Hawaii

Special Emphasis Report: Fall Injuries among Older Adults 2011-2015

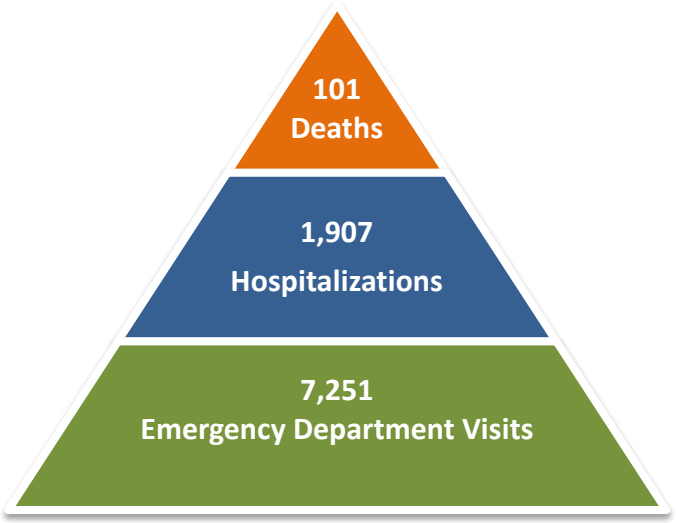
A GROWING CONCERN

Unintentional falls among older adults are a leading cause of fatal and nonfatal injury in the U.S. and Hawaii. Hospital costs associated with injuries sustained by falls account for a substantial share of health care dollars spent on injury-related care.

Over the 2011-2015 period, an average of 101 Hawaii residents ages 65 and older died and another 9,158 fall injuries were treated at hospitals and emergency departments (Figure 1).

This report provides recent data on unintentional fall injuries and deaths among Hawaii residents ages 65 and older. It includes information about groups with the highest rates, associated costs and current prevention strategies and activities in Hawaii.

FIGURE 1. Burden of Fall Injuries among Residents Ages 65 and older—Hawaii, 2011-2015



QUICK FACTS

Residents ages 65 and older account for ***78% of all fall deaths*** and 71% of nonfatal fall hospitalizations in Hawaii.

Falls are the ***leading cause of traumatic brain injury (TBI)*** in Hawaii residents ages 65 and older, accounting for 73% of TBI deaths and 86% of TBI hospitalizations. Most (71%) **of fall deaths** and nearly one-quarter (24%) of hospitalizations among older adults were associated with a TBI.

Projected lifetime costs associated with fall injuries in Hawaii among residents ages 65 and older are estimated to average over $181 million annually.

Each week, there are nearly 140 emergency department visits among residents ages 65 and older, plus 37 hospitalizations, ***and 2 deaths due to fall injuries*** in Hawaii.

In Hawaii, 71% of fall deaths and 78% of hospitalizations among this age group ***occurred in the home***. (These statistics do not include records with no location information: 5% of deaths, and 40% of hospitalizations.)

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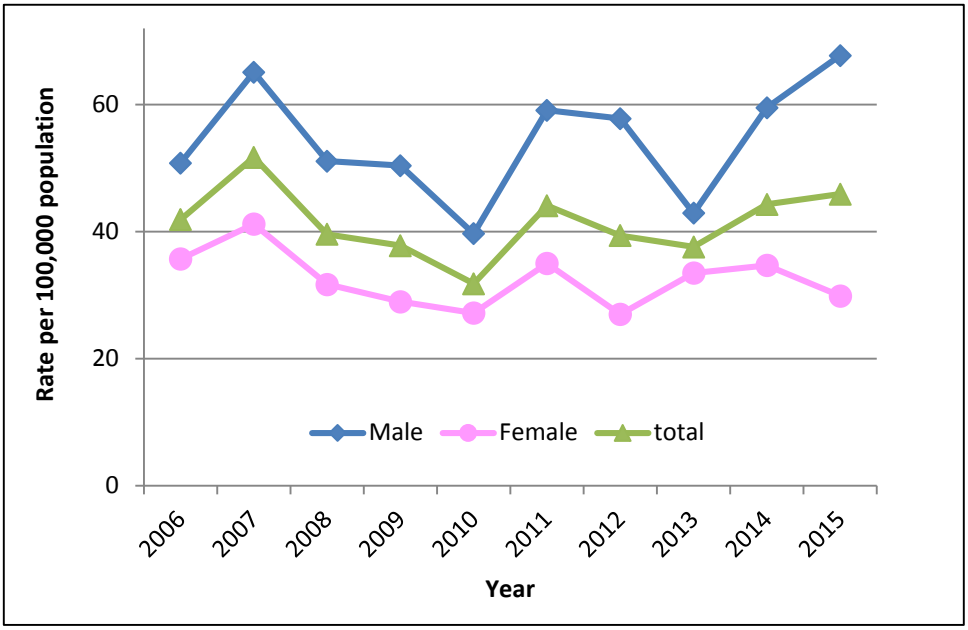
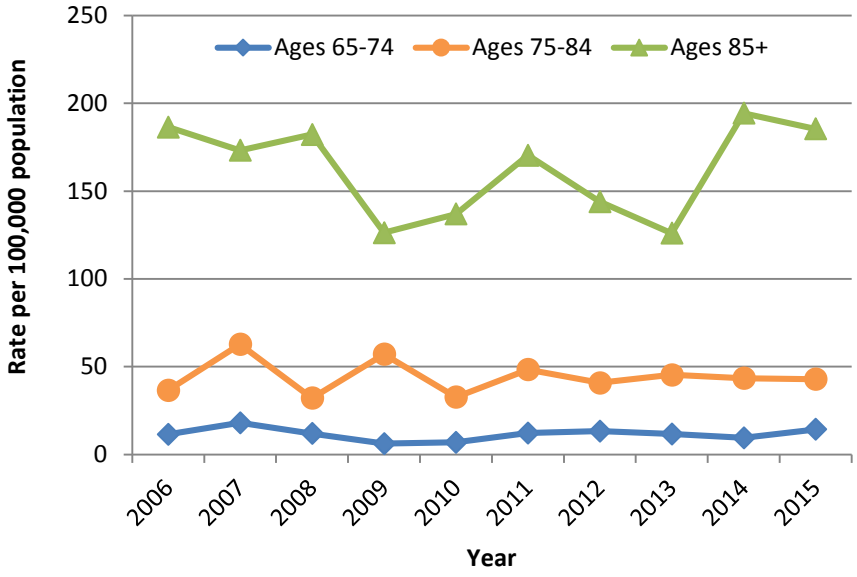
FALL DEATHS

FIGURE 2. Age-adjusted Rate of Fall Deaths by Sex, Ages 65 and older—Hawaii, 2006-2015



- There were no consistent trends in the annual fatality rate for senior falls among Hawaii residents, for either gender, although the highest rate for males occurred in 2015.
- Males had higher fall death rates than females at every year. The average rate for males from 2011-2015 was 44% higher than that for females (57.4 vs. 32.0 deaths/100,000, resp.)
- The 2011-2014 standardized fatality rates for Hawaii seniors were significantly lower than those for all US senior residents, for both genders. Hawaii had the 9th lowest rate among the 50 states over that time.

FIGURE 3. Age-specific Rate of Fall Deaths by Age Group, Ages 65 and older—Hawaii, 2006-2015



- There were no clear trends in age-specific fall death rates over the last 10 years in Hawaii, for any of the three age groups shown in Figure 3. This was true for residents of either gender.
- Rates for residents 85 years and older were almost 4 times higher than rates for those 75-84 years of age, and 15 times higher than rates for 65-74 year-olds. These age-related disparities were evident for both genders.

HAWAII STATE DEPARTMENT OF HEALTH

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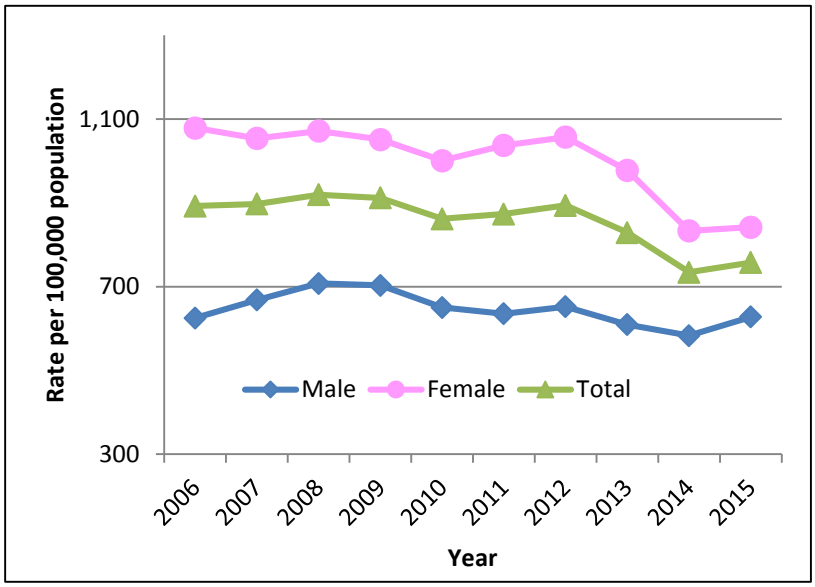
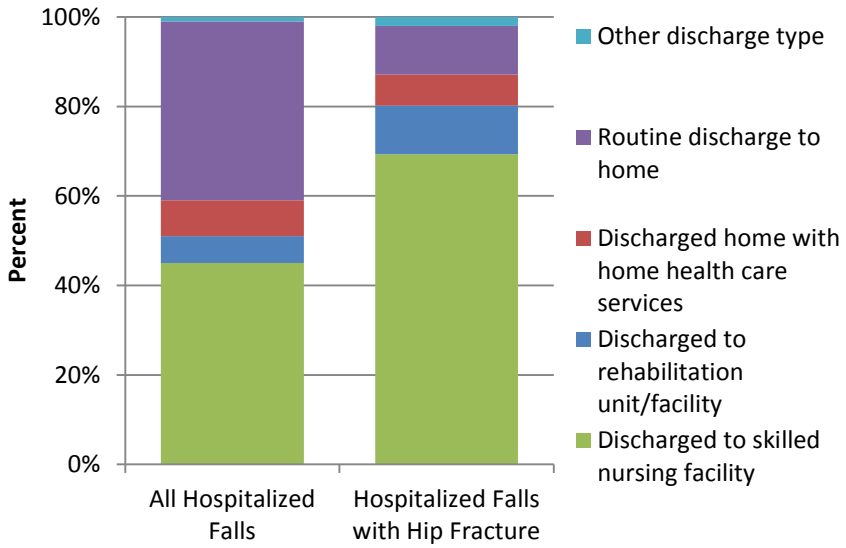
NONFATAL FALL HOSPITALIZATIONS

FIGURE 4. Age-adjusted Rate of Nonfatal Fall Hospitalizations by Sex, Ages 65 and older—Hawaii, 2006-2015



- There was a decrease in the annual rate of nonfatal fall hospitalizations from 2012 through 2014. Rates increased for both genders in 2015, but that may have been influenced by the implementation of ICD-10CM coding in October of that year. (Injury counts of all types increased with this implementation, perhaps reflecting methodologic changes.)
- In contrast to fatality rates, rates for nonfatal hospitalizations were significantly higher among female residents, compared to males, for every year.

FIGURE 5. Percent of Nonfatal Fall Hospitalizations by Discharge Disposition, Ages 65 and older—Hawaii, 2011-2015



- More than half (54%) of all fall hospitalizations were discharged to a skilled nursing facility.
- Among falls resulting in a hip fracture, 70% were discharged to a skilled nursing facility and 11% discharged to a rehabilitation facility. Both proportions were significantly lower among patients without hip fractures (45% and 6%, resp.).
- Among those with a hip fracture, only 11% had a routine discharge to home and 7% were discharged home with home health services. Only 7% of patients 85 years and older with hip fractures had a routine discharge, compared to 24% of those 65-74 years of age.

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DEMOGRAPHIC DATA

TABLE 1. Number and Rate of Fall Deaths and Nonfatal Fall Hospitalizations and Emergency Department (ED) Visits, Ages 65 and older—Hawaii, 2011-2015. (Table shows average annual numbers and rates over the 5-year period.)

	Fall Deaths		Nonfatal Fall Hospitalizations and Emergency Department (ED) Visits			
	Number of Deaths	Death Rate per 100,000[2]	Number of Hospitalizations	Nonfatal Hospitalization Rate per 100,000[2]	Number of ED Visits	Nonfatal ED Visit Rate per 100,000[2]
Total*	**101**	**42**	**1907**	**818**	**6657**	**2897**
Sex*						
Male	55	57	589	622	2316	2407
Female	46	32	1318	950	4341	3266
Age Group						
Ages 65-74	15	12	391	326	2019	1685
Ages 75-84	28	44	620	965	2121	3301
Ages 85+	58	165	896	2525	2518	7099
County of residence*						
Hawaii	6	21	252	817	950	3036
Honolulu	83	47	1372	814	4735	2895
Kauai	4	35	86	723	430	3649
Maui	9	37	188	827	542	2346

*Age-adjusted rates

- Fatality rates were nearly doubled among male senior residents, compared to females (57 vs. 32 deaths per 100,000, respectively).
- However senior female residents had significantly higher rates for nonfatal hospitalizations and ED visits.
- Residents ages 85 and older had by far the highest rates of fatal and nonfatal fall injuries. This age group had nearly 14 times the rate of deaths than those aged 65-74, and nearly 8 times the hospitalization rate.
- Senior residents of Honolulu County (the island of Oahu) had the highest rates of fall deaths, although only to a statistically significant degree when compared to seniors living in Hawaii County. Rates of ED visits among Kauai residents were significantly higher than the rate for residents of any other county.

[2]Rates are age-adjusted except for rates by age group.
[3]Non-Hispanic
[4]Pacific Islander
[5]American Indian/Alaskan Native

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PROJECTED LIFETIME COSTS

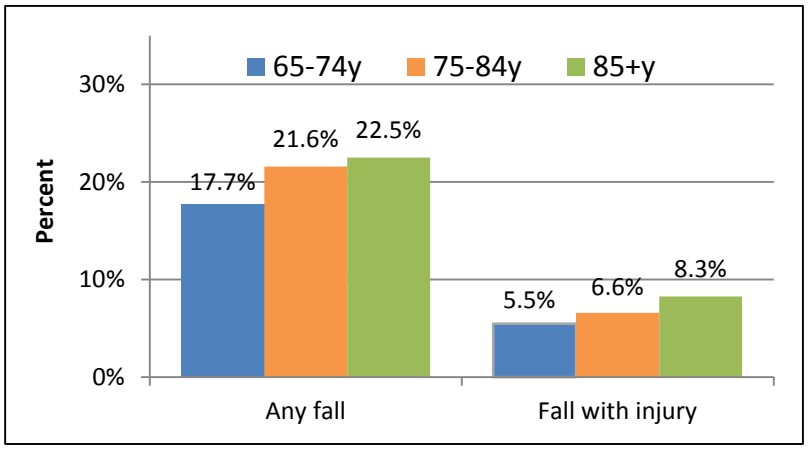
Lifetime costs[4] associated with unintentional fall injuries over the among Hawaii residents ages 65 and older are estimated to be over $181 million per year. (Based on annual average incidents over the 2011-2014 period.) Most of these costs were associated with injuries requiring hospitalizations.

	Number of Injuries	Medical Cost	Work Loss Cost	**Combined Cost**
Deaths	97	$2,542,999	$11,965,765	$14,508,765
Hospitalizations	1,916	$78,710,174	$57,787,306	$136,497,480
ED Visits	6,453	$20,968,059	$9,121,894	$30,089,953
TOTAL	8,466	$102,221,232	$78,874,965	$181,096,198

SURVEY DATA

- The Behavioral Risk Factor Surveillance Survey (BRFSS) is a statewide phone survey of non-institutionalized Hawaii adults. It provides self-reported data on a variety of topics, including falls, fall-related injuries, and medical conditions.
- In 2015, an estimated 36,600 (17% of respondents) of Hawaii residents ages 65 and older reported having fallen and 11,230 (5%) reported a fall-related injury in the past 6 months. Figure 6 shows these proportions increased across the senior age range.
- Older Hawaii residents who reported the following conditions were significantly ***more likely***[5] to report falls and fall-related injuries in the past 6 months:

FIGURE 6. Self-Reported Falls and Fall Injuries in the Past 6 Months, Ages 65 and older—Hawaii, 2015



	Any fall			**Fall with injury**	
	with condition	without condition		with condition	without condition
stroke	28%*	19%		16%*	5%
cancer	22%*	18%		7%	6%
arthritis	24%*	16%		9%*	4%
depression	34%*	18%		12%*	5%
special equipment	34%*	17%		16%*	5%

[4]Costs were calculated using the CDC's WISQARS Cost Module application which provides cost estimates for medical and work loss for injury-related deaths, hospitalizations, and emergency department visits. http://www.cdc.gov/injury/wisqars/ .

[5]These conditions are statistically significant at the (P<.05 level, denoted by asterisk). However, causality shouldn't be assumed. No association was found between falls/fall-related injuries and presence coronary artery disease (CAD)/angina **or** with myocardial infarction, diabetes, obesity (defined as a BMI greater than or equal to 30.0), or lack of exercise (defined as respondents reporting "No" to **ANY** leisure-time physical activity). All associations were assessed using unweighted data. "Special equipment" was a positive response to "Do you now have any health problem that requires you to use special equipment, such as a cane, a wheelchair, a special bed, or a special telephone?".

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FALL PREVENTION RESOURCES

STEADI (Stopping Elderly Accidents Deaths & Injuries): The Centers for Disease Control and Prevention (CDC) is working to make fall prevention a routine part of clinical care. STEADI uses established clinical guidelines and effective strategies to help primary care providers address their older patients' fall risk and identify modifiable risk factors: www.cdc.gov/steadi.

PREVENTION ACTIVITIES IN HAWAII

Guided by the Hawaii Fall Prevention State Plan, 2013-2018: (https://www.hawaiiadrc.org/Portals/_AgencySite/2013Falls.pdf), the Fall Prevention Consortium, in coordination with the Hawaii State Department of Health (DOH), Emergency Medical Services and Injury Prevention System Branch (EMSIPSB), has been working to reduce fall injuries among older adults by: increasing public awareness through an annual campaign; increasing the availability and access to tai chi for fall prevention on all islands; and engaging health care professionals and organizations by providing training and access to fall prevention screening tools and resources for use during routine clinical practice. The third annual Fall Prevention Summer Awareness Campaign was conducted between June 22 – August 30, 2016, and provided the public with a total of 222 aired PSA's for a total of 111 minutes of broadcast time, offered free medication reviews and balance tests to determine fall risk through 51 participating pharmacies statewide, and disseminated information about home safety modifications and senior assistive devices.(https://health.hawaii.gov/news/files/2013/05/16-033-Senior-Fall-Prevention-Campaign.pdf)

In an effort to expand the number of Tai chi for fall prevention for seniors on all islands over the 2012-2016 period, a total of 207 individuals have been certified as tai chi instructors and 72 number of classes are now offered per week at 36 locations on five islands. Kaiser Permanente and the Lanakila Multi-Purpose Senior Center (LMPSC), two of the leading institutions that provide services to seniors in the State, have incorporated tai chi and fall prevention screening for seniors. Evaluation of LMPSC tai chi participants demonstrated that participating seniors showed improvement in balance and a reduction in fall risk directly related to the amount of classes they attended. LMPSC plans to expand the tai chi program to other senior facilities.

DATA SOURCES and DEFINITIONS

Hawaii mortality data is from the death certificate database of the Hawaii Department of Health. Comparisons to other US states were made using WISQARS data from the Centers for Disease Control and Prevention (www.cdc.gov/injury/wisqars/fatal.html). Morbidity data is from the Hawaii Health Information Corporation, which maintains a repository of billing data from all acute care hospitals in the state, with the exception of the lone military hospital. BRFSS data was obtained locally from the Hawaii Department of Health.