

INJURY - A MAJOR PUBLIC HEALTH PROBLEM IN HAWAII

Injuries are responsible for more deaths of children and young adults in Hawaii from age one through age 40 years than all other causes combined, including heart disease, stroke and cancer. Among residents of all ages, injury is the third leading cause of death, behind only heart disease and cancer, but ahead of cerebrovascular disease, influenza and pneumonia, and diabetes. Although the greatest impact of injury is in human suffering, the financial cost is staggering - medical treatment for injuries generates nearly \$430 million in hospital charges each year in Hawaii.

Mortality statistics do not convey the full extent of the injury problem, however. Fatal injuries represent less than 1% of all injuries requiring medical attention. Although fatal injuries are the most severe, the vast majority of injuries are non-fatal, and in some respects, have much greater public health implications. On an average week in Hawaii 14 residents die from an injury, another 106 are hospitalized and another 1,600 others are treated in emergency departments.

Injuries, however, are not accidents. They are neither random nor uncontrollable. Injuries are understandable, predictable and preventable. The first step in understanding and preventing injuries is to collect and analyze data. Answers to questions like “How serious is the problem?”, “Who has the problem?” and “What are the circumstances under which it occurs?” help determine the answers to questions such as “What causes it?” and “What can we do about it?”

Ten leading causes of death among Hawaii residents, by age group, 2011-2015

	<1	1-14y	15-24y	25-34y	35-44y	45-54y	55-64y	65+y	all ages
1	Perinatal conditions 284	Unintentional injuries 50	Unintentional injuries 181	Unintentional injuries 227	Unintentional injuries 256	Malignant neoplasm 840	Malignant neoplasm 2,249	Heart disease 9,589	Heart disease 12,086
2	Congenital anomalies 68	Malignant neoplasm 21	Suicide 153	Suicide 153	Malignant neoplasm 228	Heart disease 739	Heart disease 1,441	Malignant neoplasm 8,161	Malignant neoplasm 11,622
3	Sudden infant death synd. 22	Congenital anomalies 11	Malignant neoplasm 37	Heart disease 96	Heart disease 180	Unintentional injuries 363	Unintentional injuries 340	CVD 2,721	CVD 3,216
4	Unintentional injuries 16	Heart disease 9	Heart disease 23	Malignant neoplasm 82	Suicide 133	CVD 159	CVD 265	Influenza and pneumonia 1,918	Unintentional injuries 2,335
5	Other resp. diseases 6	Influenza and pneumonia 8	Homicide 10	Injuries of unk. intent 21	CVD 51	Suicide 150	Liver disease and cirrhosis 209	Chronic lower resp. diseases 1,432	Influenza and pneumonia 2,147
6	Other resp. infections 6	Suicide 7	Injuries of unk. intent 9	Homicide 19	Homicide 33	Liver disease and cirrhosis 126	Diabetes mellitus 205	Alzheimer's disease 1,312	Chronic lower resp. diseases 1,534
7	Septicemia 5	Homicide 7	Congenital anomalies 8	CVD 14	Liver disease and cirrhosis 31	Diabetes mellitus 90	Suicide 165	Diabetes mellitus 990	Alzheimer's disease 1,442
8	Injuries of unk. intent 5	Oth. infectious diseases 6	CVD <5	Liver disease and cirrhosis 10	Diabetes mellitus 30	Influenza and pneumonia 53	Chronic lower resp. diseases 164	Unintentional injuries 900	Diabetes mellitus 1,329
9	Influenza and pneumonia 5	Perinatal conditions <5	Influenza and pneumonia <5	Diabetes mellitus 10	Injuries of unk. intent 29	Injuries of unk. intent 50	Influenza and pneumonia 142	Nephritis, nephrotic synd 866	Nephritis, nephrotic synd 1,018
10	Homicide/ other <5	Meningitis <5	Diabetes mellitus <5	Septicemia 7	Other circ. diseases 18	Other circ. diseases 43	Nephritis, nephrotic synd 93	Other resp. diseases 641	Suicide 898

Deaths grouped as recommended by National Center for Health Statistics (http://www.cdc.gov/nchs/data/nvsr/nvsr53/nvsr53_15.pdf).

Leading Causes of Injury Mortality and Morbidity among Hawaii residents¹, 2011-2015

	Death Certificates (fatal)			Hospital Admission Records (non-fatal)			Emergency Department Records (non-fatal)		
	Cause ²	# ³	%	Cause	# ⁴	%	Cause	# ⁵	%
1	Suicide	180	25%	Falls	2,685	49%	Falls	23,513	28%
2	Falls	131	18%	Car occupant	330	6%	Striking ⁶	12,971	16%
3	Poisoning	117	16%	Suicide attempt/ self-inflicted	328	6%	Cut/pierce	7,566	9%
4	Car occupant	46	6%	Motorcyclist	270	5%	Overexertion ⁷	6,916	8%
5	Drowning	37	5%	Assault	267	5%	Natural/ environmental ⁸	4,508	5%
6	Pedestrian	31	4%	Poisoning	201	4%	Assault	3,866	5%
7	Motorcyclist	29	4%	Striking ⁶	167	3%	Car occupant	3,759	5%
8	Suffocation	26	4%	Pedestrian	124	2%	Bicyclist	1,258	2%
9	Assault	25	4%	Bicyclist	113	2%	Motorcyclist	1,076	1%
10	Fire/burn	5	1%	Fire/burn	66	1%	Fire/burn	1,066	1%
	<i>all other</i>	74	10%	<i>all other</i>	764	14%	<i>all other</i>	14,714	18%
	Annual total	710		Annual total	5,505		Annual total	83,230	

¹ Non-residents comprised 10% of the victims killed by injuries in the state, 9% of those hospitalized, and 9% of those treated in emergency departments.

² All injury causes are unintentional or “accidental” in intent, except for suicide and assault.

³ Average annual number of deaths, from 2011-2015 death certificates. For underlying cause of death in the ICD-10 code series: V01-Y36, Y85-Y87, Y89, and U01-U03.

⁴ Average annual number of injury-related hospitalizations, from 2011-2015 records. For principle diagnosis in ICD-9CM code series of 800-909.2, 909.4, 909.9, 910-994.9, 995.5-995.59, 995.80-995.85, and ICD-10CM series S through T78. Annual total includes 8% of records that did not have external cause of injury codes.

⁵ Average annual number of injury-related emergency department visits, from 2011-2015 records. For principle diagnosis in ICD-9CM code series of 800-909.2, 909.4, 909.9, 910-994.9, 995.5-995.59, 995.80-995.85, and ICD-10CM series S through T78. Annual total includes 7% of records that did not have external cause of injury codes.

⁶ Most (92%) of these patients were “struck accidentally by objects or persons”; the rest (8%) were “struck accidentally by falling object”. Of the former, the most commonly specified causes were “striking...in sports” (19%), in “running water” (4%) and “striking against... furniture” (3%).

⁷ Most (74%) of these injuries were related to “Overexertion...from sudden strenuous movements”, and trauma from repetitive motion or movements (26%).

⁸ Most (96%) of these visits were related to the bites or venom of animals, most specifically dog bites (35%), centipedes (10%), bee and wasp stings (9%), and venomous marine animals (9%).