



**Missouri Environmental Public Health Tracking (EPHT) Network**  
 Metadata Record

## Carbon Monoxide Hospitalization Data

Description
<p><b>Citation</b></p> <p><b>Title:</b> Missouri Carbon Monoxide Poisoning Nationally Consistent Data and Measures (NCDM) hospitalization data for calendar years 2001-2008.</p> <p><b>Originators:</b> Missouri EPHT Program</p> <p><b>Publication date:</b> 01/26/2011</p>
<p><b>Description</b></p> <p><b>Abstract:</b> Carbon Monoxide poisoning data for Missouri residents for 2001-2008. Hospital admissions according to the specifications of the Indicator Template and the Content Domain. More information regarding the creation of this indicator can be found in the <i>Missouri EPHT Data and Statistical Guide</i> available at <a href="http://www.health.mo.gov/living/environment/epht/index.php">http://www.health.mo.gov/living/environment/epht/index.php</a>.</p> <p><b>Purpose:</b> This dataset is required by the Centers for Disease Control and Prevention for submission to the EPHT Network.</p> <p><b>Supplemental information:</b> This dataset was extracted from the Missouri Patient Abstract System (PAS). PAS contains inpatient hospitalization, emergency department, and ambulatory surgery center data. All acute care and rehabilitation hospitals, excluding federal and prison hospitals, report data by discharge year on a quarterly basis. In some instances, hospitals in adjacent/cooperating states provide inpatient records on Missouri residents. Records of hospitalizations provided by non-Missouri hospitals have been designated as out-of-state in the dataset.</p>
<p><b>Point of Contact</b></p> <p><b>Person:</b> Missouri EPHT Program Manager</p> <p><b>Organization:</b> Missouri Department of Health and Senior Services          Division of Community and Public Health          Section for Environmental Public Health          Bureau of Environmental Epidemiology</p> <p><b>Phone:</b> 573-751-6102  <b>Fax:</b> 573-751-6041  <b>Telecommunications Device or Teletypewriter (TDD/TTY) phone:</b> 800-669-8819  <b>Email:</b> <a href="mailto:EPHTN@health.mo.gov">EPHTN@health.mo.gov</a></p>

**Address type:** Mailing  
**Address:** PO Box 570  
**City:** Jefferson City  
**State or Province:** MO  
**Postal code:** 65102-0570  
**County:** Cole County

**Address type:** Physical  
**Address:** 930 Wildwood Drive  
**City:** Jefferson City  
**State or Province:** MO  
**Postal code:** 65109  
**County:** Cole County

#### **Data Type**

**Native dataset environment:** The file was created using SAS 9.1 on a UNIX system residing on a network of IBM servers.

#### **Time Period of Data**

**Beginning date:** 01/01/2001  
**Ending date:** 12/31/2008  
**Currentness reference:** Time Period End Date

#### **Status**

**Data status:** Complete

**Update frequency:** Annually

#### **Key Words**

**Theme:** Health  
**Keywords:** Carbon Monoxide, Carbon Monoxide Poisoning, Poisoning, CO2, ICD-9-CM Diagnosis code, E868, 986, hospitalization, inpatient, emergency, principal diagnosis, 029, Missouri, MO  
**Keyword thesaurus:** None

**Theme:** Health  
**Keywords:** Carbon Monoxide  
**Keyword thesaurus:** ICD-9-CM

**Place:** Location  
**Keywords:** 029, Missouri, MO  
**Keyword thesaurus:** FIPS 5-2 (State)

#### **Data Access Constraints**

**Access constraints:** Access to the records within this dataset requires permission from the Missouri Department of Health and Senior Services, Bureau of Health Informatics (BHI). To request record level data (whether identified or de-identified) for research, a principal investigator must submit a completed Application for Missouri Vital Records or Patient

## Abstract System Data for Research Purposes.

More information on obtaining permission to view and/or use this dataset is available at <http://www.health.mo.gov/data/policies.php>.

**Use constraints:** Missouri State Statutes and Code of Regulations allow for the release of Patient Abstract System (PAS) data by the Missouri Department of Health and Senior Services.

The Missouri Department of Health and Senior Services and other public health authorities are authorized to utilize PAS information for epidemiologic studies and for surveillance. Non-Missouri residents should contact the Missouri Department of Health and Senior Services for specific statutes, rules, and regulations that may affect the release and/or use of data. The below listed statutes apply to Missouri residents only.

- 192.067(1), RSMo, the department, for purposes of conducting epidemiological studies to be used in promoting and safeguarding the health of the citizens of Missouri ... is authorized to receive information from patient medical records.
- 192.067(2), RSMo, Medical information...may be released by the department only in a statistical aggregate form that precludes and prevents the identification of patient, physician, or medical facility except that medical information may be shared with other public health authorities and coinvestigators of a health study if they abide by the same confidentiality restrictions required of the department of health and senior services... The department of health and senior services, public health authorities and coinvestigators shall use the information collected only for the purposes provided ...
- 192.665(9), RSMo, "Patient abstract data", data submitted by hospitals which includes but is not limited to date of birth, sex, race, zip code, county of residence, admission date, discharge date, principal and other diagnoses, including external causes, principal and other procedures, procedure dates, total billed charges, disposition of the patient and expected source of payment with sources categorized according to Medicare, Medicaid, other government, workers' compensation, all commercial payors coded with a common code, self-pay, no charge and other.
- 192.667(7), RSMo, Information obtained by the department under the provisions of section 192.665 and this section shall not be public information...The department of health and senior services may authorize the use of the data by other research organizations pursuant to the provisions of section 192.067... The department shall not release data in a form which could be used to identify a patient. Any violation of this subsection is a class A misdemeanor.
- 19 CSR 10-33.010 Reporting Patient Abstract Data by Hospitals and Ambulatory Surgical Centers: (1)(A) Coinvestigator means any person or organization that applies to the department to be a coinvestigator of an epidemiological study; (C) Epidemiological study means research using patient abstract data to understand,

promote or safeguard the health of a defined population. No marketing study or study designed to use data on a specific provider shall be considered an epidemiological study; (M) Public health authority means a federal, state or local governmental agency which has as its mission and responsibility the promotion and safeguarding of the public's health.

- 19 CSR 10-33.010 Reporting Patient Abstract Data by Hospitals and Ambulatory Surgical Centers: (12) Any person may apply to the department to be a coinvestigator of an epidemiological study using patient abstract data. A research protocol shall be submitted which includes all of the following: (A) A description of the proposed study; (B) The purpose of the study; (C) A description of the data elements needed for the study; (D) A description of a tape or a report if either is required; (E) A statement indicating whether the study protocol has been reviewed and approved by an institutional review board; (F) A description of data security procedures, including who shall have access to the data; and (G) A description of the proposed use and release of the data.
- 19 CSR 10-33.010 Reporting Patient Abstract Data by Hospitals and Ambulatory Surgical Centers: (13) The director of the department shall appoint a data release advisory committee composed of three (3) persons representing the health care industry and three (3) persons representing researchers and consumers. The advisory committee shall review all research protocols of persons applying to be a coinvestigator of an epidemiological study using patient abstract data. The advisory committee shall make a recommendation to the director whether the coinvestigator protocol should be accepted, accepted with conditions, or rejected. The committee shall consider: (A) The review made by the staff of the department; (B) Whether the proposed study meets the definition of an epidemiological study; (C) The potential for the coinvestigator or any other person to use the data for nonepidemiological purposes; (D) The professional expertise of the applicant to conduct the study; (E) The appropriateness of the proposed study design; (F) The willingness and ability of the applicant to protect the identity of any patient, physician or provider; and (G) The data security measures and final disposition of the data proposed.
- 19 CSR 10-33.010 Reporting Patient Abstract Data by Hospitals and Ambulatory Surgical Centers: (14) The coinvestigator shall agree to the confidentiality, security and release of data requirements imposed by the department and shall agree to the review and oversight requirements imposed by the department.
- 19 CSR 10-33.010 Reporting Patient Abstract Data by Hospitals and Ambulatory Surgical Centers: (15) Data released to the coinvestigator shall not be rereleased in any form by the coinvestigator without the prior authorization of the department. Authorization for subsequent release of the data shall be considered only if the proposed release does not identify a patient, physician or provider.
- 19 CSR 10-33.010 Reporting Patient Abstract Data by Hospitals and Ambulatory Surgical Centers: (16) The following data elements permit identification of a patient, physician or provider, and are not to be rereleased by a coinvestigator:

patient name; patient Social Security number; any datum which applies to fewer than three (3) patients, physicians or providers; physician number; provider number; and a quantity figure if one (1) entity contributes more than sixty percent (60%) of the amount.

- 19 CSR 10-33.010 Reporting Patient Abstract Data by Hospitals and Ambulatory Surgical Centers: (17) The department shall release only those patient abstract data elements to the coinvestigator which the department determines are essential to the study. The Unique Physician Identification Number (UPIN) associated with any patient abstract data shall not be released to any coinvestigator. If the research being conducted by a coinvestigator requires a physician number, the department may create a unique number which is not the UPIN. The department shall not provide information which links the unique number to the name of the physician.
- 19 CSR 10-33.010 Reporting Patient Abstract Data by Hospitals and Ambulatory Surgical Centers: (18) No epidemiological study conducted with a coinvestigator shall be approved unless the department determines that: (A) The epidemiological study has public benefit sufficient to warrant the department to expend resources necessary to oversee the project with the coinvestigator; (B) The department has sufficient resources available to oversee the project with the coinvestigator; and (C) The data release advisory committee reviewed the study and the director of the department authorized approval.
- 19 CSR 10-33.010 Reporting Patient Abstract Data by Hospitals and Ambulatory Surgical Centers: (19) Public health authorities and coinvestigators receiving data shall be informed by the department of the penalty for violating section 192.067, RSMo.

*How should this dataset be used?*

Use of this data is restricted for statistical reporting and analysis only.

*How should this dataset not be used?*

Do not attempt to learn the identity of any person included in the data. Do not disclose or make use of the identity of any person or establishment discovered inadvertently and report the discovery to:

Missouri EPHT Program Manager  
Bureau of Environmental Epidemiology  
P.O. Box 570  
Jefferson City, MO 65102-0570  
Phone: 573-751-6102  
Email: [EPHTN@health.mo.gov](mailto:EPHTN@health.mo.gov)

*Can it be linked to other datasets?*

Do not combine this data with other data for the purpose of matching records to identify individuals. Do not disclose or make use of the identity of any person or

establishment discovered inadvertently and report the discovery to:

Missouri EPHT Program Manager  
Bureau of Environmental Epidemiology  
P.O. Box 570  
Jefferson City, MO 65102-0570  
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Can these data be used for commercial purposes?

No.

Can these data be used to form a basis for additional health studies or some remediation actions?

Possibly, please refer to application and review procedures for using Missouri's Patient Abstract System Data at <http://www.health.mo.gov/data/policies.php>.

What are the constraints for data interpretation?

Do not imply or state, either in written or oral form, that interpretations based on the data are those of the original data sources, the Missouri State Government, the Missouri Department of Health and Senior Services, or the Centers for Disease Control and Prevention unless the data user and data sources are formally collaborating and have received written permission to do so. Acknowledge, in all reports or presentations based on these data, the original source of the data, the Missouri Department of Health and Senior Services, and the Centers for Disease Control and Prevention.

#### Data Security Information

**Security classification system:** Contains small numbers which may allow indirect identification of patients, physicians or providers.

**Security classification:** Restricted

**Security handling:** Data must be stored on secure server. Additional security measures may be required. Specific security measures are available at <http://www.health.mo.gov/data/policies.php>.

#### Spatial Reference Information

##### Spatial Domain

##### Bounding Coordinates

In Unprojected coordinates (geographic)

Boundary	Coordinate
West	-95.77469999999996 (latitude)
East	-89.098842000000005 (latitude)

	North	40.613639999999997 (longitude)	
	South	35.995479000000003 (longitude)	

### Data Structure and Attribute Information

#### Overview

**Entity and attribute overview:** These data include inpatient records which have a principal diagnosis of carbon monoxide poisoning (ICD-9-CM 986, E868).

Records of transfer-to institutions have been deleted by identifying multiple records for a person using name, Social Security Number, date of birth, race, sex, hospital, medical record number, zip code, and principal diagnosis. Records were sorted by admit and discharge date and then the discharge disposition and dates were used to delete all transfer to records for that person.

Fields included in the data set are health outcome (carbon monoxide poisoning), state of residence, county of residence, admit year, admit month, age group, sex, race, whether race/ethnicity reported, ethnicity, whether transfers excluded, exclusion method, number of monthly hospitalization events, number of average daily events, number of monthly minimum daily events, number of monthly maximum daily events.

The dataset includes hospital admittance by calendar years 2001-2008 and were developed from hospital discharge files for 2001-2009.

**Entity and attribute detailed citation:** <http://www.health.mo.gov/data/patientabstract/system/index.php>

### Data Quality and Accuracy Information

#### General

**Logical consistency report:** Zip codes are compared to state and county codes to determine consistency of geocoding.

**Completeness report:** Completeness percents on the source files from which the Carbon Monoxide file was produced, for selected items, are as follows:

- Principal diagnosis: 99.9 percent complete for 2001-2009 discharge years.
- Patient name (used for unduplicating): 90-93 percent complete depending on year.
- Social Security Number (used for unduplicating): 80 percent all years.
- Race: 98 percent complete all years.
- Sex: 99.999 percent complete all years.
- Age: 99.9 percent complete all years.
- County of residence: 99.9 percent complete all years.
- Admit date: 99.999 percent complete all years.
- Zip code of residence: 99.9 percent complete all years.

- State of residence: 99.99 percent complete all years.
- Discharge disposition: 99.999 percent complete all years.
- Ethnicity: collected as part of race item in 2000, as separate item beginning in 2001; probably underreported; total count for "Hispanic" ranges from 6,490 in 2000 to 11,475 in 2009.

## Data Source and Process Information

### Process Steps

#### Process step information

##### Process Step 1

**Process description:** Hospital admission and discharge data are collected and compiled from hospitals by the Missouri Hospital Association then sent to the Missouri Department of Health and Senior Services as a SAS dataset for final editing and standardization and creation of variables used to respond to data requests and research.

**Process date:** 10/01/2010

##### Process Step 2

**Process description:** Using the annual discharge files for 2001-2009, the records for the carbon monoxide file were selected based on admission date occurring during 2001 to 2008, the appropriate diagnoses in the principal diagnosis field, and state of residence of Missouri, and hospitals located in Missouri.

**Process date:** 10/01/2010

##### Process Step 3

**Process description:** Once the relevant records were selected, persons with more than one record were given a common identification number using combinations of first and last name, Social Security Number, date of birth, race, sex, medical record number and admit and discharge dates.

**Process date:** 10/01/2010

##### Process Step 4

**Process description:** Using the created ID and the admit and discharge dates and discharge disposition codes, records were deleted if they followed a transfer record and the admit date was the same as the discharge date of the transfer record and the transfer was either to:

- 1) another hospital,
- 2) a skilled nursing facility in the same hospital,
- 3) an intermediate care facility, or
- 4) another type of institution for inpatient or outpatient services.

**Process date:** 10/01/2010



**Process Step 5**

**Process description:** Using the records that remained, the file was developed in accord with EPHT table shells to produce the requested statistics by carbon monoxide, residence county, admit year, race, age group, sex, ethnicity and month of admit.

**Process date:** 10/01/2010

**Process Step 6**

**Process description:** Metadata record created for the dataset using the EPHT Metadata Creation Tool., version 1.1.

**Process date:** 01/01/2011

**Process Step 7**

**Process description:** Missouri Metadata record created for the dataset using the Missouri EPHT Metadata Record format then converted to .pdf. The creation of a Missouri Metadata record is completed to assist users by offering the record in a format compatible with electronic reading devices and smart phones.

**Process date:** 06/01/2011

Data Distribution Information
<p><b>General</b></p> <p><b>Resource description:</b> XML file</p> <p><b>Distribution liability:</b> These data were provided by the Missouri Department of Health and Senior Services; the findings and conclusions based on these data are the sole responsibility of the author(s) of the study.</p> <p>Although every effort has been made to ensure the accuracy of the material contained in this dataset and the Missouri EPHT Network Portal, complete accuracy cannot be guaranteed. The Missouri Department of Health and Senior Services is not responsible for any errors or misprints contained herein and cannot accept any responsibility whatsoever for loss or damage occasioned or claimed to have been occasioned, in part or in full, as a consequence of any person acting, or refraining from acting, as a result of a matter contained within the Missouri EPHT Network Portal.</p> <p><b>Distribution Point of Contact</b></p> <p><b>Person:</b> Missouri EPHT Program Manager  <b>Organization:</b> Missouri Department of Health and Senior Services            Division of Community and Public Health            Section for Environmental Public Health            Bureau of Environmental Epidemiology</p> <p><b>Phone:</b> 573-751-6102  <b>Fax:</b> 573-751-6041</p>

**Telecommunications Device or Teletypewriter (TDD/TTY) phone:** 800-669-8819

**Email:** [EPHTN@health.mo.gov](mailto:EPHTN@health.mo.gov)

**Address type:** Mailing

**Address:** PO Box 570

**City:** Jefferson City

**State or Province:** MO

**Postal code:** 65102-0570

**County:** Cole County

**Address type:** Physical

**Address:** 930 Wildwood Drive

**City:** Jefferson City

**State or Province:** MO

**Postal code:** 65109

**County:** Cole County

### **Custom Order Process**

**Custom order process:** To request record level data (whether identified or de-identified) for research, a principal investigator must submit a completed Application for Missouri Patient Abstract System Data for Research Purposes. The application requires detailed information about the study protocol, justification for all data elements requested (each data element must be related to the hypotheses), and measures to ensure the confidentiality and security of the data. All information must be clear, consistent and specific. General descriptions do not allow accurate assessment of the value of the study or the need for the data items. Release of data from vital records and/or the Patient Abstract System by the Missouri Department of Health and Senior Services is granted to an agency/institution for the sole purpose of the research project described in the protocol application. The applicant will be required to complete and sign an Agreement for Oversight. All persons that will have access to the data must be listed in the application and will be required to sign Confidentiality Pledge prior to being granted access to the study data.

It is the principal investigator's responsibility to design a valid study that would make a contribution to public health, and it is not the department's role to help refine a faulty study or a poorly described study until it meets generally acceptable scientific standards. Protocols of this nature will be rejected and further processing of such applications will be discontinued. An application will be immediately rejected if it is determined that 1) it does not clearly describe a well-designed research or epidemiologic study, 2) the data will be used for commercial or marketing purposes, or private gain, 3) being a co-investigator would overburden the department, or 4) there is reason to believe that confidentiality of the data would be jeopardized by its release.

Researchers interested in obtaining DHSS data should first familiarize themselves with the data sets prior to designing their studies (see Data and Surveillance Systems at

<http://health.mo.gov/data/index.php>). Only those data elements related to the hypotheses and necessary for the study should be requested. The principal investigator will be notified of any discrepancy between the list of data elements requested in the research protocol and those determined by DHSS staff to be needed.

Patient Abstract Data custodian contact information may be found at <http://health.mo.gov/data/pdf/contactus.pdf>.

PLEASE NOTE: Research proposals involving Patient Abstract System data are also reviewed by an independent Data Release Advisory Committee (DRAC) and submitted to the Department of Health & Senior Services (DHSS), Institutional Review Board (IRB) for review, prior to final study approval determination.

If the study/project involves linkage with another data set or contact with family, next-of-kin or acquaintance, DHSS IRB approval is required. A request for identifiable record level data for living subjects (e.g., birth records) shall also require approval by the DHSS IRB. Requests for de-identified files do not require approval by the DHSS IRB.

In addition to the protocol application, the following forms must also be completed for DHSS IRB review and approval (when applicable):

- Abstract of Protocol
- IRB Form 1 'Request for Review of Research Protocol'
- Protocol Template
- Checklist for Submission of Research/Study Protocols

If a study does not involve DRAC and/or DHSS IRB review, we suggest submitting a completed application at least two-to-three months prior to when data will be needed. Studies involving DRAC and/or DHSS IRB review generally require a longer review period, so we suggest submitting the completed application and IRB packet at least four-to-five months prior to when data will be needed. Protocol applications are reviewed on an 'as time permits' basis between other priority projects. The complexity of the requested data sets and the number of priority projects may impact the response time. Please plan accordingly.

Regardless of the duration of the study/project, approval is only for one year at a time. Annual review is required for each study for as long as Department data are held.

More information on obtaining a custom created dataset is available at <http://www.health.mo.gov/data/policies.php>

<b>Metadata Reference</b>
<b>Metadata Date</b>
<b>Last updated:</b> 01/05/2009
<b>Metadata Point of Contact</b>
<p><b>Person:</b> Missouri EPHT Program Manager  <b>Organization:</b> Missouri Department of Health and Senior Services  Division of Community and Public Health  Section for Environmental Public Health  Bureau of Environmental Epidemiology</p> <p><b>Phone:</b> 573-751-6102  <b>Fax:</b> 573-751-6041  <b>Telecommunications Device or Teletypewriter (TDD/TTY) phone:</b> 800-669-8819  <b>Email:</b> <a href="mailto:EPHTN@health.mo.gov">EPHTN@health.mo.gov</a></p> <p><b>Address type:</b> Mailing  <b>Address:</b> PO Box 570  <b>City:</b> Jefferson City  <b>State or Province:</b> MO  <b>Postal code:</b> 65102-0570  <b>County:</b> Cole County</p> <p><b>Address type:</b> Physical  <b>Address:</b> 930 Wildwood Drive  <b>City:</b> Jefferson City  <b>State or Province:</b> MO  <b>Postal code:</b> 65109  <b>County:</b> Cole County</p>
<b>Metadata Access Constraints</b>
<b>Access constraints:</b> None <b>Use constraints:</b> None
<b>Metadata Standards</b>
<b>Standard name:</b> FGDC Content Standard for Geospatial Metadata