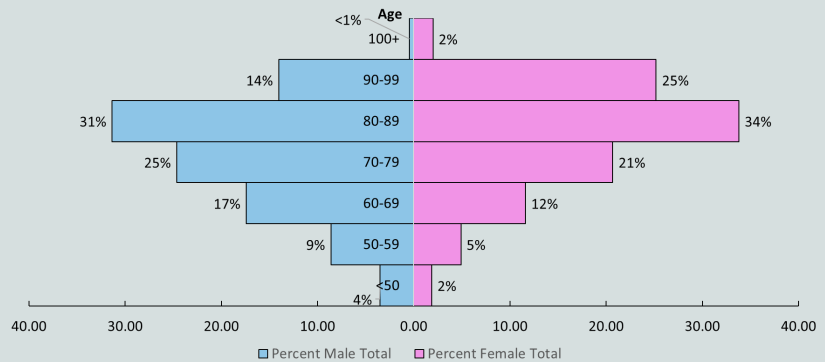# Massachusetts Data Brief

Special Emphasis Report: Nursing Home Falls with Injury, by Resident Characteristics 2013—2018

Background

- Each year, 1 in 4 adults aged 65 and older falls[1]
- It is estimated that nursing home residents make up about 18% of elder falls (age 65 years or older) that result in death[2]
- About 1 in 4 falls cause a serious injury like a broken bone or head injury[1]
- More than 95% of hip fractures are caused by falling[1]
- MA nursing homes are required by regulation to report falls with injury to DPH
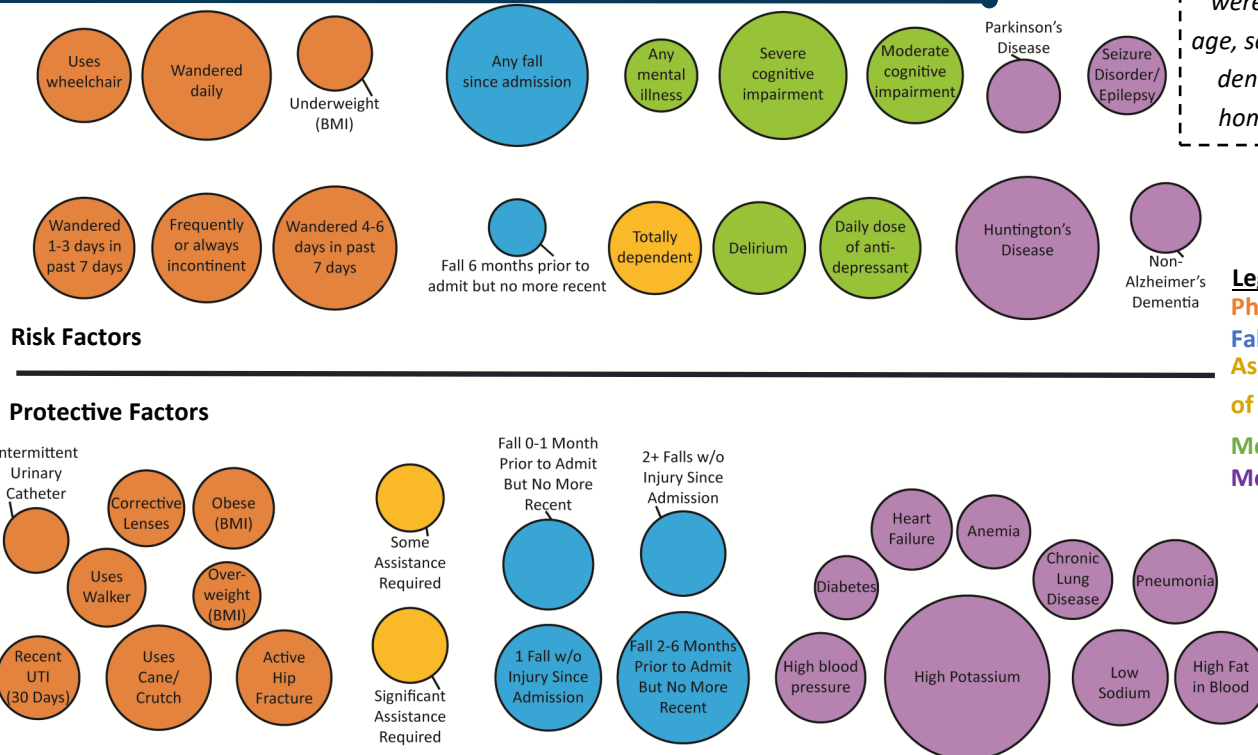
Who lives in Nursing Homes?

Nursing Home Resident Population (2013 - 2018)

Age	Percent Male Total	Percent Female Total
100+	<1%	2%
90-99	14%	25%
80-89	31%	34%
70-79	25%	21%
60-69	17%	12%
50-59	9%	5%
<50	4%	2%

About 2/3 of nursing home residents were female between 2013 and 2018.

Most nursing home residents were between ages 70 and 99.

88% of nursing home residents were non-Hispanic White.

Risk and Protective Factors for Falls with Injury, 2013—2018

All factors explored were adjusted for age, sex, year of residence in nursing home, and race.

Risk Factors

- Uses wheelchair
- Wandered daily
- Underweight (BMI)
- Any fall since admission
- Any mental illness
- Severe cognitive impairment
- Moderate cognitive impairment
- Parkinson's Disease
- Seizure Disorder/Epilepsy
- Wandered 1-3 days in past 7 days
- Frequently or always incontinent
- Wandered 4-6 days in past 7 days
- Fall 6 months prior to admit but no more recent
- Totally dependent
- Delirium
- Daily dose of anti-depressant
- Huntington's Disease
- Non-Alzheimer's Dementia

Protective Factors

- Intermittent Urinary Catheter
- Corrective Lenses
- Obese (BMI)
- Uses Walker
- Over-weight (BMI)
- Recent UTI (30 Days)
- Uses Cane/Crutch
- Active Hip Fracture
- Some Assistance Required
- Significant Assistance Required
- Fall 0-1 Month Prior to Admit But No More Recent
- 2+ Falls w/o Injury Since Admission
- 1 Fall w/o Injury Since Admission
- Fall 2-6 Months Prior to Admit But No More Recent
- Heart Failure
- Anemia
- Diabetes
- Chronic Lung Disease
- Pneumonia
- High blood pressure
- High Potassium
- Low Sodium
- High Fat in Blood

Legend
Physical Characteristics
Fall History
Assistance with Activities of Daily Living
Mental Health
Medical History

How to interpret:

If the bubble is above the black line, then that characteristic is a risk factor. A resident **with** severe cognitive impairment, for example, has higher odds of experiencing a fall as compared to residents **without** cognitive impairment. Conversely, a bubble below the line is a protective factor. Residents **who do not use** a cane or crutch, for example, have higher odds of experiencing a fall with injury as compared to residents **who use** a cane or crutch.

Findings and Recommendations

The resident characteristics that have the largest influence in predicting falls with injury included: **Severe Cognitive Impairment**, **Huntington's Disease**, **Any Fall Since Admission**, and **Wandering** behaviors. Residents with these diagnoses or behaviors should have a robust falls prevention plan that may include alternative activities to engage the residents.

The resident characteristics that had the largest influence in reducing the likelihood of falls with injury included: advanced disease progression (including **High Potassium** [typically associated with kidney failure], **Heart Failure**, **Respiratory Failure**), no recent falls (**Fall 0-1 month prior to admit but no more recent** or **Fall 2-6 months prior to admit but no more recent**), **uses a cane/ crutch**, and **uses a walker**. While being bed bound does decrease the risk for falls, residents with advanced disease progression should be able to participate in activities in the nursing home. Additionally, residents who are ambulatory but may have a history of falls or be at risk for falls, should be encouraged to use assistive devices, as prescribed by the physical therapist, such as a cane, crutch, or walker.

In Your Facility

In MA, from 2015 to 2018, 60 facilities participated in the Supportive Planning and Operations Team (SPOT) initiative. Many of the participating facilities used this opportunity to focus on quality improvement and falls prevention. The quality improvement tools that they used can be found at this link: https://www.mass.gov/service-details/nursing-home-quality-improvement-initiatives

The CDC has also prepared a toolkit, called the Stopping Elderly Accidents, Deaths & Injuries (STEADI) toolkit, which may help your facility identify best practices for falls prevention. This toolkit and additional resources can be found at this link: https://www.cdc.gov/steadi/

Methods: Falls with injury data was extracted from the Health Care Facility Reporting System (HCFRS) and matched to data from the Minimum Data Set (MDS, CMS) based on nursing home ID, gender, ethnicity, race, and first and last name. About 61% of the falls were matched to a resident in the MDS. Logistic regression was used to calculate odds ratios (odds of experiencing a fall with injury), controlling for year of residence in the nursing home, age, sex, and race. Assistance with daily living was categorized using CMS guidelines[3]. Any mental illness was defined using SAMHSA guidelines[4] and available data from MDS to be: any of the following diagnoses—depression, bipolar disorder, anxiety disorder, or post traumatic stress disorder. Delirium was defined using the CAM as indicated by CMS[5].

Citations:

1. Centers for Disease Control and Prevention: National Center for Injury Prevention and Control. (2017). Important Facts about Falls. Retrieved August 23, 2019, from https://www.cdc.gov/homeandrecreationalsafety/Falls/adultfalls.html

2. Massachusetts Department of Public Health: Injury Surveillance Program and Injury Prevention and Control Program. (2018). Massachusetts Data Brief - Special Emphasis Report: Unintentional Fall Injuries Among Older Adults, 2006-2014. Boston, MA. Retrieved April 1, 2019, from https://www.mass.gov/files/documents/2018/07/19/special-emphasis-older-adult-falls-jun-2018.pdf

3. Centers for Medicare and Medicaid Services. (2013). RUG-III Classification Model Version 5.20, 34-Group Calculation of ADL Score. Retrieved August 1, 2019, from https://www.mslc.com/uploadedFiles/NorthCarolina/Resources/RUG-III_Grouper/ADL Calculation.pdf

4. Substance Abuse and Mental Health Services Administration. (2017). 2017 Methodological Summary and Definitions. Retrieved August 1, 2019, from https://www.samhsa.gov/data/sites/default/files/cbhsq-reports/NSDUHMethodSummDefs2017/NSDUHMethodSummDefs2017.pdf

5. Centers for Medicare and Medicaid Services. (2018). Section C: Cognitive Patterns. In Long-Term Care Facility Resident Assessment Instrument 3.0 User's Manual (pp. C-27–C–33). Baltimore, MD. Retrieved from https://downloads.cms.gov/files/1-MDS-30-RAI-Manual-v1-16-October-1-2018.pdf