

INJURIES

Injuries are a leading cause of death for children and youth in San Francisco and nationwide. The term “injury” represents a broad range of health outcomes, from those that do not require medical attention to those resulting in long-term disability or death. Injuries, like illnesses, occur in characteristic patterns in populations. The study of these patterns show how many injuries can be prevented. Multifaceted injury prevention strategies that are most effective focus on environmental design (such as road construction that improves visibility), product design, human behavior, education, and legislative and regulatory requirements that support environmental and behavioral change.¹

Data Sources

This section presents information about injuries from a variety of sources including:

- Death certificate data for 256 deaths due to injury of San Francisco children and youth residents, ages birth to 18, for a ten-year period, from 1986 to 1995. Note that these are deaths of individuals based on their place of residence, not the place of occurrence. (Refer to the Appendix for detailed data.)
- Hospital discharge data for 497 hospitalizations of San Francisco children and youth residents, ages birth to 18 treated for injuries at hospitals located in San Francisco in 1995. Note that the number of discharges does not necessarily reflect the number of patients since one patient may account for more than one discharge.² In addition, San Francisco children and youth residents who were hospitalized outside of San Francisco are not included in the data. (Refer to the Appendix for detailed data.)
- Data on calls to the California Poison Control System (CPCS) which originated in San Francisco in 1996/97, on behalf of victims ages birth to 19.
- Selected results from the 1997 San Francisco Youth Risk Behavior Survey (preliminary data) of San Francisco public middle and high school students with information regarding injury-related risk behaviors. Selected results of prior years’ surveys for San Francisco and the U.S. are also referenced.

Cause and Intent of Injury

Injury deaths and hospitalizations can be categorized by cause (or mechanism) and “intent.” The cause or mechanism of injury identifies the agent, instrument, product, or activity, which was involved in the injury-causing incident. For example, the most common causes of injury death among San Francisco residents, children and youth ages birth to 18, are firearms, motor vehicle, suffocation, and drowning, and the most common causes of injury hospitalizations are falls, poisoning, motor vehicle collisions, and cutting/piercing injuries.

Injuries are also classified by “intent.” Intent categories include three major groups: unintentional (traditionally labeled as “accidents”), assault (the most severe being homicide), and self-inflicted (the

¹ National Center for Health Statistics, Centers for Disease Control and Prevention, U.S. Department of Health and Human Services. Health, United States, 1996-97 and Injury Chartbook. MD: DHHS Publication No. (PHS) 97-1232, 1997; National Center for Injury Prevention and Control, Injury in the U.S., obtained online August 7, 1998 at www.cdc.gov/ncipc/about/about.htm.

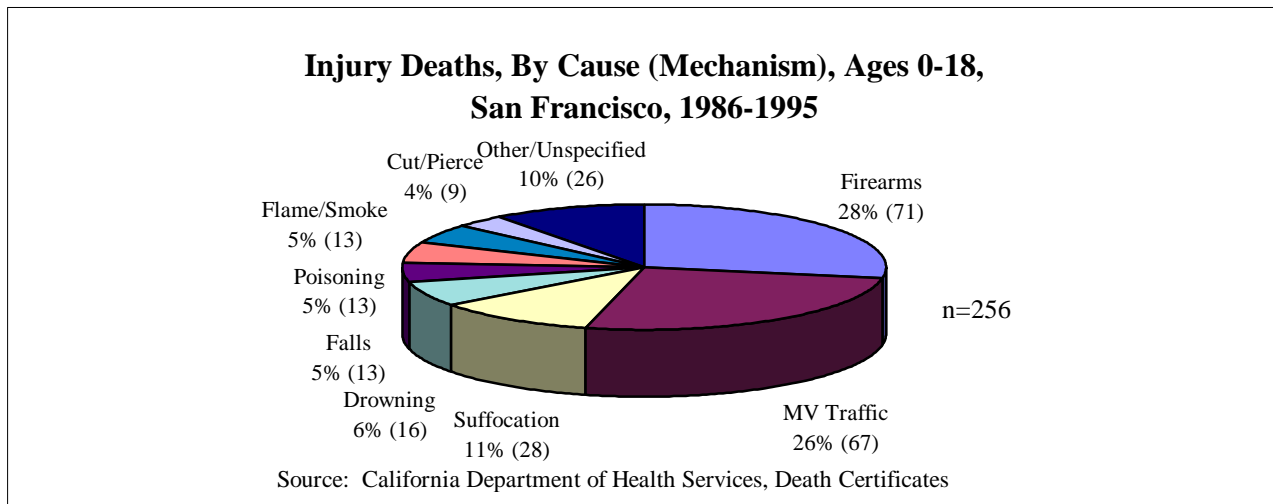
² Both death certificates and hospital discharge data use the External Cause of Injury (E code) of the World Health Organization’s International Classification of Disease Codes to categorize the circumstances of an injury-causing incident. E codes capture information about both the cause (mechanism) and intent of the injury.

most severe being suicide). Caution must be used in interpreting the assigned intent of an injury. The assignment of “intent” is often made on the basis of incomplete evidence because those involved in an injury event may not be alive, present, and/or willing to answer questions about the circumstances causing the injury.³

Leading Causes of Injury Deaths

During the ten-year period from 1986 to 1995, a total of 256 San Francisco children and youth died as a result of injuries. During the five-year period from 1990 to 1995, injury deaths accounted for almost half (45%; 458) of all deaths among children and youth ages birth to 24.⁴

By order of magnitude, the top three leading causes (mechanisms) of injury deaths were firearms (28% of all injury deaths), motor vehicle traffic (26%), and suffocation (11%).



From 1986 to 1995, 75% (192) of injury deaths were among males and 64 injury deaths were among females.

African Americans represented 30% of injury deaths (77) – a disproportionate share compared to the percent in the population.⁵ The percent of injury deaths for other race/ethnicities was 26% Asian (67), 20% White (52), 19% Hispanic (50), and 4% other (10). The leading cause of injury deaths among African American and Hispanic children and youth was firearms, with 36% of injury deaths among African Americans (28) and 30% of injury deaths among Hispanics (15) due to firearms. The leading cause of death among Asian and White children and youth was motor vehicle traffic/non-traffic, with 39% of injury deaths among Asians and 34% of injury deaths among whites. Identifying injury deaths of San Francisco children and youth residents by racial/ethnic categories for other causes is difficult due to relatively small numbers for each cause. (Refer to the Appendix for detailed data.)

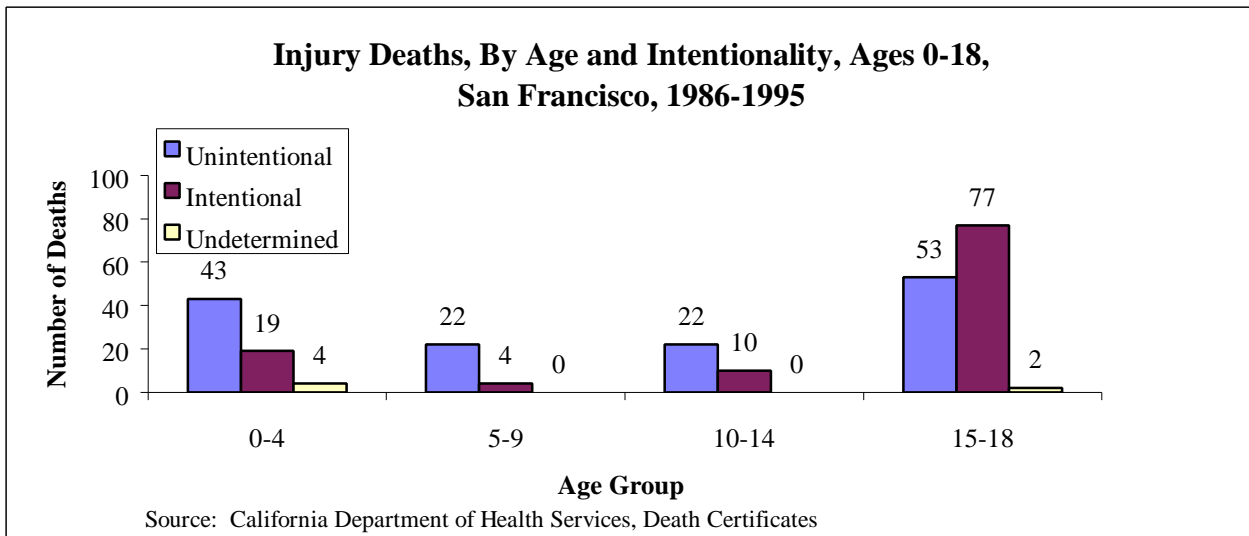
³ San Francisco Injury Center, San Francisco Department of Public Health. Profile of Injury in San Francisco, 1996.

⁴ The total number of deaths in this age group during this six-year period was 1,027. These 458 injury deaths represent 13% of all injury deaths (3,445) for all ages in San Francisco for the same time period. Data on the proportion of injury deaths compared to all deaths for ages birth to 18 for the ten-year period from 1986 to 1995 was not available.

⁵ According to the California Department of Finance, in 1996, African Americans comprised approximately 16% of the age 0 to 14 population and 22.5% of the age 0 to 24 population. Refer to the “Demographics” section of this report for data on population by race/ethnicity.

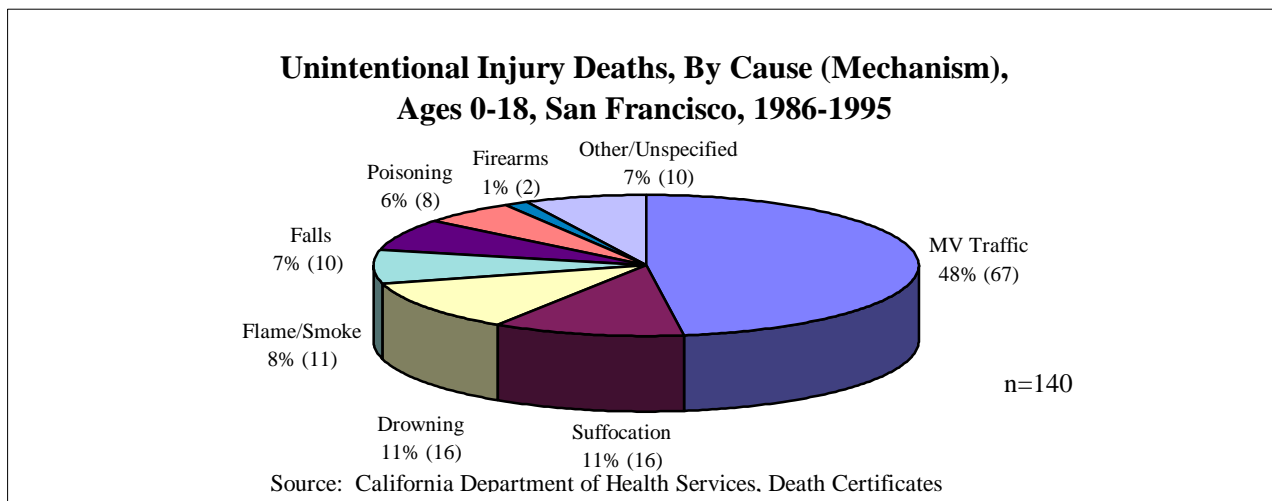
Intent of Injuries That Resulted in Death

During the ten-year period from 1986 to 1995, slightly over half (55%) of injury deaths (140) for children and youth were unintentional, 43% (110) were intentional, and 2% (6) were of undetermined



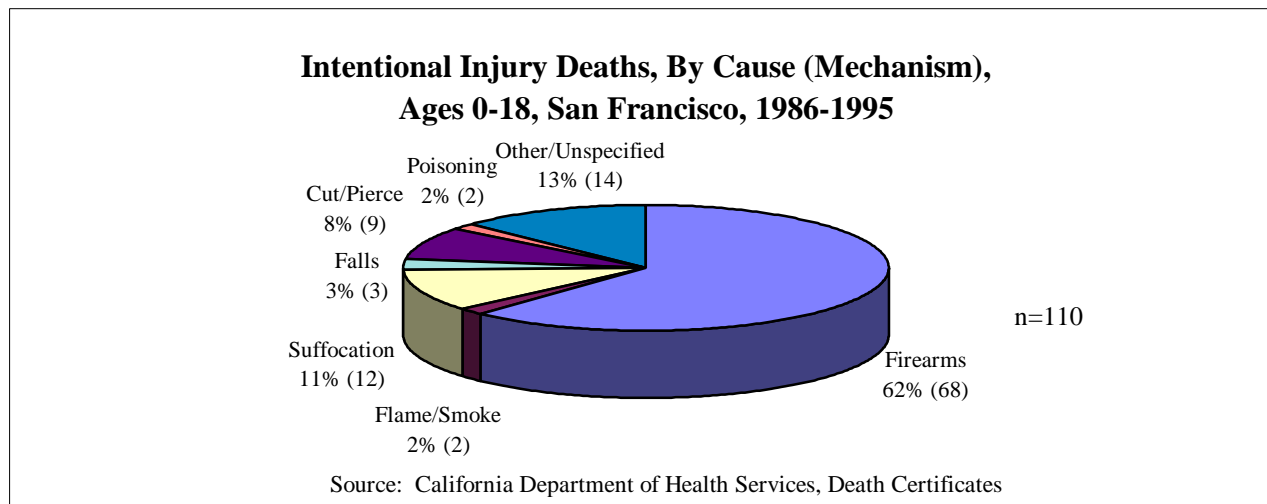
intent. Infants and young children ages birth to 14 were more likely to be killed as a result of unintentional injuries while youth ages 15 to 18 were more likely to be killed due to intentional injuries.

Unintentional. From 1986 to 1995, motor vehicular traffic was the leading cause (mechanism) of unintentional injury deaths, accounting for nearly half (48%) of unintentional injury deaths (67), including half (51%) among youth ages 15 to 18 (34). Suffocation and drowning were the next most common causes of unintentional injury deaths, each accounting for 11% of unintentional injury deaths (16). Most suffocation deaths (81%) were among young children ages birth to 4 (13).



Flame/smoke was the fourth leading cause of unintentional injury deaths, comprising 8% (11) of unintentional injury deaths. Nationally, most flame injury/deaths are due to house fires and most fatal house fires are caused by cigarettes.⁶

Intentional. From 1986 to 1995, three-fourths (75%; 83 deaths) of intentional injury deaths among children and youth were classified as homicides (assault) and 25% (27) were classified as suicides (self-inflicted). The majority (70%) of intentional injury deaths were among youth ages 15 to 18.



Firearms were the leading cause of intentional injury deaths and were responsible for about two-thirds (62%; 68 deaths) of intentional injury deaths. Most (91%; 62) intentional injury deaths caused by firearms were among males and a majority were among youth ages 15 to 18 (57 deaths). Most intentional firearm deaths were homicides (84%; 57), mostly among youth ages 15 to 18 (46 deaths). All suicide deaths caused by firearms (11) were among youth ages 15 to 18.

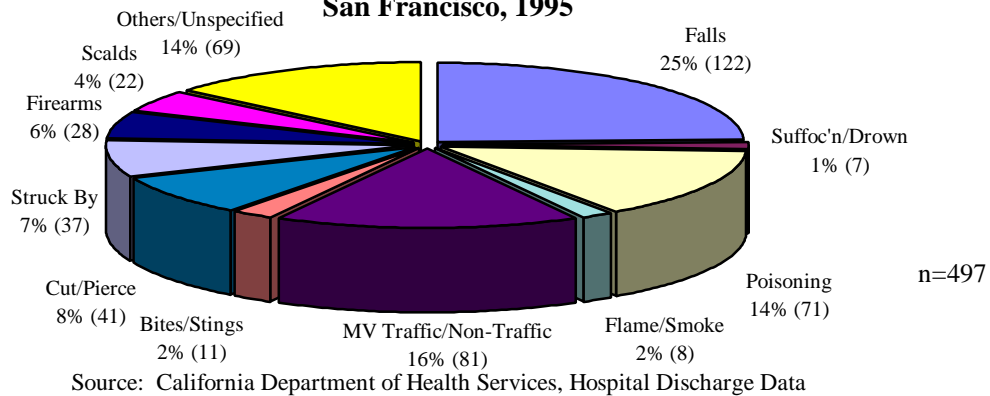
Suffocation was the second leading cause of intentional injury deaths, accounting for 11% (12 deaths) of intentional injury deaths. Most intentional suffocation deaths were suicides (8 deaths) among adolescents ages 15 to 18.

Leading Causes of Injury Hospitalizations

In 1995, there were 497 hospitalizations of children and youth ages birth to 18 because of injury, an average of 10 injury-related hospitalizations per week. Injuries which result in hospitalization are relatively serious and may result in disability or long-term consequences. Most injury hospitalizations (64%; 320) were among males. By order of magnitude, the top three leading causes (mechanisms) of injury hospitalizations in 1995 were falls (25% of injury hospitalizations), motor vehicle traffic/non-traffic (16%), and poisoning (14%).

⁶ Baker, Susan P., et. al., *The Injury Fact Book*, 2nd Edition, New York: Oxford University Press, 1998

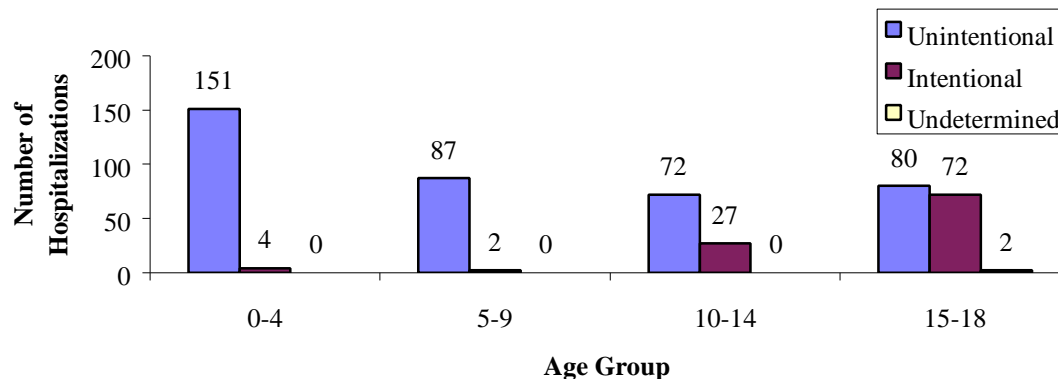
Injury Hospitalizations, By Cause (Mechanism), Ages 0-18, San Francisco, 1995



Intent of Injuries That Resulted in Hospitalizations

In 1995, most injuries resulting in hospitalizations (79%; 390) were considered unintentional, 21% (105) were intentional, and <1% (2) were of undetermined intent. Infants and young children were much more likely to be hospitalized due to unintentional injuries compared to youth ages 15 to 18, who

Injury Hospitalizations, By Age and Intentionality, Ages 0-18, San Francisco, 1995



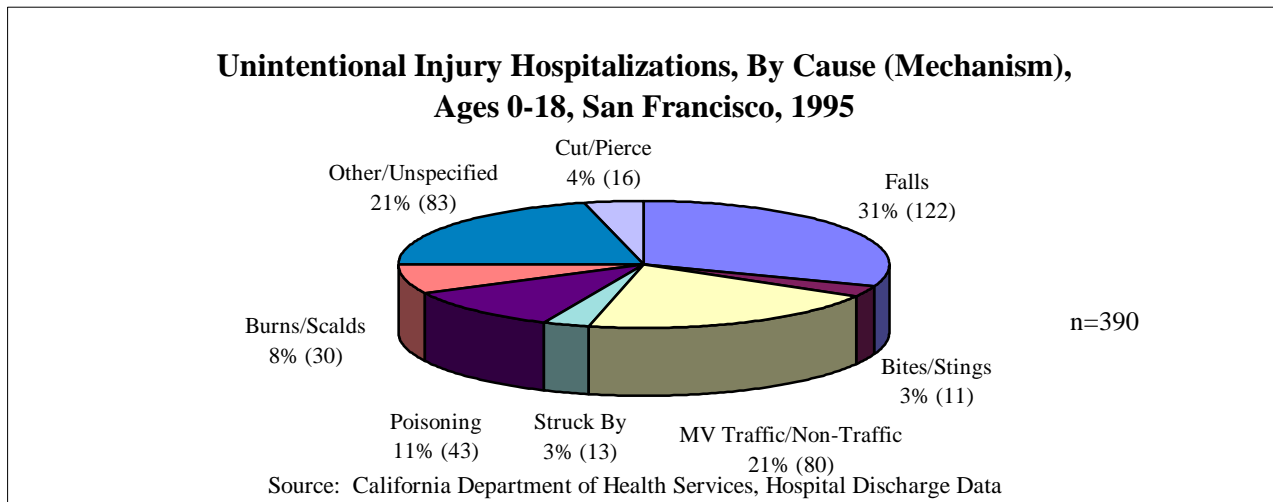
were almost equally likely to be hospitalized due to unintentional and intentional injuries. Hospitalizations for unintentional injuries accounted for 90% of injury hospitalizations among children 14 years and younger compared to slightly more than half (52%) of injury hospitalizations among youth ages 15 to 18.

Unintentional. Falls were the leading cause (31%) of unintentional injuries which resulted in hospitalizations (22) among children and youth ages birth to 18. Over two-thirds (69%) of all hospitalizations for falls involved children ages birth to 9. It should be noted that in very young

children, serious injuries reported as falls are often found to be the result of abuse but are classified as “unintentional” until abuse can be verified.⁷

Motor vehicle traffic/non-traffic was the second leading cause of unintentional injuries resulting in hospitalizations, accounting for 21% (80) of unintentional injury hospitalizations, mainly in the age 15 to 18 group (25 hospitalizations).

Poisoning was the third leading cause of unintentional injuries resulting in hospitalizations (43 hospitalizations) with about half (21) occurring in the birth to 4 age group. Note that the category



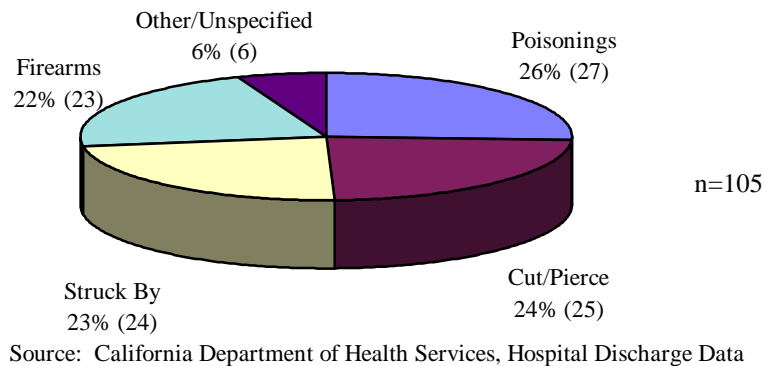
“poisoning” includes many different toxic syndromes, both unintentional (such as ingestion by young children of toxic substances, and occupational and environmental exposures and substance abuse poisonings) and intentional (such as suicide attempts).

Burns and scalds were especially a problem among infants and young children ages birth to 4, with 19 of 22 hospitalizations for burns and scalds among children from birth to age 18 occurring within this age group.

Intentional. Three-fourths (75%) of hospitalizations for intentional injury (78) were classified as assault and one-fourth (25%) were classified as self-inflicted (27). Firearms accounted for 22% (23) of

⁷ Wilson Modena Hoover, et.al., *Saving Children – A Guide to Injury Prevention*, New York: Oxford University Press, 1991

**Intentional Injury Hospitalizations, By Cause (Mechanism),
Ages 0-18, San Francisco, 1995**



hospitalizations for intentional injury with most occurring in the 15 to 18 age group (19) and the remainder in the 10 to 14 age group (4). The higher proportion of firearms as the cause of deaths compared to hospitalizations (62% vs. 22%) clearly illustrates the lethality associated with firearm use.

Other mechanisms for assaults were “cut/pierce” (25 hospitalizations) which involves being cut and pierced by instruments or objects and “struck by” (24) which involves being hit by a blunt object or person.

All hospitalizations for injuries among children and youth in 1995 classified as self-inflicted resulted from poisonings. These hospitalizations occurred among children ages 10 to 14 (12 hospitalizations) and youth ages 15 to 18 (15). Most “cut/pierce” and “struck by” intentional injury hospitalizations (37) were among adolescents ages 15 to 18.

Poison Control Center Calls

Data from the California Poison Control System (CPCS) provides additional information about the frequency and type of injuries occurring among children and youth in San Francisco. The CPCS provides immediate treatment advice and poison information to both the public and to health professionals in San Francisco and other California counties.

In 1996/97, the CPCS received a total of 2,661 calls from San Francisco County on behalf of victims 19 years old or younger, or 35% of all calls received from the county.⁸ Three-fourths (74%) of these calls were for children ages birth to 5, mostly for children 2 years old or younger.

A majority (87%; 2,320) of calls were for incidents in which exposure was unintentional including “general” – usually referring to a curious toddler who ingested a toxic substance while exploring his or her environment. “Other” unintentional exposures include therapeutic error, environmental, food poisoning, and bites/stings. One of ten (10%) calls were for intentional exposures including suspected suicide and abuse/misuse, and 3% of calls were for adverse drug or food reactions, or other reasons.

⁸ The 1996/97 period is from September 1996 through August 1996. Calls from San Francisco were from callers who were may or may not be residents of the county. Alternatively, San Francisco residents calling from other counties are not included among these calls. 37 calls from South San Francisco were also included among the 2,661 calls.

Nearly all (98%; 2,596) incidents occurred at the child's residence. Other sites of exposure included schools, other residences, public areas, and other locations.

The majority of calls to the CPCS resulted in management of the incident on site, without further medical intervention. In 1996, there were no known deaths due to exposures. Less than 1% (17) resulted in a "major effect" for the victim.

Data on the location of callers by zip code was not available for the 1996/97 period. However, an analysis of 1993 data comparing the geographic distribution by zip code of residents who phoned the CPCS regarding a poisoning exposure versus residents who were hospitalized for poisoning/drug overdose showed a difference in the characteristics of the two populations. Poisoning/drug overdose hospitalizations were associated with men ages 25 to 44 from low per capita income areas of the City such as the downtown and South of Market areas. Calls to the CPCS were distributed equally along gender lines, with a disproportionate number of calls regarding children. Calls were not concentrated in areas of the City with low per capita income. Those who had called had access to a phone and knowledge of whom to call.⁹

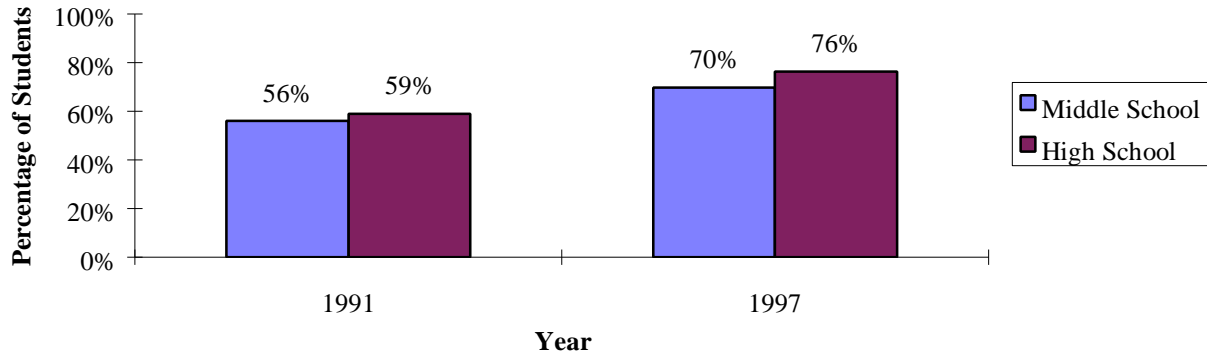
Injury Risk Behaviors

This section provides data on the prevalence of specific risk behaviors, as reported by San Francisco public school students at the middle and high school levels. These risk behaviors are associated with the occurrence of unintentional and intentional injuries. An important focus of injury prevention is modifying these behaviors as well as creating environments which promote healthy behaviors.

Risk Behaviors for Unintentional Injuries. Both seat belt and helmet use has been rising among all students since 1991. In 1997, 70% of middle school students reported that they wore a seat belt "always" or "most of the time" compared to 56% in 1991. Only 13% of middle school students reported that they "rarely" or "never" wore a seat belt when riding in a car. The proportion of high school students who reported that they used seat belts "most of the time" or "always" when riding in a car driven by someone else increased from 59% in 1991 to 76% in 1997. Nationwide, 22% of students reported that they "rarely" or "never" used safety belts when riding in a vehicle driving by someone else, or almost three times worse than San Francisco students (8%).

⁹ San Francisco Injury Center, San Francisco Department of Public Health. Profile of Injury in San Francisco, 1996.

**Reported Use of Seat Belts "Always" or "Most of the Time",
Public Middle and High School Students, San Francisco, 1991 and 1997**



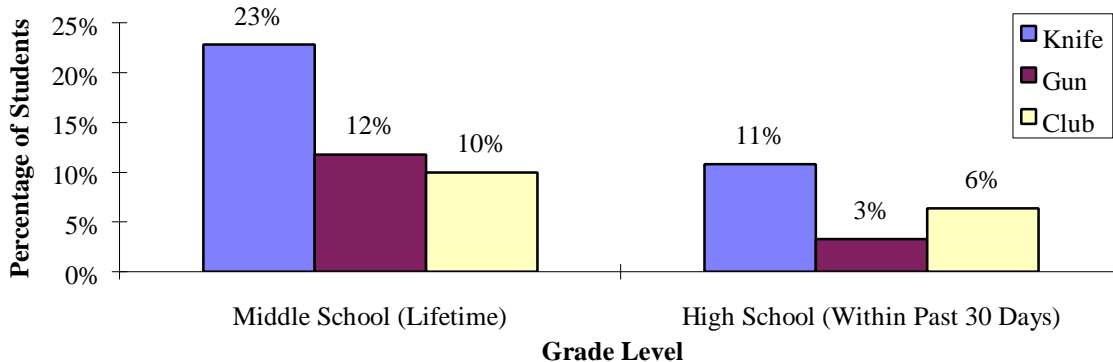
Source: San Francisco Unified School District, San Francisco Middle and High School Youth Risk Behavior Survey, 1991 and 1997

Most middle school students reported that they rode a bicycle or rollerbladed (74%) or rode a skateboard (60%) in the past. More than half who bicycled (51%) or rollerbladed or skateboarded (64%) reported that they “never” or “rarely” wore a helmet. However, the proportion of middle school students who reported using a helmet “most of the time” or “always” when bicycling increased significantly since 1991 (from 6% in 1991 to 24% in 1995).

About one-fourth (26%) of middle school students and one-fifth (21%) of high school students reported that, within the past 30 days, they rode in a vehicle with someone who had been drinking alcohol. In addition, 5% of high school students reported they had, within the past 30 days, driven a car after they had been drinking.

Risk Behaviors for Intentional Injuries. Nearly one-fourth (23%) of middle school students reported ever carrying a knife, 10% had carried a club, and 12% had carried a gun as a weapon. This compares

**Weapon Carrying, Public Middle and High School Students,
By Type of Weapon, San Francisco, 1997**



Source: San Francisco Unified School District, San Francisco Middle and High School Youth Risk Behavior Survey, 1991 and 1997

to 14% of the high school students who reported that they had carried a weapon within the past 30 days, including 11% who had carried a knife, 6% who had carried a club and 3% who had carried a gun.

In addition, more than one in ten middle school students (12%) reported that they had ever carried a knife or club and 3% carried a gun on school property. Eight percent of high school students reported that they had carried a weapon, knife or club on school property or within the past 30 days. Males were more likely to carry weapons than females.

Other results from the YRBS pertaining to risk behaviors for intentional injury include the following:

- *Feeling Unsafe At School:* Sixteen percent of middle school students said they did not go to school at least once because they felt they would be unsafe at school. Seven percent of high school students reported not going to school within the past 30 days because they felt they would be unsafe at school, and on the way to or from school. Nearly one in ten (9%) high school students reported that they had been threatened or injured by someone with a weapon, such as a gun, knife, or club on school property within the past 30 days.
- *Physical Fights:* More than half (53%) of middle school students reported that they had been in a physical fight in the past year and mostly with someone they knew but didn't like. Over one-quarter (27%) of high school students reported that they had been in a physical fight in the past year. Significantly more students in the national survey reported that they engaged in a physical fight (39% vs. 28%).
- *Violence-Related Incidents:* The proportion of high school students reporting violence-related incidents in general decreased slightly during the past four years, including weapon-carrying (from 21% in 1991 to 19% in 1995) and physical fighting (from 35% in 1991 to 28% in 1995).