

# Massachusetts Data Brief

## Special Emphasis Report: Unintentional Fall Injuries among Older Adults, 2006-2014



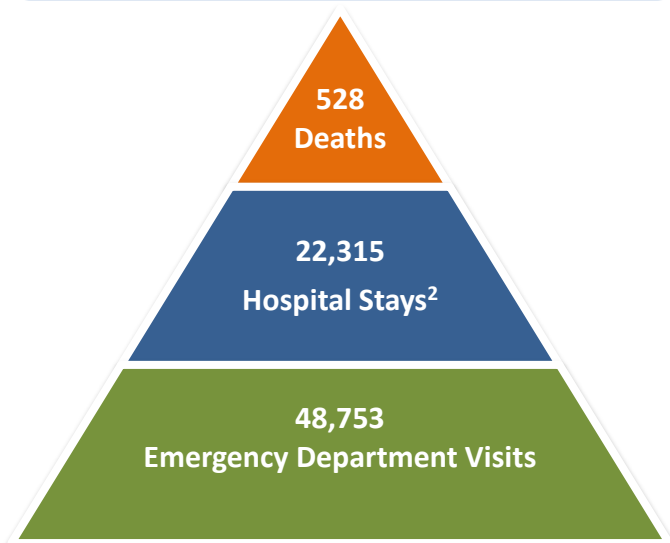
### A GROWING CONCERN

Unintentional falls among older adults are a leading cause of fatal and nonfatal injury in the U.S. and Massachusetts. Hospital costs associated with injuries sustained by falls account for a substantial share of health care dollars spent on injury-related care.

In 2014, 528 Massachusetts residents ages 65 and older died and 71,068 nonfatal unintentional fall-related injuries were treated at hospitals and emergency departments (Figure 1).

This report provides recent data on *unintentional fall injuries and deaths* among MA residents ages 65 and older. It includes information about groups with the highest rates, associated costs, and current prevention strategies and activities in Massachusetts.

**FIGURE 1.** Burden of Fall Injuries<sup>1</sup> among Massachusetts Residents Ages 65 and older, 2014



Data sources: Registry of Vital Records and Statistics, MDPH; **Hospital Stays:** MA Inpatient Hospital Discharge Database and MA Observation Stays Database, Center for Health Information and Analysis (CHIA). **ED Visits:** MA Outpatient Emergency Department Discharge Database, CHIA. <sup>1</sup>Death counts are for calendar year 2014; counts for Hospital Stays and ED Visits are fiscal year 2014 (Oct 1, 2013 – Sep 30, 2014).

### QUICK FACTS



In 2014, residents ages 65 and older accounted for **83% of all fall deaths** and 71% of nonfatal fall-related hospital stays in Massachusetts.



In 2014, falls were the leading cause (**85%**) of unintentional **Traumatic Brain Injury**<sup>3</sup> deaths among older adults ages 65 and older.



**Projected lifetime costs** associated with fall injuries<sup>4</sup> among MA residents ages 65 and older are estimated to be **\$1.9 billion**.



**Every week** among MA residents ages 65 and older there are approximately 900 emergency department visits, 400 hospital stays, **and 10 deaths due to fall injuries**.



Among fall deaths where location of injury is known, 69% of deaths to this age group occurred in the home, while 18% occurred in a residential facility such as a nursing home.

<sup>2</sup>Hospital stays combine hospitalizations and observation bed stays. Refer to Data Sources and Definitions on page 6 for more information.

<sup>3</sup>Traumatic Brain Injury (TBI) is a bump, blow, jolt, or penetration to the head that disrupts the normal function of the brain. It can result in death or permanent disability. <sup>4</sup>Costs are calculated using the CDC WISQARS Cost of Injury Module.



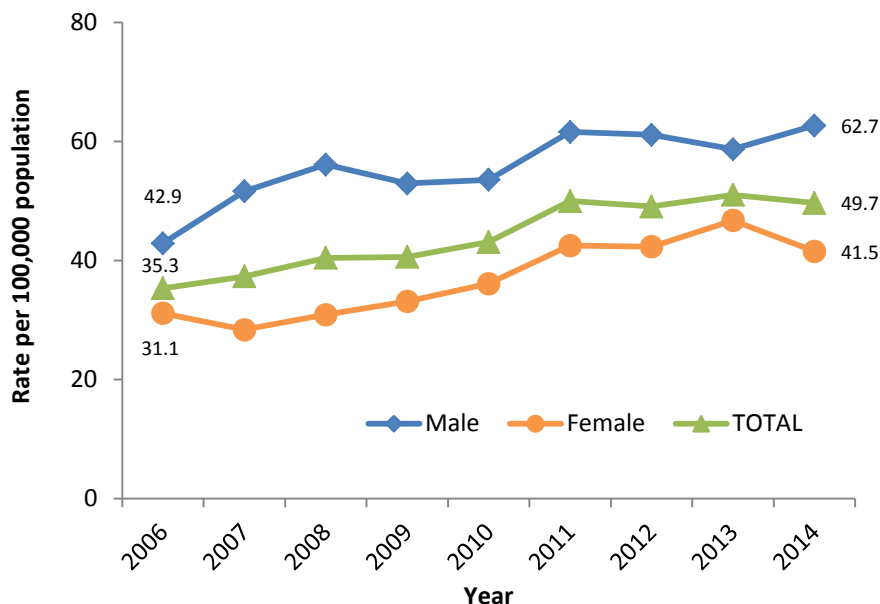


# Massachusetts Data Brief

## Special Emphasis Report: Unintentional Fall Injuries among Older Adults, 2006-2014

### FALL DEATHS

**FIGURE 2.** Age-adjusted Rate of Fall Deaths by Sex, Ages 65 and older—MA, 2006-2014

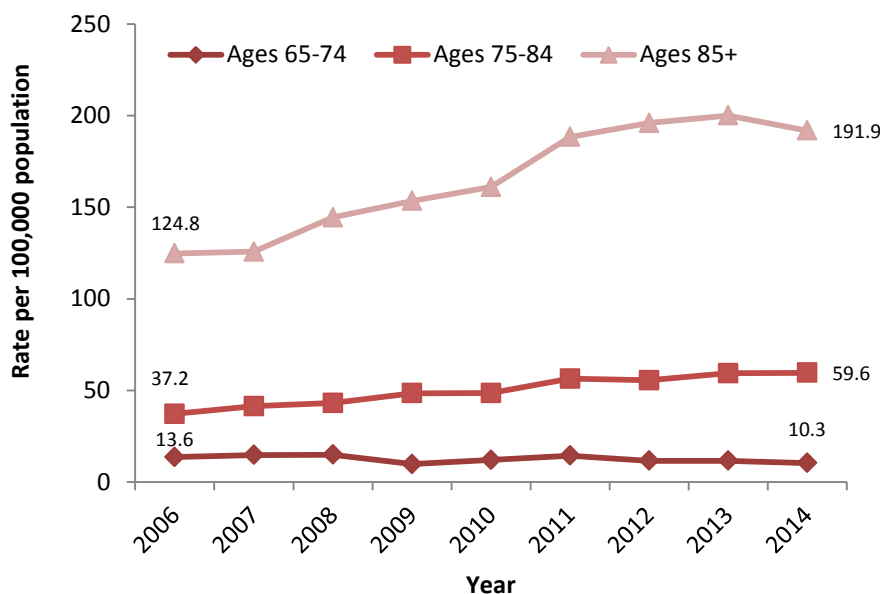


Data source: Registry of Vital Records and Statistics, MDPH

- From 2006 to 2014, the age-adjusted rate of fall deaths for all MA residents ages 65 and older increased 41%; from 35.3 per 100,000 in 2005 to 49.7 per 100,000 in 2014.
- Fall death rates increased among both males and females during this time period. An annual percent change (APC)\* of 7.0% per year.
- In 2014, the fall death rate among males was approximately 1.5 times that for females.

\*The annual percentage change (APC) is significantly different from zero at alpha=0.05.

**FIGURE 3.** Age-specific Rate of Fall Deaths by Age Group, Ages 65 and older—MA, 2006-2014



Data source: Registry of Vital Records and Statistics, MDPH

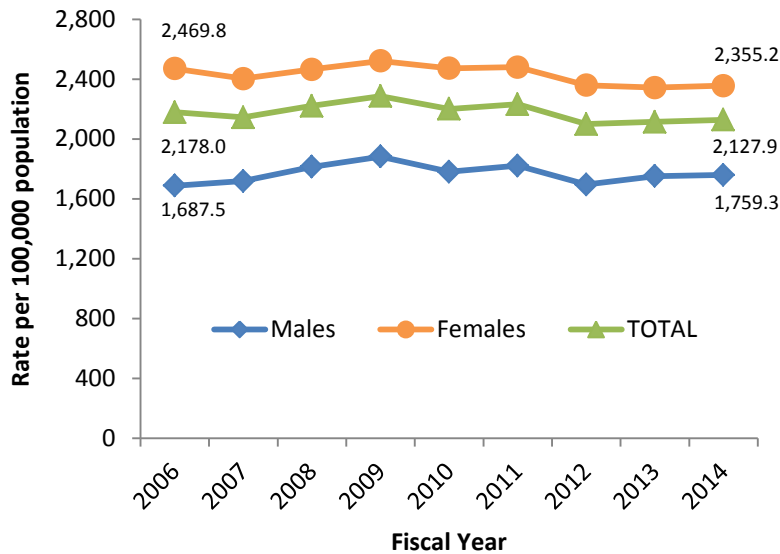
- Fall death rates remained relatively stable for persons ages 65-74, and increased among the two older age groups.
- Fall death rates for persons ages 75-84 increased 60% between 2006 (37.2 per 100,000) and 2014 (59.6 per 100,000).
- Rates for persons ages 85 and older increased from 124.8 per 100,000 in 2006 to 191.9 per 100,000 in 2014; an increase of 54%.

# Massachusetts Data Brief

## Special Emphasis Report: Unintentional Fall Injuries among Older Adults, 2006-2014

### NONFATAL FALL-RELATED HOSPITAL STAYS

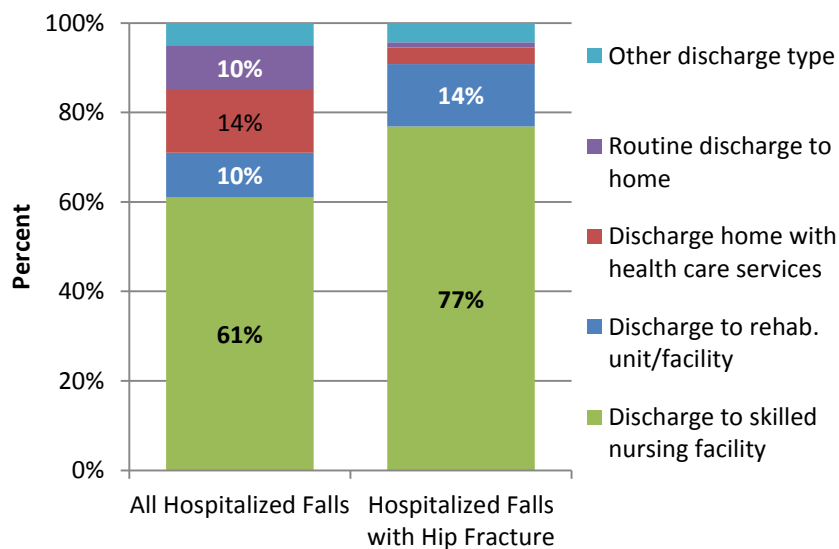
**FIGURE 4.** Age-adjusted Rate of Nonfatal Fall-related Hospital Stays by Sex, Ages 65 and older— MA, 2006-2014



Data source: MA Inpatient Hospital Discharge Database and MA Observation Stays Database, CHIA

- Rates for nonfatal fall-related hospital stays were essentially unchanged during this time period.
- Females accounted for approximately 70% of the total number of fall-related hospital stays, and had higher rates than males for every year.

**FIGURE 5.** Percent of Nonfatal Fall-related Injury Hospitalizations by Discharge Disposition, Ages 65 and older—MA, 2014



Data source: MA Inpatient Hospital Discharge Database, CHIA

- In 2014, 61% of all fall hospitalizations were discharged to a skilled nursing facility.
- Among falls resulting in a hip fracture, 77% were discharged to a skilled nursing facility and 14% were discharged to a rehabilitation facility.<sup>5</sup>
- Among those with a hip fracture, only 1% had a routine discharge to home and 4% were discharged home with home health services.

<sup>5</sup> Rehabilitation includes inpatient hospital rehab units as well as external rehabilitation facilities.

# Massachusetts Data Brief

## Special Emphasis Report: Unintentional Fall Injuries among Older Adults, 2006-2014

### DEMOGRAPHIC DATA

**TABLE 1.** Number and Rate of Fall Deaths and Nonfatal Fall-related Hospital Stays and Emergency Department (ED) Visits, Ages 65 and older—MA, 2014

	Fall Deaths		Nonfatal Fall-related Hospital Stays and Emergency Department (ED) Visits			
	Number of Deaths	Death Rate per 100,000 <sup>6</sup>	Number of Hospital Stays	Nonfatal Hospital Stays Rate per 100,000 <sup>6</sup>	Number of ED Visits	Nonfatal ED Visit Rate per 100,000 <sup>6</sup>
<b>TOTAL</b>	<b>528</b>	<b>49.7</b>	<b>22,315</b>	<b>2,127.9</b>	<b>48,753</b>	<b>4,720.6</b>
<b>Sex<sup>7</sup></b>						
Male	246	62.7	7,090	1,759.3	16,579	4,020.1
Female	282	41.5	15,224	2,355.2	32,174	5,217.5
<b>Age Group</b>						
Ages 65-74	58	10.3	4,863	863.9	16,744	2,971.9
Ages 75-84	179	59.6	7,519	2,540.7	16,129	5,366.3
Ages 85+	291	191.9	9,933	6,550.2	15,880	10,474.2
<b>Race/Ethnicity<sup>8</sup></b>						
White, NH <sup>9</sup>	493	51.0	20,857	2,206.1	44,368	4,809.5
Black, NH	7	17.5	409	987.6	1,404	3,265.1
Hispanic	6	16.6	402	1,190.3	1,394	3,812.6
Asian/PI <sup>10</sup> , NH	13	44.4	316	1,038.1	674	2,137.6
AI/AN <sup>11</sup> , NH	0	0.0	<11	--	25	--

Data sources: Registry of Vital Records and Statistics, MDPH; Hospital Stays: MA Inpatient Hospital Discharge Database and MA Observation Stays Database, Center for Health Information and Analysis (CHIA). ED Visits: MA Outpatient Emergency Department Discharge Database, CHIA.

- Males had a higher rate of fall deaths than females (62.7 per 100,000 and 41.5 per 100,000, respectively).
- Females had higher rates for nonfatal hospital stays and ED visits than males.
- Persons ages 85 and older had the highest rates of fatal and nonfatal fall injuries. The fall death rate for this age group was over 18 times as high as the rate of fall deaths for those aged 65-74.
- White, Non-Hispanic residents had the highest rates of fall deaths (51.0 per 100,000), fall-related hospital stays, and emergency department visits.
- Asian and Pacific Island, Non-Hispanic residents had the second highest rate of fall deaths (44.4 per 100,000).

<sup>6</sup> Rates are age-adjusted except for rates by age group. Rates based on counts less than 20 may be unstable. <sup>7</sup> Sex was unknown for one patient in hospital stays. <sup>8</sup> Missing and other races are not presented. <sup>9</sup> NH refers to Non-Hispanic residents. <sup>10</sup> PI refers to Pacific Islander. <sup>11</sup> AI/AN refers to American Indian/Alaskan Native.

# Massachusetts Data Brief

## Special Emphasis Report: Unintentional Fall Injuries among Older Adults, 2006-2014

### PROJECTED LIFETIME COSTS

Lifetime costs<sup>12</sup> associated with unintentional fall injuries in 2014 among Massachusetts residents ages 65 and older are estimated to be over \$1.9 billion. Most of these costs were associated with injuries requiring a hospital stay.

	Number of Injuries	Medical Cost	Work Loss Cost	Combined Cost
Deaths	528	\$15,440,000	\$75,673,000	\$91,113,000
Hospital Stays	22,315	\$915,977,000	\$681,891,000	\$1,597,868,000
ED Visits	48,753	\$158,121,000	\$69,701,000	\$227,822,000
TOTAL	71,596	\$1,089,538,000	\$827,265,000	\$1,916,803,000

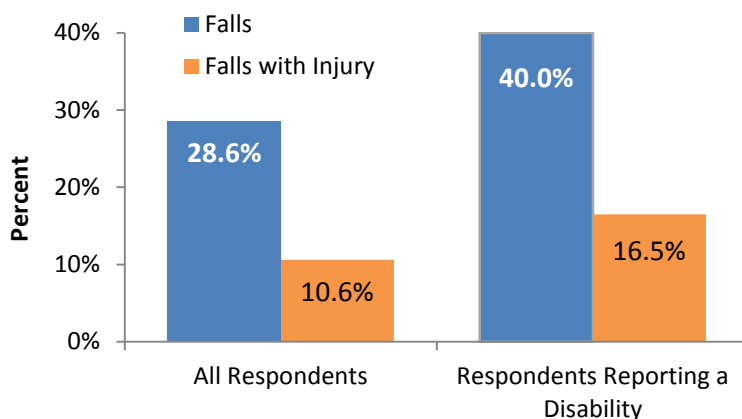
### SURVEY DATA

- The Behavioral Risk Factor Surveillance Survey (BRFSS) is a statewide phone survey of community dwelling (i.e. non-institutionalized) Massachusetts adults. It provides self-reported data on a variety of topics, including falls, fall-related injuries, and medical conditions.
- In 2014, 28.6% of Massachusetts adults ages 65 and older reported having fallen and 10.6% reported a fall-related injury in the past 12 months.
- Older Massachusetts adults who reported the following conditions were significantly *more likely*<sup>13</sup> to report falls and fall-related injuries in the past 12 months:

- poor mental health/depression
- diabetes
- disability<sup>14</sup>
- stroke
- coronary artery disease (CAD)
- chronic obstructive pulmonary disease (COPD)
- myocardial infarction (heart attack)
- no exercise

- Older adults who reported a physical, cognitive and/or emotional disability<sup>14</sup> had particularly high fall rates, with an estimated 40% reporting having fallen and 16.5% reporting fall-related injuries in the past 12 months.

**FIGURE 6.** Self-Reported Falls and Fall Injuries in the Past 12 Months, Ages 65 and older--MA, 2014



<sup>12</sup>Costs were calculated using the CDC's WISQARS Cost Module application which provides cost estimates for medical and work loss for injury-related deaths, hospitalizations, and emergency department visits by sex and age group. <http://www.cdc.gov/injury/wisqars/>. <sup>13</sup>These conditions are statistically significant at the (P<.05 level). However, causality shouldn't be assumed. Selected chronic health conditions: respondents reported "Yes" to **EVER** having been diagnosed with: Diabetes; Stroke; Depression; Chronic obstructive pulmonary disease (COPD); Coronary artery disease (CAD)/Angina; or Myocardial infarction. Poor mental health includes persons who reported experiencing 15+ days of poor mental health in the past month. Exercise is defined as respondents reporting "No" to **ANY** leisure-time physical activity. <sup>14</sup>Disability is defined as having one or more of the following conditions for at least one year; (1) impairment or health problem that limited activities or caused cognitive difficulties, (2) used special equipment or required help from others to get around.

# Massachusetts Data Brief

## Special Emphasis Report: Unintentional Fall Injuries among Older Adults, 2006-2014



### PREVENTION ACTIVITIES IN MASSACHUSETTS

Massachusetts is taking a multi-pronged approach to addressing the serious public health problem through the following activities and key initiatives:

- Building a strong, broadly-based and active state Falls Prevention Coalition; an important activity includes the hosting of a high profile annual Falls Prevention Awareness Day event at our State House in Boston each September.
- Establishment of a statutory body, the MA Commission on Falls Prevention comprised of stakeholder and state agency members that is charged with recommending best ways to reduce older adult falls and associated health care costs to key state policy makers.
- Through our first in the nation, four year initiative known as the Massachusetts Prevention and Wellness Trust Fund (a \$57M trust) 8 grantee partnerships across the state comprised of clinical, community-based and municipal partners began implementing evidence-based falls interventions to reduce preventable health conditions like older adult falls and lower the impact on the health care delivery system by working with clinical partners to adopt the [CDC's STEADI toolkit](#) and engage physicians in referrals to community-based programs; expanding availability of evidence-based programming like A Matter of Balance (MOB) and Tai Chi to older adults, including delivery in languages other than English). In 2017, a final report and evaluation that includes falls prevention successes was released and is available here: <http://www.mass.gov/eohhs/docs/dph/com-health/prev-wellness-advisory-board/2017/170308-pwtf-annual-report.pdf>
- Leveraging federal resources; in both 2014 and 2016 Elder Services of Merrimack Valley and their Healthy Living Center of Excellence was awarded a competitive Administration for Community Living (ACL) programming grant to expand evidence-based falls-related programming across the state. Under the 2014 grant, Massachusetts succeeded in engaging over 3,600 older adults to participate in programs such as A Matter of Balance and Tai Ji Quan Moving for Better Balance.

### DATA SOURCES and DEFINITIONS

**Deaths:** Registry of Vital Records and Statistics, Massachusetts Department of Public Health (MDPH). **Hospital Stays:** MA Inpatient Hospital Discharge Database and MA Observation Stays Database, Center for Health Information and Analysis (CHIA). **ED Visits:** MA Outpatient Emergency Department Discharge Database, CHIA. Methods for **case selection** and **definitions** are included in the [State Special Emphasis Report: Instructions for Data on Fall Injuries among Older Adults](#). Centers for Disease Control and Prevention, NCIPC, 2015. **Survey Data:** [A Profile of Health Among Massachusetts Adults, 2014: Results from the BRFSS](#) and unpublished 2014 data. Office of Data Management and Outcome Assessments, MDPH. **Cost Data:** NCHS Vital Statistics System for numbers of deaths. NEISS All Injury Program operated by the U.S. Consumer Product Safety for hospital and ED counts. Lifetime cost estimates generated via WISQARS: <http://www.cdc.gov/injury/wisqars/> (accessed Sep 2016). **Population:** Race and ethnicity population counts are from [http://mcdc.missouri.edu/websas/estimates\\_by\\_age.shtml](http://mcdc.missouri.edu/websas/estimates_by_age.shtml). All other population counts are from the U.S. Census Bureau (2006-2014), American Community Survey: ([http://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS\\_05\\_EST\\_B01001&prodType=table](http://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_05_EST_B01001&prodType=table)).