



Useful Data Sources for Injury Prevention Work

Introduction

The implementation and evaluation of injury prevention work relies on evidence gathered from many different sources. Injury surveillance data can be used to identify populations at risk, track emerging issues, and characterize and monitor injury trends. This guide was designed to empower local public health partners, injury prevention coordinators, and other stakeholders within the trauma system to easily access relevant data for exploring the status of injury and trauma in Montana communities.

This document describes the scope, means to gain access, description, strengths, and limitations for various injury surveillance data sources, and gives detailed instructions on how to conduct searches and queries where public access portals are available. If a specific question cannot be addressed using the resources outlined here, you are encouraged to submit a data request via the [EMSTS Data Request Form](#).

Please contact DPHHS Injury Prevention Program with comments, questions or requests for technical support.

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Montana Vital Statistics Death Data

Scope: Montana vital statistics death data includes deaths of Montana residents that occur in Montana or that occur to a Montana resident out-of-state¹. The data come from death certificates, which are maintained by the Montana Office of Vital Statistics.

Access:

- Data is available from 2003 onward. New data is released 6-9 months after the end of a calendar year
- Aggregate statistics can be queried via MT-IBIS (See: [How to query death data on MT-IBIS](#))
- Aggregate statistics can be requested through the [EMSTS Data Request Form](#)
- Contact DPHHS Vital Statistics Analysis Unit to obtain a dataset for public health research

Description: Montana death data, based on ICD-10 coded death certificates, include the following:

- Demographic data: address, age, sex, race, occupation
- Circumstances of the death: date, location, injury-related
- Injury information: date, location, description of injury, decedent's role in traffic crash, occupational injury, alcohol involvement
- ICD-10 coded underlying cause of death (1 code) and contributing causes of death (up to 19 codes)

Strengths:

- County level data is available
- Population-based: Vital event registration is required by law
- Standardized: Enables comparisons between counties in Montana
- Many resources on using ICD-10 coded data for injury surveillance (See: [ICD-10 Injury Resources](#))
- MT-IBIS can generate age-adjusted rates, age-specific rates, crude rates, and counts. Results can be viewed as a table, chart, or map

Limitations:

- Limited number of injury related fields available to query in MT-IBIS
- Lag in data availability
- Reporting limitations due to small counts in Montana

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¹ State records may vary slightly from nationally published statistics. MT Office of Vital Statistics relies on other jurisdictions to transfer records of vital events that occur to Montana residents outside of the state. It is unlikely that Montana receives 100% of these out of state records.



How to query death data on MT-IBIS

Open the MT-IBIS Query Builder by selecting your desired outcome measure below:

- [Counts- Number of deaths](#)
- [Crude death rates](#)
- [Age-adjusted death rate](#)
- [Average Age at Death](#)
- [Number of Years of Potential Life Lost \(YPLL\) before age 75](#)
- [Rate of YPLL per 100,000 population](#)

You will see some (or all) of the following options, depending on which outcome measure you select:

Step 1: TOPIC: Cause of Death	▼
Step 2: GEOGRAPHIC AREA:	▼
Step 3: TIME PERIOD: Year (2017)	▼
Step 4: POPULATION: Age of decedent	▼
Step 5: POPULATION: Sex of decedent	▼
Step 6: POPULATION: Race/Ethnicity	▼
Step 7: How to display the data (Grouped By: Geographic Area. Chart: None)	▼

Cause of Death: The MT-IBIS database includes all deaths regardless of cause, so you need to use [ICD-10 codes](#) to restrict your search to specific injury-related cause(s) of death. You have the option to choose from the [NCHS List of 113](#) selected causes of death, a list based on ICD-10 Codes that is widely used to provide a consistent cause-of-death ranking standard (The NCHS 39 and 50 leading causes of death are taken from the list of 113).

Injury-related causes of death available in the [NCHS List of 113](#) are:

- 96 Unintentional/accidental, Motor vehicle crash
- 97 Unintentional/accidental, Other land transport related
- 98 Unintentional/accidental, Water, air and space, and other transport related
- 99 Unintentional/accidental, Falls
- 100 Unintentional/accidental discharge of firearms
- 101 Unintentional/accidental drowning and submersion
- 102 Unintentional/accidental exposure to smoke, fire and flames
- 103 Unintentional/accidental poisoning and exposure to noxious substances
- 104 Unintentional/accidental, Other and unspecified nontransport accidents and their sequelae
- 105 Intentional self-harm (suicide) by discharge of firearms





- 106 Intentional self-harm (suicide) by other and unspecified means
- 107 Assault (homicide) by discharge of firearms
- 108 Assault (homicide) by other and unspecified means
- 109 Legal intervention
- 110 Discharge of firearms, undetermined intent
- 111 Other and unspecified events of undetermined intent and their sequelae
- 112 Operations of war and their sequelae
- 113 Complications of medical and surgical care

If your specific topic is not available in the NCHS List of 113, then you can manually enter [ICD-10 codes](#) to capture your topic by choosing “User Defined Causes”. To view work-related injury deaths, select “Work-Related Deaths”:

- Codes are alphanumeric²
- Use a hyphen to indicate a range of codes, and use a space or comma between codes or code ranges
- For additional guidance on code selection see: [ICD-10 Injury Resources](#)

Step 1: TOPIC: Cause of Death

(W32-W34, X93-X95, Y22-Y24, X72-X74, U01.4, Y35.0, Y36.4)

First choose a coding scheme to use for causes of death. Default is all NCHS 50 leading causes. ?

- NCHS 39 leading causes of death
- NCHS 50 leading causes of death
- NCHS 113 selected causes of death
- Tobacco-related Deaths (Click Selection Below, will turn blue when selected)
- Work-related Deaths (Click Selection Below, will turn blue when selected)
- User defined causes

W32-W34, X93-X95, Y22-Y24, X72-X74, U01.4, Y35.0, Y36.4

Geographic Area: Restrict your search based on geographic area. Choose a classification scheme to categorize the decedent’s place of residence:

- County of residence
- Health planning region of residence (Counties grouped into 5 regions)
- Urban-rural residence (Counties grouped by [NCHS urban-rural classification scheme](#))

Step 2: GEOGRAPHIC AREA:

Select geographic area(s) (decedent's residence). (Default is all Montana counties.) ?

- County of residence
- Health Planning Region of Residence
- Urban and Rural Counties of Residence

All Montana Counties (Default)
Small Metro (Population < 250,000)
Micropolitan (Population 10,000-49,999)
Noncore (Population < 10,000)

² S82 includes all codes under S82, from S82.0 to S82.9. The code S82 will not be included if you specify a range from S82.0-S82.9 (with decimals). A range of S82-S83 would include all codes under S82 and S83, from S82.0-S83.9.



Time Period: Identify the year(s) to include in your search (single years, ranges of years). If you want to view your results by individual year, use “Single Years” and select multiple years using Ctrl or Shift key.

Step 3: TIME PERIOD: Year
(2017, 2016, 2015, 2014, 2013, 2012, 2011, 2010, 2009, 2008)

What year grouping do you want to select? Default is single years, most recent year.

Single years

- 2011
- 2010
- 2009
- 2008
- 2007
- 2006

Enter custom year groups. Data Available for years 2003 - 2017. (NOTE: Do not use overlapping years/year ranges.)

Age of decedent: Restrict your search based on age of the decedent (Default is all ages). Note that this option is NOT available if you are querying Age-Adjusted Death Rate or YPLL as your outcome. This option is only available when looking at Count, Crude Rate, or Average Age at Death as the outcome measure.

Sex of decedent: Restrict your search based on Sex of the Decedent (Default is both sexes)

Race/ethnicity of decedent: Restrict your search based on Race/Ethnicity (Default is all race/ethnicities)

How to display the data: Configure the results table, chart, or map to meet your needs

- Display by (REQUIRED): Defines the data's primary grouping dimension (category). The “display by” value/dimension is associated with the rows in your results table.
- Group By (OPTIONAL): Defines the optional secondary grouping dimension (Series). Data is aggregated by this variable within each primary dimension grouping.
- Chart (OPTIONAL): Defines the optional chart graphic to display. Note that Maps and some charts, like the "Pie" chart, are currently not programmed to handle more than one grouping dimension
- Primary Measure: Defines the primary measure value to display in the map and graph.

Step 6: How to display the data
(Grouped By: Year x Geographic Area. Chart: Stacked Vertical Bar)

Display By (category)	Year
Group By (series)	Geographic Area
Chart	Stacked Vertical Bar
Primary Measure	Deaths per 100,000 Population (Age-adjusted)

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WISQARS Fatal Injury Data

Scope: Web-based Injury Statistics Query and Reporting System (WISQARS) is an online interactive query system focused solely on injury deaths³. The underlying data come from the national database of death certificates, compiled by NCHS. Statistics for a given state reflect deaths of residents of that state, including resident deaths that occurred out-of-state.

Access:

- Data is available from 1999 onward. New data is released 18 months after the end of a calendar year
- Various statistics and reports can be generated via WISQARS (See: [How to use WISQARS Fatal](#))

Description:

 WISQARS offers five types of reports:

- Mortality reports: provide number of injury deaths and death rates for specific external causes of injury
- Leading causes of death reports: provide the number of injury-related deaths relative to the number of other leading causes of death in the United States or in individual states.
- YPLL: compare premature mortality (early death) between different causes of death.
- Fatal injury mapping reports: display injury mortality on a map
- Cost of injury reports: show estimated costs associated with injury

WISQARS Fatal data, based on ICD-10 coded death certificates, include the following:

- Demographic data: state of residence, age, sex, race (white, black, American Indian/Alaskan Native, Asian and Pacific Islander, and other), Hispanic origin (Yes/No)
- Circumstances of the death: date, location
- Injury information: Intent/manner and mechanism/cause of injury (based on [ICD-10 external cause of injury matrix](#))

Strengths:

- Population-based: Vital event registration is required by law.
- Standardized: Enables comparisons between US states
- Many resources on using ICD-10 coded data for injury surveillance (See: [ICD-10 Injury Resources](#))
- WISQARS can generate age-adjusted rates, age-specific rates, crude rates, and counts
- WISQARS allows users to easily specify a population of interest based on demographic variables

Limitations:

- County level data is not available
- Lag in data availability
- Reporting limitations due to small counts in Montana
- Cannot search by user-specified codes. All reports are based on pre-defined code groupings

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³ A death is considered an “injury death” if the underlying cause of death is any of the following ICD-10 codes: V01-Y36, Y85-Y87, Y89, and U01-U03



How to use WISQARS Fatal

Open the desired report type by clicking on the link below, and follow the instructions in the tutorials:

- [Fatal Injury](#): These reports provide tables of the total numbers of injury-related deaths and death rates per 100,000 population, by Intent and/or Mechanism ([Fatal Injury Reports Tutorial](#))
- [Leading causes of death](#): These reports use the annual mortality data compiled by NCHS to compute and rank the leading causes of death (includes non-injury related causes) ([Leading Causes of Death Report Tutorial](#))
- [Years of potential life lost \(YPLL\)](#): YPLL is a measure of premature mortality (early death). YPLL provides insight into the impact of injury-related death on society compared to other leading causes of death. This measure is important for injury prevention because injury is the leading cause of death for persons aged 1 through 34 years. ([YPLL Report Tutorial](#))
- [Fatal injury mapping](#): Allows you to show injury data on a map, which can help illustrate a number of things, such as how certain areas can be impacted by a specific type of injury or where prevention efforts should be focused ([Fatal Injury Mapping Report Tutorial](#))
- [Cost of injury](#): Produces reports showing estimated costs associated with injury

Fatal Injury Data

Reports, Charts, and Maps

- [WISQARS Data Visualization](#)
- [Fatal Injury Reports 1981-2017](#)
- [Fatal Injury Maps 2008-2014](#)
- [Cost of Injury Reports 2010](#)
- [Leading Causes of Death 1981-2017](#)
- [Years of Potential Life Lost \(YPLL\) 1981-2017](#)

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Hospitalization Data

Scope: Includes inpatient discharges from short stay non-Federal hospitals that participate with Montana Hospital Association (MHA). Includes MT residents and non-residents, and in-facility deaths.

Access:

- Data is available from 2000 onward. New data is released 6 months after the end of a calendar year
- Aggregate statistics available via MT-IBIS (See: [How to query hospitalization data on MT-IBIS](#))
- Aggregate statistics can be requested through the [EMSTS Data Request Form](#)
- Contact DPHHS Hospital Discharge Data System to obtain data for public health research

Description: Hospitalization data, based on the Uniform Billing 2004 (UB-04) form, include the following:

- Demographic elements, such as age, sex, and county of residence
- ICD-9-CM or ICD-10-CM⁴ coded primary diagnosis code (1 code), subsequent diagnosis codes (up to 8 codes), external cause codes (up to 3 codes), and procedure codes
- Billing elements, such as primary payer, total hospital charges

Strengths:

- Contains nearly 95% of hospital discharges in the state
- Standardized: Enables comparisons between counties in Montana, as well as with other states
- County-level data available
- Hospital charges variable can be used to describe the financial impact of injury
- Reflects injuries severe enough to require hospitalization due to injury⁵
- MT-IBIS can generate age-adjusted rates, age-specific rates, crude rates, and counts. Results can be viewed as a table, chart, or map

Limitations:

- No information from federal facilities such as Indian Health Service or Veterans Affairs hospitals
- De-identified: cannot identify repeat admissions by the same patient
- Lag in data availability
- No fields specifically related to trauma
- Incomplete E-coding: There is no external cause reporting mandate for health facilities in Montana
- Reporting limitations due to small counts in Montana

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⁴ ICD-9-CM used for all records with a discharge date before October 1, 2015. ICD-10-CM used for all records with a discharge date on or after October 1, 2015.

⁵ CMS guidelines dictate that the primary diagnosis code for hospitalizations must reflect the main reason for admission



How to query hospitalization data on MT-IBIS

Open the MT-IBIS Query Builder by selecting your desired outcome measure below:

- [Counts- Number of hospitalizations](#)
- [Crude hospitalization rates](#)
- [Age-adjusted hospitalization rates](#)

You will see some (or all) of the following options, depending on which outcome measure you select:

Step 1: Select year
(2017)

Step 2: Select diagnosis

Step 3: POPULATION: Select age

Step 4: POPULATION: Sex of patient

Step 5: Montana Resident:
(Montana Residents)

Step 6: GEOGRAPHIC AREA:

Step 7: How to display the data
(Grouped By: Geographic Area. Chart: None. Map: RedSchemeDefault)

Select Year: Identify the year(s) to include in your search. Use the Shift or Ctrl key to select multiple years if desired. Note that the US transitioned from ICD-9-CM to ICD-10-CM on October 1, 2015. Use caution when querying a range of years that spans across the transition.

Step 1: Select year
(2017, 2016)

What year grouping do you want to select? Default is single years, most recent year.

Single years

2017
 2016
 2015
 2014
 2013



Select Diagnosis: MT-IBIS includes all hospitalizations regardless of cause, so you need to restrict your search to injury-related hospitalizations. This section allows the user to select hospital records based on the primary diagnosis code. The primary diagnosis is the condition established, after complete evaluation, to be primarily responsible for and the primary focus of the admission. Note that you cannot search by injury mechanism or injury intent because this information is captured by external cause of injury codes; this type of code is not found in the primary diagnosis field.

You have the option to choose from Major Diagnosis Category (MDC) or diagnosis-related group (DRG), which are both groupings related to reimbursement for medical care:

- Major Diagnosis Category: Each MDC corresponds to a single organ system or particular medical specialty. MDCs are grouped according to primary diagnosis.
- Diagnosis Related Group: DRGs are intended to categorize patients by their similar clinical characteristics and costs. DRGs identify the "products" that the patient received. DRG is determined by the primary diagnosis, procedures (if any), and certain secondary diagnoses identified by CMS as comorbidities and complications (CCs) and major comorbidities and complications (MCCs). DRG codes also are mapped, or grouped, into MDC codes.

Injury-related MDCs include:

- MDC 21 Injuries, Poison, and Toxic Effect of Drugs ([DRGs mapped to MDC 21](#))
- MDC 22 Burns ([DRGs mapped to MDC 22](#))
- MDC 24 Multiple significant Trauma ([DRGs mapped to MDC 24](#))

If your specific topic is not available in the list of MDCs or DRGs, then you can manually enter [ICD-9-CM](#) or [ICD-10-CM](#) codes to capture your topic by choosing "User defined diagnoses (primary)":

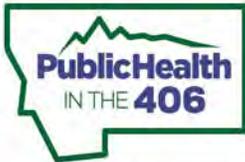
- The ICD-9-CM to ICD-10-CM transition occurred on October 1, 2015. ICD-9-CM coded injury data are not comparable to ICD-10-CM coded injury data. The date range of your data query determines which coding scheme should be used. (Use ICD-9-CM for records with a discharge date before October 1, 2015. Use ICD-10-CM for records with a discharge date on or after October 1, 2015.)
- Enter Diagnosis codes ONLY. No external cause codes will be found in the primary diagnosis field.
- Codes are alphanumeric⁶
- Use a hyphen to indicate a range of codes, and use a space or comma between codes or code ranges
- For additional guidance on code selection see: [ICD-9-CM Injury Resources](#), [ICD-10-CM Injury Resources](#)

Age of patient: Restrict your search based on age of the patient (Default is all ages). Note that this option is NOT available if you are querying Age-Adjusted hospitalization Rate as your outcome. This option is only available when looking at Count or Crude Rate as the outcome measure.

Sex of patient: Restrict your search based on Sex of the patient (Default is both sexes)

⁶ S82 includes all codes under S82, from S82.0 to S82.9. The code S82 will not be included if you specify a range from S82.0-S82.9 (with decimals). A range of S82-S83 would include all codes under S82 and S83, from S82.0-S83.9.





Montana Resident: Restrict your search based on residency. You can elect to include non-MT residents. (Default is Montana Residents only)

Step 5: Montana Resident:
(Montana Residents, Non-residents)

Select residency. (Default includes Montana residents only.)

- Montana Residents
- Non-residents

Geographic Area: Restrict your search based on geographic area. Choose a classification scheme to categorize patient's place of residence:

- Health planning region of residence (Counties grouped into 5 regions)
- Urban-rural residence (Counties grouped by [NCHS urban-rural classification scheme](#))
- Note that county-level data is not available here (To obtain county-level hospitalization data see: [MT-IBIS Community Health Profiles: Injury Indicators](#) or fill out the [EMSTS Data Request Form](#))

Step 5: GEOGRAPHIC AREA:

Select geographic area(s), (Default is all Montana Health Planning Regions.)

- Health Planning Region of Residence
 - All health planning regions (Default)
 - Region 1 (Eastern)
 - Region 2 (North Central)
 - Region 3 (South Central)
- Urban and Rural Counties of Residence

How to display the data: Configure the results table, chart, or map to meet your needs

- Display by (REQUIRED): Defines the data's primary grouping dimension (category). The "display by" value/dimension is associated with the rows in your results table.
- Group By (OPTIONAL): Defines the optional secondary grouping dimension (Series). Data is aggregated by this variable within each primary dimension grouping.
- Chart (OPTIONAL): Defines the optional chart graphic to display. Note that Maps and some charts, like the "Pie" chart, are currently not programmed to handle more than one grouping dimension
- Primary Measure: Defines the primary measure value to display in the map and graph.

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Emergency Department (ED) Visit Data

Scope: Includes ED discharges from short stay non-Federal hospitals that participate with Montana Hospital Association (MHA). Includes MT residents and non-residents, and in-facility deaths. ED data excludes ED visits that result in inpatient hospitalization.

Access:

- Data is available from 2010 onward. New data is released 6 months after the end of a calendar year
- Aggregate statistics available via MT-IBIS (See: [How to query ED Data on MT-IBIS](#))
- Aggregate statistics can be requested through the [EMSTS Data Request Form](#)
- Contact DPHHS Hospital Discharge Data System to obtain data for public health research

Description: ED visit data, based on the Uniform Billing 2004 (UB-04) form, include the following:

- Demographic elements, such as age, sex, and county of residence
- ICD-9-CM or ICD-10-CM⁷ coded first-listed diagnosis code (1 code), subsequent diagnosis codes (up to 8 codes), external cause codes (up to 3 codes), and Current Procedural Terminology (CPT) codes
- Billing elements, such as primary payer, total hospital charges

Strengths:

- Contains nearly 95% of ED discharges in the state
- Standardized: Enables comparisons between counties in Montana, as well as with other states
- County-level data available
- Hospital charges variable can be used to describe the financial impact of injury
- MT-IBIS can generate age-adjusted rates, age-specific rates, crude rates, and counts. Results can be viewed as a table, chart, or map

Limitations:

- No information from federal facilities such as Indian Health Service or Veterans Affairs hospitals
- De-identified: cannot identify repeat admissions by the same patient
- Lag in data availability
- No fields specifically related to trauma
- Incomplete E-coding: There is no external cause reporting mandate for health facilities in Montana
- Reporting limitations due to small counts in Montana

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⁷ ICD-9-CM used for all records with a discharge date before October 1, 2015. ICD-10-CM used for all records with a discharge date on or after October 1, 2015.



How to query ED Data on MT-IBIS

Open the MT-IBIS Query Builder by selecting your desired outcome measure below:

- [Counts- Number of ED Visits](#)
- [Crude ED Visit rates](#)
- [Age-adjusted ED Visit rates](#)

You will see some (or all) of the following options, depending on which outcome measure you select:

Step 1: Select year
(2017)

Step 2: Select diagnosis

Step 3: Select procedure

Step 4: POPULATION: Select age

Step 5: POPULATION: Sex of patient

Step 6: Montana Resident:
(Montana Residents)

Step 7: GEOGRAPHIC AREA:

Step 8: How to display the data
(Grouped By: Geographic Area. Chart: None. Map: RedSchemeDefault)

Select Year: Identify the year(s) to include in your search. Use the Shift or Ctrl key to select multiple years if desired. Note that the US transitioned from ICD-9-CM to ICD-10-CM on October 1, 2015. Use caution when querying a range of years that spans across the transition.

Step 1: Select year
(2017, 2016)

What year grouping do you want to select? Default is single years, most recent year.

Single years

2017

2016

2015

2014

2013



Select Diagnosis: MT-IBIS includes all ED discharges regardless of cause, so you need to restrict your search to injury-related visits. This section allows the user to select ED records based on searching all available ICD diagnosis and external cause codes.

To manually enter [ICD-9-CM](#) or [ICD-10-CM](#) codes to capture your topic, choose “User defined diagnosis or e-codes- any diagnosis code or E code”

- The ICD-9-CM to ICD-10-CM transition occurred on October 1, 2015. ICD-9-CM coded injury data are not comparable to ICD-10-CM coded injury data. The date range of your data query determines which coding scheme you should use. (Use ICD-9-CM for all records with a discharge date before October 1, 2015. Use ICD-10-CM for all records with a discharge date on or after October 1, 2015.)
- Enter Diagnosis codes and/or external cause codes
- Codes are alphanumeric⁸
- Use a hyphen to indicate a range of codes, and use a space or comma between codes or code ranges
- For additional guidance on code selection see: [ICD-9-CM Injury Resources](#), [ICD-10-CM Injury Resources](#)

Drug overdose indicators available in MT-IBIS are:

- All drug overdose
- Opioid overdose (excluding heroin)
- Heroin overdose

Step 2: Select diagnosis

(W67,W16.011, W16.012, W16.021, W16.022, W16.031, W16.032, W16.511, W16.512, W16.521, W16.522, W16.531, W16.532, W17.3, W21.4, Y21.2, Y21.3)

First choose a coding scheme to use for Diagnosis. Default is all diagnoses.(Note: 1-When you display or group by, codes on same line will be combined, codes on separate lines will have separate counts 2-You must have entered some codes if you choose to display or group-by)

- User Defined Diagnoses (Primary)
- User-defined diagnosis or E codes - any diagnosis code or E code

W67,W16.011, W16.012, W16.021, W16.022, W16.031, W16.032, W16.511, W16.512, W16.

- Drug Overdose Indicators

⁸ S82 includes all codes under S82, from S82.0 to S82.9. The code S82 will not be included if you specify a range from S82.0-S82.9 (with decimals). A range of S82-S83 would include all codes under S82 and S83, from S82.0-S83.9.





Select Procedure: Restrict your search to specific ICD-9-CM or ICD-10-CM CPT procedure codes. CPT codes are used to describe tests, surgeries, evaluations, and any other medical procedure performed by a healthcare provider on a patient. You can choose to search Primary procedure code only, or all procedure code fields.

- Use ICD-9-CM for all records with a discharge date before October 1, 2015. Use ICD-10-CM for all records with a discharge date on or after October 1, 2015.
- Codes are alphanumeric⁹
- Use a hyphen to indicate a range of codes, and use a space or comma between codes or code ranges

Age of patient: Restrict your search based on age of the patient (Default is all ages). Note that this option is NOT available if you are querying Age-Adjusted ED Visit Rate as your outcome. This option is only available when looking at Count or Crude Rate as the outcome measure.

Sex of patient: Restrict your search based on Sex of the patient (Default is both sexes)

Montana Resident: Restrict your search based on residency. You can elect to include non-MT residents. (Default is Montana Residents only)

Geographic Area: Restrict your search based on geographic area. Choose a classification scheme to categorize patient's place of residence:

- Health planning region of residence (Counties grouped into 5 regions)
- Urban-rural residence (Counties grouped by [NCHS urban-rural classification scheme](#))
- Note that county-level data is not available here (To obtain county-level ED visit data see: [MT-IBIS Community Health Profiles: Injury Indicators](#) or fill out the [EMSTS Data Request Form](#))

How to display the data: Configure the results table, chart, or map to meet your needs

- Display by (REQUIRED): Defines the data's primary grouping dimension (category). The "display by" value/dimension is associated with the rows in your results table.
- Group By (OPTIONAL): Defines the optional secondary grouping dimension (Series). Data is aggregated by this variable within each primary dimension grouping.
- Chart (OPTIONAL): Defines the optional chart graphic to display. Note that Maps and some charts, like the "Pie" chart, are currently not programmed to handle more than one grouping dimension
- Primary Measure: Defines the primary measure value to display in the map and graph.

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Emergency Medical Services (EMS) Data

Scope: Includes patient care documentation collected by emergency care providers during each patient encounter, reported by all ambulance services and non-transporting units licensed in the State of Montana

Access:

- Data is available from 2017 onward. New data is available as soon as it is uploaded (At least quarterly)
- Aggregate statistics and de-identified data can be requested through the [EMSTS Data Request Form](#)
- Contact DPHHS EMS System to obtain data for public health research

Description: EMS data, based on the NEMSIS standard, include the following:

- Dispatch/response
- Patient demographics
- Circumstances of the incident
- Condition of the patient
- Any interventions done
- Transport/disposition
- Access the full [NEMSIS v3.4.0 Data Dictionary](#)

Strengths:

- Population based: Reporting mandated by law
- Standardized: Enables comparisons between counties in Montana, as well as with other states
- The data is available in near real-time
- Exact incident location available
- Contains trauma-specific data elements (Vital signs, injury severity)
- Detailed narrative field

Limitations:

- Data quality is variable
- Reporting limitations due to small counts in Montana

Data Contact:

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Trauma Registry

Scope: Includes detailed clinical data on trauma patients that meet annually defined registry inclusion criteria (the criteria allow the registry to capture only the more severely injured patients). Trauma registrars at each hospital collect and enter the data, which is extracted from the patient's medical record and the EMS run report.

Access:

- Data is available from 2003 onward. New data is available 3-6 months after the end of each quarter
- Aggregate statistics can be requested through the [EMSTS Data Request Form](#)
- Contact DPHHS Trauma Program to obtain data for public health research

Description: Trauma registry data include the following:

- Patient characteristics
- Injury characteristics (date, time, and place of injury, intent/manner and cause/mechanism of injury)
- Prehospital information (response times, vital signs, interventions)
- Details of trauma team activation
- Referral information if the patient was an inter-facility transfer
- Emergency department/ resuscitation details (ED arrival date/time and status, vital signs, labs, Post-ED disposition)
- Providers (Type of provider, name, response time)
- Procedures (ICD10 PCS codes, Location, start and end date/time, physician)
- Diagnosis (ICD10 CM diagnosis codes, AIS scores)
- Outcome (Discharge date/time, status, and condition, complications, total ICU and Ventilator days, discharged /transferred to, billing data)

Strengths:

- Captures the whole process from injury incident, to prehospital care, to inpatient care
- Detailed clinical and physiological information

Limitations:

- Data quality is variable
- Inclusion criteria can vary from year-to-year
- May not capture patients who die before reaching the hospital
- Reporting limitations due to small counts in Montana

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Prescription Drug Registry

Scope: Includes detailed information on all Schedule II, III, IV, and V prescriptions filled by pharmacies holding an active Montana license, with the exception of Wholesale Drug Distributors.

Access:

- Data is available from 2012-2019.
- Aggregate statistics can be requested through the [EMSTS Data Request Form](#)

Description: Prescription Drug Registry data that is available for request include:

- Patient characteristics (age, sex)
- Drug strength and dosage
- Average daily Morphine Milligram Equivalents (MME)

Strengths:

- All pharmacies holding an active license, with the exception of Wholesale Drug Distributors, are required to report to the Prescription Drug Registry by close of the next business day after the prescription is dispensed
- Aggregate data can be broken down by age and sex across several years
- County-level data is available

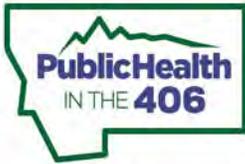
Limitations:

- Controlled substances administered in a facility are not required to be reported

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Montana Crash Data

Scope: Includes all crashes (fatal and non-fatal) involving a motor vehicle traveling on a traffic-way customarily open to the public within Montana. Fatal crashes are defined as resulting in the death of an occupant of a vehicle or a non-occupant within 30 days of the crash¹⁰

Access:

- Data is available for the previous 10 years
- Several prepared MS Excel spreadsheets are available from the [MDT Crash Data Website](#)
- MDT has provided [Crash Data Instructions](#) to help with navigating the spreadsheets

Description: The spreadsheets, based on crash reports collected by law enforcement officers, summarize and aggregate Montana crash data in a variety of ways:

- All Montana Crashes
- Impaired driver involved
- Unrestrained vehicle occupants
- Roadway departure
- Intersection crashes
- Non-motorists in crash
- Motorcycle crashes
- Older driver (55 and older)
- Teen drivers

Strengths:

- County, city, and reservation level data available
- Population-based
- Detail on crash circumstances and common risk factors

Limitations:

- Does not include crashes outside of public roadways
- Injury severity is not assessed by a health professional
- Seatbelt data is not reliable for non-fatal injuries

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¹⁰ State fatal crash records may vary slightly from national records, compiled by FARS. FARS cases are generally not uploaded until toxicology and death certificates are available, whereas not all the toxicology reporting is loaded into the State database.



FIRST: NHTSA Crash Data

Scope: The Fatality and Injury Reporting System Tool ([FIRST](#)) is an online interactive system that allows users to construct customized queries from NHTSA's crash datasets.

[Fatality Analysis Reporting System \(FARS\)](#) contains data on all fatal traffic crashes that occur on public roadways in the US. Fatal crashes are defined as resulting in the death of an occupant of a vehicle or a non-occupant within 30 days of the crash

[General Estimates System \(NASS-GES\)/Crash Report Sampling System \(CRSS\)](#) contains data from a nationally representative sample of police-reported crashes involving all types of motor vehicles, pedestrians, and cyclists, ranging from property-damage-only crashes to those that result in fatalities. NASS-GES/CRSS are useful for generating injury and property damage estimates. CRSS is a redesigned version of the NASS-GES and replaced the older system in 2016.

Access:

- Open [FIRST](#) to create a query. The [Help Manual](#) details all system functions and step-by-step procedures for building your query
- Query data for all datasets is available from 2004 onward.

Description: [FIRST](#) is a topic-driven query tool offering the following topics for users to select:

- Crashes: Data specific to the crash (date, time, location, first harmful event, weather conditions)
- Vehicles: Data specific to each in-transport motor vehicle involved in a crash
- People: Data specific to each person involved in the crash including motorists and non-motorists
- Drivers: Driver data may include registration state, license type/status, previous violations, condition
- Occupants: Data specific to drivers, passengers, and persons on exterior of a motor vehicle (age, sex, seating position, restraint system/helmet use, alcohol or drug involvement, and injury severity)
- Pedestrians: Person on foot involved in motor vehicle crash (position, direction at the time of the crash)
- Pedal cyclists: Pedal cyclist involved in motor vehicle crash (position, direction at the time of the crash)

After selecting a topic, the user is provided with choices such as fatality/injury type, selecting year, geography, and other elements that help narrow down the query or build the query the way the user wants.

Strengths:

- County and city level data are available
- FARS is population-based and NASS-GES/CRSS uses representative sampling methods
- Standardized: Enables comparisons between jurisdictions in Montana, as well as with other states
- High level of detail on crash circumstances and risk factors

Limitations:

- Does not include crashes that occur outside of public roadways
- For non-fatal crashes, injury severity is not assessed by a health professional
- Lag in data availability
- Reporting limitations due to small counts in Montana

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Behavioral Risk Factor Surveillance System (BRFSS) Data

Scope: BRFSS is a cross-sectional nationwide telephone survey conducted annually in all 50 states as well as the District of Columbia and three US territories. Non-institutionalized adults (18+) are randomly selected using both cell phone and land line numbers and surveyed regarding their health-related risk behaviors, chronic health conditions, and use of preventive services.

Access:

- Data is available from 1984 onward, however, starting in 2011 BRFSS estimates can no longer be directly compared to estimates from previous years. All years going forward from 2011 can be compared to one another.¹¹
- Montana BRFSS data can be queried via MT-IBIS (See: [How to query BRFSS Data on MT-IBIS](#))
- Use CDC's [BRFSS Prevalence and Trends Tool](#) to explore data by location, by topic, or to work directly with the data (state-specific question not included)

Description: The BRFSS survey consists of core questions, optional modules, and state-added questions which may rotate and vary by year. Topics pertaining to injury prevention include:

- Drinking and driving
- Seat belt use
- Fall injuries among adults age 45 years or older
- Demographic information such as age, race, income, education, disability status, and sex

Strengths:

- Representative sampling methods are designed to provide prevalence estimates at the State level
- Standardized: Enables comparisons with other states

Limitations:

- County level information not available
- Self-reported: May be subject to recall bias and social desirability bias

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¹¹ In 2011, new methodological changes were made to improve the accuracy, coverage, validity, and representativeness of BRFSS data (adding cell phone sampling and using a larger number of socio-demographics to weight the data). However, this prevents comparisons to data using the prior survey methodology.



How to query BRFSS Data on MT-IBIS

Browse [all BRFSS data on MT-IBIS](#) from 2011 onward, or open the MT-IBIS Query Builder by selecting a survey question below (Outcome measure = age-adjusted rates, Years 2011 and Later):

- [Drinking and driving in last 30 days](#) (Even years)
- [Seat Belt Use](#) (Every year)
- [Had a fall in last 12 months \(Adults Age 45+\)](#) (Even years)
- [Injured in a fall \(Adults Age 45+\)](#) (Even years)

You will see some (or all) of the following options, depending on which survey question you select:

Step 1: INDICATOR: Always Wore Seat Belt <i>(Did Not Always Wear Seat Belt)</i>	+
Step 2: TIME PERIOD: Select Year <i>(2016, 2015, 2014)</i>	+
Step 3: GEOGRAPHIC AREA: NOTE: When Montana Overall is selected, a blank map will appear in results	+
Step 4: POPULATION: Select sex	+
Step 5: POPULATION: Select other demographic characteristics	+
Step 6: How to display the data <i>(Grouped By: Geography. Chart: Vertical Bar. Map: RedSchemeDefault)</i>	+

Indicator: For some of the topics, you can choose the percentage to calculate. For example, “Did not always wear a seatbelt” versus “Always wore a seatbelt” (framing the indicator positively or negatively)

Time Period: Identify the year(s) to include in your search. Certain questions are asked every year on the survey, while others are asked biennially.

Geographic Area: Restrict your search based on geographic area. Choose a classification scheme to categorize decedent’s place of residence:

- Montana, Overall
- Health planning region of residence (Counties grouped into 5 regions)
- Urban-rural residence (Counties grouped by [NCHS urban-rural classification scheme](#))

Sex of decedent: Restrict your search based on Sex of the Decedent (Default is all records)





Other demographic characteristics: Restrict your search based on other demographic characteristics (Default is all records)

Step 5: POPULATION: Select other demographic characteristics

Make selections here to filter the dataset to a subpopulation. (Default includes ALL SURVEY RESPONDENTS) ?
For statewide analyses, leave boxes unchecked. To group your results by these variables, select them in the last step, "How to display the data."

- Race/Ethnicity
- Marital Status
- Education
- Employment Status
- Income
- Veteran Status
- Home Ownership
- Health Insurance Coverage

How to display the data: Configure the results table, chart, or map to meet your needs

- Display by (REQUIRED): Defines the data's primary grouping dimension (category). The "display by" value/dimension is associated with the rows in your results table.
- Group By (OPTIONAL): Defines the optional secondary grouping dimension (Series). Data is aggregated by this variable within each primary dimension grouping.
- Chart (OPTIONAL): Defines the optional chart graphic to display. Note that Maps and some charts, like the "Pie" chart, are currently not programmed to handle more than one grouping dimension

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Youth Risk Behavior Survey (YRBS) Data

Scope: YRBS is a cross-sectional nationwide classroom-based paper survey conducted biennially on odd years, monitoring priority health-risk behaviors that contribute substantially to the leading causes of death, disability, and social problems among youth. In Montana, students in grades 9-12 are surveyed

Access:

- Data is available from 1988 onward. New data is released 6-9 months after the end of a calendar year
- State YRBS data can be queried via CDC's Youth Online (See: [How to use Youth Online](#))

Description: YRBS survey questions are organized into general health topics. The topics that pertain to injury prevention include:

- Unintentional injuries and violence: Questions related to seatbelt use, drinking and driving behaviors, texting and driving, sexual and physical violence and bullying
- Alcohol and other drug use: Questions related to ever/current use of alcohol and marijuana, ever use of cocaine, MDMA, etc.

Strengths:

- Representative sampling methods are designed to provide prevalence estimates at the State level
- Standardized: Enables comparisons with other states

Limitations:

- County level information not available
- Self-reported: May be subject to recall bias and social desirability bias

Data Contact:

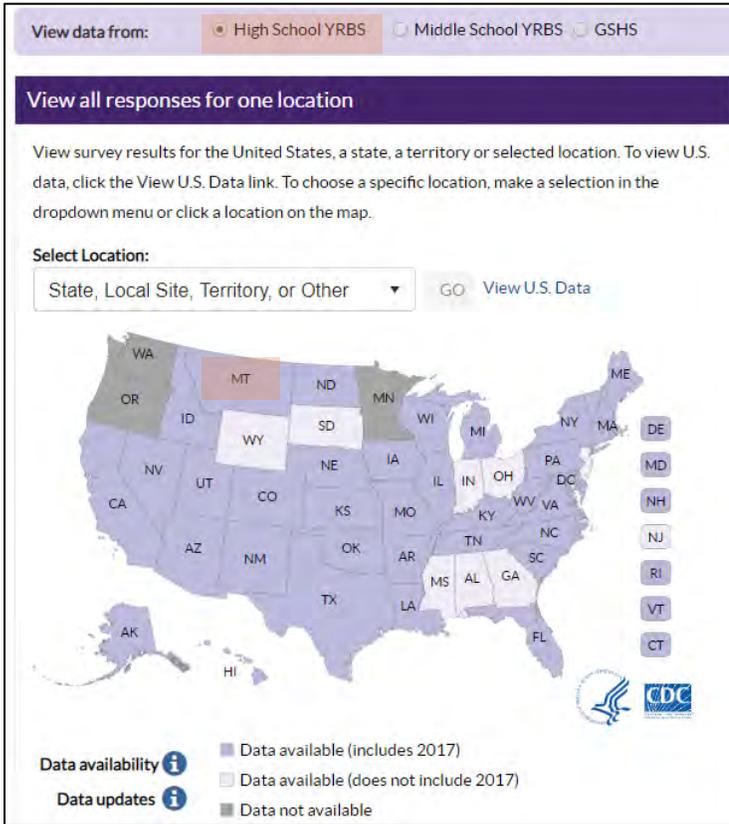
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How to use Youth Online

See the [Youth Online Help Page](#) for detailed instructions.

- Open the [Youth Online query builder](#)
- Select View data from: “High School YRBS”
- Click on the state of Montana on the US Map (Under “View all responses for one location”)



View data from: High School YRBS Middle School YRBS GSHS

View all responses for one location

View survey results for the United States, a state, a territory or selected location. To view U.S. data, click the View U.S. Data link. To choose a specific location, make a selection in the dropdown menu or click a location on the map.

Select Location:

State, Local Site, Territory, or Other [View U.S. Data](#)

Data availability

- Data available (includes 2017)
- Data available (does not include 2017)
- Data not available

You can view results as a Table or Graph. The [Youth Online help page on viewing and modifying tables](#) gives detailed instructions on how to configure your results. Use the options to filter or display by:

- Sex
- Race
- Grade
- Sexual identity
- Sex of sexual contacts

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MT-IBIS Community Health Profiles: Injury Indicators

Open the [MT-IBIS Community Health Profiles page](#) to produce an injury indicator report for a selected county¹² or urban-rural county grouping. The report includes comparison values for Montana (overall) and US. The following injury indicators are available through the Community Health Profiles. Each indicator is calculated as an age-adjusted rate, separately for ED Visits and Hospitalizations:

- All Injury and Poisoning
- Unintentional Injury
- Intentional self-harm
- Assault injury
- Traumatic Brain Injury
- Unintentional motor vehicle traffic
- Unintentional Fall injury
- Unintentional Drug Poisoning
- Intentional self-harm drug poisoning

First, you select the community, then select “Injury indicators”, and then select the additional page content to be viewed for the selected community. Click “SUBMIT” to view the report.

The screenshot shows a four-step process for generating a report:

- Step 1: Select a Community
- Step 2: Select a Set of Health Indicators
- Step 3: Select Additional Information for Your Report
- Finish: Click the [Submit] button after completing Steps 1-3.

At the bottom of the form are two buttons: "Submit" and "Reset".

Select a Community: Restrict your search based on geographic area. Choose a classification scheme to categorize patient’s place of residence:

- County
- Urban-rural residence (Counties grouped by [NCHS urban-rural classification scheme](#))

Select “Injury Indicators”:

The screenshot shows the "Step 2: Select a Set of Health Indicators" section. It includes the instruction "Select the measures to include in your report." and a list of options:

- Health Professional Shortage Area: demographics
- Health Professional Shortage Area: community characteristics
- Community Health Profile: behavioral health
- Community Health Profile: chronic conditions
- Community Health Profile: injury indicators
- Community Health Profile: infectious disease indicators

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¹² This is useful because county level data is not available through the ED and Hospitalization query builders





Injury Coding Tools and Frameworks

ICD-10 Injury Resources

[Listing of ICD-10 codes](#)

[ICD-10 Cause-of-death lists for tabulating mortality statistics](#): NCHS List of 113 Selected Causes of death

[ICD-10 Injury Mortality Diagnosis Matrix](#) (PDF can be found [here](#)): Classify injury diagnoses by body region and nature of injury

[ICD-10 External Cause of Injury Mortality Matrix](#) (PDF can be found [here](#)): Classify external causes of injury by mechanism and intent

ICD-9-CM Injury Resources

[ICD-9-CM Barell Injury Diagnosis Matrix](#) (PDF can be found [here](#)): Classify injury diagnoses by body region and nature of injury

[ICD-9-CM External Cause Codes Matrix](#): Classify external causes of injury by mechanism and intent

ICD-10-CM Injury Resources

[CSTE ICD-10-CM Injury Surveillance Toolkit](#)

Proposed ICD-10-CM Injury Diagnosis Code Matrix (Not Yet Finalized) (PDF can be found [here](#)): Classify injury diagnoses by body region and nature of injury

ICD-10-CM External Cause of Injury Matrix (PDF can be found [here](#)): Classify external causes of injury by mechanism and intent

Excel spreadsheets for ICD-10-CM [Non-poisoning](#) and [Poisoning](#) external cause of injury codes

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Glossary of important terms

Brief definitions are given here, but MT-IBIS website has a more extensive glossary of terms with explanations:

<http://ibis.mt.gov/resource/Glossary.html>

Age-Adjusted Rate: A rate that is adjusted to control for age effects, allowing better comparability across different populations. This measure should be used when comparing across geographic areas or across several years of data

Age-Specific Rate: A rate that is calculated by dividing the total number of health events for the specific age group of interest by the total population in that age group

Count: The number of health events that occurred within a specified time period.

Crude Rate: A rate that is calculated by dividing the number of events by the total population at risk, with no adjustments for confounding variables such as the age distribution of the population.

YPLL: YPLL stands for "Years of Potential Life Lost," and is a measure of premature mortality due to one or more conditions. In Montana IBIS, it is calculated as age 75 minus the age at death.

Injury intent (manner): The intent or manner of injury is whether an injury was caused by an act carried out on purpose by oneself or by another person(s), with the goal of injuring or killing. Intent categories include unintentional, intentional self-harm, assault, and undetermined.

Injury mechanism (cause): The cause, or mechanism, of injury is the way in which the person sustained the injury; how the person was injured; or the process by which the injury occurred.

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