Montana
Chronic Disease Prevention
& Health Promotion Bureau

Falls and Fall-Related Injuries among Montana Adults with Chronic Disease

Key Messages

- Adults with arthritis are at increased risk for falls especially when comorbid cardiovascular disease and/or diabetes is present.
- Healthcare providers should be mindful of the risk of falls among adults with arthritis, even in younger age groups, and work with their patients to reduce the risk through:
  - Regular physical activity
  - Monitoring medications closely
  - Regular vision exams
  - Safe home environment
- Adults with diabetes should be assessed for additional diabetes-related fall risks:
  - Fluctuations in blood sugar
  - Lower extremity problems
  - Diabetes related vision problems

Montana Chronic Disease Prevention and Health Promotion

1400 E Broadway

Helena, Montana 59260-2951

1-844-MTHL4U (684-5848)

www.ChronicDiseasePrevention.mt.gov

MONTANA DPHHS
Healthy People. Healthy Communities.
Department of Public Health & Human Services

Background

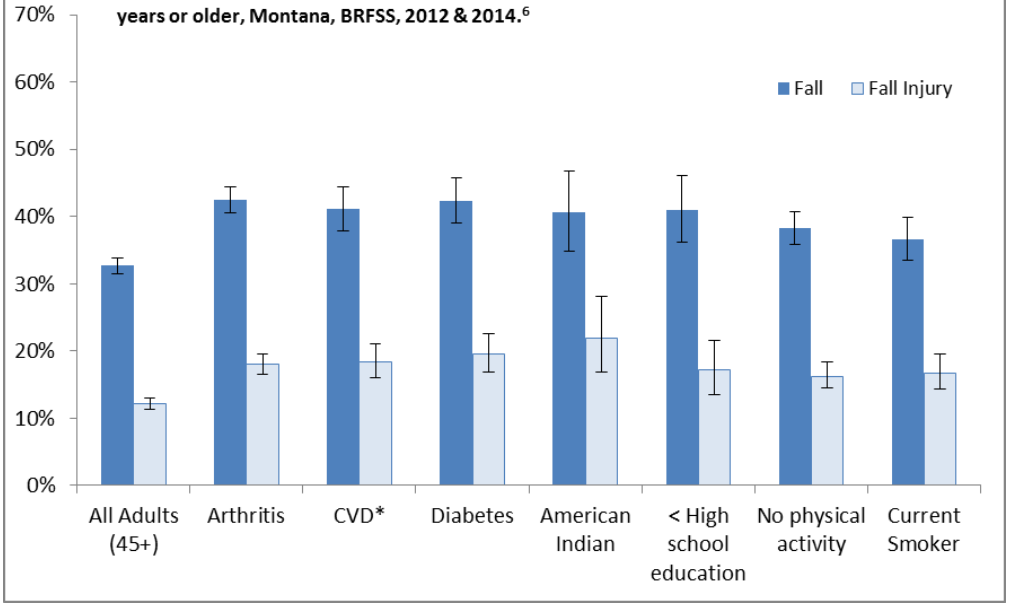
Each year, over 2 million Americans are seen in an emergency department for a fall and 25% are subsequently hospitalized.[1] Between 2012-2014, there were over 10,000 hospital admissions related to falls among Montana residents, about 3,400 each year.[2] Falls were the leading cause of hospitalization due to unintentional injury (57% of all unintentional injury hospitalizations) and the second leading cause of unintentional injury death (23%) among adults age 65 or older in Montana.[2, 3]

Previous research has documented an association between falls and the presence of arthritis and diabetes.[4, 5] This report describes the association between falls and the presence of various chronic conditions among Montana adults and identifies evidence-based approaches to preventing falls among adults.

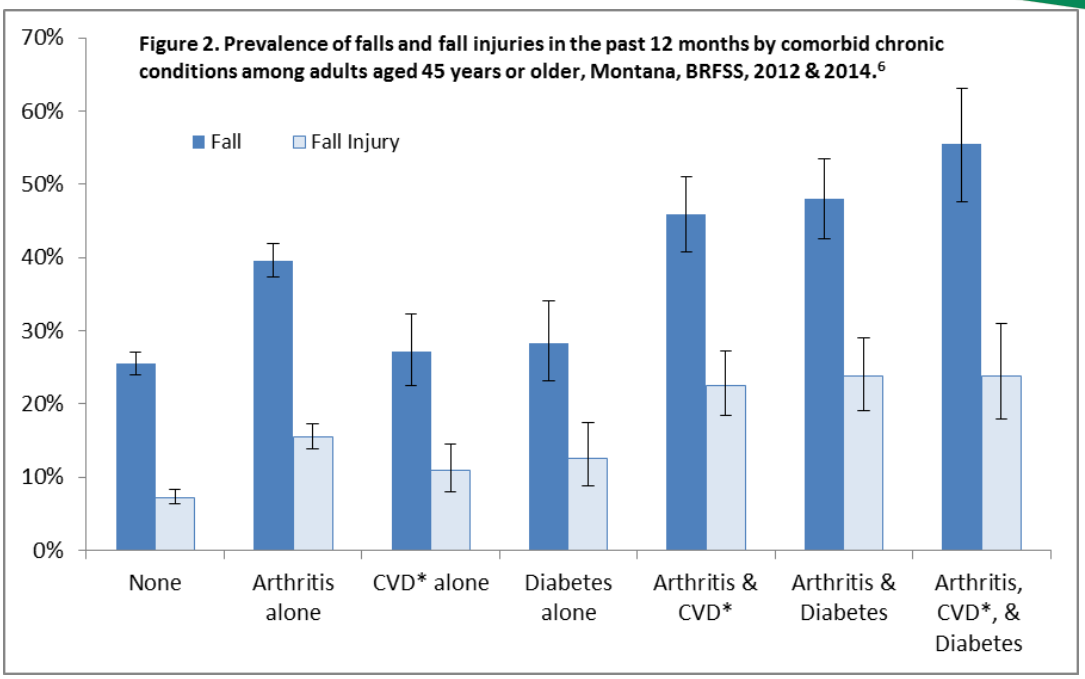
Results

About one in three (32.7%) Montana adults aged 45 years or older reported falling at least once in the previous 12 months (Figure1).[6] Adults who reported being diagnosed with arthritis, cardiovascular disease (CVD), or diabetes reported having a fall more frequently (about 42% for all three chronic condi-

Figure 1. Prevalence of falls and fall injuries in the past 12 months among adults aged 45 years or older, Montana, BRFSS, 2012 & 2014.[6]



*Cardiovascular disease includes reporting a history of any of the following conditions: heart attack, stroke, or coronary heart disease.



*Cardiovascular disease includes reporting a history of any of the following conditions: heart attack, stroke, or coronary heart disease.

tions) than all adults. Similarly adults diagnosed with arthritis (18%), CVD (18%), and diabetes (20%) reported being injured because of a fall significantly more frequently than all adults (12%).

Several demographic and behavioral risks were also significantly associated with having a history of falls and fall related injury (Figure1).[6] About 41% of American Indians, 41% of adults with less than a high school education, 38% of adults who reported no leisure time physical activity, and 37% of current smokers reported at least one fall in the past year. About 22% of American Indians, 17% of adults with less than a high school education, 16% of adults who reported no leisure time physical activity, and 17% of current smokers reported at least one fall-related injury. There was no significant difference in the prevalence of falls and fall-related injuries by sex, age group, overweight or obese status, disability status, and health care coverage status (data not shown).

The prevalence of falls and fall-related injuries were higher for adults who reported arthritis (alone or in combination with CVD and diabetes) compared to adults with none of these chronic conditions (Figure 2).[6] However, there was no significant difference in the prevalence of falls and fall-related injuries among adults who report CVD alone and those who report diabetes alone.

The odds of falling were about two times higher for adults who have been diagnosed with arthritis alone compared to adults with none of these diseases, even after controlling for other risk factors (Table 1).[6] Further, the odds increased for adults with arthritis and CVD or diabetes. The odds of falling were over three times higher for adults with all three diseases compared to those with none.

Similar trends were seen for fall-related injury. Adults with arthritis alone and with diabetes alone had about two times higher odds of being injured by a fall (Table 1). Adults with arthritis in addition to CVD or diabetes and adults with all three conditions had over three times higher odds of having a fall-related injury.

Table 1. Adjusted* Odds Ratio (aOR) of having at least one fall or fall injury in the past year by comorbid chronic conditions among adults aged 45 years or older, Montana, BRFSS, 2012 & 2014.[6]

	Any Fall			Fall Injury		
Chronic Conditions	aOR	95% CI		aOR	95% CI	
None (referent)	1.00			1.00		
Arthritis alone	**1.91**	**1.68**	**2.17**	**2.29**	**1.88**	**2.79**
CVD alone	1.04	0.79	1.35	1.45	1.00	2.11
Diabetes alone	1.10	0.82	1.47	**1.73**	**1.13**	**2.65**
Arthritis & CVD	**2.40**	**1.90**	**3.02**	**3.42**	**2.55**	**4.60**
Arthritis & Diabetes	**2.56**	**2.01**	**3.24**	**3.52**	**2.59**	**4.79**
Arthritis, CVD, & Disabetes	**3.42**	**2.45**	**4.76**	**3.43**	**2.29**	**5.13**

*Odds ratios were adjusted for race, educational attainment, physical activity, and current smoking status.

Conclusions

Adults with arthritis are at increased risk for falls, especially when comorbid CVD and/or diabetes is present. This trend is present in adults aged 45 years to 64 years as well as older adults. In fact, among adults aged 45 years and older, falls were equally prevalent in all age groups. Healthcare providers should be mindful of the risk of falls among adults with arthritis, even in younger age groups, and work with their patients to reduce their risk.

Falls can be prevented. Regular exercise, appropriate monitoring of medications, regular vision exams, and ensuring a home environment free of slipping and tripping hazards can all greatly reduce the risk of falling. The Montana Department of Public Health and Human Services supports a variety of evidence-based programs that can help adults achieve these prevention steps.

Stepping On Fall Prevention Program is a multifaceted fall prevention program that addresses medication, visual impairments, exercise, and the home environment with adults aged 60 years or older who have fallen in the past year or who are fearful of falling.

Arthritis Foundation Exercise Program is a recreational exercise program for adults with arthritis. It includes health education, exercise for any fitness level including balance exercises, and relaxation techniques.

Walk with Ease teaches participants how to safely start and maintain a regular walking routine.

Enhance Fitness is a group-based exercise program that helps older adults at all levels of fitness become more active. Instructors cover cardiovascular exercise, strength training, balance, and flexibility.

Diabetes Self-Management Education teaches adults with diabetes how to manage their disease to reduce diabetes-related fall risks including: fluctuations in blood sugar, lower extremity problems, and diabetes-related vision problems.

To learn more about these programs and where they are offered in Montana visit our Community Based Programs website or call 1-844-MTHLT4U (684-5848).

Methods

This report used data from the 2012, and 2014 Montana Behavioral Risk Factor Surveillance System (BRFSS), a random digit dialing telephone survey of non-institutionalized adults.[6] The survey asks respondents about demographic characteristics, behavioral risks, and diagnosis of various chronic diseases. In even years, respondents aged 45 years or older are asked about their history of falls in the last 12 months. Please visit the Montana BRFSS website for the complete questionnaire. The two years of survey data were combined to ensure adequate sample size of adults aged 45 years or older for sub-group analysis. Logistic regression for complex sample survey data was used to calculate adjusted odds ratios.

References

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