

Hawaii Injury Prevention Plan 2005–2010

Injury Prevention
Advisory Committee

Injury Prevention and
Control Program



Injury Prevention and Control Program
Hawaii State Department of Health



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Dear Community Colleagues,

We are pleased to present you with the Hawaii Injury Prevention Plan, a call to action to the people of Hawaii to improve our health status in eight injury areas by 2010. It is the product of one and a half years of collaborative work by members of the Injury Prevention Advisory Committee (IPAC), staff of the Department of Health's Injury Prevention and Control Program (IPCP), and people having specialized or related injury expertise from other organizations and the community-at-large.

As a community, we can reduce our toll of needless injury-related deaths and disabilities. To do so, we must change the public's perception of injuries as being "accidents" caused by chance or carelessness, to one in which injuries are viewed as preventable events. Much can be done to alter the dire outcomes that we see in injury statistics today.

The Hawaii Injury Prevention Plan is intended to be a living document that will stimulate action to meet this challenge. While responsibility to facilitate and monitor the implementation of plan recommendations rests with IPCP and IPAC, it is the commitment and active participation of each of you within our diverse community—medical, health, safety and legal professionals; community activists; policy makers; community organizations; government agencies; and businesses—that will determine the extent to which we succeed.

On behalf of the Injury Prevention Advisory Committee and the State Department of Health, we invite you to join us in achieving the recommendations set forth in this plan. By working together we can accomplish what none of us can alone.

Bruce McEwan, Ph.D.
Chair
Injury Prevention Advisory Committee

Chioyme Leinaala Fukino, M.D.
Director of Health
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Introduction

Injury In Hawaii - A Public Health Priority

Injuries are responsible for more deaths of children and young adults from the first year of life through age 39 than all other causes combined, including heart disease, stroke and cancer. Among all ages, injury is the fourth leading cause of death and disability. Although the greatest impact of injury is in human suffering, the financial cost is staggering. In Hawaii, injury-related hospitalizations cost an estimated \$340 million annually.

Mortality statistics, however, do not convey the full extent of the injury problem. Fatal injuries represent less than 0.8% 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 11 residents die from an injury, 160 are hospitalized and nearly 1200 more 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. Through epidemiological study, we can answer questions such as, “How serious is Hawaii’s injury problem? Who are most affected by injuries?” and, “What are the circumstances under which these injuries occur?” This information can lead to answering other important questions, such as “What causes injuries?” and “How can they be prevented?”

The terms “intentional” and “unintentional” are used in this plan to indicate whether or not the act or event was intended to harm a person. Unintentional injuries are commonly referred to as “accidents” (for example, falls, drownings, poisonings, and injuries to pedestrians, motor vehicle occupants, and motorcyclists). Intentional injuries are purposefully inflicted on others (assaults) or oneself (suicide attempts).

Ten leading causes of death among Hawaii residents, by age group, 2000-2004¹

	<1 year	1-14 years	15-24 years	25-34 years	35-44 years	45-54 years	55-64 years	65+ years	All ages
1	Perinatal conditions 315	Unintentional injuries 49	Unintentional injuries 236	Unintentional injuries 163	Malignant neoplasm 292	Malignant neoplasm 951	Malignant neoplasm 1,649	Heart disease 9,581	Heart disease 11,927
2	Congenital anomalies 85	Malignant neoplasm 28	Suicide 77	Suicide 110	Heart disease 264	Heart disease 753	Heart disease 1,200	Malignant neoplasm 6,926	Malignant neoplasm 9,970
3	SIDS ² 40	Congenital anomalies 16	Malignant neoplasm 30	Malignant neoplasm 94	Unintentional injuries 249	Unintentional injuries 269	CVD ³ 236	CVD 3,256	CVD 3,742
4	Unintentional injuries 25	Homicide 11	Heart disease 28	Heart disease 75	Suicide 123	CVD 156	Unintentional injuries 167	Chronic lower resp. diseases 1,191	Unintentional injuries 1,857
5	Heart disease 19	Suicide 8	Homicide 12	Homicide 23	CVD 76	Suicide 140	Diabetes mellitus 167	Influenza and pneumonia 1,021	Chronic lower resp. diseases 1,398
6	Influenza and pneumonia 11	Heart disease 7	Injuries of unk. intent 12	Injuries of unk. intent 14	Homicide 46	Liver disease and cirrhosis 109	Chronic lower resp. diseases 131	Diabetes mellitus 700	Influenza and pneumonia 1,133
7	Septicemia 9	Septicemia 6	Congenital anomalies 10	CVD 11	Injuries of unk. intent 38	Injuries of unk. intent 69	Septicemia 95	Unintentional injuries 699	Diabetes mellitus 962
8	Homicide 8	Influenza and pneumonia 6	Septicemia 4	Diabetes mellitus 11	Liver disease and cirrhosis 26	Diabetes mellitus 67	Liver disease and cirrhosis 81	Alzheimer's disease 696	Septicemia 773
9	Injuries of unk. intent 8	Injuries of unk. intent 4	Other circ. diseases 3	Other resp. diseases 6	Other circ. diseases 18	Septicemia 61	Nephritis, nephrotic synd. 77	Septicemia 575	Alzheimer's disease 706
10	Other resp. diseases 7	Perinatal conditions 3	Chronic lower resp. diseases 3	Other circ. diseases 6	Septicemia 17	Chronic lower resp. diseases 51	Suicide 70	Other resp. diseases 538	Nephritis, nephrotic synd. 651

¹Deaths grouped as recommended by National Center for Health Statistics (http://www.cdc.gov/nchs/data/nvsr/nvsr53/nvsr53_15.pdf).

²Sudden Infant Death Syndrome.

³Cardiovascular Disease.

Leading Causes of Injury Mortality and Morbidity among Hawaii residents¹

	Death Certificates (fatal)			Hospital Admission Records (non-fatal)			Emergency Department Records (non-fatal)		
	Cause	%	No. ²	Cause	%	No. ³	Cause	%	No. ⁴
1	Suicide	22%	127	Falls	42%	3,616	Falls	26%	15,866
2	Falls	14%	78	Car occupant	10%	886	Striking ⁶	15%	9,231
3	Car occupant	13%	75	Suicide attempt	10%	846	Cut/pierce	16%	7,153
4	Poisoning	9%	53	Assault	5%	420	Car occupant	9%	5,358
5	Drowning	5%	30	Striking ⁵	4%	350	Overexertion	8%	4,692
6	Assault	5%	30	Motorcyclist	4%	338	Natural/ environmental ⁷	6%	3,582
7	Pedestrian	5%	30	Poisoning	4%	300	Assault	5%	3,194
8	Suffocation	5%	28	Pedestrian	2%	168	Bicyclist	2%	1,155
9	Motorcyclist	4%	22	Cut/pierce	2%	159	Fire/burn	1%	905
10	Bicyclist	1%	6	Bicyclist	2%	148	Motorcyclist	1%	835
	<i>All other</i>	16%	87	<i>All other</i>	15%	1,293	<i>All other</i>	16%	9,802
	Annual total	100%	566	Annual total	100%	8,525	Annual total	100%	61,773

¹ Non-residents comprise 12% of the victims killed by injuries in the state, 9% of those hospitalized, and 10% of those treated in emergency departments.

² Annual number of deaths, from 2000-2004 death certificates. For underlying cause of death in the ICD-10 code series: V01-Y36, Y85-Y87, Y89, and U01-U03.

³ Number of injury-related hospitalizations, from 2003 records. For any-priority diagnosis in ICD-9CM code series: 800-909.2, 909.4, 909.9, 910-994.9, 995.5-995.59, 995.80-995.85. Since only 81% of these records contain external cause codes, these estimates are extrapolated from the known number of injury-related hospitalizations.

⁴ Number of injury-related ED visits, from 2002 records. For any-priority diagnosis in ICD-9CM code series: 800-909.2, 909.4, 909.9, 910-994.9, 995.5-995.59, 995.80-995.85. Since only 83% of these records contain external cause codes, these estimates are extrapolated from the known number of injury-related ED visits.

⁵ 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 “struck...in sports” (21%), and “struck...in running water” (6%).

⁶ Most (90%) of these patients were “struck accidentally by objects or persons”; the rest (10%) were “struck accidentally by falling object”. Of the former, the most commonly specified causes were “struck...in sports” (21%), and “struck...by furniture” (2%).

⁷ Most (97%) of these visits were related to the bites or venom of animals, most specifically dog bites (28%), bee and wasp stings (17%), centipedes (16%) and venomous marine animals (5%).

Background

In June 2002, the Injury Prevention Advisory Committee (IPAC) called for a "... strategic plan [that] will help IPAC and IPCP in its next phase of development, i.e., to identify and prioritize key areas of injury ..." (*Injury Prevention in Hawaii: Status and Progress Review*). Soon thereafter, in October of that year, the Department of Health's Injury Prevention and Control Program (IPCP) received a Core State Injury Surveillance and Program Development capacity building grant from the Centers for Disease Control and Prevention (CDC) supporting the development of a five-year state injury prevention plan. And in June 2003, an assessment of injury prevention efforts in Hawaii by the State and Territorial Injury Prevention Directors Association (STIPDA) further confirmed the need for a statewide plan.

This document is the resulting Hawaii Injury Prevention Plan (HIPP), a collaborative effort spearheaded by IPAC and IPCP. Goals are to provide:

- Overall direction and focus to IPCP and IPAC-led efforts in the next five years; and
- A stimulus for organizations, agencies and community groups to collaborate on reducing or preventing injuries in Hawaii.

A Community Planning Process

In June 2003, the IPAC Steering Committee laid the groundwork for the state plan by calling for strategy development around the eight (8) leading causes of injury morbidity and mortality in Hawaii, namely:

- Drowning and other water related injuries
- Falls
- Motorcycle injuries
- Motor vehicle occupant injuries
- Pedestrian injuries
- Poisoning
- Suicide
- Violence and abuse

A section on institutional recommendations was included to address the injury prevention infrastructure in Hawaii and overlapping strategies of multiple workgroups.

The eight workgroups consisted of IPAC members and staff from several Department of Health (DOH) programs. In addition, people having specialized or related injury expertise from other organizations and the community-at-large were invited to participate, thereby broadening representation and, hopefully, increasing stakeholder investment and commitment toward implementation of the injury prevention plan. (See Acknowledgements section for listing.)

The IPAC Steering Committee was tasked with developing the plan's institutional recommendations based on its understanding of Hawaii's injury prevention infrastructure and in light of STIPDA's recommendations for model standards of a comprehensive state injury prevention program (*State Technical Assessment Team, State Guide & Materials*). The Committee also reviewed the deliberations of all workgroups and identified crosscutting strategies that would support the progress of multiple workgroups.

In September 2003, prior to the start of plan meetings, workgroup facilitators and IPCP staff participated in a 4-hour training session to achieve a level of consistency in the reporting among all groups.

On January 23, 2004, a Hawaii Injury Prevention Plan (HIPP) kick-off meeting set the stage for community plan development. The meeting was attended by 50 people who had been invited to participate in any of the eight workgroups formulated to address a leading cause of injury morbidity/mortality. Attendees were IPAC members as well as those having injury-specific concerns from related programs, organizations and the community. Dr. Linda Rosen, Deputy Director of Health, welcomed the participants and emphasized the importance of the state plan and its designated process of people working together toward developing and achieving statewide recommendations. The IPCP epidemiologist gave an overview of statewide injury data and the IPCP manager described the steps in which workgroups would develop key injury prevention strategies.

During the next six months, from January through June 2004, the eight injury area workgroups held three meetings each to develop and prioritize their respective draft recommendations. The groups proceeded along the following format: Meeting 1 - Data Presentation and Target Population Discussion, Meeting 2 – Issues Discussion and Strategy Brainstorming, Meeting 3 - Priority Setting and Selection of Strategy Recommendations. A decision matrix was used by some groups to prioritize their top three or four recommendations. At the first meeting of each workgroup, the epidemiologist provided information and data specific to their injury focus. The presentation included data from death certificates, hospital discharge records, and supplementary sources, such as Behavioral Risk Factor Surveillance System (BRFSS), Youth Risk Behavior Surveillance System (YRBSS), and State Department of Transportation (DOT) observational surveys. Information packets, including injury fact sheets, were also distributed.

On August 13, 2004, IPAC and IPCP hosted a report-back meeting for workgroup participants to present the first draft of the recommendations and to solicit input on the final process of unveiling the Hawaii Injury Prevention Plan. At this meeting, Deputy Director of Health Dr. Linda Rosen highlighted the progress made in developing the HIPP over the 6-month period and the significance of the community-based planning approach. In addition, workgroup members presented their findings and the IPCP manager led a discussion on “Moving HIPP Forward.”

Injury Prevention Advisory Committee

The Injury Prevention Advisory Committee (IPAC) marks its beginning from the task force appointed in 1984 by the Director of Health to determine how Hawaii could achieve its 1990 health objectives in injury prevention and control. The 1984 task force strongly recommended that Hawaii establish a state focal point for injury prevention. This led to the establishment of the Injury Prevention and Control Program in the state health department. IPAC has continued over the years to retain an advisory relationship to IPCP and to call attention to areas in which Hawaii can reduce injuries from occurring. It has served as a forum for convening those who are interested in joining a network committed to making impact in injury prevention.

IPAC's Mission: To build and sustain a sound focal point and base for injury prevention activities in the state and to guide and monitor the development of state and community-based injury and violence prevention initiatives in Hawaii.

Injury Prevention And Control Program

In 1989, the Injury Prevention and Control Program (IPCP) was established by the Department of Health as a state-level program to coordinate and support efforts by government, community and private organizations to reduce injury morbidity and mortality. Today, IPCP is the Department's focal point for injury prevention activities throughout Hawaii's communities.

IPCP is charged with addressing injury prevention among all age groups. The office is responsible for coordinating, planning, conducting and evaluating injury prevention interventions; policy development and advocacy; collecting, analyzing and disseminating injury data; and, technical support and training. These functions are recommended core components of a model comprehensive injury prevention program in a state health department (State and Territorial Injury Prevention Directors Association. *Safe States*).

Since its inception, IPCP has developed partnerships and worked successfully with community coalitions in advancing legislation, policy and educational measures to reduce unintentional and intentional injuries. IPCP uses a cost-effective approach by leveraging its own resources for maximum benefit--- that is, to harness and focus community resources on injury prevention.

Institutional Recommendations

Infrastructure

Stabilize IPCP funding and support expansion of injury prevention services to all counties throughout the state.

- **Stabilize funding for Core Injury Prevention and Control Program Positions**
- **Establish Suicide Prevention Coordinator**
- **Establish Neighbor Island positions**

Rationale: Infrastructure includes the people (dedicated staff and networks of partners), financial and other resources that support the injury prevention field. A solid infrastructure benefits the state by helping to reduce the burden of injury. “The strengthening of a well-developed injury program in the state health department is the foundation for state and local injury prevention efforts” (Institute Of Medicine. *Reducing the Burden of Injury: Advancing Prevention and Treatment*).

An organizational entity within the DOH having the responsibility and authority, as well as the ability to conduct injury surveillance and prevention programs is fundamental to public health efforts in Hawaii. The ongoing stability of this lead entity is crucial to providing a coordinated focus for injury prevention activities throughout the state.

According to the STIPDA, just as traditional “bricks-and-mortar” infrastructure supports roads and bridges, state injury prevention programs rely on a strong foundation of core capacity, leadership, and coordination (*Safe States, 2003*). A solid infrastructure based on core funding provides focus and direction for the many aspects of an effective injury prevention program, and makes the best use of limited resources currently available. STIPDA recommends that key positions – in leadership, data collection and analysis, program development, evaluation, and education – be permanent positions (*Safe States, 2003*). Soft funding or time limited funding causes problems of staff turnover and less continuity. Without stable funding, it is difficult to plan for the future, maintain needed programs, and recruit and retain talented staff needed to address injuries in Hawaii.

STIPDA and IPAC also recommended the establishment of a suicide prevention coordinator and an injury prevention coordinator position for each of the neighbor islands (*An Assessment of the Hawaii Injury Prevention and Control Program* and *Injury Prevention in Hawaii: Status and Progress Review*). Suicide, the leading cause of injury death in Hawaii, exacts an enormous toll from Hawaii’s people. The devastating trauma, loss and suffering are multiplied in the lives of family members and friends. A suicide prevention coordinator position in IPCP would focus continued attention on this public health crisis and organize multidisciplinary support. The neighbor islands have fatal injury rates one-third higher than Oahu, yet they have no full time injury prevention personnel. To have a greater impact at the state level, it was recommended that IPCP establish dedicated injury prevention staff for each county.

Data Collection, Analysis And Dissemination

Establish standards for completeness and accuracy of external cause of injury coding (E-coding) for hospitals to achieve and maintain.

Rationale: This recommendation was in STIPDA's assessment of IPCP in 2003 and was strongly re-affirmed by all eight injury workgroups developing the state plan. The groups stated a need for complete and accurate morbidity data to get a better understanding of the nature and extent of the injury problem in their respective injury areas.

Accurate and timely data collection and dissemination provides the basis for tracking external causes, circumstances, and consequences of injuries. This is essential to sound program design and policy development. Data can be used to pinpoint emerging or significant injury problems or trends, understand risk factors, focus attention and resources, and design, monitor and evaluate interventions.

State health departments routinely collect accurate and timely mortality data from death certificates. However, deaths from injuries represent only a fraction of the total number of injuries and are just the tip of the iceberg. Data from hospital admissions and emergency department visits are the most comprehensive sources of non-fatal injury data. These data are critical to providing a more complete picture of injury in Hawaii.

Produce and disseminate annual and specialized injury reports.

Rationale: All workgroups stated the need for annual and specialized data reports to be available in user-friendly formats. This was also a STIPDA recommendation in their report, *An Assessment of the Hawaii Injury Prevention and Control Program, 2003*.

Intervention Design, Implementation And Evaluation

Incorporate injury prevention into Hawaii's Health Education Standards for grades K through 12.

Rationale: This recommendation was a common theme of many workgroups. It was identified as an effective strategy for instilling in children and adolescents injury prevention concepts and behaviors that can be carried into adulthood. Workgroup members recognized that to be effective in the schools, injury prevention education must be developed and taught as part of the Health Education Standards at every grade level.

According to the Council of Chief State School Officers, "Schools are society's vehicle for providing young people with the tools for successful adulthood. Perhaps no tool is more essential than good health." (Council of Chief State School Officers. *Beyond the Health Room*. Washington, DC. 1991). Schools can efficiently reach a majority of children and "teach students the skills needed to promote safety and prevent unintentional injuries, violence, and suicide while at home, at work, at play, in the community and throughout their lives." (Centers for Disease Control and Prevention. *School Health Guidelines to Prevent Unintentional Injuries and Violence*. Morbidity and Mortality Weekly Report [MMWR], 2001; 50, No. RR-22.).

Educational interventions do not often stand alone to be truly effective. According to CDC, effective school-based injury prevention efforts also address policies and procedures, staff development, the physical environment of the school, and the curriculum in a coordinated school health program (MMWR, 2001, No RR-22).

This recommendation is in line with the Healthy People 2010 objective (7.2 b-d) and follows one of the key CDC school health recommendations to prevent unintentional injuries, violence, and suicide; “Implement health and safety education curricula and instruction that help students develop the knowledge, attitudes, behavioral skills, and confidence needed to adopt and maintain safe lifestyles and to advocate for health and safety” (MMWR, 2001, 50, No. RR-22).

Technical Support And Training

Develop a cadre of individuals and organizations who are injury literate, articulate, and active.

Rationale: This recommendation addresses the need to develop: 1) the next generation of injury prevention practitioners and leaders and, 2) the capacity of organizations to incorporate injury prevention approaches within their organizations as well as to address injuries in the broader community.

Injury prevention is a relatively new field. It is critical to enlarge the pool of skilled, competent practitioners able to address the injury problem in Hawaii. Training and technical assistance is one way to enlarge this pool.

Because successful injury prevention strategies rely on collaboration among government agencies, community organizations, and businesses, it is necessary to develop competency in these sectors. Prevention and control efforts must continuously adapt to reflect the magnitude and complexity of injury in Hawaii. The public health approach to prevention is interdisciplinary in nature, that is, not working in isolation but with government agencies, the private sector, and communities through multifaceted strategies. By building solid ground for multidisciplinary collaboration, we can continue to develop the science and practice of injury prevention and make progress in reducing the burden of injury in Hawaii.

Public Policy

Cultivate awareness and advocacy among policy makers and the public in recognizing and addressing injuries as a major public health problem in Hawaii.

Rationale: According to the Institute of Medicine (IOM) report, “Both the general public and policy makers need information on the effectiveness of injury prevention measures in order to make informed decisions and choices” (*Reducing the Burden of Injury: Advancing Prevention and Treatment*). The challenge is to increase public and legislative awareness of the scope of injury morbidity and mortality and the utility of potential interventions. For example, many people believe that injuries are “accidents” that just happen. This perception often precludes policy makers from identifying injury prevention as a discrete public health issue, limiting the earmarking of state and federal dollars for injury research as well as development of prevention

programs. Lack of awareness also limits support among legislators and the public for effective prevention legislation and injury prevention initiatives.

The IOM Report further indicates that public education and advocacy are key elements of modern public health practice at the state and community levels. Arousing public awareness and concern is vital to counteracting complacency or sluggishness in addressing the magnitude of our injury problem.

Sector Involvement

Foster partnerships with the military to address injury prevention issues in which the military can have impact.

Rationale: Fostering partnerships and collaboration with the military was discussed and strongly recommended in nearly all the workgroups as an important sector to include in statewide injury prevention efforts. Injuries are a significant health problem in the military, especially post 9/11 where they have impact on the availability of trained personnel and overall mission readiness. In addition, the military and their dependents comprise 8% of Hawaii's population (State Department of Business, Economic Development and Tourism (DBEDT). *The State of Hawaii Data Book 2003*), with nearly half (47%) of the active duty personnel 25 years of age or under (DBEDT web site – <http://www.hawaii.gov/dbedt>).

The workgroups felt that a close, collaborative relationship with the military would provide many advantages: gaining access to a wider population, combining different approaches and expertise, sharing relevant injury data, making better use of resources, and delivering more consistent messages and activities on- and off-base. Examples of large multi-agency collaborations are the “Click It Or Ticket” and impaired driving prevention statewide campaigns.

STIPDA has recognized the importance of coordination and collaboration as the hallmarks of a successful injury prevention program in their document (*Safe States, 2003*). According to STIPDA, of all areas of public health, injury prevention stands out as the one that requires partnerships with the widest variety of non-health agencies and organizations. In fact, coordination and collaboration were considered so essential to every aspect of state injury prevention programs that STIPDA included it as part of each core component of a model state injury prevention program, rather than as a separate component (*Safe States, 2003*). (In the earlier edition, *Safe States, 1997*, coordination and collaboration were listed as a separate core component.) Workgroup members felt strongly that the military needs to be a partner in major injury prevention efforts in Hawaii, as have other entities, such as law enforcement, transportation, and insurance. A multidisciplinary approach to injury prevention is critical since it reflects the multiple, complex causes of injury – as well as the diverse, interrelated solutions that are needed (*Safe States, 2003*).

Injury Specific Recommendations

Drowning and Other Water Related Injuries

Healthy People (HP) 2010 Objective: Reduce Drownings

	Baseline Rate*	Current Rate*	2010 Target*
National	1.6 drownings in 1998	1.2 drownings in 2002	0.9 drownings Method: better than the best.
Hawaii	3.0 drownings from 1996-2000 (average annual rate).	2.4 drownings from 2000-2004 (average annual rate).	0.9 drownings Method: meet national HP 2010 target.

* Resident deaths per 100,000 population age adjusted to the year 2000 U.S. standard population.

Recommendations

Minimize Risks Of Ocean And Freshwater Drowning

Develop a beach rating system, which includes comprehensive risk assessments for all beaches in the state.

Rationale: Lifeguard rescues on Oahu average approximately 1,500 per year. The most common reasons for these rescues are related to beach users' inappropriate skill levels.

A beach rating system, similar to the rating system of ski slopes, would be a standardized method of communicating risk to beach users. Such a rating system would allow beach users to choose beaches and activities appropriate to their skill level.

Currently, no objective rating system of the beach and its waters exist. While the use of a rating system for ski slopes has been universally established, Hawaii would be the first location in the U.S. and internationally to field-test this strategy. A beach rating system could also be used in determining needed resources and the deployment of lifeguards to maintain safety for all beach users.

Evaluate existing and promising programs, curriculum and activities to determine their effectiveness in preventing drownings and other water related injuries and to appropriately allocate limited resources

Rationale: Preventing swimming-related ocean drowning and near drowning in natural bodies of water is particularly challenging because few strategies for automatically protecting

swimmers are known. As an island state with an environment conducive to year-round ocean-related activities, Hawaii has an opportunity to provide a leadership role in the evaluation of current prevention efforts to determine their effectiveness and to allocate scarce resources.

While many strategies have been implemented in Hawaii to reduce drowning and other water-related injuries, but few have been evaluated. Strategies identified are: lifeguards at pools and oceans, Junior Lifeguards, the Hanauma Bay safety video, beach safety warning signs, and learn-to-swim programs. Of these, the Hanauma Bay educational intervention was determined to be a priority for evaluation. In addition, certain promising strategies warrant evaluation. These include the use of safety equipment, such as helmets for surfers, fins, and use of jet skis by lifeguards.

Minimize Risks Of Pool Drowning

Support mandatory 4-sided isolation fencing for residential pools.

Rationale: While constant adult supervision of young children in or around water is a key strategy in drowning prevention, supervision is an adjunct, not a substitute, for effective residential pool barriers.

Studies show that 4-sided isolation fencing for residential pools is effective in reducing pool drownings among young children because it restricts entry to the pool from the yard and residence. This barrier is especially important in preventing drowning injuries in young children that commonly occur when children can enter a pool without supervision. Currently, Hawaii has mandatory 3-sided fencing, which doesn't adequately prevent against unintended access to pools. In addition to four-sided isolation pool fencing, other barriers (e.g., automatic door locks and alarms, weight-bearing pool covers) can provide additional layers of protection in preventing drownings when lapses in supervision occur.

Conduct a coordinated educational campaign targeting residential pool owners and pool service providers to promote pool safety and the adoption of safety devices.

Rationale: Residential pool drownings are preventable. However, a gap exists between knowing what is effective and what is being implemented in the community. Most effective intervention strategies combine a strong community-based educational campaign promoting the use of pool barriers with legislative mandates and building codes or county ordinances.

Drowning and Near-Drowning Data

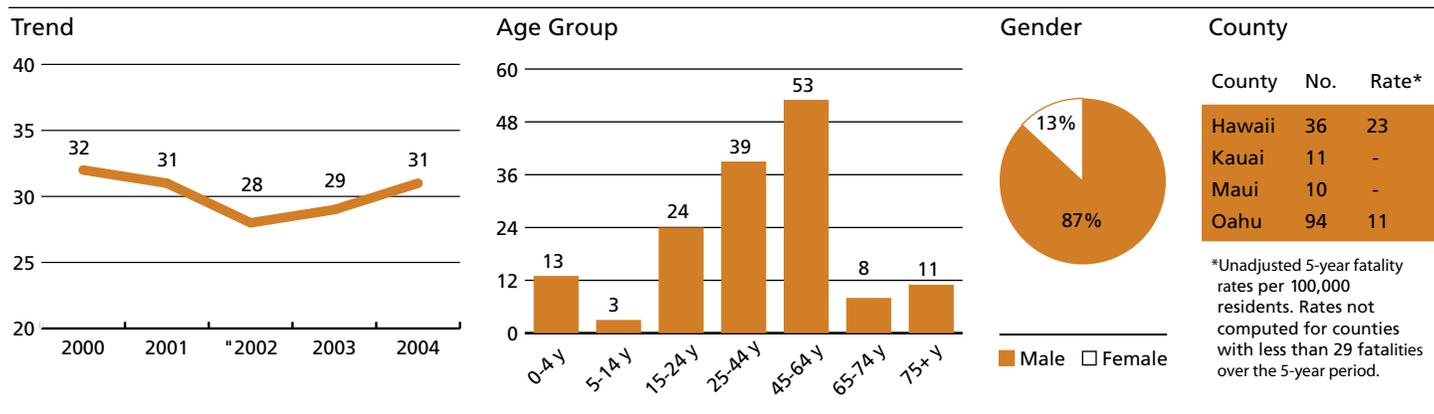
Overview of Drownings

Annual crude rate (1999-2002): 2.6 deaths per 100,000 residents (1.2/100,000 for rest of U.S.)
Hawaii state ranking (1999-2002): 2nd highest (AK highest: 4.0/100,000, NY lowest: 0.6/100,000)
Injury ranking in Hawaii (2000-2004): 5th leading cause of fatal injuries, 4th leading cause of unintentional injuries.

Hawaii had the 2nd highest resident drowning rate in the United States, a rate that was twice the average for the rest of the country. If drownings among non-residents were included, it

is possible that Hawaii would have the highest rate, as half (50%) of the victims were non-residents. An average of 30 residents drown each year. If non-residents are included, however, the annual total doubles to 60 victims per year, with a generally increasing trend over the 2000-2004 period. The ages of the victims were very broadly distributed, with no obvious high-risk range. Most (87%) were males. Hawaii County had twice the drowning rate of Oahu (23.1/100,000 residents vs. 10.5/100,000). There were too few deaths to compute rates for Kauai (11 deaths) and Maui counties (10).

Drownings Hawaii Residents, 2000-2004



Contributing Factors

Over the 2000-2003 period, most (95 of 120, or 79%) of the resident victims drowned in the ocean or saltwater environments. Almost all (94%) were older than 18 years of age, and most (91%) were males. Unintentional immersions (e.g. boat crashes, being swept off rocks, etc.) led to 26% of the ocean drownings. The most common activities related to the drownings were swimming (16%), free diving (12%), and snorkeling (4%). (Victim activity was unknown for 31% of the cases.)

According to autopsy records (1996-2000), personal factors (unrelated to the ocean environment) probably or possibly contributed to almost half (44%) of the ocean drownings of residents off Oahu. Circulatory diseases, most commonly heart disease, caused or contributed to 16% of these drownings, 10% were alcohol related, 10% were drug related, and 5% were related to seizure disorders.

Seven (6%) of the 120 resident drownings over the 2000-2003 period were in swimming pools, including 2 victims who were 1 year-olds. There were also 8 drownings (5%) in freshwater environments, including 2 drownings in the Wailuku River near Hilo.

Near-Drownings

For every resident who drowns, there are approximately 2 near-drownings which require hospitalization, or about 60 per year, and another 504 residents who are treated in emergency departments (ED) for near-drownings each year. (These estimates are 185 hospitalizations and 1,009 ED visits per year if non-resident patients are included.) The highest annual rates for near-

drownings among residents were computed for 15 to 24 year-olds (8.2/10,000). Only 1% (6) of the patients were 65 years of age or older. Most (84%) of the patients were males.

Almost half (44%) of the swimming pool drowning and near-drownings that require an ambulance on Oahu are among children under 5 years of age. Of the 19 lifeguarded beaches on Oahu, Makapuu, Sandy, Waimea, and Hanauma were all in the top 5 for both the number and rate of rescues. Rescue rates differed by almost 20-fold across the beaches, and even more with certain beaches (e.g. Waimea) depending on the season, indicating risk of drowning differs greatly by beach and time of year. The characteristics of those rescued also varied by beach, for example, from mostly younger residents at Nanakuli, to mostly adult-aged non-residents at Hanauma Bay.

Falls

Healthy People 2010 Objective: Reduce Deaths From Falls

	Baseline Rate*	Current Rate*	2010 Target*
National	4.7 deaths in 1998.	5.6 deaths in 2002.	3.0 deaths Method: better than the best.
Hawaii	5.4 deaths from 1996-2000 (average annual rate).	5.8 deaths from 2000-2004 (average annual rate).	3.0 deaths Method: meet national HP 2010 target.

* Resident deaths per 100,000 population age adjusted to the year 2000 U.S. standard population.

Recommendations

Reduce The Number And Severity Of Falls Among The Elderly.

Enhance public awareness that falls are preventable and promote actions that reduce the risk of injury.

Rationale: National and Hawaii trends show a growing elderly population (65+). The risk and severity of injury due to falls rise significantly in this age group. Although falls can happen to everyone, the rate of injuries from falls among the elderly is vastly disproportionate to the rest of the population. For the elderly in Hawaii, both fatal and nonfatal falls have the biggest impact on death and disability among all injury areas.

A public awareness campaign will bring attention to the prevalence and serious nature of falls to the elderly. It is vital that everyone, especially the elderly, realize that they are susceptible to falls, that falls are preventable, and that steps can be taken to lessen risk and severity.

Seniors may be hindered from taking action to reduce their own risks of falling due to their perceived stigmatization of aging. The public awareness campaign must be sensitive to this concern and shaped accordingly.

Increase availability and accessibility of fall prevention programs statewide for caregivers and the elderly on how to prevent falls and effectively use community resources.

Rationale: Falls prevention programs such as home safety monitoring, exercise, balance/skills building, and medication management are effective in reducing the incidence and severity of falls among the elderly.

Although many programs already exist, they are unable to meet the demand for services, technical assistance, and funding statewide, especially in rural areas and the neighbor islands. Program availability in rural areas and the neighbor islands is often hampered by problems of accessibility. It is often difficult for those seeking services to travel vast distances to receive

them. Moreover, it is usually not cost effective to plan programs for a small number of people spread out over a broad geographic area.

The service providers in this workgroup strongly endorse services being brought to where seniors congregate (e.g., community centers, elderly housing, even McDonalds). By making falls prevention programs more available and accessible to seniors, their goal is to reduce the incidence and severity of falls.

Expand the role of medical and health care professionals in screening, educating, and referring elderly to fall prevention programs.

Rationale: Studies show that physicians play a critical role in preventing falls among the elderly. They are viewed as credible and reliable sources of health information and are influential in directing their patients to appropriate medical services.

Most older adults are not treated by someone versed in gerontology, hence primary care physicians serve as their central point for screening, education, and referrals on a variety of health concerns. Incorporating falls prevention education into a regular office visit would greatly increase the likelihood that patients who are at risk will receive needed services.

Those elderly who have fallen are 2-3 times more likely to fall again. An affirmative answer to “have you fallen before?” will inform physicians and help them provide quality patient care.

Currently, many physicians and other health care professionals may need to be trained in screening, education, and referral for fall prevention. This is a promising intervention that could greatly decrease the impact of falls, especially among the elderly.

Falls Data

Overview of Fatal Injuries

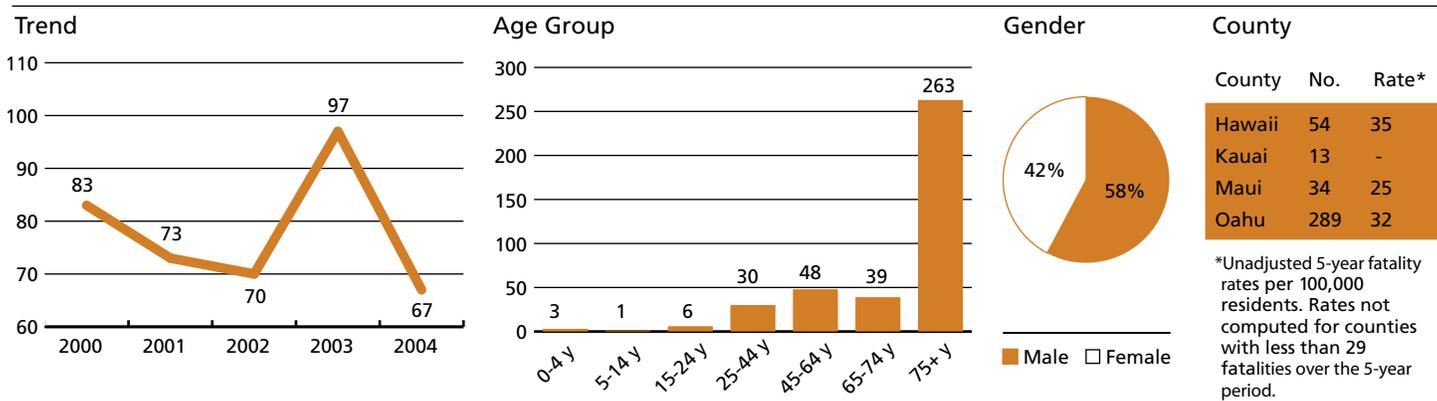
Annual crude rate (1999-2002): 5.8 deaths per 100,000 residents (5.1/100,000 for rest of U.S.)

Hawaii state ranking (1999-2002): 23rd highest (WI highest: 12.2/100,000, AK lowest: 2.6/100,000)

Injury ranking in Hawaii (2000-2004): 2nd leading cause of fatal injuries, leading cause of unintentional injuries.

There was no trend in the annual number of fatal falls among residents, which averaged 78 per year. The 5-year total of 390 deaths made falls the leading cause of fatal unintentional injuries in Hawaii over 2000-2004. Most (77%) of the victims were aged 65 years or older, and the risk of falls increased dramatically with age from 65 years onward. Forty-two percent of the victims were females, the highest such proportion among the main injury categories. Gender was equally distributed (50% female, 50% male) among victims aged 65 years and older.

Deaths from Falls
Hawaii Residents, 2000-2004



Fatal Falls Among Seniors

Falls were by far the leading cause of fatal injuries among senior-aged residents in Hawaii, accounting for more than one-third (36%) of the total. Both the number and rate of fatal falls increased steadily across the older age range: 5-year rates among residents aged 85 and older were almost 15 times higher than rates among seniors aged 65-69 years (68/10,000 residents vs. 5/10,000). Rates among male seniors were higher than rates among female senior residents. Fatality rates among seniors were lowest for Kauai, although there were no significant differences between counties. Data on the cause of the fatal falls among seniors was of poor quality, as 42% were coded as “unspecified” causes. Over one-third (38%) of the deaths were due to falls “on the same level.”

Non-Fatal Hospitalizations

For every senior resident who dies from a fall, there are an estimated 41 who require hospitalization for falls, which they ultimately survived, and another 60 who are treated in an emergency department. As with fatal falls, the number and rate of hospitalizations for falls increases dramatically with age over the senior age range. The distribution of gender is different, however, in that most (67%) of the patients are women. Forty-one percent of the patients suffered a fracture, most commonly fractures of the femur (14%). Hospital charges (not including physician charges) average almost \$60 million a year in Hawaii, and 61% of that is paid by Medicare/Medicaid. One third (33%) of these non-fatal falls were “on the same level” from “slipping, tripping or stumbling.” Sixteen percent were from “one level to another,” most commonly from beds (4%), stairs or steps (3%), and chairs (2%). Almost half (45%) of the falls were due to “other” or “unspecified” causes.

Oahu EMS Data

EMS records were manually reviewed for more detail on the causes of falls among seniors. Although causes are probably multi-factorial in nature, an estimated 64% of the falls involved intrinsic, or personal, factors. Extrinsic, or environmental, factors were noted in about one-fourth (26%) of the EMS reports. The most common intrinsic factor was loss of balance, followed by transfer falls (mostly getting up from chairs, or out of beds). About three-fourths of the falls occurred in the home environment, most commonly the yard or other outside areas, or in bathrooms or bedrooms.

Motorcycle

Hawaii 2010 Objective: Reduce motorcycle rider fatalities

	Baseline Rate*	Current Rate*	2010 Target*
National	0.9 deaths in 1998.	1.2 deaths in 2002.	No comparable HP 2010 objective for motorcycle deaths
Hawaii	1.5 deaths from 1996-2000 (average annual rate).	1.7 deaths from 2000-2004 (average annual rate).	0.9 deaths Method: meet national baseline.

* Deaths (including non-residents) per 100,000 population age adjusted to the year 2000 U.S. standard population.

Recommendations

Increase Helmet Use

Advocate for a mandatory universal helmet use law.

Rationale: Helmet use is the most effective means of preventing death and reducing the severity of non-fatal head injury in motorcycle crashes. Despite this fact, helmet use in Hawaii continues to be lower than the national average: 43% in 2003 versus the national average of 58%.

Studies have shown that states that have passed mandatory helmet use laws have experienced decreases in death, disability, and cost resulting from motorcycle crashes. There are few laws as easy to implement and enforce, with minimal inconvenience and cost, with near 100% compliance, and which can have a tremendous impact on saving lives and preventing disability.

The policy debate is often based the issue of personal individual freedom versus public health and safety. To pass a helmet use law, it is critical to educate legislators and the public about the social and economic impacts of injuries to unhelmeted motorcyclists.

Reduce Alcohol Involvement In Motorcycle Crashes

Enhance and expand training of county police officers to recognize impaired motorcyclists.

Rationale: Alcohol is a major risk factor in motorcycle crashes. One-third (33%) of the drivers who died in motorcycles crashes were legally intoxicated; nearly half (44%) were reported to have some level of alcohol in their blood at the time of death (2000-2003). According to the UH Community Colleges' Motorcycle Safety Education Program, one reason impaired motorcyclists can often drive without being detected is that DUI recognition for a car driver is different from a motorcyclist. While police officers have been highly trained and successful in recognizing impaired car drivers, special training is needed to recognize impaired motorcycle riders.

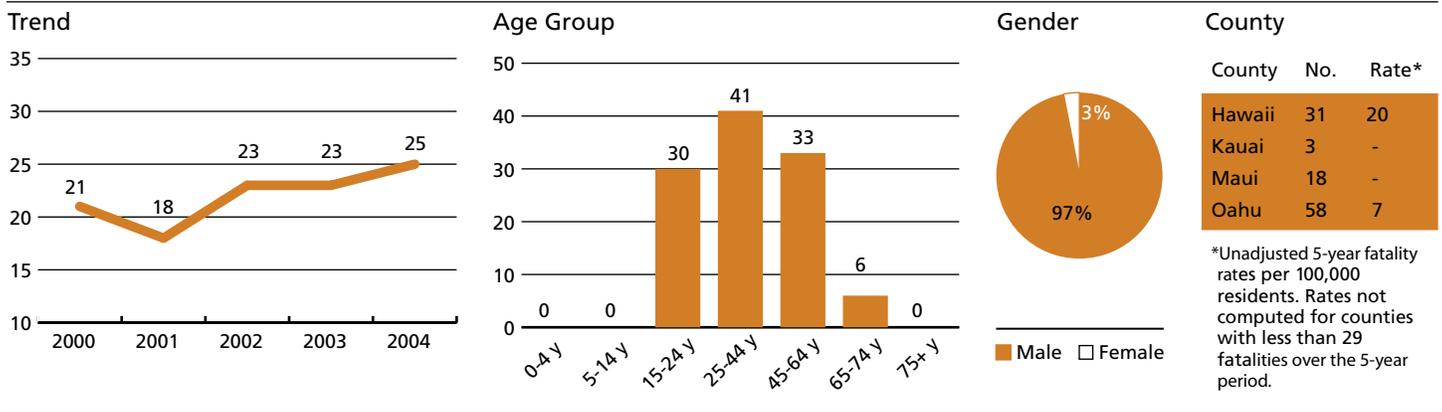
Motorcycle Crash Injury Data

Overview of Fatal Injuries

Annual crude rate (1999-2002): 1.4 deaths per 100,000 residents (1.0/100,000 for rest of U.S.)
Hawaii state ranking (1999-2002): 9th highest (SC highest: 1.8/100,000, ND lowest: 0.5/100,000)
Injury ranking in Hawaii (2000-2004): 9th leading cause of fatal injuries, 7th leading cause of unintentional injuries.

A total of 110 residents died from motorcycle crashes in Hawaii over the 2000-2004 period, with no apparent trend over those 5 years. Most of the fatally injured motorcyclists were young adult males; half (55) were males aged 21 to 40 years. Over half (58, or 53%) of the fatalities occurred on Oahu, but higher rates were computed for Hawaii County, whether adjusting for resident population or number of registered motorcycles.

Fatal Injuries to Motorcyclists Hawaii Residents, 2000-2004



Contributing Factors

Alcohol was estimated to be involved in half (53%) of the fatalities over the 2000-2003 period (excluding the 24% of crashes for which alcohol status was not known.) Almost half (44%) of the fatally injured drivers were estimated to have been drinking before the crash, and one-third (33%) were estimated to have been legally drunk. Alcohol use was particularly common (55%) among drivers who crashed in the nighttime hours of 8:00 p.m. to 5:00 a.m. Only a minority (27%) of the drivers had been wearing helmets at the time of the crash. Almost half (47%) of the crashes did not involve another vehicle but were due to loss of control of the motorcycle. Speeding contributed to 31% of the fatal crashes. A high proportion (13%) of the victims were military personnel. Helmet use was more likely among military personnel than civilian riders (90% vs. 17%), but military personnel were more likely to have been speeding (60% vs. 26%). Alcohol use was comparable between the two groups.

Non-Fatal Hospitalizations

For every person killed in a motorcycle crash, there are an estimated 15 who are hospitalized for non-fatal injuries in Hawaii, and another 38 who are treated in emergency departments. As for fatal crashes, a large proportion (at least 37%) of crashes requiring hospitalizations did not involve another vehicle. About one-third (32%) were due to “loss of control” of the motorcycle. The age and gender distribution of the patients was similar to fatal crashes: half (52%) were between 21 and 40 years of age, and most (87%) were males. Almost one-fifth (18%) of the patients had a traumatic brain injury (TBI). According to Queen’s Trauma Registry data, only 32% of the injured riders were wearing helmets. The incidence of TBI among non-helmeted riders was almost twice as high as among helmeted riders. Hospital charges totaled almost \$11.4 million per year, an amount that would be approximately doubled if physician charges were included.

Other Data

From Oahu EMS data, the neighborhoods with the highest numbers of motorcycle crashes were Kalihi-Palama, Ala Moana, and the North Shore. Observational studies show helmet use was less than 50% in Hawaii for every year from 1999-2003, less than the national average of 58%. Helmet use is higher on Oahu (5-year average of 47%) compared to Neighbor Islands (28%), but is generally increasing in the latter.

Motor Vehicle Occupant

Hawaii 2010 Objective: Reduce motor vehicle occupant fatalities

	Baseline Rate*	Current Rate*	2010 Target*
National	11.9 deaths in 1998.	11.7 deaths in 2002.	No comparable HP 2010 objective for motor vehicle occupant deaths
Hawaii	6.8 deaths from 1996-2000 (average annual rate).	6.2 deaths from 2000-2004 (average annual rate).	No more than 6.2 deaths. Identify and reduce disparities among groups.

* Deaths (including non-residents) per 100,000 population age adjusted to the year 2000 U.S. standard population.

Recommendations

Increase Compliance With Traffic Safety Laws

Increase “high visibility enforcement efforts” of traffic safety laws and publicity of those efforts as a combined strategy.

Rationale: Periodic high visibility enforcement efforts combined with publicity of these efforts is a successful strategy in increasing compliance of traffic safety laws

“High visibility enforcement efforts” include checkpoints and saturation patrols. “Checkpoints” are places where visible enforcement officers are checking for specific violations (i.e. non-use of restraints or impaired driving). “Saturation patrols” are coordinated law enforcement efforts in locations known to have high concentrations of alcohol-related arrests, crashes, injuries or fatalities. The success of these visible enforcement efforts is dependent upon the public’s advance knowledge of these efforts because it increases the perceived risk of receiving a ticket or being arrested. Therefore, publicity and media attention are critical prior to, during, and after enforcement activities. One example of a successful effort in Hawaii is the 2004 “Click It or Ticket” campaign, which resulted in Hawaii becoming the first state in the nation to reach 95% seat belt use.

The intent of this recommendation is to have government agencies, community groups, and businesses collaborate in publicizing their focused, visible, intentional enforcement efforts.

Strengthen Leadership In Traffic Safety Advocacy

Develop a statewide task force for traffic safety advocacy.

Rationale: The statewide task force will provide leadership in advocating for effective legislation to improve traffic safety. Other strategies that the task force may implement include: developing a statewide traffic safety action plan based on Hawaii data, developing a public awareness or media campaign, etc. Various representatives from state and county government, military, businesses, faith-based and other community groups are critical to the success of this task force

in fostering leadership, commitment, and coordination of shared resources among task force members.

The workgroup intends for this taskforce to model the structure and functions of the former Governor's Task Force on Impaired Driving. The National Highway Traffic Safety Administration (NHTSA) supports traffic safety task forces in other states.

Decrease Fatalities In Teen Driver Crashes

Advocate for Graduated Driver's License System for Hawaii.

Rationale: NHTSA encourages states to implement a Graduated Driver Licensing System as a proven strategy to decrease fatalities in teen driver crashes. The highest rates of fatal and non-fatal crashes are among the 15-19 year olds. The problems contributing to high crash rates among young drivers are lack of driving experience and inadequate driving skills; excessive driving during night-time, high-risk hours; risk-taking behavior; poor driving judgment and decision making; drinking and driving; and distractions from other passengers. To address these factors, traffic safety researchers developed a licensing system that would prolong the learning process for young novice drivers. The system consists of three stages: learner's permit, intermediate (provisional) license and full licensure. Young drivers are required to demonstrate responsible driving behavior at each stage of licensing before advancing to the next level. It is a simple effective method that addresses this high-risk age group.

Motor Vehicle Occupant Injury Data

Overview of Fatal Injuries

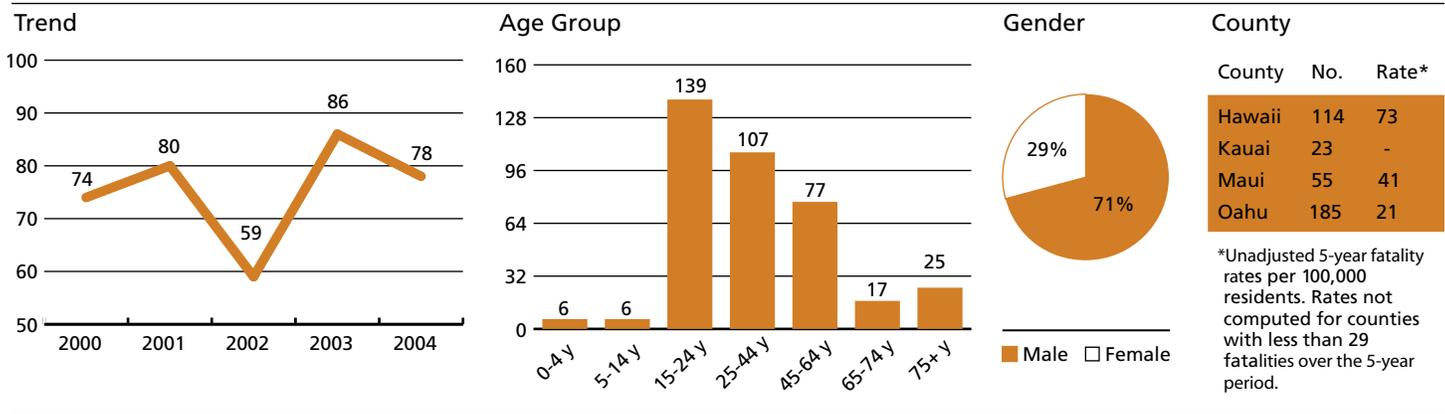
Annual crude rate (1999-2002): 3.1 deaths per 100,000 (6.9 per 100,000 for rest of U.S.)

Hawaii state ranking (1999-2002): 45th highest (MS highest: 24.8/100,000, CT lowest: 1.1/100,000)

Injury ranking in Hawaii (2000-2004): 3rd leading cause of fatal injuries, 2nd leading cause of unintentional injuries.

An average of 75 motor vehicle occupants were killed each year in Hawaii, with no significant trend over the 1998-2002 period. Almost half (44%) of the victims were in the 15-29 year age range, and the highest rates were computed for 15-19 year-olds (89 deaths/100,000 residents). Residents aged 14 years or younger had the lowest rates (5/100,000). Most (71%) of the victims were males, although women actually outnumbered men among victims who were 65 years of age or older (55% were women). Although almost half (49%) of the occupants were killed on Oahu, fatality rates were significantly higher for Neighbor Islands, particularly Hawaii County. The rate for Hawaii County was nearly twice that for Maui County, and more than three times the rate for Honolulu County.

Fatal Injuries to Motor Vehicle Occupants
Hawaii Residents, 2000-20004



Contributing Factors

Impaired driving had a major role in Hawaii, as alcohol was estimated to be involved in over half (59%) of the fatalities over the 2000-2003 period, (excluding the 27% of crashes for which alcohol status was not known). That proportion is even higher for occupants killed during nighttime (71%) or on weekends (72%). Failure to use restraints was another important risk factor for fatal crashes, as more than half (56%) of all occupants killed in Hawaii were not wearing seatbelts at the time of the crash. Restraint use was particularly low among passengers (31%), and more specifically among backseat passengers (16%). There was also an association with alcohol use, as drivers who were estimated to have been drinking were nearly half as likely to have used seat belts compared to non-drinking drivers (38% vs. 64%). Nearly half (49%) of these fatal crashes involved speeding. That proportion was higher for crashes on Oahu (62%), compared to Neighbor Islands (36%). About half (53%) of these crashes involved only a single vehicle and were due to failure to keep in proper lane, running off the road, speeding, inattentiveness, or driver fatigue.

Non-Fatal Injuries

In Hawaii, for every fatally injured occupant, there are an estimated 12 who are hospitalized, and 71 more who are seen in emergency departments. Injuries were most common among 15-29 year-olds, with highest rates computed for 15-19 year-olds. Hospital charges totaled almost \$31.7 million per year, an amount that would be approximately doubled if physician charges were included. An estimated 6,600 patients are treated by ambulance personnel each year in the state, and over 4,800 are transported to hospitals. From Oahu EMS data, the peak time for crashes was between 2:00 p.m. and 5:00 p.m. (27%). The neighborhoods with the highest numbers of injuries were by far Waipahu and Kalihi-Palama (more than 350 per year in each neighborhood). Waianae and Pearl City also had high numbers (more 250 per year in each neighborhood).

Risk Factor Data

According to DOT crash report data, drivers who are 15-18 years of age are at least 4 times more likely to be involved in a crash, compared to drivers 19 years of age and older. Crash rates among 15-18 year-old drivers decreased over the 1998-2001 period, however. According to observational studies in 2003, approximately 89% of front seat occupants in Hawaii use seatbelts, and that proportion is fairly constant across counties. Seat belt and car seat usage in Hawaii has increased in response to legislation.

Pedestrian

Healthy People 2010 Objective: Reduce Pedestrian Deaths

	Baseline Rate*	Current Rate*	2010 Target*
National	1.9 pedestrian deaths in 1998.	1.7 pedestrian deaths in 2002.	1.0 pedestrian deaths Method: 50% improvement.
Hawaii	2.1 pedestrian deaths from 1996-2000 (average annual rate).	2.2 pedestrian deaths from 2000-2004 (average annual rate).	1.0 pedestrian deaths Method: meet national HP 2010 target.

* Deaths (including non-residents) per 100,000 population age adjusted to the year 2000 U.S. standard population.

Recommendations

Create A Pedestrian Friendly Environment

Maintain and upgrade existing crosswalks and walkways; develop new crosswalks and walkways based on pedestrian safety factors such as location and condition.

Rationale: Modifying the physical environment is one of the most effective ways to increase safety for all road users. For both pedestrians and drivers, crosswalks and walkways need to be well maintained and upgraded, if necessary, so that they are clearly visible and well lit during non-daylight hours. Clear visibility of pedestrians at crosswalks and walkways is particularly important since the majority of fatal incidents occur during early morning and evening hours. A data-driven evaluation will help to ensure that the location and condition of existing and new crosswalks and walkways is based on pedestrian safety and need.

As a community, we support the increased use of crosswalks and walkways if they are accessible, available, and convenient to use. Besides pedestrian use, crosswalks act as a traffic calming measure by reducing the speed of drivers and making them more aware of other road users.

For the neighbor islands and rural areas of Oahu, walkways (i.e., non-vehicular multi-modal pathways or cut ways), are particularly important in increasing pedestrian safety. Both state and county must work together to ensure that their development is a priority.

Promote Shared Responsibility Of Pedestrians And Drivers For Road Safety

Conduct a media awareness campaign aimed at changing attitudes and behaviors of drivers and pedestrians to improve road sharing.

Rationale: There is a need to change the perceptions of drivers and pedestrians to share the road responsibly. According to FARS data (2000-2004), drivers and pedestrians are almost

equally at fault. Fifty-three percent (53%) of pedestrians were erroneously in the roadway, and 46% of drivers made errors that led to fatal pedestrian injuries.

Although we depend heavily on motor vehicle transportation in Hawaii, particularly on the neighbor islands, drivers are also pedestrians; both would benefit from friendlier roadways.

A comprehensive multi-media campaign that would reach into communities and include enforcement as a combined strategy would help to reinforce driver and pedestrian responsibility for friendlier roadways.

Incorporate pedestrian safety in the health education standards of the Department of Education's K-12 curriculum.

Rationale: When environmental changes that separate pedestrians from motor vehicle traffic are not possible, changing the behavior of pedestrians and drivers is necessary to prevent injuries. It is particularly important to promote safe pedestrian behavior early on since the highest rates of non-fatal pedestrian injury in Hawaii are among young children, under 15 years of age. The second highest rate of non-fatal injuries are among seniors for whom there are some existing education programs in place.

Current efforts to incorporate standards-based health education into the DOE curriculum presents the opportunity to include consistent teaching of pedestrian safety skills and practices to children throughout K-12. High school drivers' education classes could also include appropriate driving behavior related to pedestrian safety. Teachers would be able to access community resource programs to complement the standards based curriculum.

Pedestrian Injury Data

Overview of Fatal Injuries

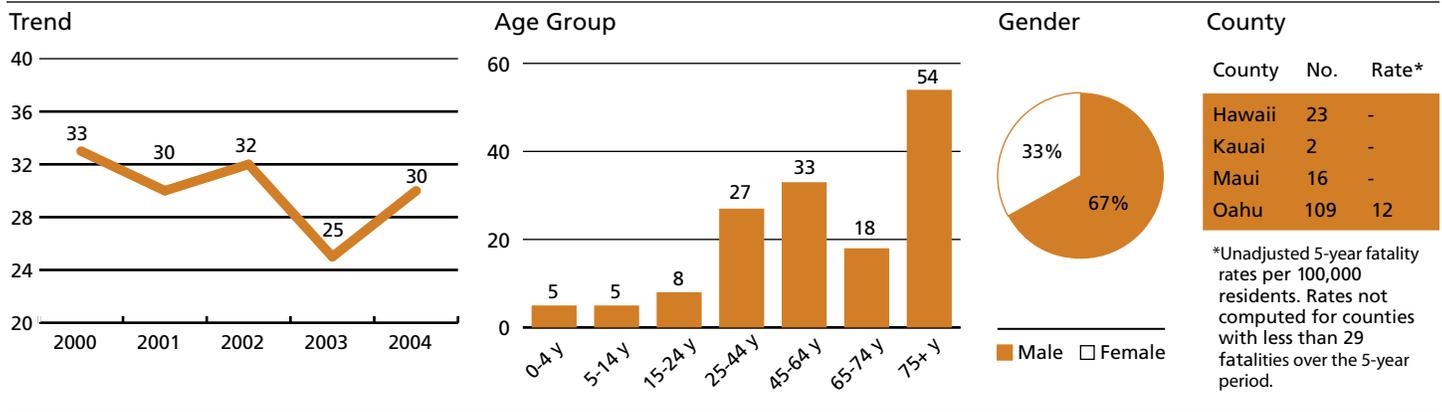
Annual crude rate (1999-2002): 2.6 deaths per 100,000 (2.1 per 100,000 for rest of U.S.)

Hawaii state ranking (1999-2002): 7th highest (NM highest: 3.7/100,000, NH lowest: 0.9/100,000)

Injury ranking in Hawaii (2000-2004): 7th leading cause of fatal injuries, 5th leading cause of unintentional injuries.

An average of 30 Hawaii residents are killed each year in Hawaii, with no apparent trend in the annual number over the 2000-2004 period. Almost half (48%) were 65 years of age or older, and annual rates increased dramatically over the senior age range: 4.3/100,000 residents aged 65 to 74, 9.8/100,000 for 75 to 84 year-olds, and 24.3 for those 85 years and older. Most (73%) of the deaths occurred on Oahu.

Pedestrian Deaths
Hawaii Residents, 2000-2004



Contributing Factors

Almost half (43%) of the crashes occurred during 2 peak times periods: 5:30 a.m. to 7:30 a.m. (26% of the deaths), and 5:30 p.m. to 7:30 p.m. (17%). Most (81%) of those hit during the morning were 65 years or older. Only 15% of the senior-aged victims were hit during nighttime hours (7:30 p.m. to 4:30 a.m.). Alcohol was involved in one-fifth (20%) of the deaths, as 14% of the pedestrians were estimated to have been drinking prior to the crash and another 7% were hit by a driver who had been drinking (excluding the 28% of deaths for which alcohol status was not known). Alcohol use by pedestrians was much more common among victims hit between 7:30 p.m. and 4:30 a.m. (31%), compared to those hit during daylight hours (4%). Alcohol use was also more common among pedestrians hit in Hawaii County (36%) than on Honolulu (11%) or Maui counties (0%).

One quarter (25%) of the victims were hit while in a crosswalk, and 8% while off the road or on the shoulder. The fault of the crash was roughly equally distributed between pedestrians and drivers. About half (53%) of the pedestrians were in the roadway erroneously, most commonly by improper crossing, or “jaywalking” (36%). Similarly, about half of the drivers (46%) made an error which contributed to the crash; most commonly drivers were “inattentive” (25%), or failed to yield the right of way to the pedestrian (22%). Only 11% of the crashes were thought to be related to speeding among the drivers.

Non-Fatal Injuries

In Hawaii, for every pedestrian who is killed, there are an estimated 6 who are hospitalized and another 12 who are treated in emergency departments, with more than one third (39%) of them transported via ambulance. Unlike fatal injuries, the highest rates of hospitalizations and ED visits were computed for children under 15 years of age (50.2/100,000), followed by victims 65 years and older (36.9/100,000). About one-third (29%) of the pedestrians treated for non-fatal injuries were under age 15, but only 7% of those killed were of this age, suggesting age is a critical determinant of surviving pedestrian crashes. Hospital charges for non-fatal pedestrian injuries total \$6.5 million per year, or \$13 million including physician charges. Oahu EMS data show the highest number and rate of crashes occur in the Kalihi-Palama, Waikiki, Downtown, Ala Moana, and Waianae neighborhoods.

Unintentional Poisoning

Hawaii 2010 Objective: Reduce Deaths Caused by Unintentional Poisonings

	Baseline Rate*	Current Rate*	2010 Target*
National	3.9 deaths in 1998	6.1 deaths in 2002.	No comparable HP 2010 objective for deaths caused by unintentional poisonings.
Hawaii	2.8 deaths from 1996-2000 (average annual rate).	4.2 deaths from 2000-2004 (average annual rate).	No more than 2.8 deaths. Identify and reduce disparities among groups.

* Resident deaths per 100,000 population age adjusted to the year 2000 U.S. standard population.

Recommendations

Reduce Misuse Of Medications

Through legislation, improve labeling on prescription drugs to include:

- Diagnosis and instructions to patients;
- Physical description.

Rationale: Medication poisoning results from an overdose of a medication or medication given or taken in error. This recommendation will increase patient safety among all ages, particularly the elderly as one identified high-risk group.

Improved labeling would provide information directly on the bottle where patients will see it every time they take their medication. The information will help patients identify the medication and its purpose (e.g., diagnosis component).

A physical description of a medication may include its shape, color, and markings. Oregon passed the “Accuracy Label Rule,” which requires that each prescription label include a physical description (e.g., “round, white tablet”) of the medication. This labeling provides a last line of defense against errors for both the counseling pharmacist and the patient. Anecdotal information from this landmark legislation in Oregon shows that this is a promising strategy in decreasing medication poisonings.

Increase Public Understanding Of Poison Prevention

Expand age-appropriate education efforts in poison prevention.

Rationale: As with many injury prevention efforts, education is an important component to any poisoning prevention strategy. Currently, poison prevention efforts are implemented on a limited scale. These efforts would be enhanced by partnering with other groups and encouraging them to incorporate poisoning prevention education into their programs to reach age groups at risk for poisoning.

Based on fatal and non-fatal injury data, educational efforts need to focus on poisoning related to drug overdoses in the young adult and middle-aged populations.

Hawaii Poison Hotline calls data suggest that homes are not “childproof” because children continue to have access to poisons. Therefore, targeted efforts should include education about childproofing homes as well as integrating prevention messages into the Department of Education elementary school curriculum. According to Kapiolani Poison Prevention Program, there is a need for educating other caregivers, especially grandparents, who may use medications that do not have childproof capping. In addition, establishing poison prevention and caregiver education programs at community senior centers would address poison prevention for the elderly.

Maximize usage of the 24-hour Hawaii Poison Hotline for poison AND medication/drug information

Rationale: The Hawaii Poison Center was established in 1957 by the pediatric physician community in response to a significant public health problem, unintentional childhood poisonings. Renamed the Hawaii Poison Hotline (with calls answered by the Rocky Mountain Poison Center), the 24-hour hotline is widely viewed throughout the state as a valuable resource to: aid individuals in poison management, provide treatment recommendations to health professionals, answer poisoning questions, and promote poison prevention and community awareness. Less known is the hotline’s capacity to provide information on prescription medication and illicit drug poisonings.

The extensive capabilities of the 24-hour Hawaii Poison Hotline are currently underutilized. This recommendation focuses on educating the public about hotline capabilities and maximizing its services. In determining when appropriate resources are needed or when they are deemed unnecessary, there is more appropriate use of medical resources (e.g., 911, Emergency Departments).

Unintentional Poisoning Data

Overview of Fatal Injuries

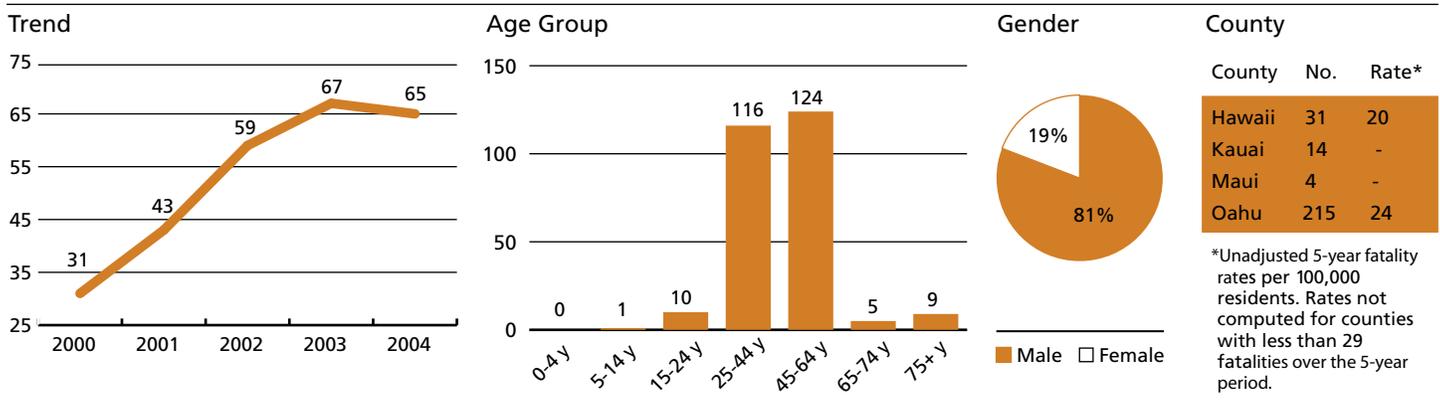
Annual crude rate (1999-2002): 3.5 deaths per 100,000 per year (5.0/100,000 for rest of U.S.)

Hawaii state ranking (1999-2002): 37th highest (NM highest: 12.9/100,000, RI lowest: 0.9/100,000)

Injury ranking in Hawaii (2000-2004): 4th leading cause of fatal injuries, 3rd leading cause of unintentional injuries.

There was a significantly increasing trend in the annual number of deaths coded as unintentional poisonings among Hawaii residents over the 2000-2004 period. This increase, an approximate doubling of the annual number, did not appear to be due to differential classification with suicidal poisonings or poisonings of undetermined intent. Most (74%) of the victims were 35 to 55 years of age, and most (81%) were males. Drugs and medicinal substances caused almost all (93%) of the poisonings. Altogether, more than half of the victims (57%) were males aged 35 to 55 years of age who were poisoned by drugs or medicinal substances. Narcotics and hallucinogens were the most commonly noted substances (35% of deaths), including heroin, cocaine and morphine. Psychostimulants, which include amphetamine, and tranquilizers caused 22% of the deaths, and most of the remainder (35%) were coded as “other” or “unspecified” drugs.

Unintentional Poisoning Deaths Hawaii Residents, 2000-2004



Non-Fatal Injuries

For every Hawaii resident who is killed by a poisoning, there are 6 who are hospitalized and 13 who are treated in emergency departments. The age distribution of the patients was much more widespread than that among fatally poisoned victims, with by far the highest annual rates computed for residents under 5 years of age (202/100,000). This was mostly due to ED visits for infants and 1 year-olds. Children aged 5 to 14 years had the lowest rates (24/100,000). Gender was evenly distributed between males (53%) and females (47%), in contrast to victims of fatal poisonings, 81% of whom were male. Hospital charges averaged over \$3.6 million per year, not including physician charges, which may double the total charge.

Most (64%) of the poisonings were due to drugs and medicinal substances. Poisonings from psychotropic agents were the most common (18%), particularly those from benzodiazepine-based tranquilizers (7%). Other common poisonings were from heroin, methadone and other opiates (7%), aromatic analgesics (including acetaminophen, or Tylenol) (5%), cardiovascular agents (5%), anticonvulsants (165), and hormones (4%). The remaining 36% of non-fatal poisonings were due to the toxic effects of non-medical substances, most commonly by gas inhalation (8%), corrosives and caustics (6%), or toxicities in foods (5%).

The Hawaii Poison Center received nearly 7000 calls related to unintentional poisonings in 2003. In contrast to poisonings that require hospitalization, and especially fatal poisonings, a significant proportion reported to the Hawaii Poison Center involved very young children; almost half (47%) were poisonings among children aged 5 years or younger. Only 40% were calls for people aged 20 or over. About two-thirds of the calls came from people on Oahu, but the highest rates were computed for residents of Hawaii County (109 calls/10,000 residents). Kauai County had the lowest rates (82/10K). The causes of these poisonings were also very different from those that caused non-fatal hospitalizations, being mostly (77%) due to non-drug or non-medicinal substances. Bites and stings were the most common reason (18%) for the calls, followed by poisonings from cosmetics/personal care products (13%), analgesics (13%), and cleaning products (12%).

Youth Risk Factor Data

According to YRBSS, Hawaii high school students had greater access to illegal drugs at school (1995-2001 average prevalence: 37%), compared to all U.S. high school students (31%). There was also no trend in the proportion of students with access to illegal drugs, which decreased among all U.S. students. Self-reported access to drugs was higher among male students (1995-2001 average prevalence: 43%) in Hawaii, compared to female students (32%). Approximately 3% of Hawaii students reported using any form of cocaine in the previous 30 days, and 7% had used methamphetamine one or more times in their lives. Use rates were 4% and 9%, respectively, for all U.S. high school students.

Suicide

Hawaii and Healthy People 2010 Objective: Reduce the Suicide Rate

	Baseline Rate*	Current Rate*	2010 Target*
National	11.1 suicides in 1998.	10.9 in 2002.	5.0 suicides Method: better than the best.
Hawaii	10.8 suicides from 1996-2000 (average annual rate).	10.0 suicides from 2000-2004 (average annual rate).	5.0 suicides Method: meet national HP 2010 target.

* Resident deaths per 100,000 population age adjusted to the year 2000 U.S. standard population.

Recommendations

Increase Knowledge And Understanding Of Suicide Prevention

Develop and implement suicide prevention training for “gatekeepers.”

Rationale: A “gatekeeper” is any individual who interacts with others at work, at play, and in community settings (i.e. other than the medical setting). Gatekeepers can be trained in suicide prevention to identify and respond to persons who are at risk for suicidal behaviors. (U.S. Department of Health and Human Services. *National Strategy for Suicide Prevention: Goals and Objectives for Action, 2001*).

Suicide Prevention training may include how to identify early signs of suicidal behavior, implement timely and effective intervention strategies, identify opportunities to reinforce protective factors, and make appropriate referrals to treatment services.

The workgroup recommended that training be implemented through the school and health systems, and through community-based groups to increase awareness and knowledge of the risk factors and signs of suicidal behavior. Additionally, it is important to develop culturally competent trainings and to support funding for more trainings in the community.

Launch a public awareness campaign.

Rationale: A public awareness campaign aimed at increasing public knowledge of suicide as a serious public health problem and dispelling myths about suicide will support a shift in beliefs and behaviors that allow for early intervention at the community level. The stigma of suicide has been recognized as a barrier to treatment for many people who have suicidal thoughts or have made suicide attempts. Lives can be saved through public understanding that suicides and suicidal behaviors are preventable, and that individuals and groups can play a significant role in suicide prevention.

A public awareness campaign might utilize various media to destigmatize suicide and convey the message that “it is okay to get help”. The campaign can educate the community on access

to care (i.e., where to get help) and increase awareness that suicide is a public health problem and is preventable. Media vehicles may include: electronic - movies, television, radio; print - newspapers and magazines; program materials - newsletters, announcements; proclamations and community events.

Promote and support research on suicide and suicide prevention.

Rationale: Suicide as a field of research is still in its early stages. Therefore, knowledge of factors relating to suicide and suicide attempts is limited. It is vital to increase qualitative and quantitative research to: better identify people “at-risk,” increase knowledge of causes of suicide, and develop effective interventions aimed at suicide prevention.

Further recommendations are to explore the possibilities of conducting psychological autopsies and to continue the conduct of population-based surveys.

Broaden Access To Screening And Services

Develop and promote effective clinical and professional practices and policies.

Rationale: Many factors become barriers for persons to access appropriate services and care. Some include: finances, mental health conditions, substance abuse, etc. It is important to develop and strengthen a service system that raises awareness of services available, ensures statewide access for screening and appropriate care to every person as needed, ensures culturally sensitive approaches, and provides flexibility in health insurance reimbursements for mental health services. Promoting effective clinical and professional policies and practices will result in better health to those at risk.

Suicide and Suicide Attempt Data

Overview of Suicides

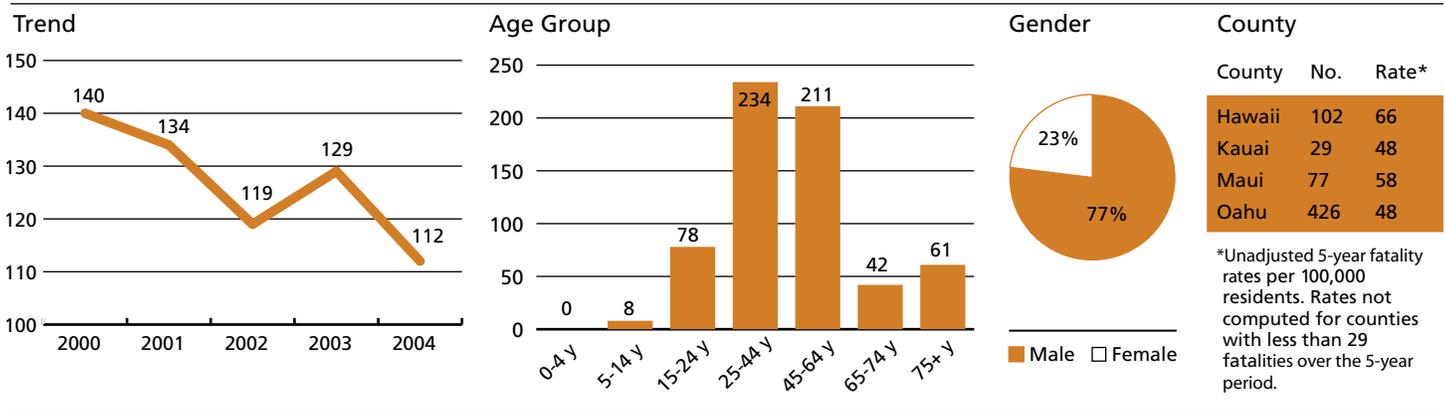
Annual crude rate (1999-2002): 10.9 deaths per 100,000 residents (10.7 for rest of U.S.)

Hawaii state ranking (1999-2002): 35th highest (NV highest: 20.2/100,000, NY lowest: 6.3/100,000)

Injury ranking in Hawaii (2000-2004): leading cause of fatal injuries

Although suicide was the leading cause of fatal injuries in Hawaii, there was a significantly decreasing trend in the annual rate of suicide among state residents over the 2000-2004 period. Almost all (96%) of the suicide victims were 19 years or older, and two-thirds (67%) were between 21 and 55 years of age. The highest annual rates were among residents aged 75 years and older (14.6/100,000), and 25 to 54 year-olds (14.0/100,000). Male victims outnumbered females by approximately 3-to-1. Rates among Oahu residents (ages 20 and older) were 30% lower, compared to Neighbor Island residents, where Hawaii County residents had the highest rates. The most common mechanism was by hanging or suffocation (45%), followed by firearm use (23%), and poisonings (15%).

Suicides
Hawaii Residents, 2000-2004



Contributing Factors

At least one negative life event was documented in the autopsy records of most (64%) of the victims who died on Oahu in the 1997-1999 period, most commonly serious illness (28%) or the end of a relationship (27%). About one-third (31%) of the victims tested positive for alcohol at autopsy, and heavy alcohol use was found to be more common among younger victims. Illicit drugs were detected among 26% of the victims, where methamphetamine (14%), marijuana (8%), and cocaine (6%) were the most common substances. About two-thirds (62%) of the victims had a documented history of mental illness, and about one-fifth (22%) were known to have made previous suicide attempts.

Non-Fatal Suicide Attempts

For every suicide, approximately 7 Hawaii residents are hospitalized for suicide attempts, and 4 others are treated in emergency departments. (This is the only category in which hospitalizations outnumber ED visits.) The profile of these patients is very different from that of suicide victims: More than half (60%) are female, the age distribution is generally younger (47% are 14-30 years of age), and most (76%) are the result of poisonings, specifically drugs and medicinal substances (74%). Hospital charges totaled over \$11 million per year, an amount that would be approximately doubled if physician charges were included.

Youth Risk Factor Data

According to YRBSS, Hawaii high school students had slightly higher self-reported prevalence of considering (24%), planning (19%), and attempting a suicide (12%), and receiving medical attention for an attempt (4%), compared to U.S. students as a whole (21%, 16%, 8% and 3%, respectively). However, each of these risk factors generally decreased over time in Hawaii. Among Hawaii students the prevalence of each of these risk factors was about twice as high for female students, compared to male students. Risk factor prevalence generally decreased across the 9th to 12th grades.

Violence and Abuse

Hawaii and Healthy People 2010 Objective: Reduce Homicides

	Baseline Data	Current Status	2010 Target
National	6.5 homicides in 1998.	6.2 homicides in 2002.	3.0 homicides Method: better than the best.
Hawaii	3.2 homicides from 1996-2000 (average annual rate).	2.6 homicides from 2000-2004 (average annual rate).	No more than 2.6 homicides. Identify and reduce disparities among groups.

* Resident deaths per 100,000 population age adjusted to the year 2000 U.S. standard population.

Recommendations

Promote Community-based Violence Prevention Interventions

Promote and support the development of “full-service” schools.

Rationale: Full-service schools are able to address critical youth issues such as youth violence and substance abuse. Currently, Hawaii has many after-school activities, but would benefit greatly by moving toward full-service schools that are broader in design and more extensively involve parents and other adult members of the community in school life.

The full-service school is “a school center in which health, mental health, social and/or family services may be co-located, depending on the needs of the particular school and community (Joy Dryfoos. *Full-Service Schools A Revolution in Health and Social Services for Children, Youth and Families*). They are often open when youth violence is more likely to occur – before and after the traditional school day, on weekends, and during vacation breaks (Pacific Center for Violence Prevention, Trauma Foundation. *Preventing Youth Violence: Full Service Schools*, Policy Paper).

With young adult males in Hawaii experiencing the highest rates of fatal and non-fatal injuries and involvement in violent crime, the development of full service schools is a strategy that will address the need to start early to prevent youth from becoming involved in violence. Existing full-service programs throughout the country have had significant health, social, and educational benefits for youth, parents, and members of the community (*Preventing Youth Violence: Full Service Schools*).

Identify approaches used in local and national programs that effectively reduce community violence.

Rationale: This strategy recognizes that those who are affected by or work in violence prevention can best shape solutions that would be effective within their respective communities. There are many programs that model this community-driven approach. An assessment of local and national programs will help to identify those that are effective or promising, and that communities can tailor to meet their own needs.

Increase Knowledge And Understanding Of Violence

Conduct research to better understand violence in Hawaii.

Rationale: Research is critical to understanding the multi-faceted problem of violence, and to designing and developing effective interventions.

More violence prevention research needs to be conducted at the local level, particularly related to Hawaii's cultures.

Existing studies and new research provide opportunities to collect and disseminate violence prevention data and information. By focusing on research in this area, we would further the body of local knowledge about what does and doesn't work in preventing violence.

Violence and Abuse Data

Overview of Homicides

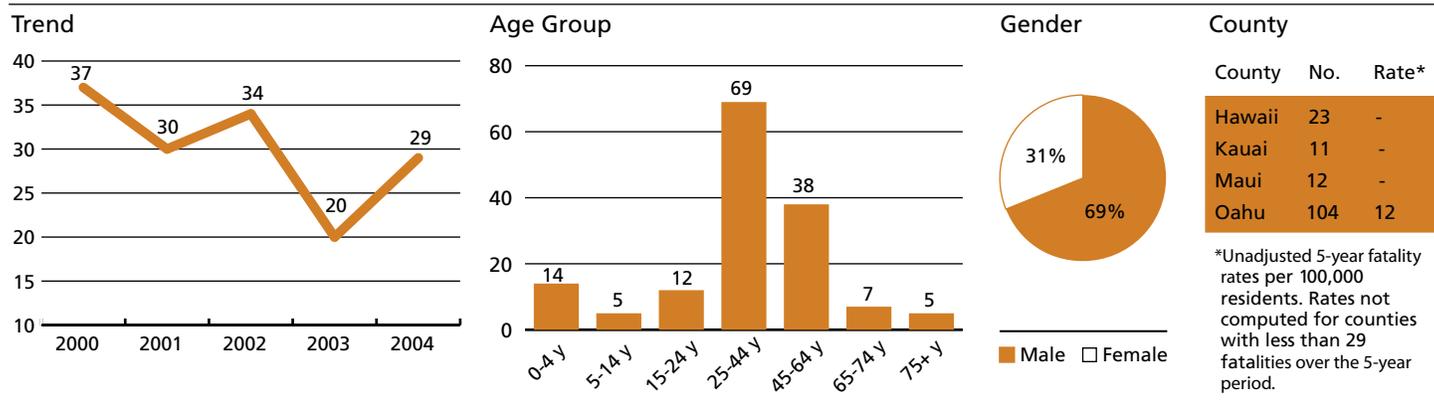
Annual crude rate (1999-2002): 3.0 deaths per 100,000 residents (6.3/100,000 for rest of U.S.)

Hawaii state ranking (1999-2002): 39th highest (LA highest: 12.5/100,000, ME lowest: 1.5/100,000)

Injury ranking in Hawaii (2000-2004): 6th leading cause of fatal injuries.

An average of 32 Hawaii residents were murdered each year in Hawaii, with no clear trend over the 2000-2004 period. Half of the victims were 30 to 50 years of age, and this group also had the highest rates of homicide. Five percent (8) of the victims were infants. About two-thirds (69%) of the victims were males. Most (69%) of the homicides occurred on Oahu. There were too few deaths on Neighbor Islands for valid rate comparisons. The most common mechanism of homicide in Hawaii was use of firearms, accounting for 31% of the deaths. That proportion was much higher among homicides in the U.S. as a whole, 64% of which were committed with firearms.

Homicides Hawaii Residents, 2000-2004



Supplemental Homicide Reports from the FBI were linked to the death certificate data for the 1999-2003 period. SHR reports indicate that at least half of the victims (56%) knew their assailant; only 13% were killed by strangers. Most commonly, victims were killed by an acquaintance outside of their families (30%), although the victim-perpetrator relationship varied by gender. Female victims were more likely to be killed by their intimate partners (38%), or other family members (12%), while male victims were more likely to be killed by extra-familial acquaintances (30%) or strangers (18%). Twenty-five (17%) of the victims were intimate partners of the assailant, including 15 spouses (12 wives, 3 husbands), 1 ex-spouse, 7 girlfriends, and 2 boyfriends. Other victims killed by family members included 9 children killed by their parents, and 5 victims who were killed by other family members. Most (85%, or 11 of 13) of the homicides of victims 2 years of age or younger occurred on Oahu.

Non-Fatal Injuries

For every homicide in Hawaii, there are an estimated 3 residents who are hospitalized for assaults and another 21 who are treated in emergency departments. The highest rates for non-fatal assaults were computed for 15 to 24 year-olds (57.3/10,000 per year), of whom 86% were male. Unarmed beatings were the most common (53%) mechanism of assault; firearms were used in only 0.4% of the assaults. Hospital charges averaged over \$11.7 million per year, not including physician charges, which may double the total charge.

Young adults (ages 20-34) also had the highest rates of assault-related injuries that required Oahu EMS treatment (55.7/10,000 per year). Most (83%) of these injuries were graded as "minor," although 56% of the patients were transported to hospitals. Neighborhoods with the highest numbers and rates of assaults were Waikiki (283 per year), Ala Moana (264), Kalihi-Palama (264), Waianae (177), and Downtown (161).

Risk Factor Data

According to 2001 UCR data, Hawaii had a relatively low rate of violent crime (42nd in the nation). Unlike the rest of the U.S., however, violent crime did not decrease in Hawaii over the 1998-2002 period, and the aggravated assault rate increased significantly over that period. The rate of rape in Hawaii was unchanged over the 1993-2002 period and was roughly comparable to that for the U.S. Almost half (44%) of the male arrestees for assault in 2002 were in the 18-29 year age group, with 30% in the 18 to 24 year age group. Only 16% were 45 years or older. The age distribution for male arrestees for rape was much more widely distributed among the 18-44 year age group (77% were in this age range). Rate of arrests for males for assaults was 4 to 8 times higher than for females at every age group, being most divergent in younger ages.

Thirteen percent of the adult respondent to the 2000 Hawaii Health Survey reported they sustained injuries from physical abuse by their parents or other known adult (boyfriend/girlfriend of parent, etc.) during childhood. Three percent reported a violent experience (being pushed, slapped, hit, punched, kicked, etc.) in the last 12 months, and 1.3% reported being injured from intimate partner violence. Reports of child abuse and recent violence were highest in respondents who identified themselves as Hawaiian (21%), and lowest among the Japanese (5%). Unwanted sexual activity was reported by 0.3% of the female respondents and none of the male respondents.

About one-quarter of high school students surveyed in 2001 in Hawaii reported being in at least one physical fight in the previous year, compared to 33% of all U.S. high school students. That reported proportion decreased annually from 33% in Hawaii in 1995 to 26% in 2001. The percentage of students who carried a weapon in the last 30 days decreased from 18% in 1995 to

11% in 2001, while the proportion who were injured by fighting in remained between 4% and 3% over that period. Carrying weapons and fighting in Hawaii was more commonly reported by male students than females. These behaviors were also progressively less reported across the 9th to 12th grade levels. Ten percent of Hawaii students reported being hit, slapped, or physically hurt by their boyfriend or girlfriend in the last 12 months, a proportion that did not vary much by gender.

Appendices

Data Sources And Methods

Unless otherwise noted, the data presented in this plan refers only to injury among residents of Hawaii. This is consistent with national reporting conventions of injury mortality and allows for the comparison of fatal injury rates in Hawaii with rates for the remainder of the country. Also, other population estimates (e.g. age, ethnicity, county, etc.) were available only for residents, so the inclusion of injuries among non-residents would result in an over-estimation of injury rates. The exclusion of non-residents reduces the amount of fatal injuries by about 12%, hospitalizations by 8%, and emergency department visits by 9%. (Non-residents comprise 50% of the drowning victims in Hawaii, so they are included in some of the data in the drowning section.)

The calculation of injury mortality and morbidity rates necessitates the definition of “at risk” populations for the denominator. U.S. Census population estimates were used for comparisons of U.S. and Hawaii fatality rates.¹ Other analyses compared the rate estimates of the four counties within Hawaii, and these calculations relied on census estimates from the State Department of Business, Economic Development and Tourism.² The average population over the 2000-2004 period was used for these county-specific rate estimates.

Three mortality rates relating to the Healthy People 2010 Objectives are listed at the beginning of each injury section: the baseline, current status and target. All three rates were computed separately for Hawaii and the U.S. as a whole, using age-adjustment by the direct method against the U.S. 2000 standard population (18 age groups).³ The number of deaths for the U.S. was obtained from the Web-based Injury Statistics Query and Reporting System (WISQARS)⁴ online database on the CDC web site, except for the motor vehicle related deaths which were taken from the Fatal Analysis Reporting System (FARS)⁵ of NHTSA. Data from 1998 was used for the U.S. baseline rate, and 2002 for the U.S. current rate. Data for the Hawaii rates was obtained from death certificates for most injury areas, and FARS for motor vehicle related fatalities. The Hawaii baseline rate was based on the average number of fatalities over the 1996-2000 period (adjusted for the average population over this period), and the current rate was based on the average for the 2000-2004 period (adjusted by the average population). Five-year averages were used to account for the random fluctuation in the annual mortality totals in Hawaii. The target rates are the same for both Hawaii and the U.S., and these were taken from the Healthy People 2010 report where available, and created where lacking (e.g. motor vehicle occupant, etc.).

Each of the eight data sections begins with a comparison of injury fatality rates for Hawaii and the remaining United States. These comparisons are based on “crude” rates based of the average annual number of fatalities over the 1999-2002 period, the most recent data available for the U.S. as a whole. Results were similar if age-adjusted rates were computed, but crude rates are presented for their direct interpretability. Data for these comparisons comes from the WISQARS site.

Death certificates were the primary source of detailed injury mortality data in Hawaii. Injury-related deaths were categorized using the CDC recommended framework of E-code groupings^{6,7}, or other data groupings. Supplemental data was also used for certain injury categories. Data from FARS was linked to death certificates for deaths involving motor vehicles. Records from the Honolulu County Medical Examiner's office were reviewed for details on Oahu drownings during the 1996-2000 period, and for suicides that occurred between 1997 and 1999. Additional data on homicides was abstracted from the Supplemental Homicide Reports by the Crime Prevention and Justice Assistance Division, Office of the Attorney General, State of Hawaii.

Data on non-fatal injuries was obtained from the Hawaii Health Information Corporation (HHIC), which receives data from all acute care facilities in the state. Injury-related records were identified by any diagnosis in the ICD-9CM code series of 800-909.2, 909.4, 909.9, 910-994.9, 995.5-995.59, 995.80-995.85. External cause of injury codes were used to categorize the injuries.⁶ Excluded from analyses were patients who died in hospital settings (to include only non-fatal injuries), or patients who were transferred to another hospital (to avoid duplicate counting of the same injury). Data for injury-related hospitalizations was available for 2003, while emergency department data was from 2002.

Other sources of data used in this report include Honolulu County ambulance report forms from the Emergency Medical Services and Injury Prevention System Branch of the Hawaii State Department of Health (DOH), lifeguard logsheets from the Ocean Safety and Lifeguard Services Division of the City and County of Honolulu, the Hawaii Health Survey of the DOH, traffic observational studies administered by the State Department of Transportation, the Hawaii Poison Center, and the Youth Risk Behavior Surveillance System of the CDC.

¹ Resident Population Estimates of the United States by Age and Sex [database on the Internet]. U.S. Census Bureau. Available from: <http://www.census.gov/popest/datasets.html>.

² Population Estimate Reports [database on the Internet]. State Department of Business, Economic Development and Tourism web site. Available from: <http://www.hawaii.gov/dbedt/>.

³ Anderson RN, Rosenberg HM. Age standardization of death rates: Implementation of the year 2000 standard. National vital statistics reports;47(3). Hyattsville, Maryland: National Center for Health Statistics, 1998.

⁴ Fatal Injuries: Mortality Reports. [database on the Internet]. Centers for Disease Control and Prevention, National Center for Injury Prevention and Control web site. Available from: <http://webapp.cdc.gov/sasweb/ncipc/mortrate.html>.

⁵ Fatal Analysis Reporting System (FARS) Web-Based Encyclopedia [database on the Internet]. National Highway Traffic and Safety Administration (NHTSA) web site. Available from: <http://www-fars.nhtsa.dot.gov/>.

⁶ Recommended framework of E-code groupings for presenting injury mortality and morbidity data (May 15, 2003). Centers for Disease Control and Prevention, National Center for Injury Prevention and Control web site. Available from: <http://www.cdc.gov/ncipc/whatsnew/matrix2.htm>.

⁷ ICD-10 Framework: External cause of injury mortality matrix (November, 2002). National Center for Health Statistics web site. Available from: http://www.cdc.gov/nchs/data/ice/icd10_transcode.pdf

Glossary Of Acronyms

BRFSS – Behavioral Risk Factor Surveillance System
CDC – Centers for Disease Control and Prevention
DOH – State Department of Health
DOT – State Department of Transportation
E-code – External cause of injury codes within the ICD-9 system.
ED – Emergency Department
EMS – Emergency Medical Services
FARS – Fatal Analysis Reporting System
HIPP – Hawaii Injury Prevention Plan
HP 2010 – Healthy People 2010
ICD-9-CM - International Classification of Diseases, 9th Revision, Clinical Modification
ICD-10 - International Classification of Diseases, 10th Revision
IOM – Institute of Medicine
IPAC – Injury Prevention Advisory Committee
IPCP – Injury Prevention and Control Program
KIPC – Keiki (childhood) Injury Prevention Coalition/SAFE KIDS Hawaii
MCH – Maternal and Child Health
NHTSA – National Highway Traffic Safety Administration
STIPDA – State and Territorial Injury Prevention Directors Association
YRBSS – Youth Risk Behavior Surveillance System

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And as is critical in a project of this magnitude, the volunteer facilitators and IPCP staff excelled in their role – in focusing and transforming the dialogue into this resulting document.

Our sincere appreciation is extended to all individuals and organizations listed below as well as to the many supporters of injury prevention and this planning initiative.

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Myra Williams, Assistant Vice President, Hawaii Medical Service Association - Care Management Dept.
Kenneth Wilson, Executive Director, Mental Health Association
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