CD Summary

September 7, 1999
Vol. 48, No. 18

Telephone 503/731-4024
Emergencies 503/731-4030
Fax 503/731-4798
cd.summary@state.or.us
www.oshd.org/cdpe/

CENTER FOR DISEASE PREVENTION & EPIDEMIOLOGY • OREGON HEALTH DIVISION

INJURY-RELATED HOSPITALIZATIONS AND DEATHS IN OREGON

What is the leading cause of premature mortality in Oregon? If you answered eating alfalfa sprouts, you are way off-base.* If you answered tobacco, you're closer, but still not correct. According to Oregon vital statistics, injuries—both unintentional and intentional—cause more years of potential life lost† in Oregon than cancer, heart disease, cerebrovascular disease and chronic obstructive pulmonary disease combined.

The basis for the public health approach to injury prevention is information. Just as knowing the "who, what, where, and when" of infectious disease outbreaks teaches us how to prevent those diseases, describing the burden of different types of injuries and the associated risk factors can be very helpful in developing and implementing effective public health prevention programs and clinical techniques to reduce the incidence of those injuries. This article summarizes information about injuries from two important data sources: Oregon's Hospital Discharge Index (HDI) and death certificates.

METHODOLOGY

The HDI database is compiled by the Oregon Association of Hospitals. Hospitalizations for injuries are identified by injury-specific ICD-9 codes assigned by hospitals for billing purposes. There are two kinds of ICD-9 codes: N-codes, which describe the nature of the injury (for example, a femur fracture) and E-codes, which describe the external cause (that's where the "E" comes from) of injury (for example, motor vehicle crash, gunshot wound, or fall). Unfortunately, E-coding of records is not required in Oregon. As a result, only 60-70% of HDI records are E-coded. This means that while we identify the total number of injury hospitalizations using N-codes, we can only know the causes of those injuries 60-70% of the time. By contrast, virtually 100% of death certificates are E-coded by OHD, and so numbers derived from death certificates more completely describe the burden of mortality from different causes of injury.

The data in this article are presented in a way that is used by many injury epidemiologists, but may be unfamiliar to readers of these pages. Injuries are described by two parameters: by cause (e.g., falls, motor vehicle traffic crash, etc.) and by intent (e.g., unintentional, homicide/attempted homicide, etc.).[1] Presenting the data in this way allows, for example, for a suicide by poisoning to be counted both as a poisoning death and as a suicide death—each with different but equally important implications for prevention.

MORBIDITY

There were 321,087 hospitalizations in Oregon in 1997. Of those, 25,662 (8%) were for injury-related causes. Overall treatment charges were in excess of two hundred and sixty million dollars.

The table shows the five leading causes of injury-related hospitalizations. These were falls (26%), motor vehicle crashes (8%), poisoning (7%) being struck by or striking against objects or persons (2%), and injuries from cutting and piercing instruments (2%). These accounted for 43% of all injury hospitalizations. Most injuries were unintentional (77%). Suicide attempts accounted for 9% of the admissions and homicidal intent accounted for 4%.

Although not shown in the table, there was very little difference in the number of overall admissions for males as compared to females. When intent is taken into consideration, females were more likely to be hospitalized for suicide attempts and males were more likely to be hospitalized for homicide

Reported Injury-Caused Deaths and Hospitalizations, Oregon, 1997

mechanism/cause	unintentional	(attempted) suicide	assault/ homicide	undetermined	other	total
Causes of Hospitalizations						
falls	6,182	2	2	5	0	*6,191*
motor vehicle	2,087	3	4	0	0	*2,094*
poisoning	454	1,227	0	119	0	*1,800*
struck by/against	391	0	217	0	7	*615*
cut/pierce	234	57	120	3	0	*414*
everything else	2,143	51	176	21	1,346	*3,737*
total	*11,491*	*1,340*	*519*	*148*	*1,353*	*14,851*
Causes of Death						
motor vehicle	605	0	0	2	0	*607*
firearm	10	341	80	5	6	*442*
poisoning	186	108	4	25	0	*323*
falls	238	9	1	1	0	*249*
suffocation	31	71	9	2	0	*113*
everything else	338	28	41	19	23	*449*
total	*1,408*	*557*	*135*	*54*	*29*	*2,183*

Source: Oregon Hospital Discharge Index (HDI) and death certificates

* But we're glad you've been reading the *CD Summary*.

† Years of potential life lost (YPLL) is an epidemiological construct often used to assess an age-adjusted burthen of mortality. Deaths are weighted by the number of years before some cut-off age, typically, 65. Thus, the 2-year-old who drowns loses 63 years of "potential life," while the 63-year-old cancer victim loses only 2 years. Deaths among persons 65 and over (if that is the cutoff) don't count at all.

The **CD Summary** (ISSN 1058-7888) is published biweekly, free of charge, by the Oregon Health Division, (Dept. of Human Services).
800 NE Oregon St., Portland, Oregon 97232
Periodicals postage paid at Portland, Oregon.
Postmaster—send address changes to:
CD Summary, 800 NE Oregon St., Suite 730, Portland, OR 97232

PERIODICALS
POSTAGE
PAID
Portland, Oregon

attempts. Females had a slightly higher number of admissions for unintentional injuries.

Overall, injury hospitalization rates by age peaked for 15–24 year-olds (408/100,000), and also increased steadily for age groups over age 55. Rates for those 85 and older were a whopping 3363/100,000. This high rate of injury hospitalization for the elderly is largely due to unintentional falls.

Rates of hospitalization for unintentional injuries were highest in those 65 and older, again largely due to falls. Rates of attempted suicide and homicide were highest in those aged 15–44. Hospitalizations for suicide attempts most frequently involved poisoning (92%), cutting and piercing (4%) and firearms (2%).

MORTALITY

A total of 29,712 Oregonians died in 1997, 2183 (7%) of which were injury-related. The five leading causes of injury deaths are shown in the table, *recto*. These were motor vehicle (28%), firearms (20%), poisoning (14%), falls (11%), and suffocation (5%), which together comprised 79% of all reported injury deaths. As for hospitalizations, unintentional injuries were the most common cause of death (65%), followed by suicide (26%) and homicide (6%). Suicide rates in Oregon for 1997 were 1.4 times the national suicide rate, reflecting the importance of suicide as a cause of death for Oregonians.[2]

Overall, more males died from injuries than females (75% of deaths were in males). Males accounted for 73% of the unintentional injury, 78% of the suicide, and 77% of the homicide deaths in 1997.

Overall injury death rates increase until age 15, and then remain stable at ~73/100,000 to age 54. As people finally mellow out between ages 55-64, rates decrease a bit to 55/100,000, but then begin to climb, reaching a rate of 383/100,000 for those 85 and older. The high death rates among those over age 85 are largely due to unintentional falls.

Unintentional death rates were highest among those age 75 and older (155/100,000) and among those 5–24 (51/100,000). In the elderly, as already mentioned, these rates are largely due to falls, while for youth these rates are largely due to motor vehicle crashes. Suicide rates increase with age, but are generally stable from ages 25-74, and peak at 33/100,000 for those 75 and older. Suicides were most frequently accomplished by firearms (61%), poisoning (20%) and suffocation (13%). The high frequency of firearm deaths among completed suicides contrasts with the low frequency of firearms as the means for suicide attempts described above, illustrating that most suicide attempts with firearms turn out to be lethal. Homicide rates peak for ages 15–44.

CONCLUSIONS

These data provide useful information for Oregon's injury prevention programs. They suggest what types of injuries and demographic risk groups should be priorities for injury prevention activities in Oregon. The importance of injuries in the elderly emerges from this analysis as an important area for prevention activities.

For individual clinicians, these data also suggest priority areas and demographic risk groups for counseling about injury prevention. Counseling of patients by health care providers, even if brief, has been demonstrated to be an effective way to help prevent injuries in the first place. This includes counseling about behaviors such as seat belt use, drinking and driving, safe firearm storage, and screening for depression, among others.[3] In addition, in the acute injury setting, a patient's reflective state of mind about how they were injured may create a "teachable moment" for injury prevention. Finally, the inadequacies of E-coding in the HDI highlight the need for us to improve our data collection tools. At least some of the lack of E-codes is due to inadequate documentation of the cause of injury by health care providers. Oregon clinicians can help expand our understanding of the patterns and risk groups for injuries in Oregon by helping ensure complete documentation.

Additional data on injuries can be obtained by contacting the Basic Injury Program at 503/731-8617.

REFERENCES

1. Centers for Disease Control and Prevention. Recommended framework for presenting injury mortality data. MMWR 1997;46(No. RR-14).
2. National Center for Health Statistics. Health, United States, 1998 With Injury Chartbook. Hyattsville, Maryland: 1997.
3. U.S. Preventive Services Task Force. Guide to Clinical Preventive Services, 2nd ed. Alexandria, Virginia: International Medical Publishing, 1996.