NC Department of Health and Human Services

Unintentional Fall Injuries in North Carolina

2016-2019

NC Division of Public Health
Data updated December 3, 2020
Unintentional Falls Technical Notes

Surveillance methods have been updated to identify any mention of an injury in our morbidity data sources. Individual records with multiple injuries listed will be included in the total for each of those injuries, but only counted once for overall total injury count. Previously, only the first listed injury was counted, which has resulted in an increase in the number of specific injuries identified.

For questions or for more information see technical notes document available at https://www.injuryfreenc.ncdhhs.gov/DataSurveillance/

Case definitions used:

• **Deaths** – ICD10 code W00-W19 listed as cause of death
Technical Notes, Continued

- **Hospitalizations** – Among records with an ICD-10-CM injury code*, any mention of the following ICD-10-CM codes (includes records resulting in death)

- **Emergency Department Visits** – Any mention of the following ICD-10-CM codes: (includes records resulting in hospitalization or death)

<table>
<thead>
<tr>
<th>ICD-10-CM Codes</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>V00.11-V00.89 with 6th character=1</td>
<td>Falls related to pedestrian conveyance</td>
</tr>
<tr>
<td>W00-W15, W17, W19</td>
<td>Falls</td>
</tr>
<tr>
<td>W16 with 6th character=2 (Except 16.4 and 16.9 with 5th character=2)</td>
<td>Fall, jump, or diving into water</td>
</tr>
<tr>
<td>W18.1, W18.2, W18.3</td>
<td>Other falls</td>
</tr>
<tr>
<td>7th character of A or missing (reflects initial encounter, active treatment)</td>
<td></td>
</tr>
</tbody>
</table>

*See technical notes document for a full list of ICD-10-CM injury diagnosis codes*
The populations most at risk of falls are projected to have the fastest growth over the next 20 years.

<table>
<thead>
<tr>
<th>Age Group</th>
<th>2019 Population</th>
<th>2039 Population</th>
<th>Percent Change 2019-2039</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-17</td>
<td>22%</td>
<td>21%</td>
<td>15%</td>
</tr>
<tr>
<td>18-44</td>
<td>36%</td>
<td>35%</td>
<td>20%</td>
</tr>
<tr>
<td>45-59</td>
<td>20%</td>
<td>18%</td>
<td>14%</td>
</tr>
<tr>
<td>60+</td>
<td>23%</td>
<td>27%</td>
<td>44%</td>
</tr>
<tr>
<td>65+</td>
<td>17%</td>
<td>21%</td>
<td>57%</td>
</tr>
<tr>
<td>85+</td>
<td>2%</td>
<td>3%</td>
<td>117%</td>
</tr>
</tbody>
</table>

Most older adults in NC are non-Hispanic white

- White*: 78%
- Black*: 17%
- American Indian/Alaskan Native*: 1%
- Asian*: 2%
- Hispanic: 2%

*Non-Hispanic

Source: National Center for Health Statistics, 2019; ages 65 and older
Demographic characteristics among older adults in North Carolina

- Veterans: 18%
- Speak English less than "very well": 2%
- Have a disability: 35%
- Have less than high school education: 17%
- Have high school education/GED: 31%
- In the labor force: 17%
- Income below poverty level (PL): 9%
- Income 100%-149% of PL: 11%

Source: American Community Survey, 2019 5-year estimates. Table S0103: Population 65 and older

42% of housing units with people 65 and older are single person households.
Almost one in four older adults in NC reports trouble walking

Disability among adults 65 and older

- Ambulatory: 22%
- Independent living: 14%
- Hearing: 15%
- Cognitive: 9%
- Self-care: 8%
- Vision: 7%

Source: American Community Survey, 2019 5-year estimates. Table S1810: Population 65 and older
Around 80% of older adults in NC have one or more chronic disease

- 1 or more chronic disease: 79%
- 2 or more chronic diseases: 53%
- 1 chronic disease: 26%

By age group:
- 65-74:
  - 1 or more chronic disease: 85%
  - 2 or more chronic diseases: 56%
  - 1 chronic disease: 30%
- 75+:
  - 1 or more chronic disease: 79%
  - 2 or more chronic diseases: 53%
  - 1 chronic disease: 26%

Source: NC State Center of Health Statistics, 2019 Behavioral Risk Factor Surveillance System (BRFSS) Survey Results
Proportion of demographic groups reporting two or more falls in the last 12 months, 2018 BRFSS

Overall 13%

- Male: 12%
- Female: 14%
- 45-54: 11%
- 55-64: 15%
- 65-74: 11%
- 75+: 16%
- < Highschool: 19%
- Highschool/GED: 12%
- Some post...: 13%
- College Grad: 11%
- Disability: 27%
- No Disability: 5%

Overall 13%

- Income <15K: 29%
- Income 15-24.9K: 20%
- Income 25-34.9K: 16%
- Income 35-49.9K: 10%
- Income 50-74.9K: 11%
- Income 75K+: 8%
- Veteran: 17%
- Non-Veteran: 12%
- Urban: 11%
- Suburban: 13%
- Rural: 14%

Source: NC State Center of Health Statistics, 2018 Behavioral Risk Factor Surveillance System (BRFSS) Survey Results
Unintentional fall-related deaths are the tip of the iceberg

Despite NC’s excellent reporting systems, the total burden of fall injury in the state is unknown.

Limited to NC Residents, 2016-2019
Analysis by Injury Epidemiology and Surveillance Unit
Unintentional Fall Deaths
Unintentional fall-related deaths have continued to increase over the last 10 years.

Limited to NC Residents, 2016-2019


Analysis by Injury Epidemiology and Surveillance Unit
Unintentional falls were the third leading cause of injury death* from 2016-2019.

- Poisoning - Unintentional: 8,548 cases
- MVT - Unintentional: 6,048 cases
- Fall - Unintentional: 5,352 cases
- Firearm - Self-Inflicted: 3,286 cases
- Firearm - Assault: 2,126 cases
- Suffocation - Self-Inflicted: 1,312 cases
- Suffocation - Unintentional: 873 cases
- Poisoning - Self-Inflicted: 871 cases
- Unspecified - Unintentional: 847 cases
- Fire/Burn - Unintentional: 460 cases
- All Other Injury Deaths: 3,193 cases

* by mechanism and intent
Limited to NC Residents, 2016-2019
Analysis by Injury Epidemiology and Surveillance Unit
Unintentional falls were the **number one** cause of injury death among older adults*

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Number of Deaths</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;1</td>
<td>0</td>
</tr>
<tr>
<td>01-04</td>
<td>2</td>
</tr>
<tr>
<td>05-09</td>
<td>0</td>
</tr>
<tr>
<td>10-14</td>
<td>3</td>
</tr>
<tr>
<td>15-19</td>
<td>8</td>
</tr>
<tr>
<td>20-24</td>
<td>17</td>
</tr>
<tr>
<td>25-34</td>
<td>37</td>
</tr>
<tr>
<td>35-44</td>
<td>59</td>
</tr>
<tr>
<td>45-54</td>
<td>179</td>
</tr>
<tr>
<td>55-64</td>
<td>365</td>
</tr>
<tr>
<td>65-74</td>
<td>717</td>
</tr>
<tr>
<td>75-84</td>
<td>1,455</td>
</tr>
<tr>
<td>&gt;84</td>
<td>2,510</td>
</tr>
</tbody>
</table>

87% of fall-related deaths

* Adults ages 65 and older

Limited to NC Residents, 2016-2019, N=5,352

**Source:** NC State Center for Health Statistics, Vital Statistics-Deaths (2016-2019)

Analysis by Injury Epidemiology and Surveillance Unit
Unintentional fall death rates are highest among those ages 75 and older

Rates begin increasing among ages 45-54

*Rate suppressed due to count being less than 5

Limited to NC Residents, 2016-2019, N=5,352

Analysis by Injury Epidemiology and Surveillance Unit
Most fall-related deaths occurred among women and non-Hispanic whites

Number of Deaths

<table>
<thead>
<tr>
<th>Gender</th>
<th>Female</th>
<th>Male</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2,792</td>
<td>2,560</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Race/Ethnicity</th>
<th>35</th>
<th>29</th>
<th>428</th>
<th>97</th>
<th>4,747</th>
</tr>
</thead>
<tbody>
<tr>
<td>Al/NA NH</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Asian NH</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Black NH</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hispanic</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>White NH</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>4,747</td>
</tr>
<tr>
<td>Other NH</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>10</td>
</tr>
</tbody>
</table>

NH - non-Hispanic; There were 6 deaths where the race/ethnicity was unknown

Limited to NC Residents, 2016-2019, N=5,352


Analysis by Injury Epidemiology and Surveillance Unit
Rates of fall-related deaths were highest among women and non-Hispanic whites

NH – non-Hispanic; Rate not calculated for Other, NH
Limited to NC Residents, 2016-2019, N=5,352
Analysis by Injury Epidemiology and Surveillance Unit
Unintentional Fall Hospitalizations
Unintentional fall-related hospitalizations increased by **12%** over the last four years.

**Number of Hospitalizations**

<table>
<thead>
<tr>
<th>Year</th>
<th>Number of Hospitalizations</th>
</tr>
</thead>
<tbody>
<tr>
<td>2016</td>
<td>22,553</td>
</tr>
<tr>
<td>2017</td>
<td>25,240</td>
</tr>
</tbody>
</table>

Limited to NC Residents, 2016-2019, N=94,904

Source: NC State Center for Health Statistics, Hospitalization Discharge Data (2016-2019)

Analysis by Injury Epidemiology and Surveillance Unit
75% of fall-related hospitalizations occurred among adults 65 and older

Age was unknown for 9 hospitalizations

Limited to NC Residents, 2016-2019, N=94,904
Source: NC State Center for Health Statistics, Hospitalization Discharge Data (2016-2019)
Analysis by Injury Epidemiology and Surveillance Unit
Adults 75 and older have the highest rates of fall-related hospitalizations

Age was unknown for 9 hospitalizations

Limited to NC Residents, 2016-2019, N=94,904

Source: NC State Center for Health Statistics, Hospitalization Discharge Data (2016-2019)

Analysis by Injury Epidemiology and Surveillance Unit
Most fall-related hospitalizations occurred among women and non-Hispanic whites

Number of Hospitalizations

<table>
<thead>
<tr>
<th>Group</th>
<th>Number of Hospitalizations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female</td>
<td>60,079</td>
</tr>
<tr>
<td>Male</td>
<td>34,813</td>
</tr>
<tr>
<td>AI/NA NH</td>
<td>1,116</td>
</tr>
<tr>
<td>Asian NH</td>
<td>602</td>
</tr>
<tr>
<td>Black NH</td>
<td>9,943</td>
</tr>
<tr>
<td>Hispanic</td>
<td>2,055</td>
</tr>
<tr>
<td>White NH</td>
<td>79,198</td>
</tr>
<tr>
<td>Other NH</td>
<td>845</td>
</tr>
</tbody>
</table>

NH – non-Hispanic

sex was unknown for 12(<0.1%) injury hospitalizations and race/ethnicity was unknown for 1,145(0.6%) injury hospitalizations

Limited to NC Residents, 2016-2019, N=94,904

Source: NC State Center for Health Statistics, Hospitalization Discharge Data (2016-2019)
Analysis by Injury Epidemiology and Surveillance Unit
Fall-related hospitalization rates were highest among women and non-Hispanic whites.

sex was unknown for 12(<0.1%) injury hospitalizations and race/ethnicity was unknown for 1,145(0.6%) injury hospitalizations.

Limited to NC Residents, 2016-2019, N=94,904; NH – non-Hispanic; Rate not calculated for Other, NH

Source: NC State Center for Health Statistics, Hospitalization Discharge Data (2016-2019)
Analysis by Injury Epidemiology and Surveillance Unit
Unintentional Fall Emergency Department Visits
Unintentional fall-related ED visits increased by **10%** over the last four years

**Number of ED Visits**

- **202,052** in 2016
- **221,729** in 2019

Limited to NC Residents, 2016-2019, N=848,816

Source: NC DETECT (2016-2019)

Analysis by Injury Epidemiology and Surveillance Unit
40% of fall-related ED visits occurred among adults 65 and older

Age was unknown for 9 ED Visits
Limited to NC Residents, 2016-2019, N=848,816
Source: NC DETECT (2016-2019)
Analysis by Injury Epidemiology and Surveillance Unit
Adults 75 and older have the highest rates of fall-related ED Visits

Age was unknown for 9 hospitalizations
Limited to NC Residents, 2016-2019, N=848,816
Source: NC DETECT (2016-2019)
Analysis by Injury Epidemiology and Surveillance Unit
Leading diagnosis codes for fall-related ED Visits

<table>
<thead>
<tr>
<th>Cause</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unspecified fall</td>
<td>44.0%</td>
</tr>
<tr>
<td>Fall on same level from slipping, tripping and stumbling without subsequent striking against object</td>
<td>15.0%</td>
</tr>
<tr>
<td>Fall on same level, unspecified</td>
<td>4.7%</td>
</tr>
<tr>
<td>Fall (on) (from) unspecified stairs and steps</td>
<td>4.6%</td>
</tr>
<tr>
<td>Other fall on same level</td>
<td>4.5%</td>
</tr>
<tr>
<td>Fall on same level from slipping, tripping and stumbling with subsequent striking against other object</td>
<td>4.5%</td>
</tr>
<tr>
<td>Fall from bed</td>
<td>3.4%</td>
</tr>
<tr>
<td>Other fall from one level to another</td>
<td>3.3%</td>
</tr>
<tr>
<td>Fall on and from ladder</td>
<td>1.7%</td>
</tr>
<tr>
<td>Fall (on) (from) other stairs and steps</td>
<td>1.6%</td>
</tr>
<tr>
<td>Fall from chair</td>
<td>1.5%</td>
</tr>
<tr>
<td>Fall on same level from slipping, tripping and stumbling with subsequent striking against unspecified object</td>
<td>1.3%</td>
</tr>
<tr>
<td>Fall on same level from slipping, tripping and stumbling with subsequent striking against furniture</td>
<td>1.1%</td>
</tr>
<tr>
<td>Fall in (into) shower or empty bathtub</td>
<td>1.0%</td>
</tr>
<tr>
<td>Fall from non-moving wheelchair</td>
<td>0.9%</td>
</tr>
<tr>
<td>All Other Injury Deaths</td>
<td>12.8%</td>
</tr>
</tbody>
</table>

Limited to NC Residents, 2016-2019, N=848,816

Source: NC DETECT (2016-2019)
Analysis by Injury Epidemiology and Surveillance Unit
Summary of unintentional fall-related injuries in North Carolina

• From 2016-2019, unintentional fall-related injuries resulted in:
  – Over 5,000 deaths
  – Almost 95,000 hospitalizations
  – Nearly 850,000 emergency department visits

• Most falls occur among females and Non-Hispanic whites

• Rates of fall-related injuries are highest in the 75-84 and 85 and older age groups