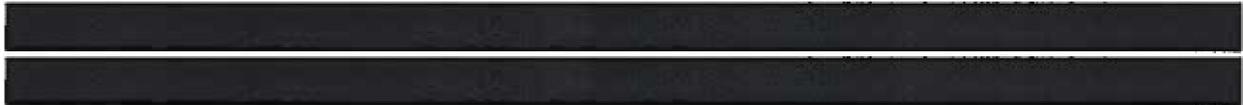




## Product Instability or Tip-Over Injuries and Fatalities Associated with Televisions, Furniture, and Appliances: 2019 Report



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This analysis was prepared by CPSC staff and has not been reviewed or approved by, and may not necessarily reflect the views of, the Commission.

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## Executive Summary

This report contains information on injuries and fatalities associated with television, furniture, and appliance product instability or tip-over incidents. Since the 2018 annual tip-over report, the criteria used for categorizing the product that tipped over (*i.e.*, television, furniture, and appliance) in the injury section have changed; the new criteria will be effective for all future reports.<sup>1</sup> Previously, the main focus of the tip-over report was on incidents involving televisions because they caused more severe injuries and more deaths than furniture alone. Now that the estimated number of injuries involving televisions has declined significantly, furniture-related tip-overs have become the new primary focus of this report. Generally, if furniture falls while either a television or an appliance is resting in or on top of the furniture, then the television or appliance is also going to fall. Therefore, the injury section of the report groups these incidents in the furniture category.

Tip-over incidents include scenarios where heavy furniture falls on an individual from some type of interaction, such as climbing or exerting a force on the product while it is in one of its positions of normal use. Product instability, which includes tip-over incidents as a subset, can be triggered by many causes, including heavy objects on top of a dresser or multiple dresser drawers open.

This report presents an estimate of emergency department-treated instability or tip-over injuries, followed by the counts of reported fatalities. The death incidents are from 2000 through 2018,<sup>2</sup> and the injury estimates are for 2016 through 2018.<sup>3</sup> Appendix A presents the methodology for data extraction and selection criteria. Appendix B describes conventions applied for determining the scenarios that are included in the various product categories in this report. The statistics presented in this report are not comparable to statistics released previously, due to refinement of the conventions for determining in-scope National Electronic Injury Surveillance System (NEISS) injuries (see Appendix B).

Of the estimated annual average of 27,100 emergency department (ED)-treated injuries<sup>4</sup> (2016–2018) and the 556 reported fatalities<sup>5</sup> associated with tip-over incidents occurring between 2000 and 2018, staff noted the following<sup>6</sup>:

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<sup>1</sup> A television or an appliance falling in combination with furniture falling is counted only in the furniture category in the NEISS “injury” section of this annual report. In all previous annual tip-over reports, incidents involving both a television and furniture falling or both an appliance and furniture falling were captured in the television or appliance categories, respectively.

<sup>2</sup> Fatality counts should be considered incomplete for years 2016 – 2018, due to a time lag in reporting to CPSC.

<sup>3</sup> Injury estimates are rounded to the nearest hundred.

<sup>4</sup> Between 2009 and 2018, there were 13 NEISS tip-over injuries that ultimately resulted in deaths. Of these 13 deaths, two occurred between 2016 and 2018, and they are included in the national annual estimates throughout the NEISS “injury” section of this report.

<sup>5</sup> Between 2000 and 2018, there were 19 NEISS fatalities, and all of them appear in the fatality section of this report.

<sup>6</sup> Percentages may not sum to 100, due to rounding.

- Victims
  - Estimated annual average number of ED-treated injuries:
    - 12,500 (46%) involved children under age 18 years;
    - 10,300 (38%) involved adults, ages 18 to 59 years; and
    - 4,200 (16%) involved seniors, ages 60 years and older.
  - Reported fatalities:
    - 459 (83%) involved children, victims ages 1 month to 14 years;<sup>7</sup>
    - 20 (4%) involved adults, victims ages 28 to 59 years; and
    - 77 (14%) involved seniors, victims ages 60 years or older.
- What tipped over?
  - Estimated annual average number of ED-treated injuries:
    - 20,500 (76%) involved furniture (furniture-only, TV and furniture, or appliance and furniture);
    - 5,500 (20%) involved only televisions; and
    - 1,000 (4%) involved only appliances.
  - Estimated annual average number of ED-treated injuries involving children and furniture<sup>8</sup>:
    - 3,500 involved tables;
    - 3,200 involved chests, bureaus, and dressers;
    - 1,400 involved shelving, shelving units, and bookcases.
  - Reported fatalities<sup>9</sup>:
    - 186 (33%) involved only televisions;
    - 162 (29%) involved both furniture and a television both tipping over;
    - 170 (31%) involved only furniture;
    - 38 (7%) involved only appliances<sup>10</sup>;
      - Largest category was stove/oven (26 fatalities).
- Where the incident occurred<sup>11</sup>?
  - Estimated annual average number of ED-treated injuries:
    - 70% in residential settings, 8% in public settings, and 22% in locations not specified.
  - Reported fatalities:
    - 91% in residential settings, 4% in public settings, and 5% in locations not specified.
    - 46% in bedrooms and 19% in living/family rooms, 11% in other locations (kitchen, dining rooms and miscellaneous other rooms), and 24% in unknown room locations.

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<sup>7</sup> There were no reported fatalities to people of ages 15 to 27 years old.

<sup>8</sup> Seen in Table 1b, of the estimated 9,400 furniture-related injuries to children, about 700 of these incidents also involved a television.

<sup>9</sup> There were 112 fatalities involving only a chest, bureau, or dresser, and there were 91 fatalities involving a television and a chest, bureau, or dresser, so there were a total of 203 fatalities involving a chest, bureau, or dresser.

<sup>10</sup> There were 0 fatalities involving an appliance and furniture both falling.

<sup>11</sup> Public locations include nursing homes and assisted living facilities in both the NEISS injury estimates and in the fatality section, which generally only affects the senior age group.

- Injury Characterization (main injury type and body area affected)
  - Estimated annual average number of ED-treated injuries:
    - 34% contusions/abrasions, 14% internal organ injuries, 14% lacerations, and 13% fractures.
    - 37% legs, feet and toes, 31% head, 18% arms, hands, and fingers, and 12% torso.
  - Reported fatalities:
    - 55% were crushed and remained under product(s); 15% were hit/struck by product(s) but not crushed under product(s); and 21% were due to positional asphyxia.
    - Head (59% head only; 6% head and torso) and torso only (24%).

It should be noted the CPSC launched its “Anchor It” Campaign in early 2015,<sup>12</sup> a national public education campaign to prevent furniture and television tip-overs from killing and seriously injuring children. Tip-overs are a significant hidden hazard in the home, and CPSC’s safety campaign is aimed at reducing the number of deaths and injuries from tipping televisions, furniture, and appliances.

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<sup>11</sup> <http://www.cpsc.gov/en/Safety-Education/Safety-Education-Centers/Tipover-Information-Center/>.

## Emergency Department-Treated Injuries

From 2016 through 2018, an estimated average of 27,100 people were treated annually in U.S. hospital emergency departments<sup>13</sup> for product instability or tip-over injuries related to televisions, furniture, and appliances. The furniture category (which includes only furniture, or furniture and a TV, or furniture and an appliance), had the largest number of instability or tip-over-related injuries among the three product categories, with a national annual average estimate of 20,500 injuries (76 percent). This was followed by the national annual average instability or tip-over injury estimate of 5,500 injuries (20 percent) associated with only televisions. Appliance-only tip-overs accounted for a national annual average of 1,000 injuries (4 percent). See Table 1a for detailed breakdown; appliance estimates for 2009, 2013, 2016, and 2017 are not given because there were not enough data to support a reliable statistical estimate.

In this report, a television or an appliance falling in combination with furniture falling is counted only in the furniture category; in Table 1a through Table 1d, the furniture category is subdivided into incidents in which a television and furniture fell, and incidents in which either only furniture fell, or an appliance and furniture fell. In all previous annual tip-over reports, incidents involving both a television and furniture falling, or both an appliance and furniture falling, were captured in the television or appliance categories, respectively. The concise nature of NEISS narratives, and the medical records from which they are drawn, may fail to indicate a piece of furniture that may have been involved along with the television. Cases that definitively indicate both a television and furniture fell were too few to produce robust estimates in many cases. This is the first annual tip-over report in which NEISS product code 1269 (*Table Tennis (activity, apparel or equipment)*) was added to include ping-pong tables tipping over during normal placement or usage. Accordingly, the estimates for pre-2018 years in Table 1a may be higher than in past reports.

Table 1a shows the national average annual estimates of ED-treated tip-over injuries for 2016 through 2018, as well as 2009 through 2015, for comparison purposes. The estimated annual average injuries in Table 1a pertain to all ages, broken out by product categories: television-only, furniture (television and furniture, furniture only, and appliance and furniture), appliance-only, and a total over all product categories. In all Tables 1a–1d, there are two additional mutually exclusive columns that subdivide the furniture category; these columns are for scenarios where television and furniture both fell, and where only furniture or an appliance and furniture both fell.

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<sup>13</sup> Based on the National Electronic Injury Surveillance System (NEISS), which is a probability survey of about 100 hospitals nationally.

Of the estimates in Table 1a, for 2009 through 2018, there is a statistically significant linear decline in television-only ED-treated tip-over injuries including all ages. There is a statistically significant linear decline in the overall tip-over incidents for all ages from 2009 through 2018, which in large part is due to the decline in tip-overs involving televisions during those years. No linear trend was detected for the entire period 2009 through 2018 for the furniture-related category; and data were insufficient to test statistically for any trends in the appliance-only category. Trends over the years 2009 through 2018 are only detectable when injuries involving televisions are considered.

Table 1a  
Annual Average of Estimated ED-Treated Injuries Due to  
Product Instability or Tip-Overs for All Ages by Year 2009–2018

Estimated ED-Treated Injuries <sup>14</sup>				
Year	Televisions-Only <sup>15</sup>	All Furniture ([TV + Furn]/ [Furn + Appl / Furn-Only]) <sup>16</sup>	Appliances-Only	Television, Furniture, and Appliance Total
<b>Annual Average (2016 – 2018)</b>	5,500	20,500 (800 / 19,700)	1,000	<b>27,100</b>
<b>Avg 95% Confidence Interval (CI)</b>	(4,600 – 6,400)	(16,900 – 24,200) ((500 – 1,100) / (16,200 – 23,200))	(700 – 1,400)	<b>(22,700 – 31,400)</b>
<b>2018</b>	4,300	21,500 (– / 21,000)	1,300	<b>27,100</b>
<b>2017</b>	5,900	20,200 (– / 19,500)	–	<b>27,200</b>
<b>2016</b>	6,300	19,900 (1,200 / 18,600)	–	<b>26,900</b>
<b>2015</b>	9,100	20,500 (1,300 / 19,200)	1,200	<b>30,700</b>
<b>2014</b>	10,600	22,500 (1,800 / 20,700)	1,200	<b>34,300</b>
<b>2013</b>	10,500	22,300 (2,200 / 20,100)	–	<b>33,800</b>
<b>2012</b>	13,800	24,900 (2,700 / 22,200)	1,200	<b>39,900</b>
<b>2011</b>	14,100	23,900 (2,900 / 21,000)	2,100	<b>40,100</b>
<b>2010</b>	16,900	26,500 (3,100 / 23,400)	1,700	<b>45,100</b>
<b>2009</b>	16,800	26,300 (2,900 / 23,400)	–	<b>44,100</b>

Source: U.S. Consumer Product Safety Commission: NEISS. The estimates include cases for television, furniture, and appliance product codes, as described in Appendix B. Estimates that are not statistically reliable are presented as “–.” Estimates are rounded to the nearest hundred and may not add up to total, due to rounding.

<sup>14</sup> The coefficients of variation (CVs) for the given estimates ranged from 0.0559 to 0.3199.

<sup>15</sup> The television counts also include flat-screen televisions and computer monitors (laptops and “computers,” with no indication of a “computer monitor”, were considered out of scope). For 2016 through 2018, of the annual average of 5,500 television tip-over injuries, just over 1 percent were computer monitors.

<sup>16</sup> From 2016 through 2018, scenarios in which both an appliance and furniture fell account for 0.05% of the 3-year annual average estimated injuries. Similarly, for 2009 through 2018, scenarios in which both an appliance and furniture fell accounted for 0.07% of the 10-year annual average estimated injuries.

Table 1b shows the national average annual estimates of ED-treated tip-over injuries involving children ages 0 to 17 years old. From 2009 through 2018, there is a statistically significant linear decline in television-only ED-treated tip-over injuries in children. There is also a statistically significant linear decline in overall tip-over injuries to children from 2009 through 2018, which, in large part, is due to the vast decline in tip-over incidents involving televisions over those years. In addition, from 2010 through 2018, there is a statistically significant linear decline in ED-treated tip-over injuries involving children and only furniture<sup>17</sup>, when televisions and appliances were not involved. During the most recent years, 2016 through 2018, about 30 percent of all children’s ED-treated tip-over injuries involved a television.

Table 1b  
Annual Average of Estimated ED-Treated Injuries Due to  
Product Instability or Tip-Overs among Children Under 18 Years by Year 2009–2018

<b>Estimated ED-Treated Injuries<sup>18</sup></b>				
<b>Year</b>	<b>Televisions-Only</b>	<b>All Furniture ([TV + Furn] / [Furn + Appl / Furn-Only])</b>	<b>Appliances-Only</b>	<b>Television, Furniture, and Appliance Total</b>
<b>Annual Average (2016 – 2018)</b>	3,000	9,400 (700 / 8,700)	–	<b>12,500</b>
<b>Avg 95% Confidence Interval (CI)</b>	(2,300 – 3,700)	(6,900 – 11,900) ((400 – 1,000) / (6,300 – 11,000))	–	<b>(9,500 – 15,500)</b>
<b>2018</b>	2,000	9,200 (– / 8,700)	–	<b>11,300</b>
<b>2017</b>	3,300	8,900 (– / 8,400)	–	<b>12,200</b>
<b>2016</b>	3,800	10,100 (– / 9,000)	–	<b>13,900</b>
<b>2015</b>	5,900	9,900 (– / 8,900)	–	<b>16,000</b>
<b>2014</b>	6,400	10,900 (1,600 / 9,300)	–	<b>17,400</b>
<b>2013</b>	6,300	12,100 (2,000 / 10,100)	–	<b>18,500</b>
<b>2012</b>	9,600	13,500 (2,600 / 10,900)	–	<b>23,200</b>
<b>2011</b>	9,800	13,500 (2,800 / 10,700)	–	<b>23,400</b>
<b>2010</b>	11,900	16,100 (3,000 / 13,100)	–	<b>28,100</b>
<b>2009</b>	11,000	13,800 (2,800 / 11,000)	–	<b>24,800</b>

Source: U.S. Consumer Product Safety Commission: NEISS. The estimates include cases for television, furniture, and appliance product codes, as described in Appendix B. Estimates that are not statistically reliable are presented as “–.” Estimates are rounded to the nearest hundred and may not add up to total, due to rounding.

<sup>17</sup> Although “furniture-only” estimates do not appear in Table 1b, a trend analysis was performed for children’s ED-treated tip-over injuries when only furniture tipped over (e.g., no appliance and furniture or televisions and furniture scenarios included). A statistically significant decreasing trend over the years 2010 through 2018 was found, but no such trend was found for the years 2009 through 2018.

<sup>18</sup> The coefficients of variation (CVs) for the given estimates ranged from 0.0694 to 0.2116.

Table 1c shows the national average annual estimates of ED-treated tip-over injuries involving adults ages 18 to 59 years old. As seen in the children age group, from 2009 through 2018, there is a statistically significant linear decline in television-only ED-treated tip-over injuries in adults. There is also a statistically significant linear decline in overall ED-treated tip-over injuries for adults from 2009 through 2018, which, in large part, is due to the decline in tip-over incidents involving televisions over those years. No linear trend was detected for adults for the entire 2009 through 2018 period for furniture, whether televisions were or were not involved. For the years 2016 through 2018, about 16 percent of all adult ED-treated tip-over injuries involved a television.

Table 1c  
Annual Average of Estimated ED-Treated Injuries Due to  
Product Instability or Tip-Overs among Adults Ages 18 to 59 Years by Year 2009–2018

<b>Estimated ED-Treated Injuries<sup>19</sup></b>				
<b>Year</b>	<b>Televisions-Only</b>	<b>All Furniture ([TV + Furn] / [Furn + Appl / Furn-Only])</b>	<b>Appliances-Only</b>	<b>Television, Furniture, and Appliance Total</b>
<b>Annual Average (2016 – 2018)</b>	1,600	8,000 (- / 7,900)	700	<b>10,300</b>
<b>Avg 95% Confidence Interval (CI)</b>	(1,300 – 2,000)	(6,800 – 9,200) (- / (6,700 – 9,100))	(500 – 1,000)	<b>(8,800 – 11,900)</b>
<b>2018</b>	1,300	8,400 (- / 8,400)	–	<b>10,600</b>
<b>2017</b>	1,800	8,600 (- / 8,500)	–	<b>11,200</b>
<b>2016</b>	1,700	6,900 (- / 6,900)	–	<b>9,200</b>
<b>2015</b>	2,800	7,300 (- / 7,100)	–	<b>11,000</b>
<b>2014</b>	3,200	9,300 (- / 9,200)	–	<b>13,500</b>
<b>2013</b>	3,700	8,300 (- / 8,100)	–	<b>12,900</b>
<b>2012</b>	3,200	8,900 (- / 8,900)	–	<b>13,100</b>
<b>2011</b>	3,500	8,300 (- / 8,200)	1,700	<b>13,400</b>
<b>2010</b>	4,100	8,500 (- / 8,500)	1,400	<b>13,900</b>
<b>2009</b>	4,700	10,500 (- / 10,500)	–	<b>16,000</b>

Source: U.S. Consumer Product Safety Commission: NEISS. The estimates include cases for television, furniture, and appliance product codes, as described in Appendix B. Estimates that are not statistically reliable are presented as “–.” Estimates are rounded to the nearest hundred and may not add up to total, due to rounding.

<sup>19</sup> The coefficients of variation (CVs) for the given estimates ranged from 0.0749 to 0.2195.

Table 1d shows the national average annual estimates of ED-treated tip-over injuries involving seniors ages 60 years and older. From 2010 through 2018, there is a statistically significant linear incline in furniture ED-treated tip-over injuries for seniors, whether televisions were or were not involved. For the years 2016 through 2018, only about one in five senior ED-treated tip-over injuries involved a television.

Table 1d  
Annual Average of Estimated ED-Treated Injuries Due to  
Product Instability or Tip-Overs among Seniors 60 years and Older by Year 2009–2018

Estimated ED-Treated Injuries <sup>20</sup>				
Year	Televisions-Only	All Furniture ([TV + Furn] / [Furn + Appl / Furn-Only]) <sup>21</sup>	Appliances-Only	Television, Furniture, and Appliance Total
<b>Annual Average (2016 – 2018)</b>	800	3,100 (- / 3,100)	–	<b>4,200</b>
<b>Avg 95% Confidence Interval (CI)</b>	(600 – 1,100)	(2,500 – 3,800) (- / (2,400 – 3,800))	–	<b>(3,500 – 5,000)</b>
<b>2018</b>	–	3,900 (- / 3,900)	–	<b>5,200</b>
<b>2017</b>	–	2,700 (- / 2,600)	–	<b>3,800</b>
<b>2016</b>	–	2,800 (- / 2,800)	–	<b>3,800</b>
<b>2015</b>	–	3,300 (- / 3,300)	–	<b>3,800</b>
<b>2014</b>	–	2,300 (- / 2,300)	–	<b>3,300</b>
<b>2013</b>	–	1,800 (- / 1,800)	–	<b>2,400</b>
<b>2012</b>	–	2,400 (- / 2,300)	–	<b>3,500</b>
<b>2011</b>	–	2,200 (- / 2,100)	–	<b>3,300</b>
<b>2010</b>	–	1,900 (- / 1,900)	–	<b>3,100</b>
<b>2009</b>	–	2,000 (- / 1,900)	–	<b>3,300</b>

Source: U.S. Consumer Product Safety Commission: NEISS. The estimates include cases for television, furniture, and appliance product codes, as described in Appendix B. Estimates that are not statistically reliable are presented as “–.” Estimates are rounded to the nearest hundred and may not add up to total, due to rounding.

For the remainder of the injury section, furniture category estimates also include incidents in which both a television and furniture fell and incidents in which both an appliance and furniture fell.

<sup>20</sup> The coefficients of variation (CVs) for the given estimates ranged from 0.0894 to 0.2650.

<sup>21</sup> There were no senior injuries in which both an appliance and furniture both fell in any year from 2009 through 2018.

Table 2 presents the estimated annual average number of ED-treated tip-over injuries for the various product categories by victim age category. For each age group, the product category is broken out by subgroups. As the table shows, children younger than 10 years of age account for the largest proportion of product instability or tip-over injuries, with an estimated annual average of 11,000 injuries, which is 41 percent of all tip-over injuries. Children under 10 years old also had the most furniture-related injuries (8,400 injuries; 31 percent) and the most televisions-only injuries (2,600 injuries; 10 percent).

Table 2  
Annual Average of Estimated ED-Treated Injuries Due to  
Product Instability or Tip-Overs by Victim Age Category 2016–2018

Age Category (in years)	Estimated ED-Treated Injuries <sup>22</sup> (Percent of Total Estimate)		
	Televisions-Only	All Furniture (TV + Furn / Furn + Appl / Furn-Only)	Television, Furniture, and Appliance Total
<1 – 9	2,600 (10%)	8,400 (31%)	<b>11,000 (41%)</b>
10 – 19	500 (2%)	1,400 (5%)	<b>2,000 (7%)</b>
20 – 29	500 (2%)	1,800 (7%)	<b>2,500 (9%)</b>
30 – 39	–	2,000 (7%)	<b>2,500 (9%)</b>
40 – 49	–	2,300 (8%)	<b>2,800 (11%)</b>
50 – 59	–	1,500 (5%)	<b>1,900 (7%)</b>
60 – 69	400 (1%)	1,300 (5%)	<b>1,800 (7%)</b>
≥ 70	500 (2%)	1,800 (7%)	<b>2,400 (9%)</b>
<b>Total</b>	<b>5,500 (20%)</b>	<b>20,500 (76%)</b>	<b>27,100 (100%)</b>

Source: U.S. Consumer Product Safety Commission: NEISS. The estimates include cases for television, furniture, and appliance product codes, as described in Appendix B. Appliances, not shown as a separate column in the table, accounts for 4% of the total estimated injuries. Estimates that are not statistically reliable are presented as “–.” Estimates are rounded to the nearest hundred and may not add up to total, due to rounding.

<sup>22</sup> The CVs for the given estimates (2016–2018) ranged from 0.0825 to 0.2042.

To simplify the analysis, for the remainder of this report the age groups of children (younger than 18 years), adults (18 years to younger than 60 years), and seniors (60 years or older) are used when discussing product instability or tip-over-related injuries for televisions-only, furniture-related, and appliances-only. Children account for almost half (46 percent) of all emergency department-treated instability or tip-over injury estimates from 2016 through 2018. Adults and seniors account for 38 percent and 16 percent of all tip-over injuries from 2016 through 2018, respectively.

Table 3 presents national average annual estimates of ED-treated tip-over injuries by age group and product category. The injury rates, per 100,000 people of each age group, are shown in parentheses next to the estimates. The furniture category, which includes scenarios when both a television and furniture fall, was associated with the majority of the estimated injuries for each age group. Of the three age groups, children sustain the highest annual average number of ED-treated injuries (12,500 injuries), as well as the highest rate of tip-over injuries occurring in the population (17 injuries per 100,000 population). The injury rates are similar among the adult and senior age groups; each group incurred an estimated 6 injuries per 100,000 population.

Table 3  
Annual Average of Estimated ED-Treated Injuries Due to  
Product Instability or Tip-Overs by Victim Age Category 2016–2018

Annual Average 2016 – 2018	Estimated ED-Treated Injuries <sup>23</sup> (Emergency Department Injuries Per 100,000 U.S. Population <sup>24</sup> )		
	Children (<1 to 17 years)	Adults (18 to 59 years)	Seniors (≥60 years)
<b>Televisions, Furniture, and Appliances</b>	12,500 (17)	10,300 (6)	4,200 (6)
<b>Avg 95% Confidence Interval (CI)</b>	(9,500, 15,500)	(8,800, 11,900)	(3,500, 5,000)
<b>Televisions-Only</b>	3,000 (4)	1,600 (1)	800 (1)
<b>Furniture</b>	9,400 (13)	8,000 (4)	3,100 (4)
<b>Appliances-Only</b>	–	700 (<1)	–

Source: U.S. Consumer Product Safety Commission: NEISS. The estimates include cases for television, furniture, and appliance product codes, as described in Appendix B. Estimates that are not statistically reliable are presented as “–.” Estimates are rounded to the nearest hundred and may not add up to total, due to rounding.

<sup>23</sup> The CVs for the given estimates (2016–2018) ranged from 0.0749 to 0.1844.

<sup>24</sup> The U.S. population estimate for each age group is an average of 2016–2018 data of that age group in the U.S. Census data.

Children account for the largest portion of television-only and furniture-related injuries. The estimates related to children can be further subdivided into age categories for victims less than 1-year-old (less than 1 month to 11 months), 1-year-old (12 months to 23 months) to 6 years old (72 months to 83 months), and children 7 years and older. Table 4 presents national average annual estimates of ED-treated tip-over injuries by age group and product category. The injury rates, per 100,000 people of each age group, are shown in parentheses next to the estimates.

As seen in Table 4, victims age 1 to 4 years account for a majority of the child ED-treated injuries involving tip-overs of televisions-only, as well as for tip-overs involving furniture. For the television-only category, 1-year-olds, 2-year-olds and 3-year-olds account for the highest number of estimated annual injuries (600, 500 and 500 injuries, respectively). For the furniture-related category, 2-year olds and 1-year olds account for the highest number of estimated injuries (1,900 and 1,700 injuries, respectively).

Table 4  
Annual Average of Estimated ED-Treated Injuries Due to  
Product Instability or Tip-Overs by Selected Child Victim Age Category 2016–2018

Child Age Category <sup>25</sup> (in years)	Estimated ED-Treated Injuries for Children <sup>26</sup> (Percent of Total Estimate)		
	Televisions-Only	All Furniture (TV + Furn / Furn + Appl / Furn-Only)	Television, Furniture, and Appliance Total
<1	–	500 (13)	600 (16)
1	600 (14)	1,700 (43)	2,300 (58)
2	500 (13)	1,900 (48)	2,400 (61)
3	500 (13)	1,000 (24)	1,500 (38)
4	–	1,200 (31)	1,500 (38)
5	–	500 (13)	700 (17)
6	–	500 (13)	600 (16)
7 – 17	700 (2)	2,000 (4)	2,800 (6)
<b>Total</b>	<b>3,000 (4)</b>	<b>9,400 (13)</b>	<b>12,500 (17)</b>

Source: U.S. Consumer Product Safety Commission: NEISS. The estimates include cases for television, furniture, and appliance product codes, as described in Appendix B. Appliances, not shown as a separate column in the table, accounts for 4% of the total estimated injuries. Estimates that are not statistically reliable are presented as “–.” Estimates are rounded to the nearest hundred and may not add up to total, due to rounding.

<sup>25</sup> For children younger than 1 year of age, about 4 percent were in the “TV-Only” category of injuries to children.

<sup>26</sup> The CVs for the given estimates (2016–2018) ranged from 0.1226 to 0.2559.

In Table 5, the furniture-related estimates are classified further by furniture subtypes, which includes an estimated 2,500 injuries (an annual average of 800 injuries) over all ages that specifically indicated a piece of furniture in addition to a television fell between the years 2016 and 2018. Tables were involved in about one in three (34 percent) ED-treated tip-over injuries involving furniture over all ages, and tables were also the largest furniture-related category for children and seniors. Shelving was the largest furniture-related category for adults, followed by the table category.

Children were the age group with the most ED-treated injuries (46 percent), followed by adults (39 percent), and the senior age group (15 percent). There were an estimated annual average of 3,200 ED-treated injuries to children involving chests, bureaus, and dressers, of which 400 also involved a television that fell.

Table 5  
Annual Average of Estimated ED-Treated Injuries Due to  
Product Instability or Tip-Overs by Furniture Subcategories 2016–2018

Furniture Subtype	Estimated ED-Treated Injuries <sup>27</sup> (Percent of Total Estimate)			
	Children (<1 to 17 years)	Adults (18 to 59 years)	Seniors (60 years and older)	All Ages Total
<b>Tables</b>	3,500 (17%)	2,300 (11%)	1,100 (5%)	<b>6,900 (34%)</b>
<b>Chests, Bureaus, and Dressers (CBD)</b>	3,200 (15%)	1,200 (6%)	500 (2%)	<b>4,800 (23%)</b>
<b>Shelving, Shelving Units, and Bookcases (Shelf)</b>	1,400 (7%)	2,800 (13%)	700 (3%)	<b>4,900 (24%)</b>
<b>Cabinets</b>	–	1,000 (5%)	400 (2%)	<b>1,800 (9%)</b>
<b>Stands</b>	400 (2%)	–	–	<b>500 (2%)</b>
<b>Remaining Furniture Subtypes</b>	600 (3%)	700 (4%)	400 (2%)	<b>1,800 (9%)</b>
<b>Total</b>	<b>9,400 (46%)</b>	<b>8,000 (39%)</b>	<b>3,100 (15%)</b>	<b>20,500 (100%)</b>

Source: U.S. Consumer Product Safety Commission: NEISS. The estimates include cases for furniture product codes, as described in Appendix B. It includes cases where a television or appliance also fell. Estimates that are not statistically reliable are presented as “–.” Estimates are rounded to the nearest hundred and may not add up to total, due to rounding.

<sup>27</sup> The CVs for the given estimates (2016 – 2018) ranged from 0.1039 to 0.2987.

There were an estimated 14,200 females injured (52 percent) and an estimated 12,900 males injured (48 percent) annually in all product instability or tip-over incidents for all ages. Table 6 presents the estimates for each victim age category by product category and gender. For adults ages 18 to 59 years old, the estimates suggest a statistical difference by gender for the furniture<sup>28</sup> category and for overall tip-over injuries.<sup>29</sup> There was no statistical difference by gender in children for television-only, furniture, or the combined category estimate of all tip-over incidents. There was no statistical difference by gender in seniors ages 60 years old and older for the furniture category or for overall tip-over injuries.

Table 6  
Annual Average of Estimated ED-Treated Injuries Due to  
Product Instability or Tip-Overs by Gender 2016–2018

Age Group	Gender	Estimated ED-Treated Injuries <sup>30</sup> (Percent of Total Estimate)			
		Televisions-Only	All Furniture (TV + Furn / Furn + Appl / Furn-Only)	Appliances-Only	Television, Furniture, and Appliance Total
Children	Female	1,300 (5%)	4,100 (15%)	–	5,500 (20%)
	Male	1,700 (6%)	5,300 (19%)	–	7,000 (26%)
Adults	Female	1,000 (4%)	5,000 (18%)	–	6,200 (23%)
	Male	600 (2%)	3,000 (11%)	500 (2%)	4,100 (15%)
Seniors	Female	500 (2%)	1,900 (7%)	–	2,500 (9%)
	Male	–	1,200 (5%)	–	1,800 (7%)
All Ages	Female	2,800 (10%)	11,000 (41%)	–	14,200 (52%)
	Male	2,700 (10%)	9,500 (35%)	700 (3%)	12,900 (48%)
<b>Total</b>		<b>5,500 (20%)</b>	<b>20,500 (76%)</b>	<b>1,000 (4%)</b>	<b>27,100 (100%)</b>

Source: U.S. Consumer Product Safety Commission: NEISS. The estimates include cases for television, furniture, and appliance product codes, as described in Appendix B. Estimates that are not statistically reliable are presented as “–.” Estimates are rounded to the nearest hundred and may not add up to total, due to rounding.

Considering the location of injury, 70 percent of the estimated 27,100 injuries of all ages occurred in a residential location. Eight percent occurred in public locations, and 22 percent happened in an unknown location. These percentages are somewhat similar for children (76 percent residential and 6 percent public), adults (63 percent residential and 6 percent public) and seniors (69 percent residential and 15 percent public [which includes nursing homes]).

The disposition of the ED-treated tip-over injuries show that the majority of victims (94 percent of children, 95 percent of adults, and 82 percent of seniors) were treated and released; however, 14 percent of the seniors were hospitalized.

<sup>28</sup> For adults and furniture-related injuries, the average 95 percent CI is (2,300, 3,700) for males, and (4,100, 5,800) for females.

<sup>29</sup> For adults including all tip-over injuries, the average 95 percent CI is (3,300, 5,000) for males and (5,300, 7,200) for females.

<sup>30</sup> The CVs for the given estimates (2016–2018) ranged from 0.0775 to 0.2151.

The diagnoses, which are independent of the disposition, were examined for children, adults, and seniors. Table 7 presents the breakdown of the diagnoses (where available) for the different product categories and age groups. The majority of the diagnoses for all age groups combined and also for each age group alone was contusions/abrasions (9,100; 34 percent), which was also the highest diagnosis for both the television-only category and the furniture-related category. The next most prevalent diagnoses of all age groups combined were internal organ injuries (3,700; 14 percent), lacerations (3,700; 14 percent), and fractures (3,600; 13 percent). Children were diagnosed with internal organ injuries at a higher rate compared to adults and seniors than any other diagnosis, primarily because of the many head injuries to children in tip-over incidents.

Table 7  
Annual Average of Estimated ED-Treated Injuries Due to  
Product Instability or Tip-Overs by Diagnosis 2016–2018

Diagnosis	Age Group	Estimated ED-Treated Injuries <sup>31</sup> (Percent of Total Estimate)		
		Televisions-Only	All Furniture (TV + Furn / Furn + Appl / Furn-Only)	Television, Furniture, and Appliance Total
Contusions, Abrasions	Children	1,100 (4%)	2,800 (10%)	3,900 (14%)
	Adults	400 (1%)	3,000 (11%)	3,600 (13%)
	Seniors	400 (1%)	1,100 (4%)	1,600 (6%)
Internal Organ Injury	Children	500 (2%)	1,800 (7%)	2,400 (9%)
	Adults	–	500 (2%)	800 (3%)
	Seniors	–	400 (1%)	600 (2%)
Lacerations	Children	–	1,700 (6%)	2,000 (7%)
	Adults	–	900 (3%)	1,200 (4%)
	Seniors	–	500 (2%)	500 (2%)
Fractures	Children	400 (2%)	1,300 (5%)	1,800 (7%)
	Adults	–	900 (3%)	1,300 (5%)
	Seniors	–	–	500 (2%)
Strains or Sprains	Children	–	–	–
	Adults	–	800 (3%)	1,000 (4%)
	Seniors	–	–	–
All Other Diagnoses	Children	600 (2%)	1,700 (6%)	2,300 (9%)
	Adults	–	1,900 (7%)	2,400 (9%)
	Seniors	–	700 (3%)	900 (3%)
<b>Total</b>		<b>5,500 (20%)</b>	<b>20,500 (76%)</b>	<b>27,100 (100%)</b>

Source: U.S. Consumer Product Safety Commission: NEISS. The estimates include cases for television, furniture, and appliance product codes, as described in Appendix B. Appliances, not shown as a separate column in the table, accounts for 4% of the total estimated injuries. Estimates that are not statistically reliable are presented as “–.” Estimates are rounded to the nearest hundred and may not add up to total, due to rounding.

<sup>31</sup> The CVs for the given estimates (2016–2018) ranged from 0.1043 to 0.2994.

Table 8 presents the body parts injured in the ED-treated tip-over injuries. Most injuries for all age groups combined were to the legs, feet and toes (10,000 injuries; 37 percent). This is followed by the head (8,500; 31 percent) and arms, hands, and fingers (5,000 injuries; 18 percent). Most injuries to children were to the head (5,500 injuries) and legs, feet, and toes (4,100 injuries). Most injuries to adults were to the legs, feet, and toes (4,400 injuries) and arms, hands, and fingers (2,600 injuries). Most injuries to seniors were to the legs, feet, and toes (1,500 injuries) and the head (1,100 injuries).

Table 8  
Annual Average of Estimated ED-Treated Injuries Due to  
Product Instability or Tip-Overs by Area of Body 2016–2018

Primary Area of Body Affected	Age Group	Estimated ED-Treated Injuries <sup>32</sup> (Percent of Total Estimate)		
		Televisions-Only	All Furniture (TV + Furn / Furn + Appl / Furn-Only)	Television, Furniture, and Appliance Total
Head	Children	1,300 (5%)	4,200 (15%)	5,500 (20%)
	Adults	400 (1%)	1,500 (6%)	2,000 (7%)
	Seniors	–	800 (3%)	1,100 (4%)
Legs, Feet, and Toes (Legs)	Children	1,100 (4%)	2,900 (11%)	4,100 (15%)
	Adults	500 (2%)	3,500 (13%)	4,400 (16%)
	Seniors	–	1,200 (4%)	1,500 (6%)
Arms, Hands, and Fingers (Arms)	Children	–	1,500 (6%)	1,800 (7%)
	Adults	500 (2%)	1,900 (7%)	2,600 (9%)
	Seniors	–	–	600 (2%)
Torso	Children	–	600 (2%)	900 (3%)
	Adults	–	1,100 (4%)	1,300 (5%)
	Seniors	–	700 (3%)	1,000 (4%)
All Other Body Parts	Children	–	–	–
	Adults	–	–	–
	Seniors	–	–	–
<b>Total</b>		<b>5,500 (20%)</b>	<b>20,500 (76%)</b>	<b>27,100 (100%)</b>

Source: U.S. Consumer Product Safety Commission: NEISS. The estimates include cases for television, furniture, and appliance product codes, as described in Appendix B. Appliances, not shown as a separate column in the table, accounts for 4% of the total estimated injuries. Estimates that are not statistically reliable are presented as “–.” Estimates are rounded to the nearest hundred and may not add up to total, due to rounding.

<sup>32</sup> The CVs for the given estimates (2016–2018) ranged from 0.0993 to 0.2232.

By evaluating the primary body part affected, as well as the diagnosis, it is possible to estimate the injuries by selected area of body and diagnosis, as seen in Table 9. Of the head injuries that occurred to children, the most frequent diagnosis was internal organ injury (2,400 injuries), followed by lacerations (1,100 injuries), and contusions/abrasions (1,000 injuries). Many of the leg injuries to children were diagnosed as contusions/abrasions (1,900 injuries) and fractures (900 injuries). For many of the adult and senior leg injuries, the diagnosis was contusions/abrasions (1,800 and 700 injuries, respectively).

Table 9  
Annual Average of Estimated ED-Treated Injuries Due to  
Product Instability or Tip-Overs by Area of Body and Diagnosis 2016–2018

Primary Area of Body Affected/ Diagnosis	Age Group	Estimated ED-Treated Injuries <sup>33</sup> (Percent of Total Estimate)		
		Televisions-Only	All Furniture (TV + Furn / Furn + Appl / Furn-Only)	Television, Furniture, and Appliance Total
Head/ Internal Organ Injury	Children	500 (2%)	1,800 (7%)	2,400 (9%)
	Adults	–	500 (2%)	800 (3%)
	Seniors	–	–	600 (2%)
Head/ Lacerations	Children	–	1,000 (4%)	1,100 (4%)
	Adults	–	–	400 (1%)
	Seniors	–	–	–
Head/ Contusions, Abrasions	Children	–	700 (3%)	1,000 (4%)
	Adults	–	–	–
	Seniors	–	–	–
Legs/ Contusions, Abrasions	Children	600 (2%)	1,300 (5%)	1,900 (7%)
	Adults	–	1,600 (6%)	1,800 (7%)
	Seniors	–	600 (2%)	700 (3%)
Legs/ Fractures	Children	–	600 (2%)	900 (3%)
	Adults	–	400 (2%)	700 (2%)
	Seniors	–	–	–
Arms/ Contusions, Abrasions	Children	–	400 (2%)	600 (2%)
	Adults	–	800 (3%)	1,000 (4%)
	Seniors	–	–	–
Arms/ Fractures	Children	–	400 (2%)	500 (2%)
	Adults	–	400 (2%)	600 (2%)
	Seniors	–	–	–

Source: U.S. Consumer Product Safety Commission: NEISS. The estimates include cases for television, furniture, and appliance product codes, as described in Appendix B. Appliances, not shown as a separate column in the table, accounts for 4% of the total estimated injuries. Estimates that are not statistically reliable are presented as “–.” Estimates are rounded to the nearest hundred and may not add up to total, due to rounding.

<sup>33</sup> The CVs for the given estimates (2016–2018) ranged from 0.1416 to 0.2610.

## Reported Fatalities<sup>34</sup>

Between 2000 and 2018, CPSC staff has received 556 reports of product instability or tip-over-related fatalities that were related to televisions, furniture, or appliances. The criteria for determining the in-scope cases are presented in Appendix B. Of these 556 reported fatalities, 186 deaths (33 percent) involved only a television falling, 162 deaths (29 percent) involved both a television falling and the furniture in/on which the television was resting also falling, 170 deaths (31 percent) involved only furniture falling, and 38 deaths (7 percent) involved only an appliance falling. If considering televisions falling (television-only + television and furniture), there were 348 deaths (63 percent). If considering furniture falling (furniture-only + television and furniture), there were 332 deaths (60 percent). There were no deaths in which both furniture and an appliance fell.

Some differences are apparent between Table 10 of this report and Table 10 of the previous annual report published in 2018. The reason is two-fold; CPSC received additional reports for tip-over fatalities for the most recent 3-year period from 2016 through 2018. Additionally, three senior fatalities from the earlier report have been reclassified from a death-at-home to a death-at-public-place, to be consistent with how data in the NEISS database were categorized.

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<sup>34</sup> Fatality counts should be considered incomplete for years 2016 – 2018, due to a time lag in reporting to CPSC.

Table 10 presents the instability or tip-over-related fatality data for televisions, furniture, and appliances by year of death. While data reporting is ongoing, especially for 2016 through 2018, it appears that the number of fatalities involving the furniture-only and appliance-only categories have not decreased in the most recent years, when compared to years dating back to 2000; meanwhile it appears that the television-only category is showing lower numbers in the most recent years 2016 through 2018, when compared to the previous decade or so years of reporting.

Table 10  
Product Instability or Tip-Over-Related Fatalities Reported to CPSC by Year 2000–2018

Year	Televisions-Only <sup>35</sup>	TV + Furniture	Furniture-Only	Appliances-Only	Television, Furniture, and Appliance Total	Percent of Total (n = 556)
2018*	2	1	3	2	8	1%
2017*	2	8	8	2	20	4%
2016*	4	9	15	1	29	5%
2015	8	6	10	2	26	5%
2014	13	12	17	1	43	8%
2013	11	12	10	2	35	6%
2012	17	20	7	2	46	8%
2011	21	18	12	1	52	9%
2010	17	5	7	4	33	6%
2009	8	13	6	1	28	5%
2008	18	11	8	0	37	7%
2007	11	14	10	0	35	6%
2006	13	7	5	3	28	5%
2005	8	10	9	1	28	5%
2004	9	2	12	1	24	4%
2003	9	1	5	5	20	4%
2002	5	5	8	3	21	4%
2001	7	4	16	5	32	6%
2000	3	4	2	2	11	2%
<b>Product Category Total</b>	<b>186</b>	<b>162</b>	<b>170</b>	<b>38</b>	<b>556</b>	<b>100%</b>
<b>Percent of Total (n = 556)</b>	<b>33%</b>	<b>29%</b>	<b>31%</b>	<b>7%</b>	<b>100%</b>	

Source: CPSC databases, including NEISS and CPSRMS. Asterisks (\*) indicate ongoing reporting.

Similar to the NEISS injuries, the fatalities were separated into three distinct age categories: children (younger than 18 years of age); adults (ages 18 to 59 years); and seniors (60 years of age or older).

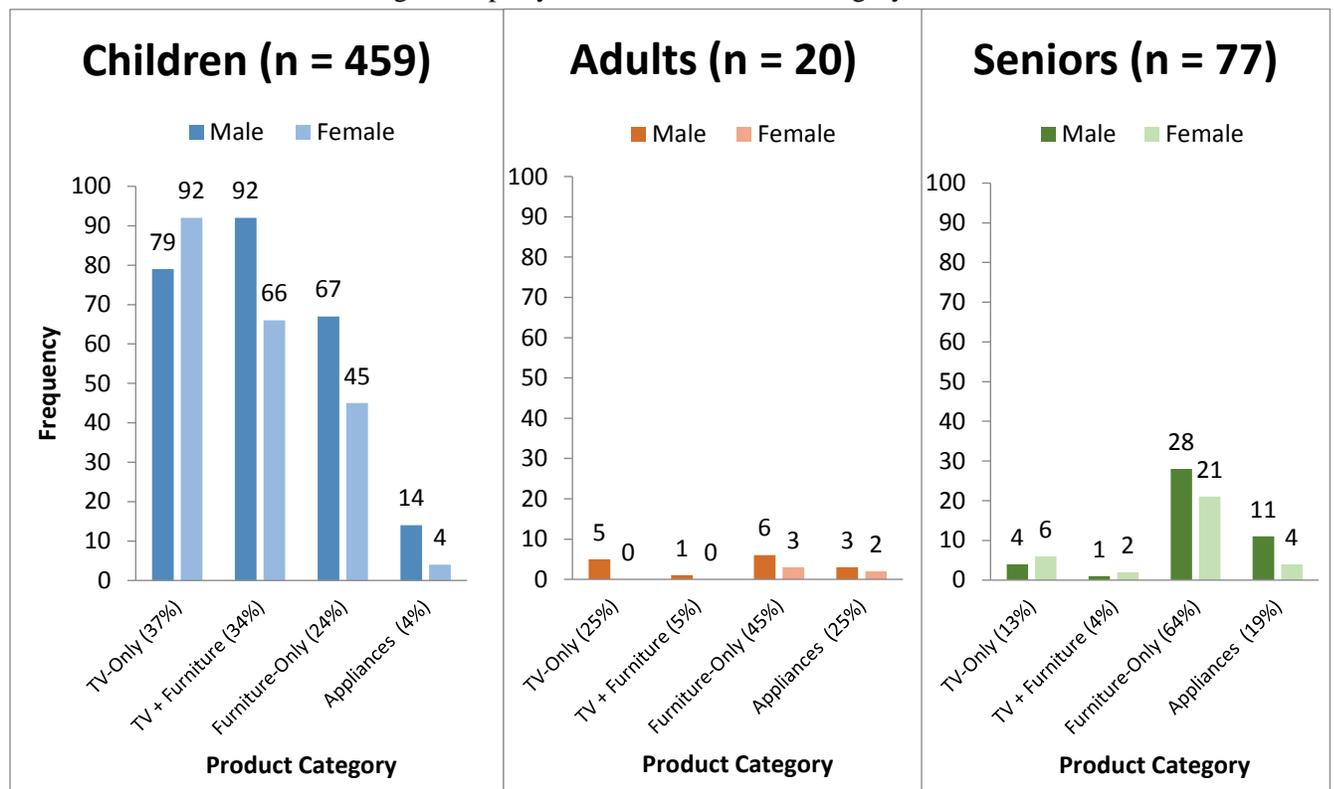
<sup>35</sup> There are no computer monitor-related fatalities among the television fatality counts.

Figure 1 presents the reported fatalities by gender and product categories among the different age groups. Of the 556 fatalities, 459 (83 percent) were among children, 77 (14 percent) among seniors, and the remaining 20 (4 percent) among adults.

Of the 459 child fatalities, 171 (37 percent) involved only a television falling, 158 (34 percent) involved both a television falling and the furniture in/on which the television was resting also falling, 112 (24 percent) involved only furniture falling, and 18 (4 percent) involved only an appliance falling.

Of the 171 child fatalities involving only televisions falling, there does not appear to be a stark difference when comparing genders, with 79 male fatalities (46 percent) versus 92 female fatalities (54 percent). The 270 fatalities involving children and furniture suggest differences based on gender, whether or not a television also fell. Of the 112 children fatalities involving only furniture, 67 were male (60 percent) and 45 were female (40 percent), and of the 158 children fatalities involving both televisions and furniture falling, 92 were male (58 percent) and 66 were female (42 percent). It is harder to examine differences based on gender for the adult and senior groups, due to small counts.

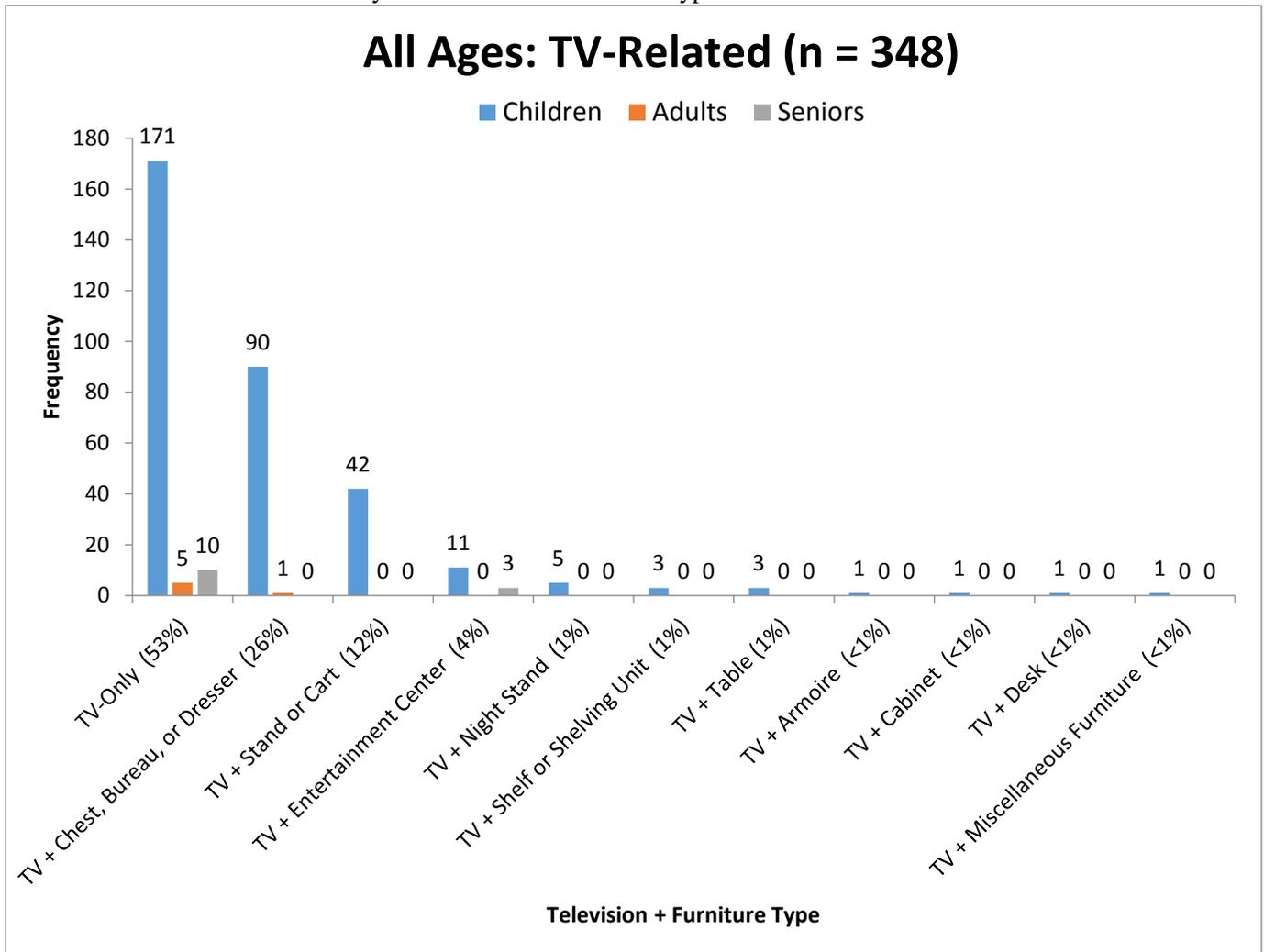
Figure 1  
Product Instability or Tip-Over-Related Fatalities Reported to CPSC  
for Different Age Groups by Gender and Product Category 2000–2018



Source: CPSC databases, including NEISS and CPSRMS.

Of the 556 fatalities, 348 deaths (63 percent) involved televisions. Of the 348 television-related tip-over deaths of all ages, 329 fatalities (95 percent) were children; 13 fatalities (4 percent) were seniors; and 6 fatalities (2 percent) were adults. Figure 2 presents the frequencies of fatalities by television and furniture type.

Figure 2  
Product Instability or Tip-Over-Related Fatalities Reported to CPSC  
by Television and Furniture Type<sup>36</sup> 2000–2018<sup>37</sup>



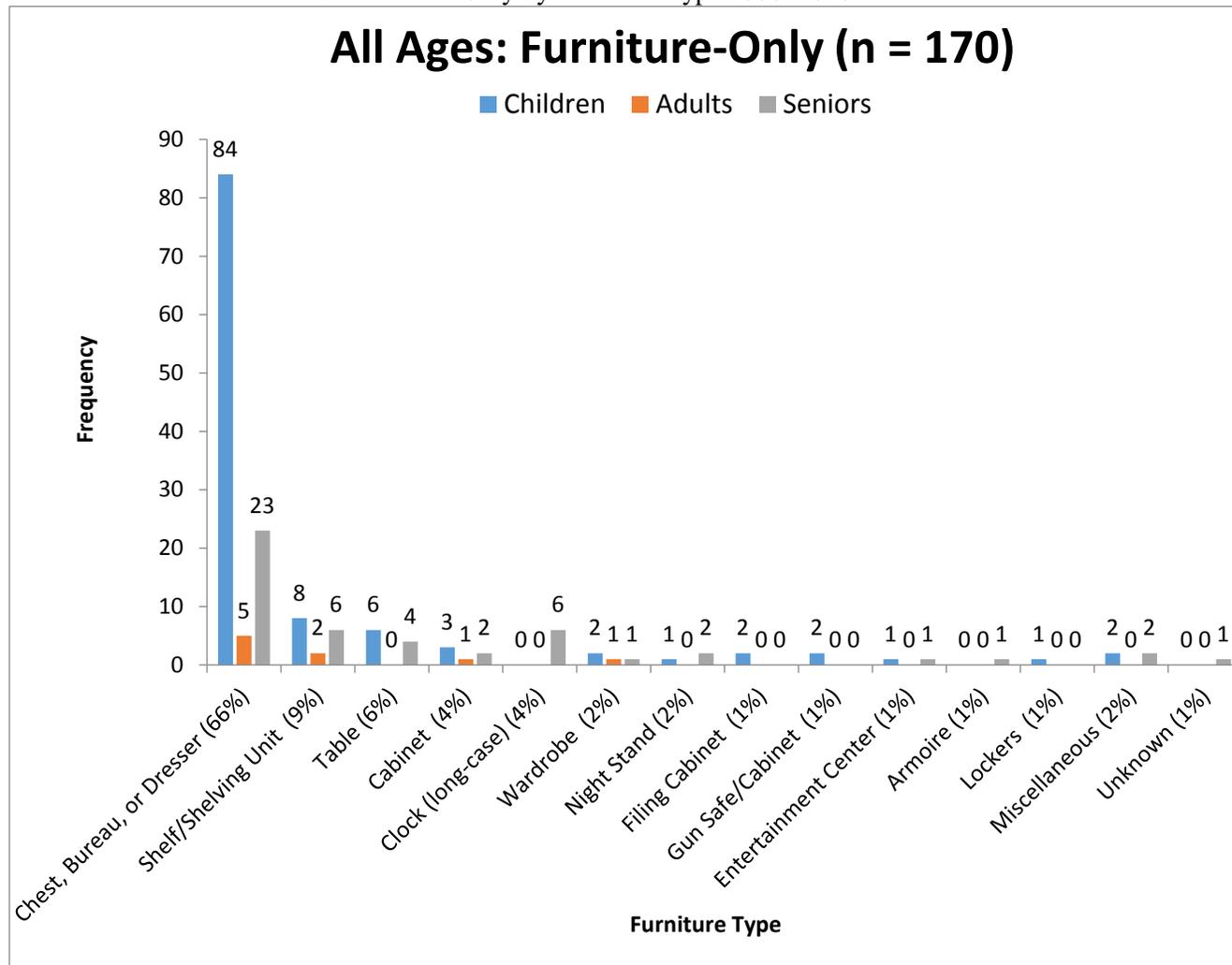
Source: CPSC databases, including NEISS and CPSRMS.

<sup>36</sup> Fatalities where it could not be determined if the furniture also fell are counted as only the television falling.

<sup>37</sup> The miscellaneous furniture is an antique phonograph cabinet.

Of the 556 fatalities, 170 deaths (31 percent) involved only furniture falling. Of these 170 deaths, 112 fatalities (66 percent) were children; 49 fatalities (29 percent) were seniors; and 9 fatalities (5 percent) were adults. Figure 3 presents the frequencies for instability or tip-over deaths by furniture type and victim age involving only furniture falling.<sup>38</sup>

Figure 3  
Product Instability or Tip-Over-Related Fatalities Reported to CPSC  
for Furniture-Only by Furniture Type 2000–2018<sup>39</sup>



Source: CPSC databases, including NEISS and CPSRMS.

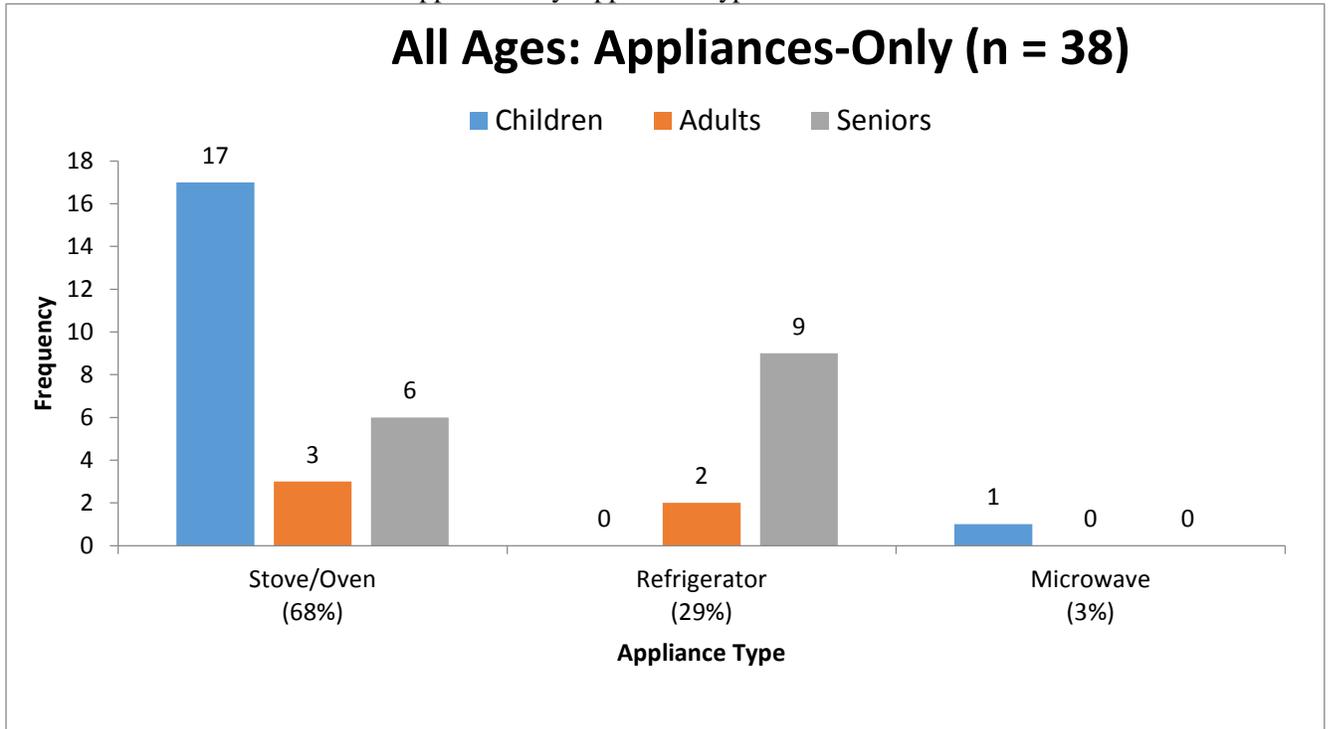
If we combine all chests, bureaus and dresser-related tip-over fatalities of all ages, with and without a television also falling, there are 203 fatalities, which make up 37 percent of all tip-over fatalities. Of the 203 chest, bureau and dresser tip-over fatalities, 174 involved children.

<sup>38</sup> The fatality where the furniture is unknown was described as either an armoire or a bookcase.

<sup>39</sup> Miscellaneous furniture include: two coat racks, a portable storage closet, and a room divider.

The remaining 38 deaths (7 percent) of the 556 fatalities involved only appliances falling. Of these 38 deaths, 18 fatalities were children; 15 were seniors; and 5 were adults. Figure 4 presents frequency of fatalities by appliance type.

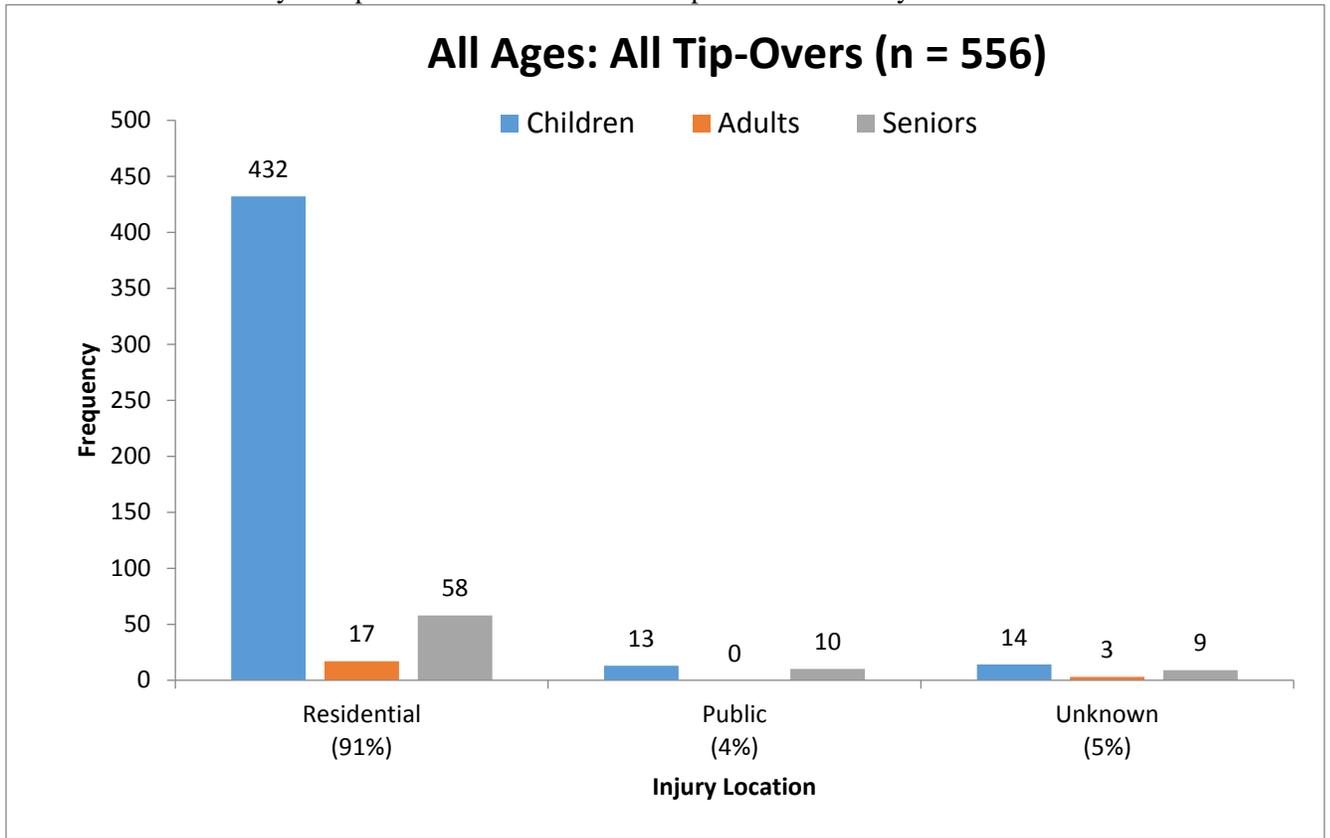
Figure 4  
Product Instability or Tip-Over-Related Fatalities Reported to CPSC  
for Appliances by Appliance Type 2000–2018



Source: CPSC databases, including NEISS and CPSRMS.

Residential locations account for 507 (91 percent) of the fatalities. Twenty-three deaths (4 percent) occurred in public locations; and 26 deaths (5 percent) did not provide enough information to determine the location. Fatalities of children had a similar distribution by location (94 percent residential, 3 percent public, and 3 percent unknown). Figure 5 presents the tip-over fatalities by location.

Figure 5  
Product Instability or Tip-Over-Related Fatalities Reported to CPSC by Location 2000–2018<sup>40</sup>

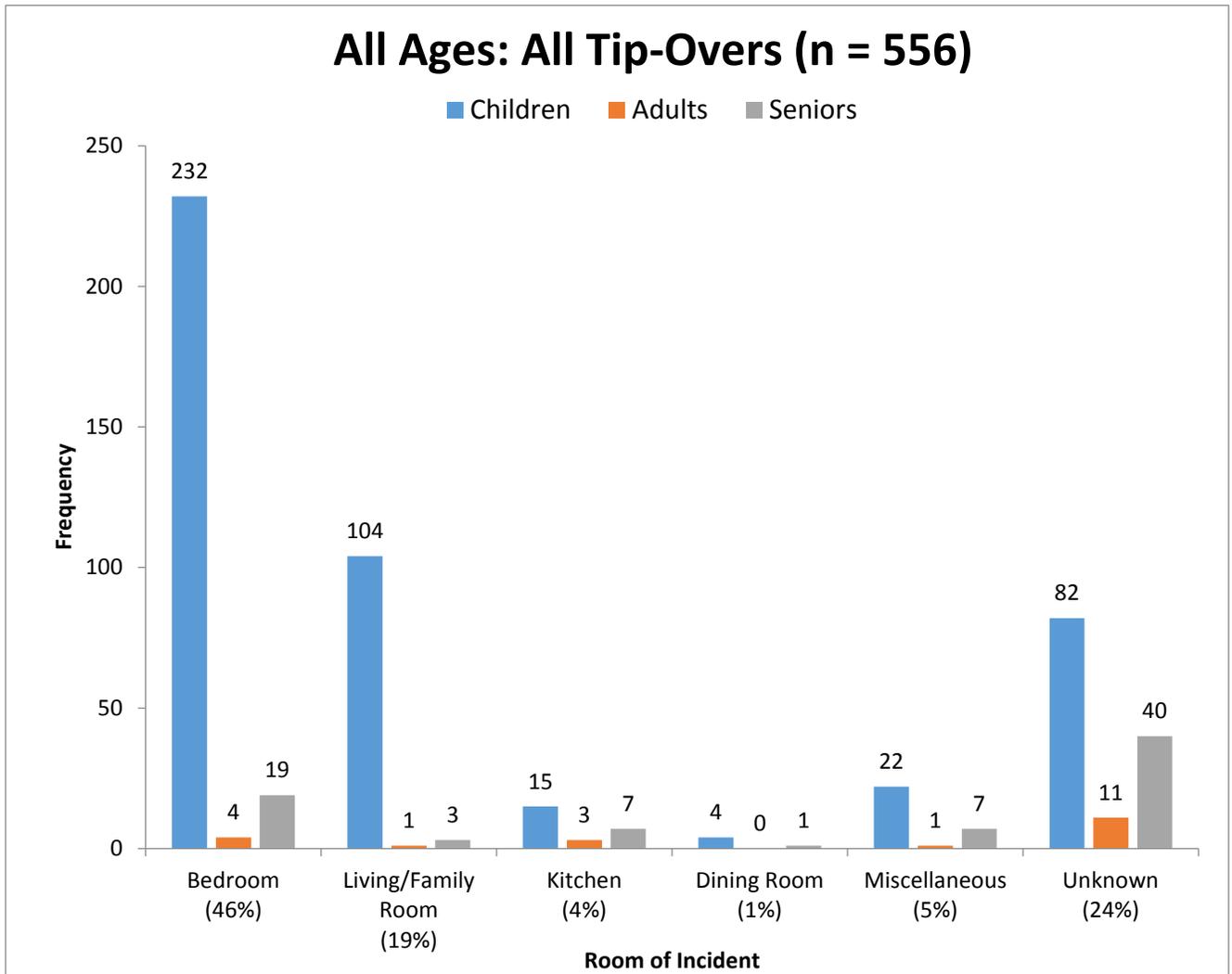


Source: CPSC databases, including NEISS and CPSRMS.

<sup>40</sup> Public locations include nursing homes and assisted living facilities in both the NEISS injury estimates and in the fatality section, which generally only affects the senior age group.

For the room where the incident occurred, the bedroom had the largest number of fatalities, with 255 deaths (46 percent). This is followed by the living/family room, with 108 deaths (19 percent). There is also a large portion of unknown locations (133 deaths; 24 percent) for the room-of-incident. Of the 459 fatalities involving children, 232 deaths (51 percent) occurred in bedrooms, and 104 deaths (23 percent) happened in living/family rooms. For adults and seniors, there were many unknown room locations (11 fatalities, or 55 percent of adults, and 40 fatalities, or 52 percent of seniors). Figure 6 presents the tip-over fatalities by room of incident.

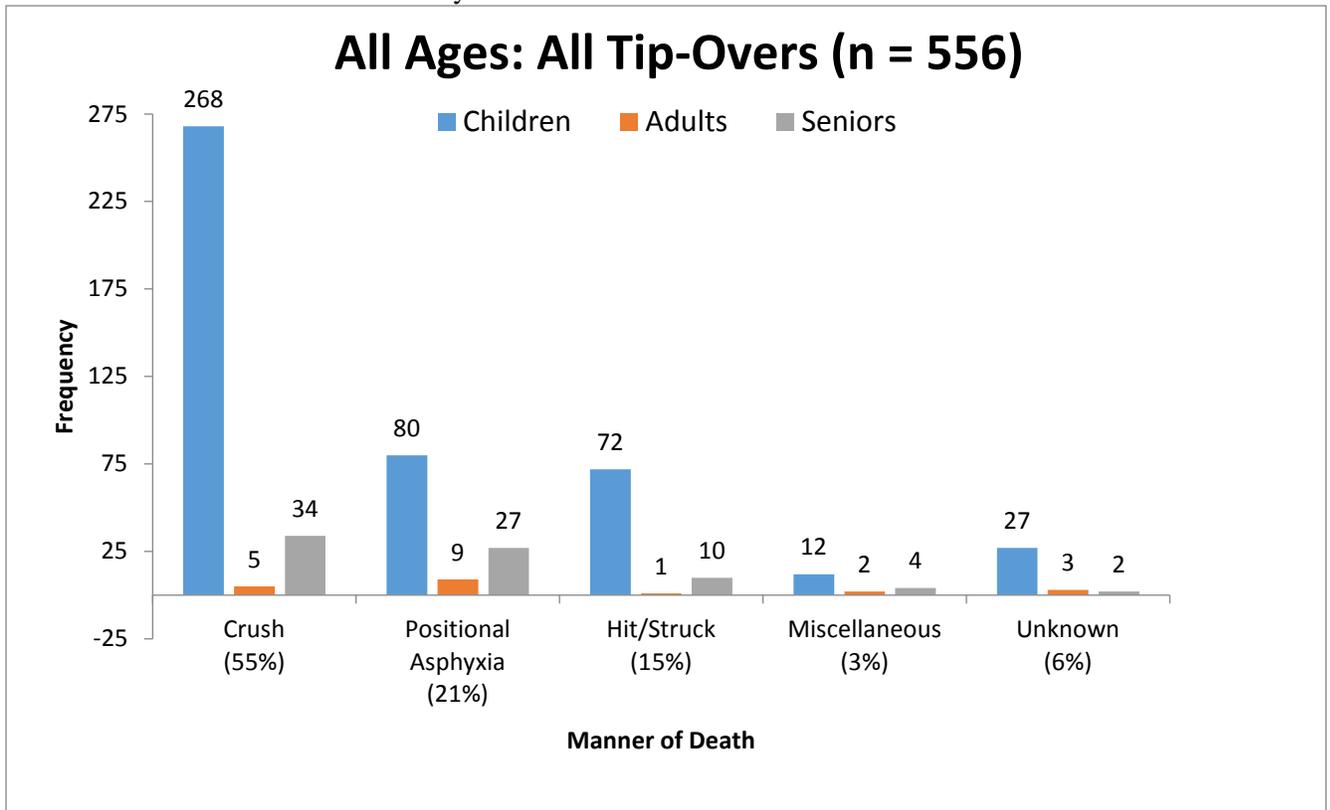
Figure 6  
Product Instability or Tip-Over-Related Fatalities Reported to CPSC  
by Room of Incident 2000–2018



Source: CPSC databases, including NEISS and CPSRMS.

Figure 7 presents the frequency of fatalities by manner of death. The majority of the fatalities were due to the victim being crushed<sup>41</sup> by the television, furniture, or appliance (307 deaths; 55 percent). This is followed by fatalities that were the result of positional asphyxia<sup>42</sup> (116 deaths; 21 percent) and fatalities due to being hit/struck<sup>43</sup> (83 deaths; 15 percent) by product(s). Crushing incidents accounted for the largest number of fatalities in children (268 fatalities, or 58 percent of children) and seniors (34 fatalities, or 44 percent of seniors). Positional asphyxia incidents accounted for the most adult deaths (9 fatalities, or 45 percent of adults).

Figure 7  
Product Instability or Tip-Over-Related Fatalities Reported to CPSC  
by Manner of Death 2000–2018



Source: CPSC databases, including NEISS and CPSRMS.

<sup>41</sup> “Crushing incidents” are events in which it was clear that the product(s) fell on the victim and the victim remained under the product(s).

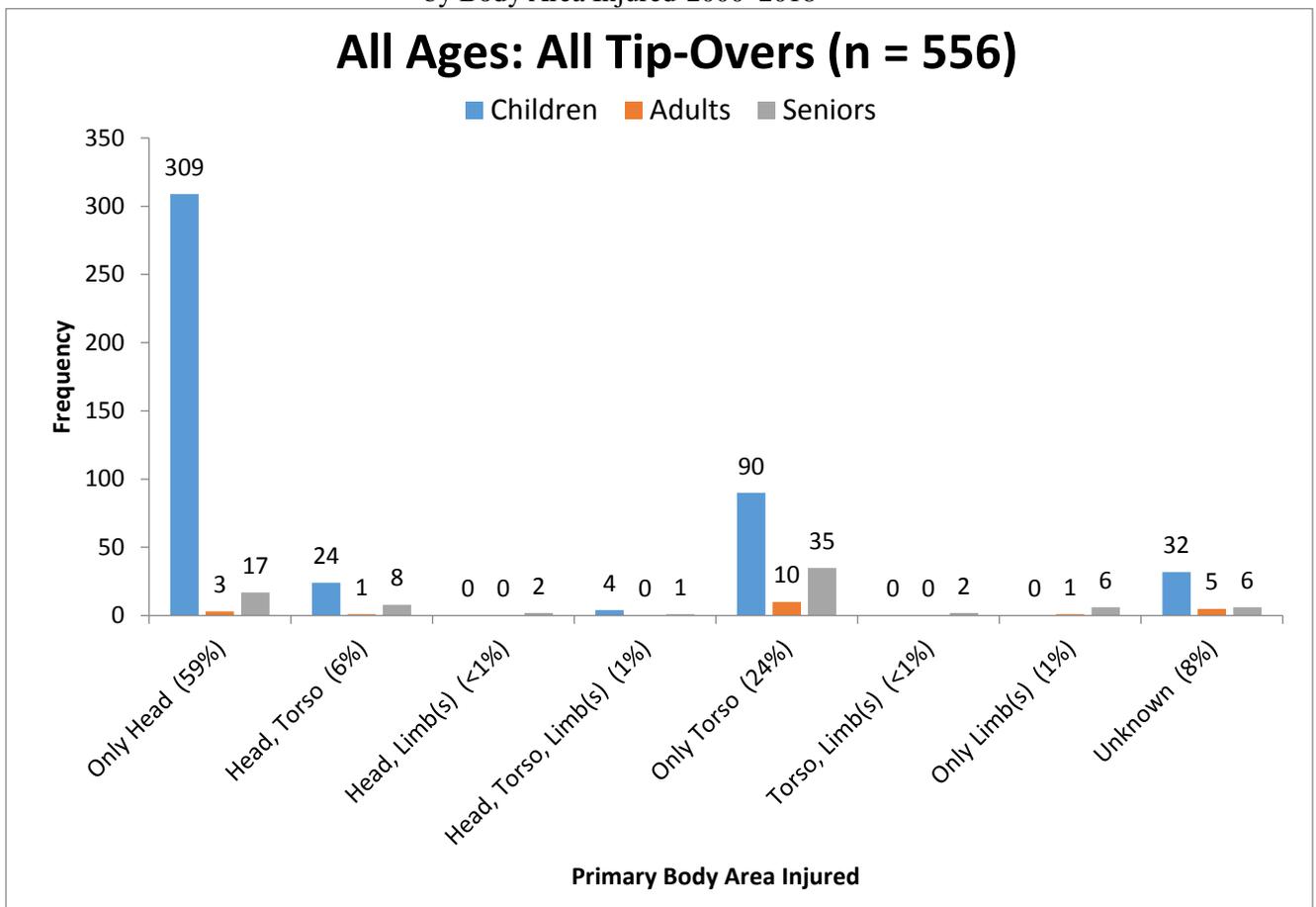
<sup>42</sup> “Positional asphyxia” is a form of asphyxia that occurs when the body position prevents adequate oxygen supply to the lungs, such as an upper airway obstruction or a limitation in chest wall expansion.

<sup>43</sup> “Hit/struck by” injuries are events in which it was clear the product(s) fell on the victim but did not land or remain on the victim.

The head was the area of the body impacted most frequently in fatality incidents with 329 deaths caused by injuries to the head-only (59 percent), and 33 fatalities to the head and torso (6 percent). This is followed by the torso-only, with 135 deaths (24 percent). Damage to the head was the predominant injury leading to death for children, compared to adults and seniors, who had more torso injuries leading to death.

Of the 348 television-related tip-over deaths of all ages, including with and without furniture also falling, 292 (84 percent) were due to only head injuries. Figure 8 presents frequency of fatality by victim age and body area injured.

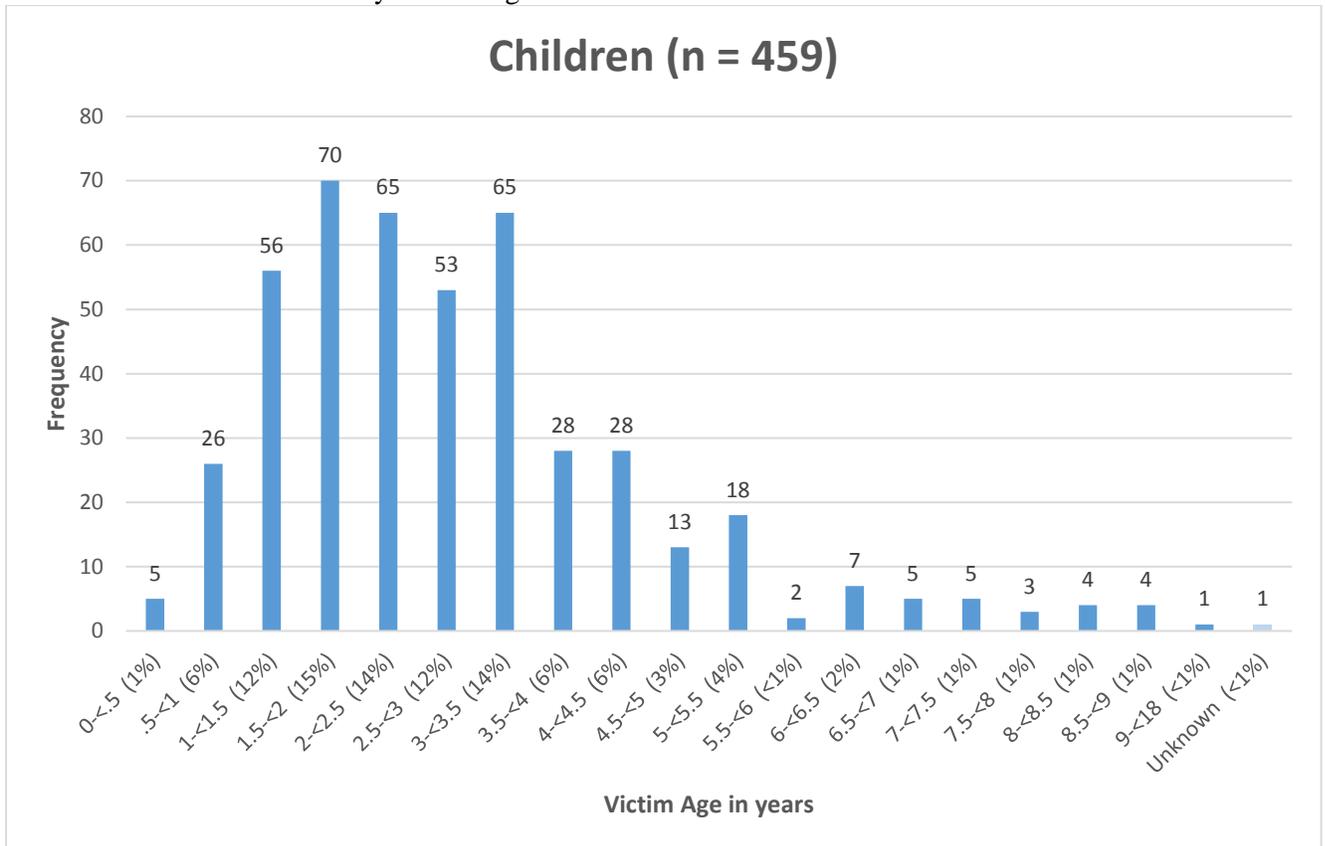
Figure 8  
Product Instability or Tip-Over-Related Fatalities Reported to CPSC  
by Body Area Injured 2000–2018



Source: CPSC databases, including NEISS and CPSRMS.

Frequencies and percentage by victim age category for the 459 fatalities involving children are presented in Figure 9. Children ranged in age from 1 month to 14 years of age. Of the 459 fatalities involving children, a majority (309 deaths; 67 percent) were at least 1 year of age and less than 3½ years of age. The age used is the age at the time of death<sup>44</sup>, which may differ somewhat from the age at the time of the incident.

Figure 9  
Product Instability or Tip-Over-Related Child Fatalities Reported to CPSC  
by Victim Age at Time of Death 2000–2018<sup>45</sup>



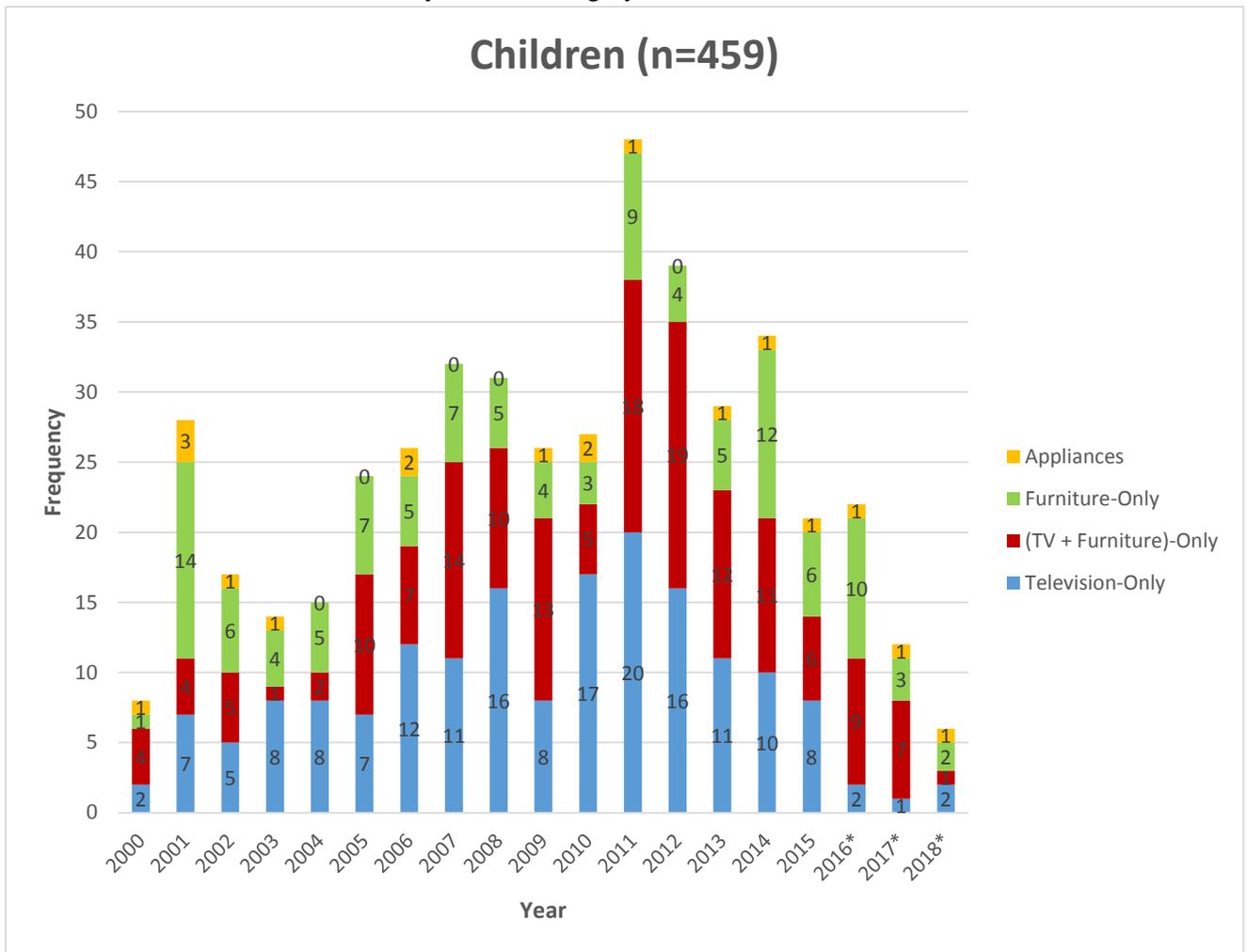
Source: CPSC databases, including NEISS and CPSRMS.

<sup>44</sup> In most cases, the age at time of death is the same as the age at time of incident. In a few cases, they differed. In some cases, the age at time of incident was not reported.

<sup>45</sup> There is one report of a “child,” with no known age at the time of death.

Shown in Figure 10 are the 459 tip-over fatalities involving children divided into furniture categories for years 2000 through 2018. While it is early to predict, given that reporting is incomplete for the years 2016 through 2018, it appears the number of children’s tip-over fatalities involving only televisions, with no furniture also falling, has declined in recent years. However, children’s tip-over deaths involving furniture has remained an issue. Each year from 2012 through 2017, there have been between 10 and 23 furniture-related tip-over fatalities, including with and without a television also falling. Notice that there has been at least 1 child tip-over death involving an appliance reported to CPSC in each year from 2009 through 2018, except the year 2012.

Figure 10  
Product Instability or Tip-Over-Related Child Fatalities Reported to CPSC  
by Product Category 2000–2018

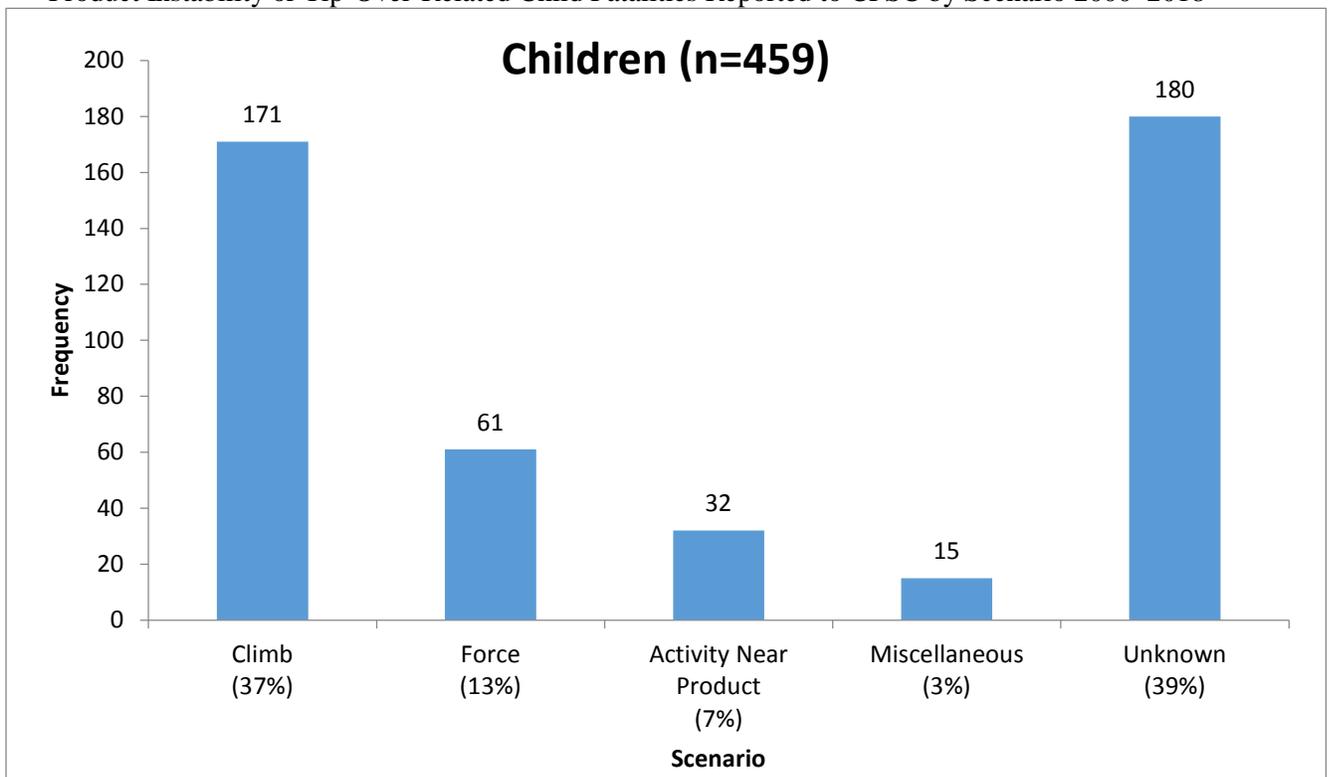


Source: CPSC databases, including NEISS and CPSRMS. Asterisks (\*) indicate ongoing reporting.

For children, the hazard scenario of how the child or other children were interacting with the tip-over product, or what the child was doing near the tip-over product immediately before the tip-over incident were classified, where possible. The scenarios for the 97 deaths involving adults and seniors did not have enough details, in most cases, to be classified. Accordingly, Figure 11 presents frequencies-only for children.

Of the 459 deaths involving children, there is a large set of unknown scenarios (180 deaths; 39 percent), which commonly happened when the child was alone in a room at the moment the incident took place, leaving no eyewitness to observe the tip-over incident. In 171 deaths involving children (37 percent), the victim or someone else was climbing on the television, furniture, or appliance. This is followed by scenarios in which force was being applied to the television, furniture, or appliance, such as hitting, pulling, or kicking (61 deaths; 13 percent). In 32 deaths (7 percent), the victim was involved in some activity near the product, such as playing nearby or adjusting the controls on a television or electronic device connected to the television. The remaining 15 deaths (3 percent) have known scenarios that do not fit into the other categories. Figure 11 presents the frequency of fatalities by hazard scenario.

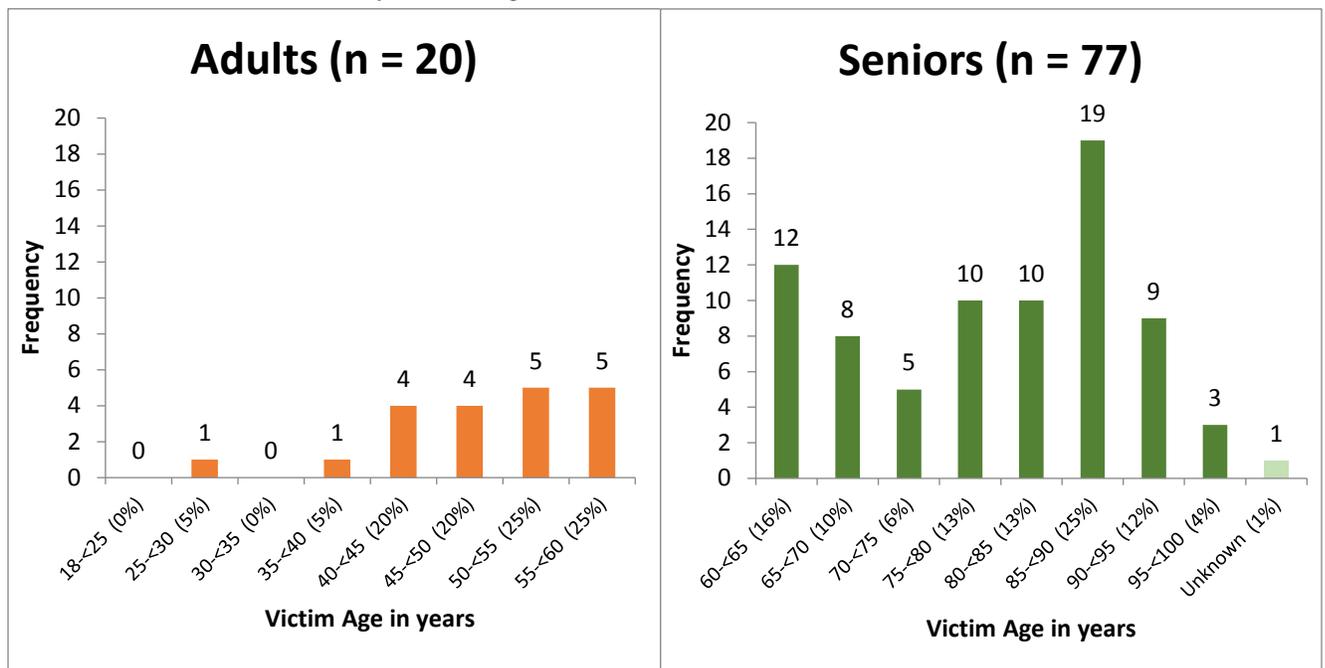
Figure 11  
Product Instability or Tip-Over-Related Child Fatalities Reported to CPSC by Scenario 2000–2018



Source: CPSC databases, including NEISS and CPSRMS.

Adults (28 to 59 years of age) and seniors (60 years and older) accounted for 20 and 77 tip-over fatalities, respectively. Of the senior deaths, 51 fatalities (66 percent) happened to seniors who were 75 years of age or older, and 31 senior fatalities (40 percent) happened to seniors who were 85 years old or older. Of the adults, 18 out of the 20 tip-over fatalities occurred to adults ages 42 to 59 years old. Of the 20 adult fatalities in the 19-year span from 2000 through 2018, there were between 0 and 2 deaths in each year, and there was one fatality reported to CPSC in each of the most recent years from 2016 through 2018. Figure 12 presents the distribution of the fatalities for these two age groups by age ranges.

Figure 12  
Product Instability or Tip-Over-Related Adult and Senior Fatalities Reported to CPSC  
by Victim Age at Time of Death 2000–2018<sup>46</sup>

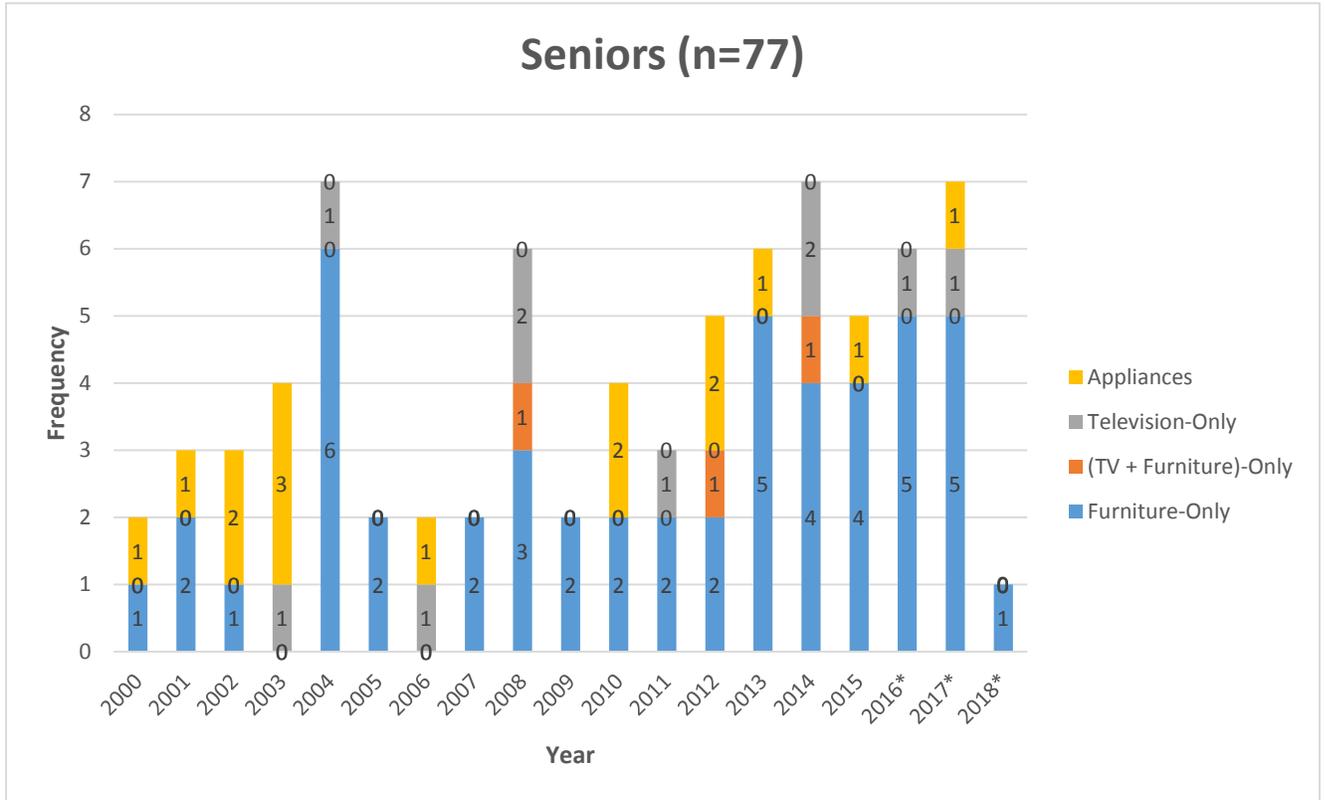


Source: CPSC databases, including NEISS and CPSRMS.

<sup>46</sup> There is one report of an “elderly woman” with no known age at the time of death, which accounts for the one senior with the unknown age.

Figure 13 presents the 77 senior tip-over fatalities by furniture categories for years 2000 through 2018. The number of senior tip-over fatalities, mostly furniture-only fatalities, continues to occur with 5 to 7 deaths reported each year from 2012 through 2017.

Figure 13  
Product Instability or Tip-Over-Related Senior Fatalities Reported to CPSC  
by Product Category 2000–2018



Source: CPSC databases, including NEISS and CPSRMS. Asterisks (\*) indicate ongoing reporting.

## Appendix A

### Methodology for Selecting Product Instability or Tip-Over Injuries and Fatalities Associated with Televisions, Furniture, and Appliances

A multidisciplinary team of CPSC staff met to discuss terminology, the types of products of interest, and types of product-associated instability or tip-over incidents that are to be considered in-scope. For this report, the focus is on heavy objects that tip-over and fall on an individual due to some type of interaction, such as climbing or exerting a force, on the object while it is in one of its positions of normal use. This interaction with the product results in the center of gravity of the product changing. When the product falls on an individual, the injuries are typically crushing or compressing in nature. Instability is defined differently from tip-over incidents for this report. For instability, the product falls due to some issue with the product's center of gravity changing (*i.e.*, with or without the interaction associated with tip-overs). The instability and tip-over definitions helped to set the criteria for the types of scenarios and products that have been included in the analysis. Product instability, which includes tip-over incidents as a subset, can be triggered by other causes, including simply having multiple drawers open in a dresser or cabinet.

In examining the types of products involved in the incidents, staff considered whether the product was heavy and whether it potentially could inflict crushing or compressing injuries. The additional criterion of the potential interaction of the individual with the product was also important. The television-only, furniture, and appliance-only categories fit these criteria. The individual product codes were chosen based on the product's potential to fall, and the product's purpose, its size, its location, and its weight. Generally, the focus is on larger or heavier furniture that has the potential to cause greater injury or death; is positioned in a location similar to a home environment; stands more upright in nature; has a normal resting location; is rarely moved from that normal resting location during day to day activity; and which is not usually meant to be interacted with too much excessive force. Products intended to be sat on or laid upon, such as chairs, couches, and beds, were excluded, due to the emphasis on products that are not intended to be frequently moved or interacted with excessive force.

The potential product codes were determined from furniture products associated with televisions, furniture, and appliances that meet the criteria described above and in Appendix B. Table 11 identifies the potential product codes used to extract the instability or tip-over data for televisions, furniture, and appliances.

Table 11  
Potential Instability or Tip-Over Television, Furniture, and Appliance Product Codes<sup>47</sup>

Product Category	NEISS Product Code	Description
Television	557	Computers (equipment and electronic games)
Television	572	Televisions
Furniture	519	Television tables or stands
Furniture	604	Desks, chests, bureaus, or buffets
Furniture	693	Footlockers
Furniture	709	Safes
Furniture	1260	Billiards or pool (activity, apparel or equipment)
Furniture	1269	Table Tennis (activity, apparel or equipment)
Furniture	1684	Carts, other, or not specified
Furniture	1726	Lockers
Furniture	4013	Other furniture
Furniture	4014	Furniture, not specified
Furniture	4056	Cabinets, racks, room dividers, and shelves
Furniture	4057	Tables (excl. baby changing tables, billiard tables, or pool tables)
Furniture	4065	Clocks, electric or battery operated
Furniture	4067	Clocks, not electric or battery operated or not specified
Appliance	101	Washing machines without wringers or other dryers
Appliance	102	Wringer washing machines
Appliance	106	Electric clothes dryers without washers
Appliance	107	Gas clothes dryers without washers
Appliance	126	Washing machines, not specified
Appliance	127	Clothes dryers, not specified
Appliance	135	Washer-Dryer combinations (within one frame)
Appliance	140	Washing machines, other or not specified
Appliance	259	Electric ranges (with ovens)
Appliance	260	Gas ranges (with ovens)
Appliance	263	Freezers (separate from refrigerators)
Appliance	264	Microwave ovens
Appliance	266	Ovens, not specified
Appliance	267	Other ranges (with ovens)
Appliance	273	Ranges, not specified
Appliance	276	Refrigerators
Appliance	278	Electric ranges or ovens (excl. counter-top ovens)
Appliance	279	Gas ranges or ovens
Appliance	280	Other ranges or ovens
Appliance	281	Ranges or ovens, not specified
Appliance	482	Appliances, other and not specified
Appliance	1821	Clotheslines or clothes drying racks (excluding poles)
Appliance	3233	Other grills or stoves

<sup>47</sup> The source for product codes and descriptions is the NEISS Coding Manual (updated January 2019).

After the set of potential product codes was established, the next step was to determine the types of scenarios to look for in the narratives. Narrative key word searches were used with caution when extracting a potential set of data because the narrative field descriptions have many possible word choices, misspellings, and sentence structures. Additionally, narratives from NEISS, medical examiner reports and death certificates are often very terse and provide only basic information. Consequently, the NEISS product codes listed in Table 11 and the time period were the criteria used to extract the data sets; then, the narratives were examined, using very detailed heuristics, to determine if an incident met the instability or tip-over definition(s). In Appendix B, additional details describe the products and conventions that are used to determine in-scope cases, and some examples are also given to explain what products and which instability or tip-over scenarios are considered in-scope.

NEISS data are based on a nationally representative probability sample of hospitals in the U.S. and its territories.<sup>48</sup> The total number of hospital emergency department visits nationwide in the U.S. can be estimated from the probability sample for age groups, products, injury types, and body parts for particular years, or combinations of these criteria, among many other estimates. NEISS estimates are reportable provided the sample count is greater than 20, the national estimate is greater than 1,200, and the coefficient of variation (CV) is less than 0.33. Because the hospital reports in NEISS are unique, there are no duplicates.

The most recent injury estimates were based on 2018 NEISS data extracted on May 8, 2019; this was merged with data from last year's report for the years 2009 through 2017, to cover the 2009 through 2018 reporting period. Estimates for the years 2006 through 2008 were presented in all past annual reports, but were not used in this report in order to restrict the injury data to the most recently available 10 years. The previous annual report data were reviewed along with the newer data to ensure that the criteria for inclusion was applied consistently. After careful consideration of scope criteria of NEISS incidents used in the 2018 report, nine incidents from the earlier years 2009 through 2017 were excluded from the data in this report, as described in Appendix B.

The product code referencing ping pong tables (1269) was included in the search for the first time in this report. Staff recognized that this would improve the identification of all tip-over incidents of interest. While this added no new fatalities for 2000 through 2018, 13 new NEISS injury cases were added for years 2009 through 2018.

Some product instability or tip-over-related injury victims survive the initial impact, but succumb to their injuries at a later date. In the NEISS data from 2009 through 2018, there are 13 such injuries which resulted in death after the victim was sent and treated in the emergency room. These 13 deaths have been included in the calculation of the national injury estimates for 2009 through 2018, and also in the fatality analysis presented in this report. There are another five NEISS deaths that occurred between 2000 and 2008, which appear in the fatality section.

The television, furniture, and appliance categories in this report have changed when

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<sup>48</sup> NEISS data can be accessed from the CPSC webpage under the "Access NEISS" link at: <https://www.cpsc.gov/Research--Statistics/NEISS-Injury-Data>.

compared to all previous annual tip-over reports in the NEISS ‘injury’ section. A television or an appliance falling in combination with the furniture (that it is resting in or on) falling is counted only in the furniture category in this annual report. In all previous annual tip-over reports, incidents involving both a television and furniture falling or both an appliance and furniture falling were captured in the respective television or appliance categories. Generally, if furniture falls while either a television or an appliance is resting in or on top of the furniture, then the television or appliance is also going to fall. Using this logic, it makes sense to change the way these incidents are categorized by putting them all into the furniture category, even though many times the injury or death scenario is caused by a person, usually a child, being drawn to interact with or actually interacting with a television or appliance that is sitting atop free-standing furniture. In many instances, the television or appliance that falls along with furniture is the primary cause of more severe injuries or fatalities, rather than the furniture that fell as well. When the first annual instability or tip-over report was written, the main concern of serious injury or death was televisions, since the majority of tip-over deaths involved children and televisions. Therefore, in past annual reports, all television (including television plus furniture) tip-overs formed a category, only-furniture formed a category, and all appliances formed a category. Over the years, data has shown ED-treated injuries involving televisions (alone or with furniture), have significantly declined since the initial instability or tip-over report. Focus can now be shifted to the furniture category tip-over incidents for the NEISS injuries. Tip-over incidents involving furniture have not shown any significant decline in any age group or for all ages combined; in fact, there is an increase in estimated senior furniture-related tip-over injuries from 2010 through 2018.

Fatality data were extracted on June 1, 2019, from NEISS and CPSRMS (Consumer Product Safety Risk Management System) for instability or tip-over fatalities involving the television, furniture, and appliance codes mentioned above, covering the years 2000 through 2018. Data collected in 2019 were merged with the data used in the last annual report (extracted June 1, 2018). It should be noted that, for a given year, incidents are received on an ongoing basis, and there is commonly a lag of about 2 years between when many fatalities occur and when they are first reported to CPSC. Additionally, it is not uncommon that multiple reports about a single fatality are received, therefore source documents are carefully checked to eliminate duplicate incident reports. As fatal incidents are notable events in the community where they occur, often there are multiple news reports, a medical examiner’s report, a death certificate, an in-depth investigation initiated by CPSC staff, and less frequently, a NEISS report. Reports come from various types of sources, including newspaper clippings, consumer complaints, and reports from other government agencies, such as medical examiners/coroners. However, CPSRMS data is anecdotal and represents at least a minimum for all fatalities that have occurred nationwide. Once the fatality set is established, the incidents are examined to code additional scenario characteristics. Public locations include nursing homes and assisted living facilities in both the NEISS injury estimates and in the fatality section, which generally only affects the senior age group. Since the 2018 annual report, three senior fatalities were reclassified from location of death at home to location of death in a public place.

Fatalities in this report are reported as counts from CPSC data, and injury estimates are rounded to the nearest hundred. Injury estimate category percentages were based on the category-weighted estimates; fatality category percentages were based on the category counts observed.

## Appendix B

### Conventions for Determining In-Scope NEISS Incidents

NEISS incidents often have a terse narrative; accordingly, staff used a more stringent set of rules when examining this NEISS set of potential instability or tip-over incidents compared to fatalities extracted from the other CPSC epidemiological database (CPSRMS). This appendix lists the types of products and incident scenarios included in the NEISS instability or tip-over incidents associated with televisions, furniture, and appliances. In an effort to improve the identification of in-scope incidents, some of the coding determinations were revised from the last data extraction, and a handful of incidents from past annual tip-over reports were omitted. For example, the ping pong table product code (1269) was included as a search criterion for the first time in this report, consequently slight changes resulted in the estimated number of injuries for past years, 2009 through 2017 compared to what was presented in past annual tip-over reports. However, these changes may not be apparent due to rounding.

#### Unstable items included in the counts:

1. Furniture:
  - a. Armoire
  - b. Bookcase
  - c. Bureau
  - d. Cabinet (Exclude: kitchen and medicine)
  - e. Cart (Include only: microwave and TV)
  - f. Chest (Exclude: jewelry and falling off shelf)
  - g. Cupboard
  - h. Desk (Exclude: at schools)
  - i. Display case (Include only: in-home locations)
  - j. Dresser
  - k. Clocks, long case (Exclude: all other clocks)
  - l. Game Tables (Include only: “game table”, ping pong, and pool)<sup>49</sup>
  - m. Locker (Include only: in-home locations)
  - n. Pedestal
  - o. Plant stand
  - p. Rack (Include only: coat rack)
  - q. Room divider
  - r. Safe (Exclude: falling off shelf)
  - s. Safety strap (Include: tethering in-scope items to a wall)  
(Exclude: mounting items on a wall)
  - t. Shelf (Exclude: in closets and in stores)
  - u. Stand (Include only: microwave, night, and TV)
  - v. Table (Include: picnic and folding tables)
  - w. Vanity
  - x. Wall unit

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<sup>49</sup> In past reports “game tables”, ping pong tables and pool tables were all included and categorized as ‘other furniture’. This is the first report that used the ping pong table product code (1269) to more actively find all ping pong tables in the NEISS data over all years.

- y. Wardrobe
2. Appliances:
    - a. Dryer
    - b. Freezer
    - c. Microwave
    - d. Refrigerator (Include: mini fridge)
    - e. Stove/Oven
    - f. Washing machine

Note: If the type of furniture or appliance is not specified in the narrative, then the incident is not included. Examples include the item that caused the injury being described by only the terms “furniture” or “appliance” in the narrative.

3. Electronics:
  - a. Computer screen/monitor (Exclude: “computer” and laptop)
  - b. Television

Note: All other electronics are not included in the count.

4. Locations:
  - a. Store (Exclude: cart, display case, rack, and shelf)
  - b. School (Exclude: desk and locker)
  - c. Other public locations (Exclude: locker)

5. Sample scenarios that involved an injury:
  - a. “tried to catch”
    - Ex: The patient tried to catch a falling TV and injured foot.
    - Ex: While at school the patient tried to stop a room divider from falling over and injured head.
  - b. “found under” (Exclude: desk and table)
    - Ex: Mom heard a loud crash, and she found her son lying under a dresser.
  - c. “pulled on self”
    - Ex: The infant pulled a TV down onto herself.
    - Ex: Grandma started to fall when she pulled a dresser onto herself in order to try to keep her balance.

Note: These incident types are counted when a narrative implies an instability or tip-over incident occurred and is the reason for the hospital visit.

**Unstable items not included in the counts:**

1. Anything falling from/off of/out of a wall, or attached/connected to a wall.

2. Ambiguity in the narrative:
  - a. What is the item that fell?

Ex: The patient was sitting next to an unstable table while leaning back in her chair when it fell over and landed on her.  
(It is unclear to what 'it' is referenced. Does 'it' refer to the table or the chair?)
  - b. Which event caused the patient to seek treatment at the hospital?

Ex: The patient has a skull fracture. Either the patient bumped his head on a cabinet today, or yesterday a TV fell off a dresser onto his head.  
(It is unclear for which incident the patient is being treated at the hospital)
3. Action verbs alone that do not describe instability, such as assemble, brake, collapse, drop, fix, hit, struck, and move.

Note: If a child 9 years old or younger “dropped” or “moved” an unstable item, or tipped over an item, causing the child to go to the hospital to seek treatment, then the incident is counted.

4. Components of furniture such as a door, drawer, handle, knob, panel, table leaf, and table top.
5. Furniture intended to be sat upon or laid on, such as a bed, bench, bleacher, chair, couch, futon, glider, love seat, recliner, and seat.
6. Appliance (examples): air conditioner, blender, boiler, broiler, crock pot, fan, food processor, fryer, heater (electric or gas), rice cooker, stove hood/fan, toaster, toaster oven, trash compactor, and vacuum.
7. Electronics (examples): cable box, DVD/VCR player, video game system, radio, and speaker.
8. Storage furniture (examples): barrel, box, cage, cans, case, container, crate, hutch, tank, and trunk.
9. Other furniture (examples): all baby furniture, all power tools, aquarium, book, candle, candleholder, figurine, fireplace, mantel, mirror, newspaper box, pan, podium, pot, railing, skillet, slot machine, statue, toolbox, vase, and yard compactor.