



U.S. Department of Health and Human Services



Agency for Healthcare Research and Quality

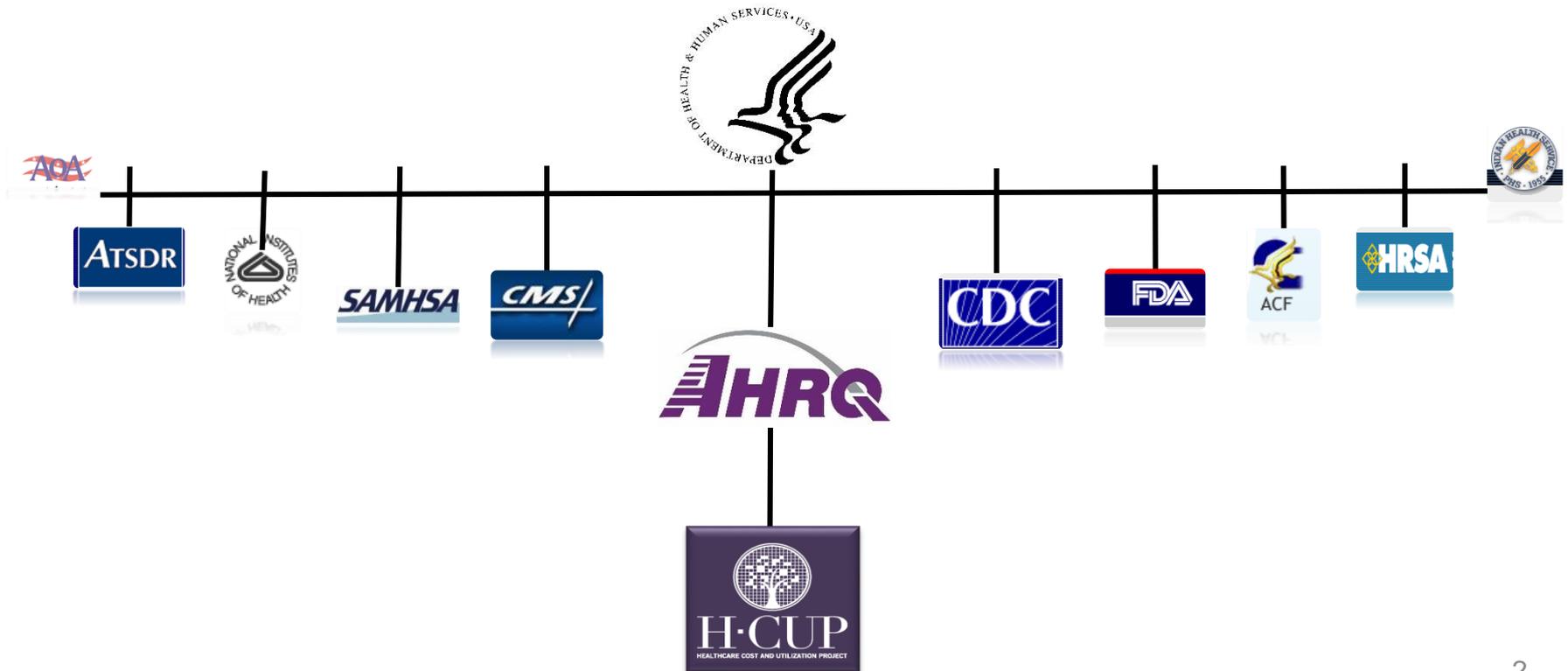
Advancing Excellence in Health Care • www.ahrq.gov

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 7, 2016**

The Agency for Healthcare Research and Quality (AHRQ) is a federal agency under the Department of Health and 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

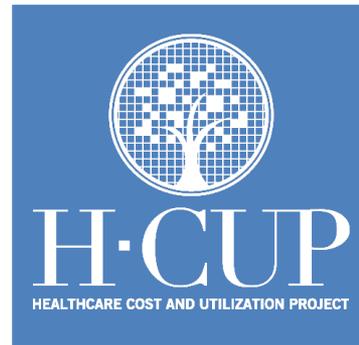
HEALTHCARE COST AND UTILIZATION PROJECT

**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



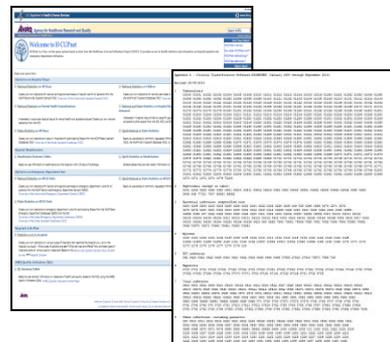
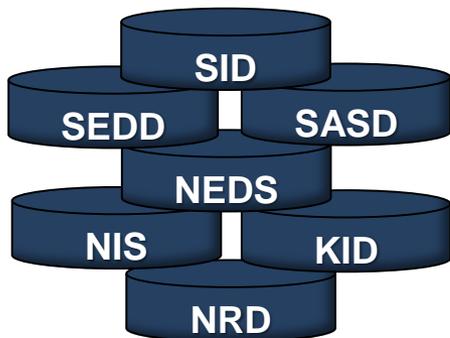
Includes multi-year inpatient and outpatient data, based on the hospital billing record

HCUP Databases

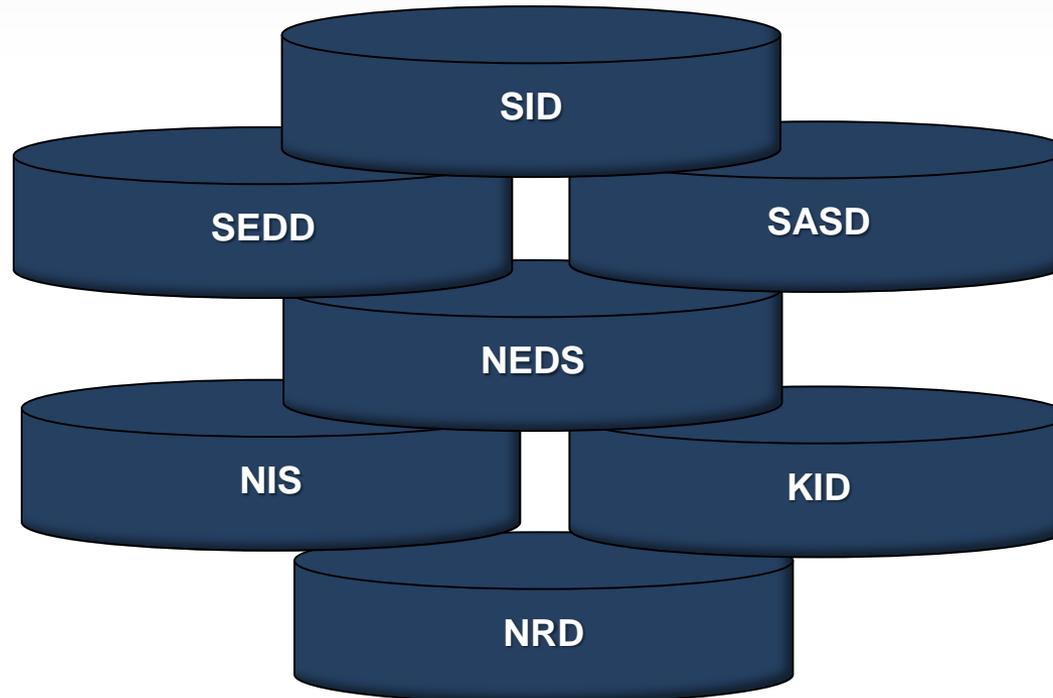
Research Tools

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

HCUP has Seven Types of Databases

- Three State-Specific Databases



State Inpatient Databases
(SID)



State Ambulatory Surgery & Services Databases
(SASD)



State Emergency Department Databases
(SEDD)

- Four National (Nationwide) Databases



National Inpatient Sample
(NIS)



Nationwide Emergency Department Sample
(NEDS)



Kids' Inpatient Database
(KID)



Nationwide Readmissions Database
(NRD)



HCUP State-Specific Databases



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



HCUP National (Nationwide) Databases



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

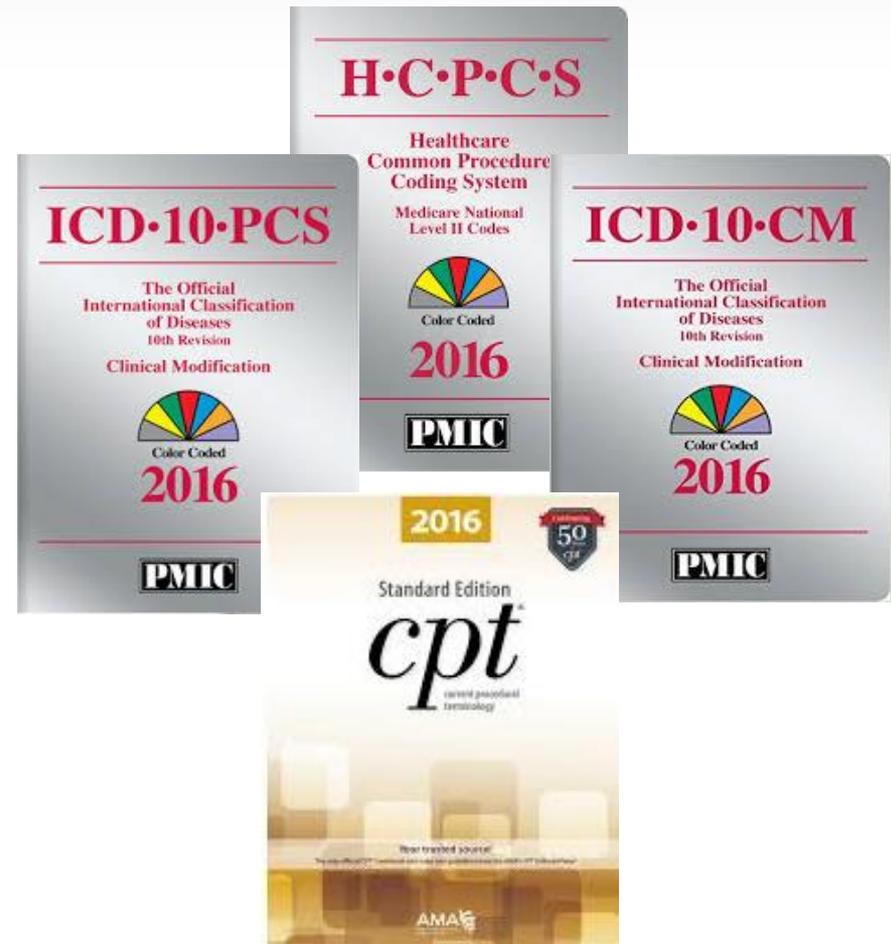
Nationwide
Readmissions Database
(NRD)

Inpatient discharge data from **all hospitals for SID with verified patient linkage numbers**

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Value-Added Clinical and Quality Measurement Tools

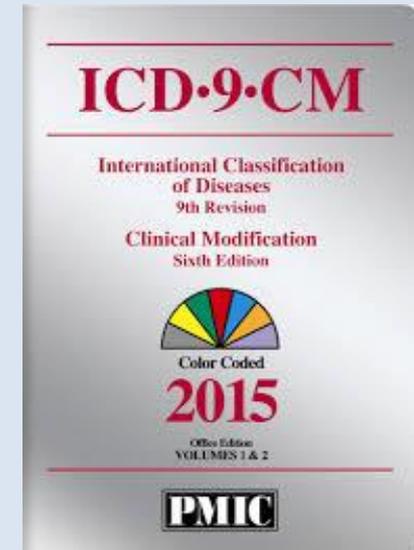
- Clinical Classifications Software*
- Procedure Classes*
- Chronic Condition Indicator*
- Comorbidity Software*
- Utilization Flags*
- Surgery Flags*
- AHRQ Quality Indicators
 - Prevention Quality Indicators
 - Inpatient Quality Indicators
 - Patient Safety Indicators
 - Pediatric Quality Indicators



- 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**

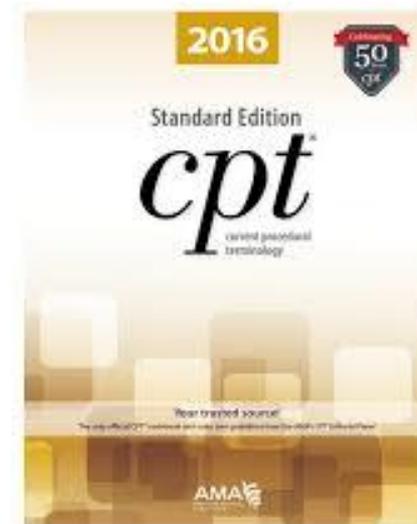


- **ICD-10-CM**
 - ▶ Diagnosis coding under this system uses 3–7 alpha and numeric digits and full code titles
- **ICD-10-PCS**
 - ▶ Procedure coding system uses 7 alpha or numeric digits

Common Procedural Coding System – CPT & HCPCS

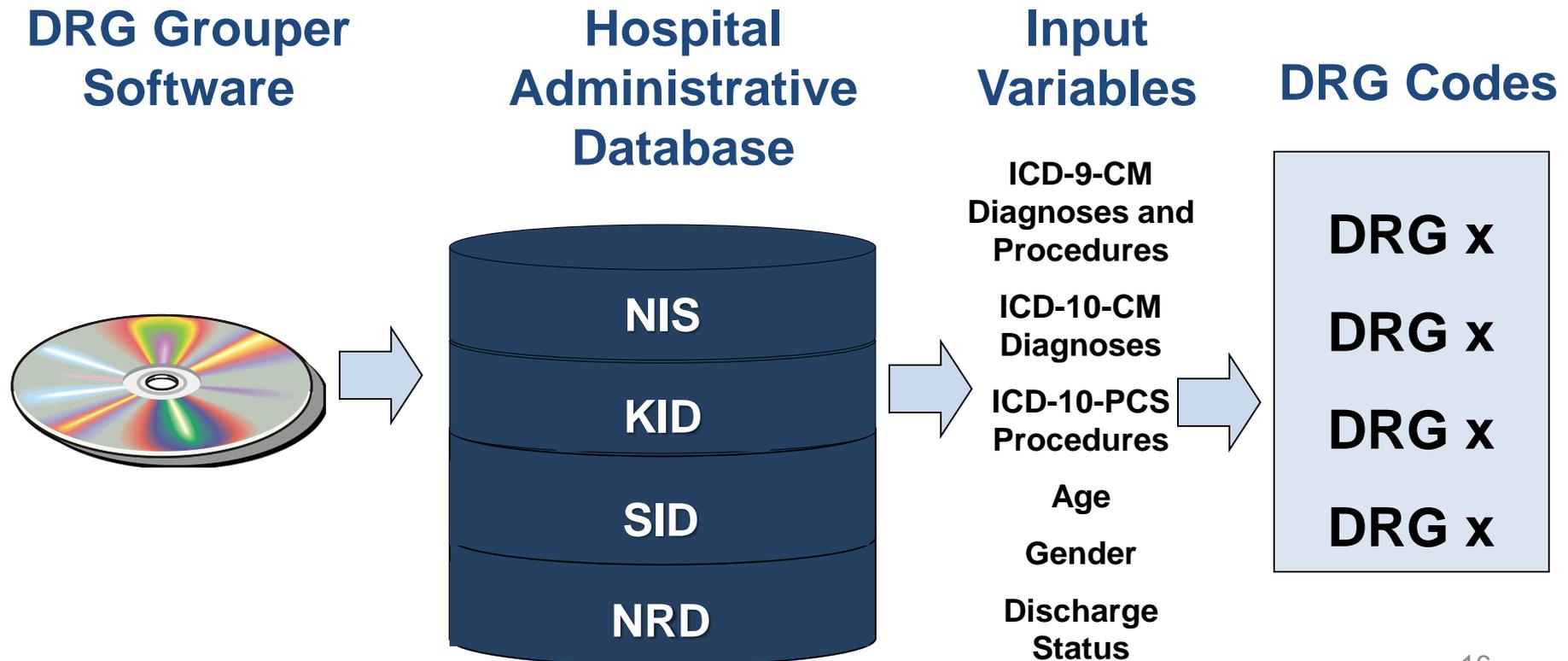
1. CPT
2. HCPCS
3. Local Codes

Levels 1 & 2 are included mostly in outpatient (SEDD and SASD) databases, but are also in select inpatient databases (SID)

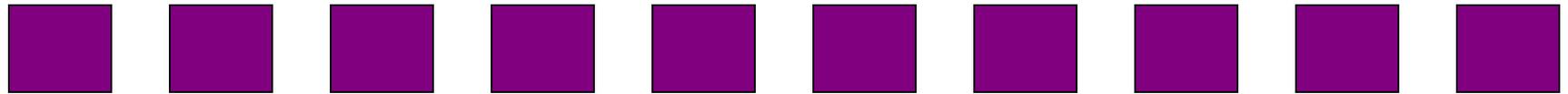


Diagnosis-Related Groups (DRGs)

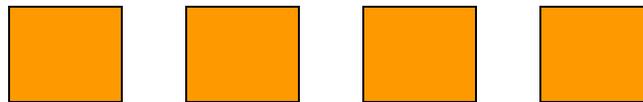
Groups ICD-9-CM and ICD-10-CM Codes into Clinical/Resource Categories using principal diagnosis, secondary diagnoses, surgical procedures, age, gender, and discharge status of the patients treated



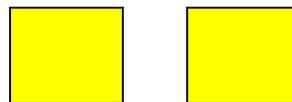
Major Diagnostic Category (MDC)



Over 15,000 ICD-9-CM Codes

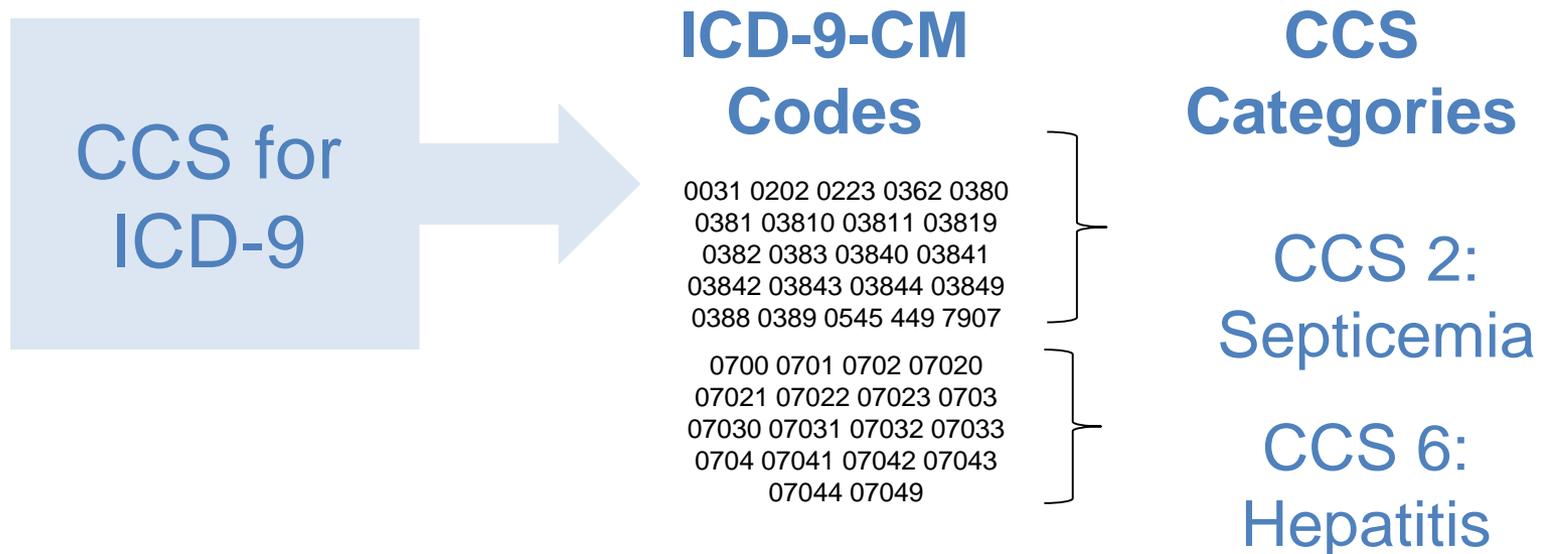


Approximately 500 DRGs



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

CPT

HCPCS

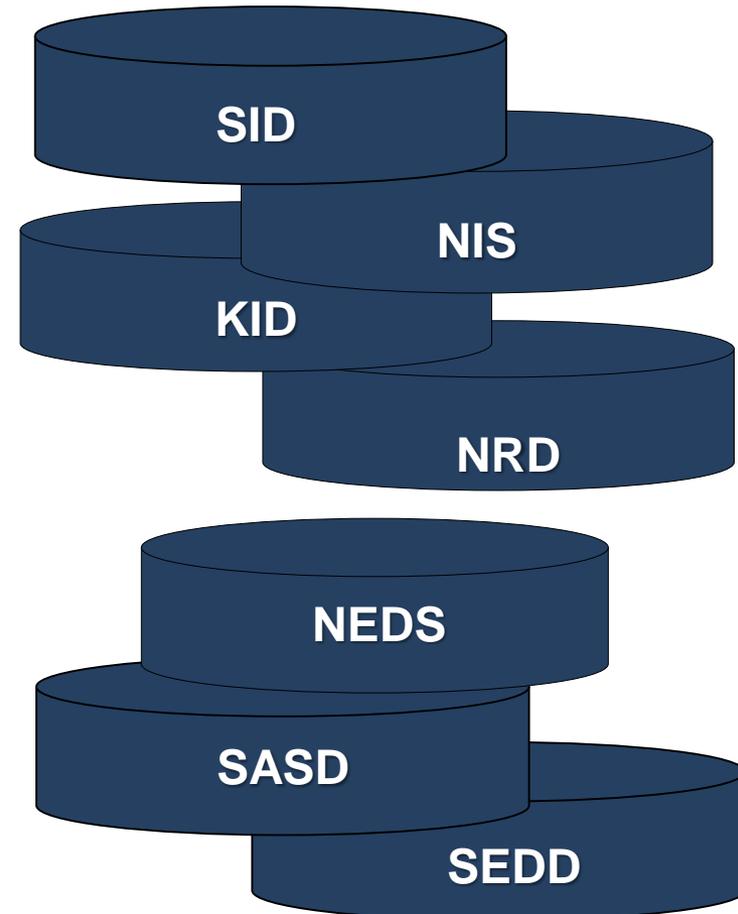
Outpatient Databases

ICD-9-CM

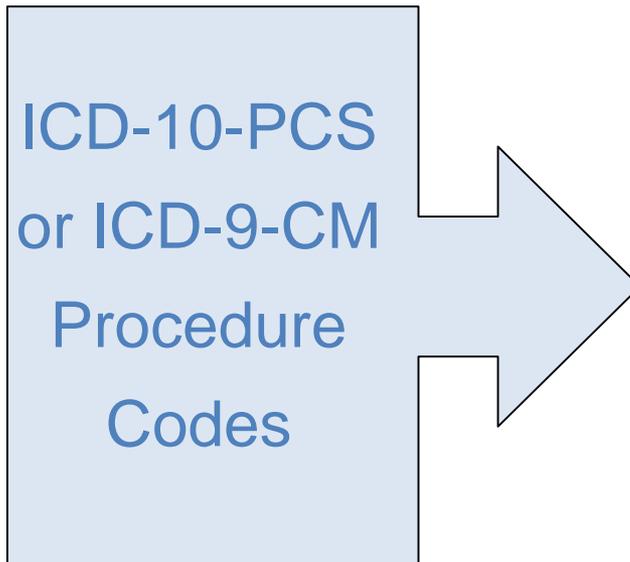
CPT

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

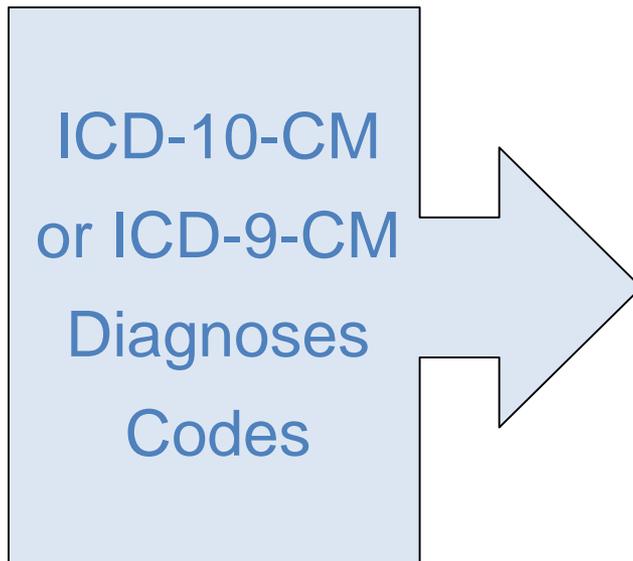
3. Major Diagnostic

Ex: Pericardial Biopsy

4. Major Therapeutic

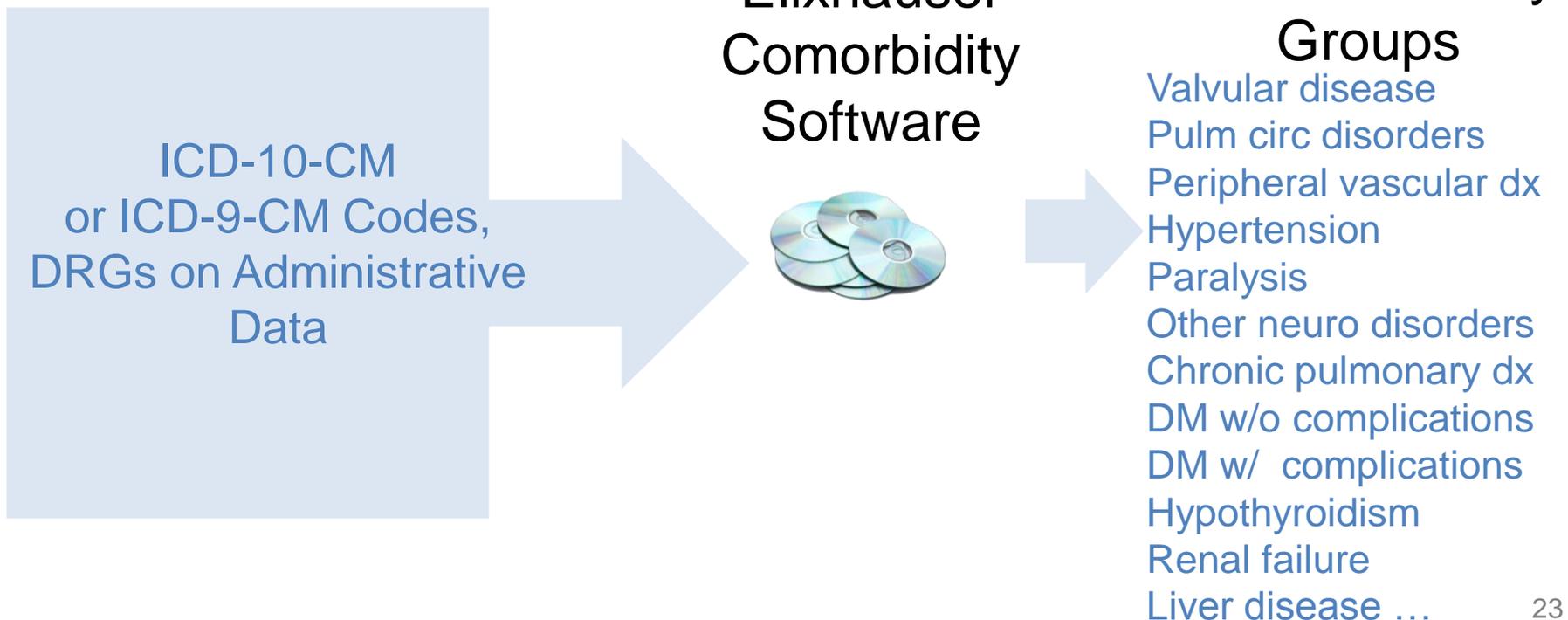
Ex: CABG

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

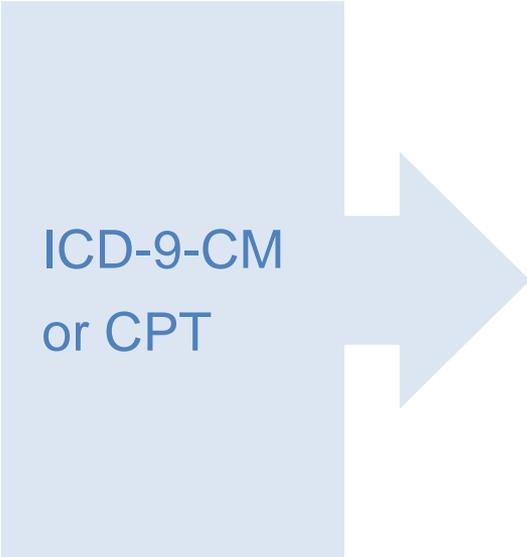
1. Narrow

- Invasive therapeutic surgical procedure involving incision, excision, manipulation, or suturing of tissue that penetrates or breaks the skin
- Typically requires use of an operating room
- Requires regional anesthesia, general anesthesia, or sedation to control pain

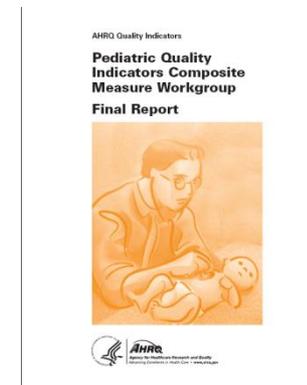
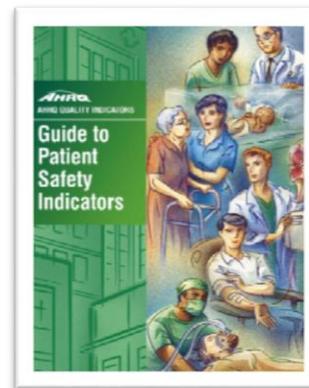
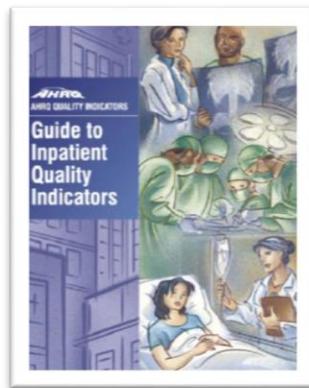
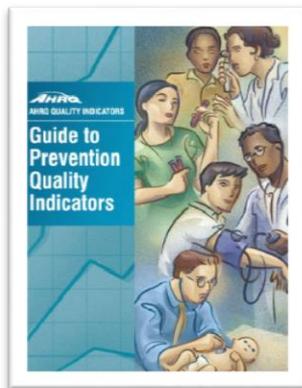
2. Broad

- Includes all narrowly defined surgical procedures as well as a broader group of diagnostic and less invasive therapeutic surgeries

3. Neither Broad nor Narrow

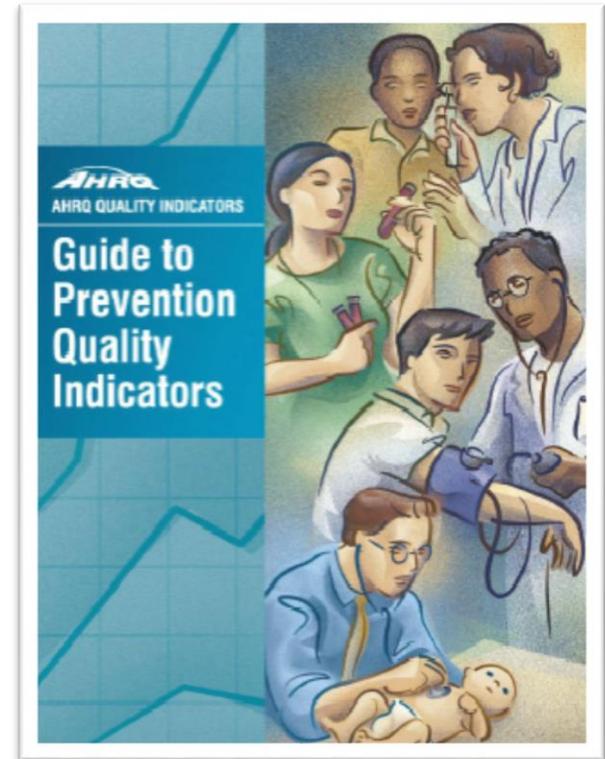
A light blue rectangular box on the left contains the text "ICD-9-CM or CPT". A large, light blue arrow points from this box towards the right, indicating the flow of data from the source to the surgical flags.

- 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

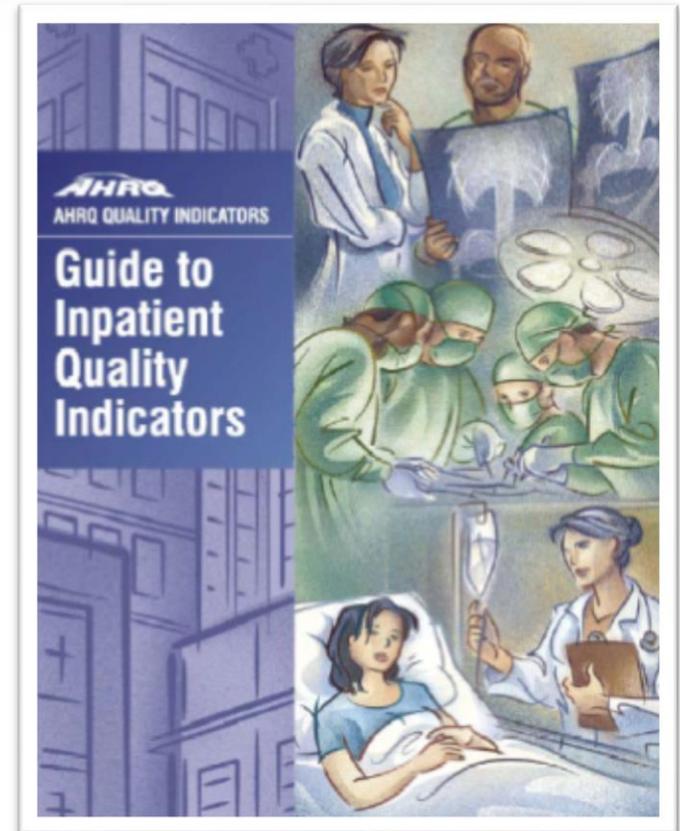


Prevention Quality Indicators (PQIs)

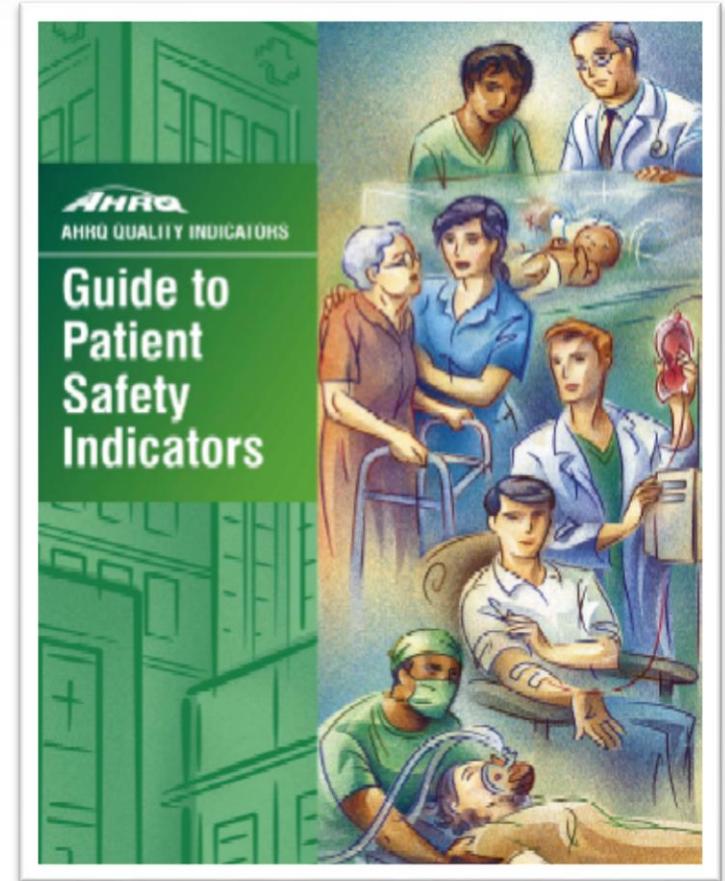
- Identify hospital admissions that are potentially preventable through high-quality outpatient care.
- Examples of PQI Measures:
 - ▶ Diabetes Short-term Complication Admission Rate
 - ▶ Diabetes Long-term Complication Admission Rate
 - ▶ Pediatric Asthma Admission Rate
 - ▶ Pediatric Gastroenteritis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



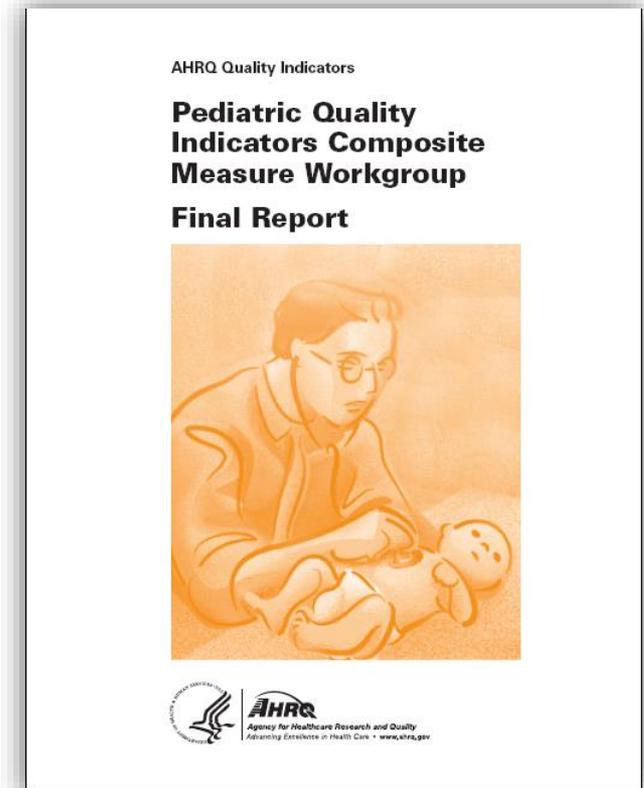
- Reflect quality of care inside hospitals:
 - ▶ Inpatient mortality for medical conditions and surgical procedures
 - ▶ Utilization of procedures
 - ▶ Volume of procedures
- Examples of IQI Measures:
 - ▶ Esophageal Resection Volume
 - ▶ Pneumonia Mortality Rate
 - ▶ Coronary Artery Bypass Graft Mortality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





Agency for Healthcare Research and Quality

Advancing Excellence in Health Care



AHRQ Quality Indicators™

[Home](#)[Modules](#)[Software](#)[News](#)[Resources](#)[FAQs & Support](#)[Archives](#)

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

- July 12, 2016 - Release of July 2016 AHRQ Quality Indicators ICD-10 SAS QI & WinQI v6.0. - *New!*
- July 12, 2016 - Announcing the July 19th ICD-10 v6.0 Software Release Webinar - [Click here to register!](#) - *New!*
- April 29, 2016 - Patient Safety and Adverse Events Composite "modified version" of PSI 90 for ICD-9-CM/PCS, version 6.0 (FY2016) Fact Sheet Published

[>> More](#)

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HCUP Supplemental Files Can Only be Applied to HCUP Databases

- **Cost-to-Charge Ratio Files**
- **Hospital Market Structure Files**
- **Supplemental Variables for Revisit Analyses**
- **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, NRD, and SID

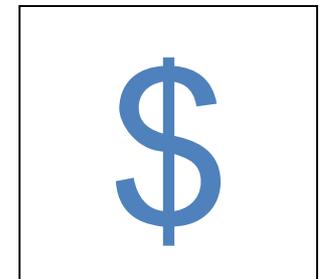


**Hospital-Level
Data**



	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

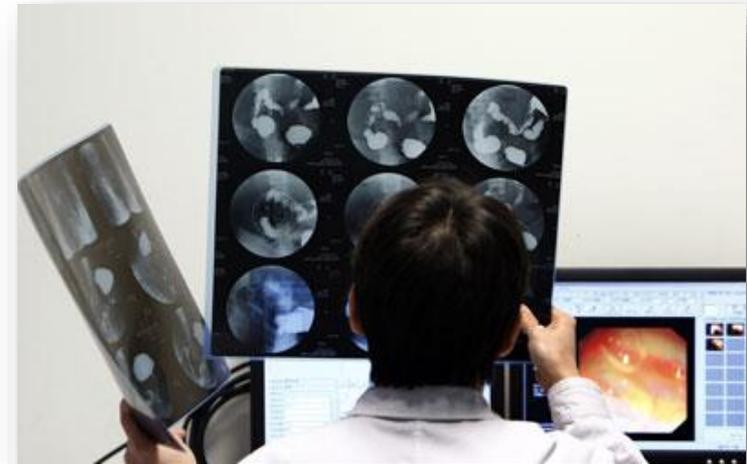
Apply Ratios



**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



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

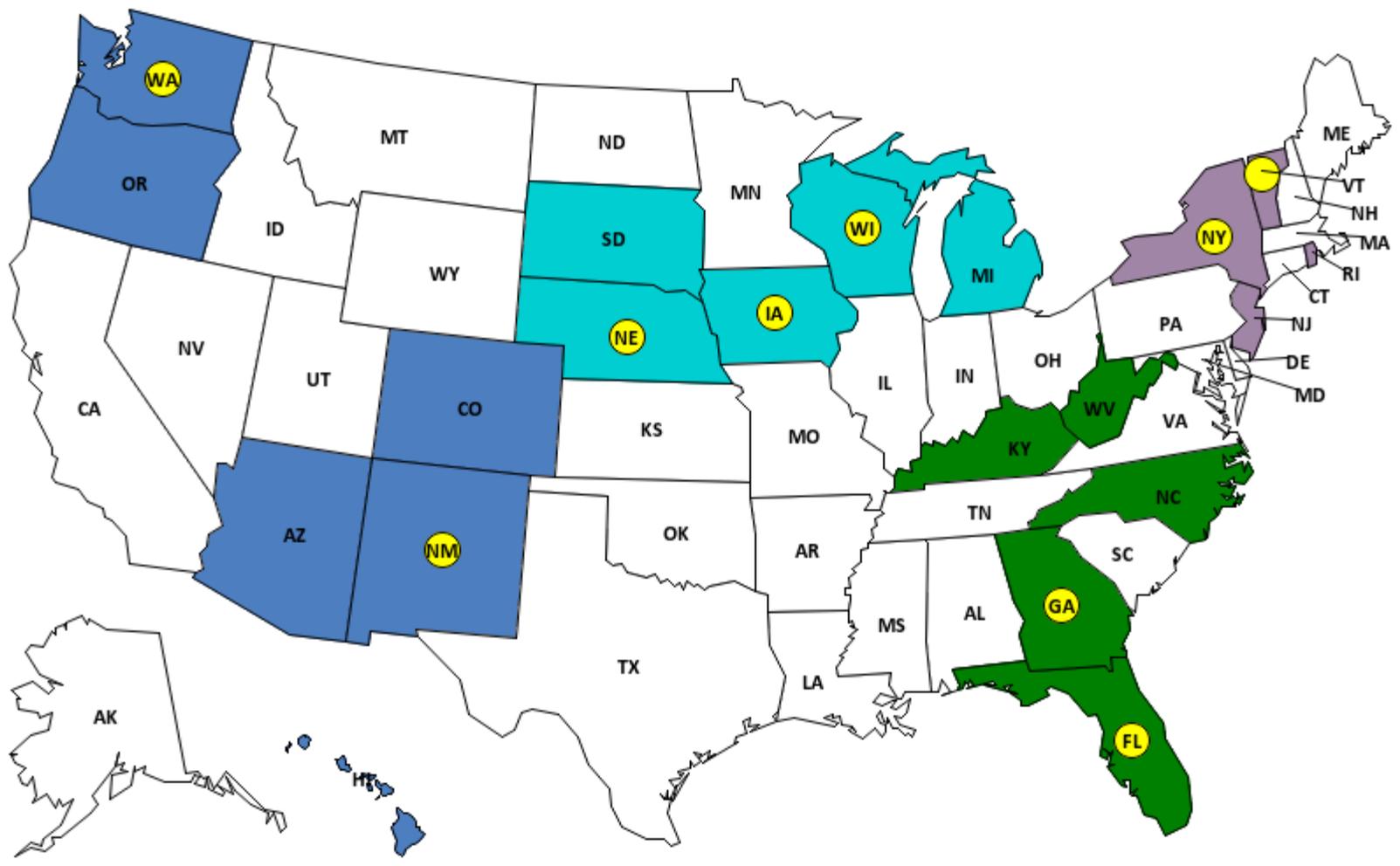


HCUP Supplemental Variables for Revisit Analyses



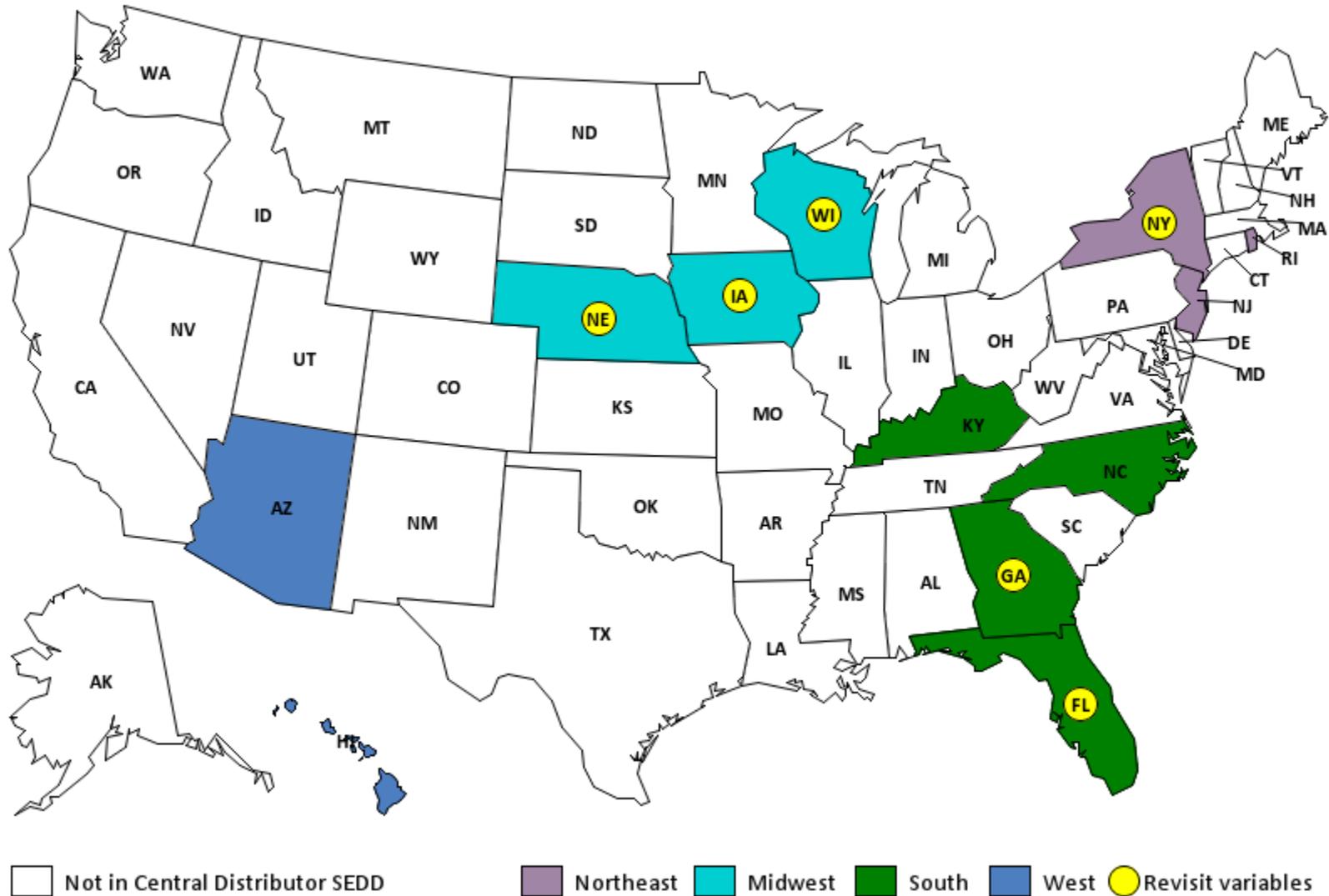
- There are two HCUP supplemental variables:
 1. Synthetic person-level identifiers
 - Verified against the patient's date of birth and sex
 - Examined for completeness (VisitLink)
 2. Timing variable determines the number of days between events for an individual (DaysToEvent)
 - Without the use of actual dates
- HCUP revisit variables are to be used exclusively with the SID, SASD, and SEDD (not nationwide databases) for States with encrypted patient identifiers
- Revisit Variables are only available in one Nationwide Database – The Nationwide Readmission Database (NRD)
- Select national revisit statistics are also available on HCUPnet

2014 SID States with Revisit Variables

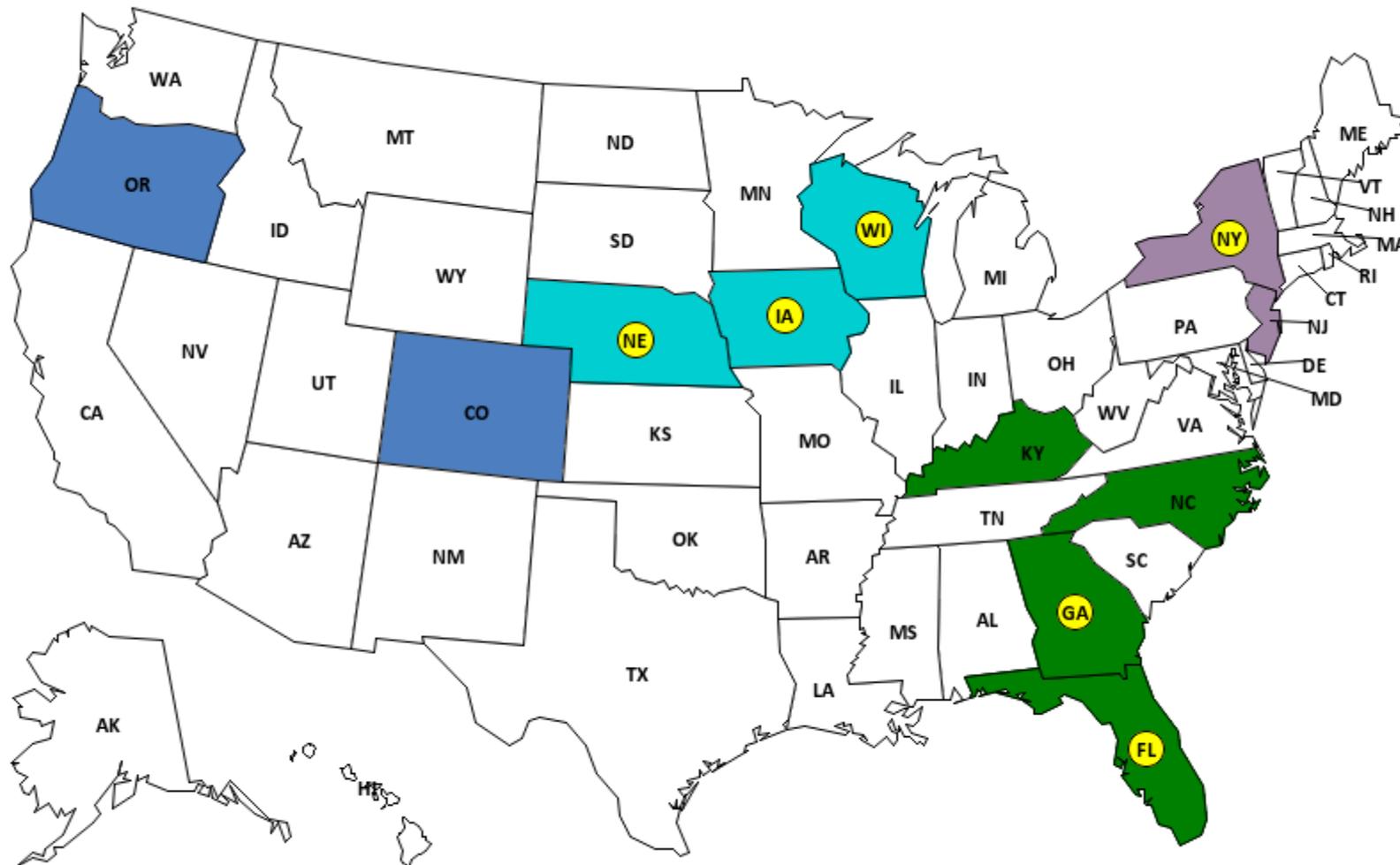


Legend:
 □ Not in Central Distributor SID
 ■ Northeast
 ■ Midwest
 ■ South
 ■ West
 ● Revisit variables

2014 SEDD States with Revisit Variables



2014 SASD States with Revisit Variables



□ Not in Central Distributor SASD

■ Northeast

■ Midwest

■ South

■ West

● Revisit variables

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

Favorites

HCUPnet
HCUPnet is an interactive tool for identifying, tracking, analyzing, and comparing statistics on hospital and emergency care. HCUPnet provides statistics from the HCUP Nationwide Databases ([NIS](#), [KID](#), [NEDS](#), and [NRD](#)) and the State Databases ([SID](#), [SASD](#), and [SEDD](#)) for those States that have agreed to participate.

MONAHRQ
MONAHRQ is a software product that enables organizations - such as state and local data organizations, Chartered Value Exchanges, hospital systems, and health plans - to input their own hospital administrative data and generate a data-driven Web site.

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.

HCUP Tools & Software

The 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

ICD-9-CM codes were frozen in preparation for ICD-10 implementation and regular maintenance of the codes has been suspended. The HCUP Tools for ICD-9-CM should only be used with data for discharges before 10/1/2015.

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
The **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.)

Elixhauser Comorbidity Software
Elixhauser 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.)

CPT Based Tools

Surgery Flags
Surgery Flags identify surgical procedures and encounters in ICD-9-CM or CPT-based inpatient and ambulatory surgery data. Two types of surgical categories are identified: NARROW surgery is based on a narrow, targeted, and restrictive definition and includes invasive surgical procedures. BROAD surgery includes procedures that fall under the NARROW category but adds less invasive therapeutic and diagnostic procedures that may be often performed in surgical settings. Users must agree to a license to use the Surgery Flags before accessing the software. (Updated for codes valid through 2015.)

Clinical Classifications Software for Services and Procedures
CCS-Services and Procedures provides a method for classifying Current Procedural Terminology (CPT) codes and Healthcare Common Procedure Coding System (HCPCS) codes into clinically meaningful procedure categories. The procedure categories are identical to the CCS, with the addition of specific categories unique to professional service codes in CPT/HCPCS. Users must agree to a license to use the CCS-Services and Procedures before accessing the software. (Updated for codes valid through 2016.)

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

Clinical Classifications Software (CCS) for ICD-10-CM/PCS provides a method for classifying ICD-10-CM diagnoses or ICD-10-PCS procedures into clinically meaningful categories, which can be used for aggregate statistical reporting of a variety of types. (Updated for codes valid through FY 2016.)

★ Chronic Condition Indicator for ICD-10-CM

Chronic Condition Indicator for ICD-10-CM provides users an easy way to categorize ICD-10-CM diagnosis codes into one of two categories: chronic or not chronic. The tool can also assign ICD-10-CM diagnosis codes into 1 of 18 body system categories. (Updated for codes valid through FY 2016.)

★ Elixhauser Comorbidity Software for ICD-10-CM

Elixhauser Comorbidity Software for ICD-10-CM assigns variables that identify coexisting conditions on hospital discharge records. (Updated for codes valid through FY 2016.)

★ Procedure Classes for ICD-10-PCS

Procedure Classes for ICD-10-PCS facilitate research on hospital services using administrative data by identifying whether a ICD-10-PCS 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 2016.)

Other Tools

Clinical Classifications Software (CCS) for Mortality Reporting

Clinical Classifications Software (CCS) for mortality reporting provides a method for classifying ICD-10 mortality diagnoses into clinically meaningful categories, which can be used for aggregate statistical reporting of a variety of types. Note that this is the original ICD-10 system for mortality reporting; not ICD-10-CM/PCS coding which will be implemented on October 1, 2015. Codes are valid through 2009.

Utilization Flags

Utilization Flags reveal additional information about use of health care services by combining information from UB-04 revenue codes and ICD-9-CM procedure codes to create flags, or indicators, of utilization. Use of procedures and services such as ICU, CCU, NICU, and specific diagnostic tests and therapies can be assessed with these Utilization Flags. (Updated for codes valid through 2014.)

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HCUPnet: Quick, Free Access to HCUP Data



H·CUP
HEALTHCARE COST AND UTILIZATION PROJECT

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

The screenshot shows the HCUPnet website homepage. At the top, it features the U.S. Department of Health & Human Services logo and the AHRQ logo. The main heading is "Welcome to H-CUPnet" with a sub-heading "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." Below this, there are several sections for navigation and information, including "Begin your query here -", "Hospital Readmissions", "Statistics on Ambulatory Surgery Use", and "What's New?". The "What's New?" section lists recent updates such as "2013 nationwide HCUPnet ED data" and "2013 nationwide HCUPnet hospital data now available".

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



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

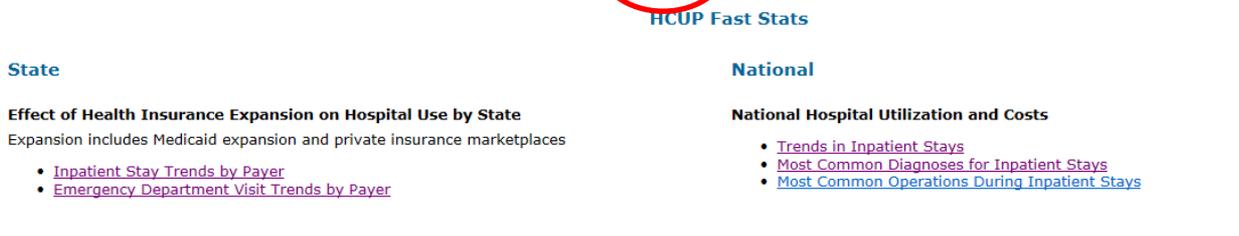
- Step 1: Select the focus of your query.
- Step 2: Select the type of query want.
- Step 3: Select the Outcomes and Measures.
- Step 4: Select patient and hospital characteristics.
- Step 5: Agree to terms of HCUPnet Data Use Agreement (DUA)
- Step 6: Results.

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

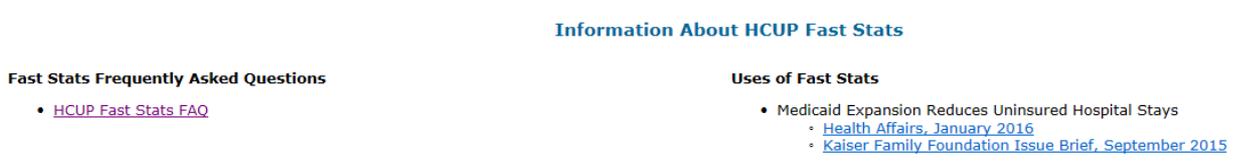
- **Brief Database Review**
- **Tools & Software**
- **Supplemental Files**
- **HCUPnet Overview**
- **HCUP Fast Stats**
- **Publications and Publication Search**
- **How to Access HCUP Resources**



The screenshot shows the top navigation bar of the HCUP Fast Stats website. It features a teal header with the H-CUP logo on the left and a navigation menu on the right. The menu items are: Home, Databases, Tools & Software, Reports, Fast Stats (highlighted with a red circle), News & Events, Purchase HCUP Data, Technical Assistance, and Data Innovations.



The screenshot shows the main content area of the HCUP Fast Stats website. It is titled "HCUP Fast Stats" and is divided into two columns: "State" and "National". Under "State", there is a section titled "Effect of Health Insurance Expansion on Hospital Use by State" with a sub-heading "Expansion includes Medicaid expansion and private insurance marketplaces" and two bullet points: "Inpatient Stay Trends by Payer" and "Emergency Department Visit Trends by Payer". Under "National", there is a section titled "National Hospital Utilization and Costs" with three bullet points: "Trends in Inpatient Stays", "Most Common Diagnoses for Inpatient Stays", and "Most Common Operations During Inpatient Stays".



The screenshot shows the "Information About HCUP Fast Stats" section. It is divided into two columns: "Fast Stats Frequently Asked Questions" and "Uses of Fast Stats". Under "Fast Stats Frequently Asked Questions", there is one bullet point: "HCUP Fast Stats FAQ". Under "Uses of Fast Stats", there are two bullet points: "Medicaid Expansion Reduces Uninsured Hospital Stays" (with sub-bullets "Health Affairs, January 2016" and "Kaiser Family Foundation Issue Brief, September 2015") and "Medicaid Expansion Reduces Uninsured Hospital Stays".

- 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>



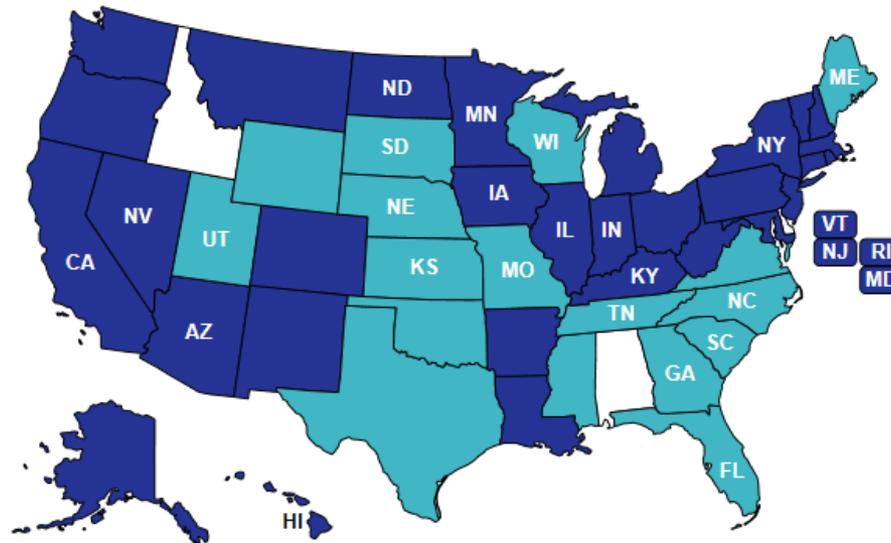
HCUP Fast Stats - Effect of Health Insurance Expansion on Emergency Department Visits

HCUP Fast Stats provides easy access to the latest HCUP-based statistics for health information topics. This section provides State-level trends in hospital emergency department visits by expected payer.

Home	Databases	Tools & Software	Reports	Fast Stats	News & Events	Purchase HCUP Data	Technical Assistance	Data Innovations
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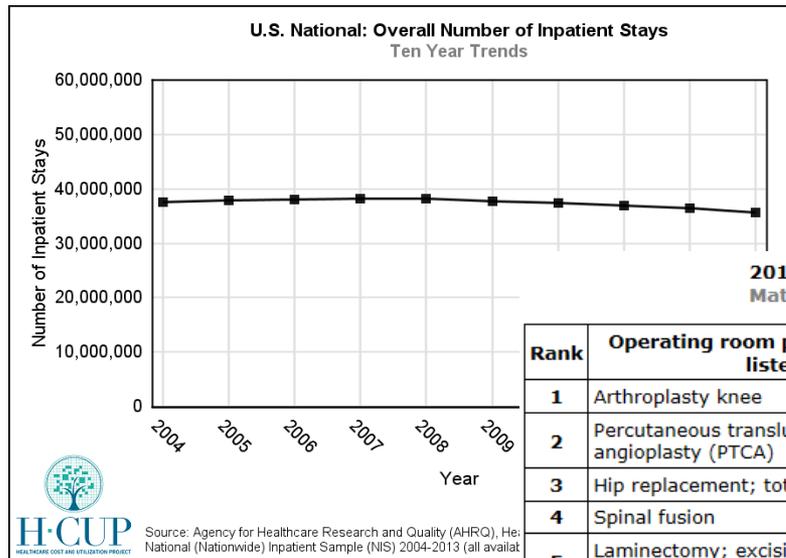
Effect of Health Insurance Expansion on Emergency Department Visits

Click map to select one of the identified States, or select from list and click Select: *Medicaid expansion State
 Information is available for labeled States.



Medicaid expansion States in HCUP	Medicaid nonexpansion States in HCUP	Non-HCUP States
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- Includes information on trends in inpatient stays, the most common diagnoses for inpatient stays, and the most common operations during inpatient stays.



2013 U.S. National Inpatient Stays
Maternal/Neonatal Stays Included

Rank	Principal diagnosis	Total number of stays	Rate of stays per 100,000
1	Liveborn	3,764,533	1,196
2	Septicemia (except in labor)	1,297,045	412
3	Osteoarthritis	1,023,070	325
4	Pneumonia (except that caused by tuberculosis or sexually transmitted disease)	960,594	305
5	Hypertensive	882,179	280
6		835,623	265
7		709,560	225
8	sease	644,744	205
9	or graft	631,960	201
10	rperium	625,390	199

2013 U.S. National Inpatient Stays
Maternal/Neonatal Stays Excluded

Rank	Operating room procedures (all-listed)	Total number of stays	Rate of stays per 100,000
1	Arthroplasty knee	732,550	233
2	Percutaneous transluminal coronary angioplasty (PTCA)	498,975	158
3	Hip replacement; total and partial	493,675	157
4	Spinal fusion	454,550	144
5	Laminectomy; excision intervertebral disc	452,115	144
6	Other OR procedures on vessels other than head and neck	421,995	134
7	Cholecystectomy and common duct exploration	387,980	123
8	Partial excision bone	344,915	110
9	Colorectal resection	302,485	96
10	Excision; lysis peritoneal adhesions	295,020	94

Source: Agency for Healthcare Research and Quality (AHRQ), Healthcare Cost and Utilization Project (HCUP), National Inpatient Sample (NIS), 2013

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

- **Statistical Briefs**
- **Methods Series Reports**



H-CUP
HEALTHCARE COST AND UTILIZATION PROJECT



Agency for Healthcare Research and Quality

STATISTICAL BRIEF #209

August 2016

Geographic Variation in Hospital Inpatient List Prices in the United States, 2013

Zeynal Karaca, Ph.D., and Brian Moore, Ph.D.

Introduction

In the United States, each hospital has a chargemaster that contains the hospital's own list prices for all billable procedures and services performed at the hospital. Chargemasters use codes from the American Medical Association's Current Procedural Terminology to identify the services.

Highlights

- In 2013, there was substantial variation in hospital inpatient list prices, reported as charges, across U.S. census divisions.
- After adjustment for the area wage index (AWI), the mean charges per inpatient stay in most U.S. census divisions were closer to national means across all payer groups.
- The AWI-adjusted mean charges per inpatient stay were \$39,000 for Medicare, \$47,100 for Medicaid, \$30,000 for Medicaid stays, and \$200 for privately insured.

When compared with the national average, the AWI-adjusted mean inpatient charges per stay were 16 percent higher in the West South Central division, 15 percent higher in the South Atlantic division, and 14 percent higher in the Pacific division.

In the West South Central division, the AWI-adjusted mean charges per stay were 11 percent higher than the AWI-adjusted Medicaid mean charges.

In the West South Central division, the AWI-adjusted mean inpatient charges per stay for privately insured stays were 16 percent higher than the AWI-adjusted national privately insured mean charges.

In the West South Central division, the AWI-adjusted mean charges for all stays, Medicare stays, Medicaid stays, and privately insured stays were lower than their corresponding AWI-adjusted national mean charges.

2015 Jun 1
Revised August 3, 2016.

1



H-CUP
HEALTHCARE COST AND UTILIZATION PROJECT

HCUP Methods Series

Impact of ICD-10-CM/PCS on Research Using Administrative Databases

Report # 2016-02



Agency for Healthcare Research and Quality



U.S. Department of Health and Human Services
Agency for Healthcare Research and Quality

July 2016

Sports-Related Emergency Department Visits and Hospital Inpatient Stays, 2013

Audrey J. Weisz, Ph.D., and Anne Elinxhauser, Ph.D.

Introduction

With most Americans engaging in some type of sports or physical fitness activity each year,¹ it is important to understand the types of injuries that are most commonly seen in the hospital and emergency department (ED) and which sports account for those injuries. Prevention of sports-related injuries is part of the current research agenda of the Centers for Disease Control and Prevention.

Sports and recreation-related injuries are a common type of injury seen in hospital EDs.³ Sports-related ED visits are most common among older children and young adults and among males.⁴ One recent study reported that, among children aged 5–18 years, the number of sports-related injuries seen in the ED across 21 selected sports increased annually between 2001 and 2013.⁵ Of the four sports that accounted for three-fourths of these sports-related injuries, football and soccer showed a significant increase in injuries from 2001 to 2013 whereas basketball and baseball showed a significant decrease in injuries.⁶

Some sports-related injuries are severe enough to require hospitalization.⁷ Certain types of sports-related injuries, such as concussions and traumatic brain injuries (TBIs), have received increasing national attention. Between 2001 and 2009, there was

¹ Physical Activity Council. 2016 Participation Report: The Physical Activity Councils Annual Study Tracking Sports, Fitness, and Recreation Participation in the US. <http://www.physicalactivitycouncil.com/CP/Document.pdf>. Accessed March 4, 2016.
² Centers for Disease Control and Prevention. CDC Injury Center Research Priorities. <http://www.cdc.gov/injury/researchpriorities/cdc-injury-research-priorities.pdf>. Accessed March 11, 2016.
³ Centers for Disease Control and Prevention. Nonfatal sports- and recreation-related injuries treated in emergency departments—United States, July 2000–June 2001. *MMWR Weekly*. 2002;51(33):736–40.
⁴ *Ibid.*
⁵ Bayl DR, Bell TM. Trends in paediatric sports-related injuries presenting to US emergency departments, 2001–2013. *Injury Prevention*. 23 December 2015. Epub ahead of print. doi:10.1136/injurprev-2015-041757
⁶ *Ibid.*
⁷ Wier L, Miller A, Steiner C. Sports injuries in children requiring hospital emergency care, 2006. H-CUP Statistical Brief #75. June 2009. Agency for Healthcare Research and Quality, Rockville, MD. <https://www.hcup-us.ahrq.gov/reports/statbriefs/sb75.pdf>. Accessed March 9, 2016.

Highlights

- The most common sports-related reasons for hospital use were bicycling, and walking, marching, and hiking. In 2013, bicycling accounted for 383.7 ED visits and 26,530 hospital stays. Walking, marching, and a hiking resulted in 340,290 ED visits and 30,650 hospital stay
- Other top-ranked reasons for sport-related hospital use were basketball, football, school recreation and summer camp, running, roller skating and skateboarding, soccer (ED only), baseball (ED only), downhill skiing and snowboarding (inpatient only), and horseback riding (inpatient only).
- Among children, the most common sports-related reason for hospital stays and ED visit included American tackle football (boys only), bicycle riding, and school recess and summer camp activities.
- Bicycle riding was the most common sports-related reason for hospital stays and ED visits among males aged 18–44 years and females aged 18–44 years (inpatient only). Walking, marching, and hiking was the most common sports-related reason among males aged 65 years and females aged 18–44 years (ED only) and 45+ years
- Sport-related hospital stays were primarily for fractures (5 percent of all sports-related stays) and intracranial injury (1 percent). Sports-related ED visits were for sprains (24 percent of all sports-related ED visits), fractures (21 percent), superficial injuries (18 percent) and open wounds (12 percent)

August 2016

Teen Hospital Stays for Childbirth, 2004–2013

Kathryn R. Finger, Ph.D., M.P.H., and Megan M. Hambrick, M.S.W.

Introduction

The national teen birth rate has declined almost continuously over the last several decades, from a high of 61.8 per 1,000 females aged 15–19 years in 1991 to 24.2 in 2014.¹ Nevertheless, the rate remains higher in the United States than in many other industrialized countries.² The teen birth rate also remains higher in certain regions of the United States, such as the South.³

Not only can teen pregnancy have immediate and long-term social and economic consequences, such as lower educational attainment, unemployment, and poverty,⁴ teen mothers and their infants often have poor health outcomes. Compared with older women who give birth, pregnant teens have been found to be more likely to start prenatal care later, to smoke or abuse other substances during pregnancy, and to suffer from mental illness.^{5,6} Teens also have higher rates of certain pregnancy-related complications than older women, including pregnancy-induced hypertension and anemia, and they are more likely to deliver a preterm or low-birth-weight infant.⁷

¹ Hamilton BE, Martin JA, Osterman MJM, Curtin SC. Births: final data for 2014. *National Vital Statistics Reports*. 2015;64(12):1–64.
² United Nations Statistics Division. *Demographic Yearbook 2013*. Table 10. Live births by age of mother and sex of child, general and age-specific fertility rates: latest available year, 2004–2013. New York, NY: United Nations; 2015. <http://unstats.un.org/unsd/demographic/products/dyb/dyb2013/Tab10.pdf>. Accessed July 13, 2016.
³ *Ibid.*
⁴ The National Campaign to Prevent Teen and Unplanned Pregnancy. *Teen Childbearing, Education, and Economic Well-Being*. Washington DC: The National Campaign to Prevent Teen and Unplanned Pregnancy; July 2012. <http://thenationalcampaign.org/sites/default/files/resource-downloads/teen-childbearing-education-economic-well-being.pdf>. Accessed July 13, 2016.
⁵ The National Campaign to Prevent Teen and Unplanned Pregnancy. *Teen Childbearing and Infant Health*. Washington, DC: The National Campaign to Prevent Teen and Unplanned Pregnancy; October 2012. <http://thenationalcampaign.org/sites/default/files/resource-downloads/teen-childbearing-and-infant-health.pdf>. Accessed July 13, 2016.
⁶ Magill MK, Wilcox R. Adolescent pregnancy and associated risks: not just a result of maternal age. *American Family Physician*. 2007;75(9):1310–1.
⁷ March of Dimes Pregnancy & Newborn Health Education Center. *Teen Pregnancy*. White Plains, NY: March of Dimes Foundation; July 2012. <http://www.marchofdimes.org/materials/teenage-pregnancy.pdf>. Accessed July 13, 2016.

August 2016

Geographic Variation in Hospital Inpatient List Prices in the United States, 2013

James M. Franks, Ph.D.

August 2016

Teen Hospital Stays for Childbirth, 2004–2013

Kathryn R. Finger, Ph.D., M.P.H., and Megan M. Hambrick, M.S.W.

Introduction

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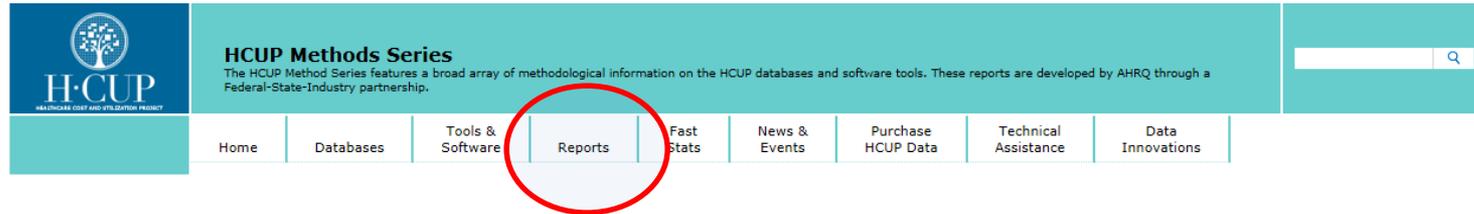
¹ Hamilton BE, Martin JA, Osterman MJM, Curtin SC. Births: final data for 2014. *National Vital Statistics Reports*. 2015;64(12):1–64.
² United Nations Statistics Division. *Demographic Yearbook 2013*. Table 10. Live births by age of mother and sex of child, general and age-specific fertility rates: latest available year, 2004–2013. New York, NY: United Nations; 2015. <http://unstats.un.org/unsd/demographic/products/dyb/dyb2013/Tab10.pdf>. Accessed July 13, 2016.
³ *Ibid.*
⁴ The National Campaign to Prevent Teen and Unplanned Pregnancy. *Teen Childbearing, Education, and Economic Well-Being*. Washington DC: The National Campaign to Prevent Teen and Unplanned Pregnancy; July 2012. <http://thenationalcampaign.org/sites/default/files/resource-downloads/teen-childbearing-education-economic-well-being.pdf>. Accessed July 13, 2016.
⁵ The National Campaign to Prevent Teen and Unplanned Pregnancy. *Teen Childbearing and Infant Health*. Washington, DC: The National Campaign to Prevent Teen and Unplanned Pregnancy; October 2012. <http://thenationalcampaign.org/sites/default/files/resource-downloads/teen-childbearing-and-infant-health.pdf>. Accessed July 13, 2016.
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Highlights

- In 2013, there was substantial variation in hospital inpatient list prices, reported as charges, across U.S. census divisions.
- After adjustment for the area wage index (AWI), the mean charges per inpatient stay in most U.S. census divisions were closer to national means across all payer groups.
- The AWI-adjusted mean charges per inpatient stay were \$30,000 for all stays, \$47,100 for Medicare stays, \$30,000 for Medicaid stays, and \$35,200 for privately insured stays.
- Compared with the national average, the AWI-adjusted mean hospital inpatient charges per Medicare stay were 16 percent higher in the West South Central division, 15 percent higher in the Mountain division, and 14 percent higher in the Pacific division.
- In the Pacific division, the AWI-adjusted mean charges per Medicaid stay were 11 percent higher than the AWI-adjusted national Medicaid mean charges.
- In the West South Central division, the AWI-adjusted mean inpatient charges per privately insured stay were 10 percent higher than the AWI-adjusted national privately insured mean charges.
- In the New England, East North Central, and West North Central divisions, the AWI-adjusted mean charges for all stays, Medicare stays, Medicaid stays, and privately insured stays were lower than their corresponding AWI-adjusted national mean charges.

¹ Franks JM. Geographic variation in hospital inpatient list prices at the county level in the United States, 2013. *Health Affairs*. 2015;34(10):e1733–40. doi:10.1371/journal.pone.0131111. Accessed August 3, 2016.

Methodological information on the HCUP databases and software tools



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)

[Return to top](#)

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 and related issues. A full list is available by [topic](#) and [chronological order](#). The most recent briefs are:

- [Geographic Variation in Hospital Inpatient List Prices in the United States, 2013](#)
- [Teen Hospital Stays for Childbirth, 2004-2013](#)

HCUP Infographics

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

- [Neonatal and Maternal Hospital Stays Related to Substance Use, 2006-2012](#) (PDF file, 257 KB)

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:

- [Acute Myocardial Infarction \(AMI\) and Acute Stroke 2004 to 2013](#) (PDF file, 3.2 MB)
- [Clostridium Difficile Hospitalizations 2003-2015](#) (PDF file, 1.9 MB)

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:

- [HCUP External Cause of Injury Code \(E Code\) Evaluation Report Updated with 2013 HCUP Data](#) (PDF file, 490 KB)
- [Impact of ICD-10-CM/PCS on Research Using Administrative Databases](#) (PDF file, 1.2 MB)

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 \(NEDS\)](#)
- [Nationwide Readmissions Database \(NRD\)](#)

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 hospitalization 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](#)

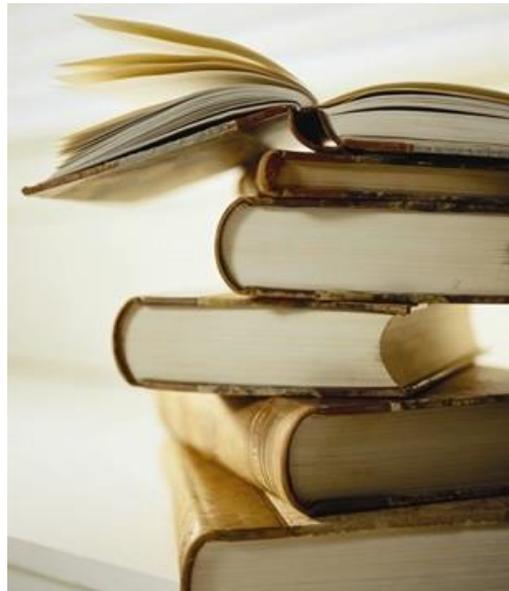
HCUP Archive

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

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

- **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 **VIA**

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

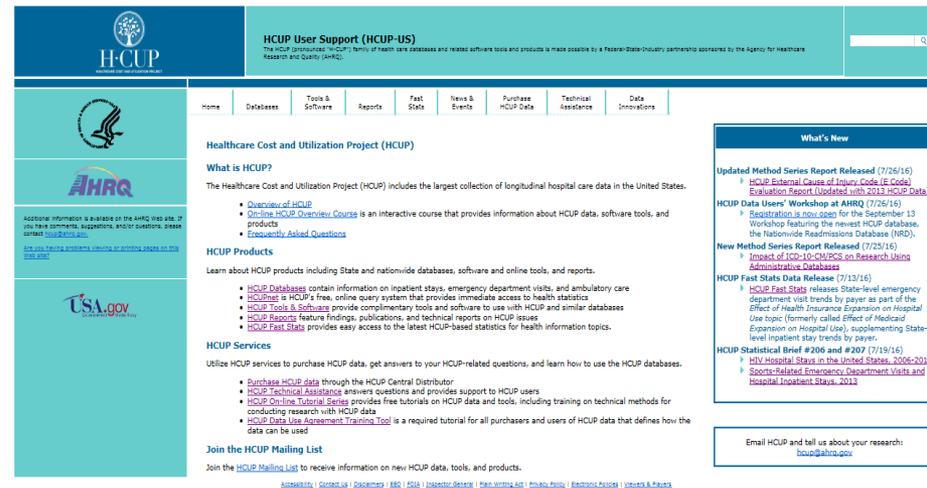
RURAL HEALTH THE JOURNAL OF

MMWR
Morbidity and Mortality Weekly Report

National Healthcare Disparities Report
www.qualitytools.ahrq.gov/disparitiesreport

- **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, HCUP Statistical Briefs, and database reports
- Access technical assistance



The screenshot shows the HCUP User Support website interface. At the top, there is a navigation bar with the H-CUP logo and the text "HCUP User Support (HCUP-US)". Below this is a horizontal menu with links for 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 "What is HCUP?". It provides a brief overview of the project and lists key resources such as "Overview of HCUP", "Online HCUP Overview Course", and "Frequently Asked Questions". There are also sections for "HCUP Products" and "HCUP Services". A "What's New" sidebar on the right lists recent updates, including "Updated Method Series Report Released (7/26/16)", "HCUP External Cause of Injury Code (E-Code) Evaluation Report Updated with 2013 HCUP Data", and "HCUP Data Users' Workshop at AHRQ (7/26/16)". At the bottom, there is a "Join the HCUP Mailing List" section and a footer with various links.

<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

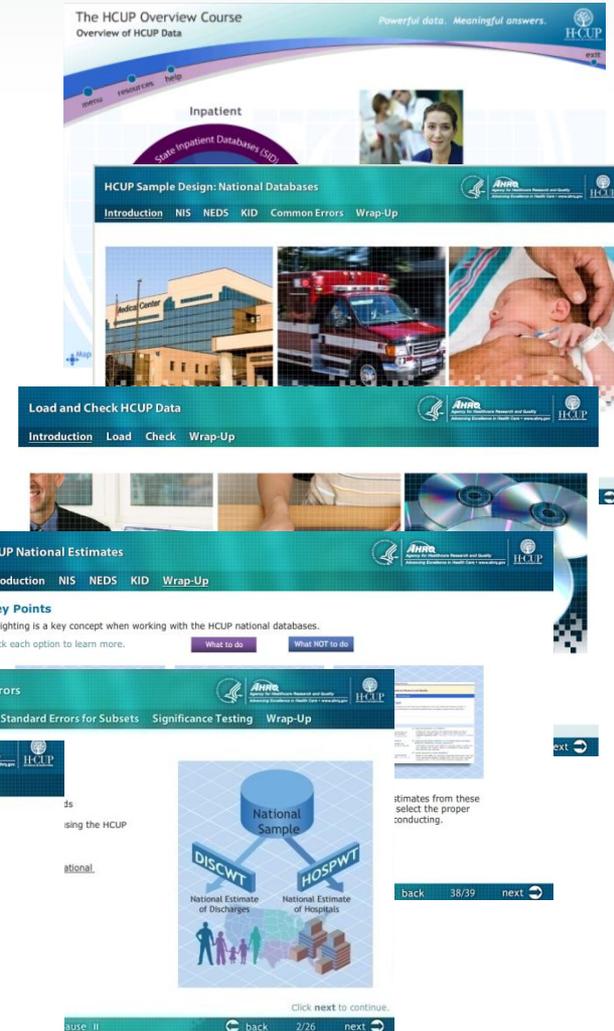


E-mail: hcup@ahrq.gov

Interactive Online HCUP Tutorials & Training Courses



- HCUP Overview Course
- Nationwide Readmissions Database (NRD)
- HCUP Sample Design
- Producing National HCUP Estimates
- Calculate Standard Errors
- Multi-Year Analysis
- Load and Check HCUP Data



The collage displays several screenshots from HCUP training courses:

- The HCUP Overview Course:** Overview of HCUP Data. Includes a navigation menu (menu, resources, help) and a section for Inpatient State Inpatient Databases (SID). The course content includes Introduction, NIS, NEDS, KID, Common Errors, and Wrap-Up.
- HCUP Sample Design: National Databases:** Includes Introduction, Load, Check, and Wrap-Up sections. The content features images of a hospital, an ambulance, and a newborn baby.
- HCUP National Estimates:** Key Points section. Text: "Weighting is a key concept when working with the HCUP national databases. Click each option to learn more." Includes buttons for "What to do" and "What NOT to do".
- HCUP Calculating Standard Errors:** Includes Introduction, Standard Errors, Standard Errors for Subsets, Significance Testing, and Wrap-Up sections.
- HCUP Using Multiple Years of Data:** Introduction section. Text: "This course presents solutions that may be necessary when conducting analyses that span multiple years." and "The availability of HCUP data over multiple years allows for the study of trends over time." Includes images of a person at a computer and CD/DVD icons. Text: "Errors in study results may occur when two or more years of data are combined." and "This course focuses on the NIS and KID, but the information can be applied to other HCUP databases."
- Diagram:** A 3D diagram showing a "National Sample" branching into "DISCWT" (National Estimate of Discharges) and "HOSPWT" (National Estimate of Hospitals).



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