Estimating the Costs of Unintentional Injuries, 2011

The National Safety Council makes estimates of the average costs of fatal and nonfatal unintentional injuries to illustrate their impact on the nation's economy. The costs are a measure of the dollars spent and income not received due to accidents, injuries, and fatalities. It is another way to measure the importance of prevention work.

This bulletin illustrates how costs can be estimated for a community or state. The figures should be used to estimate the actual costs to society of deaths and injuries. The comprehensive cost figures (discussed below) should be used for cost benefit analyses.

Cost estimation is not exact -- it can only be approximated. The estimates depend on many factors. Any cost estimates derived from information provided herein should be rounded to indicate that they are only approximations, not exact figures. The recommended rule is: for estimates less than $3,000,000, round to the nearest $100,000; for estimates between $3,000,000 and $10,000,000, round to the nearest $500,000; for estimates between $10,000,000 and $30,000,000, round to the nearest $1,000,000; and for estimates greater than $30,000,000, round to the nearest $5,000,000.

COSTS OF MOTOR-VEHICLE INJURIES

The calculable costs of motor-vehicle crashes are wage and productivity losses, medical expenses, administrative expenses, motor vehicle damage, and employers' uninsured costs. (See the definitions on the reverse for a description of what is included in each component.) The costs of all these items for each death (not each fatal crash), injury (not each injury crash), and property damage crash were:

Average Economic Cost per Death, Injury, or Crash, 2011

Death	$1,420,000
Nonfatal Disabling Injury	$78,700
Property Damage Crash (including nondisabling injuries)	$9,100

To estimate the costs of motor-vehicle crashes that occur while on the job, see "Costs of Other Injuries" below.

Expressed on a *per death* basis, the cost of *all* motor-vehicle crashes -- i.e. fatal, nonfatal injury, and property damage -- was $7,640,000. This includes the cost of one death, 52 nonfatal disabling injuries, and 234 property damage crashes (including minor injuries). This average may be used to estimate the motor-vehicle crash costs for a state provided that there are at least 10 deaths and only one or two occurred in each fatal crash. If fewer than 10 deaths, estimate the costs of deaths, nonfatal disabling injuries, and property damage crashes separately.

Motor-vehicle injuries by severity. Estimates are given here of the costs by severity of injuries, as defined in sections 2.3.4 through 2.3.6 of the *Manual on Classification of Motor Vehicle Traffic Accidents* (7th Edition) ANSI Standard D16.1-2007. These injury severity designations are sometimes referred to as class "A," "B," and "C."

Average Economic Cost by Injury Severity, 2011

Incapacitating injury (A)	$70,500
Nonincapacitating evident injury (B)	$22,700
Possible injury (C)	$12,800

These estimates may be helpful for cities and states that do not use the concept of "disabling injury" (see definitions). Estimates used for deaths or property damage crashes are not changed by using these estimates.

Cost-benefit analysis. The figures above are appropriate for measuring the economic loss to a community resulting from past motor-vehicle crashes. They should not be used, however, in computing the dollar value of future benefits due to traffic safety measures because they do not include the value of a person's natural desire to live longer or to protect the quality of one's life. That is, the economic loss estimates do not include what people are willing to pay for improved safety. Work has been done to create the necessary theoretical groundwork and empirical valuation of injury costs under the "willingness to pay" or comprehensive cost concept. Estimates in the following section are based on the comprehensive cost concept and should be used for cost-benefit analyses wherever feasible.

Comprehensive costs of motor-vehicle crashes. In addition to the economic cost components listed above, the following comprehensive costs also include a measure of the value of lost quality of life which was obtained through empirical studies of what people actually pay to reduce their safety and health risks. The average comprehensive costs on a *per injured person* basis were:

Average Comprehensive Cost by Injury Severity, 2011

Death	$4,459,000
Incapacitating injury	$225,100
Nonincapacitating evident injury	$57,400
Possible injury	$27,200
No injury	$2,400

Since the lost quality of life figures, which are included in the above comprehensive costs calculations, do not represent real income not received nor expenses incurred, they should not be used to determine the pure economic impact of past crashes.

COSTS OF OTHER INJURIES

Because obtaining information on the number and severity of nonfatal injuries for home, public nonmotor-vehicle, and work is difficult, the best approach is to estimate total costs on the "per death" basis using the following averages. These averages are based on their respective injury/death ratio:

Average Economic Cost of Fatal and Nonfatal Injuries by Class of Injury, 2011

Home injuries (fatal and nonfatal) per death	$3,400,000
Public nonmotor-vehicle injuries (fatal and nonfatal) per death	$4,500,000
Work injuries (fatal and nonfatal) per death:	
without employers' uninsured costs	$45,600,000
with employers' uninsured costs	$48,300,000

Multiplying the number of deaths by these average costs provides an estimate of the economic loss due to *both* deaths and injuries in these categories.

The work injury figure *with employers' uninsured costs* includes the monetary value of time lost by uninjured workers who were directly or indirectly involved in injuries. Losses due to fire are the only property damage costs included in the work, home and public figures. No satisfactory estimates of other property damage costs are available.

While multiple-fatality incidents, such as those discussed for motor-vehicle crashes, are not common, one fire, explosion, or other disaster may account for most of a small community's annual unintentional fatality total. When this occurs, estimate the costs by: (1) counting only one death for the disaster using the cost from the above figures; and (2) adding to this figure the cost for other disaster deaths using the economic cost per death from the motor vehicle section.

Even though a community generally will not be able to estimate the number of disabling injuries that occur in work, home, and public nonmotor-vehicle injuries, it may be useful to know the approximate economic loss per death and per disabling injury in these three classes of accidents. The table below shows the per case average cost of wage and productivity losses, medical expenses, and administrative expenses.

Average Economic Cost by Class and Severity, 2011

	Death	Disabling Injury
Home injuries	$1,100,000	$8,300
Public injuries	$1,100,000	$9,100
Work injuries		
without employer costs	$1,370,000	$49,000
with employer costs	$1,390,000	$54,000

These figures do not include any estimate of property damage or nondisabling injury costs and should *not* be used to estimate the total economic loss to a community from these kinds of injuries.

To estimate the cost of a work-related, motor-vehicle crash (motor-vehicle crash while on the job), use work injury costs, including uninsured employer costs, if there is reason to believe that uninsured costs resulted from the injury. If no uninsured costs occurred, use figures for either motor-vehicle crashes or work injuries excluding employer costs.

NOTE: A description of the National Safety Council's current cost estimating procedures may be found in the Technical Appendix of *Injury Facts*®. Effective with the 1993 bulletin, the Council extensively revised its cost estimating procedures. New components were added, new benchmarks and inflation factors adopted, and a new discount rate of 4% was assumed. Some further revisions were made for the 2004 bulletin. For this reason, the cost estimates shown here are not comparable to those published in earlier bulletins.

DEFINITIONS

Wage and productivity losses include the total of wages and fringe benefits together with an estimate of the replacement-cost value of household services. Also includes travel delay for motor-vehicle crashes.

Medical expenses include doctor fees, hospital charges, the cost of medicines, future medical costs, and ambulance, helicopter, and other emergency medical services.

Administrative expenses include the administrative cost of public and private insurance, and police and legal costs. Private insurance administrative costs are the difference between premiums paid to insurance companies and claims paid out by them. It is their cost of doing business and is part of the cost total. Claims paid out by insurance companies are not identified separately, as every claim is compensation for losses such as wages, medical expenses, property damage, etc.

Motor-vehicle damage includes the value of property damage to vehicles from motor-vehicle crashes. The cost of normal wear and tear to vehicles is not included.

Employers' uninsured costs are an estimate of the uninsured costs incurred by employers and represents the money value of time lost by uninjured workers. It includes time spent investigating and reporting injuries, giving first aid, production slowdowns, training of replacement workers, and extra cost of overtime for uninjured workers.

Disabling injury is one which results in death, some degree of permanent impairment, or renders the injured person unable to effectively perform his or her regular duties for a full day beyond the day of injury.

Source: Statistics Department, National Safety Council, and Children's Safety Network, Economics and Insurance Resource Center, Pacific Institute for Research and Evaluation.

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