fall prevention suggestions vary by type of PCP. Dissemination of geriatric guidelines should include all PCPs who routinely see older adults.

1. Background

Falls are the leading cause of both fatal and nonfatal injuries among adults age 65 and older in the United States (U.S.) (CDC, 2013). In 2016 over 29,000 older adults died from a fall and the rate of fall-related fatalities is increasing (CDC, 2013). As many as 20% of falls result in serious injury and may require prolonged medical attention including hospitalization and rehabilitative services (Alexander et al., 1992). These fall related injuries also result in a significant burden to health care systems and public health because of the high incidence, high cost of treatment, and long term health effects (Gelbard et al., 2014).

Primary care providers (PCPs) can address falls during patient visits. The American Geriatric Society and British Geriatric Society (AGS/BGS) have published a clinical practice guideline describing effective clinical fall prevention interventions. Recommended components of a multifactorial/multicomponent intervention include: withdrawal or minimization of psychoactive medications linked to falls; prescribing exercise that incorporates gait, balance, and strength training such as tai

chi; a home health assessment and mitigation of fall hazards; management of postural hypotension; and consideration of vitamin D supplementation of at least 800 IU/day (American Geriatric Society, 2001) (American Geriatric Society and British Geriatric Society, 2011). To better understand the extent to which PCPs recommend effective fall prevention approaches to their older adult patients, we report on results from the 2014 DocStyles survey, a survey of health care providers. The sample for our analysis was limited to PCPs—primary care physicians [internists and family practitioners (FPs)] and nurse practitioners (NPs)—who saw older adult patients. We also assessed whether different provider types were more likely to suggest specific fall approaches.

2. Methods

2.1. Study design

DocStyles survey is a web-based survey of health care providers

* Corresponding author at: Division for Unintentional Injury Prevention, National Center for Injury Prevention and Control, Centers for Disease Control and Prevention, 4770 Buford Highway, NE, MS F-62, Atlanta, GA 30341, USA.

E-mail address: ync7@cdc.gov (E.R. Burns).

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(physicians and nurse practitioners) conducted by Porter Novelli, a public relations firm specializing in health and social marketing. The 2014 DocStyles sample ($n = 2512$) was drawn from WorldOne's Global Medical Panel, an opt-in, verified panel of over 270,000 physicians and over 1000,000 medical professionals in the United States. Quotas were set to reach 1000 FPs and internists, 250 pediatricians, 250 obstetricians/gynecologists and 250 NPs. Health care providers were eligible to complete the survey if they treated a minimum of 10 patients weekly, worked in an individual, group, or hospital practice, and had practiced medicine for at least 3 years. Porter Novelli provided an honorarium of \$39–\$73 for completing the survey. Of those invited, 1760 completed the entire survey. Response rate varied by provider type, and ranged from 69.5%–81.2%. Analysis of these data was exempt from institutional review board approval because personal identifiers were not included in the data file. For the current study, we restricted all analysis to the three types of PCPs included in DocStyles: FPs, internal medicine, and NPs ($n = 1210$).

2.2. Survey items

Only FPs, internists and NPs were invited to participate in the fall prevention questions. Three questions were included in 2014 DocStyles survey to better understand PCPs' recommendation of fall prevention approaches. The questions asked PCPs to estimate 1) "On average, about how many patients aged 65 or older do you see in a typical week?" 2) "With your older patients, do you ever discuss how to prevent falls?" and 3) "When you talk to your older adults about how to prevent falls, what approaches are you most likely to suggest?" Approaches listed were "take a general exercise or fitness class", "take a Tai Chi class", "adjust medications", "make home safety modifications", "take a vitamin D supplement", "use a cane or walker", "use an alarm system like Life Alert", "refer to physical therapy", "refer to a specialist for vision problems", or "other". PCPs could check as many approaches as applicable to their practice. Respondents that reported not seeing patients aged 65 or older were excluded from the analyses. A total of 1210 PCPs were included: 537 FPs, 461 internists, and 212 NPs.

2.3. Statistical analysis

We used SAS, version 9.3 (SAS Institute, Inc., Cary, NC) for all statistical analyses. We described PCP characteristics (age, gender, race/ethnicity) and medical practice characteristics (geographical region, years in practice, and socioeconomic status of their patients) by PCP type, using chi-square tests to assess differences across categorical variables. We then assessed differences in recommending fall prevention approaches by provider type, also using chi-square tests. Logistic regression was used to further assess whether fall prevention approaches differed by PCP type when adjusting for PCP age group (≤ 45 and > 45), gender, race/ethnicity, years in practice, and region of practice for the five responses that significantly differed by PCP type in the unadjusted models.

3. Results

The majority of PCPs in the analytic sample were male (63.2%) and non-Hispanic white (61.0%) (Table 1). The mean age was 45.9 (data not shown). Provider and practice characteristics differed significantly by PCP type. More than 84% of NPs were female compared to a minority of FPs (30.2%) and internists (22.6%). NPs treated a higher proportion of patients with middle or low socioeconomic status compared with other types of PCP. More than 60% of internists reported seeing > 40 patients aged 65 and older per week compared to 40.0% of FPs and 24.5% of NPs.

Across PCPs of all types, 89.3% reported ever discussing fall prevention with their older patients (Table 1). The percentage varied by PCP type ($p < 0.05$). Among all PCPs, the likelihood of suggesting a

Table 1
Characteristics of respondents and fall prevention approaches by provider type, DocStyles survey 2014, United States.

	Overall	Family practitioner	Internist	Nurse practitioner
	N = 1210	n = 537	n = 461	n = 212
Provider demographics	%	%	%	%
Age*				
≥ 45	53.8	49.5	59.9	51.4
< 45	46.2	50.5	40.1	48.6
Gender*				
Female	36.8	30.2	22.6	84.4
Male	63.2	69.8	77.4	15.6
Race/ethnicity*				
NH White	61.0	64.8	48.2	79.3
NH Black	2.4	1.7	2.6	3.8
Hispanic	5.1	5.6	4.8	4.7
Asian	24.2	22.5	34.5	6.1
Other	7.3	5.4	10.0	6.1
Years in practice*				
< 10	32.5	26.1	37.3	38.2
10–19	38.8	39.3	36.0	43.9
≥ 20	26.7	34.6	26.7	17.9
Practice characteristics				
Region*				
West	19.7	22.4	17.8	17.0
Midwest	23.1	25.9	20.6	21.2
Northeast	24.1	21.4	30.2	17.4
South	33.2	30.4	31.4	44.3
Patients ≥ 65 /week*				
≤ 40	55.0	60.0	39.7	75.5
> 40	45.0	40.0	60.3	24.5
Patient SES*				
Lower	18.5	16.6	15.8	29.3
Middle	39.3	39.7	36.9	43.9
Upper	42.2	43.8	47.3	26.9
Fall prevention approach				
Any discussion*	89.3	91.4	85.5	92.5
Home modification*	76.0	79.1	68.6	84.4
Use a cane or walker	71.8	74.3	68.3	73.1
Adjust medication	60.4	62.2	60.3	56.1
Refer to PT	58.2	56.1	58.1	63.7
General exercise or fitness*	51.9	59.8	46.2	44.3
Alarm system (Life Alert)	38.6	38.0	37.1	43.4
Refer to vision specialist	38.3	38.2	36.4	42.5
Vitamin D supplementation*	28.9	30.4	32.3	17.9
Refer to foot specialist	25.1	23.7	24.5	30.2
Tai Chi*	14.9	18.4	13.0	9.9

Note: $n =$ sample size. Chi-square tests were used to determine differences across provider type. NH = non-Hispanic.

* Unadjusted chi-square test for categorical variables. $p \leq 0.05$.

specific approach ranged from 14.9% for Tai Chi to 76.0% for home modification. The second most common suggestion for all PCPs was to recommend the use of a cane or walker (71.8% overall).

In unadjusted models, there were significant differences by type of PCP for 1) home modification, 2) general exercise or fitness, 3) vitamin D supplementation, and 4) Tai Chi. After adjusting for PCP and practice characteristics, the odds of the PCP discussing fall prevention was significantly higher if the provider was an NP or FP compared to an internist (Table 2). Providers older than 45 and those who saw > 40 patients 65 and older per week were more likely to report discussing fall prevention as well. FPs were significantly more likely to suggest home modification [aOR: 1.8 (1.3–2.4)], exercise [aOR: 2.0 (1.5–2.5)], and Tai Chi [aOR: 1.5 (1.0–2.2)] compared to an internist. Compared to internists, NPs were significantly less likely to suggest vitamin D [aOR: 0.6 (0.4–1.0)]. Additionally, odds that providers in the West would suggest Tai Chi were more than twice the odds of providers in the

Table 2
Adjusted^a odds for PCPs^b, likelihood of suggesting fall prevention approaches, DocStyles survey, 2014, United States (N = 1210).

	Model 1: any fall prevention discussed		Model 2: suggest home modification		Model 3: suggest exercise or fitness classes		Model 4: suggest vitamin D		Model 5: suggest Tai Chi	
	aOR	95% CI	aOR	95% CI	aOR	95% CI	aOR	95% CI	aOR	95% CI
Provider type										
Family Practice	2.1	1.4, 3.2	1.8	1.3, 2.4	2.0	1.5, 2.5	1.0	0.8, 1.4	1.5	1.0, 2.2
Nurse practitioner	2.3	1.2, 4.5	2.1	1.3, 3.4	1.2	0.8, 1.8	0.6	0.4, 1.0	0.7	0.4, 1.4
Internist (ref)	1.0	–	1.0	–	1.0	–	1.0	–	1.0	–
Provider age										
≤ 45 (ref)	1.0	–	1.0	–	1.0	–	1.0	–	1.0	–
> 45	2.1	1.1, 3.9	1.6	1.1, 2.4	1.2	0.9, 1.7	1.4	1.0, 2.0	1.1	0.7, 1.9
Gender										
Female	1.2	0.8, 2.0	1.4	1.0, 2.0	0.8	0.6, 1.1	0.9	0.6, 1.2	1.4	1.0, 2.0
Male (ref)	1.0	–	1.0	–	1.0	–	1.0	–	1.0	–
Race/ethnicity										
NH Black	1.4	0.3, 6.3	1.0	0.4, 2.6	1.3	0.6, 2.8	1.4	0.6, 3.1	0.5	0.1, 2.4
Hispanic	1.0	0.4, 2.5	0.9	0.5, 1.6	1.0	0.6, 1.6	1.4	0.8, 2.4	0.9	0.4, 2.0
Asian	1.0	0.7, 1.7	1.0	0.7, 1.4	1.0	0.6, 1.3	1.6	1.2, 2.2	1.4	0.9, 2.1
Other	0.8	0.4, 1.5	1.1	0.6, 1.8	1.3	0.8, 2.0	2.0	1.2, 3.2	1.6	0.9, 2.9
NH White (ref)	1.0	–	1.0	–	1.0	–	1.0	–	1.0	–
Years in practice										
< 10	2.0	0.9, 4.1	1.5	0.9, 2.6	1.4	0.9, 2.1	1.3	0.8, 2.0	0.7	0.4, 1.4
10–19	1.5	0.8, 2.8	1.0	0.7, 1.5	1.2	0.8, 1.6	1.0	0.7, 1.4	0.8	0.5, 1.3
≥ 20 (ref)	1.0	–	1.0	–	1.0	–	1.0	–	1.0	–
Region										
West	1.0	0.6, 1.7	1.1	0.7, 1.7	1.3	0.9, 1.8	0.9	0.6, 1.4	2.3	1.4, 3.5
Northeast	1.0	0.6, 1.6	0.7	0.5, 1.1	1.0	0.7, 1.4	0.9	0.6, 1.4	0.8	0.5, 1.4
South	1.2	0.7, 2.0	1.0	0.7, 1.5	0.9	0.6, 1.2	0.9	0.6, 1.3	0.8	0.5, 1.5
Midwest (ref)	1.0	–	1.0	–	1.0	–	1.0	–	1.0	–
Patients ≥ 65/week										
≤ 40 (ref)	1.0	–	1.0	–	1.0	–	1.0	–	1.0	–
> 40	2.4	1.6, 3.7	1.6	1.2, 2.0	1.2	0.9, 1.5	1.3	1.0, 1.6	1.1	0.8, 1.6
Patient SES										
Lower	0.9	0.6, 1.6	1.0	0.7, 1.4	1.0	0.7, 1.3	1.2	0.8, 1.7	0.7	0.4, 1.1
Middle	1.2	0.8, 1.8	1.2	0.9, 1.5	1.2	0.9, 1.5	1.0	0.8, 1.4	0.9	0.6, 1.3
Upper	1.0	–	1.0	–	1.0	–	1.0	–	1.0	–

Bolded values indicate significance ($p \leq 0.05$).

Note:

^a Adjusted for age, gender, race/ethnicity, years in practice, region, reported number of patients ≥ 65 seen per week, and patient SES.

^b PCP = Primary Care Provider.

Midwest [aOR = 2.3 (1.4–3.5)].

4. Discussion

PCPs can play an important role in fall prevention by identifying older adults who are likely to fall and providing clinical interventions effective at reducing their fall risks. Our study found that nearly 90% of PCPs reported *ever* discussing fall prevention with their older patients. While a large majority of PCPs reported discussing how to prevent falls with their older patients, the suggestion of specific approaches varied substantially. Differences were also observed by PCP type, suggesting that certain types of PCPs are more likely to recommend specific approaches over others.

The most commonly recommended approach was home modification, which was recommended by 76% of providers. Home modifications have been shown to reduce fall rates by as much as 46% in older adults (Pighills et al., 2011). Conversely, less than one in six PCPs recommended Tai Chi—despite this being one of the most cost effective ways to improve balance and reduce falls (Gillespie et al., 2012; Carande-Kulis et al., 2015). While not explored in this study, the lack of referrals to Tai Chi programs may be related to many issues, including lack of knowledge about the benefits of Tai Chi, lack of patient receptiveness to doing Tai Chi, or lack of local availability of Tai Chi classes (Stevens et al., 2014).

There is little published evidence about how PCPs apply fall prevention evidence in practice and how this may vary by provider type. A

provider's training and scope of practice may influence their specific fall prevention approaches. For example, the scope of practice and prescribing capabilities of NPs differ across the U.S., enabling nurse practitioners to diagnose, initiate or manage treatment, and prescribe medications (American Association of Nurse Practitioners, 2015). The differences in practice administrative rules influence NPs ability to adjust medications to address fall prevention in older adults.

While this study did not investigate why one approach was recommended over another, it did demonstrate that some PCPs consider fall prevention during clinical visits. This is an important first step given that 10,000 Americans turn 65 each day (Pew Research Center, 2010). However, previous studies reported that < 60% physicians routinely screen their older patients for fall risk (Smith et al., 2015; Jones et al., 2011) or discuss major risk factors (Smith et al., 2015) and the majority reported lack of educational material and lack of training as barriers to use of clinical guidelines for fall prevention efforts (Jones et al., 2011). Barriers to provider action identified in other research are 1) lack of awareness of falls as an issue, 2) competing priorities, 3) lack of geriatric training during medical school and primary care residencies, and 4) lack of reimbursement for fall prevention and follow-up (Fortinsky et al., 2004; Jones et al., 2011; Chou et al., 2006; Wenger et al., 2003; Robinson et al., 2001; Mackenzie, 2009). While these barriers can be difficult to overcome, PCPs and health systems have begun making the system wide changes needed to screen, assess, and treat their older patients' fall risk (Stevens et al., 2017). Additional promotion of fall guidelines, provider trainings and access to educational materials may

be necessary to encourage the uptake of AGS/BGS's guidelines (Jones et al., 2011).

A strength of this study is a sample size sufficient to represent different primary provider types, race, ethnicity, and years in practice. Over 2500 practicing health care providers (primary care physicians, NPs, and other specialties) were invited to participate and the survey had an overall response rate of 77.5%. Our final sample included over 1200 PCPs.

This study has several limitations. First, the 2014 DocStyles survey is a paid survey, offering participants incentives to participate, thus there is the potential for selection bias of the provider sample included in the study. Second, although the sample of physicians was similar to the AMA Masterfile, the sample is younger, on average, and has a larger proportion of males which may limit generalizability. Finally, the question format in the survey only allowed PCPs to report if they “*ever*” discuss how to prevent falls. This resulted in higher than expected reports of fall prevention efforts during clinical visits. Notably, our study did not allow us to determine what proportion of patients the PCPs discuss fall prevention with, if they are currently discussing fall prevention in their practice, or how frequently they discuss each fall prevention strategy. Such information would be better captured with a patient centered approach, such as using patient medical records or medical claims. Unfortunately, because fall prevention practices are not standardized or directly reimbursable, it is not possible to get data based on medical claims. Additionally, collecting this information from medical records is time intensive and not representative.

Additional research is needed to explore how often each approach is recommended to patients and what factors influence a PCP's decision to suggest a specific fall prevention approach.

5. Conclusion

Current clinical practice guidelines describe a number of effective clinical fall prevention approaches to reduce fall risk in older adults but it is unknown which are discussed during routine visits. Our study investigated approaches PCPs have been more likely to discuss to address fall risk in their older patients. While the majority of PCPs reported *ever* discussing how to prevent falls with older adults, variation exists by approach and by provider type. Additional provider education is needed to promote use of the more/most effective strategies to address the risk in the growing population of older adults.

Conflict of interest

The authors declare that there are no conflicts of interests.

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Disclaimer

The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.

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