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Fall-Related Injury Issue Brief

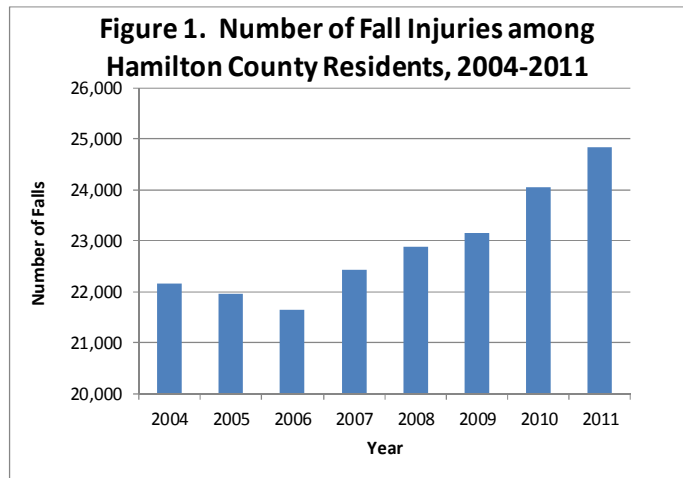
Falls Throughout the Years

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Fall-related injuries can occur to people of all ages within a community. Young children often experience fall-related injuries while playing or participating in physical activities. For elderly adults, improper home environments as well as decreased physical well-being contribute greatly to the overall

risk of experiencing a fall-related injury. In Hamilton County, falls remained the most reported external cause of injury from 2004-2011. Between 21,000 and 25,000 falls were treated each year by emergency departments and hospitals; the next closest injury (struck by, against) only

accounted for roughly 14,000 injuries per year. A troubling trend was that the number of fall-related injuries reported to emergency departments and hospitals had increased steadily since 2006. As seen in Figure 1, nearly 3,000 more fall-related injuries were treated in emergency departments and hospitals in 2011 when compared to 2006. Multiple factors drive the number of fall-related injuries that are treated at emergency departments and hospitals. This issue brief was created to highlight the problem of falls and provide methods for preventing fall-related injuries. Awareness and action are needed in order to promote reductions in fall-related injuries.



Falls Across all Ages

Age is one of the most important factors to view when addressing the issue of falls within a community. As Table 1 shows, the young (0 to 14) and old (65+) had the highest rates of fall-related injuries in 2004 and 2011. Table 1 also shows the rate difference between 2004 and 2011, as well as the percent rate difference. Using the 2004 data as our baseline and looking at the rate difference, we can determine which age groups have experienced the greatest increase in burden due to fall-related injuries. Residents over age 85 experienced the greatest increase in age-specific injury rate due to falls (25.8 per 1,000), suggesting that this age group is burdened most by the increase in fall-related injuries. Interestingly, young children (0 to 4 years old) actually experienced a slight decrease in age-specific

fall-related injury rates (0.7 per 1,000); however these young residents are still at a high risk of fall-related injuries. The largest change in percent rate difference was present among residents between the ages of 35-39 with over a 30 percent

increase in rate from 2004 to 2011. While this is a large increase for the age group, the elderly (65+) still exhibited much higher rates and are more likely to experience fall-related injuries.

Table 1. Rate of Fall Injuries by Age Group, Hamilton County, 2004 vs. 2011

Age Group	2004 Rate (Per 1,000)	2011 Rate (Per 1,000)	Rate Difference (Per 1,000)	Percent Rate Difference
0 to 4	57.6	56.9	-0.7	-1.2%
5 to 9	39.5	37.5	-2.0	-5.1%
10 to 14	33.9	36.7	2.8	8.3%
15 to 19	18.6	19.9	1.3	7.0%
20 to 24	17.3	19.5	2.2	12.7%
25 to 29	17.1	20.4	3.3	19.3%
30 to 34	17.6	22.6	5.0	28.4%
35 to 39	16.6	22.2	5.6	33.7%
40 to 44	17.8	21.4	3.6	20.2%
45 to 54	17.6	23.1	5.5	31.3%
55 to 64	19.0	21.6	2.6	13.7%
65 to 74	27.1	31.8	4.7	17.3%
75 to 84	55.8	66.4	10.6	19.0%
85+	111.4	137.2	25.8	23.2%

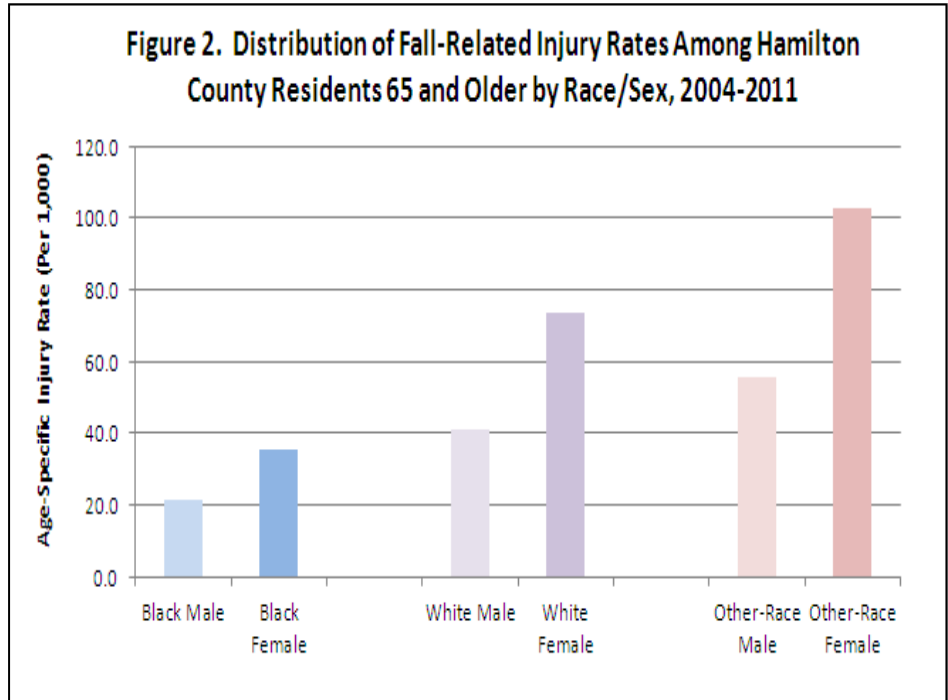
Falls Among the Elderly

The prior section highlighted the overall age-specific rates of fall-related injuries in Hamilton County and identified the elderly population (65+) as the age group most burdened by fall injuries. This next section of the brief provides an in-depth examination of fall-related injuries among the elderly.

Every year, one in three adults over the age of 65 falls.¹

Figure 2 shows the race-sex specific rates of all fall-related injuries to elderly Hamilton County residents. As the figure shows, the highest rates of fall-related injuries occurred among other-race female residents. Based on the analyses, elderly female residents across all races had higher rates of fall-related injuries than their male counterparts.

Another important factor to consider is in which setting the falls occurred. Figure 3 shows the percent distribution for location where elderly fall-related injuries occurred. Among fall-related injuries to the elderly which had a location recorded, nearly 65 percent took place in a residence of some kind (47.9 percent at home and 16.6 percent at a residential institution). This finding is important as it reinforces the idea that home modification to reduce fall

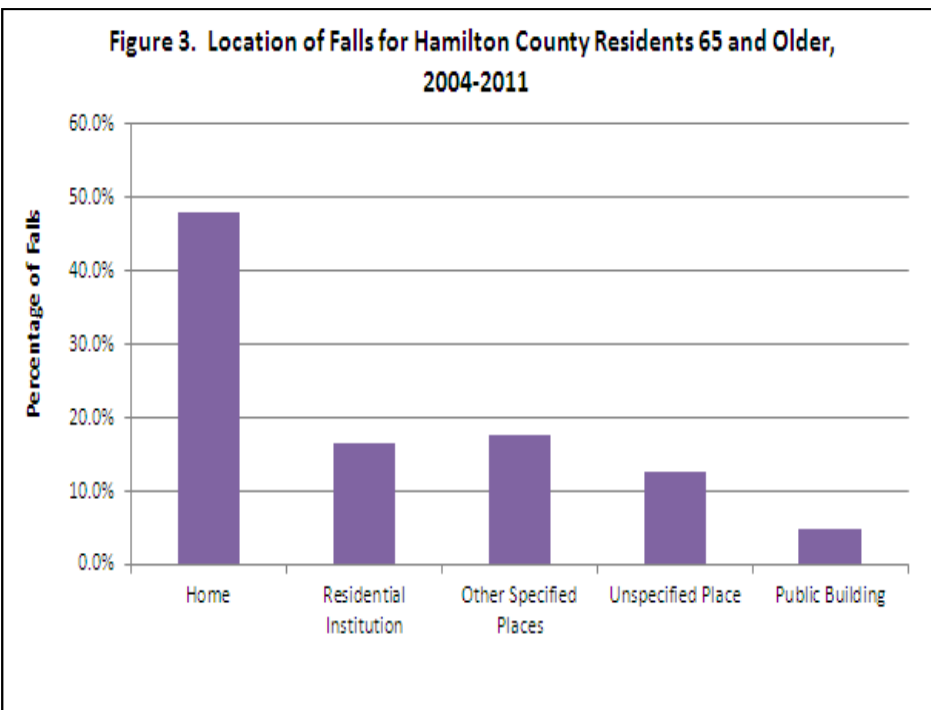


hazards is one crucial way to prevent fall-related injuries. A very small percentage of elderly residents experienced a fall-related injury (0.7 percent) at a place of recreation, in comparison to residents under the age of 15 (13 percent). Through understanding the differences of where fall-related injuries occur, a more efficient prevention program can be implemented.

Along with higher overall fall-related injury rates, the elderly also experienced higher age-specific death rates than younger age groups. Figure 4 shows the average annual, age-specific, fall-related death rates among all the age groups for Hamilton County 2004-2011. The data showed that as age was increased, a dramatic increase in death rate also occurred. The fall-related death rates among the 65-74, 75-84, and 85+ age groups were 22.8 per 100,000, 86.4 per 100,000, and 238.3 per 100,000 respectively.

To further illustrate the severity and burden of falls among the elderly within Hamilton County, an analysis was conducted that examined the length of stay for fall-related injuries across all age groups. Figure 5 shows the results from this analysis. According to Figure 5, as age increased, the percentage of fall-related injuries that required a longer stay at a treatment facility also increased. These longer stays were likely due to more extensive injuries that required more time to be treated.

Length of stays requiring more than one day coincided with the percentage of hospitalizations for each age group, as shown in Figure 5. Thus, a higher percentage of fall-related hospitalizations were present among the elderly when compared to fall-related injuries among younger age groups. It is important to discover which type of injuries



Falls Among the Elderly (cont.)

Figure 4. Average Annual, Age-Specific, Fall-Related Death Rate for Hamilton County Residents; 2004-2011

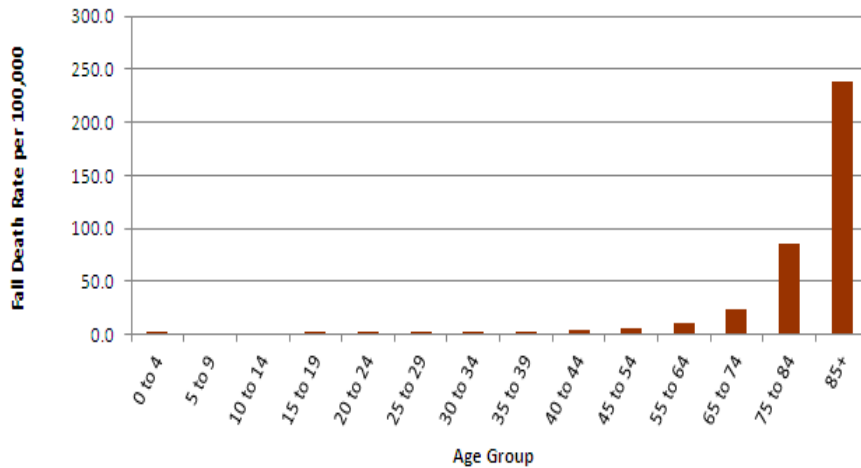
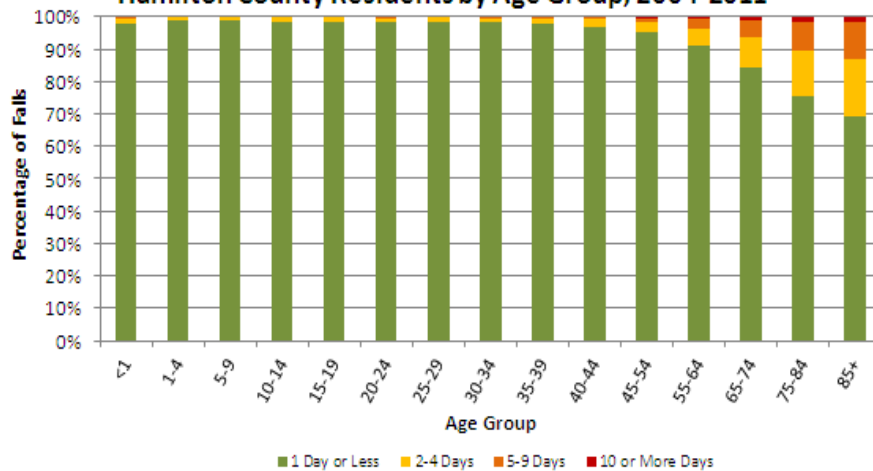


Figure 5. Length of Stay Distribution for Falls among Hamilton County Residents by Age Group, 2004-2011



are most responsible for these extended hospitalizations. A determination of these injuries was made using primary diagnoses codes. Primary diagnosis codes specify which injury during a patient's visit was most responsible for the patient's stay. Of the 11,550 hospitalizations due to fall-related injuries that occurred within the elderly population from 2004-2011, the top three primary diagnoses were hip fractures (4,999), pelvic fractures (860) and vertebrae fractures (790). Fall prevention will help reduce the number of severe fall-related injuries, decrease the number of stays that last longer than one day, and reduce the overall number of injuries among the elderly population.

The CDC estimates that in 2005 the average medical cost of each fall-related death among the elderly was \$21,988. Medical costs for each hospitalization and emergency department visit among the elderly was \$18,010 and \$1,086, respectively.² Without adjusting for inflation, if the 2005 national average medical cost for fall-related injuries was applied to the fall-related injuries among the elderly in Hamilton County in 2011, over \$33.5 million would have been spent. Ultimately, promoting the prevention of falls among the elderly within Hamilton County will improve the quality of life for the elderly as well as save the community revenue typically spent toward medical costs.

Where Does Public Health Get The Data?

The data used in this report were gathered from the Hamilton County Injury Surveillance System (HCISS). The HCISS is a collaborative surveillance effort led by Hamilton County Public Health and supported by our local hospitals, the Hamilton County Coroner's Office, and the Greater Cincinnati Health Council. Data on non-fatal intentional injuries were obtained from local hospitals/trauma registries and represent emergency department visits and hospitalizations (inpatients); data on fatal intentional injuries were obtained from the Hamilton County Coroner's Office. Figure 6 shows the breakdown of fall-related injuries as reported

through the HCISS. The bottom layer, emergency department visits, represents the least severe injuries, yet the largest number of patients; the next two layers, hospitalizations and deaths, represent the most severe and costly injuries to residents of Hamilton County. An unknown number of unreported fall injuries were not identified in the HCISS because these individuals did not seek medical care for their fall.

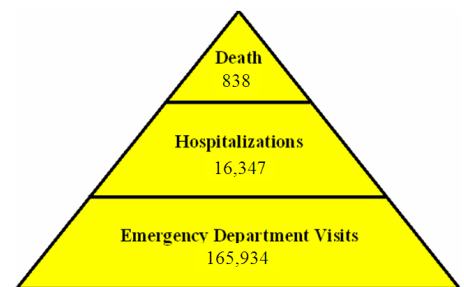


Figure 6. Falls Injury Pyramid, Hamilton County, 2004-2011

Ways to Prevent Falls among the Elderly

Following are areas of prevention that can be used to reduce falls among the elderly population. These prevention processes are listed by the CDC as the five main building blocks to an effective community-based program regarding falls³. Research suggests that an individualized, multi-faceted approach works best to prevent falls.

1. **Education** about falls and their risk factors. While education by itself is not enough to prevent falls, it does help identify behaviors and risk factors that may be present³.
2. **Exercises** that improve balance, mobility and strength, which are taught by nationally certified and trained instructors³.

3. **Review of medication** to identify side effects or drug interactions that may add to the risk of fall injuries. These reviews should be carried out by health professionals or pharmacists³.
4. **Vision exams** should be conducted by trained healthcare professionals with any vision correction to be done by an optometrist or ophthalmologist³.
5. **Home safety assessment and home modification** can be done to identify and remove home health risks that increase the likelihood of fall injuries. This process should be carried out by a trained professional³.

For more information regarding falls and fall prevention, please visit the Hamilton County Fall Prevention Task Force and CDC websites:

- <http://www.fallpreventiontaskforce.org>
- <http://www.cdc.gov/HomeandRecreationalSafety/Falls/index.html>



Healthy People 2020 Goals

The Healthy People 2020 goals were released in December 2010. Healthy People is a government organization that sets forth 10-year national objectives for improving the health of all Americans.⁴ Many of these objectives are created by taking rates from a previously measured national rate gathered during Healthy People 2010 or from a 10 percent decrease there-in. Specific objectives for fall-related injuries are given by the Injury and Violence Prevention (IVP) goals 23.1 and 23.2. Table 2 describes what these goals are and shows where Hamilton County stands in terms of reaching those goals as of 2011 data.

Goal	Hamilton County 2011
IVP 23.1: Prevent an increase in the rate of fall-related deaths (7.0 deaths per 100,000).	12.9 per 100,000
IVP 23.2: Prevent an increase in the rate of fall-related deaths among adults 65 and older (45.3 per 100,000).	83.4 per 100,000

As of 2011, Hamilton County was not meeting the 2020 Healthy People goals for fall-related injuries. The fall-related death rate for all of Hamilton County was 12.9 per 100,000 elderly residents, 5.9 per

100,000 above the goal.

Regarding the fall-related death rate among the elderly, Hamilton County was at 83.4 per 100,000 elderly residents, which was over the goal by 38.1 per

100,000. These numbers reflect where Hamilton County was in 2011 regarding falls. As more data are collected through HCISS, changes throughout the years will be detected allowing for prevention methods to be measured and improved upon.

For additional reports on injuries in Hamilton County, please visit:
http://www.hamiltoncountyhealth.org/en/resource_library/reports.html

References

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- ² National Center for Injury Prevention and Control. *Web-base injury statistics query and reporting system*. Atlanta, GA: Centers for Disease Control and Prevention, Accessed September 14, 2012. Retrieved from <http://wisqars.cdc.gov:8080/costT/>.
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