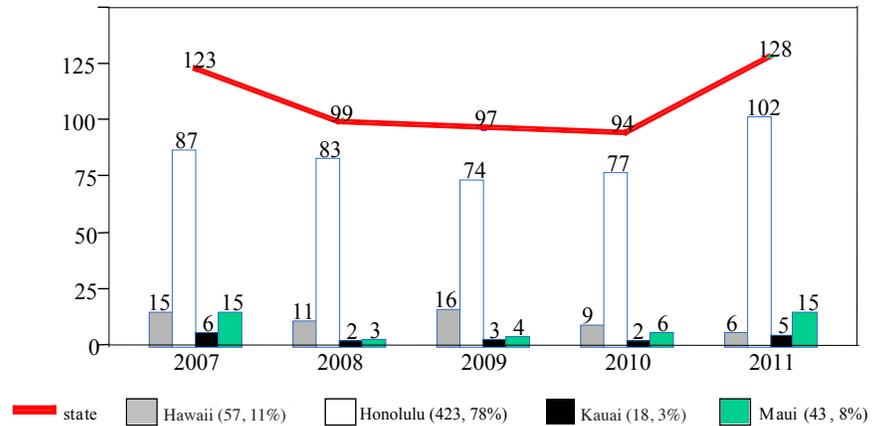


Falls

Fatal injuries

Falls were the most common type of fatal unintentional injury in the state, with the 541 deaths accounting for 25% of the total. There was no clear trend in the annual number of deaths in the state, although the highest level was seen in 2011 (Figure 104). More than three-fourths (78%, or 423) of the injuries occurred on Oahu. About half (48%, or 57) of the 118 fatalities on the Neighbor Islands occurred on the island of Hawaii.

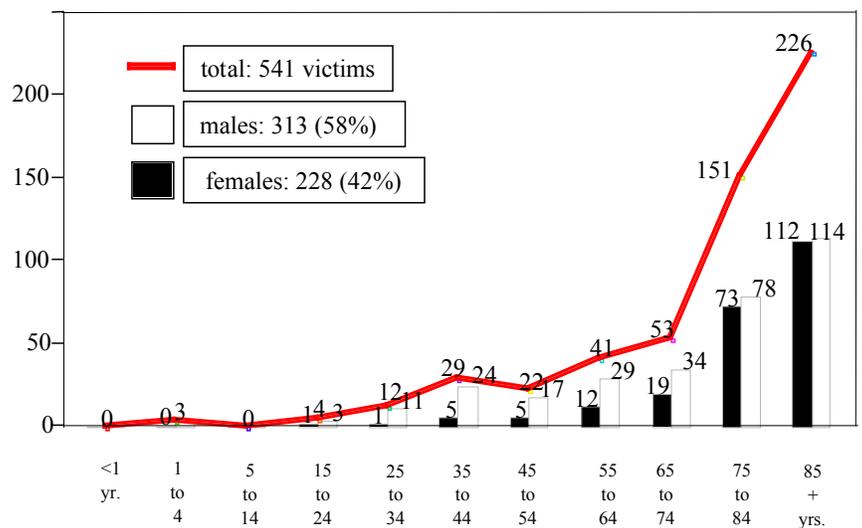
Figure 104. Annual number of fatal falls among Hawaii residents, by county, 2007-2011.



Falls

More than three-fourths (79%, or 430) of the falls victims were aged 65 years or older, and 70% (377) were 75 years or older (Figure 105). Male victims outnumbered females overall (58% vs. 42%), but gender was equally distributed among senior-aged victims (226 males and 204 females). In contrast, 78% (87 of 111) of the victims under 65 years of age were males.

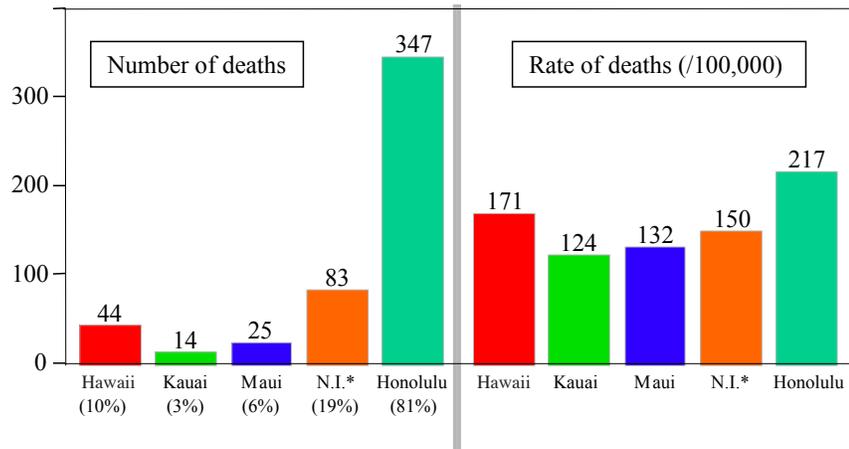
Figure 105. Age and gender distribution of victims of fatal falls in Hawaii, 2007-2011.



Most (81%, or 347) of the 430 senior-aged victims of falls were residents of Honolulu County (Figure 106). The fall fatality rate estimate for senior-aged residents of Honolulu County was significantly higher than the rates for residents of Kauai or Maui counties, and 45% higher than for Neighbor Island residents considered as a whole. Hawaii County residents had the highest rates among the Neighbor Islands, although there were no significant differences among these counties. However, these rate estimates are based on low numbers of deaths, which limits the reliability of statistical comparisons between Neighbor Islands.

Figure 106. Number and rate of fatal falls among senior-aged residents in Hawaii, by county of injury, 2007-2011.

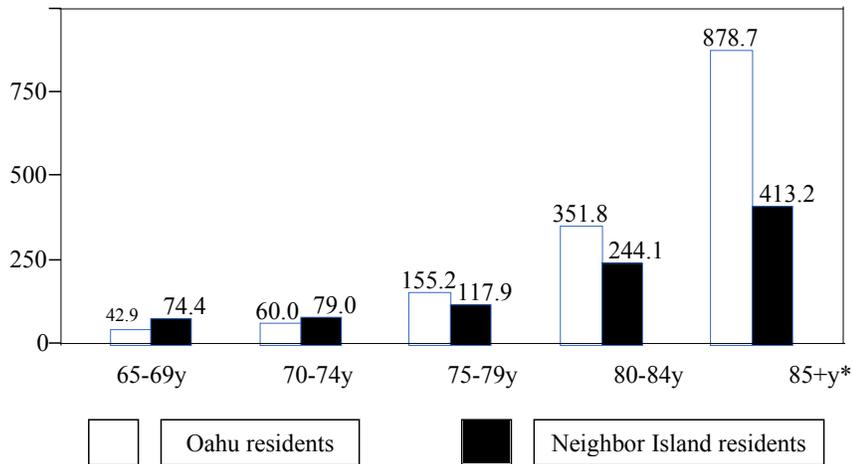
(Rate is per 100,000 senior-aged residents, age adjusted to the 2000 U.S. population distribution.)



*N.I.=Neighbor Islands (combined totals for Hawaii, Kauai, and Maui counties.)

The rate of fatal falls among senior-aged residents increased dramatically with age. For example, the 5-year mortality rate for those aged 85 years or older (758/100,000 residents) was 14 times higher than the rate among 65 to 69 year-olds (53/100,000). The increasing risk across age groups was apparent for senior-aged residents of both Oahu and the Neighbor Islands (Figure 107). However, rates were consistently higher among Oahu residents, including significant differences for residents aged 85 years and older.

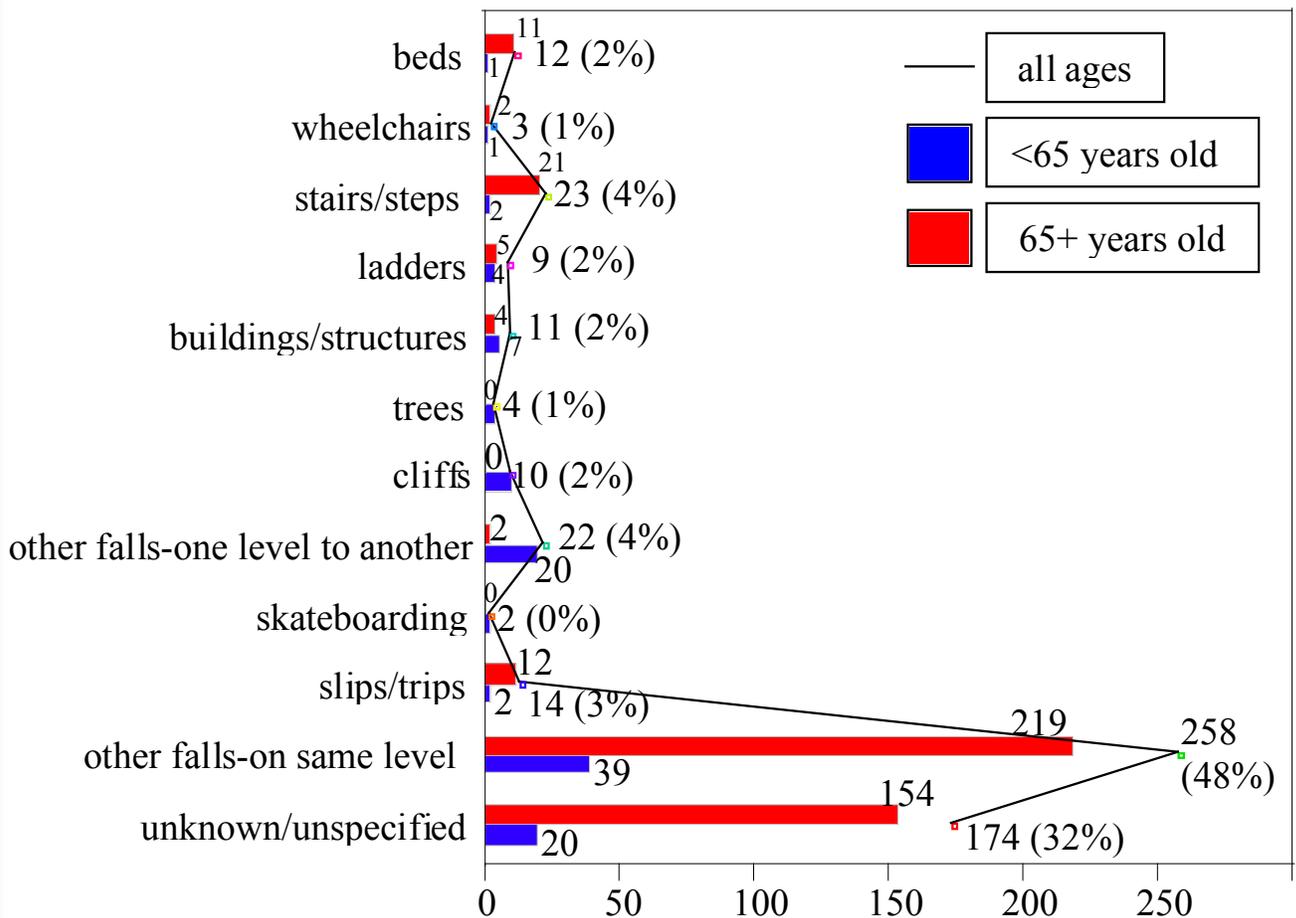
Figure 107. Six-year rates of fatal falls among senior-aged residents of Oahu, and Neighbor Islands, by age group, 2007-2011.



*Indicates statistically significant difference in rate between residents of Oahu and Neighbor Islands.

Figure 108 shows the types of fatal falls, as indicated by coding or the short description from the death certificate. Although there are some specific types of falls listed, the most common causes were vague, including 48% from falls “on the same level” with no further description, and “unspecified” falls (32%). All but 1 of the 12 victims who died from falls involving beds were 65 years or older, and 7 were more than 80 years old. Similarly, seniors comprised most of the victims who fell on stairs or steps (91%), or who fell on the same level from a slip or trip (86%), or other falls on the same level (85%). Most of the victims of falls from cliffs or natural elevations (100%), trees (100%), or other falls from one level to another (91%) were under 65 years of age. Only 1 of the 11 victims who fell from buildings or structures was under 24 years of age.

Figure 108. Fatal falls among Hawaii residents, by type of fall and age of victim, 2007-2011.



Sixty-one percent (327) of the 541 falls occurred in the home of the victim (323 falls) or their residential institution (4 falls). This proportion was higher among the senior-aged victims (68%), compared to those under the age of 65 (32%). The falls occurred fairly evenly over the days of the week. There were also no clear trends across the months of the year. These temporal descriptions were similar when based only on fatal falls among victims aged 65 years and older.

Nonfatal injuries

There was an increasing trend in the number of nonfatal injuries from falls that were treated in EDs, but no clear trend in the annual number of hospitalizations (Table 22). There was an average of nearly 21,000 of the former and over 2,700 of the latter types of injuries each year among Hawaii residents. Gender was equally distributed among patients treated in EDs, but females comprised 59% of the patients that were hospitalized. About two-thirds (68%) of the patients who were hospitalized were 65 years or older, compared to only 26% for those who were discharged from EDs. About two-thirds of the patients treated in EDs (64%) and admitted to hospitals (69%) were residents of Honolulu County.

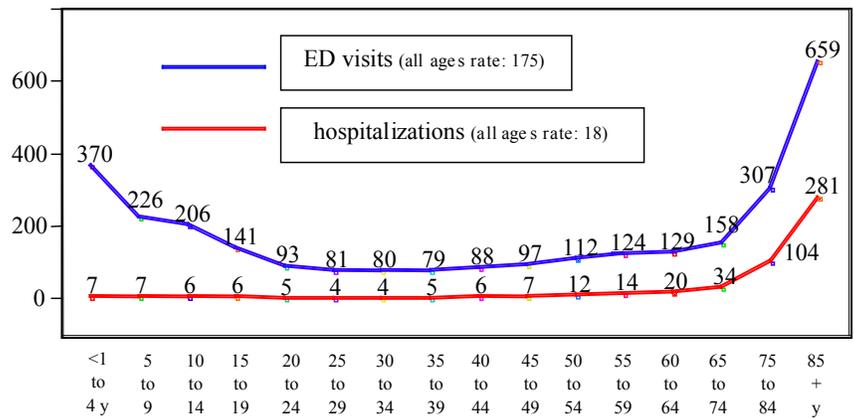
Table 22. Demographic characteristics* of Hawaii residents with nonfatal injuries from falls.

	ED visits	hospitalizations	total
Year of admission			
2007	19,618	2,651	22,269
2008	20,263	2,763	23,026
2009	21,333	2,708	24,041
2010	21,440	2,716	24,156
2011	21,946	2,688	24,634
average annual total	20,920	2,705	23,625
Patient gender			
Female	10,428 (50%)	1,608 (59%)	12,036 (51%)
Male	10,492 (50%)	1,097 (41%)	11,589 (49%)
Patient age			
infants	474 (2%)	14 (1%)	489 (2%)
1-4 y	2,772 (13%)	49 (2%)	2,821 (12%)
5-14 y	3,382 (16%)	105 (4%)	3,487 (15%)
15-24 y	2,028 (10%)	92 (3%)	2,120 (9%)
25-34 y	1,495 (7%)	73 (3%)	1,568 (7%)
35-44 y	1,438 (7%)	88 (3%)	1,526 (6%)
45-54 y	1,907 (9%)	181 (7%)	2,089 (9%)
55-64 y	1,993 (10%)	267 (10%)	2,260 (10%)
65-74 y	1,431 (7%)	313 (12%)	1,744 (7%)
75-84 y	2,034 (10%)	686 (25%)	2,720 (12%)
85+ y	1,966 (9%)	837 (31%)	2,803 (12%)
County of residence of patient			
Hawaii	3,908 (19%)	381 (14%)	4,289 (18%)
Honolulu	13,342 (64%)	1,867 (69%)	15,209 (64%)
Kauai	1,613 (8%)	137 (5%)	1,750 (7%)
Maui	2,057 (10%)	320 (12%)	2,377 (10%)

*Statistics are annual averages over the 2007-2011 period.

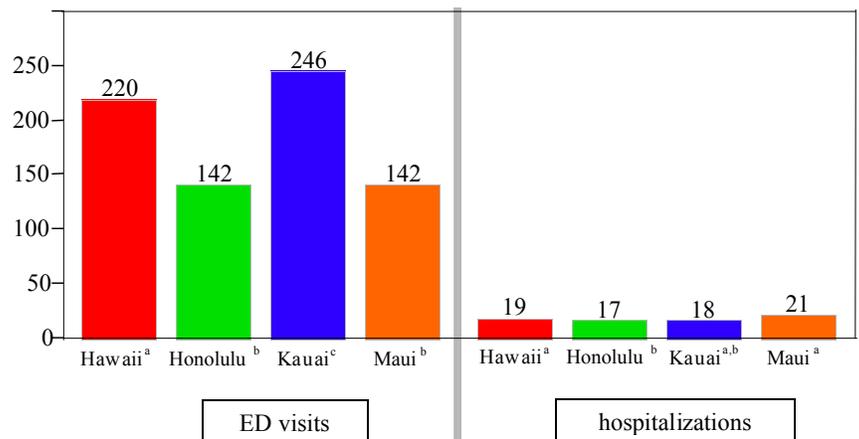
The youngest (ages 14 and younger) and oldest (65 and older) Hawaii residents had the highest rates of nonfatal injuries from falls that were treated in EDs (Figure 109). Rates decreased progressively from residents aged 4 years and younger to 20 to 24 year-olds, then rose gradually over the 25 to 64 year age range before increasing dramatically at ages 65 and older. Rates of ED visits for residents aged 85 and older were 4 times those for 65 to 74 year-olds, and 5 to 8 times higher than rates for other adult-aged residents. There was no peak in hospitalization rates for young children, although children under 10 years of age had the highest rates over the infant to 44 year age range. Rates again increased greatly among senior-aged residents, being at least 14 times higher among those aged 85 years or older compared to residents aged 64 years or younger. Hospitalization rates also increased sharply across the senior age range, approximately tripling across the age groups listed in Figure 85.

Figure 109. Average annual rates (per 10,000 residents) of hospitalizations and ED visits for nonfatal injuries from falls in Hawaii, by age of patient, 2007-2011.



Rates of ED visits among residents of Hawaii and Kauai counties were significantly higher than the rates computed for Honolulu and Maui county residents (Figure 110). Residents of Honolulu County had the lowest rates of hospitalizations, significantly lower than the rate computed for residents of Hawaii County.

Figure 110. Age adjusted annual rates (per 10,000 residents) of nonfatal injuries from falls, by level of care and county of residence of patient, 2007-2011.



(Counties with the same superscripted letter have statistically comparable estimates.)

The causes of the nonfatal falls are shown in Table 23. The distribution of the causes was generally similar for injuries treated in EDs and those that required hospitalization, with somewhat vague causes (e.g. falls “on same level”, and “other”) being the most common. Among the more specifically coded injuries, the most common causes were falls from stairs, steps and escalators (5.3% of the total), beds (3.7%), skateboards (3.5%), and chairs, playground equipment, and ladders (about 2% for each).

Nearly half of the records from ED visits (48%) and over one-third of the hospitalizations (35%) contained no information on where the injury occurred. The most commonly documented places were in the home (26% of ED records, 46% of hospitalizations). About 6% of the ED records were coded for injuries in public buildings, and 6% in recreational sites, while 4% of hospital admission records were coded for injuries in public buildings. Injuries to senior-aged patients were more likely to occur in their home or residential institution (39%), compared to injuries among younger patients (24%). At least half (53%) of the falls that caused hospitalizations in seniors occurred in home environments. This proportion increases to 84% if only records with specific information on location are considered.

Table 23. Causes of nonfatal falls among Hawaii residents, by level of care, 2007-2011.

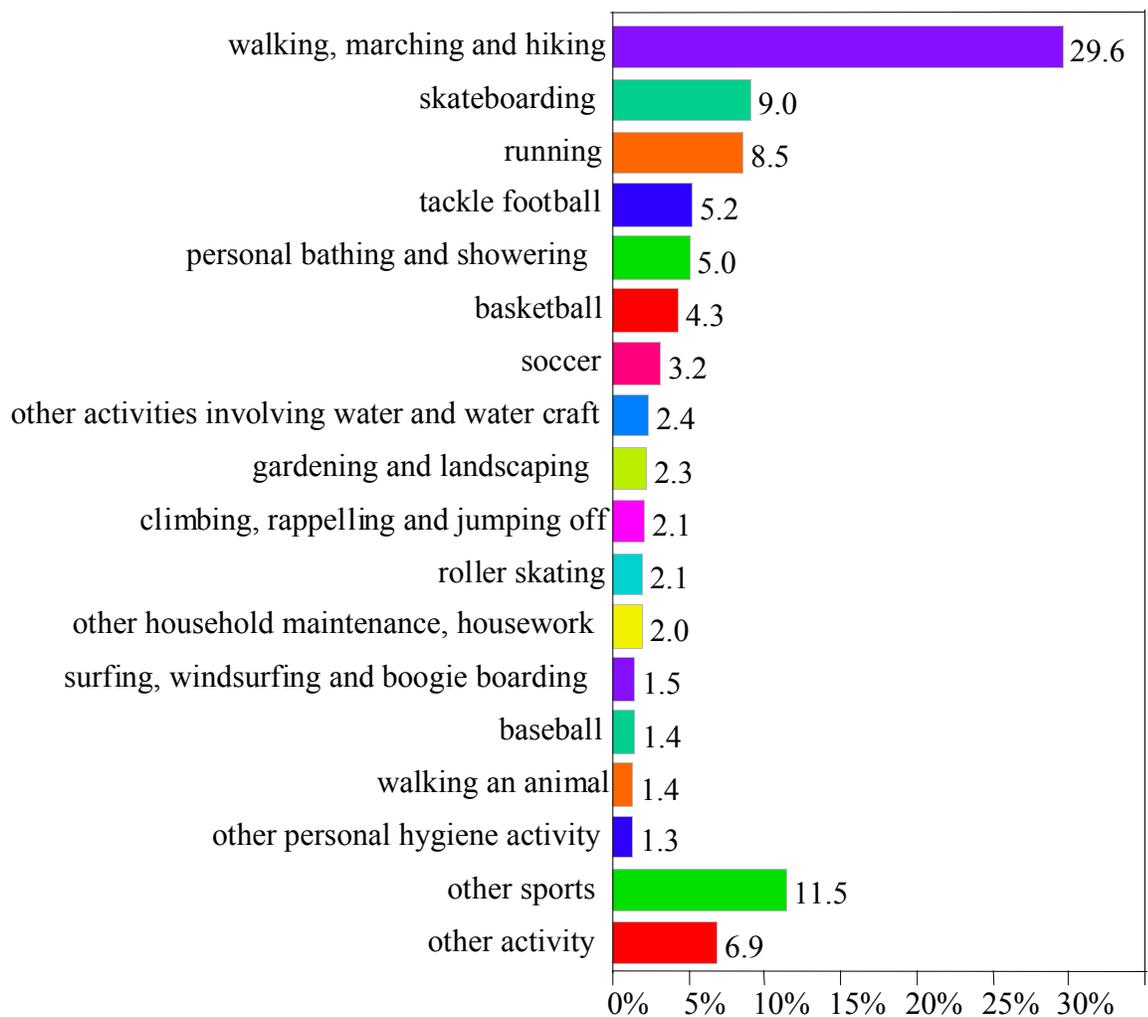
Cause of fall	Annual number of injuries (percent of total)		
	ED visits	hospitalizations	total
sidewalk curbs	116 (0.6%)	11 (0.4%)	126 (0.5%)
stairs, steps, escalators	1111 (5.3%)	136 (5%)	1247 (5.3%)
ladders	395 (1.9%)	72 (2.7%)	467 (2%)
scaffolding	27 (0.1%)	9 (0.3%)	36 (0.2%)
buildings/structures	182 (0.9%)	60 (2.2%)	242 (1%)
cliffs/natural elevations	25 (0.1%)	12 (0.5%)	37 (0.2%)
diving into water	86 (0.4%)	8 (0.3%)	94 (0.4%)
playground equipment	447 (2.1%)	27 (1%)	473 (2%)
chairs	476 (2.3%)	45 (1.7%)	521 (2.2%)
wheelchairs	119 (0.6%)	22 (0.8%)	142 (0.6%)
beds	783 (3.7%)	83 (3.1%)	866 (3.7%)
toilets	36 (0.2%)	11 (0.4%)	46 (0.2%)
other furniture	196 (0.9%)	13 (0.5%)	209 (0.9%)
into holes/openings	121 (0.6%)	5 (0.2%)	126 (0.5%)
from other heights	1255 (6%)	137 (5%)	1392 (5.9%)
razor scooters	106 (0.5%)	3 (0.1%)	109 (0.5%)
roller skates	56 (0.3%)	2 (0.1%)	59 (0.2%)
skateboards	783 (3.7%)	52 (1.9%)	835 (3.5%)
in sports	635 (3%)	18 (0.7%)	653 (2.8%)
on same level (other)	6364 (30.4%)	785 (29%)	7149 (30.3%)
other types of falls	4682 (22.4%)	589 (21.8%)	5271 (22.3%)
unspecified/unknown	2920 (14%)	605 (22.4%)	3525 (14.9%)

Beginning in 2010, some hospitals started providing external cause status codes and activity codes. Only about 5% of the 14,365 records with specific information indicated the patient was injured in a fall from an “activity done for income or pay”.

Information on patient activity was available for about 18% (9,185) of the 48,790 records from 2010 to 2011. Activity codes were more likely to be provided in ED records (19%) compared to inpatient records (9%). This proportion also varied across hospitals, with those in Hawaii County being most likely to provide activity codes (24% of records), and hospitals in Maui County being least likely (15%). (Activity codes were provided for 20% of the records from Kauai County hospitals and 17% of the hospitals on Oahu.) One-third (4 of 12) of the hospitals on Oahu essentially did not provide activity codes in their records.

The most common activity related to the falls was “walking, marching and hiking”, accounting for 30% of the total (Figure 111). (E-codes indicated that most (73%) of these falls occurred in residences (45%), public buildings (13%), roadways (12%), or industrial areas (3%). Relatively few can therefore be assumed to be related to hiking.) Skateboarding, running, tackle football, and bathing and showering were also prominent activities. Activities related to sports (excluding walking and running) accounted for 36% of the total number of falls. That proportion was much lower among senior-aged patients (3%), compared to younger-aged patients (45%). Nearly two-thirds (65%) of the senior-aged patients fell while “walking marching and hiking”. Other common activities among senior-aged patients were gardening and landscaping (7%), bathing and showering (6%), and other activities related to personal hygiene (5%).

Figure 111. Activity of patients injured in nonfatal falls in Hawaii, 2010-2011



*Includes only hospital records with specific Activity codes, approximately 18% (9,185) of 48,790 total records for 2010 through 2011. Codes were more likely to be present in ED records (19%) compared to inpatient records (9%).

Although ED visits for nonfatal falls outnumbered hospitalizations by more than 7-to-1, ED visits only accounted for 55% of the total number of patient days (Table 24). This was because many of the hospitalizations involved long stays; almost one-third (31%) of the patients were hospitalized for 1 week or longer, and 8% for 2 weeks or more. Long stays also increased the average charge per hospitalization to over \$31,000, and the total costs to approximately \$84 million per year, over twice the cost of ED visits (\$34.1 million).

Fractures were by far the most common type of injury among residents hospitalized from nonfatal falls, present in nearly three-fourths (74%) of the patients. About one-third (32%) had fractures of the femur (including 29% with fractures of the neck of the femur), and 10% fractures of the lower leg or foot. Most of the other patients were hospitalized for internal injuries (19%). There was a different pattern for injuries treated in EDs, as about half were contusions or superficial injuries (24%), or open wounds (20%). About a quarter (23%) of the patients had fractures, most commonly the lower arm or hand (9%). About one-fourth (24%) of the hospitalized patients had TBI, compared to 18% among those treated in EDs. (TBI counts included diagnoses of any priority.)

Table 24. Clinical characteristics* of Hawaii residents with nonfatal injuries from falls.

	ED visits	hospitalizations	total
Length of care and financial charges			
Ave. length of stay (days)	1.0	6.4	1.6
Total number of days	20,920	17,273	38,193
Average charge	\$1,628	\$31,078	\$4,934
Total charges	\$34.1 million	\$84.1 million	\$116.6 million
Primary injury diagnosis			
fractures	4740 (23%)	2012 (74%)	6752 (29%)
fracture of skull	196 (1%)	156 (6%)	352 (1%)
vertebral column	263 (1%)	249 (9%)	512 (2%)
ribs, pelvis or trunk	710 (3%)	210 (8%)	920 (4%)
humerus	599 (3%)	136 (5%)	735 (3%)
lower arm or hand	1983 (9%)	120 (4%)	2103 (9%)
femur	53 (0%)	875 (32%)	928 (4%)
lower leg or foot	935 (4%)	266 (10%)	1201 (5%)
sprains and strains	2656 (13%)	30 (1%)	2685 (11%)
internal injuries	754 (4%)	509 (19%)	1263 (5%)
open wounds	4247 (20%)	42 (2%)	4288 (18%)
contusion/superficial	5009 (24%)	47 (2%)	5056 (21%)
other/unspecified	3514 (17%)	66 (2%)	3580 (15%)
traumatic brain injury (any priority diagnosis)	3721 (18%)	652 (24%)	4373 (19%)

*Statistics are annual averages over the 2007-2011 period.

EMS responded to 50,836 nonfatal injuries from assaults among Hawaii residents over the 2007 to 2011 period. (Excluding records for patients with unknown resident status, those who were transferred to other EMS units (to avoid double-counting of injuries), and 177 patients who were described as dead on arrival.) These injuries resulted from 50,391 separate incidents, as almost all (99%) involved a single victim.

The incidents were broadly distributed in terms of time of day, although most (77%) occurred during the day time period of 6:31 a.m. to 7:29 p.m. (Figure 112). That proportion was greater for senior-aged patients (78%), including a peak from 7:31 a.m. to 12:29 p.m. (38%). There was less of a peak among patients under 65 years of age. There was little variation in the day of the week for falls, with as each day accounted for between 13% and 15% of the total.

More than half (57%) of the falls occurred in the home or residence of the patient, and this proportion was significantly higher among the seniors (71%) compared to younger aged patients (41%). Other indoor location or buildings accounted for 16% of the falls, followed by streets and roadways (5%), and health care facilities (4%). Only about 4% occurred in outdoor or recreation areas. (These statistics include 13% of patients who fell in “other” locations.) Female patients (52%) slightly outnumbered males (48%), although they constituted a greater majority (60%) among the seniors. More than half (54%) of the patients were 65 years or older, including 22% who were 85 years or older.

Injuries from falls were generally more severe than other types of injuries treated by EMS, as only 15% of the patients were not transported to hospitals (Figure 113). Nearly half (46%) were transported in “serious” or “critical” condition. Senior-aged patients had worse dispositions, as they were more likely to be transported in serious condition and less likely to be released at the scene. The proportion of patients who were transported in critical condition was comparable between the two age groups, however. Patient condition was not associated with the time of day of the fall or the day of week.

Figure 112. Time distribution of EMS-attended nonfatal injuries from falls, by patient age, 2007-2011.

(Horizontal scale indicates time of EMS dispatch, rounded up to nearest hour (military time scale, starting at 6:00am). Vertical scale indicates percent of all incidents, rounded to nearest whole number.)

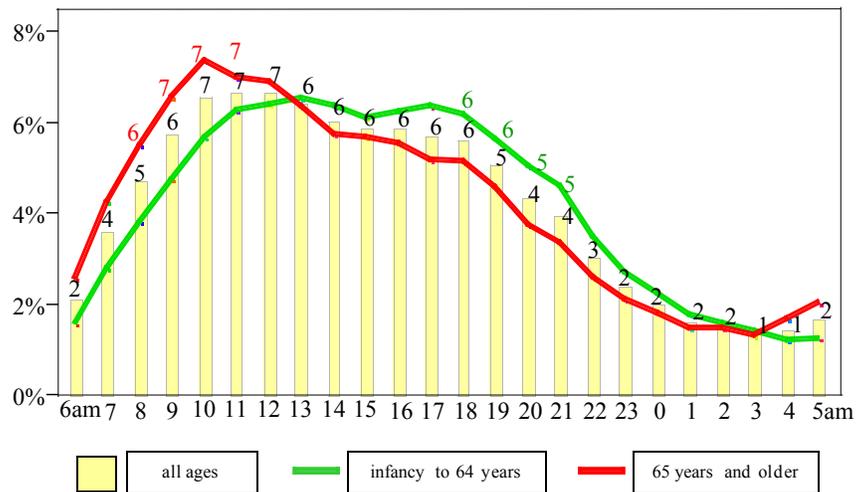
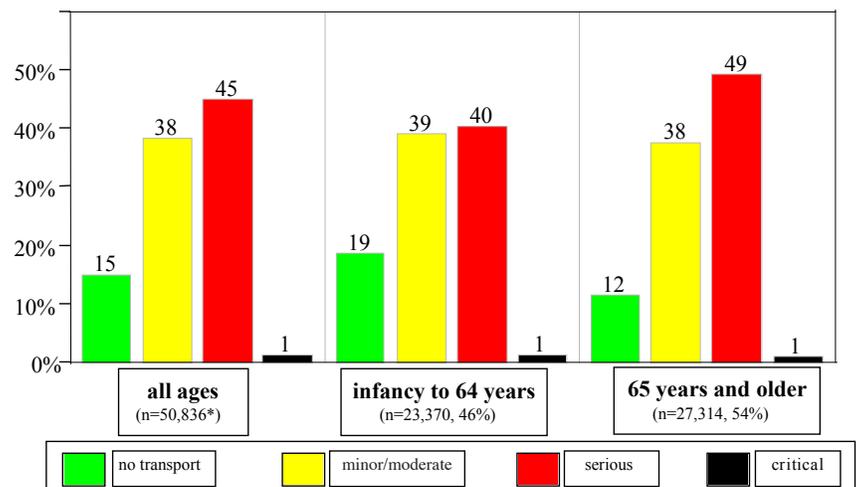


Figure 113. Distribution of injury severity/transport status of residents treated by EMS personnel for nonfatal injuries from falls, by age group, 2007-2011.



*Includes 152 patients for whom age was not recorded.

Probable alcohol use was noted 8% (29%, or 3901) of the patients (Table 25). Patients who had used alcohol were significantly younger than other patients, and nearly 3 times less likely to be in the senior age range. Male patients were more than twice as likely to have used alcohol compared to females (12% vs. 5%), and this difference was consistent across both age groups. There were no differences in the proportion of patients who were released at the scene, but drinkers were significantly more likely to be transported in “serious” condition. Patients who used alcohol were more likely to have fallen on weekends and nearly 3 times more likely to have fallen during night time hours.

Table 25. Characteristics of patients with EMS-treated nonfatal injuries from falls, by category of alcohol use, 2007-2011.

	Alcohol use (n=4,217, 8%)	No alcohol use (n=25,039, 49%)	No data/unknown (n=21,580, 42%)
Average age	51 years	62* years	63* years
Ages 65 years and older	20%	57%*	57%*
Gender (% male)	72%	45%*	46%*
Disposition			
no transport	15%	15%	15%
minor/moderate injuries	34%	40%*	37%*
serious injuries	50%	43%*	46%*
critical injuries	1.0%	0.9%	1.8%*
Weekend fall (Sat/Sunday)	37%	27%*	28%*
Nighttime fall (8 pm - 5 am)	52%	19%*	22%*

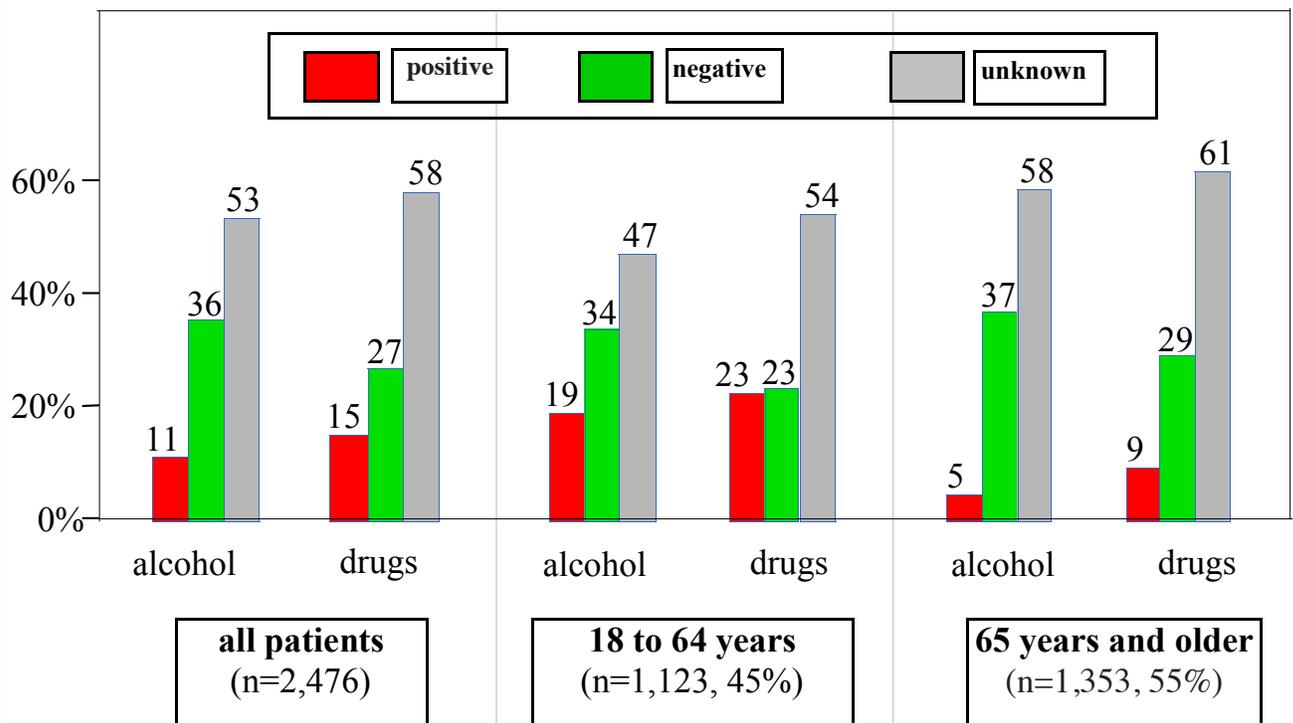
*Indicates statistically significant difference between patients who used alcohol vs. other patients.

Trauma Registry data

Only 11% of the adult-aged (18 years and older) HTR resident patients who were injured by falls were positive for alcohol use at the time of their injury, although more than half (53%) were not tested (Figure 114). Alcohol use was nearly 4 times higher among patients in the 18 to 64 year age group (19%), compared to senior-aged patients (5%). Fifteen percent of the patients tested positive for illicit drugs, most commonly narcotics (11%). Almost all (97%, or 120) of the 124 senior-aged patients who were positive for drugs were positive for narcotics. Considered together, about one-quarter (24%, or 587) of the patients tested positive for either alcohol or drugs, although that proportion was much lower among the senior-aged patients (13%), compared to younger patients (36%).

Alcohol use was significantly more likely among the male patients (9%) compared to females (3%), among those injured on weekends (16% vs. 9% for those hit on weekdays), and more than 4 times as likely among patient injured hit during night time hours (28%) than among those injured between 6:30 a.m. and 7:29 p.m. (6%). Alcohol use was not significantly associated with the mortality rate or likelihood of a discharge to a rehabilitation facility among the senior-aged patients. Among younger patients, however, the mortality rate among the drinkers was significantly higher (7.0%, or 15 of 215), compared to those who tested negative (3.4%, or 13 of 380).

Figure 114. Alcohol and/or drug use (percent) among residents treated for falls in the Hawaii Trauma Registry, by age group, 2008-2011.



The remainder of this chapter will describe nonfatal injuries from falls among senior-aged residents. As per residents of all ages, there was a generally increasing trend in the annual number of falls among seniors, and this was most evident for falls treated in EDs as there was an increase of 13% over the 5-year period (Table 26). Females comprised two-thirds of the patients treated in EDs and 69% of those who required hospitalization. More than one-third (39%) of the patients were 85 years or older, and this proportion was higher among patients who were hospitalized (46%). The annual number of falls increased consistently across the age groups listed in Table 17. Most (72%) of the patients were residents of Honolulu County, and residents of Hawaii County comprised about half of the remainder (14% overall). The number of Maui County residents who were hospitalized was approximately double the number from Kauai County (193 vs. 91 patients).

Table 26. Demographic characteristics* of senior-aged Hawaii residents with nonfatal injuries from falls.

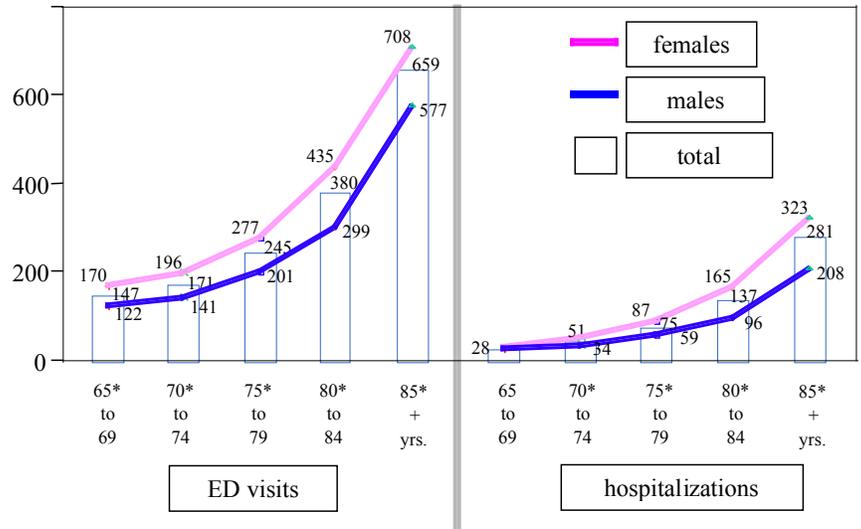
	ED visits	hospitalizations	total
Year of admission			
2007	5043	1751	6794
2008	5200	1842	7042
2009	5604	1856	7460
2010	5590	1860	7450
2011	5719	1868	7587
average annual total	5431	1835	7267
Patient gender			
Female	3561 (66%)	1269 (69%)	4830 (66%)
Male	1870 (34%)	566 (31%)	2436 (34%)
Patient age			
65-69y	750 (14%)	142 (8%)	892 (12%)
70-74y	681 (13%)	171 (9%)	852 (12%)
75-79y	875 (16%)	268 (15%)	1142 (16%)
80-84y	1159 (21%)	418 (23%)	1577 (22%)
85+y	1966 (36%)	837 (46%)	2803 (39%)
County of residence of patient			
Hawaii	767 (14%)	227 (12%)	994 (14%)
Honolulu	3878 (71%)	1324 (72%)	5202 (72%)
Kauai	380 (7%)	91 (5%)	472 (6%)
Maui	406 (7%)	193 (11%)	599 (8%)

*Statistics are annual averages over the 2007-2011 period.

The increasing number of injuries from falls across the senior age range translated into extremely high rates for the oldest residents, for both injuries treated at EDs and those that required hospitalization (Figure 115). Rates of ED visits among residents aged 85 years and older were 4 times higher than rates among 65 to 69 year-olds, while hospitalization rates were 10 times higher for the oldest group compared to the youngest. Female residents had significantly higher rates of both kinds of injuries at every age group listed, with the exception of hospitalizations among 65 to 69 year-olds. Age-standardized rates for ED visits were 35% higher among females than males (303 patients/10,000 residents vs. 224/10,000), while hospitalization rates were 52% higher among females (102/10,000 vs. 67/10,000), and these differences were generally consistent over the age groups shown in Figure 88. Similar relationships between age and gender and nonfatal injury rates were seen within each of the 4 counties.

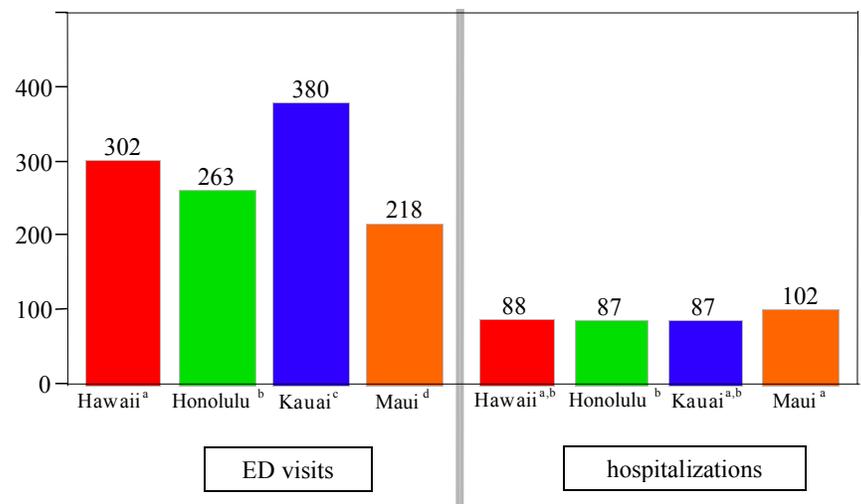
The comparison of county-specific rate estimates for senior residents (Figure 89) was similar to that for residents of all ages (see Figure 116): the highest rates for ED visits were computed for residents of Hawaii and Kauai counties, significantly higher than the other two counties. While rates for ED visits for Maui County residents were significantly lower than for any other county, Maui residents had the highest rate for hospitalizations, significantly higher than the rate for senior-aged residents of Honolulu County. These patterns were similar when county-specific rates were computed separately for each gender.

Figure 115. Rates (per 10,000 residents) of nonfatal injuries from falls among senior residents of Hawaii, by gender and level of care, 2007-2011.



*Indicates statistically significant difference in rate between males and females of that age group.

Figure 116. Age adjusted* annual rates (per 10,000 residents) of nonfatal injuries from falls among seniors, by level of care and county of residence of patient, 2007-2011.



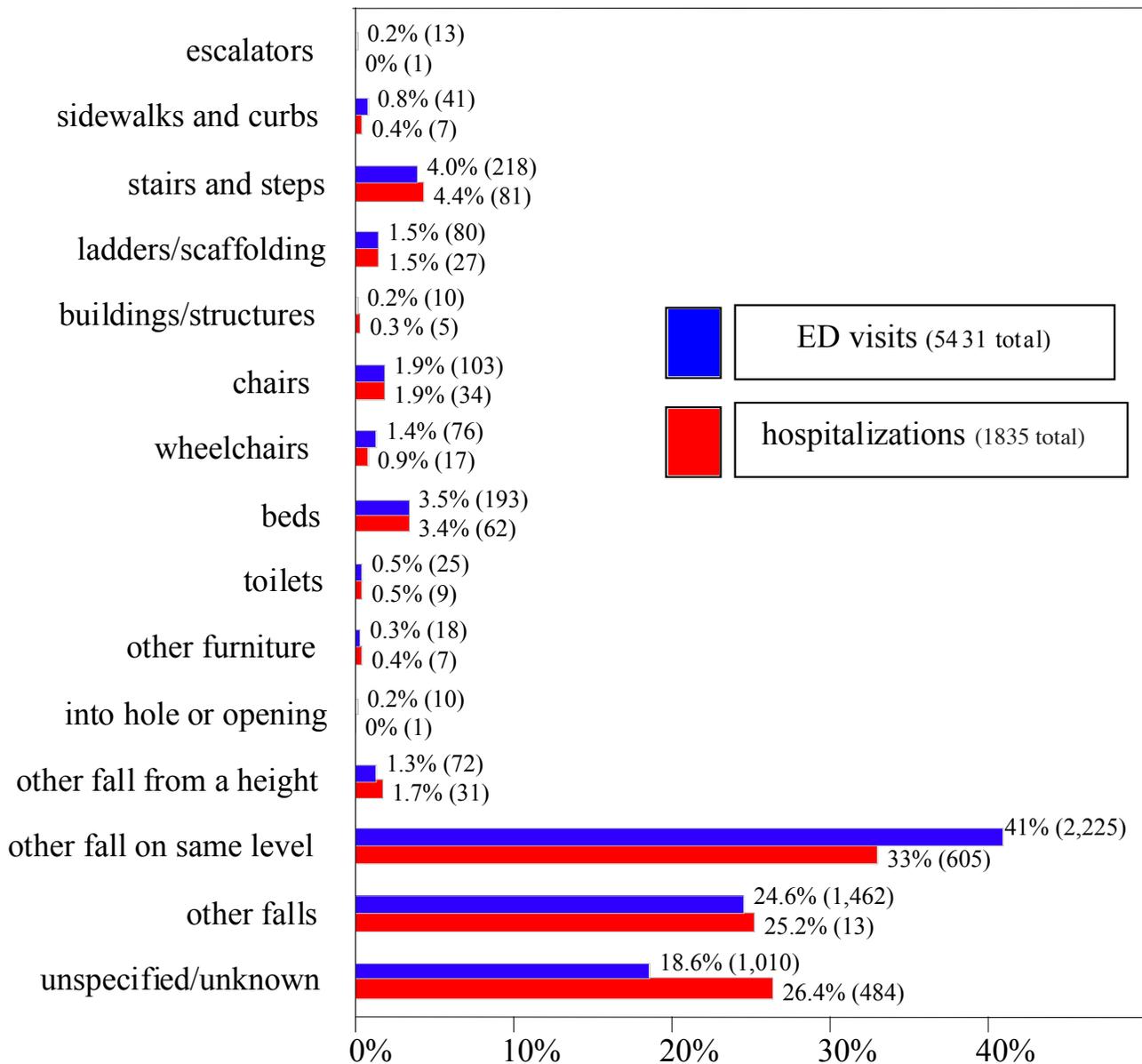
(Counties with the same superscripted letter have statistically comparable rate estimates.)

*Adjusted using the 5 age groups shown in figure 88, above.

There was little information on the cause of falls among seniors, as most of the injuries treated in EDs (84%) and requiring hospitalization (84%) were coded as “falls on same level” or due to “other” and “unspecified” causes (Figure 117). This lack of specificity may reflect either poor documentation in the medical records, or simply less involvement of the external environment as a cause of falls among seniors. The proportion of records with these vague causes increased progressively across the age range of patients, from 78% among 65 to 69 year-old patients to 86% among those 85 years and older. The distribution of the other, more specific, causes was similar between ED visits and hospitalizations, with stairs and steps and beds being the most commonly mentioned causes (about 4%).

There was no information on the location of the injury for over half (53%) of the ED records and 37% of the hospitalization records. The most specifically coded injury location was the home, for both ED (34%) and hospitalization records (53%). The proportion of falls in the home increased across the age range from 32% for patients aged 65 to 69 years to 43% for those 85 years and older.

Figure 117. Causes of nonfatal falls among senior-aged Hawaii residents, by level of care, 2007-2011.



Because hospitalizations among seniors injured by falls were long (one week on average), the total number of patient days for hospitalizations was more than twice the number patient days in EDs (Table 27). Among the patients hospitalized, 37% stayed for 1 week or longer, and 9% for 2 weeks or more. These long stays also resulted in a high average charge per hospitalization (over \$32,000), with total annual charges being nearly 6 times higher than the charges for ED visits (\$70.1 vs. \$12.2 million).

The distribution of injuries among hospitalized seniors was similar to that for patients of all ages (see Table 16): three-fourths (75%) had fractures, and 20% had internal injuries. Proportionally more of the fractures among seniors were femur fractures, however (41% vs. 32% for patients of all ages). Almost all (93%) of the femur fractures among hospitalized seniors were fractures of the neck of the femur, or hip fractures. About one-third (30%) of the injuries treated in EDs were contusions or superficial injuries, 22% were open wounds, and 23% were fractures, most commonly fractures of the lower arm or hand (6%). About one-fourth (23%) of the patients had TBI, and this proportion was similar across patients treated in EDs (22%) and those who were hospitalized (23%). (TBI counts included diagnoses of any priority.)

Table 27. Clinical characteristics* of Hawaii senior residents with nonfatal injuries from falls.

	ED visits	hospitalizations	total
Length of care and financial charges			
Ave. length of stay (days)	1.0	7.0	2.5
Total number of days	5,431	12,913	18,345
Average charge	\$2,239	\$31,725	\$9,652
Total charges	\$12.2 million	\$58.2 million	\$70.1 million
Primary injury diagnosis			
fractures	1227 (23%)	1371 (75%)	2598 (36%)
fracture of skull	86 (2%)	56 (3%)	142 (2%)
vertebral column	153 (3%)	197 (11%)	350 (5%)
ribs, pelvis or trunk	253 (5%)	173 (9%)	425 (6%)
humerus	193 (4%)	67 (4%)	259 (4%)
lower arm or hand	339 (6%)	40 (2%)	379 (5%)
femur	32 (1%)	756 (41%)	788 (11%)
lower leg or foot	172 (3%)	81 (4%)	253 (3%)
other/unspec. fractures	1 (0%)	0 (0%)	1 (0%)
sprains and strains	356 (7%)	15 (1%)	371 (5%)
internal injuries	168 (3%)	363 (20%)	531 (7%)
open wounds	1194 (22%)	19 (1%)	1214 (17%)
contusion/superficial	1617 (30%)	36 (2%)	1653 (23%)
other/unspecified	869 (16%)	31 (2%)	900 (12%)
traumatic brain injury (any priority diagnosis)	1216 (22%)	425 (23%)	1641 (23%)

*Statistics are annual averages over the 2007-2011 period.