

State Injury Indicators Report

Instructions for Preparing
2011 Data



State Injury Indicators Report: Instructions for Preparing 2011 Data

U.S. Department of Health and Human Services

Centers for Disease Control and Prevention
National Center for Injury Prevention and Control
Division of Analysis, Research and Practice Integration

Atlanta, Georgia
March 2013

State Injury Indicators Report: Instructions for Preparing 2011 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:

Thomas KE, Johnson RL. State injury indicators report: instructions for Preparing 2011 Data. Atlanta (GA): Centers for Disease Control and Prevention, National Center for Injury Prevention and Control; 2013.

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Acknowledgements

The editors thank the Safe States Alliance, 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 Angela Marr, Kevin Webb, and Bob Thomas, Division of Analysis, Research and Practice Integration, and Kelly Sarmiento, Division of Unintentional Injury Prevention, all with the National Center for Injury Prevention and Control, for their consultation and guidance.

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 the 2011 state injury indicators.

Under Funding Opportunity Announcement CE11-1101, 20 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 voluntarily participate in this surveillance effort, a broader picture of the burden of injuries can be presented and priorities for prevention can be targeted. During the 2009 data collection cycle, 33 states participated by submitting data for inclusion in the multistate report. 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. These methods are 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; now known as the Safe States Alliance) and the Council of State and Territorial Epidemiologists (CSTE). With partner feedback, CDC continuously modifies and updates the instructions and methodologies outlined in this document.

Changes for the 2011 data collection cycles include:

- The addition of an acute drug overdose fatality indicator based on the work of the Injury Surveillance Workgroup 7 (page 47).

ABBREVIATIONS

BAC	Blood alcohol concentration
BRFSS	Behavioral Risk Factor 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 Modification
MVC	Motor vehicle crash
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
OSELS	Office of Surveillance, Epidemiology, and Laboratory Services
SAVIR	Society for Advancement of Violence and Injury Research
STIPDA	State and Territorial Injury Prevention Directors Association (currently Safe States Alliance)
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.¹ In 2010, more than 183,000 people died from injuries in the U.S. Among them: 21% died from suicide; 18% died from motor-vehicle crashes; 18% died from unintentional poisonings; and 9% died from homicide.¹ Additionally, in 2010, more than 31 million people were treated for injuries in U.S. emergency departments.¹ The economic cost of injuries is also significant. The total cost of the 50 million medically treated injuries sustained in 2000 is estimated to be \$406 billion in medical expenses and productivity losses.²

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.³ The scope of public health encompasses injuries involving any mechanism (e.g., firearm, motor vehicle, or burn) and includes both violence 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 1999.⁴ 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. While these recommendations were updated in 2007,⁵ they remain a foundational building block for injury surveillance.

The *State Health Department Consensus Recommendations* identifies specific injuries and injury risk factors to be placed under surveillance by all states and 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.⁶ In tandem with the *State Health Department Consensus Recommendations*, CSTE and STIPDA developed injury indicators that were formally adopted for inclusion in NPHSS.^{7,8} The NPHSS injury indicators add to other indicators developed by CSTE for chronic diseases and other areas.⁷

The *Consensus Recommendations for Using Hospital Discharge Data for Injury Surveillance*, published in 2003, provides clear and specific recommendations about the evaluation and use of hospital discharge data.⁹ 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 Safe States Alliance (formerly known as STIPDA) and CSTE documents.

BACKGROUND AND PURPOSE

This manual was created to guide states and U.S. territories in collecting, preparing, and submitting 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 multiple data sets. It is important to keep in mind that the quality of the injury indicators is dependent on the completeness and accuracy of external-cause-of-injury coding found within individual state and U.S. territory data sets.

Statewide, centralized electronic vital statistics, hospital discharge, and emergency department data are used to calculate the indicators prepared and submitted by states and U.S. territories. Injuries resulting in or occurring from the following are currently included in the *State Injury Indicators*: all injury, drowning, fall-related injury, fire-related injury, firearm-related injury, homicide/assault, motor vehicle-related injury, poisoning, suicide/suicide attempt, and traumatic brain injury (TBI). Overlap exists among these indicators. For example, a firearm-related homicide would be included in both the firearm-related death indicator and the homicide indicator.

PREPARING THE DATA SETS

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 and coded with ICD-10.¹⁰ 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).¹¹

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 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. Include all records with a date of death between January 1, 2011 and December 31, 2011. 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, first limit the dataset to only deaths with an injury underlying cause of death (V01–Y36, Y85–Y87, Y89, *U01–*U03), and then search *all fields* in the multiple cause of death file. Specific code ranges are identified in the individual indicator pages (see pages 15–56).

Background on State Hospital Discharge Data

At least 90% of all states maintain statewide, centralized, electronic databases of hospital discharge records for nonfederal, acute care hospitals located within their borders.¹² The information collected varies from state to state. Many states use the standard uniform billing form (UB-04) as the basis for their hospital discharge database. Others use only a subset of variables from the UB-04 for their databases, and a few collect additional variables.

The UB-04, developed by the National Uniform Billing Committee, includes the following data elements:¹³

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

For diagnoses resulting from injuries, an external cause of injury is also coded. External-cause-of-injury codes, listed in ICD-9-CM, describe several aspects of an injury: intentionality; mechanism; location of occurrence; external cause status (e.g., civilian activity done for pay, military activity); and activity.¹⁴ Completeness of external-cause-of-injury 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.
- Include records that have a date of discharge between January 1, 2011 and December 31, 2011 .
- Based on the principal diagnosis field, create the injury hospitalization subset as follows:
 - Select injury cases by searching only the principal diagnostic code field for the included diagnosis codes. Exclude all other records from the injury hospitalization subset, as shown in the chart below:⁹

INCLUDE	EXCLUDE
800–909.2,	< 800
909.4, 909.9	909.3, 909.5
910–994.9	995.0–995.4
995.5–995.59	995.6–995.7
995.80–995.85	995.86, 995.89
	995.90–995.94
	996–999

Once the injury hospitalization subset has been created, calculate the injury indicators case counts as defined on the individual indicator pages (see pages 15–56). Search for external-cause-of-injury codes in the following manner:

- Search all diagnosis fields.
- If a designated external-cause-of-injury field is in the data set, start with that field.
- Count the first-listed external-cause-of-injury code, unless it is E000–E030, E849, E967, E869.4, E870–E879, or E930–E949; in which case, search additional external-cause-of-injury fields and all diagnostic fields

and use the next listed valid external-cause-of-injury code. If a case has multiple valid external-cause-of-injury codes, then only the first one should be used in the analysis. If no other external-cause-of-injury code is present, report E967, E869.4, E870-E879, or E930-E949, but not E000-E030 or E849.

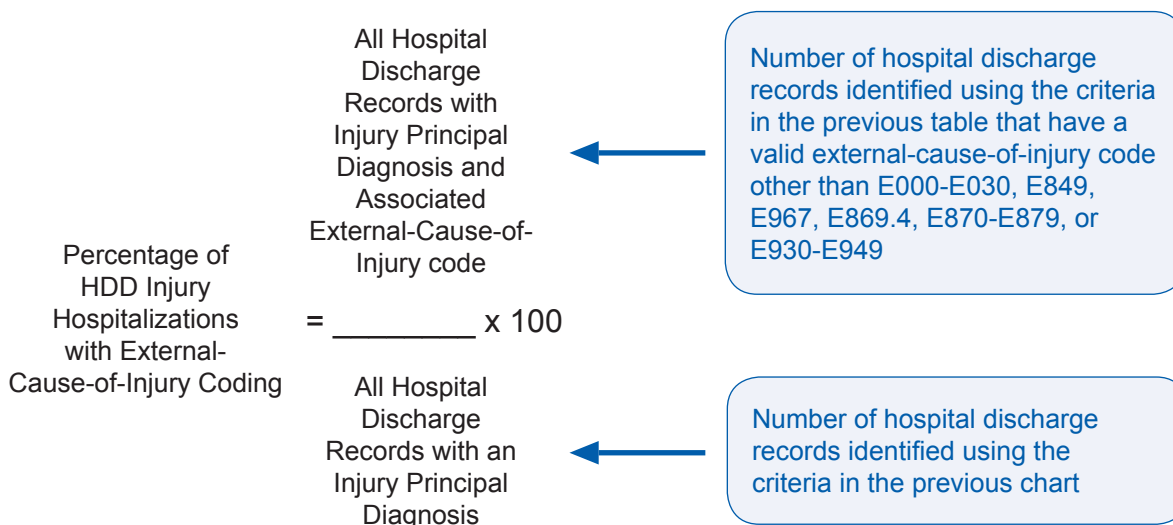
- Hospitalizations (except for hip fracture hospitalizations in persons aged 65 years and older) should be age-adjusted to the 2000 standard using the NCHS population distribution (Table 1, page 58).

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

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

FIGURE 1

Background on State Emergency Department Data



The availability of statewide, centralized, electronic department (ED) datasets is increasing. In 2009 about two-thirds of states reported having access to ED data.¹⁵ Many of these datasets are standardized around administrative or billing data. Since many injuries are seen only in the emergency department this is a dataset of emerging importance for injury surveillance.

The Injury Surveillance Workgroup 5 convened by STIPDA recommended that the ICD-9-CM code-based definition to be used with administrative ED data to identify an injury visit be broadened from the definition that is used to identify cases from HDD. For ED data, the injury subset should include any initial visit where the first-listed diagnosis reflects an injury based on the Barell matrix definition of an injury,¹⁶ regardless of any mention

of an external-cause-of-injury code, **or** any initial visit with a valid external-cause-of-injury code based on the recommended framework for external causes of injury.¹⁷ Similar to the current HDD methodology, complications of care and adverse effects should be excluded from both the diagnosis and external-cause-of-injury codes. For the rationale behind this recommendation, please refer to pages 23–4 of the ISW5 Report.⁵

Instructions for Creating and Using the Injury Subset of a State Emergency Department Data Set

To calculate State Emergency Department Indicators, first you need to create an injury subset of emergency department records. The creation of this subset varies from the creation of the HD subset in that ED injury cases may be identified not only by an injury primary diagnosis code but also by the presence of a valid external-cause-of-injury code. Create the ED subset using the following specifications:

- Include only data from nonfederal, acute care-affiliated facilities in your ED injury subset. This excludes Veterans Affairs (VA) and other federal hospitals, rehabilitation centers, and psychiatric hospitals.
- Include ED visits for state residents only.
- If the data are available, out-of-state ED visits of state residents should be included.
- Include records that have a date of visit between January 1, 2011 and December 31, 2011.
- If necessary, exclude records of patients that are seen in the ED and then admitted to the hospital. For most states, these records are not included in their ED data.
- Create the ED injury subset by searching the principal diagnosis field for injury diagnostic codes and all fields for valid external-cause-of-injury codes.
 - Select injury cases by searching the principal diagnosis field for the included ICD-9-CM diagnosis codes.

INCLUDE	EXCLUDE
800–909.2, 909.4, 909.9 910–994.9 995.5–995.59 995.80–995.85	< 800 909.3, 909.5 995.0–995.4 995.6–995.7 995.86, 995.89 995.90–995.94 996–999

- Select additional cases by searching all fields for the included external-cause-of-injury codes.

INCLUDE E-CODES	EXCLUDE E-CODES
E800-E869	E870-E879
E880-E929	E930-E949
E950-E999	

- Exclude all other records from the injury ED subset.

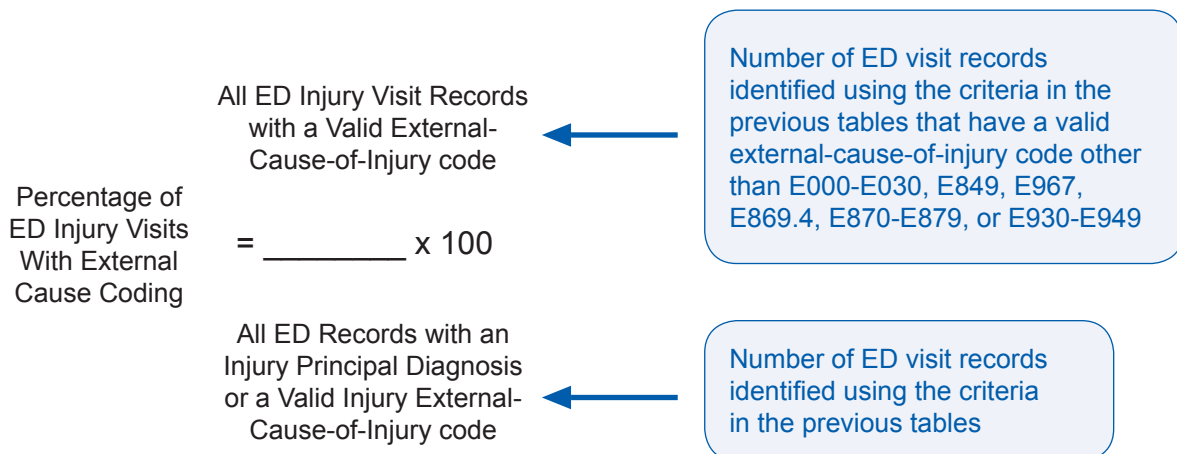
Once the injury ED subset has been created, calculate the injury indicators case counts as defined on the individual indicator pages. Search for external-cause-of-injury codes in the following manner:

- Search all diagnosis fields.
- If a designated external-cause-of-injury field is in the data set, start with that field.
- Count the first-listed external-cause-of-injury code, unless it is E000-E030, E849, E967, E869.4, E870–E879, or E930–E949; in which case, search additional external-cause-of-injury fields and all diagnostic fields and use the next listed valid external-cause-of-injury code. If a case has multiple valid external-cause-of-injury codes, then only the first one should be used in the analysis. If no other external-cause-of-injury code is present, report E967, E869.4, E870-E879, or E930-E949, but not E000-E030 or E849.
- ED visits (except for hip fracture ED visits in persons aged 65 years and older) should be age-adjusted to the 2000 standard using the NCHS population distribution (Table 1, page 58).

Assess the completeness and quality measures of the ED data for the following components:

- Percentage of ED injury records with external-cause-of-injury coding (Figure 2, below).
- Completeness of hospitals participating in the ED system.
- Inclusion of follow up visits and transfers from other EDs
- A subjective assessment by health department staff if a substantial proportion of state residents injured in-state are actually treated in EDs in a neighboring state.

FIGURE 2



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. 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 Office of Surveillance, Epidemiology, and Laboratory Services (OSELs) currently manages the BRFSS. (It was previously housed in the National Center for Chronic Disease Prevention and Health Promotion.) This is a broad ongoing survey that is 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.¹⁸

Because BRFSS is telephone-based, population subgroups less likely to have telephones, such as persons of low socioeconomic status, may be underrepresented. However, beginning in 2011, BRFSS began to include data from cell phone users to better represent the U.S. population.¹⁹ Additionally, 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.¹⁸

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. For 2011, there is one injury-related BRFSS question that will be reported.

Youth Risk Behavior Survey (YRBS)

The Youth Risk Behavior Survey (YRBS) is managed by the National Center for Chronic Disease Prevention and Health Promotion (NCCDPHP) at CDC. The YRBS monitors risk behaviors associated with the leading causes of injury and death among teenagers.²⁰ 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.²⁰

In 2011, 43 states conducted YRBS with overall participation rates of at least 60%.²¹ CDC requires a minimum overall participation rate of 60% to generalize the results to the 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. For 2011, there are eight injury-related YRBS questions that will be reported.

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.²²

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.²²

INJURY INDICATORS

The following pages contain 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 provided spreadsheets for rate calculation and submission to CDC.

ALL-INJURY INDICATOR 1:

Injury Fatalities

DEMOGRAPHIC GROUP All residents.

NUMERATOR Deaths with any of the following ICD-10 codes as an underlying cause of death.

Injury Fatality ICD-10 Codes

V01–Y36, Y85–Y87, Y89, *U01–*U03 Injury and poisoning

DENOMINATOR 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, 2010 to July 1, 2011—RESIDENT” (see instructions on page 57).

MEASURES OF FREQUENCY Annual number of deaths. Annual mortality rate— crude and age-adjusted (standardized by the direct method to the year 2000 standard U.S. population).²³ Rates should be calculated for age and sex.

DATA RESOURCES Death certificate data from vital statistics agencies (numerator) and population estimates from the U.S. Census Bureau or suitable alternative (denominator).

PERIOD FOR CASE DEFINITION Calendar year based on date of death.

BACKGROUND Injuries are the leading cause of death for people 1 to 44 years of age and the third leading cause of death overall.¹ Over 180,000 people died from injuries in 2010.¹

LIMITATIONS OF INDICATOR 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.

LIMITATIONS OF DATA RESOURCES 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 underlying-cause-of-death field.

HEALTHY PEOPLE 2020 OBJECTIVES IVP-1.1: Reduce fatal injuries
IVP-11: Reduce unintentional injury deaths

ALL-INJURY INDICATOR 2: Hospitalizations for All Injuries

DEMOGRAPHIC GROUP	All residents.
NUMERATOR	Hospitalizations with any of the following ICD-9-CM diagnostic codes. These should be identified by searching for diagnosis 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

Diagnosis codes

800–909.2, 909.4, 909.9–994.9, 995.5–995.59, 995.80–995.85	Injury and poisoning
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DENOMINATOR	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, 2010 to July 1, 2011—RESIDENT” (see instructions on page 57).
MEASURES OF FREQUENCY	Annual number of hospitalizations. Annual incidence— crude and age-adjusted (standardized by the direct method to the year 2000 standard U.S. population). ²³ Rates should be calculated for age and sex.
DATA RESOURCES	State hospital discharge data (numerator) and population estimates from the U.S. Census Bureau or suitable alternative (denominator).
PERIOD FOR CASE DEFINITION	Calendar year based on date of discharge.
BACKGROUND	Injury is the leading cause of death and disability among children and young adults in the United States. ¹
LIMITATIONS OF INDICATOR	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.
LIMITATIONS OF DATA RESOURCES	The accuracy of indicators based on codes found in hospital discharge data is limited by the completeness and quality of coding.
HEALTHY PEOPLE 2020 OBJECTIVES	IVP-1.2: Reduce hospitalization for nonfatal injuries IVP-12: Reduce nonfatal unintentional injuries

ALL-INJURY INDICATOR 3: Emergency Department Visits for All Injuries

DEMOGRAPHIC GROUP	All residents.
NUMERATOR	ED visits with any of the following ICD-9-CM diagnostic or cause of injury codes. These should be identified by searching for diagnosis codes only in the principal diagnostic field of the ED data set or searching all fields for the first valid external cause of injury code (see methods on page 8 for developing the injury emergency department visit subset). The case count for injury ED visits should equal the number of records in your injury ED visit subset.

Emergency Department Visits for All Injuries ICD-9-CM Codes

Diagnosis codes and/or	
800–909.2, 909.4, 909.9–994.9, 995.5–995.59, 995.80–995.85	Injury and poisoning
External-cause-of-injury codes	
E800-E869, E880-E929, E950-E999	Injury and poisoning

DENOMINATOR	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, 2010 to July 1, 2011—RESIDENT” (see instructions on page 57).
MEASURES OF FREQUENCY	Annual number of emergency department visits. Annual incidence— crude and age-adjusted (standardized by the direct method to the year 2000 standard U.S. population). ²³ Rates should be calculated for age and sex.
DATA RESOURCES	State emergency department data (numerator) and population estimates from the U.S. Census Bureau or suitable alternative (denominator).
PERIOD FOR CASE DEFINITION	Calendar year based on date of ED visit.
BACKGROUND	In 2010, over 31 million people were treated in U.S. emergency departments for injuries with 2.5 million of them hospitalized or transferred to another facility. ¹
LIMITATIONS OF INDICATOR	Injuries that result in emergency department visits 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.
LIMITATIONS OF DATA RESOURCES	The accuracy of indicators based on codes found in emergency department data is limited by the completeness and quality of coding.
HEALTHY PEOPLE 2020 OBJECTIVES	IVP-1.3: Reduce emergency department visits for nonfatal injuries IVP-12: Reduce nonfatal unintentional injuries

DROWNING INDICATOR 1: Unintentional Drowning Fatalities

DEMOGRAPHIC GROUP All residents.

NUMERATOR Deaths with any of the following ICD-10 codes as an underlying cause of death.

Unintentional Drowning Fatality ICD-10 Codes

W65–W74	Accidental drowning and submersion
V90	Accident to watercraft causing drowning and submersion
V92	Water-transport-related drowning and submersion without accident to watercraft

DENOMINATOR 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, 2010 to July 1, 2011—RESIDENT” (see instructions on page 57).

MEASURES OF FREQUENCY Annual number of deaths. Annual mortality rate— crude and age-adjusted (standardized by the direct method to the year 2000 standard U.S. population).²³ Rates should be calculated for age and sex.

DATA RESOURCES Death certificate data from vital statistics agencies (numerator) and population estimates from the U.S. Census Bureau or suitable alternative (denominator).

PERIOD FOR CASE DEFINITION Calendar year based on date of death.

BACKGROUND Drowning is one of the 10 leading causes of injury death for persons under age 55 years. In the United States, drowning rates are highest among children under five years of age.¹

LIMITATIONS OF INDICATOR 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.

LIMITATIONS OF DATA RESOURCES 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 underlying-cause-of-death field.

HEALTHY PEOPLE 2020 OBJECTIVES IVP-25: Reduce drowning deaths

DROWNING INDICATOR 2: Drowning-Related Hospitalizations

DEMOGRAPHIC GROUP All residents.

NUMERATOR Hospitalizations with any of the following ICD-9-CM diagnostic or external-cause-of-injury 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 diagnosis codes in all diagnostic fields and by searching for external-cause-of-injury codes in the following manner: Search all diagnosis fields. If a designated external-cause-of-injury field is in your data set, start with that field. Count the first-listed valid external-cause-of-injury code, unless it is E000-E030, E849, E967, E869.4, E870–E879, or E930–E949; in which case, search additional external-cause-of-injury and diagnostic fields and use the next listed valid external-cause-of-injury code.

Drowning-Related Hospitalization ICD-9-CM Codes

Diagnosis code and/or

994.1 Drowning and nonfatal submersion

External-cause-of-injury codes

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

DENOMINATOR 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, 2010 to July 1, 2011—RESIDENT” (see instructions on page 57).

MEASURES OF FREQUENCY Annual number of hospitalizations. Annual incidence— crude and age-adjusted (standardized by the direct method to the year 2000 standard U.S. population).²³ Rates should be calculated for age and sex.

DATA RESOURCES State hospital discharge data (numerator) and population estimates from the U.S. Census Bureau or suitable alternative (denominator).

PERIOD FOR CASE DEFINITION Calendar year based on date of discharge.

BACKGROUND Drowning-related hospitalizations 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.²⁴

LIMITATIONS OF INDICATOR 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.

LIMITATIONS OF DATA RESOURCES 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 external-cause-of-injury is of particular concern and should be reviewed in conjunction with the indicator.

DROWNING INDICATOR 3: Drowning-Related Emergency Department Visits

DEMOGRAPHIC GROUP	All residents.
NUMERATOR	Emergency department visits with any of the following ICD-9-CM diagnostic or external-cause-of-injury codes identified from the injury emergency department visit subset (see methods on page 8 for developing the injury emergency department visit subset). These should be identified by searching for diagnosis codes in all diagnostic fields and by searching for external-cause-of-injury codes in the following manner: Search all diagnosis fields. If a designated external-cause-of-injury field is in your data set, start with that field. Count the first-listed valid external-cause-of-injury code, unless it is E000-E030, E849, E967, E869.4, E870–E879, or E930–E949; in which case, search additional external-cause-of-injury and diagnostic fields and use the next listed valid external-cause-of-injury code.

Drowning-Related Emergency Department Visit ICD-9-CM Codes

Diagnosis code and/or

994.1 Drowning and nonfatal submersion

External-cause-of-injury codes

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

DENOMINATOR	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, 2010 to July 1, 2011—RESIDENT” (see instructions on page 57).
MEASURES OF FREQUENCY	Annual number of emergency department visits. Annual incidence— crude and age-adjusted (standardized by the direct method to the year 2000 standard U.S. population). ²³ Rates should be calculated for age and sex.
DATA RESOURCES	State emergency department data (numerator) and population estimates from the U.S. Census Bureau or suitable alternative (denominator).
PERIOD FOR CASE DEFINITION	Calendar year based on date of ED visit.
BACKGROUND	In 2010, there were an estimated 7,300 emergency department visits for unintentional nonfatal drowning-related injuries ¹
LIMITATIONS OF INDICATOR	Injuries that result in emergency department visits 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.
LIMITATIONS OF DATA RESOURCES	The accuracy of indicators based on codes found in emergency department data is limited by the completeness and quality of coding. The overall completeness of external-cause-of-injury coding is of particular concern and should be reviewed in conjunction with the indicator.

FALL INDICATOR 1:

Unintentional Fall-Related Fatalities

DEMOGRAPHIC GROUP All residents.

NUMERATOR Deaths with any of the following ICD-10 codes as an underlying cause of death.

Unintentional Fall-Related Fatality ICD-10 Codes

W00–W19 Falls

DENOMINATOR 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, 2010 to July 1, 2011—RESIDENT” (see instructions on page 57).

MEASURES OF FREQUENCY Annual number of deaths. Annual mortality rate— crude and age-adjusted (standardized by the direct method to the year 2000 standard U.S. population).²³ Rates should be calculated for age and sex.

DATA RESOURCES Death certificate data from vital statistics agencies (numerator) and population estimates from the U.S. Census Bureau or suitable alternative (denominator).

PERIOD FOR CASE DEFINITION Calendar year based on date of death.

BACKGROUND Unintentional falls are the third leading cause of injury death overall and the leading cause of injury death in people 65 years and older.¹ In 2010, there were 26,009 unintentional fall-related deaths.¹

LIMITATIONS OF INDICATOR 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.

LIMITATIONS OF DATA RESOURCES 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 underlying-cause-of-death field.

HEALTHY PEOPLE 2020 OBJECTIVES IVP-23: Prevent an increase in the rate of fall-related deaths

FALL INDICATOR 2: Unintentional Fall-Related Hospitalizations

DEMOGRAPHIC GROUP	All residents.
NUMERATOR	Hospitalizations identified from the injury hospital discharge subset (see methods on page 6 for developing the injury hospital discharge subset) by searching for external-cause-of-injury codes in the following manner: Search all diagnosis fields. If a designated external-cause-of-injury field is in your data set, start with that field. Count the first-listed valid external-cause-of-injury code, unless it is E000-E030, E849, E967, E869.4, E870-E879, or E930-E949; in which case, search additional external-cause-of-injury and diagnostic fields and use the next listed valid external-cause-of-injury code.

Unintentional Fall-Related Hospitalization ICD-9-CM Codes

E880-E886, E888	Accidental falls
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DENOMINATOR	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, 2010 to July 1, 2011—RESIDENT” (see instructions on page 57).
MEASURES OF FREQUENCY	Annual number of hospitalizations. Annual incidence— crude and age-adjusted (standardized by the direct method to the year 2000 standard U.S. population). ²³ Rates should be calculated for age and sex.
DATA RESOURCES	State hospital discharge data (numerator) and population estimates from the U.S. Census Bureau or suitable alternative (denominator).
PERIOD FOR CASE DEFINITION	Calendar year based on date of discharge
BACKGROUND	More than one third of adults 65 and older fall each year. ^{25, 26} Of those who fall, 20% to 30% suffer moderate to severe injuries that make it hard to get around or live alone and increase the chance of early death. ²⁷ The total direct cost of nonfatal fall injuries for people 65 and older in 2000 was \$19 billion. ²⁸
LIMITATIONS OF INDICATOR	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.
LIMITATIONS OF DATA RESOURCES	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 external-cause-of-injury coding is of particular concern and should be reviewed in conjunction with the indicator.
HEALTHY PEOPLE 2020 OBJECTIVES	No objective

FALL INDICATOR 3: Unintentional Fall-Related Emergency Department Visits

DEMOGRAPHIC GROUP	Resident persons aged 65 years or older
NUMERATOR	Emergency department visits identified from the injury emergency department visit subset (see methods on page 8 for developing the injury emergency department visit subset) by searching for external-cause-of-injury codes in the following manner: Search all diagnosis fields. If a designated external-cause-of-injury field is in your data set, start with that field. Count the first-listed valid external-cause-of-injury code, unless it is E000-E030, E849, E967, E869.4, E870-E879, or E930-E949; in which case, search additional external-cause-of-injury and diagnostic fields and use the next listed valid external-cause-of-injury code.

Unintentional Fall-Related Emergency Department Visit ICD-9-CM Codes

E880-E886, E888 Accidental falls

DENOMINATOR	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, 2010 to July 1, 2011—RESIDENT” (see instructions on page 57).
MEASURES OF FREQUENCY	Annual number of emergency department visits. Annual incidence— crude and age-adjusted (standardized by the direct method to the year 2000 standard U.S. population). ²³ Rates should be calculated for age and sex.
DATA RESOURCES	State emergency department data (numerator) and population estimates from the U.S. Census Bureau or suitable alternative (denominator).
PERIOD FOR CASE DEFINITION	Calendar year based on date of ED visit.
BACKGROUND	In 2010, there were over 9.1 million emergency department visits for unintentional fall-related injuries, with over 992,000 resulting in hospitalization or transfer for additional care. ¹
LIMITATIONS OF INDICATOR	Injuries that result in emergency department visits 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.
LIMITATIONS OF DATA RESOURCES	The accuracy of indicators based on codes found in emergency department data is limited by the completeness and quality of coding. The overall completeness of external-cause-of-injury coding is of particular concern and should be reviewed in conjunction with the indicator.
HEALTHY PEOPLE 2020 OBJECTIVES	No objective

FALL INDICATOR 4:

Hip Fracture Hospitalizations in Persons Aged 65 Years and Older

DEMOGRAPHIC GROUP Resident persons aged 65 years or older

NUMERATOR Hospitalizations with the following ICD-9-CM diagnostic code. 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).

Hip Fracture Hospitalization ICD-9-CM Code

Diagnosis code

820 Fracture of neck of femur

DENOMINATOR Midyear population of those 65 years and older 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, 2010 to July 1, 2011— RESIDENT” (see instructions on page 57).

MEASURES OF FREQUENCY Annual number of hospitalizations. Annual incidence— crude. Rates should be calculated for age and sex.

DATA RESOURCES State hospital discharge data (numerator) and population estimates from the U.S. Census Bureau or suitable alternative (denominator).

PERIOD FOR CASE DEFINITION Calendar year based on date of discharge.

BACKGROUND In 2004, there were an estimated 289,000 hospital admissions for hip fractures in people 65 years and older.²⁹ Up to 25% of adults who lived independently before their hip fracture have to stay in a nursing home for at least a year after their injury³⁰ and as many as 20% of hip fracture patients die within a year of their injury.³¹

LIMITATIONS OF INDICATOR 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.

LIMITATIONS OF DATA RESOURCES The accuracy of indicators based on codes found in hospital discharge data is limited by the completeness and quality of coding.

HEALTHY PEOPLE 2020 OBJECTIVES No objective.

FALL INDICATOR 5:

Hip Fracture Emergency Department Visits in Persons Aged 65 Years and Older

DEMOGRAPHIC GROUP	Resident persons aged 65 years or older				
NUMERATOR	Emergency department visits with the following ICD-9-CM diagnostic code. These should be identified by searching all diagnostic fields of the injury emergency department visit subset (see methods on page 8 for developing the injury emergency department visit subset).				
Hip Fracture Emergency Department Visit ICD-9-CM Code					
<table border="1"><thead><tr><th colspan="2">Diagnosis code</th></tr></thead><tbody><tr><td>820</td><td>Fracture of neck of femur</td></tr></tbody></table>		Diagnosis code		820	Fracture of neck of femur
Diagnosis code					
820	Fracture of neck of femur				
DENOMINATOR	Midyear population of those 65 years and older 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, 2010 to July 1, 2011— RESIDENT” (see instructions on page 57).				
MEASURES OF FREQUENCY	Annual number of emergency department visits. Annual incidence— crude. Rates should be calculated for age and sex.				
DATA RESOURCES	State emergency department data (numerator) and population estimates from the U.S. Census Bureau or suitable alternative (denominator).				
PERIOD FOR CASE DEFINITION	Calendar year based on date of ED visit.				
BACKGROUND	In 2004, there were an estimated 289,000 hospital admissions for hip fractures in people 65 years and older. ²⁹ Up to 25% of adults who lived independently before their hip fracture have to stay in a nursing home for at least a year after their injury ³⁰ and as many as 20% of hip fracture patients die within a year of their injury. ³¹				
LIMITATIONS OF INDICATOR	Injuries that result in emergency department visits 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.				
LIMITATIONS OF DATA RESOURCES	The accuracy of indicators based on codes found in emergency department data is limited by the completeness and quality of coding.				
HEALTHY PEOPLE 2020 OBJECTIVES	OA-11: Reduce the rate of emergency department visits due to falls among older adults				

FIRE-RELATED INDICATOR 1: Unintentional Fire-Related Fatalities

DEMOGRAPHIC GROUP All residents.

NUMERATOR Deaths with any of the following ICD-10 codes as an underlying cause of death.

Unintentional Fire-Related Fatality ICD-10 Codes

X00–X09 Exposure to smoke, fire, and flames

DENOMINATOR 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, 2010 to July 1, 2011—RESIDENT” (see instructions on page 57).

MEASURES OF FREQUENCY Annual number of deaths. Annual mortality rate— crude and age-adjusted (standardized by the direct method to the year 2000 standard U.S. population).²³ Rates should be calculated for age and sex.

DATA RESOURCES Death certificate data from vital statistics agencies (numerator) and population estimates from the U.S. Census Bureau or suitable alternative (denominator).

PERIOD FOR CASE DEFINITION Calendar year based on date of death

BACKGROUND The United States mortality rate from fires ranks sixth among the 25 developed countries for which statistics are available.³² Four out of five deaths in 2005 occurred in homes³³ and approximately half of home fire deaths occurred in homes without fire alarms.³⁴

LIMITATIONS OF INDICATOR 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.

LIMITATIONS OF DATA RESOURCES 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 underlying-cause-of-death field.

HEALTHY PEOPLE 2020 OBJECTIVES IVP-28: Reduce residential fire deaths

FIRE-RELATED INDICATOR 2: Unintentional Fire-Related Hospitalizations

DEMOGRAPHIC GROUP	All residents.
NUMERATOR	Hospitalizations identified from the injury hospital discharge subset (see methods on page 6 for developing the injury hospital discharge subset) by searching for external-cause-of-injury codes in the following manner: Search all diagnosis fields. If a designated external-cause-of-injury field is in your data set, start with that field. Count the first-listed valid external-cause-of-injury code, unless it is E000-E030, E849, E967, E869.4, E870-E879, or E930-E949; in which case, search additional external-cause-of-injury and diagnostic fields and use the next listed valid external-cause-of-injury code.

Unintentional Fire-Related Hospitalization ICD-9-CM Codes

E890-E899 Accident caused by fire and flames

DENOMINATOR	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, 2010 to July 1, 2011—RESIDENT” (see instructions on page 57).
MEASURES OF FREQUENCY	Annual number of hospitalizations. Annual incidence— crude and age-adjusted (standardized by the direct method to the year 2000 standard U.S. population). ²³ Rates should be calculated for age and sex.
DATA RESOURCES	State hospital discharge data (numerator) and population estimates from the U.S. Census Bureau or suitable alternative (denominator).
PERIOD FOR CASE DEFINITION	Calendar year based on date of discharge.
BACKGROUND	In 2005, fire departments responded to 396,000 home fires in the U.S., which claimed the lives of 3,030 people (not including firefighters) and injured another 13,825 (not including firefighters). ³³ Residential fires disproportionately affect young children, older adults, African Americans, and Native Americans. ³⁵ 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. ^{36, 37}
LIMITATIONS OF INDICATOR	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.
LIMITATIONS OF DATA RESOURCES	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 external-cause-of-injury coding is of particular concern and should be reviewed in conjunction with the indicator.
HEALTHY PEOPLE 2020 OBJECTIVES	No objective

FIRE-RELATED INDICATOR 3: Unintentional Fire-Related Emergency Department Visits

DEMOGRAPHIC GROUP	All residents.
NUMERATOR	Emergency department visits identified from the injury emergency department visit subset (see methods on page 8 for developing the injury emergency department visit subset) by searching for external-cause-of-injury codes in the following manner: Search all diagnosis fields. If a designated external-cause-of-injury field is in your data set, start with that field. Count the first-listed valid external-cause-of-injury code, unless it is E000-E030, E849, E967, E869.4, E870–E879, or E930–E949; in which case, search additional external-cause-of-injury and diagnostic fields and use the next listed valid external-cause-of-injury code.

Unintentional Fire-Related Emergency Department Visit ICD-9-CM Codes

E890–E899 Accident caused by fire and flames

DENOMINATOR	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, 2010 to July 1, 2011—RESIDENT” (see instructions on page 57).
MEASURES OF FREQUENCY	Annual number of emergency department visits. Annual incidence— crude and age-adjusted (standardized by the direct method to the year 2000 standard U.S. population). ²³ Rates should be calculated for age and sex.
DATA RESOURCES	State emergency department data (numerator) and population estimates from the U.S. Census Bureau or suitable alternative (denominator).
PERIOD FOR CASE DEFINITION	Calendar year based on date of ED visit.
BACKGROUND	In 2010, there were over 400,000 emergency department visits for unintentional fire-related injuries, with over 24,000 resulting in hospitalization or transfer for additional care ¹
LIMITATIONS OF INDICATOR	Injuries that result in emergency department visits 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.
LIMITATIONS OF DATA RESOURCES	The accuracy of indicators based on codes found in emergency department data is limited by the completeness and quality of coding. The overall completeness of external-cause-of-injury coding is of particular concern and should be reviewed in conjunction with the indicator.
HEALTHY PEOPLE 2020 OBJECTIVES	No objective

FIREARM-RELATED INDICATOR 1:

Firearm-Related Fatalities

DEMOGRAPHIC GROUP All residents.

NUMERATOR Deaths with any of the following ICD-10 codes as an underlying cause of death.

Firearm-Related Fatality ICD-10 Codes

W32–W34	Exposure to inanimate mechanical forces– firearm discharge
X72–X74	Intentional self-harm by firearm discharge
X93–X95	Assault by firearm discharge
Y22–Y24	Firearm discharge of undetermined intent
Y35.0	Legal intervention involving firearm discharge
*U01.4	Terrorism involving firearms

DENOMINATOR 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, 2010 to July 1, 2011–RESIDENT” (see instructions on page 57).

MEASURES OF FREQUENCY Annual number of deaths. Annual mortality rate— crude and age-adjusted (standardized by the direct method to the year 2000 standard U.S. population).²³ Rates should be calculated for age and sex.

DATA RESOURCES Death certificate data from vital statistics agencies (numerator) and population estimates from the U.S. Census Bureau or suitable alternative (denominator).

PERIOD FOR CASE DEFINITION Calendar year based on date of death.

BACKGROUND Firearm-related injuries were the third leading cause of injury-related death in the United States, accounting for over 31,000 deaths in 2010.¹ Nationally, the firearm-related death rate for males is almost seven times higher than that of females.³⁸

LIMITATIONS OF INDICATOR 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.

LIMITATIONS OF DATA RESOURCES 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 underlying-cause-of-death field.

HEALTHY PEOPLE 2020 OBJECTIVES IVP-30: Reduce firearm-related deaths

FIREARM-RELATED INDICATOR 2: Firearm-Related Hospitalizations

DEMOGRAPHIC GROUP All residents.

NUMERATOR Hospitalizations identified from the injury hospital discharge subset (see methods on page 6 for developing the injury hospital discharge subset) by searching for external-cause-of-injury codes in the following manner: Search all diagnosis fields. If a designated external-cause-of-injury field is in your data set, start with that field. Count the first-listed valid external-cause-of-injury code, unless it is E000-E030, E849, E967, E869.4, E870-E879, or E930-E949, in which case, search additional external-cause-of-injury and diagnostic fields and use the next listed valid external-cause-of-injury code.

Firearm-Related Hospitalization ICD-9-CM Codes

E922.0–E922.3, E922.8, E922.9	Accident caused by firearm missile
E955.0–E955.4	Suicide and self-inflicted injury by firearms
E965.0–E965.4	Assault by firearms
E985.0–E985.4	Injury by firearms, undetermined whether accidentally, or purposely inflicted
E970	Injury due to legal intervention by firearms
E979.4	Terrorism involving firearms

DENOMINATOR 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, 2010 to July 1, 2011—RESIDENT” (see instructions on page 57).

MEASURES OF FREQUENCY Annual number of hospitalizations. Annual incidence rate— crude and age-adjusted (standardized by the direct method to the year 2000 standard U.S. population).²³ Rates should be calculated for age and sex.

DATA RESOURCES State hospital discharge data (numerator) and population estimates from the U.S. Census Bureau or suitable alternative (denominator).

PERIOD FOR CASE DEFINITION Calendar year based on date of discharge.

BACKGROUND 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.³⁸

LIMITATIONS OF INDICATOR 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.

LIMITATIONS OF DATA RESOURCES 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 external-cause-of-injury coding is of particular concern and should be reviewed in conjunction with the indicator.

HEALTHY PEOPLE 2020 OBJECTIVES IVP-31: Reduce nonfatal firearm-related injuries

FIREARM-RELATED INDICATOR 3: Firearm-Related Emergency Department Visits

DEMOGRAPHIC GROUP	All residents.
NUMERATOR	Emergency department visits identified from the injury emergency department visit subset (see methods on page 8 for developing the injury emergency department visit subset) by searching for external-cause-of-injury codes in the following manner: Search all diagnosis fields. If a designated external-cause-of-injury field is in your data set, start with that field. Count the first-listed valid external-cause-of-injury code, unless it is E000-E030, E849, E967, E869.4, E870–E879, or E930–E949, in which case, search additional external-cause-of-injury and diagnostic fields and use the next listed valid external-cause-of-injury code.

Firearm-Related Emergency Department Visit ICD-9-CM Codes

E922.0–E922.3, E922.8, E922.9	Accident caused by firearm missile
E955.0–E955.4	Suicide and self-inflicted injury by firearms
E965.0–E965.4	Assault by firearms
E985.0–E985.4	Injury by firearms, undetermined whether accidentally, or purposely inflicted
E970	Injury due to legal intervention by firearms
E979.4	Terrorism involving firearms

DENOMINATOR	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, 2010 to July 1, 2011—RESIDENT” (see instructions on page 57).
MEASURES OF FREQUENCY	Annual number of emergency department visits. Annual incidence rate— crude and age-adjusted (standardized by the direct method to the year 2000 standard U.S. population). ²³ Rates should be calculated for age and sex.
DATA RESOURCES	State emergency department data (numerator) and population estimates from the U.S. Census Bureau or suitable alternative (denominator).
PERIOD FOR CASE DEFINITION	Calendar year based on date of ED visit.
BACKGROUND	In 2010, there were over 73,000 emergency department visits for nonfatal firearm-related injuries. Males comprised 90% of these visits. ¹
LIMITATIONS OF INDICATOR	Injuries that result in emergency department visits 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.
LIMITATIONS OF DATA RESOURCES	The accuracy of indicators based on codes found in emergency department data is limited by the completeness and quality of coding. The overall completeness of external-cause-of-injury coding is of particular concern and should be reviewed in conjunction with the indicator.
HEALTHY PEOPLE 2020 OBJECTIVES	IVP-31: Reduce nonfatal firearm-related injuries

HOMICIDE/ASSAULT INDICATOR 1:

Homicides

DEMOGRAPHIC GROUP All residents.

NUMERATOR Deaths with any of the following ICD-10 codes as an underlying cause of death.

Homicide ICD-10 Codes

X85–Y09	Assault
Y87.1	Sequelae of assault
*U01	Terrorism-assault
*U02	Sequelae of terrorism-assault

DENOMINATOR 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, 2010 to July 1, 2011—RESIDENT” (see instructions on page 57).

MEASURES OF FREQUENCY Annual number of deaths. Annual mortality rate— crude and age-adjusted (standardized by the direct method to the year 2000 standard U.S. population).²³ Rates should be calculated for age and sex.

DATA RESOURCES Death certificate data from vital statistics agencies (numerator) and population estimates from the U.S. Census Bureau or suitable alternative (denominator).

PERIOD FOR CASE DEFINITION Calendar year based on date of death.

BACKGROUND Homicide is the sixteenth leading cause of death in the United States; it is the second most common cause of death among persons ages 15 to 24 years.¹

LIMITATIONS OF INDICATOR 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.

LIMITATIONS OF DATA RESOURCES 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 underlying-cause-of-death field.

HEALTHY PEOPLE 2020 OBJECTIVES IVP-29: Reduce homicides

HOMICIDE/ASSAULT INDICATOR 2: Assault-Related Hospitalizations

DEMOGRAPHIC GROUP All residents.

NUMERATOR Hospitalizations identified from the injury hospital discharge subset (see methods on page 6 for developing the injury hospital discharge subset) by searching for external-cause-of-injury codes in the following manner: Search all diagnosis fields. If a designated external-cause-of-injury field is in your data set, start that field. Count the first-listed valid external-cause-of-injury code, unless it is E000-E030, E849, E967, E869.4, E870-E879, or E930-E949; in which case, search additional external-cause-of-injury and diagnostic fields and use the next listed valid external-cause-of-injury code.

Assault-Related Hospitalization ICD-9-CM Codes

E960-E969	Injury purposely inflicted by other persons
E979	Terrorism
E999.1	Late effect of injury due to terrorism

DENOMINATOR 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, 2010 to July 1, 2011—RESIDENT” (see instructions on page 57).

MEASURES OF FREQUENCY Annual number of persons hospitalized. Annual incidence— crude and age-adjusted (standardized by the direct method to the year 2000 standard U.S. population).²³ Rates should be calculated for age and sex.

DATA RESOURCES State hospital discharge data (numerator) and population estimates from the U.S. Census Bureau or suitable alternative (denominator).

PERIOD FOR CASE DEFINITION Calendar year based on date of discharge.

BACKGROUND In 2010, over 1.7 million people were treated in U.S. emergency departments for assault-related injuries with over 140,000 of them hospitalized or transferred for additional care.¹

LIMITATIONS OF INDICATOR 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.

LIMITATIONS OF DATA RESOURCES 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 external-cause-of-injury coding is of particular concern and should be reviewed in conjunction with the indicator.

HEALTHY PEOPLE 2020 OBJECTIVES IVP-32: Reduce nonfatal physical assault injuries

HOMICIDE/ASSAULT INDICATOR 3: Assault-Related Emergency Department Visits

DEMOGRAPHIC GROUP	All residents.
NUMERATOR	Emergency department visits identified from the injury emergency department visit subset (see methods on page 8 for developing the injury emergency department visit subset) by searching for external-cause-of-injury codes in the following manner: Search all diagnosis fields. If a designated external-cause-of-injury field is in your data set, start with that field. Count the first-listed valid external-cause-of-injury code, unless it is E000-E030, E849, E967, E869.4, E870–E879, or E930–E949; in which case, search additional external-cause-of-injury and diagnostic fields and use the next listed valid external-cause-of-injury code.

Assault-Related Emergency Department Visit ICD-9-CM Codes

E960–E969	Injury purposely inflicted by other persons
E979	Terrorism
E999.1	Late effect of injury due to terrorism

DENOMINATOR	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, 2010 to July 1, 2011—RESIDENT” (see instructions on page 57).
MEASURES OF FREQUENCY	Annual number of emergency department visits. Annual incidence— crude and age-adjusted (standardized by the direct method to the year 2000 standard U.S. population). ²³ Rates should be calculated for age and sex.
DATA RESOURCES	State emergency department data (numerator) and population estimates from the U.S. Census Bureau or suitable alternative (denominator).
PERIOD FOR CASE DEFINITION	Calendar year based on date of ED visit.
BACKGROUND	In 2010, over 1.7 million people were treated in U.S. emergency departments for assault-related injuries with over 140,000 of them hospitalized or transferred for additional care. ¹
LIMITATIONS OF INDICATOR	Injuries that result in emergency department visits 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.
LIMITATIONS OF DATA RESOURCES	The accuracy of indicators based on codes found in emergency department data is limited by the completeness and quality of coding. The overall completeness of external-cause-of-injury coding is of particular concern and should be reviewed in conjunction with the indicator.
HEALTHY PEOPLE 2020 OBJECTIVES	IVP-32: Reduce nonfatal physical assault injuries

HOMICIDE/ASSAULT INDICATOR 4: **High School Students Who Were in a Physical Fight**

This indicator will be calculated at CDC.

DEMOGRAPHIC GROUP	Respondents in grades 9–12 who reported being in a physical fight one or more times in the past 12 months.
NUMERATOR	Total respondents in grades 9–12.
DENOMINATOR	Annual prevalence— crude.
MEASURES OF FREQUENCY	Data from the Youth Risk Behavior Survey (YRBS). ²⁰
DATA RESOURCES	State emergency department data (numerator) and population estimates from the U.S. Census Bureau or suitable alternative (denominator).
PERIOD FOR CASE DEFINITION	Previous 12 months.
BACKGROUND	Homicide is the second leading cause of death in young adults aged 15–19, with 1,832 deaths in 2010. ¹ Additionally, there were an estimated 284,000 nonfatal assault-related injuries treated in U.S. emergency departments for 15–19 year olds, over 18,000 of which required hospitalization or transfer to another facility. ¹
LIMITATIONS OF INDICATOR	Self-reported data only represents a small portion of the overall burden of injury. An evaluation of only these injuries may not present an accurate picture of all injuries.
LIMITATIONS OF DATA RESOURCES	As with all self-reported sample surveys, YRBS data might be subject to systematic error resulting from noncoverage (e.g., no participation by certain schools), nonresponse (e.g., refusal to participate in the survey or to answer specific questions), or measurement (e.g., social desirability or recall bias).
HEALTHY PEOPLE 2020 OBJECTIVES	IVP-33: Reduce physical assaults IVP-34: Reduce physical fighting among adolescents

HOMICIDE/ASSAULT INDICATOR 5: **High School Students Who Were in a Physical Fight That Required Medical Attention**

This indicator will be calculated at CDC.

DEMOGRAPHIC GROUP	Students in grades 9–12.
NUMERATOR	Respondents in grades 9–12 who reported being in a physical fight in the past 12 months in which they were injured and had to be treated by a doctor or nurse.
DENOMINATOR	Total respondents in grades 9–12.
MEASURES OF FREQUENCY	Annual prevalence— crude.
DATA RESOURCES	Data from the Youth Risk Behavior Survey (YRBS). ²⁰
PERIOD FOR CASE DEFINITION	Previous 12 months.
BACKGROUND	In 2010, there were an estimated 284,000 nonfatal assault-related injuries treated in U.S. emergency departments for 15–19 year olds, over 18,000 of which required hospitalization or transfer to another facility. ¹
LIMITATIONS OF INDICATOR	Self-reported data only represents a small portion of the overall burden of injury. An evaluation of only these injuries may not present an accurate picture of all injuries.
LIMITATIONS OF DATA RESOURCES	As with all self-reported sample surveys, YRBS data might be subject to systematic error resulting from noncoverage (e.g., no participation by certain schools), nonresponse (e.g., refusal to participate in the survey or to answer specific questions), or measurement (e.g., social desirability or recall bias).
HEALTHY PEOPLE 2020 OBJECTIVES	IVP-32: Reduce nonfatal physical assault injuries IVP-34: Reduce physical fighting among adolescents

MOTOR VEHICLE INDICATOR 1:

Motor Vehicle Traffic Fatalities

DEMOGRAPHIC GROUP All residents.

NUMERATOR Deaths with any of the following ICD-10 codes as an underlying cause of death.

Motor Vehicle Traffic Fatality ICD-10 Codes

V02–V04 (.1, .9), V09.2	Pedestrian injured in transport accident
V12–V14 (.3–.9), V19 (.4–.6)	Pedal cyclist injured in transport accident
V20–V28 (.3–.9), V29 (.4–.9)	Motorcycle rider injured in transport accident
V30–V39 (.4–.9)	Occupant of three-wheeled motor vehicle injured in transport accident
V40–V49 (.4–.9)	Car occupant injured in transport accident
V50–V59 (.4–.9)	Occupant of pick-up truck or van injured in transport accident
V60–V69 (.4–.9)	Occupant of heavy transport vehicle injured in transport accident
V70–V79 (.4–.9)	Bus occupant injured in transport accident
V80 (.3–.5), V81.1, V82.1, V83–V86 (.0–.3), V87 (.0–.8), V89.2	Other land transport accidents

DENOMINATOR 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, 2010 to July 1, 2011—RESIDENT” (see instructions on page 57).

MEASURES OF FREQUENCY Annual number of deaths. Annual mortality rate— crude and age-adjusted (standardized by the direct method to the year 2000 standard U.S. population).²³ Rates should be calculated for age and sex.

DATA RESOURCES Death certificate data from vital statistics agencies (numerator) and population estimates from the U.S. Census Bureau or suitable alternative (denominator).

PERIOD FOR CASE DEFINITION Calendar year based on date of death.

BACKGROUND Motor vehicle crashes are the leading cause of injury death in the United States. They are also the leading injury cause for years of potential life lost.¹

LIMITATIONS OF INDICATOR 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.

LIMITATIONS OF DATA RESOURCES 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 underlying-cause-of-death field.

HEALTHY PEOPLE 2020 OBJECTIVES IVP-13: Reduce motor vehicle crash-related deaths
 IVP-18: Reduce pedestrian deaths on public roads
 IVP-20 Reduce pedalcyclist deaths on public roads

MOTOR VEHICLE INDICATOR 2: Motor Vehicle Traffic Hospitalizations

DEMOGRAPHIC GROUP	All residents.
NUMERATOR	Hospitalizations identified from the injury hospital discharge subset (see methods on page 6 for developing the injury hospital discharge subset) by searching for external-cause-of-injury codes in the following manner: Search all diagnosis fields. If a designated external-cause-of-injury field is in your data set, start with that field. Count the first-listed valid external-cause-of-injury code, unless it is E000-E030, E849, E967, E869.4, E870-E879, or E930-E949; in which case, search additional external-cause-of-injury and diagnostic fields and use the next listed valid external-cause-of-injury code.

Motor Vehicle Traffic Hospitalization ICD-9-CM Codes

E810-E819	Motor vehicle traffic accidents
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DENOMINATOR	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, 2010 to July 1, 2011—RESIDENT” (see instructions on page 57).
MEASURES OF FREQUENCY	Annual number of hospitalizations. Annual incidence— crude and age-adjusted (standardized by the direct method to the year 2000 standard U.S. population). ²³ Rates should be calculated for age and sex.
DATA RESOURCES	State hospital discharge data (numerator) and population estimates from the U.S. Census Bureau or suitable alternative (denominator).
PERIOD FOR CASE DEFINITION	Calendar year based on date of discharge.
BACKGROUND	In 2010, motor vehicle crashes were the cause of over 4.3 million emergency department visits in the United States. ¹ Seat belts dramatically reduce risk of death and serious injury. Among drivers and front-seat passengers, seat belts reduce the risk of death by 45%, and cut the risk of serious injury by 50%. ³⁹
LIMITATIONS OF INDICATOR	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.
LIMITATIONS OF DATA RESOURCES	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 external-cause-of-injury coding is of particular concern and should be reviewed in conjunction with the indicator.
HEALTHY PEOPLE 2020 OBJECTIVES	IVP-14: Reduce nonfatal motor vehicle crash-related injuries IVP-19: Reduce nonfatal pedestrian injuries on public roads

MOTOR VEHICLE INDICATOR 3: Motor Vehicle Traffic Emergency Department Visits

DEMOGRAPHIC GROUP	All residents.
NUMERATOR	Emergency department visits identified from the injury emergency department visit subset (see methods on page 8 for developing the injury emergency department visit subset) by searching for external-cause-of-injury codes in the following manner: Search all diagnosis fields. If a designated external-cause-of-injury field is in your data set, start with that field. Count the first-listed valid external-cause-of-injury code, unless it is E000-E030, E849, E967, E869.4, E870-E879, or E930-E949; in which case, search additional external-cause-of-injury and diagnostic fields and use the next listed valid external-cause-of-injury code.

Motor Vehicle Traffic Emergency Department Visit ICD-9-CM Codes

E810-E819	Motor vehicle traffic accidents
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DENOMINATOR	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, 2010 to July 1, 2011—RESIDENT” (see instructions on page 57).
MEASURES OF FREQUENCY	Annual number of emergency department visits. Annual incidence— crude and age-adjusted (standardized by the direct method to the year 2000 standard U.S. population). ²³ Rates should be calculated for age and sex.
DATA RESOURCES	State emergency department data (numerator) and population estimates from the U.S. Census Bureau or suitable alternative (denominator).
PERIOD FOR CASE DEFINITION	Calendar year based on date of ED visit.
BACKGROUND	In 2010, motor vehicle crashes were the cause of over 4.3 million emergency department visits in the United States. ¹ Seat belts dramatically reduce risk of death and serious injury. Among drivers and front-seat passengers, seat belts reduce the risk of death by 45%, and cut the risk of serious injury by 50%. ³⁹
LIMITATIONS OF INDICATOR	Injuries that result in emergency department visits 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.
LIMITATIONS OF DATA RESOURCES	The accuracy of indicators based on codes found in emergency department data is limited by the completeness and quality of coding. The overall completeness of external-cause-of-injury coding is of particular concern and should be reviewed in conjunction with the indicator.
HEALTHY PEOPLE 2020 OBJECTIVES	IVP-14: Reduce nonfatal motor vehicle crash-related injuries IVP-19: Reduce nonfatal pedestrian injuries on public roads

MOTOR VEHICLE INDICATOR 4: Seat Belt Use

This indicator will be calculated at CDC.

DEMOGRAPHIC GROUP	Resident persons aged 18 years or older.
NUMERATOR	Those respondents reporting wearing their seatbelt “always” or “almost always” when driving or riding in a car.
DENOMINATOR	Respondents aged 18 years or older.
MEASURES OF FREQUENCY	Annual prevalence— crude.
DATA RESOURCES	Data from the Behavioral Risk Factor Surveillance System (BRFSS). ¹⁸
PERIOD FOR CASE DEFINITION	No time frame.
BACKGROUND	Seat belts dramatically reduce risk of death and serious injury. Among drivers and front-seat passengers, seat belts reduce the risk of death by 45%, and cut the risk of serious injury by 50%. ³⁹
LIMITATIONS OF INDICATOR	Self-reported data only represent a small portion of the overall burden of injury. An evaluation of only these injuries may not present an accurate picture of all injuries.
LIMITATIONS OF DATA RESOURCES	As with all self-reported sample surveys, BRFSS data might be subject to systematic error resulting from noncoverage (e.g., lower telephone coverage among populations of low socioeconomic status), nonresponse (e.g., refusal to participate in the survey or to answer specific questions), or measurement (e.g., social desirability or recall bias).
HEALTHY PEOPLE 2020 OBJECTIVES	IVP-15: Increase use of safety belts

MOTOR VEHICLE INDICATOR 5: Drinking and Driving in High School Students

This indicator will be calculated at CDC.

DEMOGRAPHIC GROUP	Students in grades 9–12.
NUMERATOR	Respondents in grades 9–12 who reported driving a car or other vehicle when drinking alcohol in the past 30 days.
DENOMINATOR	Total respondents in grades 9–12.
MEASURES OF FREQUENCY	Annual prevalence— crude.
DATA RESOURCES	Data from the Youth Risk Behavior Survey (YRBS). ²⁰
PERIOD FOR CASE DEFINITION	Previous 30 days.
BACKGROUND	At all levels of blood alcohol concentration, the risk of being involved in a crash is greater for young people than for older people. ⁴⁰ In 2005, 16% of drivers ages 16 to 20 who died in motor vehicle crashes had been drinking alcohol. ⁴¹
LIMITATIONS OF INDICATOR	Self-reported data only represent a small portion of the overall burden of injury. An evaluation of only these injuries may not present an accurate picture of all injuries.
LIMITATIONS OF DATA RESOURCES	As with all self-reported sample surveys, YRBS data might be subject to systematic error resulting from noncoverage (e.g., no participation by certain schools), nonresponse (e.g., refusal to participate in the survey or to answer specific questions), or measurement (e.g., social desirability or recall bias).
HEALTHY PEOPLE 2020 OBJECTIVES	SA-17: Decrease the rate of alcohol-impaired driving (.08+ blood alcohol content [BAC]) fatalities Sa-20: decrease the number of deaths attributable to alcohol

MOTOR VEHICLE INDICATOR 6:

High School Students Riding with Someone Drinking and Driving

This indicator will be calculated at CDC.

DEMOGRAPHIC GROUP	Students in grades 9–12.
NUMERATOR	Respondents in grades 9–12 who reported riding in a car or other vehicle driven by someone who had been drinking alcohol in the past 30 days.
DENOMINATOR	Total respondents in grades 9–12.
MEASURES OF FREQUENCY	Annual prevalence— crude.
DATA RESOURCES	Data from the Youth Risk Behavior Survey (YRBS). ²⁰
PERIOD FOR CASE DEFINITION	Previous 30 days.
BACKGROUND	At all levels of blood alcohol concentration, the risk of being involved in a crash is greater for young people than for older people. ⁴⁰ In 2005, 16% of drivers ages 16 to 20 who died in motor vehicle crashes had been drinking alcohol. ⁴¹
LIMITATIONS OF INDICATOR	Self-reported data only represent a small portion of the overall burden of injury. An evaluation of only these injuries may not present an accurate picture of all injuries.
LIMITATIONS OF DATA RESOURCES	As with all self-reported sample surveys, YRBS data might be subject to systematic error resulting from noncoverage (e.g., no participation by certain schools), nonresponse (e.g., refusal to participate in the survey or to answer specific questions), or measurement (e.g., social desirability or recall bias).
HEALTHY PEOPLE 2020 OBJECTIVES	SA-1: Reduce the proportion of adolescents who report that they rode, during the previous 30 days, with a driver who had been drinking alcohol SA-17: Decrease the rate of alcohol-impaired driving (.08+ blood alcohol content [BAC]) fatalities SA-20: Decrease the number of deaths attributable to alcohol

MOTOR VEHICLE INDICATOR 7: Alcohol-Related Crash Deaths

This indicator will be calculated at CDC.

DEMOGRAPHIC GROUP	All residents.
NUMERATOR	Alcohol-related death of a person involved in crash of a motor vehicle traveling on a public roadway and occurring within 30 days of the crash. Deaths are considered alcohol related if either a driver or nonoccupant (e.g., pedestrian or bicyclist) had a blood alcohol concentration (BAC) greater than or equal to 0.01 g/dL. ²²
DENOMINATOR	Midyear population for the calendar year under surveillance.
MEASURES OF FREQUENCY	Annual number of deaths. Annual mortality rate— crude.
DATA RESOURCES	Fatality Analysis Reporting System (FARS) coordinated by the National Highway Traffic Safety Administration (NHTSA) (numerator) ²² and population estimates from the U.S. Census Bureau or suitable alternative (denominator).
PERIOD FOR CASE DEFINITION	Calendar year based on the year of the crash.
BACKGROUND	In 2006, 13,470 people died in alcohol-impaired driving crashes, accounting for nearly one third (32%) of all traffic-related deaths in the United States. Half of the 306 child passengers aged 14 years and younger who died in alcohol-related crashes in 2006 were riding with drivers who had a BAC level of 0.08 g/dL or higher. ⁴²
LIMITATIONS OF INDICATOR	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.
LIMITATIONS OF DATA RESOURCES	FARS does not include nontraffic crashes such as those occurring on driveways and other private property. In addition, it does not include deaths that occur more than 30 days after the motor vehicle crash. Because blood alcohol levels are not available on all fatalities, the estimates are based on a discriminant analysis of information from all cases where BAC data are available.
HEALTHY PEOPLE 2020 OBJECTIVES	SA-17: Decrease the rate of alcohol-impaired driving (.08+ blood alcohol content [BAC]) fatalities

POISONING INDICATOR 1:

Poisoning Fatalities

DEMOGRAPHIC GROUP All residents.

NUMERATOR Deaths with any of the following ICD-10 codes as an underlying cause of death.

Poisoning Fatality ICD-10 Codes

X40–X49	Accidental poisoning by and exposure to noxious substances
X60–X69	Intentional self-poisoning
X85–X90	Assault by poisoning
Y10–Y19	Poisoning of undetermined intent
Y35.2	Legal intervention involving gas
*U01 (.6–.7)	Terrorism involving biological or chemical weapons

DENOMINATOR 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, 2010 to July 1, 2011—RESIDENT” (see instructions on page 57).

MEASURES OF FREQUENCY Annual number of deaths. Annual mortality rate— crude and age-adjusted (standardized by the direct method to the year 2000 standard U.S. population).²³ Rates should be calculated for age and sex.

DATA RESOURCES Death certificate data from vital statistics agencies (numerator) and population estimates from the U.S. Census Bureau or suitable alternative (denominator).

PERIOD FOR CASE DEFINITION Calendar year based on date of death.

BACKGROUND 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 2010, over 42,000 people in the United States died from poisoning.¹

LIMITATIONS OF INDICATOR 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.

LIMITATIONS OF DATA RESOURCES 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 underlying-cause-of-death field.

HEALTHY PEOPLE 2020 OBJECTIVES IVP-9: Prevent an increase in the rate of poisoning deaths
 MPS-2.4: (Developmental) Reduce deaths from the use of pain medicines
 SA-12: Reduce drug-induced deaths

POISONING INDICATOR 2: Poisoning Hospitalizations

DEMOGRAPHIC GROUP	All residents.
NUMERATOR	Hospitalizations identified from the injury hospital discharge subset (see methods on page 6 for developing the injury hospital discharge subset) by searching for external-cause-of-injury codes in the following manner: Search all diagnosis fields. If a designated external-cause-of-injury field is in your data set, start with that field. Count the first-listed valid external-cause-of-injury code, unless it is E000-E030. E849, E967, E869.4, E870–E879, or E930–E949; in which case, search additional external-cause-of-injury and diagnostic fields and use the next listed valid external-cause-of-injury 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 poisoning
E962	Assault by poisoning
E972	Injury due to legal intervention by gas
E980–E982	Poisoning undetermined whether accidentally or purposefully inflicted
E979 (.6–.7)	Terrorism involving biological or chemical weapons

DENOMINATOR	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, 2010 to July 1, 2011—RESIDENT” (see instructions on page 57).
MEASURES OF FREQUENCY	Annual number of hospitalizations. Annual incidence— crude and age-adjusted (standardized by the direct method to the year 2010 standard U.S. population). ²³ Rates should be calculated for age and sex.
DATA RESOURCES	State hospital discharge data (numerator) and population estimates from the U.S. Census Bureau or suitable alternative (denominator).
PERIOD FOR CASE DEFINITION	Calendar year based on date of discharge.
BACKGROUND	In 1999, 21 states reported that hospitalization rates were 4 to 15 times higher than death rates for poisoning-related injuries. ⁴³
LIMITATIONS OF INDICATOR	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.
LIMITATIONS OF DATA RESOURCES	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.
HEALTHY PEOPLE 2020 OBJECTIVES	IVP-10: Prevent an increase in the rate of nonfatal poisonings MPS-2.3: (Developmental) Reduce serious injuries from the use of pain medicines

POISONING INDICATOR 3: Poisoning Emergency Department Visits

DEMOGRAPHIC GROUP	All residents.
NUMERATOR	Emergency department visits identified from the injury emergency department visit subset (see methods on page 8 for developing the injury emergency department visit subset) by searching for external-cause-of-injury codes in the following manner: Search all diagnosis fields. If a designated external-cause-of-injury field is in your data set, start with that field. Count the first-listed valid external-cause-of-injury code, unless it is E000-E030, E849, E967, E869.4, E870–E879, or E930–E949; in which case, search additional external-cause-of-injury and diagnostic fields and use the next listed valid external-cause-of-injury code.

Poisoning Emergency Department Visit 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 poisoning
E962	Assault by poisoning
E972	Injury due to legal intervention by gas
E980–E982	Poisoning undetermined whether accidentally or purposefully inflicted
E979 (.6–.7)	Terrorism involving biological or chemical weapons

DENOMINATOR	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, 2010 to July 1, 2011—RESIDENT” (see instructions on page 57).
MEASURES OF FREQUENCY	Annual number of emergency department visits. Annual incidence— crude and age-adjusted (standardized by the direct method to the year 2000 standard U.S. population). ²³ Rates should be calculated for age and sex.
DATA RESOURCES	State emergency department data (numerator) and population estimates from the U.S. Census Bureau or suitable alternative (denominator).
PERIOD FOR CASE DEFINITION	Calendar year based on date of ED visit.
BACKGROUND	In 2010 there were over 1 million poisoning-related emergency department visits, of which 406,000 resulted in hospitalization or transfer for additional care. ¹
LIMITATIONS OF INDICATOR	Injuries that result in emergency department visits 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.
LIMITATIONS OF DATA RESOURCES	The accuracy of indicators based on codes found in emergency department data is limited by the completeness and quality of coding. The overall completeness of external-cause-of-injury coding is of particular concern and should be reviewed in conjunction with the indicator.
HEALTHY PEOPLE 2020 OBJECTIVES	IVP-10: Prevent an increase in the rate of nonfatal poisonings MPS-2.3: (Developmental) Reduce serious injuries from the use of pain medicines

POISONING INDICATOR 4: Acute Drug Overdose Fatalities

DEMOGRAPHIC GROUP All residents.

NUMERATOR Deaths with any of the following ICD-10 codes as an underlying cause of death.⁴⁴

Acute Drug Overdose Fatality ICD-10 Codes

X40–X44	Accidental poisoning by drugs
X60–X64	Intentional self-poisoning by drugs
X85	Assault by drug poisoning
Y10–Y14	Drug poisoning of undetermined intent

DENOMINATOR 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, 2010 to July 1, 2011—RESIDENT” (see instructions on page 57).

MEASURES OF FREQUENCY Annual number of deaths. Annual mortality rate— crude and age-adjusted (standardized by the direct method to the year 2000 standard U.S. population).²³ Rates should be calculated for age and sex.

DATA RESOURCES Death certificate data from vital statistics agencies (numerator) and population estimates from the U.S. Census Bureau or suitable alternative (denominator).

PERIOD FOR CASE DEFINITION Calendar year based on date of death.

BACKGROUND In 2010, drug overdose deaths (38,329), a subcategory of poisoning deaths, exceeded the number of deaths from motor vehicle traffic crashes (33,687), the leading cause of injury death in the United States.⁴⁵

LIMITATIONS OF INDICATOR 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.

LIMITATIONS OF DATA RESOURCES 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 underlying-cause-of-death field.

HEALTHY PEOPLE 2020 OBJECTIVES IVP-9: Prevent an increase in the rate of poisoning deaths
MPS-2.4: (Developmental) Reduce deaths from the use of pain medicines
SA-12: Reduce drug-induced deaths

SUICIDE/SUICIDE ATTEMPT INDICATOR 1:

Suicides

DEMOGRAPHIC GROUP All residents.

NUMERATOR Deaths with any of the following ICD-10 codes as an underlying cause of death.

Suicide ICD-10 Codes

X60–X84	Intentional self-harm
Y87.0	Sequelae of intentional self-harm
*U03	Terrorism-intentional self-harm

DENOMINATOR 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, 2010 to July 1, 2011—RESIDENT” (see instructions on page 57).

MEASURES OF FREQUENCY Annual number of deaths. Annual mortality rate— crude and age-adjusted (standardized by the direct method to the year 2000 standard U.S. population).²³ Rates should be calculated for age and sex.

DATA RESOURCES Death certificate data from vital statistics agencies (numerator) and population estimates from the U.S. Census Bureau or suitable alternative (denominator).

PERIOD FOR CASE DEFINITION Calendar year based on date of death.

BACKGROUND In 2010, suicide was the second leading cause of death among adults ages 25 to 34 years and the third leading cause of death for adolescents and young adults ages 10 to 24 years.¹

LIMITATIONS OF INDICATOR 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.

LIMITATIONS OF DATA RESOURCES 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 underlying-cause-of-death field.

HEALTHY PEOPLE 2020 OBJECTIVES MHMD-1: Reduce the suicide rate

SUICIDE/SUICIDE ATTEMPT INDICATOR 2: Suicide Attempt Hospitalizations

DEMOGRAPHIC GROUP	All residents.
NUMERATOR	Hospitalizations identified from the injury hospital discharge subset (see methods on page 6 for developing the injury hospital discharge subset) by searching for external- cause-of-injury codes in the following manner: Search all diagnosis fields. If there is a designated external-cause-of-injury field in your data set, start with that field. Count the first-listed valid external-cause-of-injury code, unless it is E000-E030, E849, E967, E869.4, E870–E879, or E930–E949; in which case, search additional external-cause-of-injury and diagnostic fields and then use the next listed valid external-cause-of-injury code.

Suicide Attempt Hospitalization ICD-9-CM Codes

E950–E959	Suicide and self-inflicted injury
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DENOMINATOR	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, 2010 to July 1, 2011—RESIDENT” (see instructions on page 57).
MEASURES OF FREQUENCY	Annual number of hospitalizations. Annual incidence— crude and age-adjusted (standardized by the direct method to the year 2000 standard U.S. population). ²³ Rates should be calculated for age and sex.
DATA RESOURCES	State hospital discharge data (numerator) and population estimates from the U.S. Census Bureau or suitable alternative (denominator).
PERIOD FOR CASE DEFINITION	Calendar year based on date of discharge.
BACKGROUND	In 2010, there were an estimated 465,000 hospital emergency department visits for suicide attempts in the United States. ¹
LIMITATIONS OF INDICATOR	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.
LIMITATIONS OF DATA RESOURCES	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 external-cause-of-injury coding is of particular concern and should be reviewed in conjunction with the indicator.
HEALTHY PEOPLE 2020 OBJECTIVES	IVP-41: Reduce nonfatal intentional self-harm injuries MHMD-2: Reduce suicide attempts by adolescents

SUICIDE/SUICIDE ATTEMPT INDICATOR 3: Suicide Attempt Emergency Department Visits

DEMOGRAPHIC GROUP	All residents.
NUMERATOR	Emergency department visits identified from the injury emergency department visit subset (see methods on page 8 for developing the injury emergency department visit subset) by searching for external-cause-of-injury codes in the following manner: Search all diagnosis fields. If there is a designated external-cause-of-injury field in your data set, start with that field. Count the first-listed valid external-cause-of-injury code, unless it is E000-E030, E849, E967, E869.4, E870–E879, or E930–E949; in which case, search additional external-cause-of-injury and diagnostic fields and then use the next listed valid external-cause-of-injury code.

Suicide Attempt Emergency Department Visit ICD-9-CM Codes

E950–E959	Suicide and self-inflicted injury
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DENOMINATOR	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, 2010 to July 1, 2011—RESIDENT” (see instructions on page 57).
MEASURES OF FREQUENCY	Annual number of emergency department visits. Annual incidence— crude and age-adjusted (standardized by the direct method to the year 2000 standard U.S. population). ²³ Rates should be calculated for age and sex.
DATA RESOURCES	State emergency department data (numerator) and population estimates from the U.S. Census Bureau or suitable alternative (denominator).
PERIOD FOR CASE DEFINITION	Calendar year based on date of ED visit.
BACKGROUND	In 2010, there were an estimated 465,000 hospital emergency department visits for suicide attempts in the United States. ¹
LIMITATIONS OF INDICATOR	Injuries that result in emergency department visits 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.
LIMITATIONS OF DATA RESOURCES	The accuracy of indicators based on codes found in emergency department data is limited by the completeness and quality of coding. The overall completeness of external-cause-of-injury coding is of particular concern and should be reviewed in conjunction with the indicator.
HEALTHY PEOPLE 2020 OBJECTIVES	IVP-41: Reduce nonfatal intentional self-harm injuries MHMD-2: Reduce suicide attempts by adolescents

SUICIDE/SUICIDE ATTEMPT INDICATOR 4: Suicide Attempts in High School Students

This indicator will be calculated at CDC.

DEMOGRAPHIC GROUP	Students in grades 9–12.
NUMERATOR	Respondents in grades 9–12 who reported attempting suicide one or more times in the past 12 months.
DENOMINATOR	Total respondents in grades 9–12.
MEASURES OF FREQUENCY	Annual prevalence— crude.
DATA RESOURCES	Data from the Youth Risk Behavior Survey (YRBS). ²⁰
PERIOD FOR CASE DEFINITION	Previous 12 months.
BACKGROUND	Suicide is the third leading cause of death in young adults aged 15–24. ¹ For every death in this age group, there are 100–200 suicide attempts. ⁴⁶
LIMITATIONS OF INDICATOR	Self-reported data only represent a small portion of the overall burden of injury. An evaluation of only these injuries may not present an accurate picture of all injuries.
LIMITATIONS OF DATA RESOURCES	As with all self-reported sample surveys, YRBS data might be subject to systematic error resulting from noncoverage (e.g., no participation by certain schools), nonresponse (e.g., refusal to participate in the survey or to answer specific questions), or measurement (e.g., social desirability or recall bias).
HEALTHY PEOPLE 2020 OBJECTIVES	MHMD-2: Reduce suicide attempts by adolescents

SUICIDE/SUICIDE ATTEMPT INDICATOR 5: Suicide Attempts in High School Students That Required Medical Attention

This indicator will be calculated at CDC.

DEMOGRAPHIC GROUP	Students in grades 9–12.
NUMERATOR	Respondents in grades 9–12 who reported attempting suicide one or more times in the past 12 months.
DENOMINATOR	Total respondents in grades 9–12.
MEASURES OF FREQUENCY	Annual prevalence— crude.
DATA RESOURCES	Data from the Youth Risk Behavior Survey (YRBS). ²⁰
PERIOD FOR CASE DEFINITION	Previous 12 months.
BACKGROUND	Suicide is the third leading cause of death in young adults aged 15–24. ¹ For every death in this age group, there are 100–200 suicide attempts. ⁴⁶
LIMITATIONS OF INDICATOR	Self-reported data only represent a small portion of the overall burden of injury. An evaluation of only these injuries may not present an accurate picture of all injuries.
LIMITATIONS OF DATA RESOURCES	As with all self-reported sample surveys, YRBS data might be subject to systematic error resulting from noncoverage (e.g., no participation by certain schools), nonresponse (e.g., refusal to participate in the survey or to answer specific questions), or measurement (e.g., social desirability or recall bias).
HEALTHY PEOPLE 2020 OBJECTIVES	MHMD-2: Reduce suicide attempts by adolescents

TRAUMATIC BRAIN INJURY INDICATOR 1:

Traumatic Brain Injury Fatalities

DEMOGRAPHIC GROUP All residents.

NUMERATOR First, limit deaths to those with an injury underlying cause of death (V01–Y36, Y85–Y87, Y89, *U01–*U03). Then select deaths with any of the following ICD-10 codes in any field of the multiple cause of death file.

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
S04.0	Injury of optic nerve and pathways
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

* These codes are not considered valid in the U.S.

DENOMINATOR 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, 2010 to July 1, 2011—RESIDENT” (see instructions on page 57).

MEASURES OF FREQUENCY Annual number of deaths. Annual mortality rate— crude and age-adjusted (standardized by the direct method to the year 2000 standard U.S. population).²² Rates should be calculated for age and sex.

DATA RESOURCES Death certificate data from vital statistics agencies (numerator) and population estimates from the U.S. Census Bureau or suitable alternative (denominator).

PERIOD FOR CASE DEFINITION Calendar year based on date of death.

BACKGROUND Of the approximately 1.7 million people who sustained a TBI in the United States each year, an estimated 52,000 died; 275,000 were hospitalized; and 1.365 million were treated and released from an emergency department.⁴⁴

LIMITATIONS OF INDICATOR 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.

LIMITATIONS OF DATA RESOURCES The accuracy of indicators based on codes found in vital statistics data is limited by the completeness and quality of coding.

HEALTHY PEOPLE 2020 OBJECTIVES IVP-2.1 Reduce fatal traumatic brain injuries

TRAUMATIC BRAIN INJURY INDICATOR 2: Traumatic Brain Injury Hospitalizations

DEMOGRAPHIC GROUP	All residents.
NUMERATOR	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

Diagnosis codes

800.00–801.99	Fracture of the vault or base of the skull
803.00–804.99	Other and unqualified or multiple fractures of the skull
850.0–850.9	Concussion
851.00–854.19	Intracranial injury, including contusion, laceration, and hemorrhage
950.1–950.3	Injury to the optic chiasm, optic pathways, or visual cortex
959.01	Head injury, unspecified
995.55	Shaken infant syndrome

DENOMINATOR	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, 2010 to July 1, 2011—RESIDENT” (see instructions on page 57).
MEASURES OF FREQUENCY	Annual number of hospitalizations. Annual incidence— crude and age-adjusted (standardized by the direct method to the year 2000 standard U.S. population). ²³ Rates should be calculated for age and sex.
DATA RESOURCES	State hospital discharge data (numerator) and population estimates from the U.S. Census Bureau or suitable alternative (denominator).
PERIOD FOR CASE DEFINITION	Calendar year based on date of discharge.
BACKGROUND	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. ^{48, 49}
LIMITATIONS OF INDICATOR	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.
LIMITATIONS OF DATA RESOURCES	The accuracy of indicators based on codes found in hospital discharge data is limited by the completeness and quality of coding.
HEALTHY PEOPLE 2020 OBJECTIVES	IVP-2.2 Reduce hospitalization for nonfatal traumatic brain injuries

TRAUMATIC BRAIN INJURY INDICATOR 3: Traumatic Brain Injury Emergency Department Visits

DEMOGRAPHIC GROUP	All residents.
NUMERATOR	Emergency department visits with any of the following ICD-9-CM diagnostic codes. These should be identified by searching all diagnostic fields of the injury emergency department visit subset (see methods on page 8 for developing the injury emergency department visit subset).

Traumatic Brain Injury Emergency Department Visit ICD-9-CM Codes

Diagnosis codes

800.00–801.99	Fracture of the vault or base of the skull
803.00–804.99	Other and unqualified or multiple fractures of the skull
850.0–850.9	Concussion
851.00–854.19	Intracranial injury, including contusion, laceration, and hemorrhage
950.1–950.3	Injury to the optic chiasm, optic pathways, or visual cortex
959.01	Head injury, unspecified
995.55	Shaken infant syndrome

DENOMINATOR	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, 2010 to July 1, 2011—RESIDENT” (see instructions on page 57).
MEASURES OF FREQUENCY	Annual number of emergency department visits. Annual incidence— crude and age-adjusted (standardized by the direct method to the year 2000 standard U.S. population). ²³ Rates should be calculated for age and sex.
DATA RESOURCES	State emergency department data (numerator) and population estimates from the U.S. Census Bureau or suitable alternative (denominator).
PERIOD FOR CASE DEFINITION	Calendar year based on date of ED visit.
BACKGROUND	Of the 1.365 million emergency department visits for TBI annually, almost half a million (473,947 or 34.7% of all TBI emergency department visits) are by children aged 0 to 14 years. ⁴⁷
LIMITATIONS OF INDICATOR	Injuries that result in emergency department visits 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.
LIMITATIONS OF DATA RESOURCES	The accuracy of indicators based on codes found in emergency department data is limited by the completeness and quality of coding.
HEALTHY PEOPLE 2020 OBJECTIVES	IVP-2.3 Reduce emergency department visits for nonfatal traumatic brain injuries

TRAUMATIC BRAIN INJURY INDICATOR 4: Bicycle Helmet Use Among High School Students

This indicator will be calculated at CDC.

DEMOGRAPHIC GROUP	Students in grades 9–12.
NUMERATOR	Respondents in grades 9–12 who reported never or rarely wearing a helmet when riding a bicycle in the past 12 months.
DENOMINATOR	Respondents in grades 9–12 who reported riding a bicycle in the past 12 months.
MEASURES OF FREQUENCY	Annual prevalence— crude.
DATA RESOURCES	Data from the Youth Risk Behavior Survey (YRBS). ²⁰
PERIOD FOR CASE DEFINITION	Previous 12 months.
BACKGROUND	Wearing an approved bicycle helmet that fits properly can help reduce the risk of brain injury.
LIMITATIONS OF INDICATOR	Self-reported data only represent a small portion of the overall burden of injury. An evaluation of only these injuries may not present an accurate picture of all injuries.
LIMITATIONS OF DATA RESOURCES	As with all self-reported sample surveys, YRBS data might be subject to systematic error resulting from noncoverage (e.g., no participation by certain schools), nonresponse (e.g., refusal to participate in the survey or to answer specific questions), or measurement (e.g., social desirability or recall bias).
HEALTHY PEOPLE 2020 OBJECTIVES	IVP-21: Increase the number of States and the District of Columbia with laws requiring bicycle helmets for bicycle riders

CALCULATING AND SUBMITTING RATES

Calculation Formula and Instructions

Preformatted rate calculation spreadsheets have been prepared for the hospital discharge, emergency department, and vital records-based indicators. These spreadsheets can be obtained from Karen Thomas at KEMThomas@cdc.gov. 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 submission number.

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:
 - <http://www.census.gov/popest/data/state/asrh/2011/index.html> (preferred)
 - Scroll to “Downloadable datasets”
 - Find “State Single Year of Age and Sex Population Estimates: April 1, 2010 to July 1, 2011—RESIDENT”
 - Download File layout
 - Download CSV File
 - your state’s demographic center
- Compute rates per 100,000 population.
- For each indicator, except hip fracture hospitalizations, 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+

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 (1,000's)	Adjustment 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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