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Development and Evaluation of Syndromic Surveillance Definitions for Fall- and Hip Fracture–Related Emergency Department Visits Among Adults Aged 65 Years and Older, United States 2017–2018

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Abstract

Objective: To develop syndromic surveillance definitions for unintentional fall- and hip fracture–related emergency department (ED) visits among older adults (aged ≥65 years) for use in the Centers for Disease Control and Prevention’s National Syndromic Surveillance Program (NSSP) data and compare the percentage of ED visits captured using these new syndromes with ED visits from the Healthcare Cost and Utilization Project Nationwide Emergency Department Sample (HCUP-NEDS), a nationally representative administrative data set.

Design/Setting: Syndromic definitions were developed using chief complaint terms and discharge diagnosis codes in NSSP data. The percentages of ED visits among older adults related to falls and hip fractures in NSSP were compared with the percentages in HCUP-NEDS in 2017 and 2018.

Measures: Prevalence ratios were calculated as the relative difference in the percentage of ED visits related to falls or hip fractures in NSSP compared with HCUP-NEDS. Counts and percentages calculated using HCUP-NEDS were weighted to produce nationally representative estimates. Data were analyzed overall and by sex and age group.

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Results: The percentage of ED visits among older adults related to falls in NSSP was 12% less in 2017 (10.81%) and 7% less in 2018 (11.42%) compared with HCUP-NEDS (2017: 12.30%; 2018: 12.26%). The percentage of ED visits among older adults related to hip fractures in NSSP was 41% less in 2017 (0.65%) and 30% less in 2018 (0.76%) compared with HCUP-NEDS (2017: 1.10%; 2018: 1.09%). In both 2017 and 2018, a higher percentage of ED visits among older women and adults aged 85 years or older were related to falls or hip fractures compared with older men and younger age groups across both data sets.

Conclusion: A smaller percentage of older adults' ED visits met the falls and hip fracture definitions in NSSP compared with HCUP-NEDS in 2017 and 2018. However, demographic trends remained similar across both data sets.

Keywords

accidental fall; hip fracture; older adult; syndromic surveillance

Every second in the United States an older adult (aged ≥ 65 years) falls.¹ In 2018, falls resulted in 8 million injuries, 3 million emergency department (ED) visits, 950 000 hospitalizations, and 32 000 deaths among older adults.^{1,2} Falls can lead to minor injuries such as abrasions and serious injuries such as hip fractures and can be deadly.^{3,4} More than 95% of hip fractures among older adults are due to falls,⁵ and a full recovery after suffering a hip fracture is often difficult.⁶ Falls are preventable. Effective interventions include exercises that improve gait, strength, and balance; home modifications; medication management; and evidence-based community fall prevention programs.⁷ To address the burden of falls and hip fractures among older adults, timely data that can inform public health actions, such as increasing access to effective interventions, are needed.

ED visits provide useful information on older adult fall injury and hip fracture cases. Public health researchers use various data sources to obtain ED data such as the Healthcare Cost and Utilization Project Nationwide Emergency Department Sample (HCUP-NEDS) for falls and hip fractures, and the National Electronic Injury Surveillance System-All Injury Program (NEISS-AIP) for falls. However, these sources lag in timeliness, often by as much as 1 to 2 years.^{2,8} This limits our ability to detect current changes in fall injuries among older adults. A complementary system that allows data collection and analysis in real time would assist in identifying new trends and delivering public health interventions as quickly as possible to reduce injuries.

Syndromic surveillance can be used to monitor ED visits in real time, detect unusual trends, and respond rapidly to save lives.^{9,10} This system, originally created to detect threats from biologic agents, has expanded beyond its initial purpose and has been applied to many areas of public health such as influenza spread, cannabinoid drug use, and others.^{11,12} Researchers have developed various syndromic definitions to capture fall-related ED visits.^{13,14} However, definitions designed to capture fall- or hip fracture-related ED visits specifically among older adults have not been created and evaluated at the national level.

As the older adult population in the United States continues to grow,¹⁵ the number of fall- and hip fracture-related ED visits is also expected to rise. Timely syndromic ED data focused on older adults can help create early awareness of these visits, allowing local and state health departments to expand fall prevention services when increases in falls are detected. The objective of this study is to develop syndromes for older adult fall and hip fracture cases using the National Syndromic Surveillance Program (NSSP) and to evaluate these newly developed syndromes by comparing the percentage of ED visits that capture falls and hip fractures among older adults in NSSP with HCUP-NEDS. Standard syndromes that can accurately identify older adult falls and hip fracture cases would enable wider use of syndromic surveillance data and allow timely public health actions.

Methods

ED data for 2017 and 2018 were obtained from NSSP's BioSense platform. NSSP provides a near real-time analysis of prediagnostic and diagnostic electronic health data to detect and assess public health events. At the time of the study, 6000 health care facilities from 49 states and the District of Columbia provided data as early as 24 hours after a patient's visit, which includes almost 71% of all ED visits in the United States.¹⁶ The Electronic Surveillance System for the Early Notification of Community-based Epidemics (ESSENCE), an analytical tool on the platform, was used to analyze and visualize syndromic surveillance data. Data fields included chief complaint (CC), which provides a brief description of the patient's visit, and discharge diagnosis (DD) codes specific to a patient's clinical diagnosis.

Syndrome development

The Centers for Disease Control and Prevention (CDC) developed 2 syndromes to identify ED visits related to unintentional falls and hip fractures among older adults in NSSP. The fall syndrome aims to capture ED visits with initial encounters for unintentional fall injuries and excludes conditions such as seizure, stroke, cardiac arrest, or heart attack, when not associated with a fall DD code. The hip fracture syndrome aims to capture ED visits with initial encounters for hip fractures, including periprosthetic hip fractures (fractures around prosthetic hip implants), and excludes pathological fractures (fractures that result from ongoing disease). Two strategies were used to make decisions about inclusion and exclusion terms for the different syndromes to provide multiple ways of considering fall injuries. The fall syndrome was designed to maximize sensitivity (ie, captures as many fall-related ED visits as possible with the caveat that some ED visits may be false-positives), and the hip fracture syndrome was designed to maximize specificity (ie, captures only true hip fracture-related ED visits, which means that if ED visits are not clearly reported, some hip fracture-related ED visits may be missed).

These syndromes are designed to search the combined chief complaint and discharge diagnosis (CCDD) field in ESSENCE and therefore comprise both the CC terms and DD codes. The *International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM)* codes for falls (V00.11-V00.89 with sixth character = 1, W00-W15, W16 with sixth character = 2 except W16.4 and W 16.9, which had a fifth character = 2,

W17, W18.1-W18.3, and W19, all codes had a seventh character of A or missing) and hip fractures (S72.0-S72.2, M97.0 all codes had a seventh character of A, B, C, or missing) were used as the DD codes.¹⁷ To identify potential CC terms, the CCDD data obtained using the *ICD-10-CM* codes and other relevant terms (eg, slip for falls; hip fx for hip fracture) were reviewed. The review process assessed whether the addition of potential CC terms added more true cases or more false ones to the syndrome. It also allowed us to identify additional CC terms, recognize common misspellings, and specify exclusion terms to increase the accuracy of the syndromes. This resulted in the inclusion of additional fall and hip fracture cases that would have been missed if only the DD terms were used. Both syndromes were refined on the basis of feedback from NSSP and state health departments.

In May 2021, both the “CDC Falls 65 and Older v1” syndrome and the “CDC Hip Fracture 65 and Older v1” syndrome were added to NSSP’s ESSENCE (Tables 1 and 2). The fall syndrome includes ED visits with *ICD-10-CM* codes that indicate initial encounters of unintentional falls and CC terms such as rolled off bed, loss of balance, stumble, slip, trip, fall, and fell (Table 1). Similarly, the hip fracture syndrome includes ED visits with *ICD-10-CM* codes that indicate initial encounters of hip fractures and CC terms such as hip fracture, broken hip, intertrochanteric, femoral neck and fracture, hip deformity, etc (Table 2). Exclusions for both queries comprised *ICD-10-CM* codes indicating subsequent and sequela encounters and CC terms that added false-positives (Tables 1 and 2).

Syndrome evaluation

The percentages of ED visits among older adults related to falls and hip fractures in NSSP were compared with the latest data (2017–2018) from the Agency of Healthcare Research and Quality’s HCUP-NEDS. HCUP-NEDS was chosen as the comparison data set because it is nationally representative of the US population and uses *ICD-10-CM* codes, making it possible to report on both falls and hip fractures. HCUP-NEDS includes data from 990 hospital EDs across 36 US states and the District of Columbia.⁸ DD codes were used to determine ED visits related to falls and hip fractures in HCUP-NEDS. Each ED visit may have up to 35 DD codes included in the visit record. ED visits were considered fall-related if one of the fall external morbidity *ICD-10-CM* codes included in the fall syndrome was included in any of the 35 DD fields in the visit record.¹⁷ ED visits were considered hip fracture-related if one of the *ICD-10-CM* diagnosis codes used in the hip fracture syndrome was included in any of the 35 diagnosis fields in the HCUP-NEDS visit record.¹⁷

Analysis

Prior to analysis of NSSP, data quality filters in ESSENCE were used to include EDs that consistently reported (had a coefficient of variance ≤ 40) to NSSP and in which the DD was informative for 68% of visits or more. This resulted in the inclusion of about 59.1% of the EDs reporting visits among older adults to NSSP each week from 2017 to 2018 (1675 of the 2832 EDs reporting visits among older adults on average each week).

Analysis of both NSSP and HCUP-NEDS was limited to older adults aged 65 years or older. The percentages of ED visits among older adults related to falls or hip fractures were analyzed by sex and age group (65–74 years, 75–84 years, ≥ 85 years) in both NSSP and

HCUP-NEDS across 2017 and 2018. Comparisons were made between the percentages of ED visits in NSSP and HCUP-NEDS that were related to falls or hip fractures to account for differences in the total number of EDs included in each data set. The percentages and corresponding 95% confidence intervals (CIs) were analyzed using SAS Studio for NSSP data. For HCUP-NEDS data, SAS (version 9.4) survey procedures were used to analyze weighted counts, percentages, and corresponding 95% CIs to represent the US population. Prevalence ratios (PRs) and corresponding 95% CIs were calculated as the relative difference between the percentage of ED visits related to falls or hip fractures among older adults in NSSP compared with HCUP-NEDS.

Results

In NSSP, 10.81% of ED visits among older adults were related to unintentional falls in 2017 and 11.42% of ED visits among older adults were related to unintentional falls in 2018 (Table 3). The percentage of NSSP ED visits related to falls among older adults was 12% less compared with HCUP-NEDS in 2017 (PR: 0.88; 95% CI, 0.86–0.90) and 7% less in 2018 (PR: 0.93; 95% CI, 0.91–0.95). A higher percentage of older women's ED visits were related to a fall compared with older men's ED visits in both NSSP and HCUP-NEDS across 2017 and 2018 (Table 3). In 2018, the most recent year of data analyzed, 12.99% (95% CI, 12.97–13.02) of NSSP ED visits among older women were fall-related compared with 9.37% (95% CI, 9.35–9.39) of NSSP ED visits among older men. The percentage of NSSP ED visits related to falls was 6% less among older men (PR: 0.94; 95% CI, 0.91–0.96) and 7% less among older women (PR: 0.93; 95% CI, 0.91–0.95) compared with HCUP-NEDS (Table 3). For 2017 and 2018, the percentage of ED visits among older adults related to unintentional falls increased with age in both NSSP and HCUP-NEDS. In 2018, 18.13% of NSSP ED visits among adults aged 85 years or older were fall-related compared with 8.18% among adults aged 65 to 74 years and 11.77% among adults aged 75 to 84 years. The percentages of NSSP ED visits related to falls were 10% less in adults aged 65 to 74 years (PR: 0.90; 95% CI, 0.88–0.92), 6% less in adults aged 75 to 84 years (PR: 0.94; 95% CI, 0.91–0.97), and 3% less in adults aged 85 years or older (PR: 0.97; 95% CI, 0.95–0.99) compared with HCUP-NEDS in 2018 (Table 3).

In NSSP, 0.65% of older adults' ED visits in 2017 and 0.76% of older adults' ED visits in 2018 were related to a hip fracture (Table 4). In 2017, the percentage of NSSP hip fracture-related ED visits was 41% less compared with HCUP-NEDS (PR: 0.59; 95% CI, 0.58–0.61). In 2018, the percentage of NSSP hip fracture-related ED visits among older adults was 30% less compared with HCUP-NEDS (PR: 0.70; 95% CI, 0.68–0.72). A higher percentage of older women's ED visits were hip fracture-related compared with older men's in both HCUP-NEDS and NSSP across 2017 and 2018 (Table 4). In 2018, 0.93% (95% CI, 0.93–0.94) of NSSP ED visits among older women were hip fracture-related compared with 0.52% (95% CI, 0.52–0.53) among older men. The percentage of NSSP ED visits related to hip fractures was 32% less among older men (PR: 0.68; 95% CI, 0.66–0.70) and 30% less among older women (PR: 0.70; 95% CI, 0.69–0.72) compared with HCUP-NEDS in 2018 (Table 4). For 2017 and 2018, the percentage of ED visits among older adults related to hip fractures increased by age in both data sets. In 2018, 1.60% of NSSP ED visits among adults aged 85 years or older were related to hip fractures compared with 0.36% among adults aged

65 to 74 years and 0.79% among adults aged 75 to 84 years. The percentages of NSSP ED visits related to hip fractures were 30% less in adults aged 65 to 74 years (PR: 0.70; 95% CI, 0.68–0.73), 31% less in adults aged 75 to 84 years (PR: 0.69; 95% CI, 0.67–0.71), and 29% less in adults aged 85 years or older (PR: 0.71; 95% CI, 0.69–0.72) compared with HCUP-NEDS in 2018 (Table 4).

Discussion

In both 2017 and 2018, there were higher percentages of ED visits related to falls and hip fractures among older adults in HCUP-NEDS compared with NSSP. Although fall- and hip fracture-related ED visits appear to be underestimated in NSSP compared with HCUP-NEDS, demographic trends appear mostly consistent across both data sets. In both NSSP and HCUP-NEDS, older women had a higher percentage of fall- and hip fracture-related ED visits compared with older men. The percentages of fall- and hip fracture-related ED visits increased with age. This is consistent with other studies where older women and adults aged 85 years or older reported more falls and fall injuries every year compared with older men and adults aged 65 to 74 years or 75 to 84 years.^{1,18} Women and those aged 85 years or older are also more likely to visit the ED for a hip fracture compared with men and younger age groups.¹⁹ About 95% of hip fractures are caused by a fall.⁵

The percentages of ED visits related to falls in NSSP were closer to HCUP-NEDS estimates among adults aged 85 years or older compared with those in younger age groups. It is possible the CC terms included in the syndrome definition in NSSP were more likely to capture falls among those aged 85 years or older. Many fall risk factors increase with age including chronic conditions associated with falls, increased medication use, decreased vision, and functional decline.²⁰ Differences in risk factors between age groups may have led to our syndrome capturing more fall-related ED visits among adults aged 85 years or older. For example, those aged 85 years or older are more likely to have an ED visit related to a fall occurring in their bedrooms compared with adults in other age categories.²¹ This may be specifically picked up by the “rolled out of bed” terms included in the fall syndrome.

In 2018, the percentage of ED visits among older adults related to a hip fracture was 30% less in NSSP compared with HCUP-NEDS. The percentage of ED visits among older adults related to a fall was also less in NSSP compared with HCUP-NEDS; however, these differences are smaller and may not affect the ability of the fall syndrome to detect changes in trend. It is possible that falls are more easily captured by CC terms than hip fractures. For example, some common symptoms of hip fractures were not included as CC terms in the hip fracture syndrome such as hip pain. Causes of hip pain can include overuse injuries (eg, muscle strains), referred pain from the abdomen, and osteoarthritis in addition to hip fractures.^{22,23} Because of potential causes other than hip fractures and the goal of maximizing specificity for the hip fracture syndrome, hip pain was not included as a CC term. It is possible that some of the older patients who presented to the ED with hip pain in NSSP had a hip fracture, but the ED record was missing DD codes or other CC terms and therefore was missed by our syndrome. Hip fractures were underestimated consistently across sex and age group, suggesting this underestimation may be nondifferential and may not affect the ability of this syndrome to be used to detect changes in trend. Further

evaluation of the hip fracture syndrome is needed, and this syndrome should not be used to describe the burden of hip fractures.

Public health messages and actions are informed by data. Current data sources used to estimate the burden of falls and fall injuries have 1 to 2 years of lag time. While these data sources are more appropriate for estimating the total burden of older adult falls due to their national representativeness of the population, a rapid and real-time source such as syndromic surveillance can help identify unusual changes in fall- or fall injury–related ED visits to prompt timely interventions. Effective interventions for fall prevention include gait, strength, and balance training, evidence-based community fall prevention programs, medication management, and home modifications.⁷ Findings from previous studies support the use of syndromic surveillance data to detect and monitor patterns of fall-related ED visits.^{13,14,24} Two studies investigated fall-related ED visits during the winter season, and both reported a rise in ED visits after winter storms.^{14,24} Although both studies found that the excess fall-related ED visits were mostly among younger adults (aged <65 years),^{14,24} we know that fall-related ED visits among older adults are also high during winter.²⁵ Using syndromic surveillance data, public health professionals can take timely actions (eg, making public service announcements or implementing evidence-based community fall prevention programs) to reduce the risk of falls and fall injuries. In addition to unusual increases in fall-related ED visits, syndromic surveillance can be useful to track unusual decreases in ED visits. For example, during the COVID-19 pandemic, syndromic surveillance data showed that ED visits decreased across all age groups,²⁶ which helped inform critical public health messaging to prevent delays in seeking medical care. There were delays in other types of medical care during the beginning of the COVID-19 pandemic such as physical therapy.²⁷ Physical therapists work with older adults to increase strength, gait, and balance to prevent falls.²⁸ It is unclear whether delays in physical therapy or other fall prevention interventions led to changes in fall injuries among older adults. However, having syndromes available to monitor changes in older adult fall- and hip fracture–related ED visits may be useful for local and state health departments to increase access to fall prevention resources to reduce these injuries, especially during and immediately following public health emergencies.

This study has limitations. First, because we included all ED visits, including those who were hospitalized and those who died in the hospital in both NSSP and HCUP-NEDS, our estimates may differ from other reports using the same data sets. Second, not all injury ED visits contain an external cause of morbidity *ICD-10-CM* code as these are not used for billing purposes. Some of these missing codes could be fall-related, meaning fall-related ED visits may be underestimated in both data sets. Third, HCUP-NEDS is a nationally representative sample of EDs while NSSP covers about 71% of EDs in the United States. Furthermore, this analysis was limited to EDs that consistently provided information to NSSP (about 59% of the EDs reporting data to NSSP each week on average), which may differ from EDs that do not consistently provide information to NSSP. Differences in the percentage of ED visits captured by either syndrome may be due to the underlying differences between EDs included in NSSP and HCUP-NEDS. Fourth, HCUP-NEDS contains administrative data, which may better utilize *ICD-10-CM* codes than NSSP. Differences in the way falls and hip fractures were captured between the data sets could further explain differences in the percentages of fall- and hip fracture–related ED visits

between HCUP-NEDS and NSSP. Future revisions of the fall and hip fracture syndrome may consider adding additional CC terms to capture additional injuries, especially when DD codes are not included in the record. Fifth, participation of EDs in NSSP and quality of reporting by EDs vary over time. Although we adjusted for some of these changes by limiting our analysis to EDs that consistently reported to NSSP, it was not possible to completely control for these factors. Researchers using these syndromes to analyze trends in falls and hip fractures among older adults may need to consider how improvements in reporting may impact the performance of these syndromes in the future.

Syndromes for older adult falls and hip fractures were added to NSSP ESSENCE in May 2021. Despite underestimating the percentage of fall- and hip fracture-related ED visits compared with HCUP-NEDS, NSSP may be a useful resource to detect unusual changes in falls and hip fractures among older adults in real time. However, further evaluation of the older adult hip fracture syndrome is needed to explain the differences in the percentage of ED visits captured in NSSP compared with HCUP-NEDS.

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Implications for Policy & Practice

- Syndromes for falls and hip fractures among older adults were added to the NSSP ESSENCE tool in May 2021.
- In 2018, 11.42% of ED visits among older adults were related to unintentional falls and 0.76% of ED visits among older adults were related to hip fractures in NSSP.
- The percentage of ED visits among older adults related to a fall was 7% less in syndromic surveillance data using the “CDC Falls 65 and Older Syndrome” compared with a nationally representative data source in 2018.
- The percentage of ED visits among older adults related to a hip fracture was 30% less in syndromic surveillance data using the “CDC Hip Fracture 65 and Older Syndrome” compared with a nationally representative data source in 2018.
- Although the older adult fall and hip fracture syndromes appear to underestimate the percentage of ED visits for these injuries, syndromic surveillance may be used as a potential resource to detect changes in fall- and hip fracture-related ED visit trends in real time.

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^bIndicates subsequent encounters or disease sequelae.

^cChief complaint terms excluded for fall only.

^dChief complaint terms excluded for fell only.

Number and Percentage of ED Visits Related to Unintentional Falls Among Older Adults (≥ 65 Years) by Sex and Age Group, 2017–2018 NSSP and HCUP-NEDS

TABLE 3

Data Source Characteristic	ED Visits Related to Unintentional Older Adult Falls (2017)				ED Visits Related to Unintentional Older Adult Falls (2018)				
	NSSP		HCUP-NEDS ^d		NSSP		HCUP-NEDS ^d		
	N	% (95% CI)	Weighted N	Weighted % (95% CI)	N	% (95% CI)	Weighted N	Weighted % (95% CI)	
Total ^c	1 347 853	10.81 (10.79–10.82)	3 594 272	12.30 (12.01–12.60)	1 641 011	11.42 (11.41–11.44)	3 562 607	12.26 (11.98–12.53)	0.93 (0.91–0.95)
Sex									
Men	464 023	8.76 (8.74–8.79)	1 255 444	10.00 (9.76–10.24)	580 478	9.37 (9.35–9.39)	1 255 377	10.00 (9.77–10.24)	0.94 (0.91–0.96)
Women	867 128	12.37 (12.35–12.39)	2 338 693	14.04 (13.70–14.38)	1 053 376	12.99 (12.97–13.02)	2 307 104	13.97 (13.66–14.28)	0.93 (0.91–0.95)
Age group, y									
65–74	437 061	7.63 (7.61–7.65)	1 192 951	9.03 (8.81–9.25)	539 128	8.18 (8.16–8.20)	1 206 536	9.12 (8.91–9.33)	0.90 (0.88–0.92)
75–84	461 475	11.13 (11.10–11.16)	1 225 745	12.54 (12.25–12.83)	569 002	11.77 (11.74–11.80)	1 224 881	12.52 (12.25–12.79)	0.94 (0.91–0.97)
85+	449 317	17.31 (17.27–17.36)	1 175 576	18.87 (18.46–19.29)	532 881	18.13 (18.09–18.17)	1 131 189	18.68 (18.27–19.08)	0.97 (0.95–0.99)

Abbreviations: CI, confidence interval; ED, emergency department; HCUP-NEDS, Healthcare Cost and Utilization Project-Nationwide Emergency Department Sample; NSSP, National Syndromic Surveillance Program; PR, prevalence ratio.

^aIn HCUP-NEDS, counts and percentages were weighted to be nationally representative of the US population.

^bPR is the relative difference in the percentage of older adult ED visits related to falls in NSSP compared with HCUP-NEDS.

^cTotals may not add up to the sum due to missing/unknown/not reported values for sex and to the rounding of weighted estimates in HCUP-NEDS.

TABLE 4
 Number and Percentage of ED Visits Related to Hip Fractures Among Older Adults (≥ 65 Years) by Sex and Age Group, 2017–2018 NSSP and HCUP-NEDS

Data Source Characteristic	ED Visits Related to Older Adult Hip Fractures (2017)				ED Visits Related to Older Adult Hip Fractures (2018)					
	NSSP		HCUP-NEDS ^d		NSSP		HCUP-NEDS ^d			
	N	% (95% CI)	Weighted N	Weighted % (95% CI)	PR ^b (95% CI)	N	% (95% CI)	Weighted N	Weighted % (95% CI)	PR ^b (95% CI)
Total ^c	81 674	0.65 (0.65–0.66)	322 367	1.10 (1.07–1.13)	0.59 (0.58–0.61)	108 643	0.76 (0.75–0.76)	315 422	1.09 (1.06–1.11)	0.70 (0.68–0.72)
Sex										
Men	23 905	0.45 (0.45–0.46)	96 591	0.77 (0.75–0.79)	0.59 (0.57–0.60)	32 479	0.52 (0.52–0.53)	96 559	0.77 (0.75–0.79)	0.68 (0.66–0.70)
Women	57 214	0.78 (0.77–0.78)	225 765	1.36 (1.32–1.39)	0.60 (0.58–0.62)	75 736	0.93 (0.93–0.94)	218 852	1.32 (1.29–1.36)	0.70 (0.69–0.72)
Age group, y										
65–74	17 239	0.30 (0.29–0.31)	67 070	0.51 (0.49–0.52)	0.59 (0.57–0.61)	23 624	0.36 (0.35–0.36)	67 288	0.51 (0.49–0.52)	0.70 (0.68–0.73)
75–84	28 204	0.68 (0.67–0.69)	111 530	1.14 (1.11–1.17)	0.60 (0.58–0.61)	38 016	0.79 (0.78–0.79)	110 877	1.13 (1.10–1.16)	0.69 (0.67–0.71)
85+	36 231	1.40 (1.38–1.41)	143 767	2.31 (2.25–2.36)	0.60 (0.59–0.62)	47 003	1.60 (1.58–1.61)	137 257	2.27 (2.21–2.32)	0.71 (0.69–0.72)

Abbreviations: CI, confidence interval; ED, emergency department; HCUP-NEDS, Healthcare Cost and Utilization Project-Nationwide Emergency Department Sample; NSSP, National Syndromic Surveillance Program; PR, prevalence ratio.

^aIn HCUP-NEDS, counts and percentages were weighted to be nationally representative of the US population.

^bPR is the relative difference in the percentage of older adult ED visits related to hip fractures in NSSP compared with HCUP-NEDS.

^cTotals may not add up due to missing/unknown/not reported values for sex and the rounding of weighted estimates in HCUP-NEDS.