

CHAPTER VIII. Preventable Injuries and Violence

A. Overview

Injuries rank highly among the major causes of death worldwide¹. In the United States, injuries have reached epidemic proportions². Injuries are the forth-leading cause of death, following heart disease, cancer and stroke. During the first four decades of life, injuries claim more lives than infectious and chronic diseases combined³. Injury is the leading cause of short- and long-term disability⁴. However, death and disability represent only the top of the injury pyramid with injuries resulting in hospitalizations, emergency and medical visits and home treatment. Injury is the second leading cause of hospitalization⁵. In fact, nonfatal injuries account for 1 in every 6 hospital days and 1 in every 10 hospital discharges⁶. Injuries contribute more than 25% of emergency department visits and are the leading cause of physician contacts.

In Hawai'i, injuries kill more than 500 people, hospitalize more than 7,000 and hurt more than 160,000 each year⁷. That's one out of every six people in the state each and every year that require some form of medical treatment. Thousands of other residents restrict their activity for at least one day due to injury. These injuries generate exorbitant medical costs, lost productivity and lost quality of life. The lifetime costs of injuries in Hawai'i is nearly \$12 billion dollars, based on injuries occurring in 1990⁸. This includes more than \$6 billion in direct medical costs. Clearly, injuries have a tremendous impact on communities, health care systems and the state.

While injuries are an enormous health problem, they are both understandable and preventable. Relatively small investments in the prevention of injuries can lead to dramatic reductions in injury death and disability and tremendous financial and human savings⁹. Injury prevention is an essential component of our health care system. However, not all prevention measures should or can be integrated into this system. Injury prevention also includes efforts of professional engineers and designers, product makers, policy makers, individual citizens concerned with hazards in their community and others. Most of injury prevention around the world now involves community-based projects¹⁰.

The cause of injury is often classified as either unintentional or intentional. Intentional injuries are caused by violent and abusive behaviors such as partner abuse, assault, and suicide. Unintentional injuries include traffic incidents, falls, drownings and many others. Unintentional injury is not synonymous with accident. The term "accident" implies that they are unpredictable and un-preventable mishaps. Nothing could be further from the truth. Injury studies show predictable patterns that identify who is at risk and why they are at risk. This information is the basis for prevention.

Unintentional injury is one of five leading causes of death in Hawai'i, killing more than 300 people each year¹¹. The death rate from unintentional causes is 27.6 per 100,000. Neighbor island residents are more likely to die as a result of unintentional injuries than O'ahu residents are. Traffic incidents, primary motor vehicle crashes, account for more than half of all unintentional injury deaths. Falls and recreational injuries contribute nearly one third of

unintentional injury deaths. More than 75% of all injury-related hospitalizations are due to unintentional causes, hospitalizing more than 5,000 people each year. The hospitalization rate from unintentional causes is 437.9 per 100,000. As with unintentional injury deaths, the leading causes of hospitalization are falls, traffic incidents, and recreational activities, however, the order is different. Water activities are the leading contributor to recreational injury.

While unintentional injuries account for the vast majority of injury-related hospitalizations, they only account for 49% of injury-related deaths¹². There are more than 175 intentional injury deaths and more than 1,200 injuries due to violence annually in Hawai'i. Residents of O'ahu are more likely to experience intentional injuries than are residents of the neighbor islands. The death rate from intentional causes is 15.0 per 100,000. Suicide is the second leading cause of injury deaths, contributing nearly 75% of intentional injury deaths. Hangings and firearms account for the vast majority of suicides. Firearms also account for most homicides, followed by stabbings and beatings. Assaultive violence (child abuse, partner abuse, assault, and sexual assault) is probably the most unrecorded and unreported of injuries. It accounts for nearly half of all intentional injury hospitalizations. It is also a major contributor to spinal cord injuries. Suicide attempts are the second leading cause of injury hospitalization. Nearly 35% of all people admitted for suicide attempts were referred for outpatient counseling services.

There are two targets for strategies in addressing preventable injuries and violence. The first target is health care service providers. The second target is collaboration among the community and health care service providers.

1. Health Care Service Providers. Health care service providers are the most credible and persuasive source of injury prevention counseling¹³. Given the frequency of contact, they are also the most logical source.

a. Childhood Safety Counseling. The American Academy of Pediatrics recommends that pediatricians educate parents about the prevention of childhood injuries. Anticipatory guidance for injury prevention should be an integral, and reimbursable, part of medical care provided for children and youth¹⁴. While Hawai'i's injury rates compare well to the nation, the U.S. as a whole has one of the highest rates among developed countries. For example, Sweden's death rate among children is nearly two times lower than Hawai'i's rate. Knowing that injury deaths are largely preventable makes Hawai'i's rate unacceptable. The national guidelines for childhood injury death and hospitalization rates represent a 30% reduction¹⁵.

The hospitalization rates were based on study data and are not currently available for monitoring. A system for monitoring childhood injuries needs to be developed (i.e. institutionalization of E-coding). The E-coding of insurance claims is now underway.

b. Water Recreation Counseling. With more than 750 miles of ocean shoreline and several hundred beaches and pools, Hawaii is an ideal location to enjoy water recreation and sports, particularly ocean activities. However, Hawai'i has more ocean-related injuries resulting in

death and disability per square mile than any other state in the nation (Hartung & Goebert, 1996)¹⁶. Although Hawai'i's reported mortality rate from drowning (2.5 per 100,000 persons) is similar to that of other states, (DOH, 1989), current statistics are not representative of the actual situation because only residents are included. In a three-year study of death certificates completed by the Hawai'i State Department of Health (Unpublished, 1990), there were 121 drownings (ocean, pool, other) of which 48 or 40% were non-residents. The results also indicate that half (50%) of the ocean-related drownings occurred to non-residents. Many of the injuries are a result of the insufficient knowledge about ocean hazards. Hawai'i needs a coordinated effort to warn residents and visitors of dangerous places so that the same kinds of injuries and drownings do not continue to happen at the same places (Markrich, 1989)¹⁷. This effort would include health counseling and information and support for signage systems and lifeguards (Hartung & Goebert, 1996).

c. Domestic Violence Screening, Assessment, and Referral. It is estimated that between 22% and 35% of all visits to hospital emergency room are made by victims of domestic violence. In fact, most victims will eventually seek medical treatment¹⁸. Under reporting is a major problem. National estimates show that only about 6% of victims tell no one. Victims are more likely to trust health care providers than the enforcement system. Therefore, medical data should be a more accurate reflection of the rate of domestic violence. Hawai'i needs to develop a system for monitoring violent injuries (i.e. institutionalization of E-coding).

d. Alcohol and Drug Screening and Referral. Alcohol and other drugs seriously impact the probability of injury and the magnitude of the injury problem. They can also exacerbate the effects of injury.¹⁹ Recent changes in Hawai'i's laws now make it easier to monitor alcohol- and drug-related injuries. However, Hawai'i needs to develop a system to keep track of these types of injuries.

e. Work-related Injury Prevention Counseling. Most Hawaii residents of working age spend the majority of their time in the work environment. Among people ages 20 to 64, one-third of all injuries and 20% of all injury deaths occur on the job. While deaths related to occupational risks and exposures are decreasing, injuries, illness and permanent impairments are increasing. All professionals with roles in the delivery of services to workers are encouraged to provide continuing education on occupational health and safety. These services should be reimbursable.²⁰

f. Elderly Fall Prevention Counseling and Screening. The elderly are at increased risk for falls, in part because they perceive danger less accurately due to deteriorating acuity and sensory awareness. In part, it is due to losses of physical coordinating and declining mental functioning. Osteoporosis is considered the most likely reason falls among the elderly result in fractures. Thus, most feasible means of preventing these injuries is controlling osteoporosis. Strategies include encouraging healthful diet and exercise, fall prevention, and estrogen use among high-risk post-menopausal women²¹.

2. Community-wide Efforts. Health care providers are key members of the injury prevention community and, given adequate resources, can influence all aspects of injury prevention. Injury prevention specialists and stakeholders agree on five crosscutting themes in injury prevention: collaboration, policy development, community awareness and

education, surveillance and research, and product development and engineering²². By working together, resources can be used more effectively and efficiently to address the needs of the community. Because there are so many areas with injury prevention that can benefit by collaboration with health care service providers, general indicators are provided.

a. Coalition Support and Participation. All community members and health care providers have a right and a duty to participate individually and collectively in the planning and implementation of their community's safety work²³.

b. Community Awareness and Education. Community awareness and education are essential for expanding understanding of injury as a health problem, not the inevitable, and gaining support for prevention efforts²⁴.

c. Surveillance and Research. In order to understand the problem, develop interventions and monitor progress, accurate and adequate data must be collected. Research must also be an integral part of improving health and safety²⁵.

B. Measures/Indicators

1. Process Measures

Measure Number	Monitor	Definition	Guideline	Hawai`i Experience	Guideline/ Hawai`i Experience Source	Cross-Reference
PIP-1	Childhood Safety Counseling	Provide age appropriate materials and/or counseling to parents during routine and injury-related visits.	Information available in all pediatric and family practice offices.	No local data is available on the number of physician offices providing injury prevention materials and/or counseling.	Hawaii Health Information Consortium	<i>Maternal, Infant and Child Health;; Dental (Oral) Health</i>
PIP-2	Domestic Violence Screening, Assessment and Referral	Increase identification of domestic violence, collection of evidence and referrals.	With screening, at least 60% of cases can be identified.	No local medical data is available. National figures show that physicians intervene in less than 10% of cases.	Hawaii Health Information Consortium	<i>Maternal, Infant and Child Health;; Dental (Oral) Health; Behavioral Health</i>
PIP-3	Alcohol and Drug Screening and Referral	Increase identification of substance misuse and abuse and treatment referrals.	To Be Updated By SHCC's PDC	No local information available.	Hawaii Health Information Consortium	<i>Behavioral Health</i>

Measure Number	Monitor	Definition	Guideline	Hawai'i Experience	Guideline/ Hawai'i Experience Source	Cross-Reference
PIP-4	Work-related Injury Prevention Counseling	Provide occupation-appropriate materials and counseling.	Counseling and information available in all primary care offices and information provided to the chamber of commerce.	No local data is available on the number of health service providers supplying materials and counseling.	Hawaii Health Information Consortium	<i>Dental (Oral) Health</i>
PIP-5	Elderly Fall Prevention Counseling and Screening	Provide materials and counseling (such as home and environmental risks) and osteoporosis, vision and hearing screening for elderly.	Information available in general practitioners and geriatric specialists offices; senior centers. Routine screening for vision and hearing for elderly and for osteoporosis among women by age 65.	Information is not available on the number of local providers offering these services. Some providers do offer them.	Hawaii Health Information Consortium	

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Measure Number	Monitor	Definition	Guideline	Hawai`i Experience	Guideline/ Hawai`i Experience Source	Cross-Reference
PIP-6	Coalition support and participation.	Collaborate and partner with other agencies and interested parties to improve health and safety.	All health care service providers become full participants in at least one coalition and consider providing financial support. For example, focus areas may include water safety, helmet initiatives, childhood injury, suicide prevention	Many health care service providers are currently participating and supporting coalitions. However, there is no data available on the actual number of providers.	Hawaii Health Information Consortium	
PIP-7	Community awareness and education.	Participate in community awareness and education campaigns. Take advantage of “teachable moments.”	100% participation in general campaigns and participation in at least one specific issue.	No local data available on the number of providers currently participating in these activities, although a number of providers have been involved.	Hawaii Health Information Consortium	<i>Maternal, Infant and Child Health; Dental (Oral) Health; Behavioral Health</i>
PIP-8	Surveillance and research.	Develop and maintain injury	100% participation in	Most health care providers in	Hawaii Health Information	

Measure Number	Monitor	Definition	Guideline	Hawai'i Experience	Guideline/ Hawai'i Experience Source	Cross-Reference
		surveillance systems. Conduct research to evaluate interventions and understand community-specific problems.	system(s) for statewide injury surveillance such as the Major Trauma Outcome Study and E-coding. Participate in injury research, as appropriate.	Hawai'i have willingly participated in injury surveillance and research at some level.	Consortium	

2. Outcome Measures

Measure Number	Monitor	Definition	Guideline	Hawai'i Experience	Guideline/ Hawai'i Experience Source	Cross-Reference
PIO-1	Childhood Safety Counseling	Reduce childhood injury death and hospitalization rates.	National: 20.9 deaths per 100,000 and 370 hospitalizations per 100,000. Hawai'i: 13.5 deaths per 100,000 and 388.6 hospitalizations per 100,000.	Hawaii's childhood (ages 0-18) injury death rate is 17.5 per 100,000 and hospitalization rate is 505.2 per 100,000.	Hawaii Department of Health Hawaii Health Information Consortium	<i>Maternal, Infant and Child Health; Dental (Oral) Health</i>
PIO-2	Domestic Violence Screening, Assessment and Referral	Decrease rates of injury resulting from domestic violence.	To be determined once local medical data available.	No local medical data is available. More than 3,000 cases were reported to the prosecuting attorney's office.	Hawaii Departments of the Attorney General and Health Hawaii Health Information Consortium	<i>Maternal, Infant and Child Health; Dental (Oral) Health; Behavioral Health</i>
PIO-3	Alcohol and Drug Screening and Referral	Reduce alcohol- and drug-related injury rates.	Reduce alcohol and drug related emergency department visits by 20%.	Local data suggests information on alcohol and drug use is not collected consistently.	Hawaii Department of Health Hawaii Health Information Consortium	<i>Behavioral Health</i>

Measure Number	Monitor	Definition	Guideline	Hawai'i Experience	Guideline/ Hawai'i Experience Source	Cross-Reference
				National data reveals that 25%-50% of all injury deaths can be attributed to alcohol.		
PIO-4	Work-related Injury Prevention Counseling	Reduce work-related injury and illness rate.	National guideline for the reduction of work-related injuries resulting in medical treatment, lost time from work or restricted work activity suggest a 25% reduction from 8.3 to 6 cases per 100. Hawai'i has a goal of 8 cases per 100.	While improvements in data collection are needed, local data suggests work-related injuries and illnesses are increasing. In 1992, 11 of every 100 full-time workers were injured on the job.	Hawaii Department of Labor and Industrial Relations	<i>Dental (Oral) Health</i>

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Measure Number	Monitor	Definition	Guideline	Hawai'i Experience	Guideline/ Hawai'i Experience Source	Cross-Reference
PIO-5	Elderly Fall Prevention Counseling and Screening	Reduce the rate of hip fracture hospitalizations among the elderly.	The national objective is to reduce the rate of hip fracture hospitalizations from 776 to 607 per 100,000). Hawai'i can reduce the rate of hip fracture hospitalizations to no more than 493 per 100,000 residents over age 65.	The rate of hip fracture hospitalizations in Hawai'i was 580 per 100,000 residents over age 65. Most were the result of falls.	The Peer Review Organization (for Medicare patients) Hawaii Department of Health	<i>Diabetes and Other Chronic Disabling Conditions</i>

C. Community-Specific Issues

Injury risk is influenced by a number of factors²⁶. Unintentional injuries account for 76% of all injury hospitalizations, but only 49% of all injury related deaths. Children, young adults and the elderly have the highest rates of unintentional injury due to vehicular injuries, falls and recreation. Young adults have the highest rates of intentional injuries (homicide, assault, and suicide). With the exception of young children, males are more likely to be injured. The ethnic distribution of injuries varies by cause. Neighbor island residents have higher rates of unintentional injury, primarily due to vehicular and drowning incidents while Oahu resident have more intentional injuries. While multiple factors influence injury risk, all segments of the population in Hawai'i are affected.

D. Priorities

There are two priorities for preventing injuries and violence.

1. Education. Health care providers are encouraged to infuse prevention counseling into their routine and “teachable moment” visits thereby increasing the quality of care. The community is encouraged to participate in topic-specific educational efforts to increase access.

2. Increasing the state’s ability to monitor rates of injury and violence. This is particularly important for non-fatal injuries. While surveillance systems are improving, the state is not yet able to capture accurate information in all key areas.

NOTES

¹ Murray CJL & Lopez AD (Ed). *The Global Burden of Disease*. Boston: Harvard School of Public Health for the World Health Organization, 1996.

² National Committee for Injury Prevention & Control. *Injury Prevention: Meeting the Challenge*. New York: Oxford University Press, 1990.

³ U.S. Department of Health & Human Services. *Healthy People 2000*. Washington, DC: U.S. Government Printing Office, 1991.

⁴ National Research Council & Institute of Medicine. *Injury in America: A Continuing Public Health Problem*. Washington, DC: National Academy Press. 1985.

⁵ Ibid.

⁶ Baker SP, O'Neill B, Ginsburg MJ & Guohua L. *The Injury Fact Book (2nd edition)*. New York: Oxford University Press, 1992; *Healthy People 2000*, *op. cit.*

⁷ Goebert D, Birnie K, Kronabel B, Percival I & Tash E. *An Overview of Injury Hospitalizations and Deaths in Hawai'i*. Honolulu: Hawai'i Department of Health, 1994.

⁸ Goebert D. *The Lifetime Costs of Injury in Hawai'i and the Benefits of Prevention*. Honolulu: Hawai'i Department of Health, 1998.

⁹ Taft C. *Preventing Childhood Injury: Hawai'i Strategic Plan, 1995-2000*, Keiki Injury Prevention Initiative. Honolulu: Keiki Injury Prevention Coalition and Hawai'i Department of Health, 1995.

¹⁰ National Safety Council of Australia. *Community Based Injury Prevention: A Practical Guide*. Cowandilla: South Australian Division Limited. 1992.

¹¹ Hawai'i Department of Health. *Healthy Hawai'i 2000: Preliminary Objectives and Health Status Indicators for the State of Hawai'i*. Honolulu: Hawai'i Department of Health, 1995; Percival I. *A Plan for*

the Prevention of Injuries in Hawai'i. Honolulu: Injury Prevention Advisory Committee and Hawai'i Department of Health, 1995; *An Overview of Injury Hospitalizations and Deaths in Hawai'i*, op. cit.

¹² Goebert D, Birnie K, Kronabel B, Percival I & Tash E. *The Causes and Consequences of Injury in Hawai'i*. Honolulu: Hawai'i Department of Health, 1994; *An Overview of Injury Hospitalizations and Deaths in Hawai'i*, op. cit.; *Healthy Hawai'i 2000* op. cit.; *A Plan for the Prevention of Injuries in Hawai'i* op. cit.

¹³ American Academy of Pediatrics. *tipp (The Injury Prevention Program): A Guide to Safety Counseling in Office Practice*. Elk Grove Village, IL: American Academy of Pediatrics, Publication Office, 1994.

¹⁴ Ibid.; Goebert D. *What's Hurting Our Children? Childhood Injury Hospitalizations in Hawai'i, 1989-1990*. Honolulu: Hawai'i Department of Health, 1995; Hendrickson L. *What's Killing Our Children? Childhood Injury Mortality in Hawai'i, 1987-1992*. Honolulu: Hawai'i Department of Health, 1994.

¹⁵ *Healthy People 2000*, op. cit.

¹⁶ Hartung GH & Goebert DA. Epidemiology of Injuries from Ocean Sports and Recreation. Chapter in *Epidemiology of sports Injury*, 1996. Champaign, IL: Human Kinetics, 284-300.

¹⁷ Markrich M. Hawai'i's Beaches Are Not Safe Enough – There Are Too Many Accidents, 1989. Honolulu, October: 57, 85.

¹⁸ Iowa Medical Society. *Domestic Abuse Physician Handbook: Break the Silence, Begin the Cure*. Iowa: Iowa Medical Society, 1995; *A Plan for the Prevention of Injuries in Hawai'i* op. cit.

¹⁹ *A Plan for the Prevention of Injuries in Hawai'i* op. cit.; Hawai'i Department of Health. *Healthy Hawai'i 2000: Updated Objectives and Health Status Indicators for the State of Hawai'i*. Honolulu: Hawai'i Department of Health, 1996; *Injury Prevention: Meeting the Challenge*, op. cit.

²⁰ *Healthy Hawai'i 2000 – 1996*, op. cit.; *Healthy People 2000*, op. cit.

²¹ *A Plan for the Prevention of Injuries in Hawai'i* op. cit.

²² Institute of Medicine. *The Future of Public Health*. Washington, DC: National Academy Press, 1988; *Injury Prevention: Meeting the Challenge*, op. cit.; *Injury in America*, op. cit.; *A Plan for the Prevention of Injuries*, op. cit.; *Preventing Childhood Injury*, op. cit.

²³ *Community Based Injury Prevention*, op. cit.

²⁴ See, for example, all references cited above.

²⁵ *Healthy People 2000*, op. cit.; *Healthy Hawai'i 2000* op. cit.

²⁶ Goebert D, Birnie K, Kronabel B, Percival I & Tash E. *The Geography of Injury Hospitalizations and Deaths in Hawai'i*. Honolulu: Hawai'i Department of Health, 1994; Goebert D, Birnie K, Kronabel B, Percival I & Tash E. *Injury Hospitalizations and Deaths in Hawai'i: Ethnic Diversity*. Honolulu: Hawai'i Department of Health, 1994; Yee BWK, Castro FG, Hammond WR, John R, Wyatt GE & Yung BR. Panel IV: Risk-Taking and Abusive Behaviors among Ethnic Minorities. *Health Psychology*, 1995; 14(7):622-631; *What's Hurting Our Children*, op. cit.