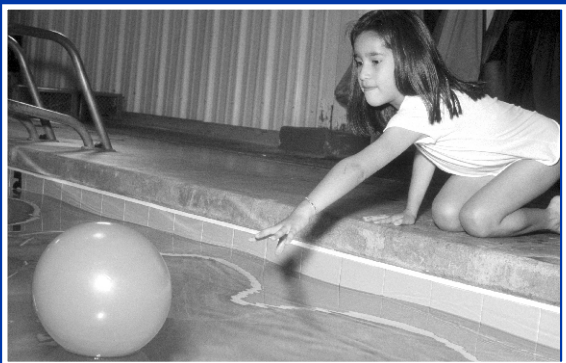
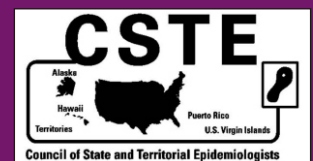




# STATE INJURY INDICATORS: Instructions for Preparing 2004 Data



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# **State Injury Indicators: Instructions for Preparing 2004 Data**

**U.S. Department of Health and Human Services**  
Division of Injury Response  
National Center for Injury Prevention and Control  
Centers for Disease Control and Prevention

Atlanta, Georgia  
February 2006

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The *State Injury Indicators: Instructions for Preparing 2004 Data* is a publication of the National Center for Injury Prevention and Control, Centers for Disease Control and Prevention.

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Suggested citation: Johnson RL, Sarmiento K. *State Injury Indicators: Instructions for Preparing 2004 Data*. Atlanta (GA): Centers for Disease Control and Prevention, National Center for Injury Prevention and Control; 2006.

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## **Acknowledgements**

The editors would like to thank the State and Territorial Injury Prevention Directors Association, the Council of State and Territorial Epidemiologists, and their respective members. These partnerships have facilitated the ongoing advancement and success of the development of the injury indicators. The editors also thank Scott Kegler and Bob Thomas from the Office of Statistics and Programming, National Center for Injury Prevention and Control, and Mark Faul from the Division of Injury Response, National Center for Injury Prevention and Control, for their consultation and guidance.

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## Foreword and Updates

The Centers for Disease Control and Prevention's (CDC) National Center for Injury Prevention and Control (NCIPC), is pleased to provide this document to guide you in preparing state injury indicators.

Under CDC Program Announcement 05027, 30 states have been funded to collect and submit state injury indicator data; however, all states and U.S. territories are eligible to voluntarily submit data for inclusion in the multistate *State Injury Indicators Report*. As more states and U.S. territories participate in this surveillance effort, a broader picture of the burden of injuries can be presented and priorities for prevention can be targeted. We look forward to continuing our work together to advance and improve injury surveillance.

The methods outlined in this document are consistent with those used in previous cycles of injury indicator data collection, with one modification noted below. These methods are also based on recommendations presented in the *Consensus Recommendations for Using Hospital Discharge Data for Injury Surveillance* and in the National Public Health Surveillance System (NPHSS) indicators developed by the State and Territorial Injury Prevention Directors Association (STIPDA) and the Council of State and Territorial Epidemiologists (CSTE). With your feedback, CDC continuously modifies and updates these instructions and methodologies.

Based on these *Hospital Discharge Consensus Recommendations*, the range of ICD-9-CM codes used to select cases for the Injury Hospitalization Data Set has been revised. Cases with primary diagnostic codes of <800 should not be included in the Injury Hospitalization Data Set.

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## Abbreviations

|          |                                                                                    |
|----------|------------------------------------------------------------------------------------|
| BAC      | Blood alcohol concentration                                                        |
| BRFSS    | Behavioral Risk Factors Surveillance System                                        |
| CDC      | Centers for Disease Control and Prevention                                         |
| CSTE     | Council of State and Territorial Epidemiologists                                   |
| FARS     | Fatality Analysis Reporting System                                                 |
| HDD      | Hospital discharge data                                                            |
| ICD-10   | International Classification of Diseases – Tenth Revision                          |
| ICD-9-CM | International Classification of Diseases – Ninth Revision – Clinical Modifications |
| MVC      | Motor vehicle crash                                                                |
| SAVIR    | Society for Advancement of Violence and Injury Research                            |
| NCCDPHP  | National Center for Chronic Disease Prevention and Health Promotion                |
| NCHS     | National Center for Health Statistics                                              |
| NCIPC    | National Center for Injury Prevention and Control                                  |
| NHTSA    | National Highway Traffic Safety Administration                                     |
| NPHSS    | National Public Health Surveillance System                                         |
| STIPDA   | State and Territorial Injury Prevention Directors Association                      |
| TBI      | Traumatic brain injury                                                             |
| VA       | Veterans Affairs                                                                   |
| WHO      | World Health Organization                                                          |
| WISQARS  | Web-based Injury Statistics Query and Reporting System                             |
| YRBS     | Youth Risk Behavior Survey                                                         |



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## What is an Injury Indicator?

*An injury indicator describes a health outcome of an injury, such as hospitalization or death, or a factor known to be associated with an injury, such as a risk or protective factor among a specified population.*

## Introduction

Injury surveillance is one of the most important and basic elements of injury prevention and control. It helps determine the magnitude of injury morbidity and mortality, the leading causes of injury, and the population groups and behaviors associated with the greatest risk of injury. Surveillance data are also fundamental to determining program and prevention priorities. Furthermore, these data are crucial for evaluating the effectiveness of program activities and for identifying problems that need further investigation.

Injury continues to be the leading cause of death and disability among children and young adults.<sup>1</sup> In 2000, more than 148,000 people died from injuries. Among them: 30% died from motor-vehicle crashes; 20% died from suicide; and 11% died from homicide.<sup>2</sup> Additionally, injuries accounted for 37% of emergency department visits in 1999–2000; and in 2000, more than 29.5 million people were treated for injuries in U.S. emergency departments.<sup>1,3</sup>

The mission of public health includes prevention, mitigation, assurance that the injured have access to treatment, and the reduction of injury-related disability and death.<sup>1</sup> The scope of public health encompasses injuries involving any mechanism (e.g., firearm, motor vehicle, or burn) and includes both intentional and unintentional injuries. An important part of the public health mission is to emphasize that injuries are preventable and to dispel the misconception that injuries are unavoidable.

Recognizing the need for more comprehensive injury surveillance data, the State and Territorial Injury Prevention Directors Association (STIPDA) produced *Consensus Recommendations for Injury Surveillance in State Health Departments* in 1999. These recommendations were developed by a working group representing STIPDA; the Council of State and Territorial Epidemiologists (CSTE); the Centers for Disease Control and Prevention (CDC) and its National Center for Injury Prevention and Control (NCIPC); the Society for Advancement of Violence and Injury Research (SAVIR); and individual state partners.

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The *State Health Department Consensus Recommendations* identifies 14 specific injuries and injury risk factors to be placed under surveillance by all states and 11 data sets to monitor these injuries and risk factors. The goal is to improve state-based injury surveillance to better support injury prevention programs and policies. By enhancing and standardizing injury surveillance at the state level, its integration with overall public health surveillance as part of the National Public Health Surveillance System (NPHSS) will be much easier.<sup>4</sup> In tandem with the *State Health Department Consensus Recommendations*, CSTE and STIPDA developed injury indicators that were formally adopted for inclusion in NPHSS.<sup>5,6</sup> The NPHSS injury indicators add to other indicators developed by CSTE for chronic diseases and other areas.<sup>5</sup>

The *Consensus Recommendations for Using Hospital Discharge Data for Injury Surveillance*, published in 2003, has provided clear and specific recommendations about the evaluation and use of hospital discharge data.<sup>7</sup> It presents important considerations for the evaluation of data quality and outlines the methodology for developing an injury hospitalization data set.

Collection and dissemination of injury indicators is built upon the foundation laid by the publication of these STIPDA and CSTE documents.

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## Background and Purpose

This manual and affixed CD-ROM (which contains spreadsheets for data submission) was created to guide states and U.S. territories in collecting, preparing, and submitting their injury surveillance data. All states and U.S. territories are eligible to voluntarily submit data for this report.

Information obtained from participants will be reviewed and assembled for inclusion in the *State Injury Indicators Report*. This process provides state and U.S. territory injury programs with a standardized method for evaluating injury data and for producing an injury indicator data product that is comparable across states and U.S. territories.

This manual provides straightforward information to encourage participation of all states and U.S. territories regardless of their epidemiologic infrastructure and capabilities. Participation in this report should not be seen as limiting by states of higher capacity, but rather as a place of commonality and a starting point for developing more sophisticated analysis.

The process of preparing indicators is simplified in that it doesn't include the merging and unduplicating of cases found in both hospital discharge and vital statistics data sets. It is important to keep in mind that the calculation of injury indicators is dependant on the completeness of external cause coding found on individual state and U.S. territory data sets.

Injuries resulting in or occurring from the following injuries are currently included in the *State Injury Indicators Report*: traumatic brain injury (TBI), drowning, fire-related injury, motor vehicle-traffic-related injury, poisoning, firearm-related injury, homicide, and suicide. Centralized electronic hospital discharge data and centralized electronic vital statistics data are used to calculate the indicators prepared and submitted by states and U.S. territories.



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## Preparing the Data Set

### Background on State Vital Records

Death registration is the responsibility of individual states. The funeral director and the physician who certify the cause of death are usually responsible for the personal and medical information recorded on the death certificate. The cause-of-death section on the certificate is generally the same in all states and is organized according to World Health Organization (WHO) guidelines. Local registrars assure that deaths in their jurisdictions are registered and that required information is on death certificates before submitting to the state registrar. State registrars number and file the death certificates; certificates of nonresidents are sent to their states of residence. All states send death certificate data to the National Vital Statistics System, managed by CDC's National Center for Health Statistics (NCHS).<sup>8</sup>

Data are limited to information reported on death certificates. The degree of detail in reporting varies among jurisdictions. In general, death certificate data provide limited information about circumstances of injury incidents or contributing factors. The number and type of cause-of-death fields to which states have access also vary, and deaths associated with some injuries, especially suicide, may be underreported. States without access to multiple contributing cause-of-death fields cannot calculate fatality rates for traumatic brain injury (TBI) because the diagnostic codes that make up that case definition reside in the contributing cause-of-death fields.

### Instructions for Using Vital Statistics Data

Vital statistics data do not require specific preparation for analysis. With the exception of the fatal TBI indicator, all fatal indicators should be calculated by searching the *underlying-cause-of-death field only*. For the fatal TBI indicator, search *all fields* in a multiple cause of death file. Specific code ranges are identified in the individual indicator specification sheets (see pages 9–25).

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## Background on State Hospital Discharge Data

More than half of all states maintain databases of hospital discharge records for nonfederal, acute care hospitals located within their borders.<sup>9</sup> The information collected varies from state to state. Many states use the standard uniform billing form (UB-92) as the basis for their hospital discharge database. Others use only a subset of variables from the UB-92 for their databases, and a few collect additional variables.

The UB-92, developed by the National Uniform Billing Committee, includes the following data elements:

- patient's age,
- sex,
- zip code,
- admission date,
- length of stay,
- total charges,
- principal diagnosis, and
- up to eight additional diagnoses.

For diagnoses resulting from injuries, an external cause of injury (E-code) is also coded. E-codes, listed in *The International Classification of Diseases-9-Clinical Modification* (ICD-9-CM), describe several aspects of an injury: intentionality; mechanism; and, for unintentional causes of injury, location of occurrence.<sup>10</sup> Completeness of e-coding varies by state.

## Instructions for Creating and Using the Injury Hospitalizations Subset of a State Hospital Discharge Data Set

To calculate Injury Hospitalization Indicators, first you need to create an injury subset of hospital discharge records. Create this subset using the following specifications:

- Include only nonfederal, acute care, or inpatient facilities in your hospital discharge data (HDD) injury subset. This **excludes** Veterans Affairs (VA) and other federal hospitals, rehabilitation centers, and psychiatric hospitals.
- Include readmissions, transfers, and deaths occurring in the hospital.
- Include hospitalizations of state residents only.
- If the data are available, out-of-state hospitalizations of state residents should be included.

- Hospitalizations should be age-adjusted to the 2000 standard using NCHS population distribution (Table 1, page 28).
- Based on the principal diagnosis field, the subset you create will be injury hospitalizations, defined as follows:
  - o Select injury cases by searching only the principal diagnostic code field for the included N-codes. Exclude all other records from the injury hospitalization subset, as shown in the chart below:<sup>11</sup>

| Include                 | Exclude        |
|-------------------------|----------------|
| 800–909.2, 909.4, 909.9 | < 800          |
| 910–994.9               | 909.3, 909.5   |
| 995.5–995.59            | 995.0–995.4    |
| 995.80–995.85           | 995.6–995.7    |
|                         | 995.86, 995.89 |
|                         | 996–999        |

Once the injury hospitalization subset has been created, calculate the injury indicators case counts as defined on the individual indicator pages. Search for E-codes in the following manner:

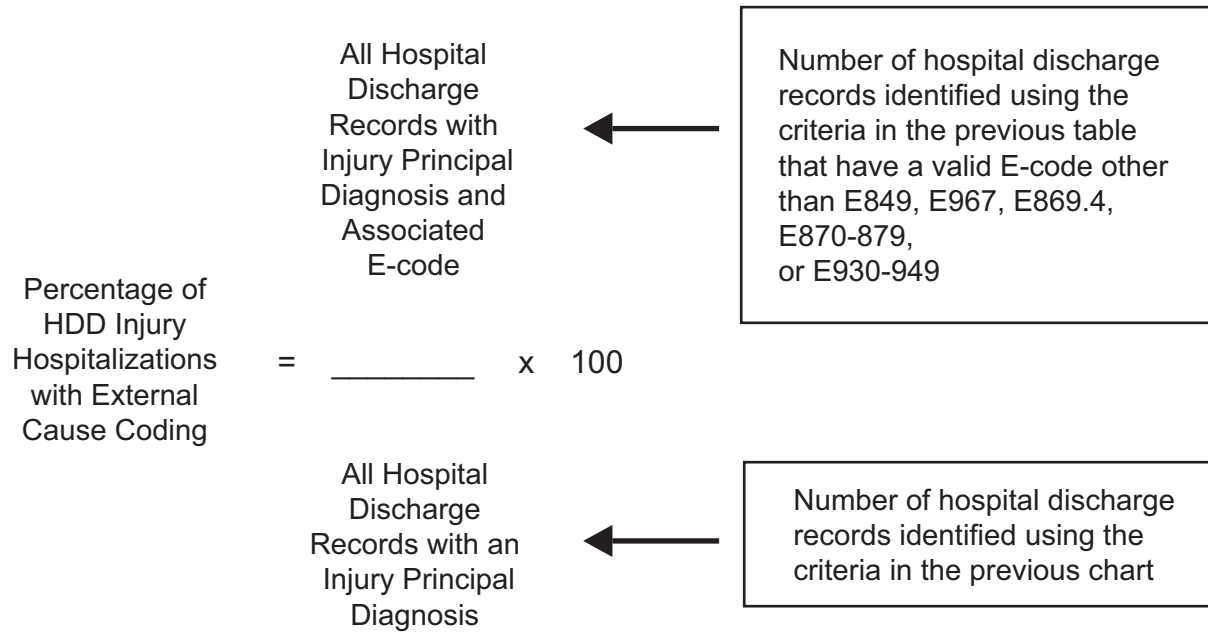
- Search all diagnosis fields.
- If a designated E-code field is in your data set, start with the designated E-code field.
- Count the first-listed valid E-code, unless it is E849, E967, E869.4, E870–879, or E930–949; in which case, search additional E-code fields and all diagnostic fields and use the next listed valid E-code.

Assess the completeness and quality measures of the HDD for the following components:

- Percentage of HDD injury records with external cause coding.
- Completeness of hospitals participating in the HDD system (Figure 1).
- Inclusion of readmissions and transfers within the data set used for analysis.
- A subjective assessment by health department staff that a substantial proportion of state residents injured in-state are actually hospitalized in a neighboring state.



**Figure 1.**



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## Injury Indicators

The following pages contain both background and specific case definitions for each of the individual injury indicators. These case definitions should be applied when determining case counts. Once the case counts are determined, they should be entered into the accompanying spreadsheets for rate calculation and submission to CDC.

# All-Injury Indicator 1: Hospitalizations for All Injuries

|                          |                                                                                                                                                                                                                                                                                                                                                                                                            |
|--------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Demographic group</b> | All residents.                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>Numerator</b>         | Hospitalizations with any of the following ICD-9-CM diagnostic codes. These should be identified by searching for N-codes only in the principal diagnostic field of the injury hospital discharge subset (see methods on page 6 for developing the injury hospital discharge subset). The case count for injury hospitalizations should equal the number of records in your injury hospitalization subset. |

## Hospitalizations for All Injuries ICD-9-CM Codes

|                                                                                 |                      |
|---------------------------------------------------------------------------------|----------------------|
| <b>N-codes</b><br>800–909.2, 909.4, 909.9–994.9, 995.5–995.59,<br>995.80–995.85 | Injury and poisoning |
|---------------------------------------------------------------------------------|----------------------|

|                                      |                                                                                                                                                                                                                                                                                                             |
|--------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Denominator</b>                   | Midyear population for the calendar year under surveillance. To obtain population estimates by age and sex for your state, use U.S. Census Bureau population tables titled “State Single Year of Age and Sex Population Estimates: April 1, 2000 to July 1, 2004 – RESIDENT” (see instructions on page 27). |
| <b>Measures of frequency</b>         | Annual number of persons hospitalized. Annual incidence—crude and age-adjusted (standardized by the direct method to the year 2000 standard U.S. population). <sup>12</sup> Rates should be calculated for age and sex.                                                                                     |
| <b>Data resources</b>                | State hospital discharge data (numerator) and population estimates from the U.S. Census Bureau or suitable alternative (denominator).                                                                                                                                                                       |
| <b>Period for case definition</b>    | Calendar year.                                                                                                                                                                                                                                                                                              |
| <b>Background</b>                    | Injury is the leading cause of death and disability among children and young adults in the United States. <sup>13</sup> Between 1999 and 2000, injuries accounted for 37% of emergency department visits. <sup>3</sup>                                                                                      |
| <b>Limitations of indicator</b>      | Injuries that result in a hospital admission represent only a portion of the overall burden of injury. Evaluations of these injuries should be considered in the context of both less- and more-severe injuries.                                                                                            |
| <b>Limitations of data resources</b> | The accuracy of indicators based on codes found in hospital discharge data is limited by the completeness and quality of coding. The overall completeness of e-coding is of particular concern and should be reviewed in conjunction with the indicator.                                                    |
| <b>Healthy People objectives</b>     | 15–12: Reduce hospital emergency department visits caused by injuries<br>15–14: (Developmental) Reduce nonfatal unintentional injuries                                                                                                                                                                      |
| <b>CDC’s health protection goals</b> | Healthy People in Every Stage of Life: Crosscutting<br>Healthy People in Healthy Places: Crosscutting                                                                                                                                                                                                       |

# Traumatic Brain Injury Indicator 1: Traumatic Brain Injury Fatality

|                          |                                                                                                                                                                                 |
|--------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Demographic group</b> | All residents.                                                                                                                                                                  |
| <b>Numerator</b>         | Deaths with <i>International Classification of Diseases</i> (ICD) 10 codes (shown below) in any field of the multiple cause of death file for residents during a calendar year. |

## Traumatic Brain Injury Fatality ICD-10 Codes

|                                          |                                                                                            |
|------------------------------------------|--------------------------------------------------------------------------------------------|
| S01.0–S01.9                              | Open wound of head                                                                         |
| S02.0, S02.1, S02.3, S02.7–S02.9         | Fracture of skull and facial bones                                                         |
| S06.0–S06.9                              | Intracranial injury                                                                        |
| S07.0, S07.1, S07.8, S07.9               | Crushing injury of head                                                                    |
| S09.7–S09.9                              | Other and unspecified injuries of head                                                     |
| T01.0                                    | Open wounds involving head with neck                                                       |
| T02.0                                    | Fractures involving head with neck                                                         |
| T04.0                                    | Crushing injuries involving head with neck                                                 |
| T06.0                                    | Injuries of brain and cranial nerves with injuries of nerves and spinal cord at neck level |
| T90.1, T90.2, T90.4, T90.5, T90.8, T90.9 | Sequelae of injuries of head                                                               |

|                                      |                                                                                                                                                                                                                                                                                                                                                                                    |
|--------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Denominator</b>                   | Midyear population for the calendar year under surveillance. To obtain population estimates by age and sex for your state, use U.S. Census Bureau population tables titled “State Single Year of Age and Sex Population Estimates: April 1, 2000 to July 1, 2004 – RESIDENT” (see instructions on page 27).                                                                        |
| <b>Measures of frequency</b>         | Annual number of deaths. Annual mortality rate—crude and age-adjusted (standardized by the direct method to the year 2000 standard U.S. population). <sup>12</sup> Rates should be calculated for age and sex.                                                                                                                                                                     |
| <b>Data resources</b>                | Death certificate data from vital statistics agencies (numerator) and population estimates from the U.S. Census Bureau or suitable alternative (denominator).                                                                                                                                                                                                                      |
| <b>Period for case definition</b>    | Calendar year.                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Background</b>                    | Of the approximately 1.4 million people who sustain a TBI each year in the United States, an estimated 50,000 die; 235,000 are hospitalized; and 1.1 million are treated and released from an emergency department. <sup>14</sup> TBI outcomes vary greatly depending on the cause: 91% of firearm-related TBIs result in death; 11% of fall-related TBIs are fatal. <sup>15</sup> |
| <b>Limitations of indicator</b>      | Injuries severe enough to result in death represent only a small proportion of the overall burden of injury. An evaluation of only these injuries may not present an accurate picture of the causes of less-severe injuries.                                                                                                                                                       |
| <b>Limitations of data resources</b> | The accuracy of indicators based on codes found in vital statistics data is limited by the completeness and quality of coding. The overall completeness of external cause coding on death data is uniformly high. Coding criteria specify that all cases of injury death must contain an injury code in the <i>underlying-cause-of-death field</i> .                               |
| <b>Healthy People objectives</b>     | No objective.                                                                                                                                                                                                                                                                                                                                                                      |
| <b>CDC’s health protection goals</b> | Healthy People in Every Stage of Life: Crosscutting<br>Healthy People in Healthy Places: Crosscutting                                                                                                                                                                                                                                                                              |

## Traumatic Brain Injury Indicator 2: Traumatic Brain Injury Hospitalizations

|                          |                                                                                                                                                                                                                                                          |
|--------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Demographic group</b> | All residents.                                                                                                                                                                                                                                           |
| <b>Numerator</b>         | Hospitalizations with any of the following ICD-9-CM diagnostic codes. These should be identified by searching all diagnostic fields of the injury hospital discharge subset (see methods on page 6 for developing the injury hospital discharge subset). |

### Traumatic Brain Injury Hospitalization ICD-9-CM Codes

| <b>N-codes</b>  |                                                                     |
|-----------------|---------------------------------------------------------------------|
| 800.0–800.9     | Fracture of vault of skull                                          |
| 801.0–801.9     | Fracture of base of skull                                           |
| 803.0–803.9     | Other and unqualified skull fractures                               |
| 804.0–804.9     | Multiple fractures involving skull or face with bones               |
| 850.0–850.9     | Concussion                                                          |
| 851.0–851.9     | Cerebral laceration and contusion                                   |
| 852.0–852.5     | Subarachnoid, subdural, and extradural hemorrhage, following injury |
| 853.0 and 853.1 | Other and unspecified intracranial hemorrhage following injury      |
| 854.0 and 854.1 | Intracranial injury of other unspecified nature                     |
| 959.01          | Head injury, unspecified                                            |

|                                      |                                                                                                                                                                                                                                                                                                             |
|--------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Denominator</b>                   | Midyear population for the calendar year under surveillance. To obtain population estimates by age and sex for your state, use U.S. Census Bureau population tables titled “State Single Year of Age and Sex Population Estimates: April 1, 2000 to July 1, 2004 – RESIDENT” (see instructions on page 27). |
| <b>Measures of frequency</b>         | Annual number of persons hospitalized. Annual incidence—crude and age-adjusted (standardized by the direct method to the year 2000 standard U.S. population). <sup>12</sup> Rates should be calculated for age and sex.                                                                                     |
| <b>Data resources</b>                | State hospital discharge data (numerator) and population estimates from the U.S. Census Bureau or suitable alternative (denominator).                                                                                                                                                                       |
| <b>Period for case definition</b>    | Calendar year.                                                                                                                                                                                                                                                                                              |
| <b>Background</b>                    | An estimated 5.3 million Americans live with a TBI-related disability. According to one study, about 40% of those hospitalized with a TBI had at least one unmet need for services one year after their injury. <sup>16,17</sup>                                                                            |
| <b>Limitations of indicator</b>      | Injuries that result in a hospital admission represent only a portion of the overall burden of injury. Evaluations of these injuries should be considered in the context of both less- and more-severe injuries.                                                                                            |
| <b>Limitations of data resources</b> | The accuracy of indicators based on codes found in hospital discharge data is limited by the completeness and quality of coding. The overall completeness of e-coding is of particular concern and should be reviewed in conjunction with the indicator.                                                    |
| <b>Healthy People objectives</b>     | 15–1: Reduce hospitalization for nonfatal head injuries                                                                                                                                                                                                                                                     |
| <b>CDC’s health protection goals</b> | Healthy People in Every Stage of Life: Crosscutting<br>Healthy People in Healthy Places: Crosscutting                                                                                                                                                                                                       |

# Drowning Indicator 1: Drowning Fatality

|                          |                                                                                                                                                                  |
|--------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Demographic group</b> | All residents.                                                                                                                                                   |
| <b>Numerator</b>         | Deaths with <i>International Classification of Diseases</i> (ICD) 10 codes (shown below) as an underlying cause of death among residents during a calendar year. |

## Drowning Fatality ICD-10 Codes

|                                 |                                                                                |
|---------------------------------|--------------------------------------------------------------------------------|
| <b>Unintentional</b><br>W65–W74 | Accidental drowning and submersion                                             |
| <b>Water transport</b><br>V90   | Accident to watercraft causing drowning and submersion                         |
| V92                             | Water-transport-related drowning and submersion without accident to watercraft |

|                                      |                                                                                                                                                                                                                                                                                                                                                      |
|--------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Denominator</b>                   | Midyear population for the calendar year under surveillance. To obtain population estimates by age and sex for your state, use U.S. Census Bureau population tables titled “State Single Year of Age and Sex Population Estimates: April 1, 2000 to July 1, 2004 – RESIDENT” (see instructions on page 27).                                          |
| <b>Measures of frequency</b>         | Annual number of deaths. Annual mortality rate—crude and age-adjusted (standardized by the direct method to the year 2000 standard U.S. population). <sup>12</sup> Rates should be calculated for age and sex.                                                                                                                                       |
| <b>Data resources</b>                | Death certificate data from vital statistics agencies (numerator) and population estimates from the U.S. Census Bureau or suitable alternative (denominator).                                                                                                                                                                                        |
| <b>Period for case definition</b>    | Calendar year.                                                                                                                                                                                                                                                                                                                                       |
| <b>Background</b>                    | Drowning is one of the 10 leading causes of injury death for persons under age 45 years. In the United States, drowning rates are highest among children under five years of age. <sup>13</sup>                                                                                                                                                      |
| <b>Limitations of indicator</b>      | Injuries severe enough to result in death represent only a small proportion of the overall burden of injury. An evaluation of only these injuries may not present an accurate picture of the causes of less-severe injuries.                                                                                                                         |
| <b>Limitations of data resources</b> | The accuracy of indicators based on codes found in vital statistics data is limited by the completeness and quality of coding. The overall completeness of external cause coding on death data is uniformly high. Coding criteria specify that all cases of injury death must contain an injury code in the <i>underlying-cause-of-death field</i> . |
| <b>Healthy People objectives</b>     | 15–29: Reduce drownings                                                                                                                                                                                                                                                                                                                              |
| <b>CDC’s health protection goals</b> | Healthy People in Every Stage of Life: Start Strong<br>Healthy People in Every Stage of Life: Grow Safe and Strong<br>Healthy People in Healthy Places: Healthy Homes<br>Healthy People in Healthy Places: Healthy Travel and Recreation                                                                                                             |

## Drowning Indicator 2: Near Drowning Hospitalizations

|                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|--------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Demographic group</b> | All residents                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Numerator</b>         | Hospitalizations with any of the following ICD-9-CM diagnostic or E-codes identified from the injury hospital discharge subset (see methods on page 6 for developing the injury hospital discharge subset). These should be identified by searching for N-codes in all diagnostic fields and by searching for E-codes in the following manner: Search all diagnosis fields. If a designated E-code field is in your data set, start with the designated E-code field. Count the first-listed valid E-code, unless it is E849, E967, E869.4, E870–879, or E930–949; in which case, search additional E-code and diagnostic fields and use the next listed valid E-code. |

### Near Drowning Hospitalization ICD-9-CM Codes

|                       |                                                                                    |
|-----------------------|------------------------------------------------------------------------------------|
| <b>N-codes</b>        |                                                                                    |
| 994.1                 | Drowning and nonfatal submersion                                                   |
| <b>and/or E-codes</b> |                                                                                    |
| E830                  | Accident to watercraft causing submersion                                          |
| E832                  | Other accidental submersion or drowning in water transport accident                |
| E910                  | Accidental drowning or submersion                                                  |
| E954                  | Suicide and self-inflicted injury by submersion (drowning)                         |
| E964                  | Assault by submersion (drowning)                                                   |
| E984                  | Submersion (drowning), undetermined whether accidentally or purposefully inflicted |

|                                      |                                                                                                                                                                                                                                                                                                                                                                                                |
|--------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Denominator</b>                   | Midyear population for the calendar year under surveillance. To obtain population estimates by age and sex for your state, use U.S. Census Bureau population tables titled “State Single Year of Age and Sex Population Estimates: April 1, 2000 to July 1, 2004 – RESIDENT” (see instructions on page 27).                                                                                    |
| <b>Measures of frequency</b>         | Annual number of persons hospitalized. Annual incidence—crude and age-adjusted (standardized by the direct method to the year 2000 standard U.S. population). <sup>12</sup> Rates should be calculated for age and sex.                                                                                                                                                                        |
| <b>Data resources</b>                | State hospital discharge data (numerator) and population estimates from the U.S. Census Bureau or suitable alternative (denominator).                                                                                                                                                                                                                                                          |
| <b>Period for case definition</b>    | Calendar year.                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>Background</b>                    | Near drowning can result in lifelong disability. Among adolescents and adults, risk factors for drowning include drinking alcohol, swimming alone, and not wearing a personal flotation device while engaged in water sports or recreation. For children under age 5, unexpected access to water or brief lapses in adult supervision are implicated in most drowning incidents. <sup>18</sup> |
| <b>Limitations of indicator</b>      | Injuries that result in a hospital admission represent only a portion of the overall burden of injury. Evaluations of these injuries should be considered in the context of both less- and more-severe injuries.                                                                                                                                                                               |
| <b>Limitations of data resources</b> | The accuracy of indicators based on codes found in hospital discharge data is limited by the completeness and quality of coding. The overall completeness of e-coding is of particular concern and should be reviewed in conjunction with the indicator.                                                                                                                                       |
| <b>Healthy People objectives</b>     | No objective.                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>CDC’s health protection goals</b> | Healthy People in Every Stage of Life: Start Strong<br>Healthy People in Every Stage of Life: Grow Safe and Strong<br>Healthy People in Healthy Places: Healthy Homes<br>Healthy People in Healthy Places: Healthy Travel and Recreation                                                                                                                                                       |

## Fire-Related Indicator 1: Unintentional Fire-Related Fatality

|                          |                                                                                                                                                                  |
|--------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Demographic group</b> | All residents.                                                                                                                                                   |
| <b>Numerator</b>         | Deaths with <i>International Classification of Diseases</i> (ICD) 10 codes (shown below) as an underlying cause of death among residents during a calendar year. |

### Unintentional Fire-Related Fatality ICD-10 Codes

|         |                                     |
|---------|-------------------------------------|
| X00–X09 | Exposure to smoke, fire, and flames |
|---------|-------------------------------------|

|                                      |                                                                                                                                                                                                                                                                                                                                                  |
|--------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Denominator</b>                   | Midyear population for the calendar year under surveillance. To obtain population estimates by age and sex for your state, use U.S. Census Bureau population tables titled “State Single Year of Age and Sex Population Estimates: April 1, 2000 to July 1, 2004 – RESIDENT” (see instructions on page 27).                                      |
| <b>Measures of frequency</b>         | Annual number of deaths. Annual mortality rate—crude and age-adjusted (standardized by the direct method to the year 2000 standard U.S. population). <sup>12</sup> Rates should be calculated for age and sex.                                                                                                                                   |
| <b>Data resources</b>                | Death certificate data from vital statistics agencies (numerator) and population estimates from the U.S. Census Bureau or suitable alternative (denominator).                                                                                                                                                                                    |
| <b>Period for case definition</b>    | Calendar year.                                                                                                                                                                                                                                                                                                                                   |
| <b>Background</b>                    | The United States has the fourth highest overall fire death rate of all industrialized countries. <sup>19</sup> Residential fires cause about 85% of civilian fire-related deaths. <sup>20</sup>                                                                                                                                                 |
| <b>Limitations of indicator</b>      | Injuries severe enough to result in death represent only a small proportion of the overall burden of injury. An evaluation of only these injuries may not present an accurate picture of the causes of less-severe injuries.                                                                                                                     |
| <b>Limitations of data resources</b> | The accuracy of indicators based on codes found in vital statistics data is limited by the completeness and quality of coding. The overall completeness of external cause coding on death data is uniformly high. Coding criteria specify that cases of injury death must contain an injury code in the <i>underlying-cause-of-death field</i> . |
| <b>Healthy People objectives</b>     | 15–25: Reduce residential fire deaths                                                                                                                                                                                                                                                                                                            |
| <b>CDC’s health protection goals</b> | Healthy People in Every Stage of Life: Crosscutting<br>Healthy People in Healthy Places: Healthy Homes                                                                                                                                                                                                                                           |



## Fire-Related Indicator 2: Unintentional Fire-Related Hospitalizations

|                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |           |                                    |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|------------------------------------|
| <b>Demographic group</b>                                                                                                                                                                         | All residents.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |           |                                    |
| <b>Numerator</b>                                                                                                                                                                                 | Hospitalizations identified from the injury hospital discharge subset (see methods on page 6 for developing the injury hospital discharge subset) by searching for E-codes in the following manner: Search all diagnosis fields. If a designated E-code field is in your data set, start with the designated E-code field. Count the first-listed valid E-code, unless it is E849, E967, E869.4, E870–879, or E930–949; in which case, search additional E-code and diagnostic fields and use the next listed valid E-code. |           |                                    |
| <b>Unintentional Fire-Related Hospitalization ICD-9-CM Codes</b>                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |           |                                    |
| <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%; padding: 5px;">E890–E899</td><td style="padding: 5px;">Accident caused by fire and flames</td></tr> </table> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | E890–E899 | Accident caused by fire and flames |
| E890–E899                                                                                                                                                                                        | Accident caused by fire and flames                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |           |                                    |
| <b>Denominator</b>                                                                                                                                                                               | Midyear population for the calendar year under surveillance. To obtain population estimates by age and sex for your state, use U.S. Census Bureau population tables titled “State Single Year of Age and Sex Population Estimates: April 1, 2000 to July 1, 2004 – RESIDENT” (see instructions on page 27).                                                                                                                                                                                                                 |           |                                    |
| <b>Measures of frequency</b>                                                                                                                                                                     | Annual number of persons hospitalized. Annual incidence—crude and age-adjusted (standardized by the direct method to the year 2000 standard U.S. population). <sup>12</sup> Rates should be calculated for age and sex.                                                                                                                                                                                                                                                                                                     |           |                                    |
| <b>Data resources</b>                                                                                                                                                                            | State hospital discharge data (numerator) and population estimates from the U.S. Census Bureau or suitable alternative (denominator).                                                                                                                                                                                                                                                                                                                                                                                       |           |                                    |
| <b>Period for case definition</b>                                                                                                                                                                | Calendar year.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |           |                                    |
| <b>Background</b>                                                                                                                                                                                | In 2000, residential fires in the United States injured 17,400 people. <sup>20</sup> Residential fires disproportionately affect young children, older adults, African Americans, and Native Americans. <sup>21</sup> Working smoke alarms reduce the chance of dying in a house fire by 40% to 50%; however, about 25% of U.S. households lack working smoke alarms. <sup>22,23</sup>                                                                                                                                      |           |                                    |
| <b>Limitations of indicator</b>                                                                                                                                                                  | Injuries that result in a hospital admission represent only a portion of the overall burden of injury. Evaluations of these injuries should be considered in the context of both less- and more-severe injuries.                                                                                                                                                                                                                                                                                                            |           |                                    |
| <b>Limitations of data resources</b>                                                                                                                                                             | The accuracy of indicators based on codes found in hospital discharge data is limited by the completeness and quality of coding. The overall completeness of e-coding is of particular concern and should be reviewed in conjunction with the indicator.                                                                                                                                                                                                                                                                    |           |                                    |
| <b>Healthy People objectives</b>                                                                                                                                                                 | No objective.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |           |                                    |
| <b>CDC’s health protection goals</b>                                                                                                                                                             | Healthy People in Every Stage of Life: Crosscutting<br>Healthy People in Healthy Places: Healthy Homes                                                                                                                                                                                                                                                                                                                                                                                                                      |           |                                    |

# Firearm-Related Indicator 1: Firearm-Related Fatality

|                          |                                                                                                                                                                  |
|--------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Demographic group</b> | All residents.                                                                                                                                                   |
| <b>Numerator</b>         | Deaths with <i>International Classification of Diseases</i> (ICD) 10 codes (shown below) as an underlying cause of death among residents during a calendar year. |

## Firearm-Related Fatality ICD-10 Codes

|         |                                                         |
|---------|---------------------------------------------------------|
| W32–W34 | Exposure to inanimate mechanical forces                 |
| X72–X74 | Intentional self-harm                                   |
| X93–X95 | Assault                                                 |
| Y22–Y24 | Event of undetermined intent                            |
| Y35.0   | Assault by rifle, shotgun, and larger firearm discharge |

|                                      |                                                                                                                                                                                                                                                                                                                                                      |
|--------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Denominator</b>                   | Midyear population for the calendar year under surveillance. To obtain population estimates by age and sex for your state, use U.S. Census Bureau population tables titled “State Single Year of Age and Sex Population Estimates: April 1, 2000 to July 1, 2004 – RESIDENT” (see instructions on page 27).                                          |
| <b>Measures of frequency</b>         | Annual number of deaths. Annual mortality rate—crude and age-adjusted (standardized by the direct method to the year 2000 standard U.S. population). <sup>12</sup> Rates should be calculated for age and sex.                                                                                                                                       |
| <b>Data resources</b>                | Death certificate data from vital statistics agencies (numerator) and population estimates from the U.S. Census Bureau or suitable alternative (denominator).                                                                                                                                                                                        |
| <b>Period for case definition</b>    | Calendar year.                                                                                                                                                                                                                                                                                                                                       |
| <b>Background</b>                    | Firearm-related injuries were the second leading cause of injury-related death in the United States, accounting for about 29,000 deaths in 2002. <sup>13</sup> Nationally, the firearm-related death rate for males is almost seven times higher than that of females. <sup>24</sup>                                                                 |
| <b>Limitations of indicator</b>      | Injuries severe enough to result in death represent only a small proportion of the overall burden of injury. An evaluation of only these injuries may not present an accurate picture of the causes of less-severe injuries.                                                                                                                         |
| <b>Limitations of data resources</b> | The accuracy of indicators based on codes found in vital statistics data is limited by the completeness and quality of coding. The overall completeness of external cause coding on death data is uniformly high. Coding criteria specify that all cases of injury death must contain an injury code in the <i>underlying-cause-of-death field</i> . |
| <b>Healthy People objectives</b>     | 15–3: Reduce firearm-related deaths                                                                                                                                                                                                                                                                                                                  |
| <b>CDC’s health protection goals</b> | Healthy People in Every Stage of Life: Achieve Healthy Independence<br>Healthy People in Every Stage of Life: Live a Healthy, Productive, and Satisfying Life<br>Healthy People in Healthy Places: Healthy Communities<br>Healthy People in Healthy Places: Healthy Homes<br>Healthy People in Healthy Places: Healthy Schools                       |

## Firearm-Related Indicator 2: Firearm-Related Hospitalizations

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                               |                                                |               |                                                                         |               |                                    |               |                                                                                                         |      |                                              |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|------------------------------------------------|---------------|-------------------------------------------------------------------------|---------------|------------------------------------|---------------|---------------------------------------------------------------------------------------------------------|------|----------------------------------------------|
| <b>Demographic group</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | All residents.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                               |                                                |               |                                                                         |               |                                    |               |                                                                                                         |      |                                              |
| <b>Numerator</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Hospitalizations identified from the injury hospital discharge subset (see methods on page 6 for developing the injury hospital discharge subset) by searching for E-codes in the following manner: Search all diagnosis fields. If a designated E-code field is in your data set, start with the designated E-code field. Count the first-listed valid E-code, unless it is E849, E967, E869.4, E870–879, or E930–949, in which case, search additional E-code and diagnostic fields and use the next listed valid E-code. |                               |                                                |               |                                                                         |               |                                    |               |                                                                                                         |      |                                              |
| <b>Firearm-Related Hospitalization ICD-9-CM Codes</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                               |                                                |               |                                                                         |               |                                    |               |                                                                                                         |      |                                              |
| <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding: 5px;">E922.0–E922.3, E922.8, E922.9</td><td style="padding: 5px;">Accident caused by firearm and air gun missile</td></tr> <tr> <td style="padding: 5px;">E955.0–E955.4</td><td style="padding: 5px;">Suicide and self-inflicted injury by firearms, air guns, and explosives</td></tr> <tr> <td style="padding: 5px;">E965.0–E965.4</td><td style="padding: 5px;">Assault by firearms and explosives</td></tr> <tr> <td style="padding: 5px;">E985.0–E985.4</td><td style="padding: 5px;">Injury by firearms, air guns, and explosives, undetermined whether accidentally, or purposely inflicted</td></tr> <tr> <td style="padding: 5px;">E970</td><td style="padding: 5px;">Injury due to legal intervention by firearms</td></tr> </table> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | E922.0–E922.3, E922.8, E922.9 | Accident caused by firearm and air gun missile | E955.0–E955.4 | Suicide and self-inflicted injury by firearms, air guns, and explosives | E965.0–E965.4 | Assault by firearms and explosives | E985.0–E985.4 | Injury by firearms, air guns, and explosives, undetermined whether accidentally, or purposely inflicted | E970 | Injury due to legal intervention by firearms |
| E922.0–E922.3, E922.8, E922.9                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Accident caused by firearm and air gun missile                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                               |                                                |               |                                                                         |               |                                    |               |                                                                                                         |      |                                              |
| E955.0–E955.4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Suicide and self-inflicted injury by firearms, air guns, and explosives                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                               |                                                |               |                                                                         |               |                                    |               |                                                                                                         |      |                                              |
| E965.0–E965.4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Assault by firearms and explosives                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                               |                                                |               |                                                                         |               |                                    |               |                                                                                                         |      |                                              |
| E985.0–E985.4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Injury by firearms, air guns, and explosives, undetermined whether accidentally, or purposely inflicted                                                                                                                                                                                                                                                                                                                                                                                                                     |                               |                                                |               |                                                                         |               |                                    |               |                                                                                                         |      |                                              |
| E970                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Injury due to legal intervention by firearms                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                               |                                                |               |                                                                         |               |                                    |               |                                                                                                         |      |                                              |
| <b>Denominator</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Midyear population for the calendar year under surveillance. To obtain population estimates by age and sex for your state, use U.S. Census Bureau population tables titled “State Single Year of Age and Sex Population Estimates: April 1, 2000 to July 1, 2004 – RESIDENT” (see instructions on page 27).                                                                                                                                                                                                                 |                               |                                                |               |                                                                         |               |                                    |               |                                                                                                         |      |                                              |
| <b>Measures of frequency</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Annual number of persons hospitalized. Annual incidence rate—crude and age-adjusted (standardized by the direct method to the year 2000 standard U.S. population). <sup>12</sup> Rates should be calculated for age and sex.                                                                                                                                                                                                                                                                                                |                               |                                                |               |                                                                         |               |                                    |               |                                                                                                         |      |                                              |
| <b>Data resources</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | State hospital discharge data (numerator) and population estimates from the U.S. Census Bureau or suitable alternative (denominator).                                                                                                                                                                                                                                                                                                                                                                                       |                               |                                                |               |                                                                         |               |                                    |               |                                                                                                         |      |                                              |
| <b>Period for case definition</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Calendar year.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                               |                                                |               |                                                                         |               |                                    |               |                                                                                                         |      |                                              |
| <b>Background</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Nonfatal firearm-related injury rates are highest among persons ages 15 to 24 years. About one fifth of nonfatal firearm-related injuries treated in U.S. hospital emergency departments are unintentional. <sup>24</sup>                                                                                                                                                                                                                                                                                                   |                               |                                                |               |                                                                         |               |                                    |               |                                                                                                         |      |                                              |
| <b>Limitations of indicator</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Injuries that result in a hospital admission represent only a portion of the overall burden of injury. Evaluations of these injuries should be considered in the context of both less- and more-severe injuries.                                                                                                                                                                                                                                                                                                            |                               |                                                |               |                                                                         |               |                                    |               |                                                                                                         |      |                                              |
| <b>Limitations of data resources</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | The accuracy of indicators based on codes found in hospital discharge data is limited by the completeness and quality of coding. The overall completeness of e-coding is of particular concern and should be reviewed in conjunction with the indicator.                                                                                                                                                                                                                                                                    |                               |                                                |               |                                                                         |               |                                    |               |                                                                                                         |      |                                              |
| <b>Healthy People objectives</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 15–5: Reduce nonfatal firearm-related injuries                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                               |                                                |               |                                                                         |               |                                    |               |                                                                                                         |      |                                              |
| <b>CDC’s health protection goals</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Healthy People in Every Stage of Life: Achieve Healthy Independence<br>Healthy People in Every Stage of Life: Live a Healthy, Productive, and Satisfying Life<br>Healthy People in Healthy Places: Healthy Communities<br>Healthy People in Healthy Places: Healthy Homes<br>Healthy People in Healthy Places: Healthy Schools                                                                                                                                                                                              |                               |                                                |               |                                                                         |               |                                    |               |                                                                                                         |      |                                              |

# Homicide Indicator 1: Homicide

|                          |                                                                                                                                                                  |
|--------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Demographic group</b> | All residents.                                                                                                                                                   |
| <b>Numerator</b>         | Deaths with <i>International Classification of Diseases</i> (ICD) 10 codes (shown below) as an underlying cause of death among residents during a calendar year. |

## Homicide ICD-10 Codes

|         |                     |
|---------|---------------------|
| X85–Y09 | Assault             |
| Y87.1   | Sequelae of assault |

|                                      |                                                                                                                                                                                                                                                                                                                                                      |
|--------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Denominator</b>                   | Midyear population for the calendar year under surveillance. To obtain population estimates by age and sex for your state, use U.S. Census Bureau population tables titled “State Single Year of Age and Sex Population Estimates: April 1, 2000 to July 1, 2004 – RESIDENT” (see instructions on page 27).                                          |
| <b>Measures of frequency</b>         | Annual number of deaths. Annual mortality rate—crude and age-adjusted (standardized by the direct method to the year 2000 standard U.S. population). <sup>12</sup> Rates should be calculated for age and sex.                                                                                                                                       |
| <b>Data resources</b>                | Death certificate data from vital statistics agencies (numerator) and population estimates from the U.S. Census Bureau or suitable alternative (denominator).                                                                                                                                                                                        |
| <b>Period for case definition</b>    | Calendar year.                                                                                                                                                                                                                                                                                                                                       |
| <b>Background</b>                    | Homicide is the fourteenth leading cause of death in the United States; it is the second most common cause of death among persons ages 15 to 24 years. <sup>13</sup>                                                                                                                                                                                 |
| <b>Limitations of indicator</b>      | Injuries severe enough to result in death represent only a small proportion of the overall burden of injury. An evaluation of only these injuries may not present an accurate picture of the causes of less-severe injuries.                                                                                                                         |
| <b>Limitations of data resources</b> | The accuracy of indicators based on codes found in vital statistics data is limited by the completeness and quality of coding. The overall completeness of external cause coding on death data is uniformly high. Coding criteria specify that all cases of injury death must contain an injury code in the <i>underlying-cause-of-death field</i> . |
| <b>Healthy People objectives</b>     | 15–32: Reduce homicides                                                                                                                                                                                                                                                                                                                              |
| <b>CDC’s health protection goals</b> | Healthy People in Every Stage of Life: Achieve Healthy Independence<br>Healthy People in Every Stage of Life: Live a Healthy, Productive, and Satisfying Life<br>Healthy People in Healthy Places: Healthy Communities<br>Healthy People in Healthy Places: Healthy Homes<br>Healthy People in Healthy Places: Healthy Schools                       |

## Suicide Indicator 1: Suicide

|                          |                                                                                                                                                                  |
|--------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Demographic group</b> | All residents.                                                                                                                                                   |
| <b>Numerator</b>         | Deaths with <i>International Classification of Diseases</i> (ICD) 10 codes (shown below) as an underlying cause of death among residents during a calendar year. |

### Suicide ICD-10 Codes

|         |                                   |
|---------|-----------------------------------|
| X60–X84 | Intentional self-harm             |
| Y87.0   | Sequelae of intentional self-harm |

|                                      |                                                                                                                                                                                                                                                                                                                                                  |
|--------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Denominator</b>                   | Midyear population for the calendar year under surveillance. To obtain population estimates by age and sex for your state, use U.S. Census Bureau population tables titled “State Single Year of Age and Sex Population Estimates: April 1, 2000 to July 1, 2004 – RESIDENT” (see instructions on page 27).                                      |
| <b>Measures of frequency</b>         | Annual number of deaths. Annual mortality rate—crude and age-adjusted (standardized by the direct method to the year 2000 standard U.S. population). <sup>12</sup> Rates should be calculated for age and sex.                                                                                                                                   |
| <b>Data resources</b>                | Death certificate data from vital statistics agencies (numerator) and population estimates from the U.S. Census Bureau or suitable alternative (denominator).                                                                                                                                                                                    |
| <b>Period for case definition</b>    | Calendar year.                                                                                                                                                                                                                                                                                                                                   |
| <b>Background</b>                    | In 2002, suicide was the fourth leading cause of death among adults ages 25 to 34 years and the third leading cause of death for adolescents and young adults ages 15 to 24 years. <sup>13</sup>                                                                                                                                                 |
| <b>Limitations of indicator</b>      | Injuries severe enough to result in death represent only a small proportion of the overall burden of injury. An evaluation of only these injuries may not present an accurate picture of the causes of less-severe injuries.                                                                                                                     |
| <b>Limitations of data resources</b> | The accuracy of indicators based on codes found in vital statistics data is limited by the completeness and quality of coding. The overall completeness of external cause coding on death data is uniformly high. Coding criteria specify that cases of injury death must contain an injury code in the <i>underlying-cause-of-death field</i> . |
| <b>Healthy People objectives</b>     | 18–1: Reduce the suicide rate                                                                                                                                                                                                                                                                                                                    |
| <b>CDC’s health protection goals</b> | Healthy People in Every Stage of Life: Achieve Healthy Independence<br>Healthy People in Every Stage of Life: Live a Healthy, Productive, and Satisfying Life<br>Healthy People in Healthy Places: Healthy Homes<br>Healthy People in Healthy Places: Healthy Schools                                                                            |

## Suicide Indicator 2: Suicide Attempt Hospitalizations

|                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|--------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Demographic group</b> | All residents.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Numerator</b>         | Hospitalizations identified from the injury hospital discharge subset (see methods on page 6 for developing the injury hospital discharge subset) by searching for E-codes in the following manner: Search all diagnosis fields. If there is a designated E-code field in your data set, start with the designated E-code field. Count the first-listed valid E-code, unless it is E849, E967, E869.4, E870–879, or E930–949; in which case, search additional E-code and diagnostic fields and then use the next listed valid E-code. |

### Suicide Attempt Hospitalization ICD-9-CM Codes

|           |                                   |
|-----------|-----------------------------------|
| E950–E959 | Suicide and self-inflicted injury |
|-----------|-----------------------------------|

|                                      |                                                                                                                                                                                                                                                                                                             |
|--------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Denominator</b>                   | Midyear population for the calendar year under surveillance. To obtain population estimates by age and sex for your state, use U.S. Census Bureau population tables titled “State Single Year of Age and Sex Population Estimates: April 1, 2000 to July 1, 2004 – RESIDENT” (see instructions on page 27). |
| <b>Measures of frequency</b>         | Annual number of persons hospitalized. Annual incidence—crude and age-adjusted (standardized by the direct method to the year 2000 standard U.S. population). <sup>12</sup> Rates should be calculated for age and sex.                                                                                     |
| <b>Data resources</b>                | State hospital discharge data (numerator) and population estimates from the U.S. Census Bureau or suitable alternative (denominator).                                                                                                                                                                       |
| <b>Period for case definition</b>    | Calendar year.                                                                                                                                                                                                                                                                                              |
| <b>Background</b>                    | In 1999, there were an estimated 671,000 hospital emergency department visits for suicide attempts in the United States. <sup>25</sup>                                                                                                                                                                      |
| <b>Limitations of indicator</b>      | Injuries that result in a hospital admission represent only a portion of the overall burden of injury. Evaluations of these injuries should be considered in the context of both less- and more-severe injuries.                                                                                            |
| <b>Limitations of data resources</b> | The accuracy of indicators based on codes found in hospital discharge data is limited by the completeness and quality of coding. The overall completeness of e-coding is of particular concern and should be reviewed in conjunction with the indicator.                                                    |
| <b>Healthy People objectives</b>     | 18–2: Reduce the rate of suicide attempts by adolescents                                                                                                                                                                                                                                                    |
| <b>CDC’s health protection goals</b> | Healthy People in Every Stage of Life: Achieve Healthy Independence<br>Healthy People in Every Stage of Life: Live a Healthy, Productive, and Satisfying Life<br>Healthy People in Healthy Places: Healthy Homes<br>Healthy People in Healthy Places: Healthy Schools                                       |

# Motor Vehicle Indicator 1: Motor Vehicle Traffic Fatality

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                         |                         |                                                    |                              |                                                       |                              |                                                          |                 |                                                                                  |                 |                                                      |                 |                                                                          |                 |                                                                             |                 |                                                      |                            |                                          |                                     |  |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|----------------------------------------------------|------------------------------|-------------------------------------------------------|------------------------------|----------------------------------------------------------|-----------------|----------------------------------------------------------------------------------|-----------------|------------------------------------------------------|-----------------|--------------------------------------------------------------------------|-----------------|-----------------------------------------------------------------------------|-----------------|------------------------------------------------------|----------------------------|------------------------------------------|-------------------------------------|--|
| <b>Demographic group</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | All residents.                                                                                                                                                                                                                                                                                                                                          |                         |                                                    |                              |                                                       |                              |                                                          |                 |                                                                                  |                 |                                                      |                 |                                                                          |                 |                                                                             |                 |                                                      |                            |                                          |                                     |  |
| <b>Numerator</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Deaths with <i>International Classification of Diseases</i> (ICD) 10 codes (shown below) as an underlying cause of death among residents during a calendar year.                                                                                                                                                                                        |                         |                                                    |                              |                                                       |                              |                                                          |                 |                                                                                  |                 |                                                      |                 |                                                                          |                 |                                                                             |                 |                                                      |                            |                                          |                                     |  |
| <b>Motor Vehicle Traffic Fatality ICD-10 Codes</b> <table border="1"> <tbody> <tr> <td>V02–V04 (.1, .9), V09.2</td><td>Pedestrian injured in transport accident (traffic)</td></tr> <tr> <td>V12–V14 (.3–.9), V19 (.4–.6)</td><td>Pedal cyclist injured in transport accident (traffic)</td></tr> <tr> <td>V20–V28 (.3–.9), V29 (.4–.9)</td><td>Motorcycle rider injured in transport accident (traffic)</td></tr> <tr> <td>V30–V39 (.4–.9)</td><td>Occupant of three-wheeled motor vehicle injured in transport accident (traffic).</td></tr> <tr> <td>V40–V49 (.4–.9)</td><td>Car occupant injured in transport accident (traffic)</td></tr> <tr> <td>V50–V59 (.4–.9)</td><td>Occupant of pick-up truck or van injured in transport accident (traffic)</td></tr> <tr> <td>V60–V69 (.4–.9)</td><td>Occupant of heavy transport vehicle injured in transport accident (traffic)</td></tr> <tr> <td>V70–V79 (.4–.9)</td><td>Bus occupant injured in transport accident (traffic)</td></tr> <tr> <td>V80 (.3–.5), V81.1, V82.1,</td><td>Other land transport accidents (traffic)</td></tr> <tr> <td>V83–V86 (.0–.3), V87 (.0–.8), V89.2</td><td></td></tr> </tbody> </table> |                                                                                                                                                                                                                                                                                                                                                         | V02–V04 (.1, .9), V09.2 | Pedestrian injured in transport accident (traffic) | V12–V14 (.3–.9), V19 (.4–.6) | Pedal cyclist injured in transport accident (traffic) | V20–V28 (.3–.9), V29 (.4–.9) | Motorcycle rider injured in transport accident (traffic) | V30–V39 (.4–.9) | Occupant of three-wheeled motor vehicle injured in transport accident (traffic). | V40–V49 (.4–.9) | Car occupant injured in transport accident (traffic) | V50–V59 (.4–.9) | Occupant of pick-up truck or van injured in transport accident (traffic) | V60–V69 (.4–.9) | Occupant of heavy transport vehicle injured in transport accident (traffic) | V70–V79 (.4–.9) | Bus occupant injured in transport accident (traffic) | V80 (.3–.5), V81.1, V82.1, | Other land transport accidents (traffic) | V83–V86 (.0–.3), V87 (.0–.8), V89.2 |  |
| V02–V04 (.1, .9), V09.2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Pedestrian injured in transport accident (traffic)                                                                                                                                                                                                                                                                                                      |                         |                                                    |                              |                                                       |                              |                                                          |                 |                                                                                  |                 |                                                      |                 |                                                                          |                 |                                                                             |                 |                                                      |                            |                                          |                                     |  |
| V12–V14 (.3–.9), V19 (.4–.6)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Pedal cyclist injured in transport accident (traffic)                                                                                                                                                                                                                                                                                                   |                         |                                                    |                              |                                                       |                              |                                                          |                 |                                                                                  |                 |                                                      |                 |                                                                          |                 |                                                                             |                 |                                                      |                            |                                          |                                     |  |
| V20–V28 (.3–.9), V29 (.4–.9)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Motorcycle rider injured in transport accident (traffic)                                                                                                                                                                                                                                                                                                |                         |                                                    |                              |                                                       |                              |                                                          |                 |                                                                                  |                 |                                                      |                 |                                                                          |                 |                                                                             |                 |                                                      |                            |                                          |                                     |  |
| V30–V39 (.4–.9)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Occupant of three-wheeled motor vehicle injured in transport accident (traffic).                                                                                                                                                                                                                                                                        |                         |                                                    |                              |                                                       |                              |                                                          |                 |                                                                                  |                 |                                                      |                 |                                                                          |                 |                                                                             |                 |                                                      |                            |                                          |                                     |  |
| V40–V49 (.4–.9)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Car occupant injured in transport accident (traffic)                                                                                                                                                                                                                                                                                                    |                         |                                                    |                              |                                                       |                              |                                                          |                 |                                                                                  |                 |                                                      |                 |                                                                          |                 |                                                                             |                 |                                                      |                            |                                          |                                     |  |
| V50–V59 (.4–.9)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Occupant of pick-up truck or van injured in transport accident (traffic)                                                                                                                                                                                                                                                                                |                         |                                                    |                              |                                                       |                              |                                                          |                 |                                                                                  |                 |                                                      |                 |                                                                          |                 |                                                                             |                 |                                                      |                            |                                          |                                     |  |
| V60–V69 (.4–.9)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Occupant of heavy transport vehicle injured in transport accident (traffic)                                                                                                                                                                                                                                                                             |                         |                                                    |                              |                                                       |                              |                                                          |                 |                                                                                  |                 |                                                      |                 |                                                                          |                 |                                                                             |                 |                                                      |                            |                                          |                                     |  |
| V70–V79 (.4–.9)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Bus occupant injured in transport accident (traffic)                                                                                                                                                                                                                                                                                                    |                         |                                                    |                              |                                                       |                              |                                                          |                 |                                                                                  |                 |                                                      |                 |                                                                          |                 |                                                                             |                 |                                                      |                            |                                          |                                     |  |
| V80 (.3–.5), V81.1, V82.1,                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Other land transport accidents (traffic)                                                                                                                                                                                                                                                                                                                |                         |                                                    |                              |                                                       |                              |                                                          |                 |                                                                                  |                 |                                                      |                 |                                                                          |                 |                                                                             |                 |                                                      |                            |                                          |                                     |  |
| V83–V86 (.0–.3), V87 (.0–.8), V89.2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                         |                         |                                                    |                              |                                                       |                              |                                                          |                 |                                                                                  |                 |                                                      |                 |                                                                          |                 |                                                                             |                 |                                                      |                            |                                          |                                     |  |
| <b>Denominator</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Midyear population for the calendar year under surveillance. To obtain population estimates by age and sex for your state, use U.S. Census Bureau population tables titled “State Single Year of Age and Sex Population Estimates: April 1, 2000 to July 1, 2004 – RESIDENT” (see instructions on page 27).                                             |                         |                                                    |                              |                                                       |                              |                                                          |                 |                                                                                  |                 |                                                      |                 |                                                                          |                 |                                                                             |                 |                                                      |                            |                                          |                                     |  |
| <b>Measures of frequency</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Annual number of deaths. Annual mortality rate—crude and age-adjusted (standardized by the direct method to the year 2000 standard U.S. population). <sup>12</sup> Rates should be calculated for age and sex.                                                                                                                                          |                         |                                                    |                              |                                                       |                              |                                                          |                 |                                                                                  |                 |                                                      |                 |                                                                          |                 |                                                                             |                 |                                                      |                            |                                          |                                     |  |
| <b>Data resources</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Death certificate data from vital statistics agencies (numerator) and population estimates from the U.S. Census Bureau or suitable alternative (denominator).                                                                                                                                                                                           |                         |                                                    |                              |                                                       |                              |                                                          |                 |                                                                                  |                 |                                                      |                 |                                                                          |                 |                                                                             |                 |                                                      |                            |                                          |                                     |  |
| <b>Period for case definition</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Calendar year.                                                                                                                                                                                                                                                                                                                                          |                         |                                                    |                              |                                                       |                              |                                                          |                 |                                                                                  |                 |                                                      |                 |                                                                          |                 |                                                                             |                 |                                                      |                            |                                          |                                     |  |
| <b>Background</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Motor vehicle crashes are the leading cause of injury death in the United States. In all age groups, motor vehicle crash injuries are the leading cause for years of potential life lost and for deaths from unintentional injuries. <sup>26</sup>                                                                                                      |                         |                                                    |                              |                                                       |                              |                                                          |                 |                                                                                  |                 |                                                      |                 |                                                                          |                 |                                                                             |                 |                                                      |                            |                                          |                                     |  |
| <b>Limitations of indicator</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Injuries severe enough to result in death represent only a small proportion of the overall burden of injury. An evaluation of only these injuries may not present an accurate picture of the causes of less-severe injuries.                                                                                                                            |                         |                                                    |                              |                                                       |                              |                                                          |                 |                                                                                  |                 |                                                      |                 |                                                                          |                 |                                                                             |                 |                                                      |                            |                                          |                                     |  |
| <b>Limitations of data resources</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | The accuracy of indicators based on codes found in vital statistics data is limited by the completeness and quality of coding. The overall completeness of external cause coding on death data is uniformly high. Coding criteria specify that all cases of injury death must contain an injury code in the <i>underlying-cause-of-death</i> field.     |                         |                                                    |                              |                                                       |                              |                                                          |                 |                                                                                  |                 |                                                      |                 |                                                                          |                 |                                                                             |                 |                                                      |                            |                                          |                                     |  |
| <b>Healthy People objectives</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 15–15: Reduce deaths caused by motor vehicle crashes<br>15–16: Reduce pedestrian deaths on public roads<br>26–1: Reduce deaths and injuries caused by alcohol- and drug-related motor vehicle crashes                                                                                                                                                   |                         |                                                    |                              |                                                       |                              |                                                          |                 |                                                                                  |                 |                                                      |                 |                                                                          |                 |                                                                             |                 |                                                      |                            |                                          |                                     |  |
| <b>CDC’s health protection goals</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Healthy People in Every Stage of Life: Achieve Healthy Independence<br>Healthy People in Every Stage of Life: Live a Healthy, Productive, and Satisfying Life<br>Healthy People in Every Stage of Life: Live Better, Longer<br>Healthy People in Healthy Places: Healthy Communities<br>Healthy People in Healthy Places: Healthy Travel and Recreation |                         |                                                    |                              |                                                       |                              |                                                          |                 |                                                                                  |                 |                                                      |                 |                                                                          |                 |                                                                             |                 |                                                      |                            |                                          |                                     |  |



## Motor Vehicle Indicator 2: Motor Vehicle Traffic and Non-Traffic Hospitalizations

|                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |           |                                 |           |                                     |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|---------------------------------|-----------|-------------------------------------|
| <b>Demographic group</b>                                                                                                                                                                                                                                                                                          | All residents.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |           |                                 |           |                                     |
| <b>Numerator</b>                                                                                                                                                                                                                                                                                                  | Hospitalizations identified from the injury hospital discharge subset (see methods on page 6 for developing the injury hospital discharge subset) by searching for E-codes in the following manner: Search all diagnosis fields. If a designated E-code field is in your data set, start with the designated E-code field. Count the first-listed valid E-code, unless it is E849, E967, E869.4, E870–879, or E930–949; in which case, search additional E-code and diagnostic fields and use the next listed valid E-code. |           |                                 |           |                                     |
| <b>Motor Vehicle Traffic and Non-Traffic Hospitalization ICD-9-CM Codes</b>                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |           |                                 |           |                                     |
| <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding: 5px;">E810–E819</td><td style="padding: 5px;">Motor vehicle traffic accidents</td></tr> <tr> <td style="padding: 5px;">E820–E825</td><td style="padding: 5px;">Motor vehicle non-traffic accidents</td></tr> </table> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | E810–E819 | Motor vehicle traffic accidents | E820–E825 | Motor vehicle non-traffic accidents |
| E810–E819                                                                                                                                                                                                                                                                                                         | Motor vehicle traffic accidents                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |           |                                 |           |                                     |
| E820–E825                                                                                                                                                                                                                                                                                                         | Motor vehicle non-traffic accidents                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |           |                                 |           |                                     |
| <b>Denominator</b>                                                                                                                                                                                                                                                                                                | Midyear population for the calendar year under surveillance. To obtain population estimates by age and sex for your state, use U.S. Census Bureau population tables titled “State Single Year of Age and Sex Population Estimates: April 1, 2000 to July 1, 2004 – RESIDENT” (see instructions on page 27).                                                                                                                                                                                                                 |           |                                 |           |                                     |
| <b>Measures of frequency</b>                                                                                                                                                                                                                                                                                      | Annual number of persons hospitalized. Annual incidence—crude and age-adjusted (standardized by the direct method to the year 2000 standard U.S. population). <sup>12</sup> Rates should be calculated for age and sex.                                                                                                                                                                                                                                                                                                     |           |                                 |           |                                     |
| <b>Data resources</b>                                                                                                                                                                                                                                                                                             | State hospital discharge data (numerator) and population estimates from the U.S. Census Bureau or suitable alternative (denominator).                                                                                                                                                                                                                                                                                                                                                                                       |           |                                 |           |                                     |
| <b>Period for case definition</b>                                                                                                                                                                                                                                                                                 | Calendar year.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |           |                                 |           |                                     |
| <b>Background</b>                                                                                                                                                                                                                                                                                                 | In 1999, motor vehicle crashes were the cause of more than 4 million emergency department visits in the United States. <sup>27</sup> It is estimated that front seat occupants who use lap/shoulder belts reduce their risk for fatal injury by about 45% and for moderate to critical injury by 45% to 50%. <sup>28</sup>                                                                                                                                                                                                  |           |                                 |           |                                     |
| <b>Limitations of indicator</b>                                                                                                                                                                                                                                                                                   | Injuries that result in a hospital admission represent only a portion of the overall burden of injury. Evaluations of these injuries should be considered in the context of both less- and more-severe injuries.                                                                                                                                                                                                                                                                                                            |           |                                 |           |                                     |
| <b>Limitations of data resources</b>                                                                                                                                                                                                                                                                              | The accuracy of indicators based on codes found in hospital discharge data is limited by the completeness and quality of coding. The overall completeness of e-coding is of particular concern and should be reviewed in conjunction with the indicator.                                                                                                                                                                                                                                                                    |           |                                 |           |                                     |
| <b>Healthy People objectives</b>                                                                                                                                                                                                                                                                                  | 15–17: Reduce nonfatal injuries caused by motor vehicle crashes<br>15–18: Reduce nonfatal pedestrian injuries on public roads<br>26–1: Reduce deaths and injuries caused by alcohol- and drug-related motor vehicle crashes                                                                                                                                                                                                                                                                                                 |           |                                 |           |                                     |
| <b>CDC’s health protection goals</b>                                                                                                                                                                                                                                                                              | Healthy People in Every Stage of Life: Achieve Healthy Independence<br>Healthy People in Every Stage of Life: Live a Healthy, Productive, and Satisfying Life<br>Healthy People in Every Stage of Life: Live Better, Longer<br>Healthy People in Healthy Places: Healthy Communities<br>Healthy People in Healthy Places: Healthy Travel and Recreation                                                                                                                                                                     |           |                                 |           |                                     |



# Poisoning Indicator 1: Poisoning Fatality

|                          |                                                                                                                                                                  |
|--------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Demographic group</b> | All residents.                                                                                                                                                   |
| <b>Numerator</b>         | Deaths with <i>International Classification of Diseases</i> (ICD) 10 codes (shown below) as an underlying cause of death among residents during a calendar year. |

## Poisoning Fatality ICD-10 Codes

|         |                                                            |
|---------|------------------------------------------------------------|
| X40–X49 | Accidental poisoning by and exposure to noxious substances |
| X60–X69 | Intentional self-harm                                      |
| X85–X90 | Assault                                                    |
| Y10–Y19 | Event of undetermined intent                               |
| Y35.2   | Legal intervention involving gas                           |

|                                      |                                                                                                                                                                                                                                                                                                                                                 |
|--------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Denominator</b>                   | Midyear population for the calendar year under surveillance. To obtain population estimates by age and sex for your state, use U.S. Census Bureau population tables titled “State Single Year of Age and Sex Population Estimates: April 1, 2000 to July 1, 2004 – RESIDENT” (see instructions on page 27).                                     |
| <b>Measures of frequency</b>         | Annual number of deaths. Annual mortality rate—crude and age-adjusted (standardized by the direct method to the year 2000 standard U.S. population). <sup>12</sup> Rates should be calculated for age and sex.                                                                                                                                  |
| <b>Data resources</b>                | Death certificate data from vital statistics agencies (numerator) and population estimates from the U.S. Census Bureau or suitable alternative (denominator).                                                                                                                                                                                   |
| <b>Period for case definition</b>    | Calendar year.                                                                                                                                                                                                                                                                                                                                  |
| <b>Background</b>                    | Poisoning is the result of the damaging effect of exposure to a broad range of chemicals (e.g., gases, pesticides, heavy metals, drugs, and common household substances such as bleach and ammonia). In 2002, 17,550 people in the United States died from poisoning. <sup>13</sup>                                                             |
| <b>Limitations of indicator</b>      | Injuries severe enough to result in death represent only a small proportion of the overall burden of injury. An evaluation of only these injuries may not present an accurate picture of the causes of less-severe injuries.                                                                                                                    |
| <b>Limitations of data resources</b> | The accuracy of indicators based on codes found in vital statistics data is limited by the completeness and quality of coding. The overall completeness of external cause coding on death data is uniformly high. Coding criteria specify that cases of injury death must contain an injury code in the <i>underlying-cause-of-death</i> field. |
| <b>Healthy People objectives</b>     | 15–8: Reduce deaths caused by poisonings                                                                                                                                                                                                                                                                                                        |
| <b>CDC’s health protection goals</b> | Healthy People in Every Stage of Life: Crosscutting<br>Healthy People in Healthy Places: Healthy Communities<br>Healthy People in Healthy Places: Healthy Homes<br>Healthy People in Healthy Places: Healthy Workplaces<br>Healthy People in Healthy Places: Healthy Healthcare Settings                                                        |

## Poisoning Indicator 2: Poisoning Hospitalizations

|                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|--------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Demographic group</b> | All residents.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Numerator</b>         | Hospitalizations identified from the injury hospital discharge subset (see methods on page 6 for developing the injury hospital discharge subset) by searching for E-codes in the following manner: Search all diagnosis fields. If a designated E-code field is in your data set, start with the designated E-code field. Count the first-listed valid E-code, unless it is E849, E967, E869.4, E870–879, or E930–949; in which case, search additional E-code and diagnostic fields and use the next listed valid E-code. |

### Poisoning Hospitalization ICD-9-CM Codes

|           |                                                                               |
|-----------|-------------------------------------------------------------------------------|
| E850–E858 | Accidental poisoning by drugs, medicinal substances, and biologicals          |
| E860–E869 | Accidental poisonings by other solid and liquid substances, gases, and vapors |
| E950–E952 | Suicide and self-inflicted injury                                             |
| E962      | Assault by poisoning                                                          |
| E972      | Injury due to legal intervention by gas                                       |
| E980–E982 | Injury undetermined whether accidentally or purposefully inflicted            |

|                                      |                                                                                                                                                                                                                                                                                                             |
|--------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Denominator</b>                   | Midyear population for the calendar year under surveillance. To obtain population estimates by age and sex for your state, use U.S. Census Bureau population tables titled “State Single Year of Age and Sex Population Estimates: April 1, 2000 to July 1, 2004 – RESIDENT” (see instructions on page 27). |
| <b>Measures of frequency</b>         | Annual number of persons hospitalized. Annual incidence—crude and age-adjusted (standardized by the direct method to the year 2000 standard U.S. population). <sup>12</sup> Rates should be calculated for age and sex.                                                                                     |
| <b>Data resources</b>                | State hospital discharge data (numerator) and population estimates from the U.S. Census Bureau or suitable alternative (denominator).                                                                                                                                                                       |
| <b>Period for case definition</b>    | Calendar year.                                                                                                                                                                                                                                                                                              |
| <b>Background</b>                    | In 1999, 21 states reported that hospitalization rates were 4 to 15 times higher than death rates for poisoning-related injuries. <sup>29</sup>                                                                                                                                                             |
| <b>Limitations of indicator</b>      | Injuries that result in a hospital admission represent only a portion of the overall burden of injury. Evaluations of these injuries should be considered in the context of both less- and more-severe injuries.                                                                                            |
| <b>Limitations of data resources</b> | The accuracy of indicators based on codes found in hospital discharge data is limited by the completeness and quality of coding. The overall completeness of e-coding is of particular concern and should be reviewed in conjunction with the indicator.                                                    |
| <b>Healthy People objectives</b>     | 15–7: Reduce nonfatal poisonings                                                                                                                                                                                                                                                                            |
| <b>CDC’s health protection goals</b> | Healthy People in Every Stage of Life: Crosscutting<br>Healthy People in Healthy Places: Healthy Communities<br>Healthy People in Healthy Places: Healthy Homes<br>Healthy People in Healthy Places: Healthy Workplaces<br>Healthy People in Healthy Places: Healthy Healthcare Settings                    |



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# Calculating and Submitting Rates

## Calculation Formula and Instructions

Preformatted rate calculation spreadsheets have been prepared for both the hospital discharge and vital records-based indicators. These spreadsheets can be found on the affixed CD-ROM located inside the front cover. Completion of the spreadsheet requires:

- Answering a few data background questions;
- Inserting state population data;
- Entering case counts for individual indicators; and
- Renaming the spreadsheets to reflect state and data year.

Rate calculations include several types of rates (i.e., age-specific crude rates and age-adjusted rates). The following rate calculation specifications have been preprogrammed into the spreadsheet. If you are preparing these data independent of the spreadsheet, please be sure to follow the same specifications.

- Use the estimated population for the year of the data. This information may be obtained from several sources:
  - o [www.census.gov/popest/datasets.html](http://www.census.gov/popest/datasets.html) (preferred)
    - Scroll to “State population datasets”
    - Continue scrolling to “State Estimates by Demographic Characteristics– Age, Sex, and Hispanic Origin”
    - Continue scrolling to “State Single Year of Age and Sex Population Estimates: April 1, 2000 to July 1, 2004 – RESIDENT”
    - Download File layout
    - Download CSV File
  - o your state’s demographic center
- Compute rates per 100,000 population.
- For each indicator, report age-adjusted rates stratified by sex (female and male), and report the overall age-adjusted rate for the state.

- Report age-specific rates for each indicator in the following age categories:

|         |       |
|---------|-------|
| Under 1 |       |
| 1–4     | 45–54 |
| 5–14    | 55–64 |
| 15–24   | 65–74 |
| 25–34   | 75–84 |
| 35–44   | 85+   |

Due to the low incidence of some indicators, it is possible to obtain the anomalous looking overall age-adjusted rate which does not fall between the two gender-specific age-adjusted rates. Such outcomes are mathematically possible and should be included.

Calculate age-adjusted rates using the age-specific U.S. standard population weights from Table 1.

**Table 1. Age Adjustment Table**

| All Ages — Eleven Age Groups |                                            |                       |
|------------------------------|--------------------------------------------|-----------------------|
| Age                          | U.S. 2000 Standard Population<br>(1,000's) | Adjustment<br>Weights |
| All ages                     | 274,634                                    | 1.000000              |
| Under 1                      | 3,795                                      | 0.013818              |
| 1–4                          | 15,192                                     | 0.055317              |
| 5–14                         | 39,977                                     | 0.145565              |
| 15–24                        | 38,077                                     | 0.138646              |
| 25–34                        | 37,233                                     | 0.135573              |
| 35–44                        | 44,659                                     | 0.162613              |
| 45–54                        | 37,030                                     | 0.134834              |
| 55–64                        | 23,961                                     | 0.087247              |
| 65–74                        | 18,136                                     | 0.066037              |
| 75–84                        | 12,315                                     | 0.044842              |
| 85+                          | 4,259                                      | 0.015508              |

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## Additional Resources

### Other Recommended Data Systems

Indicators based on the Behavioral Risk Factor Surveillance System (BRFSS), the Youth Risk Behavior Survey (YRBS), and the Fatality Analysis Reporting System (FARS) will be calculated at CDC and sent to participating state health departments for review. The data available from YRBS and BRFSS will be examined annually to determine which survey questions should be included.

### Behavioral Risk Factor Surveillance System (BRFSS)

CDC's National Center for Chronic Disease Prevention and Health Promotion (NCCDPHP) manages the BRFSS. This is a broad ongoing survey. It is also a state-based, random-digit-dialed telephone survey of the noninstitutionalized U.S. population over age 17. BRFSS monitors risk behaviors associated with the leading causes of disease, injury, and death.<sup>30</sup>

Because BRFSS is telephone-based, population subgroups less likely to have telephones, such as persons of low socioeconomic status, may be underrepresented. In addition, data are self-reported and may be biased. For risk-reduction factors such as self-reported use or testing of smoke alarms, these data may not uniformly represent safe and effective use.<sup>30</sup>

Additionally, not all BRFSS questions are asked every year. Questions asked during the year for which a current Injury Indicator Report is being prepared will be reviewed and appropriate questions included in the report. Results will be reported as a percentage of respondents.

#### Summary of BRFSS

- BRFSS indicator data can be found online at [www.cdc.gov/brfss](http://www.cdc.gov/brfss).
- Report percentage of respondents.
- Example: Percentage of Adults Reporting Driving after Perhaps Having Too Much to Drink, in the Past Month: *How often have you driven after having perhaps too much to drink during the last 30 days?* (Report percentage answering "one or more times.")

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## Youth Risk Behavior Survey (YRBS)

YRBS, a component of the Youth Risk Behavior Surveillance System, is also managed by NCCDPHP at CDC. The YRBS monitors risk behaviors associated with the leading causes of injury and death among teenagers.<sup>31</sup> State and local departments of education and health conduct the survey biennially in many locations throughout the country. The school-based survey is administered to 9th through 12th graders and the data is analyzed by CDC.

YRBS data apply only to youth who attend school. The extent of underreporting or overreporting of behaviors cannot be determined, although the survey questions demonstrate good test–retest reliability. Interstate comparisons must be interpreted cautiously because the methods used to collect YRBS data may vary.<sup>31</sup>

Among the 26 states included in this report, 11 conducted a YRBS in 1999 with overall participation rates of at least 60%. CDC requires a minimum overall participation rate of 60% to generalize a state's population. States with YRBS data meeting this criterion will be included. Results will be reported as a percentage of respondents. No age adjustment will be applied.

### Summary of YRBS

- Biennial survey.
- Indicators should be reported as percentage of respondents.
- Data are available at [www.cdc.gov/HealthyYouth/yrbs/index.htm](http://www.cdc.gov/HealthyYouth/yrbs/index.htm).
- Do not age adjust.
- Example: Percentage of High School Students Reporting Suicide Attempt During Past 12 Months: Report percentage of respondents answering “one or more attempts.”
- Example: Percentage of High School Students Reporting Always Using Safety Belts: *How often do you wear a seatbelt when riding in a car driven by someone else?* Report percentage of respondents answering “Always.”

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## Fatality Analysis Reporting System (FARS)

FARS, coordinated by the National Highway Traffic Safety Administration (NHTSA), contains data on all fatal traffic crashes that occur in the 50 states, the District of Columbia, and Puerto Rico. For inclusion in FARS, a crash must involve a motor vehicle traveling on a public roadway and result in the death of a person (either a vehicle occupant or a non-motorist) within 30 days of the crash. The FARS file contains a description of each fatal crash reported. More than 100 coded data elements characterize each crash, the vehicles, and the people involved. NHTSA considers a fatal motor-vehicle crash to be alcohol-related if either a driver or non-occupant (e.g., pedestrian or bicyclist) had a blood alcohol concentration (BAC) greater than or equal to 0.01 g/dL.<sup>32</sup>

FARS does not include non-traffic crashes such as those occurring on driveways and other private property. It also does not include deaths occurring more than 30 days after the motor vehicle crash. Because BACs are not available for all persons involved in fatal crashes, NHTSA's estimates for alcohol-related traffic fatalities are based on a discriminant analysis of information from all cases for which driver or non-occupant BAC data are available.<sup>32</sup>

## Alcohol-Involved Motor Vehicle Crash Deaths

An alcohol-related crash death is defined as a death in a motor vehicle traffic crash where either the driver or non-occupant (e.g., pedestrian) had a BAC > 0.01 g/dL in a police-reported traffic crash.

State-specific counts are published by NHTSA in the annual publication, *Traffic Safety Facts*. To calculate the crude alcohol-involved motor vehicle crash (MVC) death rate, look up the count in Table 114 "Persons Killed, by State and Highest Blood Alcohol Concentration in the Crash." The numerator for calculating this rate is in the column "Total Killed in Alcohol-Related Crashes." Use the estimated state population for the year as the denominator. Using this method, it will not be possible to calculate age-adjusted rates because age-specific counts are not provided in the tables.





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## References

1. Centers for Disease Control and Prevention, National Center for Injury Prevention and Control. Web-based Injury Statistics Query and Reporting System (WISQARS) [online]. (2001) [cited 26 Sep 2002]. Available from URL: [www.cdc.gov/ncipc/wisqars](http://www.cdc.gov/ncipc/wisqars).
2. Miniño AM, Arias E, Kochanek KD, Murphy SL, Smith BL. *Deaths: Final data for 2000*. National vital statistics reports; vol 50 no 15. Hyattsville (MD): National Center for Health Statistics. 2002.
3. Pastor PN, Makuc DM, Reuben C, Xia H. *Chartbook on Trends in the Health of Americans*. Health, United States, 2002. Hyattsville (MD): National Center for Health Statistics. 2002.
4. Meriwether RA. Blueprint for a national public health surveillance system for the 21st century. *J Public Health Manag Pract* 1996;216–23.
5. Council of State and Territorial Epidemiologists. Injury Control and Prevention Position Statement. [accessed 2005 Nov 28]. Available from URL: [www.cste.org/PS/Default.htm](http://www.cste.org/PS/Default.htm).
6. State and Territorial Injury Prevention Directors Association (STIPDA) resolutions, October 1999. [accessed 2005 Nov 28]. Available from URL: [www.stipda.org/documents/99css.htm](http://www.stipda.org/documents/99css.htm).
7. Injury surveillance workgroup. *Consensus Recommendations for Using Hospital Discharge Data for Injury Surveillance*. Marietta (GA): State and Territorial Injury Prevention Directors Association; 2003.
8. Centers for Disease Control and Prevention. Mortality Data from the National Vital Statistics System. [accessed 2003 Jul 23]. Available from URL: [www.cdc.gov/nchs/about/major/dvs/mortdata.htm](http://www.cdc.gov/nchs/about/major/dvs/mortdata.htm).
9. American Public Health Association. *How states are collecting and using cause of injury data*. A report of the data committee: Injury Control and Emergency Health Services Section; 1998 Sep.
10. International Classification of Diseases 9th Revision Clinical Modification [online]. [accessed 2003 Jul 23]. Available from URL: [www.cdc.gov/nchs/about/otheract/icd9/abtcd9.htm](http://www.cdc.gov/nchs/about/otheract/icd9/abtcd9.htm).
11. Injury Surveillance Workgroup. *Consensus recommendations for using hospital discharge data for injury surveillance*. Marietta (GA): State and Territorial Injury Prevention Directors Association; 2003.
12. Klein RJ, Schoenborn CA. *Age adjustment using the 2000 projected U.S. population*. Hyattsville (MD): U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Health Statistics, 2001. Healthy People 2010 statistical notes, No. 20.
13. Centers for Disease Control and Prevention, National Center for Injury Prevention and Control. Web-based Injury Statistics Query and Reporting System (WISQARS) [online]. (2002) [cited 12 Dec 2005]. Available from URL: [www.cdc.gov/ncipc/wisqars](http://www.cdc.gov/ncipc/wisqars).
14. Langlois JA, Rutland-Brown W, Thomas KE. *Traumatic brain injury in the United States: emergency department visits, hospitalizations, and deaths*. Atlanta (GA): Centers for Disease Control and Prevention, National Center for Injury Prevention and Control; 2004.
15. Centers for Disease Control and Prevention, National Center for Injury Prevention and Control. State health department traumatic brain injury data; Alaska, Arizona, California (reporting Sacramento county only), Colorado, Louisiana, Maryland, Missouri, New York, Oklahoma, Rhode Island, South Carolina, and Utah, 1997 [unpublished]. 2003.
16. Thurman D, Alverson C, Dunn K, Guerrero J, Snizek J. Traumatic brain injury in the United States: A public health perspective. *J Head Trauma Rehabil* 1999;14(6):602–15.

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## References cont'd.

17. Corrigan JD, Whiteneck G, Mellick D. Perceived needs following traumatic brain injury. *J Head Trauma Rehabil* 2004;19(3):205–16.
18. Fletemeyer JR, Freas SJ, editors. *Drowning: new perspectives on intervention and prevention*. Boca Raton (FL): CRC Press; 1998.
19. World Fire Statistics Center. *U.N. fire statistics study*. Prepared for the U.N. Committee on Human Settlements. 2001 Sep.
20. Ahrens M. *The U.S. fire problem overview report: leading causes and other patterns and trends*. Quincy (MA): National Fire Protection Association; 2001.
21. Mallonee S, Istre G, Rosenberg M, Reddish-Douglas M, Jordan F, Silverstein P, et al. Surveillance and prevention of residential-fire injuries. *N Eng J Med* 1996;335:27–31.
22. Ahrens M. *U.S. experience with smoke alarms and other fire alarms*. Quincy (MA): National Fire Protection Association; 2001.
23. Smith CL. *Smoke detector operability survey-report findings*. Bethesda (MD): U.S. Consumer Product Safety Commission; 1993 Nov.
24. Gotsch KE, Annest JL, Mercy JA, Ryan GW. Surveillance for fatal and nonfatal firearm-related injuries—United States, 1993–1998. In: *CDC surveillance summaries*; 2001 Apr 13. *MMWR* 2001;50 (No. SS-2).
25. McCaig LG. *National hospital ambulatory medical care survey: 1998 emergency department summary*. Advance data from vital and health statistics; No. 313. Hyattsville (MD): National Center for Health Statistics; 2000.
26. Centers for Disease Control and Prevention, National Center for Injury Prevention and Control. Web-based Injury Statistics Query and Reporting System (WISQARS) [online]. (2001) [cited 28 Jul 2001]. Available from URL: [www.cdc.gov/ncipc/wisqars](http://www.cdc.gov/ncipc/wisqars).
27. McCaig LF, Burt CW. *National hospital ambulatory medical care survey: 1999 emergency department summary*. Advance data from vital and health statistics, No. 320. Hyattsville (MD): National Center for Health Statistics; 2001.
28. Department of Transportation (US), National Highway traffic Safety Administration. *Traffic safety facts 1999 occupant protection*; 2000; Publication No.: DOT HS 809 090.
29. Thomas C, Butler J, Davies M, Johnson R. *State Injury Indicators Report, second edition—1999 data*. Atlanta (GA): Centers for Disease Control and Prevention, National Center for Injury Prevention and Control; 2004.
30. Centers for Disease Control and Prevention. Behavioral Risk Factor Surveillance System. [accessed 2005 Nov 28]. Available from URL: [www.cdc.gov/brfss](http://www.cdc.gov/brfss).
31. Centers for Disease Control and Prevention. Youth Risk Behaviors Surveillance System. [accessed 2005 Nov 28]. Available from URL: [www.cdc.gov/nccdphp/dash/yrbs/index.htm](http://www.cdc.gov/nccdphp/dash/yrbs/index.htm).
32. National Highway Traffic Safety Administration. Fatality Analysis System. [accessed 2006 Jan 10]. Available from URL: [www-nrd.nhtsa.dot.gov/pdf/nrd-30/NCSA/TSF2003/809761.pdf](http://www-nrd.nhtsa.dot.gov/pdf/nrd-30/NCSA/TSF2003/809761.pdf).



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