New York State Epidemiology and Evaluation of Older Adult Falls and Fall Prevention Programs

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Burden of Fall Injuries Among Residents Ages 65 and Older, New York State, 2014

- 1,202 Deaths
- 35,872 Hospitalizations
- 113,410 Emergency Department Visits
### Leading Causes of Injury, Ages 65 and Older
#### New York State, 2012-2014

<table>
<thead>
<tr>
<th>Deaths</th>
<th>Hospitalizations</th>
<th>ED Visits*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall</td>
<td>Fall</td>
<td>Fall</td>
</tr>
<tr>
<td>µ=1,858</td>
<td>µ=52,416</td>
<td>µ=101,704</td>
</tr>
<tr>
<td>Suicide</td>
<td>Unspecified</td>
<td>Unspecified</td>
</tr>
<tr>
<td>µ=275</td>
<td>µ=4,610</td>
<td>µ=13,238</td>
</tr>
<tr>
<td>Unspecified</td>
<td>Poisoning</td>
<td>Struck By / Against</td>
</tr>
<tr>
<td>µ=180</td>
<td>µ=2,044</td>
<td>µ=9,387</td>
</tr>
<tr>
<td>Suffocation</td>
<td>MVT**, Occupant</td>
<td>MVT**, Occupant</td>
</tr>
<tr>
<td>µ=145</td>
<td>µ=1,532</td>
<td>µ=8,046</td>
</tr>
<tr>
<td>MVT**, Pedestrian</td>
<td>Natural / Environmental</td>
<td>Cut / Pierce</td>
</tr>
<tr>
<td>µ=101</td>
<td>µ=1,065</td>
<td>µ=7,732</td>
</tr>
</tbody>
</table>

*Does not include patients admitted into hospital

MVT** Motor Vehicle Traffic
Age-adjusted Rate of Fall Deaths by Sex Ages 65 and Older, New York State, 2005-2014

Rate per 100,000 population
Age-specific Rate of Fall Deaths by Age Group
Ages 65 and Older, New York State, 2005-2014
Age-adjusted Rate of Fall Hospitalizations by Sex
Ages 65 and Older, New York State, 2005-2014
62.5% of the falls occurred at non-residential homes
Only 10.6% occurred in residential institutions
# Number and Rate of Fall Deaths, Hospitalizations and Emergency Department Visits
## Ages 65 and Older, New York State, 2014

<table>
<thead>
<tr>
<th></th>
<th>Fall Deaths</th>
<th>Fall Hospitalizations and Emergency Department Visits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number of Deaths</td>
<td>Death Rate per 100,000(^{1})</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>1,202</td>
<td>5.1</td>
</tr>
<tr>
<td><strong>Race/Ethnicity</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>White, NH(^{2})</td>
<td>1,005</td>
<td>44.5</td>
</tr>
<tr>
<td>Black, NH</td>
<td>73</td>
<td>22.1</td>
</tr>
<tr>
<td>Hispanic</td>
<td>64</td>
<td>23.6</td>
</tr>
<tr>
<td>Asian/PI(^{3}), NH</td>
<td>47</td>
<td>31.8</td>
</tr>
<tr>
<td>AI/AN(^{4}), NH</td>
<td>14</td>
<td>20.2</td>
</tr>
<tr>
<td>Other/Unknown</td>
<td>9</td>
<td>n/a</td>
</tr>
</tbody>
</table>

\(^{1}\) Rates are age-adjusted except for rates by age group.

\(^{2}\) Non-Hispanic

\(^{3}\) Pacific Islander

\(^{4}\) American Indian/Alaskan Native
Residents ages 65 and older account for **82.6% of all fall deaths** and 69.2% of fall hospitalizations in New York.

Falls are the **leading cause of traumatic brain injury (TBI)** in New York residents ages 65 and older, accounting for **70.4% of TBI deaths** and **84.3% of TBI hospitalizations**. **55.7% of fall deaths** and **17.6% of hospitalizations** among older adults were associated with a TBI.

**Projected lifetime costs** associated with fall injuries in 2014 among New York residents ages 65 and older are estimated to be **$3.3 billion**.

**Each week, there are 2,181** emergency department visits among residents ages 65 and older, **690 hospitalizations**, and **23 deaths due to fall injuries in New York State**.

In 2014, **8.0% of fall deaths** among those 65 and older **occurred in the home**, while **16.0% occurred in a residential facility such as a nursing home**.
New York State Behavioral Risk Factor Surveillance Survey (BRFSS)

- Annual health phone survey established by CDC to non-institutionalized adults (18+)
- Data weighted to the population
- Question types:
  - Core questions
  - Optional questions
  - State-added questions
- Fall questions asked in 2012, 2014, and 2016
Section 13: Falls

If respondent is 45 years or older continue, otherwise go to next section.

The next questions ask about recent falls. By a fall, we mean when a person unintentionally comes to rest on the ground or another lower level.

13.1 In the past 12 months, how many times have you fallen?

<table>
<thead>
<tr>
<th>Number of times</th>
<th>[76 = 76 or more]</th>
<th>8 8 None</th>
<th>[Go to next section]</th>
<th>7 7 Don’t know / Not sure</th>
<th>[Go to next section]</th>
<th>9 9 Refused</th>
<th>[Go to next section]</th>
</tr>
</thead>
</table>

13.2 [Fill in “Did this fall (from Q13.1) cause an injury?”]. If only one fall from Q13.1 and response is “Yes” (caused an injury); code 01. If response is “No,” code 88.

How many of these falls caused an injury? By an injury, we mean the fall caused you to limit your regular activities for at least a day or to go see a doctor.

<table>
<thead>
<tr>
<th>Number of falls</th>
<th>[76 = 76 or more]</th>
<th>8 8 None</th>
<th>7 7 Don’t know / Not sure</th>
<th>9 9 Refused</th>
</tr>
</thead>
</table>

NY State-Added Module 5C: Falls

1. In the past 12 months, have you done things to reduce your chance of falling? (911)
   1 Yes
   2 No
   7 Don’t know / Not sure
   9 Refused

2. In the past 12 months, have you done anything to help an older person reduce his/her chance of falling? (912)
   1 Yes
   2 No
   7 Don’t know / Not sure
   9 Refused

4 Fall Questions
BRFSS Analysis Limitations

• Sample size and power

• Analysis options

• Self-report and social desirability bias
  – Individual perception of experiences (what is/isn't a fall, or what constitutes an injury)

• Survey questions
Self-Reported Older Adult (65+) Falls in New York State
BRFSS, 2016

- Total Indicating a Fall
- Percent Indicating a Fall Injury

<table>
<thead>
<tr>
<th>Year</th>
<th>Total</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012</td>
<td>778,482</td>
<td>42%</td>
</tr>
<tr>
<td>2014</td>
<td>756,917</td>
<td>33%</td>
</tr>
<tr>
<td>2016</td>
<td>780,088</td>
<td>43%</td>
</tr>
</tbody>
</table>
## Self-Reported Fall Safety Efforts
### New York State, Adults Aged 45+, BRFSS, 2016

<table>
<thead>
<tr>
<th>Year</th>
<th>Have Done Things to Reduced Own Fall Risk</th>
<th>Has Done Things to Reduced an Older Adult Fall Risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012</td>
<td>4,233,719</td>
<td>5,773,906</td>
</tr>
<tr>
<td>2014</td>
<td>3,555,205</td>
<td>4,948,998</td>
</tr>
<tr>
<td>2016</td>
<td>3,786,130</td>
<td>4,839,747</td>
</tr>
</tbody>
</table>

- **Have Done Things to Reduced Own Fall Risk (Percent):**
  - 2012: 35%
  - 2014: 27%
  - 2016: 30%

- **Has Done Things to Reduced an Older Adult Fall Risk (Percent):**
  - 2012: 46%
  - 2014: 38%
  - 2016: 38%
People may provide regular care or assistance to a friend or family member who has a health problem or disability.

1. During the past 30 days, did you provide regular care or assistance to a friend or family member who has a health problem or disability? (365)

   1. Yes
   2. No
   7. Don't know/Not sure
   8. Caregiving recipient died in past 30 days
   9. Refused

   [Go to Question 9]
Fall Safety Reported Among New York State Residents by Caregiver Status, BRFSS, 2016

<table>
<thead>
<tr>
<th>Category</th>
<th>Not a Caregiver</th>
<th>Caregiver</th>
</tr>
</thead>
<tbody>
<tr>
<td>Has Done Things to Reduce an Older Adult Fall Risk</td>
<td>28%</td>
<td>40%</td>
</tr>
<tr>
<td>Has Done Things to Reduce Own Fall Risk</td>
<td>31%</td>
<td>65%</td>
</tr>
<tr>
<td>Fall Injury (Ages 45+)</td>
<td>41%</td>
<td>47%</td>
</tr>
<tr>
<td>Fall (Ages 45+)</td>
<td>27%</td>
<td>36%</td>
</tr>
</tbody>
</table>
The Caregiver Module

5. What is the main health problem, long-term illness, or disability that the person you care for has?

(370-371)

IF NECESSARY: Please tell me which one of these conditions would you say is the major problem?

[DO NOT READ: RECORD ONE RESPONSE]

1. Arthritis/Rheumatism
2. Asthma
3. Cancer
4. Chronic respiratory conditions such as Emphysema or COPD
5. Dementia or other Cognitive Impairment Disorders
6. Developmental Disabilities such as Autism, Down's Syndrome, and Spina Bifida
7. Diabetes
8. Heart Disease, Hypertension, Stroke
9. Human Immunodeficiency Virus Infection (HIV)
10. Mental Illnesses, such as Anxiety, Depression, or Schizophrenia
11. Other organ failure or diseases such as kidney or liver problems
12. Substance Abuse or Addiction Disorders
13. Injuries, including broken bones
14. Old age/infirmity/frailty
15. Other

77. Don't know/Not sure
99. Refused
Fall Safety Reported Among New York State Residents
Reported Being a Caregiver, by Caregiver Type, BRFSS, 2016

- Has Done Things to Reduce an Older Adult Fall Risk
  - Caregiver for Other Conditions: 26%
  - Caregiver for Someone with Dementia: 42%

- Has Done Things to Reduce Own Fall Risk
  - Caregiver for Other Conditions: 74%
  - Caregiver for Someone with Dementia: 64%

- Fall Injury (Ages 45+)
  - Caregiver for Other Conditions: 44%
  - Caregiver for Someone with Dementia: 39%

- Fall (Ages 45+)
  - Caregiver for Other Conditions: 26%
  - Caregiver for Someone with Dementia: 39%

*Data did not meet reporting requirements
Introduction: The next few questions ask about difficulties in thinking or remembering that can make a big difference in everyday activities. This does not refer to occasionally forgetting your keys or the name of someone you recently met, which is normal. This refers to confusion or memory loss that is happening more often or getting worse, such as forgetting how to do things you’ve always done or forgetting things that you would normally know. We want to know how these difficulties impact you.

1. During the past 12 months, have you experienced confusion or memory loss that is happening more often or is getting worse?

   1. Yes
   2. No [Go to next module]
   3. Don't know [Go to Q2]
   4. Refused [Go to next module]
Fall Safety Reported Among New York State Residents
Self-Reported Having Cognitive Declines, Ages 45+, BRFSS, 2016

Has Done Things to Reduce an Older Adult Fall Risk
- 34% None
- 56% Self-Reported Cognitive Decline

Has Done Things to Reduce Own Fall Risk
- 36% None
- 42% Self-Reported Cognitive Decline

Fall Injury
- 40% None
- 58% Self-Reported Cognitive Decline

Fall
- 26% None
- 50% Self-Reported Cognitive Decline
Introduction: The next few questions ask about difficulties in thinking or remembering that can make a big difference in everyday activities. This does not refer to occasionally forgetting your keys or the name of someone you recently met, which is normal. This refers to confusion or memory loss that is happening more often or getting worse, such as forgetting how to do things you’ve always done or forgetting things that you would normally know. We want to know how these difficulties impact you.

6. Have you or anyone else discussed your confusion or memory loss with a health care professional?
   1. Yes
   2. No
   7. Don't know
   9. Refused
Fall Safety Reported Among New York State Residents
Reported Cognitive Declines to a Clinician, Ages 45+, BRFSS, 2016

- Has Done Things to Reduce an Older Adult Fall Risk
  - Never: 46%
  - Discussed: 68%

- Has Done Things to Reduce Own Fall Risk
  - Never: 36%
  - Discussed: 42%

- Fall Injury
  - Never: 36%
  - Discussed: 76%

- Fall
  - Never: 40%
  - Discussed: 59%

0%  20%  40%  60%  80%  100%

Never  Discussed Experienced Cognitive Decline with a Provider
Modifiable Risk Factors

Biological
- Leg weakness
- Mobility problems
- Problems with balance
- Poor vision

Behavioral
- 4+ medications
- Psychoactive medications
- Risky behaviors
- Inactivity

Environmental
- Clutter and tripping hazards
- No stair railings or grab bars
- Poor lighting
What Can be Done?

- Evidence-Based Fall Prevention Community Programs
  - Tai Chi
    - 55% reduction in falls rate
    - $530 net benefit per participant
    - 509% return on investment
  - A Matter of Balance
    - 97% of the participants feel more comfortable talking about their fear of falling
    - 99% of participants plan to continue to exercise
    - $938 savings in unplanned medical costs per Medicare beneficiary
  - Stepping On
    - 30% reduction in the rate of falls
    - $134 net benefit per participant
    - Return on Investment of 64%

- Clinical Engagement
  - Stopping Elderly Accidents Deaths & Injuries (STEADI)
The CDC is working to make fall prevention a routine part of clinical care. STEADI uses established clinical guidelines and effective strategies to help primary care providers address their older patients' fall risk and identify modifiable risk factors: [www.cdc.gov/steadi](http://www.cdc.gov/steadi).
STEADI Outcome Evaluation


[https://doi.org/10.1093/geront/gny101](https://doi.org/10.1093/geront/gny101)
Contact Information

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Phone: 518-402-7900

Resources: