



U.S. Department of Health and Human Services



Agency for Healthcare Research and Quality

Advancing Excellence in Health Care • www.ahrq.gov

The Healthcare Cost and Utilization Project (HCUP)

**Tools and Products to Support Health Services
Research and Policy Analysis**

**Agency for Healthcare Research and Quality
Webinar ♦ September 30, 2015**



AHRQ – Agency within DHHS



United States Department of
Health & Human Services



- **Brief Database Review**
- **Tools & Software**
- **Supplemental Files**
- **HCUPnet Overview**
- **HCUP Fast Stats**
- **Publications and Publication Search**
- **How to Access HCUP Resources**

Healthcare Cost and Utilization Project (HCUP)



H·CUP

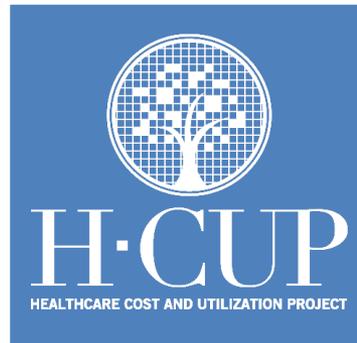
HEALTHCARE COST AND UTILIZATION PROJECT

**THE LARGEST COLLECTION OF MULTI-YEAR,
ALL-PAYER, ENCOUNTER-LEVEL:**

**INPATIENT
EMERGENCY DEPARTMENT
AMBULATORY SURGERY**

HOSPITAL-BASED ADMINISTRATIVE DATA

HCUP is a comprehensive set of publicly available all-payer health care data



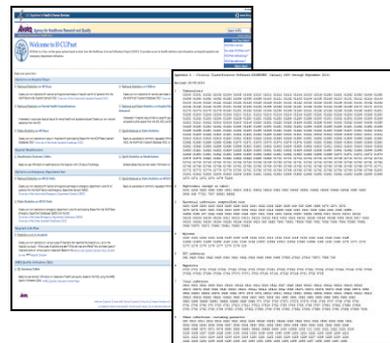
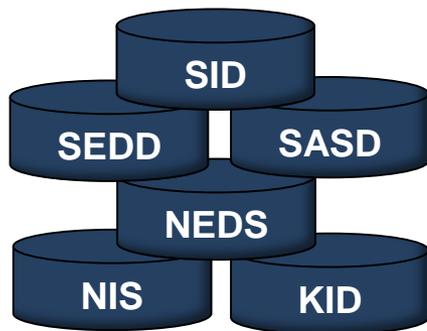
Includes multi-year inpatient and outpatient data, based on the hospital billing record

HCUP Databases

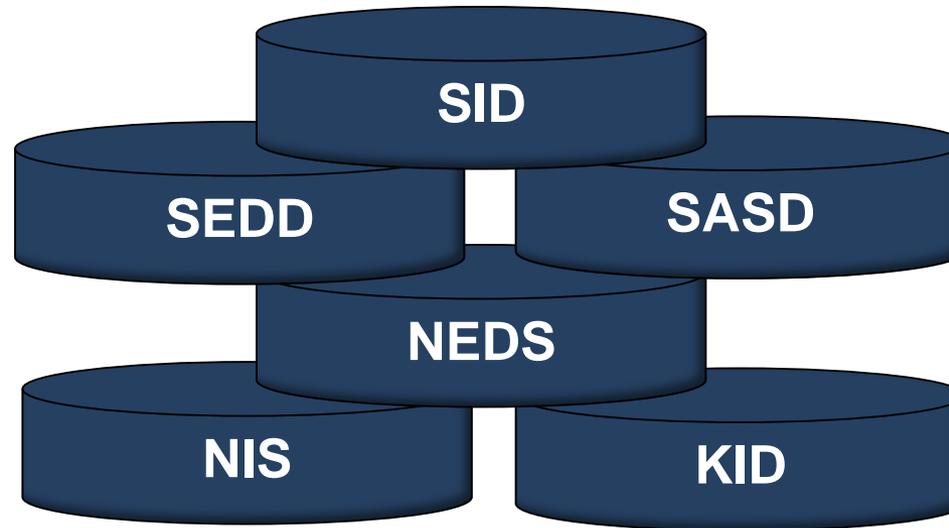
Research Tools

Research Publications

User Support



The Core of HCUP: Hospital-Based IP, ED, AS Databases



Inpatient, Emergency Department, and Ambulatory Surgery and Services Databases Based on Hospital Billing Data

- Three state-level databases



State
Inpatient
Databases
(SID)



State
Ambulatory
Surgery &
Services
Databases
(SASD)



State
Emergency
Department
Databases
(SEDD)

- Three nationwide databases



National
(Nationwide)
Inpatient
Sample
(NIS)



Nationwide
Emergency
Department
Sample
(NEDS)



Kids'
Inpatient
Database
(KID)

State Inpatient
Databases
(SID)

All inpatient hospital discharge data (including those admissions that started in the ED) from participating HCUP States

State Ambulatory
Surgery & Services
Databases
(SASD)

Ambulatory surgery data (ambulatory surgery and other services from hospital-owned and sometimes nonhospital-owned facilities) from participating HCUP States

State Emergency
Department Databases
(SEDD)

Emergency department data (treat and release) from participating HCUP States

National (Nationwide)
Inpatient Sample



(NIS)

Inpatient discharge data for a **sample of discharges from all hospitals** in SID

Kids' Inpatient
Database
(KID)

Pediatric inpatient hospital discharge data from a **sample of pediatric discharges** in SID

Nationwide Emergency
Department Sample
(NEDS)

Emergency department data (treat and release & admitted) from a **sample of hospitals** in SID and SEDD

- **Brief Database Review**
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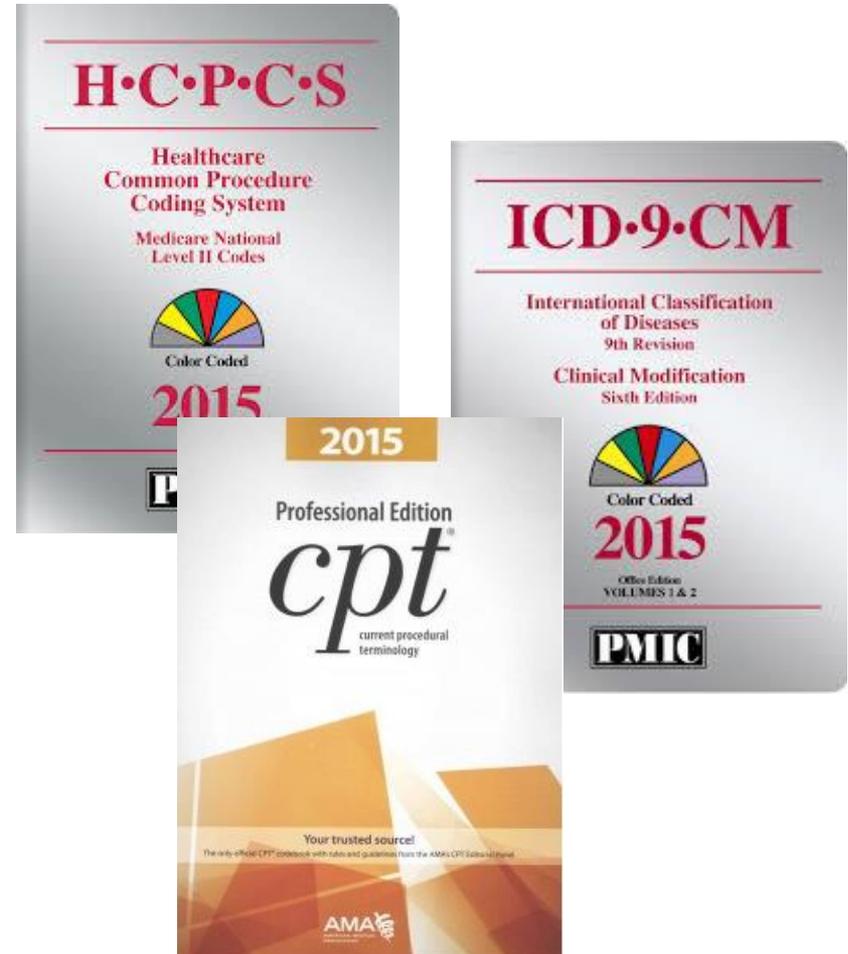
Most HCUP Tools Can be Applied to Any Administrative Database



- Clinical Classifications Software
- Procedure Classes
- Chronic Condition Indicator
- Comorbidity Software
- Utilization Flags
- Surgery Flags
- AHRQ Quality Indicators
 - Prevention Quality Indicators
 - Inpatient Quality Indicators
 - Patient Safety Indicators
 - Pediatric Indicators

Most Tools Based on Medical Coding Classifications

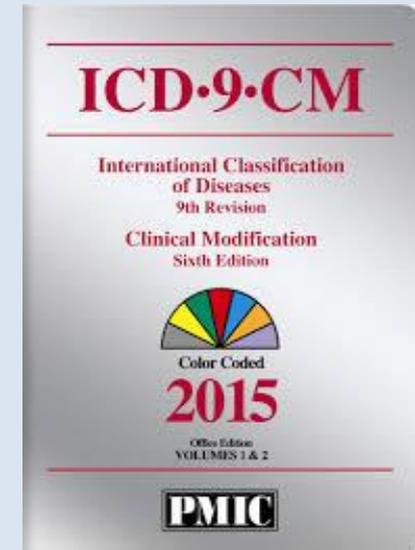
- ICD-9-CM
- ICD-10-CM/PCS
- CPT
- HCPCS
- DRGs
- MDC



- ICD-9-CM
 - ICD-10-CM/PCS
 - CPT
 - HCPCS
- Individual Codes
- DRGs
 - MDC
- Groupers

Which coding system is appropriate for your analysis?

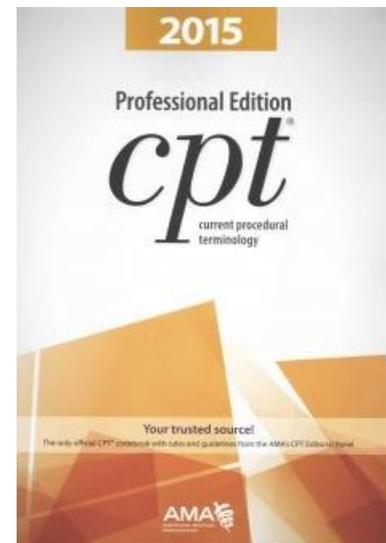
- **ICD-9-CM Procedure Codes**
- **ICD-9-CM Diagnosis Codes**
- **Included in both inpatient and outpatient databases**



- **ICD-10-CM**
 - ▶ Diagnosis coding under this system uses 3–7 alpha and numeric digits and full code titles
- **ICD-10-PCS**
 - ▶ Procedure coding system uses 7 alpha or numeric digits

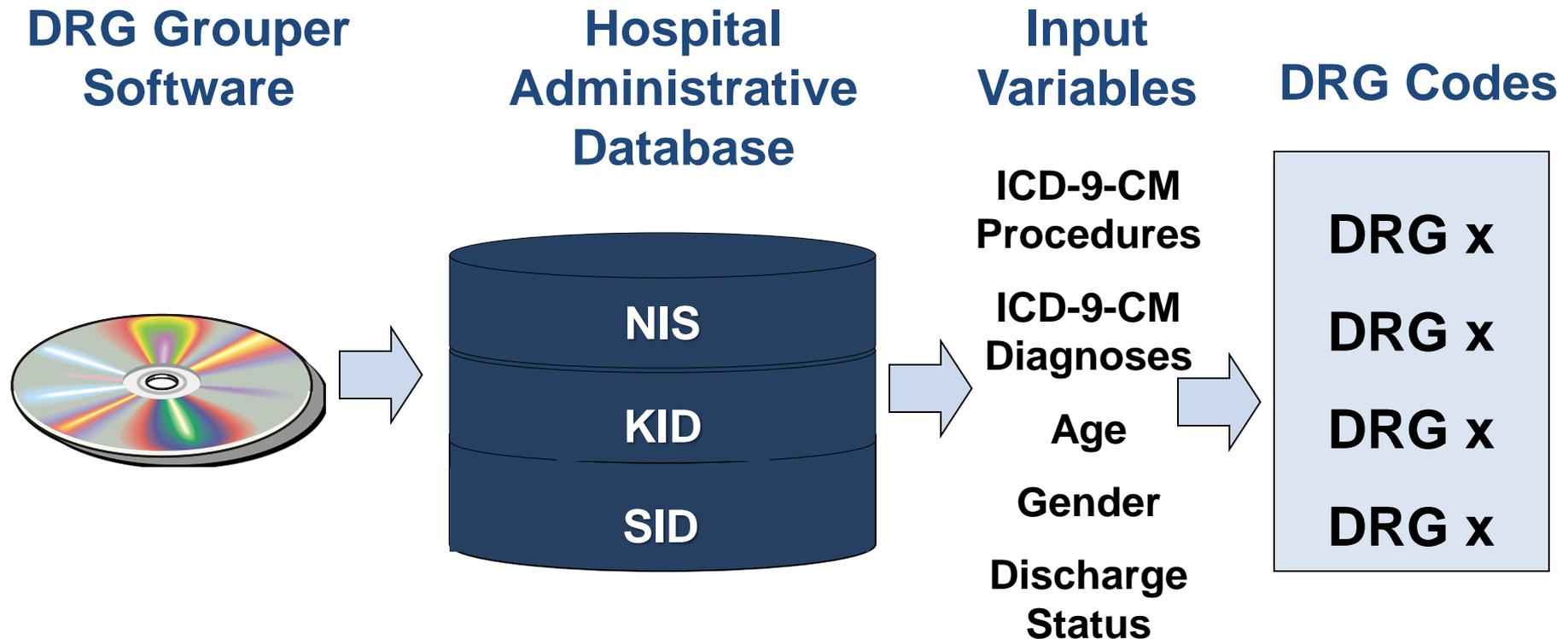
Common Procedural Coding System – CPT & HCPCS

1. CPT
2. HCPCS
3. Local Codes
 - Levels 1 & 2 are included in outpatient (ED and SASD) databases

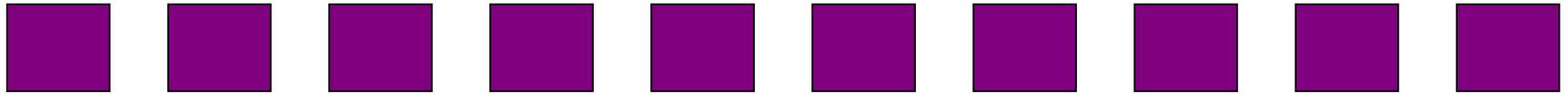


Diagnosis Related Groups (DRG)

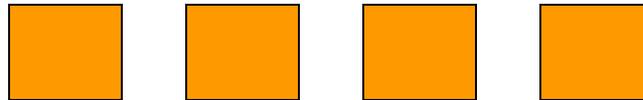
Groups ICD-9-CM Codes into Clinical/Resource Categories using principal diagnosis, secondary diagnoses, surgical procedures, age, gender, and discharge status of the patients treated



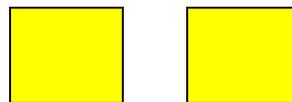
Major Diagnostic Category (MDC)



Over 15,000 ICD-9-CM Codes

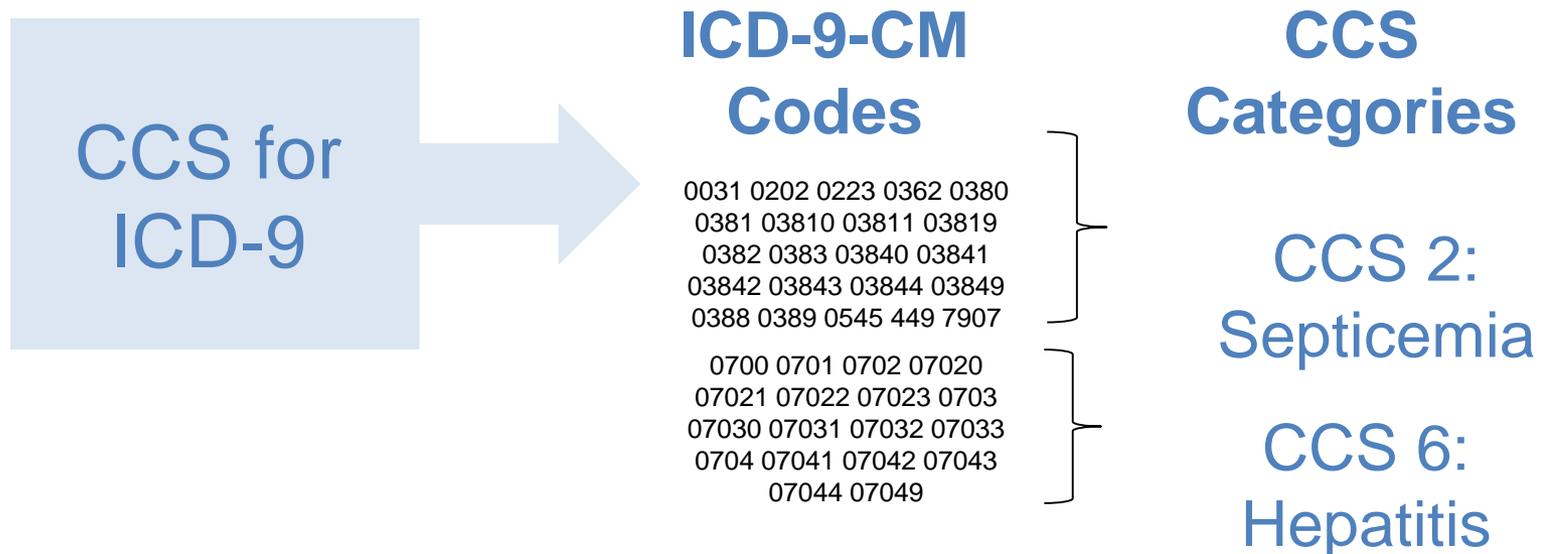


Approximately 500 DRGs



25 MDCs

- Clusters diagnosis and procedure codes into categories
 - ▶ >14,000 diagnoses codes → 285 categories
 - ▶ > 4,000 procedure codes → 231 categories
- Useful for presenting descriptive statistics, understanding patterns



- ICD-9-CM diagnoses and procedures
 - ▶ Single-level
 - ▶ Multi-level
- ICD-10-CM diagnoses and ICD-10-PCS procedures
 - ▶ Single-level
- ICD-10 for mortality
- Services and Procedures
 - ▶ Common Procedural Terminology (AMA)

What Codes Are Used in HCUP Data Files?

DETAILED CODES

ICD-9-CM

- Diagnoses Codes
- Procedure Codes

CPT

HCPCS

GROUPED CODES

DRG

MDC

CCS

Inpatient Databases

ICD-9-CM

DRG

MDC

CCS

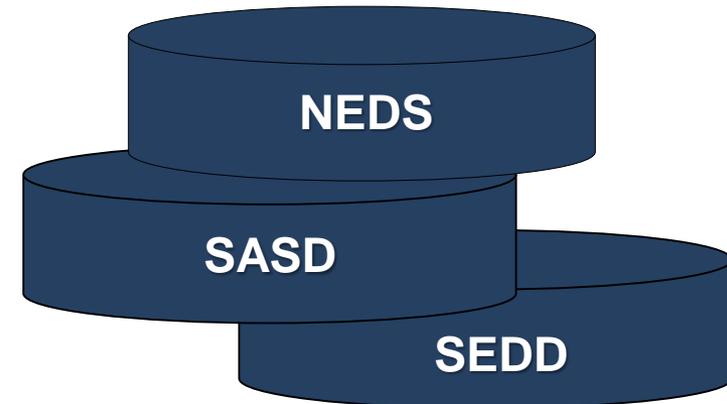
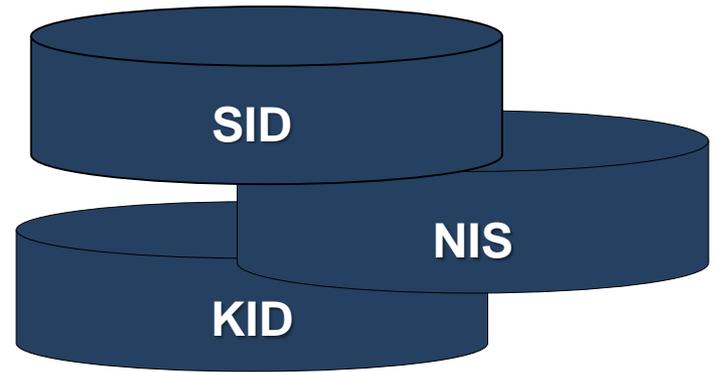
Outpatient Databases

ICD-9-CM

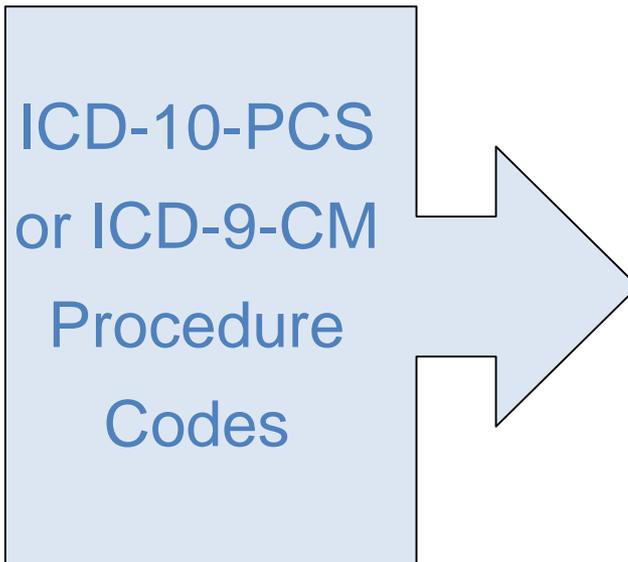
CPT

HCPCS

CCS



- Groups procedure codes into one of four categories
 - ▶ ICD-10-PCS
 - ▶ ICD-9-CM procedure codes
- Major procedures defined as OR procedures (DRGs)



1. Minor Diagnostic

Ex: Electrocardiogram

2. Minor Therapeutic

Ex: Pacemaker

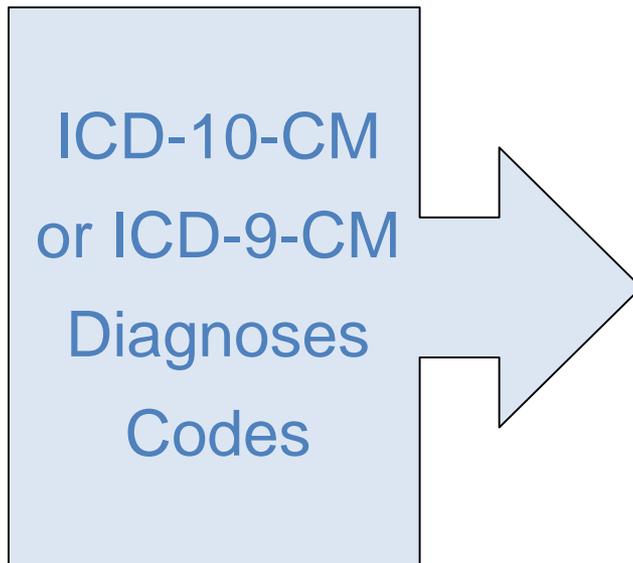
3. Major Diagnostic

Ex: Pericardial Biopsy

4. Major Therapeutic

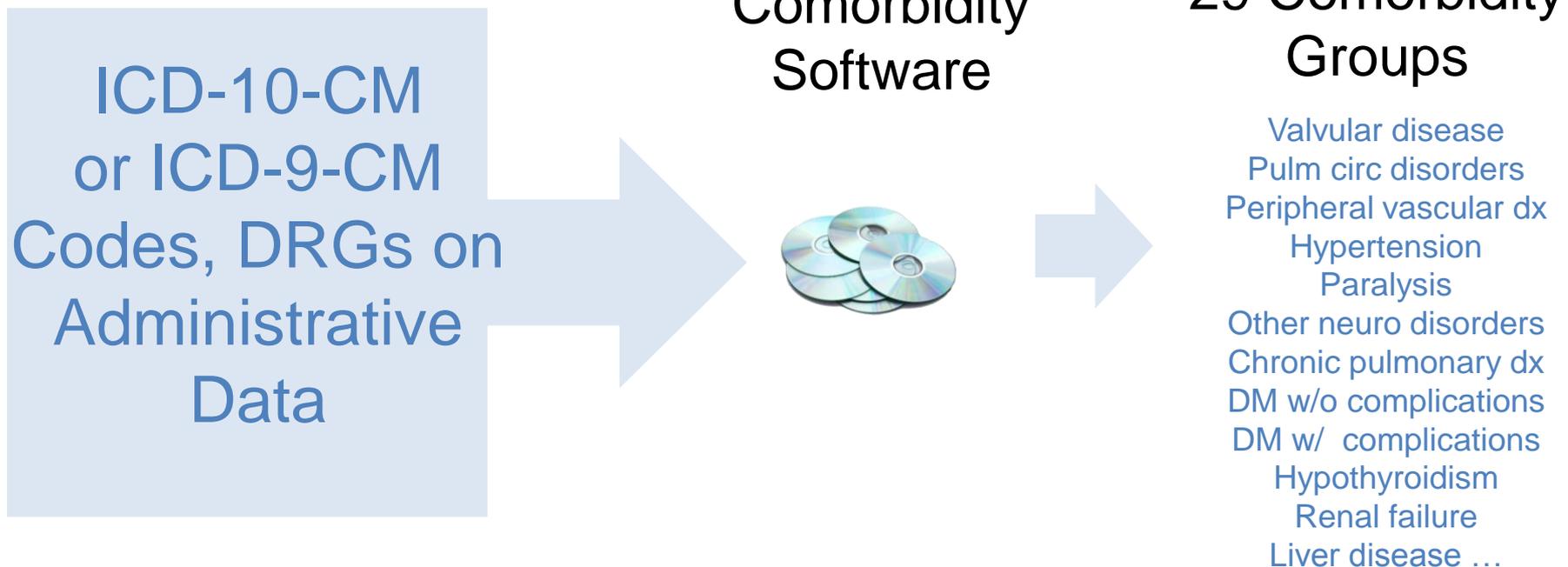
Ex: CABG

- Groups diagnosis codes into Chronic or Non-Chronic Categories
 - ICD-10-CM diagnoses codes
 - ICD-9-CM diagnoses codes



- **Chronic**
Ex: Diabetes
- **Non-Chronic**
Ex: Food Poisoning

- Creates and appends indicator flags to each record for 29 major comorbidities
 - ▶ ICD-10-CM diagnoses codes
 - ▶ ICD-9-CM diagnoses codes



- Reveals additional information about the use of health care services
- Primarily uses UB-04 revenue codes, augmented with ICD-9-CM procedure codes

Utilization Flag Software



UB-04
codes
+
ICD-9-CM
codes



- Emergency Room
- Observation Services/ CT Scan
- Intensive Care Unit

Utilization Flags

Accommodation

| | |
|---------------------------|--------------------------|
| Intensive Care Unit (ICU) | Coronary Care Unit (CCU) |
| Newborn Level II | Newborn Level III |
| Newborn Level IV | |

Cardiac Services

| | |
|-----------------------------|-------------------------|
| Cardiac Catheterization Lab | Cardiac Stress Test |
| Echocardiogram | Electrocardiogram (EKG) |

Imaging and Diagnostic Tests

| | |
|-------------------------------------|------------------|
| Computed Tomography (CT) Scan | Chest X-Ray |
| Electroencephalogram (EEG) | Ultrasound |
| Magnetic Resonance Technology (MRT) | Nuclear Medicine |

Devices

| | |
|-----------|----------------|
| Pacemaker | Other Implants |
|-----------|----------------|

Therapeutic Services

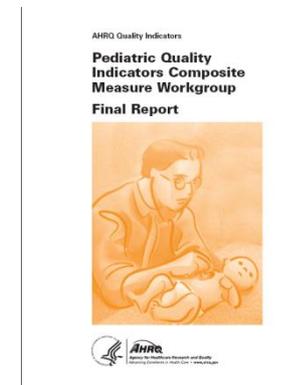
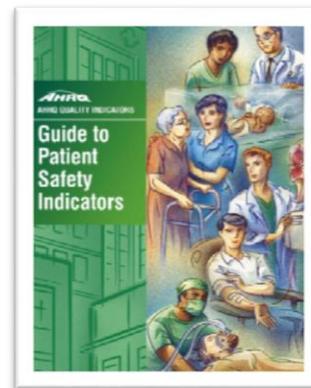
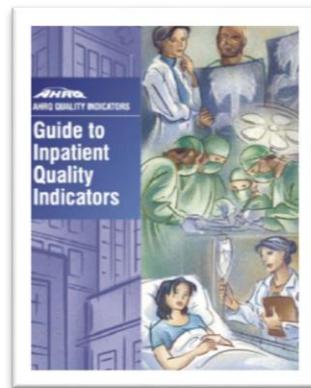
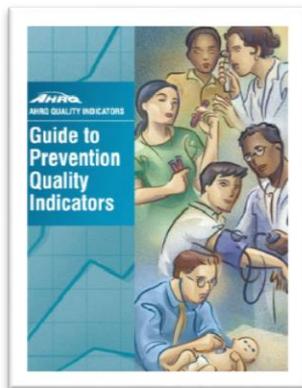
| | |
|--|----------------------|
| Lithotripsy | Occupational Therapy |
| Physical Therapy | Respiratory Therapy |
| Therapeutic Radiology and Chemotherapy | Renal Dialysis |
| Speech-Language Pathology | Erythropoietin (EPO) |
| Mental Health and Substance Abuse | Blood |

There are not ICD-9-CM codes for all services. Concern exists that some diagnostic procedures may be under-reported.

- Identifies surgical procedures and encounters in ICD-9-CM or CPT-based inpatient and ambulatory surgery data

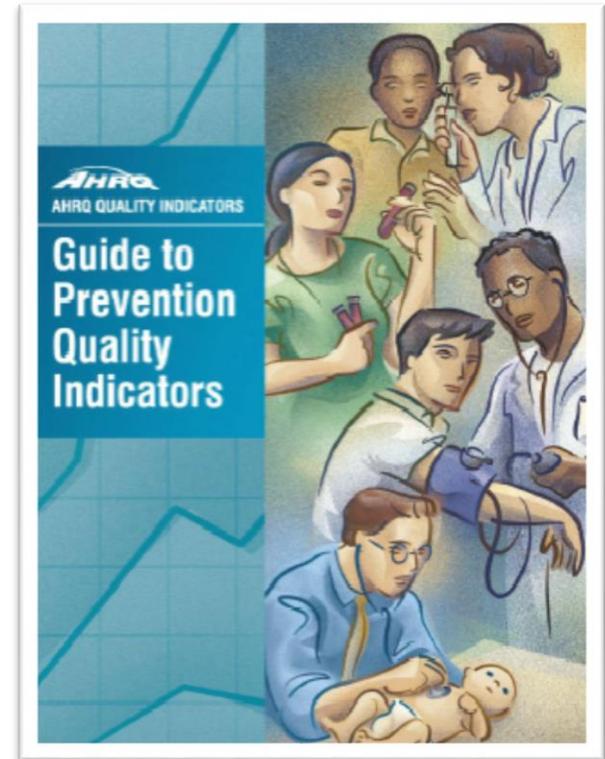


- Creates measures of health care quality using inpatient administrative data
 - ▶ 4 Quality Indicators
 1. Prevention Quality Indicators
 2. Inpatient Quality Indicators
 3. Patient Safety Indicators
 4. Pediatric Indicators

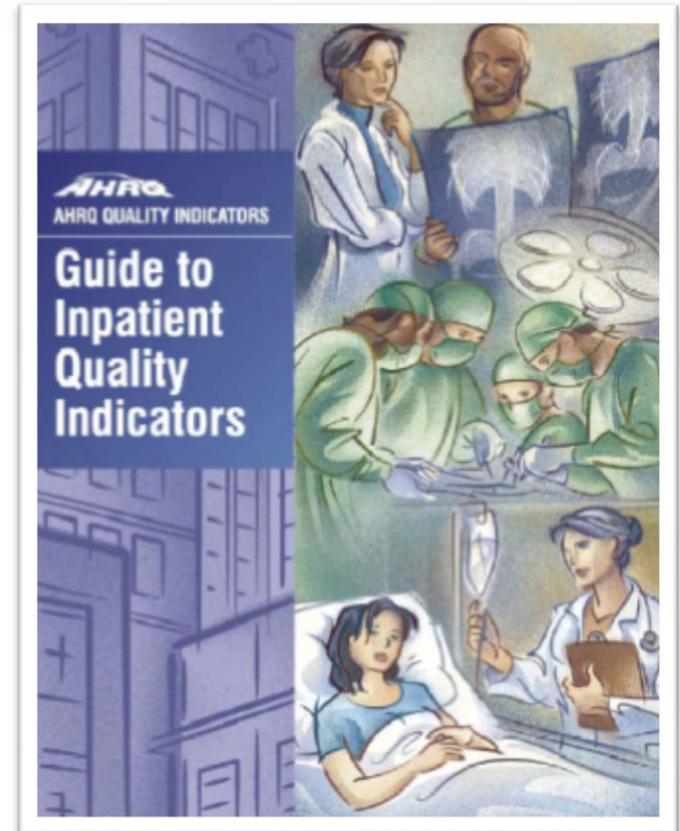


Prevention Quality Indicators (PQIs)

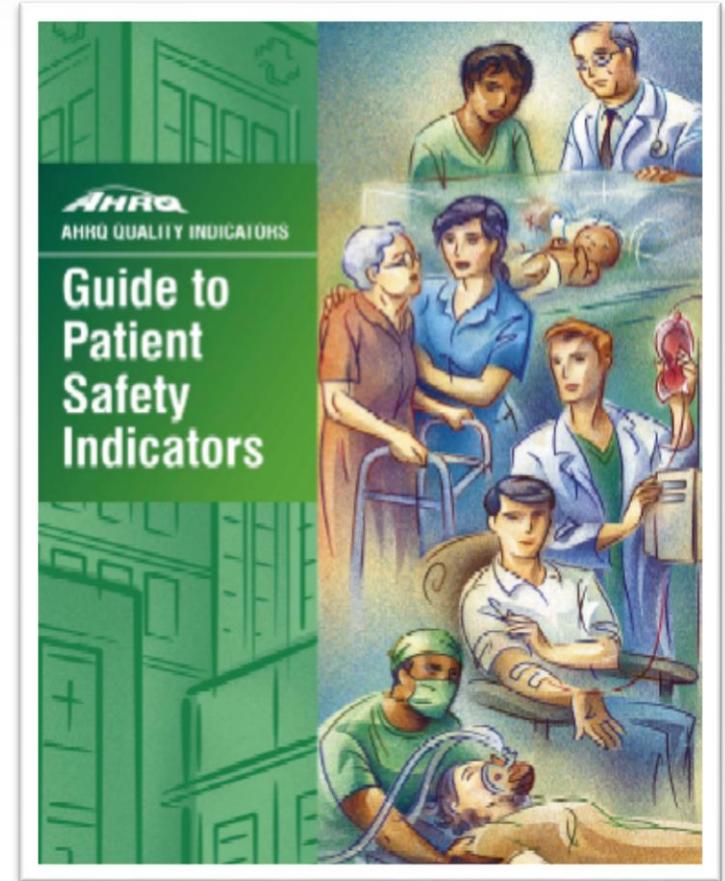
- Identify hospital admissions that are potentially preventable through high-quality outpatient care.
- Examples of PQI Measures:
 - ▶ Diabetes Short-term Complication Admission Rate
 - ▶ Diabetes Long-term Complication Admission Rate
 - ▶ Pediatric Asthma Admission Rate
 - ▶ Pediatric Gastroenteritis Admission Rate
 - ▶ Hypertension Admission Rate



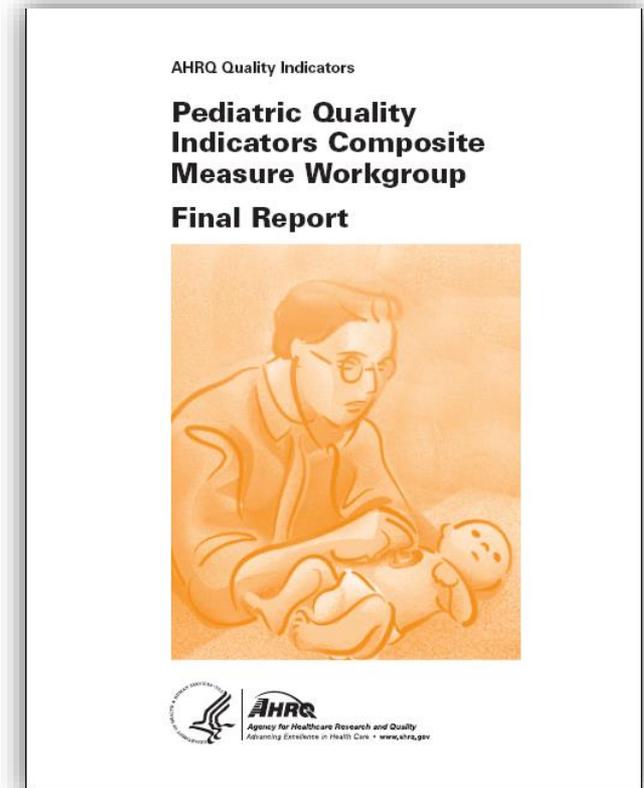
- Reflect quality of care inside hospitals:
 - ▶ Inpatient mortality for medical conditions and surgical procedures
 - ▶ Utilization of procedures
 - ▶ Volume of procedures
- Examples of IQI Measures:
 - ▶ Esophageal Resection Volume
 - ▶ Pneumonia Mortality Rate
 - ▶ Coronary Artery Bypass Graft Mortality Rate
 - ▶ Cesarean Section Delivery Rate



- Identify potentially avoidable complications and iatrogenic events.
- Examples of PSI Measures:
 - ▶ Complications of Anesthesia
 - ▶ Death in Low-Mortality DRGs
 - ▶ Decubitus Ulcer
 - ▶ Failure to Rescue
 - ▶ Foreign Body Left During Procedure
 - ▶ Iatrogenic Pneumothorax



- Identify potentially avoidable hospitalizations among children.
- Examples of PDI Measures:
 - ▶ Accidental Puncture or Laceration
 - ▶ Decubitus Ulcer
 - ▶ Neonatal mortality
 - ▶ Pediatric Heart Surgery Mortality
 - ▶ Postoperative Hemorrhage or Hematoma





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Prevention Quality Indicators *identify hospital admissions in geographic areas that evidence suggests may have been avoided through access to high-quality outpatient care....* >> [More Info](#)

Prevention Quality Indicators

>> [More Info](#)

Inpatient Quality Indicators

>> [More Info](#)

Patient Safety Indicators

>> [More Info](#)

Pediatric Quality Indicators

>> [More Info](#)

Introduction

The Agency for Healthcare Research and Quality (AHRQ) has developed an array of health care decision making and research tools that can be used by program managers, researchers, and others at the Federal, State and local levels. The Quality Indicators (QIs) are measures of health care quality that make use of readily available hospital inpatient administrative data. The current AHRQ QI™ modules expand HCUP QIs. The QIs can be used to highlight potential quality concerns, identify areas that need further study and investigation, and track changes over time.

The current AHRQ QI modules represent various aspects of quality: Prevention Quality Indicators, Inpatient Quality Indicators, Patient Safety Indicators, and Pediatric Quality Indicators.

The AHRQ QIs are used in free software distributed by AHRQ. The software can be used to help hospitals identify quality of care events that might need further study. The software programs can be applied to any hospital inpatient administrative data. These data are readily available and relatively inexpensive to use.

Email Sign up

Register to receive email of AHRQ announcements and the availability of new quality indicators:

[Sign Up: Quality Indicators email updates](#)

News & Announcements

- June 17, 2015 — Release of 'Improving the AHRQ Quality Indicators: Summary of Findings and Recommendations for Improving the Methodological Approach' Report — **New!**

- May 29, 2015 — Release of WinQI Version 5.0 to Calculate AHRQ Quality Indicators™(QI) — **New!**

- April 30, 2015 — Updated Frequently Asked Questions (FAQs) for AHRQ QIs and the QI software

- March 31, 2015 —Release of AHRQ Quality Indicators SAS Version 5.0™ (QI)

- March 13, 2015 — Release of ICD-10 Software, Alpha Version

- **Brief Database Review**
- **Tools & Software**
- **Supplemental Files**
- **HCUPnet Overview**
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- **Supplemental Variables for Revisit Analyses**
- **Cost-to-Charge Ratio Files**
- **Hospital Market Structure Files**
- **Trend Weights Files (NIS & KID)**
- **NIS Hospital Ownership File**
- **AHA Linkage Files**



Cost-to-Charge Ratio (CCR) Files

- Enable conversion of charge data to cost data on the NIS, KID, and SID

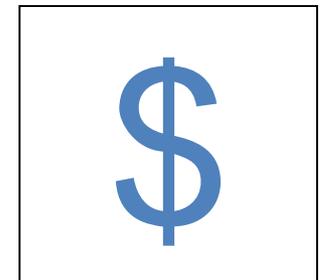


**Hospital-Level
Data**



| | A | B | C |
|---|--------|-------|--------|
| 1 | HOSPID | APICC | GAPICC |
| 2 | xxxx | xxxx | xxxx |
| 3 | xxxx | xxxx | xxxx |
| 4 | xxxx | xxxx | xxxx |
| 5 | xxxx | xxxx | xxxx |
| 6 | xxxx | xxxx | xxxx |
| 7 | xxxx | xxxx | xxxx |

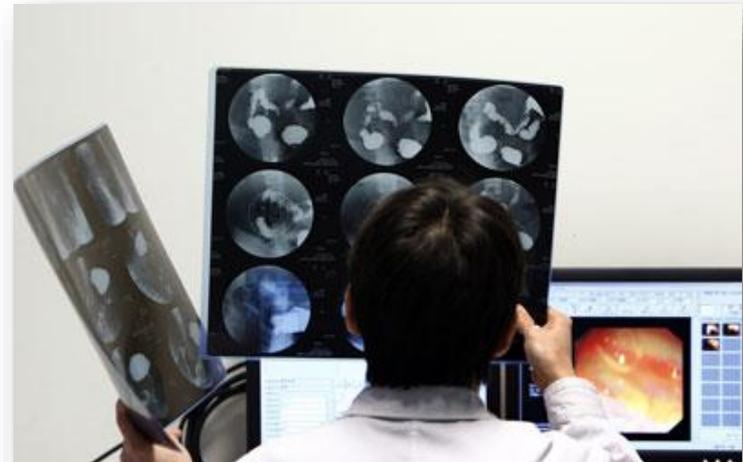
Apply Ratios



**Convert Total
Charges to Costs**

Hospital Market Structure (HMS) Files

- Contain various measures of hospital market competition
- Allow users to broadly characterize the intensity of competition that hospitals face
 - ▶ Using various definitions of market area





HCUP Supplemental Variables for Revisit Analyses



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- Allows linkage across settings and time
 - ▶ Hospital readmissions
 - ▶ ED visits following hospital discharge
 - ▶ Inpatient hospitalizations following ambulatory surgery visits
- Adheres to strict privacy guidelines

- There are two HCUP supplemental variables:
 1. Synthetic person-level identifiers
 - Verified against the patient's date of birth and gender
 - Examined for completeness (VisitLink)
 2. Timing variable determines the number of days between events for an individual (DaysToEvent)
 - Without the use of actual dates
- HCUP revisit variables can be used only with the SID, SASD, and SEDD (not nationwide databases) for States with encrypted patient identifiers
- National revisit statistics are available on HCUPnet



HCUP Supplemental Variables for Revisit Analyses by State



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| State | SID | SEDD | SASD |
|---------------|------------|-------------|-------------|
| Arizona | 2003-2007 | 2005-2007 | |
| Arkansas | 2004-2013 | | |
| California | 2003-2011 | 2005-2011 | 2005-2011 |
| Florida | 2004-2013 | 2005-2013 | 2004-2013 |
| Iowa | 2009-2013 | 2010-2013 | 2010-2013 |
| Maryland | 2012 | | |
| Massachusetts | 2010-2012 | 2010-2012 | |
| Mississippi | 2010-2011 | | |
| Nebraska | 2003-2013 | 2003-2013 | 2003-2013 |



HCUP Supplemental Variables for Revisit Analyses by State



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| State | SID | SEDD | SASD |
|----------------|------------|-------------|-------------|
| Nevada | 2003-2007 | | |
| New Mexico | 2009-2013 | | |
| New York | 2003-2013 | 2005-2013 | 2003-2013 |
| North Carolina | 2003-2010 | 2007-2010 | 2003-2010 |
| Utah | 2003-2012 | 2003-2012 | 2003-2012 |
| Vermont | 2011-2013 | 2011-2013 | 2011-2013 |
| Washington | 2003-2012 | | |
| Wisconsin | 2013 | 2013 | 2013 |

- Example of how to use the revisit variables
 - ▶ Determined if discharge home with home health care is independent predictor of increased readmission after pancreatectomy
 - ▶ 21 percent of patients were readmitted within 30 days of discharge
 - ▶ Mean time from readmission to discharge was 10.1 days and mean LOS for the readmission was 7.1 days
 - ▶ Three of the most common primary diagnoses for readmission were surgery-specific complications (48 percent), followed by failure to thrive (14 percent), and septicemia (6 percent)



Additional HCUP Supplemental Files

■ Trend Weights Files (NIS & KID)

- Discharge-level files that provide trend weights and data elements that are consistently defined across data years

■ NIS Hospital Ownership File

- Hospital-level files facilitate analysis of the NIS by hospital ownership categories

■ AHA Linkage Files

- Enable researchers to link hospital identifiers in some State databases to the AHA Annual Survey Databases

http://www.hcup-us.ahrq.gov/tools_software.jsp



Tools & Software

HCUP tools and software help health services researchers and decision makers to use HCUP and other similar databases. These products are developed by AHRQ through a Federal-State-Industry partnership.

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Favorites

AHRQ Quality Indicators (QIs)

[AHRQ Quality Indicators \(QIs\)](#) use hospital administrative data to highlight potential quality concerns, identify areas that need further study and investigation, and track changes over time.

HCUPnet

HCUPnet is an interactive tool for identifying, tracking, analyzing, and comparing statistics on hospital and ambulatory care. HCUPnet provides statistics from the HCUP nationwide databases ([NIS](#), [KID](#), and [NEDS](#)) and the state-level databases ([SID](#), [SASD](#), and [SEDD](#)) for those States that have agreed to participate.

AHRQ Data Warehouse

AHRQ Data Warehouse is a software product that enables organizations - such as state and local data organizations, Health Information Exchanges, hospital systems, and health plans - to input their own hospital administrative data and generate a data-driven Web site.

HCUP Tools & Software

HCUP Tools and Software are analytic methods that, when applied to HCUP databases, systematically create new data elements from existing data, thereby enhancing a researcher's ability to conduct analyses. While designed to be used with HCUP databases, they may be applied to other administrative databases as well.

Tools for ICD-9-CM

Clinical Classifications Software (CCS) for ICD-9-CM

[Clinical Classifications Software \(CCS\)](#) provides a method for classifying ICD-9-CM diagnoses or procedures into clinically meaningful categories, which can be used for aggregate statistical reporting of a variety of types. (Updated for codes valid through FY 2015.)

Chronic Condition Indicator

[Chronic Condition Indicator \(CCI\)](#) provides users an easy way to categorize ICD-9-CM diagnosis codes into one of two categories: chronic or not chronic. The tool can also assign ICD-9-CM diagnosis codes into 1 of 18 body system categories. (Codes valid through FY 2015.)

Comorbidity Software

[Comorbidity Software](#) assigns variables that identify coexisting conditions on hospital discharge records. (Codes valid through FY 2015.)

Procedure Classes

[Procedure Classes](#) facilitate research on hospital services using administrative data by identifying whether a procedure is (a) diagnostic or therapeutic, and (b) minor or major in terms of invasiveness and/or resource use. (Updated for codes valid through FY 2015.)

Advanced Tools

Surgery Flags

[Surgery Flags](#) identify surgical procedures and encounters in ICD-9-CM or CPT-based inpatient and ambulatory data. Two types of surgical categories are identified: NARROW surgery is based on a narrow, targeted, restrictive definition and includes invasive surgical procedures. BROAD surgery includes procedures that fall

Tools for ICD-10-CM/PCS

HCUP tools have been translated to ICD-10-CM/PCS in anticipation of conversion to the new coding system on October 1, 2015. We welcome comments. If you have questions or suggestions for changes, please contact hcup@ahrq.gov.



Clinical Classifications Software (CCS) for ICD-10-CM/PCS

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HCUPnet: Quick, Free Access to HCUP Data



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- Free, interactive online query system
- Users generate tables of outcomes by diagnoses and procedures
- Data can be cross-classified by patient and hospital characteristics

<http://hcup.ahrq.gov/hcupnet>



HCUPnet Can Answer a Variety of Questions



- What percentage of hospitalizations for children are uninsured, by State?
- What are the most expensive conditions treated in U.S. hospitals?
- What is the trend in admissions for depression?
- Will there be a sufficient number of cases to do my analysis?
- How do my estimates and calculations compare with HCUPnet (validation)?

- Step-by-step queries on:
 - ▶ Hospital inpatient (NIS, KID, SID)
 - ▶ ED visits (NEDS, SEDD)
 - ▶ Ambulatory surgeries 
 - ▶ National and regional statistics
- Specialized queries:
 - ▶ Mental health related stays
 - ▶ Stays by expected payer
 - ▶ Hospital-level statistics
- Ready-to-use:
 - ▶ National benchmarks for healthcare quality indicators based on the AHRQ Quality Indicators
 - ▶ “Quick national or State statistics”
 - ▶ Readmissions
 - ▶ Community-level Statistics



How Does HCUPnet Work?



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ORIP HHS/HR011



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H·CUPnet

How does HCUPnet work? A step-by-step description of the query process.

- >> Help
- >> Medical dictionary
- >> What is HCUP ?
- >> HCUPnet definitions
- >> HCUP Home

How does HCUPnet work?

<< Back <<

HCUPnet is based on aggregate statistics tables to speed up data transfer and protect individual records, so not all possible queries can be addressed. If a query is not possible, HCUPnet will not allow you to choose certain parameters. If there is a query you'd like to see that HCUPnet does not support, please contact us at hcup@ahrq.hhs.gov.

With HCUPnet, you build your query step-by-step. Here are the basic steps:

Step 1: Select the focus of your query.

- ✓ Click **National Statistics** if you want information on the entire U.S.
- ✓ Click **For Children Only** if you want to focus on children.
- ✓ Click **State Statistics** to see what State data are available.
- ✓ Check out **Quick National and State Statistics** to see if the information you want is available here in ready-to-go, fully sortable tables.
- ✓ Click **AHRQ Quality Indicators** to get information on the quality of the health care system in the U.S.

Step 2: Select the type of query you want.

- ✓ **By Diagnosis or Procedure** gives you detailed statistics for particular diagnoses or procedures.

You'll be able to get statistics by ICD-9-CM codes, by CCS category (a clinical grouper that puts ICD-9-CM codes into clinically homogeneous categories), by DRG (diagnosis related groups that are used by many insurers for reimbursement purposes), or by MDC (general groups of DRGs that comprise body systems).

- ✓ If you're interested in statistics about all patients in general, click **All Stays**.
- ✓ Click **Trends** if you want to see tables and graphs with trends over time.
- ✓ Click **Rank Order** if you'd like to rank diagnoses or procedures by such factors as number of discharges, charges, or mortality rate.

Step 3: Select the Outcomes and Measures. HCUPnet provides a wide range of measures:

- ✓ Number of discharges
- ✓ Length of stay
- ✓ Total charges
- ✓ Total costs
- ✓ Aggregate charges
- ✓ Percent died in the hospital
- ✓ Discharge status
- ✓ Percent admitted through the emergency department
- ✓ Percent admitted from another hospital
- ✓ Percent admitted from a long term care facility

Step 4: Select patient and hospital characteristics. With HCUPnet you can **Compare Patients** by:

- ✓ Age
- ✓ Gender
- ✓ Primary payer
- ✓ Median income of the patient's ZIP code

And you can **Compare Hospital Types** by:

- ✓ Region of the country
- ✓ Teaching status
- ✓ Location
- ✓ Bedsizes
- ✓ Ownership/control

Step 5: Results. You then get your results in a format that can be **printed** or **downloaded** or you can **instantly rerun the same query** on another database within HCUPnet.

A navigation bar above the query pages lets you know where you are in the HCUPnet system. You can use the navigation bar to go back to previous pages.

Welcome to H-CUPnet

HCUPnet is a free, on-line query system based on data from the Healthcare Cost and Utilization Project (HCUP). It provides access to health statistics and information on hospital inpatient and emergency department utilization.

<http://hcupnet.ahrq.gov>



Your query here -

Statistics on Hospital Stays

National Statistics on All Stays

Create your own statistics for national and regional estimates on hospital use for all patients from the HCUP National (Nationwide) Inpatient Sample (NIS). [Overview of the National \(Nationwide\) Inpatient Sample \(NIS\)](#)

National Statistics on Mental Health Hospitalizations

Interested in acute care hospital stays for mental health and substance abuse? Create your own national statistics from the NIS.

State Statistics on All Stays

Create your own statistics on stays in hospitals for participating States from the HCUP State Inpatient Databases (SID). [Overview of the State Inpatient Databases \(SID\)](#)

Hospital Readmissions

National Statistics on Children

Create your own statistics for national estimates on use of hospitals by children (age 0-17 years) from the HCUP Kids' Inpatient Database (KID). [Overview of the Kids' Inpatient Database \(KID\)](#)

National and State Statistics on Hospital Stays by Payer - Medicare, Medicaid, Private, Uninsured

Interested in hospital stays billed to a specific payer? Create your own statistics for a payer, alone or compared to other payers from the NIS, KID, and SID.

Quick National or State Statistics

Ready-to-use tables on commonly requested information from the HCUP National (Nationwide) Inpatient Sample (NIS), the HCUP Kids' Inpatient Database (KID), or the HCUP State Inpatient Databases (SID).

First Time Visitor?

- [HCUPnet overview](#)
- [How does HCUPnet work?](#)
- [HCUPnet methodology?](#)
- [HCUPnet definitions?](#)

What's New?

- Maps are now available on the Community Level Statistics path. (06/08/2015) [Just Added](#)
- 2013 data for participating States. (04/09/2015) [Just Added](#)
- 2012 nationwide and state ED data -- new database just released. (12/17/2014) [Just Added](#)
- 2012 Community-level Statistics added. (11/07/2014)
- 2012 national data on AHRQ Quality Indicators. (10/24/2014)
- All NIS results prior to 2012 recalculated to permit trend analysis [Important Notice](#)
- New 2009-2012 readmission data added. (09/24/2014)

| HCUPnet... | |
|---|--|
| CAN PRODUCE... | CANNOT PRODUCE... |
| Simple statistics | More complicated queries |
| Sample size calculations | Multivariate analyses |
| Trends information | Statistics involving certain variables |
| Rank ordering of diagnoses and procedures | Statistics that may violate confidentiality (patient-, provider-, hospital-level data) |
| Significance testing | |

- **Brief Database Review**
- **Tools & Software**
- **Supplemental Files**
- **HCUPnet Overview**
- **HCUP Fast Stats**
- **Publications and Publication Search**
- **How to Access HCUP Resources**



| | | | | | | | | | |
|---|---|-----------|------------------|---------|-------------------|---------------|--------------------|----------------------|------------------|
|  | HCUP Fast Stats HCUP Fast Stats provides easy access to the latest HCUP-based statistics for health information topics. HCUP Fast Stats uses visual statistical displays in stand-alone graphs, trend figures, or simple tables to convey complex information at a glance. Information will be updated regularly (quarterly or annually, as newer data become available). | | | | | | | | |
| | Home | Databases | Tools & Software | Reports | Fast Stats | News & Events | Purchase HCUP Data | Technical Assistance | Data Innovations |

HCUP Fast Stats

Effect of Medicaid Expansion on Hospital Use

- [State-Level Trends in Inpatient Stays for Medicaid and Uninsured Patients](#)

National Hospital Utilization and Costs *coming soon*

- [Trends in Inpatient Stays](#)
- [Most Common Diagnoses for Inpatient Stays](#)
- [Most Common Operations During Inpatient Stays](#)

Information About HCUP Fast Stats

Fast Stats Frequently Asked Questions

- [HCUP Fast Stats FAQ](#)

- HCUP Fast Stats provides easy access to the latest HCUP-based statistics for health information topics.
- Uses visual statistical displays in stand-alone graphs, trend figures, or simple tables to convey complex information at a glance.
- Information will be updated regularly (quarterly or annually, as newer data become available).

<http://www.hcup-us.ahrq.gov/faststats/landing.jsp>

HCUP Fast Stats – First Topic: Effect of Medicaid Expansion on Hospital Use



HCUP Fast Stats - Effect of Medicaid Expansion on Hospital Use

HCUP Fast Stats provides easy access to the latest HCUP-based statistics for health information topics. Information on the effect of Medicaid expansion on hospital use will be updated regularly (quarterly or annually, as newer data become available).

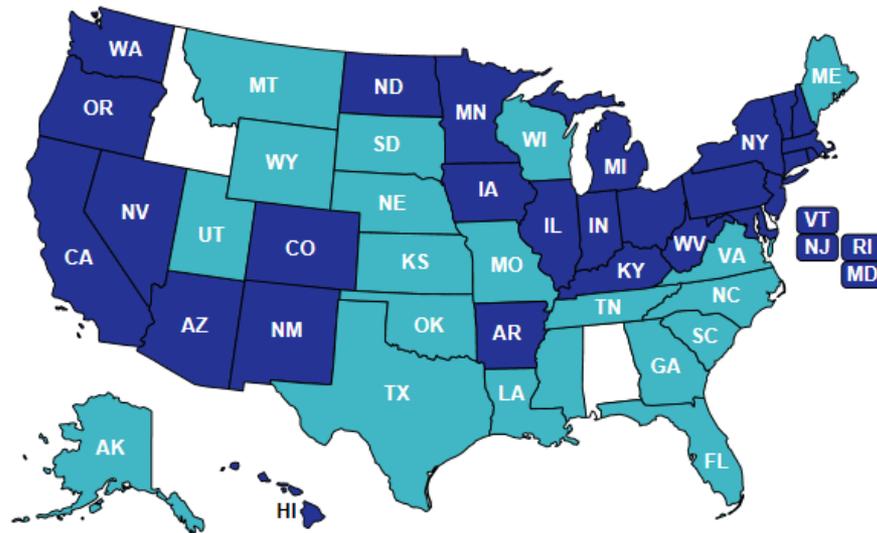
| | | | | | | | | |
|----------------------|---------------------------|--------------------------------------|-------------------------|----------------------------|-----------------------------------|------------------------------------|--------------------------------------|----------------------------------|
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Effect of Medicaid Expansion on Hospital Use

Click map to select one of the identified States, or select from list and click Select: *Medicaid expansion State

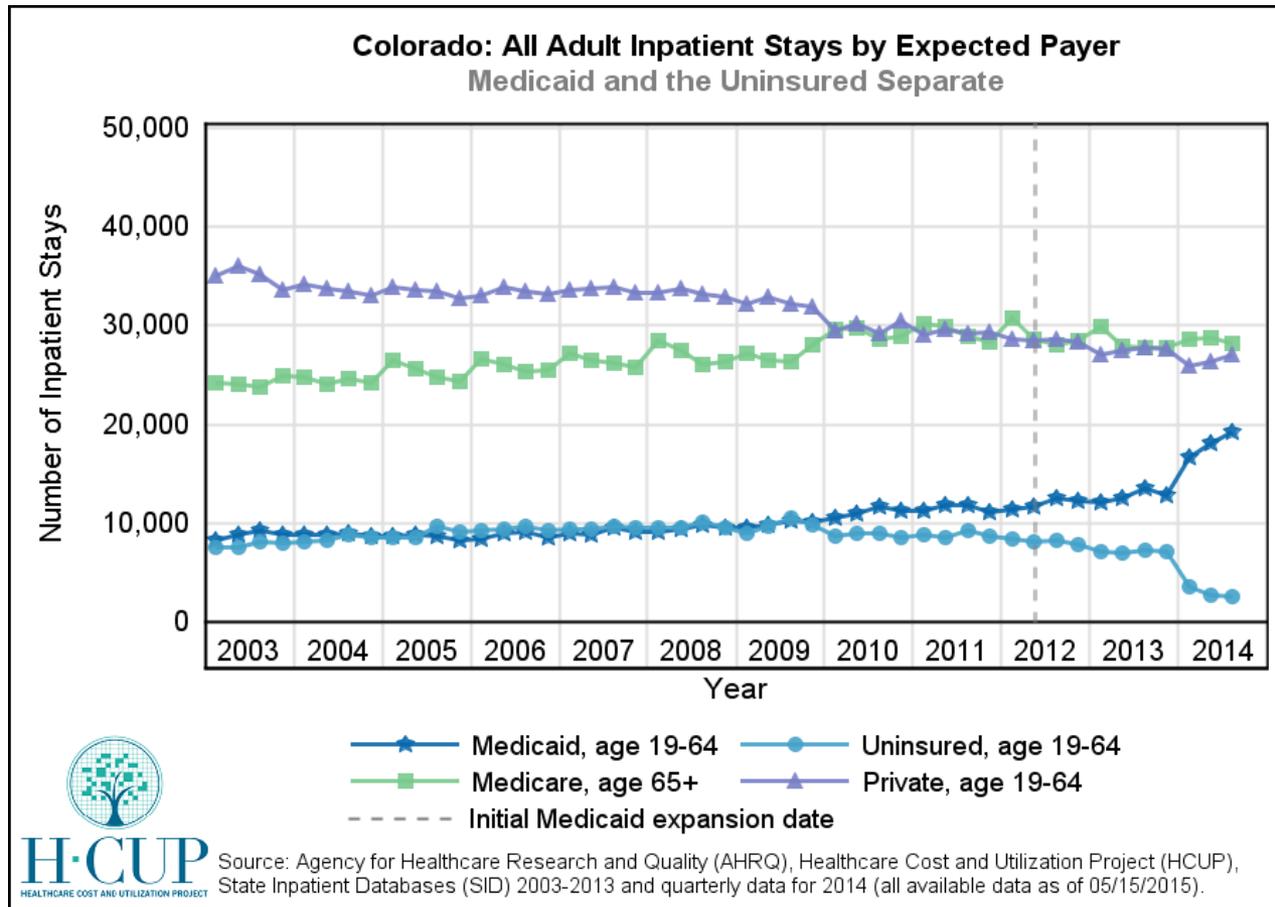
Information is not available for all States.

A [tutorial for Effect of Medicaid Expansion on Hospital Use](#) is available.



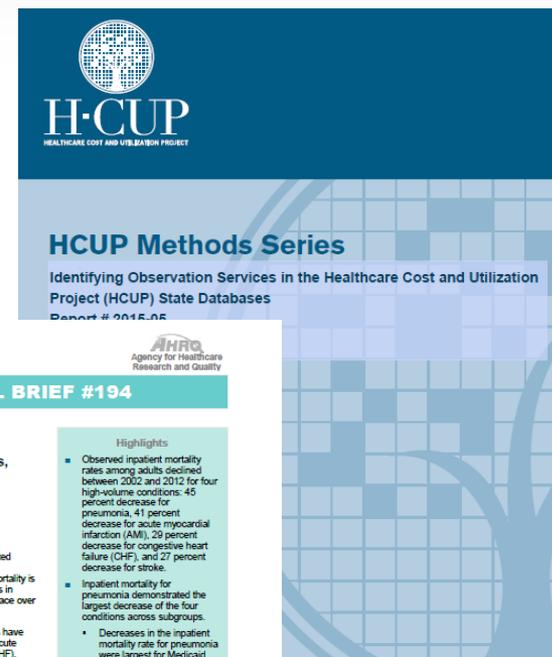
| | | |
|---------------------------|------------------------------|-----------------|
| Medicaid expansion States | Medicaid nonexpansion States | Non-HCUP States |
|---------------------------|------------------------------|-----------------|

HCUP Fast Stats – State-Specific Example



- **Brief Database Review**
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- **Statistical Briefs**
- **Methods Reports**



STATISTICAL BRIEF #194

July 2015

Trends in Observed Adult Inpatient Mortality for High-Volume Conditions, 2002–2012

Anika L. Hines, Ph.D., M.P.H., Kevin C. Heelin, Ph.D., H. Joanna Jiang, Ph.D., and Rosanna Colley, Ph.D.

Introduction

Monitoring and improving health care quality in the United States is a key priority for health policymakers, payers, providers, and patient advocates. Hospital inpatient mortality is one quality measure that can reflect both improvements in health care and shifts in where end-of-life care takes place over time.

Previous trends in inpatient mortality suggest that rates have been decreasing for high-volume conditions, such as acute myocardial infarction (AMI), congestive heart failure (CHF), stroke, and pneumonia.^{1,2} These declines in mortality vary not only by condition but also by patient and hospital characteristics. Continued study of these trends can help researchers and policymakers assess the impact of health care quality efforts. Further, examining trends across patient and hospital subgroups may inform strategies for addressing disparities in health care quality by identifying groups that are leading and lagging in improvement.

This Healthcare Cost and Utilization Project (HCUP) Statistical Brief examines trends in observed inpatient mortality rates for AMI, CHF, stroke, and pneumonia for adults aged 18 years and older, as well as changes in these rates for select patient subgroups. Death following discharge from a hospital is not reflected in these data. Observed trends in inpatient mortality from 2002 to 2012 are presented. Percentage changes between 2002 and 2012 are compared by age, sex, expected primary payer, community income level, urban or rural location of patient residence, and hospital region. All differences between estimates noted in the text are statistically significant at the .01 level or better.

Highlights

- Observed inpatient mortality rates among adults declined between 2002 and 2012 for four high-volume conditions: 45 percent decrease for pneumonia, 41 percent decrease for acute myocardial infarction (AMI), 29 percent decrease for congestive heart failure (CHF), and 27 percent decrease for stroke.
- Inpatient mortality for pneumonia demonstrated the largest decrease of the four conditions across subgroups.
 - Decreases in the inpatient mortality rate for pneumonia were largest for Medicaid and uninsured patients (56 and 52 percent, respectively).
 - Pneumonia mortality decreased by nearly half for patients in all community income groups.
- Decreases in mortality for CHF and stroke were largest among patients from the poorest communities (34 percent decrease for CHF and 30 percent decrease for stroke).
- Uninsured patients had the largest decrease in inpatient mortality for stroke (42 percent) compared with Medicare, Medicaid, and privately insured patients.
- Inpatient mortality for AMI decreased by approximately 40 percent in rural (42 percent), metropolitan (41 percent), and micropolitan (40 percent) areas.

¹ Hines A, Stanges E, Andrews RM. Trends in Hospital Risk-Adjusted Mortality for Select Diagnoses by Patient Subgroups, 2000–2007. HCUP Statistical Brief #96. October 2010. Agency for Healthcare Research and Quality, Rockville, MD. <http://www.hcup-us.ahrq.gov/reports/statbriefs2008.pdf>. Accessed February 17, 2015.

² Stephanou M, Venkatesan C, Altavero L, Mishra A, and Younossi ZM. Recent trends in inpatient mortality and resource utilization for patients with stroke in the United States, 2005–2009. *Journal of Stroke and Cerebrovascular Disease*. 2013;22(4):491–9.

July 2015

Trends in Observed Adult Inpatient Mortality for High-Volume Conditions, 2002–2012

Anika L. Hines, Ph.D., M.P.H., Kevin C. Heslin, Ph.D., H. Joanna Jiang, Ph.D., and Rosanna Coffey, Ph.D.

Introduction

Monitoring and improving health care quality in the United States is a key priority for health policymakers, payers, providers, and patient advocates. Hospital inpatient mortality is one quality measure that can reflect both improvements in health care and shifts in where end-of-life care takes place over time.

Previous trends in inpatient mortality suggest that rates have been decreasing for high-volume conditions, such as acute myocardial infarction (AMI), congestive heart failure (CHF), stroke, and pneumonia.^{1,2} These declines in mortality vary not only by condition but also by patient and hospital characteristics. Continued study of these trends can help researchers and policymakers assess the impact of health care quality efforts. Further, examining trends across patient and hospital subgroups may inform strategies for addressing disparities in health care quality by identifying groups that are leading and lagging in improvement.

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¹ Hines A, Stranges E, Andrews RM. Trends in Hospital Risk-Adjusted Mortality for Selected Diagnoses by Patient Subgroups, 2000–2007. HCUP Statistical Brief #98. October 2010. Agency for Healthcare Research and Quality, Rockville, MD. <http://www.hcup-us.ahrq.gov/reports/statbriefs/sb98.pdf>. Accessed February 17, 2015.

² Sisanova M, Venkatesan C, Alawad L, Mishra A, and Younossof ZM. Recent trends in inpatient mortality and resource use for patients with stroke in the United States: 2005–2009. *Journal of Stroke and Cerebrovascular Disease*. 2013;22(4):491–9.

Highlights

- Observed inpatient mortality rates among adults aged 18 years and older declined between 2002 and 2012 for high-volume conditions: percent decrease for pneumonia, 41 percent decrease for acute myocardial infarction (AMI), 29 percent decrease for congestive heart failure (CHF), and 27 percent decrease for stroke.
- Inpatient mortality for pneumonia demonstrated the largest decrease of the four conditions across subgroups.
- Decreases in inpatient mortality rate for pneumonia were largest for Medicare and Medicaid patients and 55 percent, respectively.
- Pneumonia mortality decreased by nearly 50 percent among patients in all community income groups.
- Decreases in mortality for stroke were largest among patients from the poorest communities (34 percent decrease for CHF and 31 percent decrease for stroke).
- Uninsured patients had the largest decrease in inpatient mortality for stroke (42 percent) compared with Medicare Medicaid, and privately insured patients.
- Inpatient mortality for AMI decreased by approximately 40 percent in rural (42 percent) and metropolitan (41 percent) micropolitan (40 percent)

July 2015

Neonatal and Maternal Hospital Stays Related to Substance Use, 2006–2012

Kathryn R. Fingar, Ph.D., M.P.H., Carol Stooks, Ph.D., R.N., Audrey J. Weiss, Ph.D., and Pamela L. Owens, Ph.D.

Introduction

Substance abuse during pregnancy can have serious effects on the health of both mother and child. When newborns have been exposed to drugs in the womb, symptoms of withdrawal often occur within hours after birth and may include trouble feeding, seizures, sleep problems, and slow weight gain.¹ In addition to these signs of withdrawal, drug use during pregnancy can increase the risk of birth defects, fetal growth restriction, low birth weight, premature birth, and abnormal neurodevelopment.² Fetal alcohol syndrome due to alcohol use during pregnancy is associated with similar outcomes, including cognitive and functional disabilities.³

Neonatal (newborn) drug withdrawal has been attributed to the use of a variety of drugs during pregnancy. However, it is thought that many of these cases involve maternal use of prescription or illegal opiates, such as oxycodone, codeine, or heroin, which may cause withdrawal in over half of infants exposed prenatally.⁴ A recent study reported that neonatal drug withdrawal showed a substantial increase—from 1.2 per 1,000 births in 2000 to 3.4 per 1,000 births in 2009.⁵ This paralleled an overall 300 percent increase in sales of prescription painkillers in the general population.⁶

This Healthcare Cost and Utilization Project (HCUP) Statistical Brief used data from 38 States—those for which inpatient data were available each year between 2006 and 2012—to examine the prevalence and costs of newborn and maternal inpatient hospital stays associated with substance use, including abuse of

¹ Hudak ML, Tan RG. The Committee on Drugs. The Committee on Fetus and Newborn. Neonatal Drug Withdrawal. *Clinical Report*. Pediatrics. 2012;129(2):e540–60. <http://pediatrics.aappublications.org/content/129/2/e540.full.pdf>. Accessed November 10, 2014.

² *Ibid.*

³ Floyd RL, O'Connor MJ, Sokol RJ, Betrand J, Cordero JF. Recognition and prevention of fetal alcohol syndrome. *Obstetrics & Gynecology*. 2005;106(5 Pt 1):1059–64.

⁴ Hudak ML. 2012.

⁵ Patrick SW, Schumacher RE, Benneworth BD, Krans EE, McAllister JM, Davis MM. Neonatal abstinence syndrome and associated health care expenditures: United States, 2000–2009. *JAMA*. 2012;307(18):1934–40.

⁶ Centers for Disease Control and Prevention. Vital Signs: Overdoses of Prescription Opioid Pain Relievers—United States, 1999–2008. *Morbidity and Mortality Weekly Report (MMWR)*. 2011;60(43):1–6.

Highlights

- Between 2006 and 2012, the rate of neonatal hospital stays related to substance use increased by 71 percent, from 5.1 to 8.7 per 1,000 aggregate hospital stays, and associated aggregate hospital costs increased by 135 percent, from \$253 to \$565 million.
- Among maternal hospital stays related to substance use, the rate of stays increased by 33 percent, from 13.4 to 17.9 per 1,000 maternal stays, and aggregate hospital costs increased by 35 percent, from \$258 to \$349 million.
- From 2006 to 2012, the rate of neonatal and maternal stays related to cocaine decreased by more than 50 percent.
- Most neonatal stays with a substance-related condition in 2012 involved neonatal drug withdrawal (60 percent) or unspecified narcotics (23 percent), both of which more than doubled in rate from 2006.
- Twenty percent of neonatal stays with a substance-related condition in 2012 had low neonate birth weight compared with 7 percent of all other neonatal stays.
- In 2012, nearly one-fourth of maternal stays related to substance use involved opiates, and from 2006 to 2012 the rate increased by 135 percent, from 2.3 to 5.4 per 1,000 maternal stays.
- Mental disorders were indicated in one-fourth of maternal stays related to substance use in 2012 compared with 4 percent of other maternal stays.

June 2015

Potentially Preventable Pediatric Hospital Stays for Asthma and Diabetes,

I.D., M.P.H. and Raynard Washington, Ph.D.

ic inflammatory condition affecting the airways, triggered by a range of factors, from allergies to lung to swelling, tightening, and secretion of mucus, which causes wheezing, coughing, chest tightness of breath.¹ Asthma is one of the most common conditions in childhood, affecting 8.8 million, or 9 percent of 17 years or younger in 2012.²

Asthma is more prevalent than diabetes, and is an increasingly common chronic condition among children with diabetes most often have type 1 diabetes, and secretion of insulin, and regulation of blood sugar. Type 2 diabetes develops resistance to insulin and is more common in children with obesity. Both types of diabetes have increased in recent years. From 2001 to 2009, type 1 diabetes among youth aged 0–19 years increased from 1.9 to 2.1 per 1,000 children. Type 2 diabetes among children aged 10–19 years increased from 0.5 to 1.5 per 1,000 children aged 10–19 years in the same period.³

Both asthma and diabetes can lead to many hospital stays that are potentially avoidable through primary care by specialty and primary care. Potentially preventable hospitalizations among children aged 0–17 years declined by 18 percent to 2007, which may be a result of efforts to update clinical guidelines and establish medical homes, as well

1. National Asthma and Allergy Fact Sheet. September 2014. <http://www.aaaai.org/pressroom/factsandfigures/asthma-fact-sheet>. Accessed May 25, 2015.

2. Freeman G. Summary health statistics for U.S. children: 2012. *National Center for Health Statistics*. *NCES*. 10(258). 2013.

3. Davis EJ, Saydah S, et al. Prevalence of type 1 and type 2 diabetes and adolescents from 2001 to 2009. *JAMA*. 2011;305(22):2811–18.

Highlights

- In 2012, the rate of potentially preventable pediatric inpatient stays was 142.9 for asthma and 32.4 for diabetes per 100,000 children aged 0–17 years.
- Between 2003 and 2008, the rate of potentially preventable pediatric stays decreased by 34 percent for asthma and 16 percent for diabetes but then increased 21 percent from 2008 to 2012 for both conditions.
- By 2012, aggregate hospital costs totaled \$417.2 million for asthma and \$69.4 million for diabetes. This represents over a 50 percent increase from 2008, which is attributable to increases in the number of stays and average cost per stay.
- Between 2003 and 2012, the rate of potentially preventable stays for asthma per 100,000 children aged 0–17 years decreased for all age groups, with a nearly 50 percent decrease for children aged 15–17 years (from 72.8 to 38.7). The rate in 2012 was over 7 times lower than the rate for children aged 0–4 years (290.4).
- Rates of potentially preventable pediatric stays per 100,000 were more than twice as high in the lowest income quartile as in the highest for diabetes (43.0 vs. 18.0) and asthma (214.1 vs. 89.5) in 2012, although asthma stays declined the most among children from the poorest areas.
- Medicaid was the leading payer of potentially preventable pediatric stays for asthma (58.1 percent) and for diabetes (47.2 percent) in 2012, reflecting a 10-year decline in privately insured hospital stays.

Methodological information on the HCUP databases and software tools



HCUP Methods Series

The HCUP Method Series features a broad array of methodological information on the HCUP databases and software tools. These reports are developed by AHRQ through a Federal-State-Industry partnership.

[Home](#) [Databases](#) [Tools & Software](#) [Reports](#) [Fast Stats](#) [News & Events](#) [Purchase HCUP Data](#) [Technical Assistance](#) [Data Innovations](#)

HCUP Methods Series

The HCUP Methods Series features a broad array of methodological information on the HCUP databases and software tools. Reports in the series are listed below by category. Reports are also listed by year in [chronological](#) order.

Methodology

- [Calculating Costs](#)
- [Diagnosis Present-on-Admission Indicators](#)
- [Estimating Trends \(NIS and KID\)](#)
- [Expected Payer](#)
- [Observation Services](#)
- [Population Denominator Data for Use with HCUP Databases](#)
- [Readmission and Revisit Analyses](#)
- [Statistical Methods](#)

HCUP Methods for NHQR and NHDR

- [NHDR](#)
- [NHQR](#)

Calculating Costs

- Report #2011-04 [Tools for More Accurate Inpatient Cost Estimates with HCUP Databases, 2009](#) (PDF file, 837 KB)
- Report #2008-04 [Calculate Cost Adjustment Factors by APR-DRG and CCS Using Selected States with Detailed Charge](#) (PDF file, 122 KB)
- Report #2008-03 [The Cost of Ambulatory Surgery Visits, 2005](#) (PDF file, 187 KB)
- Report #2007-05 [The Cost of "Treat and Release" to Hospital Emergency Departments, 2003](#) (PDF file, 166 KB)

Comparison Reports

- [NIS](#)
- [KID](#)

Evaluations of Data

- [Emergency Department Data](#)
- [State Ambulatory Surgery and Services Databases](#)
- [Other \(Patient Safety Variation, E Codes, Observation Stays\)](#)

Enhancing Administrative Data

- Clinical Information
- Synthetic Person Numbers (for linking across settings and over time)

HCUP Tool Development

- Clinical Classifications Software
- Comorbidity Software
- Utilization Flags



Reports

HCUP reports include new findings, publications, research notes based on HCUP data, and technical reports about HCUP issues. These products are developed by AHRQ through a Federal-State-Industry partnership.

[Home](#)[Databases](#)[Tools & Software](#)[Reports](#)[Fast Stats](#)[News & Events](#)[Purchase HCUP Data](#)[Technical Assistance](#)[Data Innovations](#)

Favorites

Statistical Briefs

Statistical Briefs are simple, descriptive reports on a variety of specific health care issues. A full list is available by [topic](#) and [chronological order](#). The most recent briefs are:

- [Trends in Observed Adult Inpatient Mortality for High-Volume Conditions, 2002-2012](#)
- [Neonatal and Maternal Hospital Stays Related to Substance Use, 2006-2012](#)

HCUP Infographics

Infographics provide a visual representation of Statistical Brief data. A [full list](#) is available. The most recent infographic is:

- [Inpatient vs. Outpatient Surgeries in U.S. Hospitals, 2012](#) (PDF file, 1.0 MB)

HCUP Projections

Projection reports use longitudinal HCUP data to project national and regional estimates on health care priorities. A [full list](#) is available. The most recent reports are:

- [Clostridium Difficile Hospitalizations 2003-2014](#) (PDF file, 1.0 MB)
- Statistical Brief #183: Trends and Projections in Hospital Discharges for Adults With Multiple Chronic Conditions, 2003-2014 (PDF file, 192 KB; [HTML](#)).

Information About Using HCUP Data

Methods Series

Methods Series reports, organized by [topic](#) and [chronological order](#), provide a broad array of methodological information on the HCUP databases and software tools. The most recent reports are:

- [Examination of the Coding of Present-on-Admission Indicators in the Healthcare Cost and Utilization Project \(HCUP\) State Inpatient Databases \(SID\)](#) (PDF file, 756 KB)
- [Identifying Observation Services in the Healthcare Cost and Utilization Project \(HCUP\) State Databases \(Intramural version\)](#) (PDF file, 777 KB)

HCUP Nationwide Database Reports

These reports are specific to the design and content of the HCUP nationwide databases.

- [National \(Nationwide\) Inpatient Sample \(NIS\)](#)
- [Kids' Inpatient Database \(KID\)](#)
- [Nationwide Emergency Department Sample \(NEDS\)](#)

HCUP State Database Reports

These reports are specific to the design and content of the HCUP state databases.

- [State Inpatient Databases \(SID\)](#)
- [State Ambulatory Surgery and Services Databases \(SASD\)](#)
- [State Emergency Department Databases \(SEDD\)](#)

Publications and Additional Topics

Reports

Reports provide information about various priority populations.

- Approaches to using [race-ethnicity data for reducing disparities](#) in health care utilization and spending for [mental and substance use disorders](#)

HCUP Publications

These links provide access to lists of publications, resources, and descriptions of research activities that are based on HCUP data, software products, and tools.

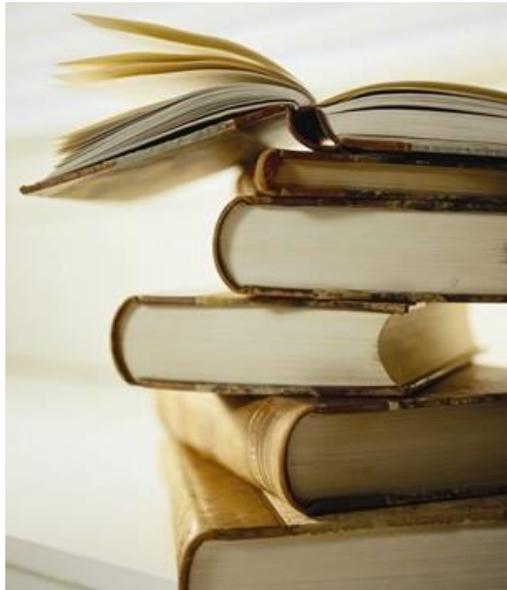
- [Search for HCUP publications](#)
- [Research Spotlights](#) on recent peer-reviewed journal articles
- [Review comprehensive list of AHRQ publications](#)

HCUP Archive

This archive features a broad array of information based on HCUP data, databases and other related reports.

- [The Value of Hospital Discharge Data](#) (PDF file, 664 KB) (May 2005)
- [HCUP Facts and Figures](#) (2005-2009)
- [HCUP Highlights](#) (2001-2003)
- [HCUP Fact Books](#) (1997-2004)
- [HCUP National Statistics Archive](#) (1992-1996)

- **Simple or advanced search options**
 - ▶ Data Year
 - ▶ Database, Tool, & Product
 - ▶ Author
 - ▶ Title
 - ▶ State





HCUP Supports High Impact Health Services, Policy & Clinical Research



H·CUP
HEALTHCARE COST AND UTILIZATION PROJECT

HSR

American Journal of
PUBLIC HEALTH



The NEW ENGLAND
JOURNAL of MEDICINE

HEALTH AFFAIRS
The Policy Journal of the Health Sphere

CANCER

ANNALS OF SURGERY
A Monthly Review of Surgical Science Since 1885

JGIM Journal of General Internal Medicine

PEDIATRICS

Health Economics

THE NATIONAL ACADEMIES
Advisers to the Nation on Science, Engineering, and Medicine

PharmacoEconomics

Newsweek
• Make Newsweek Your Homepage

OBSTETRICS & GYNECOLOGY

INQUIRY

THE LANCET

International Journal of
Health Care Finance & Economics

RURAL HEALTH THE JOURNAL OF

MMWR
Morbidity and Mortality Weekly Report

National Healthcare Disparities Report

www.qualitytools.ahrq.gov/disparitiesreport



- **Research Spotlights**

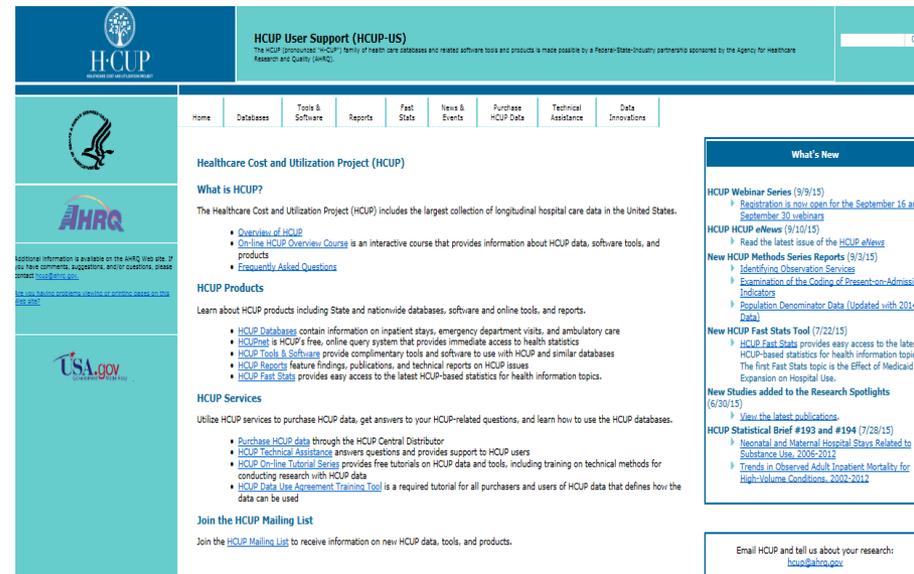
- <http://www.hcup-us.ahrq.gov/reports/spotlights.jsp>



Afana M, Brinjikji W, Cloft H, Salka S. Hospitalization costs for acute myocardial infarction patients treated with percutaneous coronary intervention in the United States are substantially higher than Medicare payments. *Clin Cardiol.* 2015 Jan;38(1):13-9.

- **Brief Database Review**
- **Tools & Software**
- **Supplemental Files**
- **HCUPnet Overview**
- **HCUP Fast Stats**
- **Publications and Publication Search**
- **How to Access HCUP Resources**

- Find detailed information on HCUP databases, tools, and products
- Access HCUPnet
- Find comprehensive list of HCUP-related publications, database reports, and fact books
- Access technical assistance



The screenshot shows the HCUP User Support (HCUP-US) website. The header includes the HCUP logo and the text "HCUP User Support (HCUP-US) The HCUP sponsored HCUP family of health care databases and related software tools and products is made possible by a Federal-State-Industry partnership sponsored by the Agency for Healthcare Research and Quality (AHRQ)". A navigation menu includes Home, Databases, Tools & Software, Reports, Fast Stats, News & Events, Purchase HCUP Data, Technical Assistance, and Data Innovations. The main content area is titled "Healthcare Cost and Utilization Project (HCUP)" and includes sections for "What is HCUP?", "HCUP Products", and "HCUP Services". A "What's New" sidebar on the right lists recent updates such as "HCUP Webinar Series (9/9/15)", "New HCUP eNews (9/10/15)", and "New HCUP Fast Stats Tool (7/22/15)". An email subscription box is located at the bottom right.

<http://www.hcup-us.ahrq.gov>

Active Technical Assistance

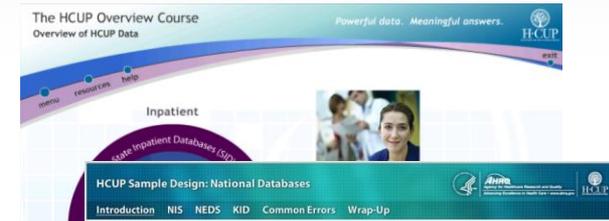
- Responds to inquiries about HCUP data, products, and tools
- Collects user feedback and suggestions for improvement



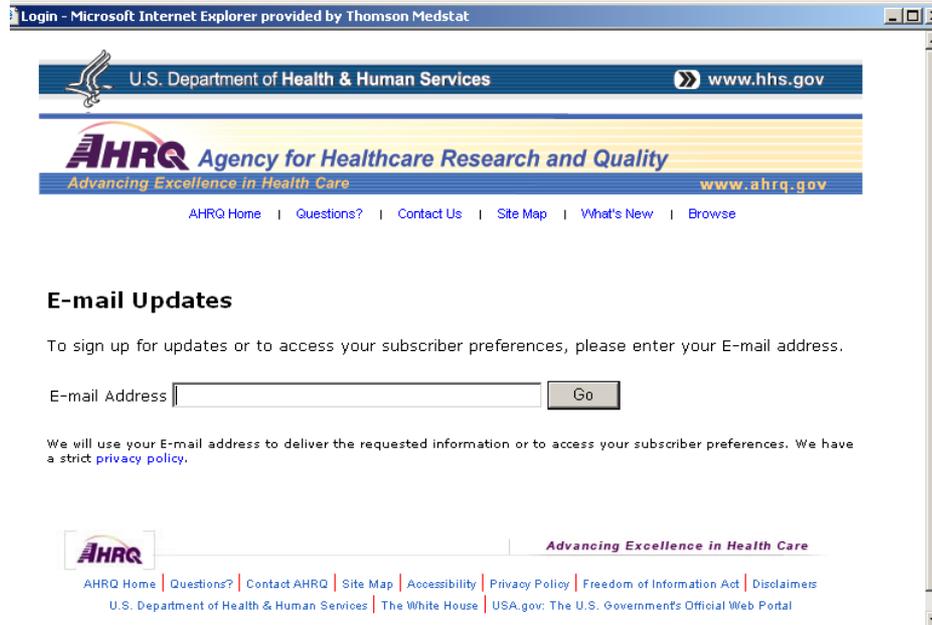
E-mail: hcup@ahrq.gov

Interactive Online HCUP Training Courses

- HCUP Overview
- HCUP Sample Designs
- Load and Check HCUP Data
- Produce National HCUP Estimates
- Calculate Standard Errors
- Multi-Year Analysis



National Estimates and Multi-Year Analysis tutorials will be updated to reflect changes in the 2012 NIS redesign



- HCUP Newsletter, published quarterly
 - ▶ User Tech Tips
 - ▶ Upcoming Events
- New Data Releases
- New Reports

https://subscriptions.ahrq.gov/accounts/USAHRQ/subscriber/new?topic_id=USAHRQ_65

Healthcare Cost and Utilization Project (HCUP)



H·CUP
HEALTHCARE COST AND UTILIZATION PROJECT



**Time for Questions
and/or Comments.**

