



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 ♦ June 4, 2014**



AHRQ – Agency within DHHS

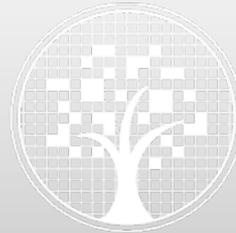


United States Department of
Health & Human Services



- **Brief Database Review**
- **Software Tools**
- **Supplemental Files**
- **HCUPnet Overview**
- **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 AND SERVICES**

HOSPITAL-BASED ADMINISTRATIVE DATA

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



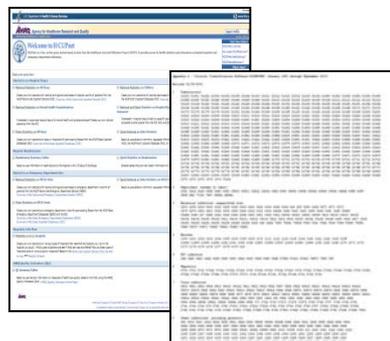
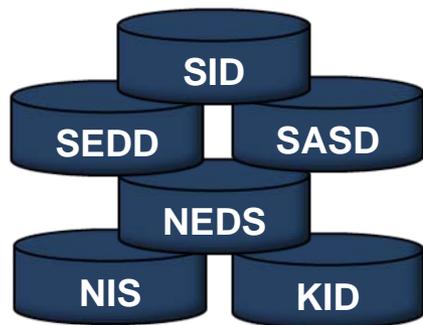
Includes multi-year inpatient and outpatient data, based on the hospital billing record

HCUP
Databases

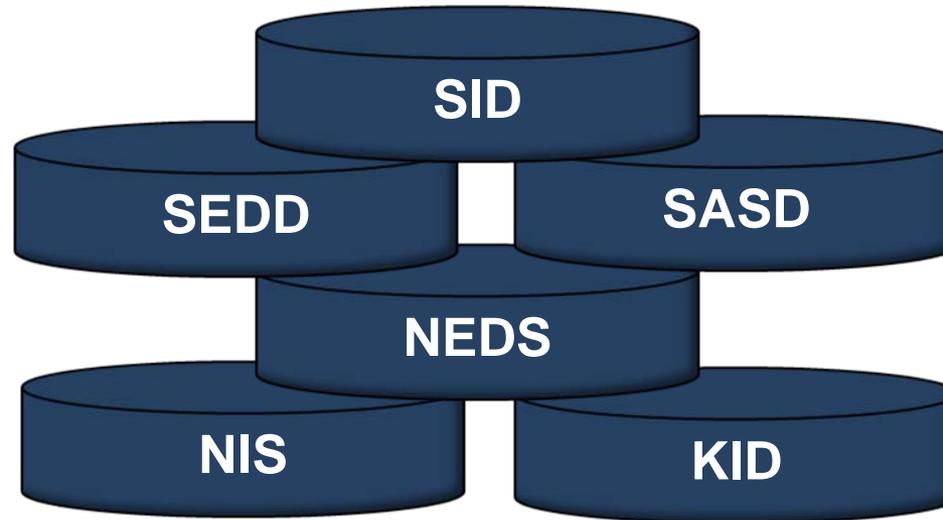
Research
Tools

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



State Inpatient Databases (SID)



State Emergency Department Databases (SEDD)



State Ambulatory Surgery and Services Databases (SASD)



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

Nationwide Inpatient Sample



(NIS)

Inpatient hospital discharge data from a sample of hospitals in SID

Kids' Inpatient Database

(KID)

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

Nationwide Emergency Department Sample

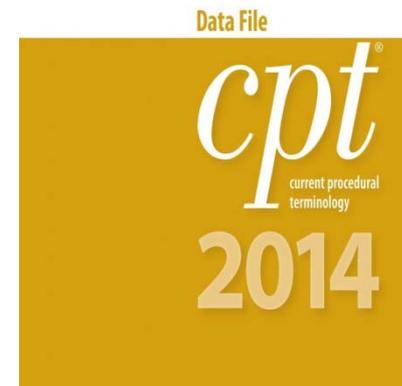
(NEDS)

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

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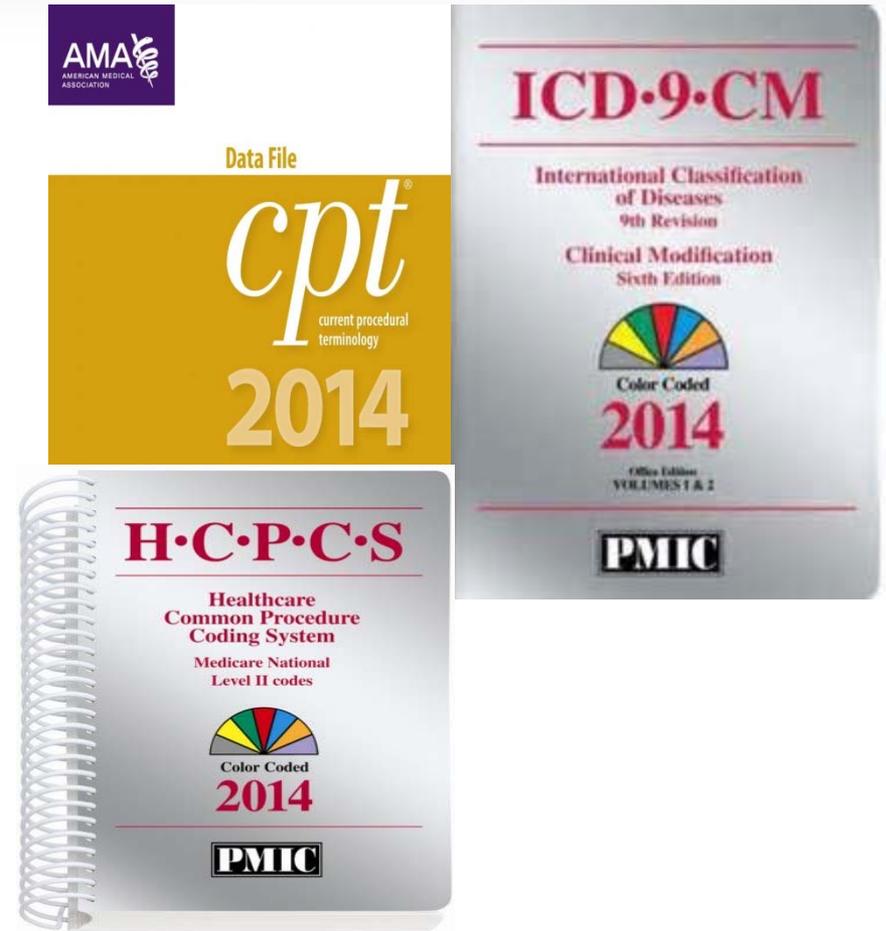
Most HCUP Tools Can be Applied to Any Administrative Database

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



Most Tools Based On Medical Coding Classifications

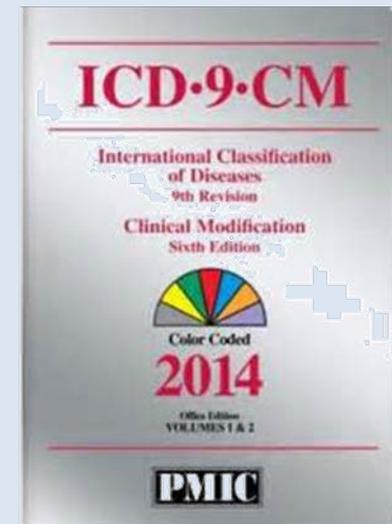
- ICD-9-CM
- CPT
- HCPCS
- DRGs
- MDC
- CCS



- ICD-9-CM
 - CPT
 - HCPCS
- Individual Codes**
- DRGs
 - MDC
 - CCS
- Groupers**

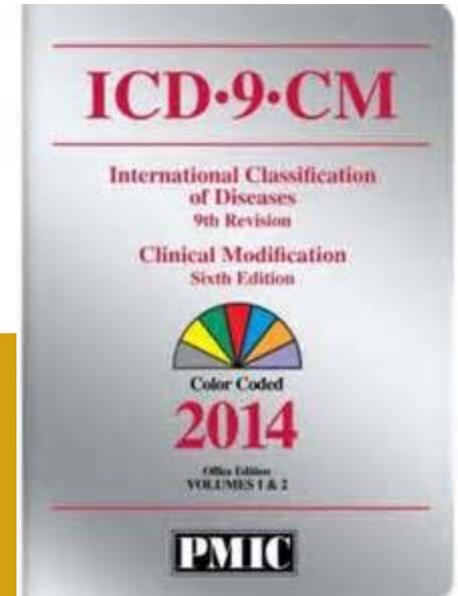
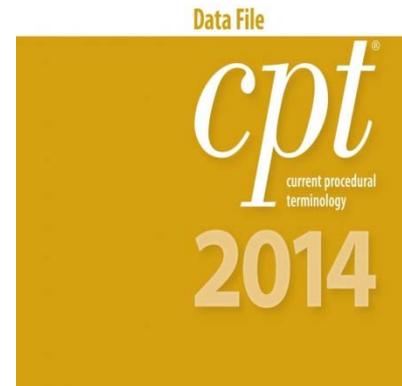
Which coding system is appropriate for your analysis?

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



Common Procedural Coding System – CPT & HCPCS

- CPT
- HCPCS
- Local Codes
- Included in outpatient (ED and SASD) databases



Diagnosis Related Groups (DRG)

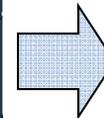
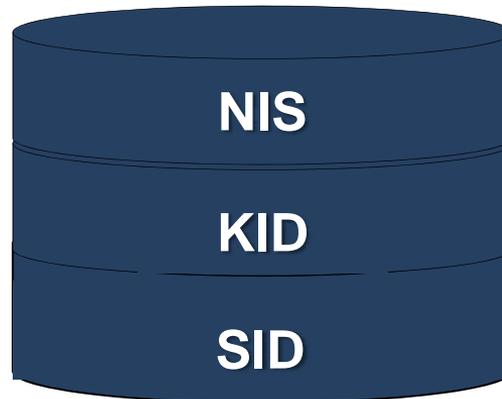
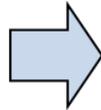
Groups ICD-9-CM Codes into Clinical/Resource Categories using principal diagnosis, secondary diagnoses, surgical procedures, age, gender, and discharge status of the patients treated

DRG Grouper Software

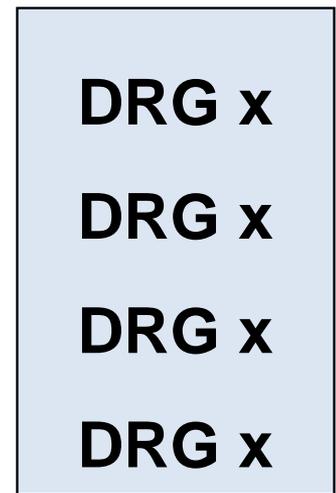
Hospital Administrative Database

Input Variables

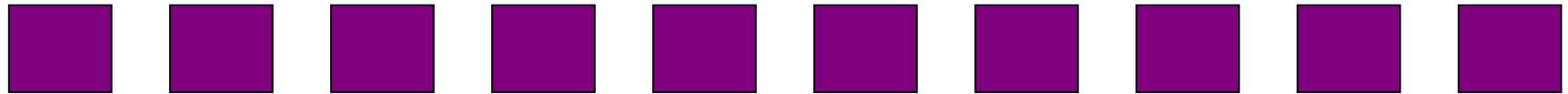
DRG Codes



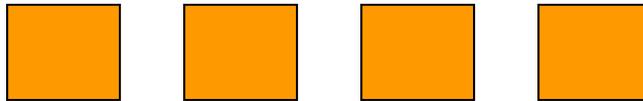
ICD-9-CM Procedures
ICD-9-CM Diagnoses
Age
Gender
Discharge Status



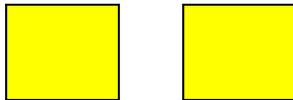
Major Diagnostic Category (MDC)



Over 15,000 ICD-9-CM Codes

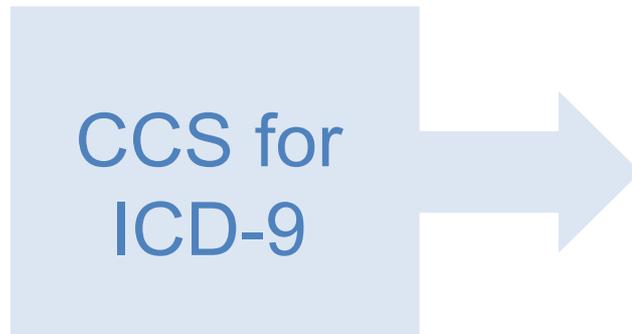


Approximately 500 DRGs



25 MDCs

- Clusters diagnosis and procedure codes into categories
 - ▶ >12,000 diagnosis codes → 289 categories
 - ▶ > 4,000 procedure codes → 231 categories
- Useful for presenting descriptive statistics, understanding patterns



ICD-9-CM Codes

0031 0202 0223 0362 0380
0381 03810 03811 03819
0382 0383 03840 03841
03842 03843 03844 03849
0388 0389 0545 449 7907

0700 0701 0702 07020
07021 07022 07023 0703
07030 07031 07032 07033
0704 07041 07042 07043
07044 07049



CCS Categories

CCS 2:
Septicemia

CCS 6:
Hepatitis

- ICD-9-CM diagnoses and procedures
 - ▶ Single-level
 - ▶ Multi-level
- ICD-10-CM diagnoses and ICD-10-PCS procedures (Beta)
 - ▶ 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

- Diagnosis Codes
- Procedure Codes

CPT

HCPCS

GROUPED CODES

DRG

MDC

CCS

Inpatient Databases

ICD-9-CM

DRG

MDC

CCS

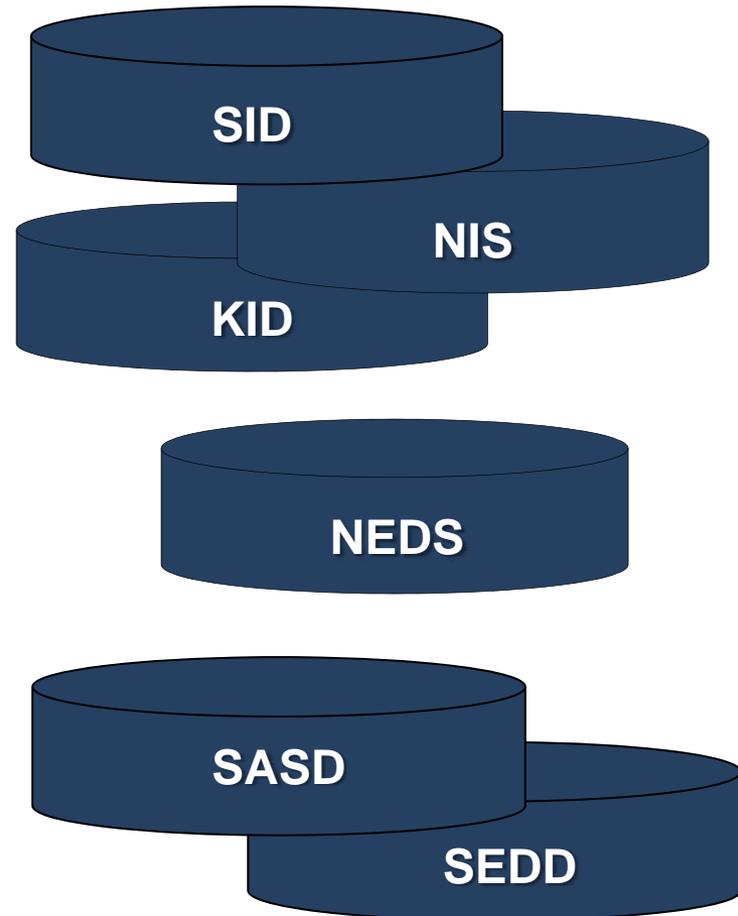
Outpatient Databases

ICD-9-CM

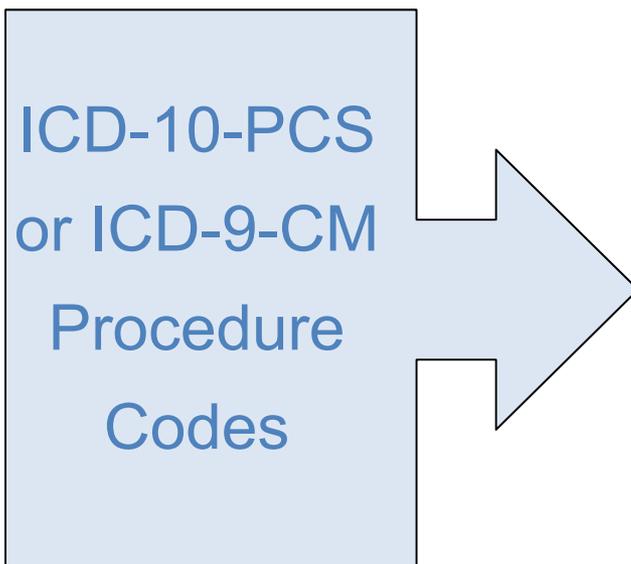
CPT

HCPCS

CCS



- Groups procedure codes into one of four categories
 - ▶ ICD-10-PCS procedure codes (Beta)
 - ▶ 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

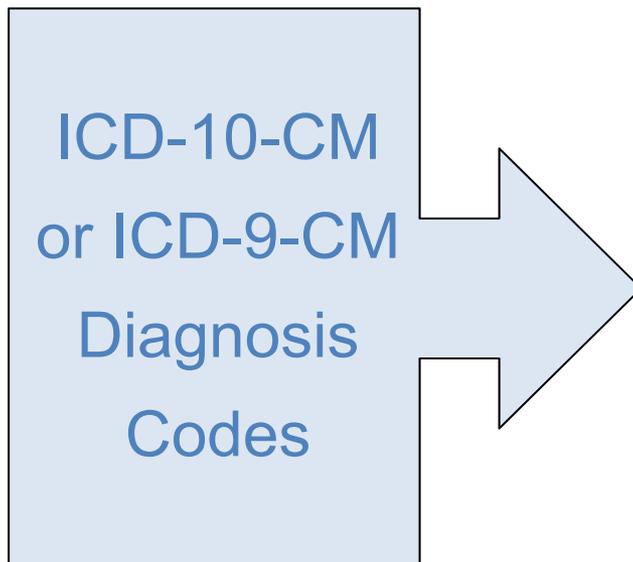
Ex: Pericardial Biopsy

4. Major Therapeutic

Ex: CABG

Chronic Condition Indicator (CCI)

- Groups diagnosis codes into Chronic or Non-Chronic Categories
 - ICD-10-CM diagnosis codes (Beta)
 - ICD-9-CM diagnosis codes



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

- Creates and appends indicator flags to each record for 29 major comorbidities
 - ▶ ICD-10-CM diagnosis codes (Beta)
 - ▶ ICD-9-CM diagnosis codes

ICD-10-CM

or ICD-9-CM

Codes, DRGs on
Administrative
Data

Comorbidity
Software



29 Comorbidity
Groups

Valvular disease
Pulm circ disorders
Peripheral vascular dx
Hypertension
Paralysis
Other neuro disorders
Chronic pulmonary dx
DM w/o complications
DM w/ complications
Hypothyroidism
Renal failure
Liver disease ...

- 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



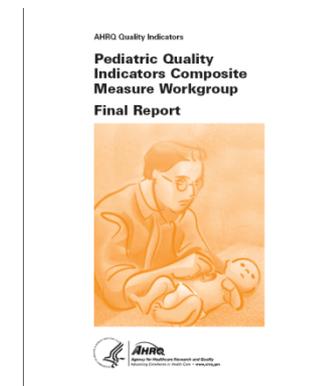
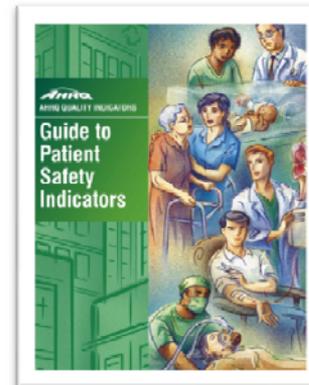
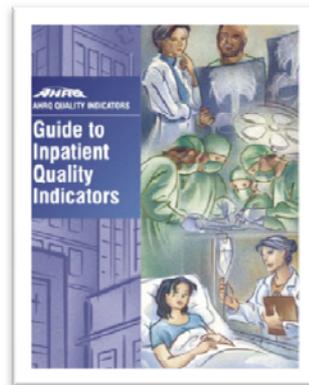
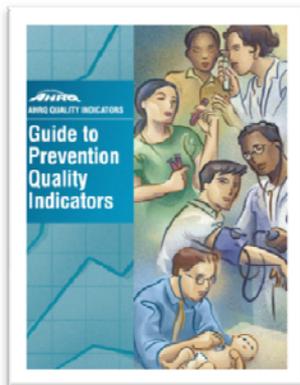
- Emergency Room
- Observation Services/ CT Scan
- Intensive Care Unit

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
Other	
Emergency Department	Observation Room
Organ Acquisition	

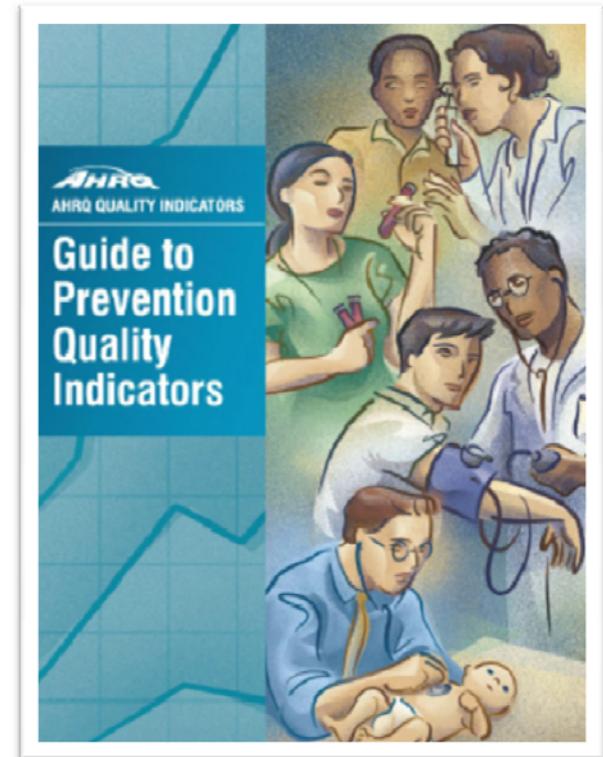
There are not ICD-9-CM codes for all services. Concern exists that some diagnostic procedures may be under-reported

- 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

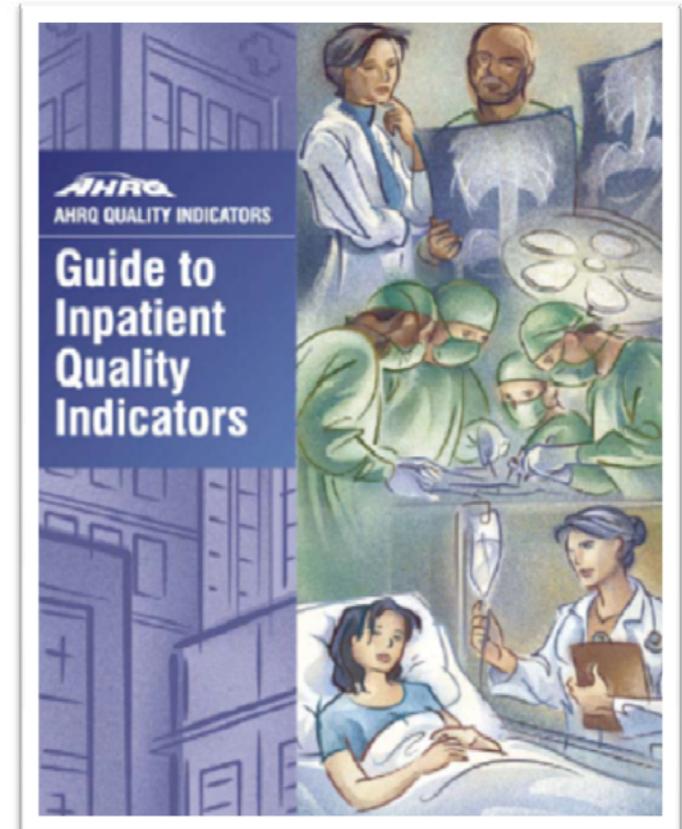


Prevention Quality Indicators (PQIs)

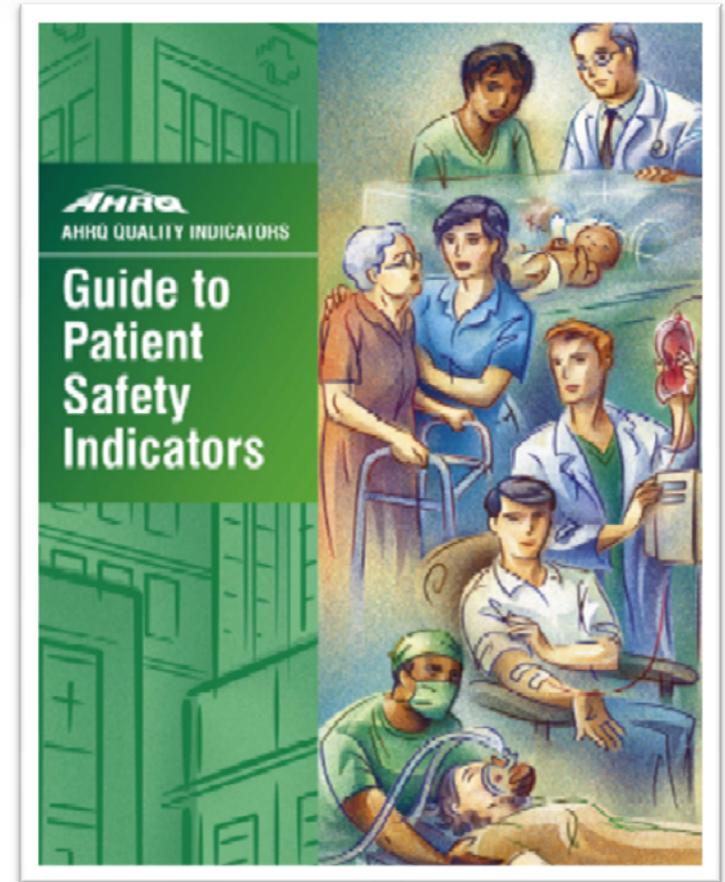
- Identify hospital admissions that are potentially preventable through high-quality outpatient care.
- Examples of PQI Measures:
 - ▶ Diabetes Short-term Complication Admission Rate
 - ▶ Diabetes Long-term Complication Admission Rate
 - ▶ Pediatric Asthma Admission Rate
 - ▶ Pediatric Gastroenteritis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



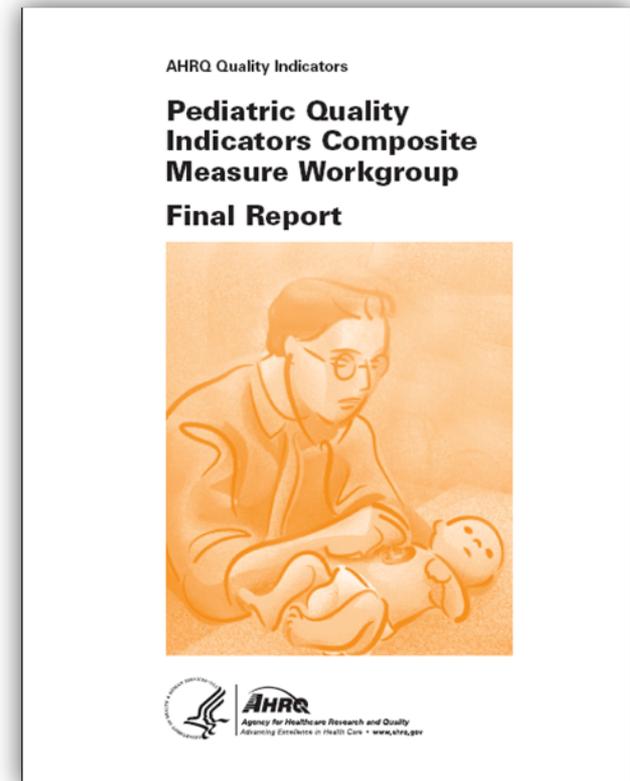
- Reflect quality of care inside hospitals:
 - ▶ Inpatient mortality for medical conditions and surgical procedures
 - ▶ Utilization of procedures
 - ▶ Volume of procedures
- Examples of IQI Measures:
 - ▶ Esophageal Resection Volume
 - ▶ Pneumonia Mortality Rate
 - ▶ Coronary Artery Bypass Graft Mortality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



Pediatric Quality Indicators use indicators from the other three modules with adaptations for use among children and neonates to reflect 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.

 [2013 Conference Meetings](#)

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

- November 26, 2013 – Proposed Changes with CM/PCS Conversion of Quality Indicators™ (QI)
- September 30, 2013 – May 2013 AHRQ Quality Software for Windows a Version 4.5 (with Corrections)
- May 17, 2013 – AHRQ Issue II - Release of AHRQ Quality Indicators™ Software for SAS Version 4.5

- **Brief Database Review**
- **Software Tools**
- **Supplemental Files**
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HCUP Supplemental Files can only be applied to HCUP Databases



- **Supplemental Variables for Revisit Analyses**
- **Cost-to-Charge Ratio Files**
- **Hospital Market Structure Files**
- **Trends 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

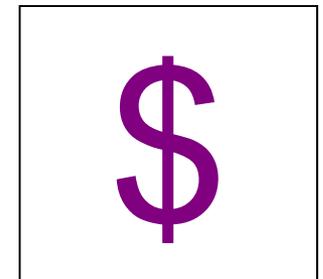


**Hospital-Level
Data**



	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

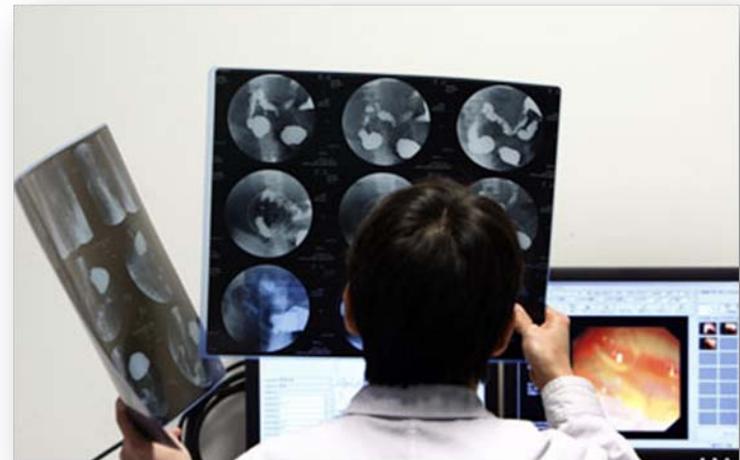
Apply Ratios



**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



- 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 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



State	SID	SEDD	SASD
Arizona	2003-2007	2005-2007	
Arkansas	2004-2012		
California	2003-2011	2005-2011	2005-2011
Florida	2004-2012	2005-2012	2004-2012
Hawaii	2006-2011	2006-2010	2009-2010
Iowa	2009-2012	2010-2012	2010-2012
Maryland	2012		
Massachusetts	2010-2011	2010-2011	
Mississippi	2010-2011		
Nebraska	2003-2012	2003-2012	2003-2012



HCUP Supplemental Variables for Revisit Analyses by State



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

- Example of how to use the revisit variables
 - ▶ Examined rates of acute care utilization and rehospitalizations for patients with sickle cell disease in eight geographically dispersed states
 - ▶ 30-day and 14-day rehospitalization rates were 33.4% and 22.1%
 - ▶ Rehospitalization rate was highest for 18- to 30-year-olds (41.1% within 30 days and 28.4% within 14 days)
 - ▶ Rehospitalizations were also highest for publicly insured patients



Acute Care Utilization and Rehospitalizations for Sickle Cell Disease. Brousseau DC, Owens PL, Mosso AL, Panepinto JA, Steiner CA. *JAMA*. 2010;303(13):1288-1294.



Additional HCUP Supplemental Files



■ Trends 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

Home	Databases	Tools & Software	Reports	News & Events	Technical Assistance	Data Innovations	Steering Committee	Partners	HCUP Team
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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](#), and [NEDS](#)) and the State-level 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.

Note: The ICD-10-CM/PCS tools are now available in beta version for public evaluation. Please visit the following link to download the tools: [ICD-10-CM/PCS Beta Test Tools Page](#). Official implementation of ICD-10-CM/PCS is scheduled for October 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 2014.)

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 2014.)

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, 2014. Codes are valid through 2009. Please visit the following link to download [ICD-10-CM/PCS Beta Test Tools](#).

Clinical Classifications Software for Mental Health and Substance Abuse (CCS-MHSA)

[Clinical Classifications Software for Mental Health and Substance Abuse \(CCS-MHSA\)](#) has been integrated into the [Clinical Classifications Software tool \(CCS\)](#).

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. (Updated for codes valid through FY 2014.)

Comorbidity Software

[Comorbidity Software](#) assigns variables that identify coexisting conditions on hospital discharge records. (Updated for codes valid through FY 2014.)

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 2014.)

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 2013.)

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HCUPnet: Quick, free access to HCUP Data



- **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 and KID)
 - ▶ ED visits (NEDS)
 - ▶ 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 (Beta version)





How does HCUPnet Work?



U.S. Department of Health & Human Services www.hhs.gov

AHRQ Agency for Healthcare Research and Quality www.ahrq.gov

Advancing Excellence in Health Care



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
- ✓ Bedsize
- ✓ 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.



**First Time Visitor?**

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

What's New?

- 2011 readmission **Just Added!** data added. (06/19/13)
- Cost information for participating states in 2011. (06/05/2013)
- Population-based rates and queries restricted to non-neonatal and non-maternal discharges. (06/03/2013)
- 2011 nationwide hospital data now available. (05/31/2013)
- 2011 data for participating States. (11/14/2012)
- 2010 nationwide ED data -- new database just released. (10/05/2012)
- 2010 nationwide data on AHRQ Quality Indicators. (10/05/2012)



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>

Begin 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 Nationwide Inpatient Sample (NIS).

[Overview of the 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 \(SID\)](#)

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 Nationwide Inpatient Sample (NIS), the HCUP Kids' Inpatient Database (KID), or the HCUP State Inpatient Databases (SID).

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	

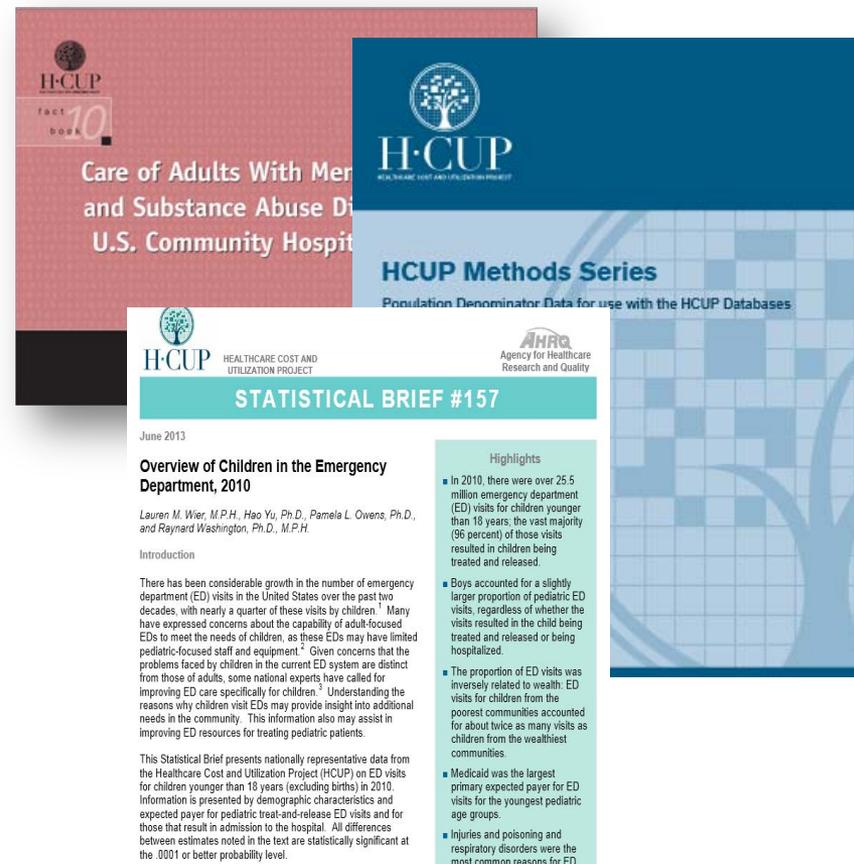


Webinar Overview



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

- **Statistical Briefs**
- **Annual Reports**
- **Methods Reports**



HCUP Methods Series
Population Denominator Data for use with the HCUP Databases

STATISTICAL BRIEF #157

June 2013

Overview of Children in the Emergency Department, 2010

Lauren M. Wier, M.P.H., Hao Yu, Ph.D., Pamela L. Owens, Ph.D., and Raymond Washington, Ph.D., M.P.H.

Introduction

There has been considerable growth in the number of emergency department (ED) visits in the United States over the past two decades, with nearly a quarter of these visits by children.¹ Many have expressed concerns about the capability of adult-focused EDs to meet the needs of children, as these EDs may have limited pediatric-focused staff and equipment.² Given concerns that the problems faced by children in the current ED system are distinct from those of adults, some national experts have called for improving ED care specifically for children.³ Understanding the reasons why children visit EDs may provide insight into additional needs in the community. This information also may assist in improving ED resources for treating pediatric patients.

This Statistical Brief presents nationally representative data from the Healthcare Cost and Utilization Project (HCUP) on ED visits for children younger than 18 years (excluding births) in 2010. Information is presented by demographic characteristics and expected payer for pediatric treat-and-release ED visits and for those that result in admission to the hospital. All differences between estimates noted in the text are statistically significant at the .0001 or better probability level.

Highlights

- In 2010, there were over 25.5 million emergency department (ED) visits for children younger than 18 years; the vast majority (96 percent) of those visits resulted in children being treated and released.
- Boys accounted for a slightly larger proportion of pediatric ED visits, regardless of whether the visits resulted in the child being treated and released or being hospitalized.
- The proportion of ED visits was inversely related to wealth: ED visits for children from the poorest communities accounted for about twice as many visits as children from the wealthiest communities.
- Medicaid was the largest primary expected payer for ED visits for the youngest pediatric age groups.
- Injuries and poisoning and respiratory disorders were the most common reasons for ED

STATISTICAL BRIEF #170

February 2014

Characteristics of Operating Room Procedures in U.S. Hospitals, 2011

Audrey J. Weiss, Ph.D., Anne Elixhauser, Ph.D., and Roxanne M. Andrews, Ph.D.

Introduction

Patients admitted to the hospital may undergo a variety of treatments, including medical therapy involving administration of medications, diagnostic or therapeutic procedures (such as an X-ray) that occur outside the operating room (OR), and major OR procedures (such as appendectomy). Approximately 15 million hospital stays each year in the United States involve OR procedures.¹ On average, hospital stays that involve an OR procedure have been reported to be 2.5 times more costly than stays that do not involve an OR procedure.²

Identifying the volume, characteristics, and costs of OR procedures can help policymakers and researchers better understand population health and facilitate health care improvement efforts. Changes in health care provider payment arrangements and advances in medical practice and technology can impact the nature of the procedures that are performed in hospital operating rooms.³ For example, some less complex surgical procedures, such as cataract surgery, that were once routinely performed in inpatient hospital operating rooms are now primarily performed in the ambulatory surgery setting.⁴

This Statistical Brief presents data from the Healthcare Cost and Utilization Project (HCUP) on characteristics of OR procedures in 2011. For this Statistical Brief, OR procedures are defined using the HCUP procedure classes tool.⁵ In this tool, OR procedures are identified based on diagnosis-related groups (DRGs) that use physician panels to determine whether the procedure would be performed in a hospital OR in most hospitals. The findings in this Statistical Brief represent an update to 2007 statistics reported by

¹ Elixhauser A, Andrews RM. Profile of inpatient operating room procedures in US hospitals in 2007. *Arch Surg*. December 2010;145(12):1201-8.

² *Ibid*.

³ Clatten KA, Hall MJ, Golosinsky A. Ambulatory Surgery in the United States, 2006. National Health Statistics Reports #11. September 4, 2009. Center for Disease Control and Prevention, National Center for Health Statistics, Hyattsville, MD. <http://www.cdc.gov/nchs/data/nhr/nhr11.pdf>. Accessed November 21, 2013.

⁴ HCUP Procedure Classes. Healthcare Cost and Utilization Project (HCUP). U.S. Agency for Healthcare Research and Quality, Rockville, MD. Updated September 2013. <http://www.hcup-us.ahrq.gov/toolsoftware/procedure/procedure.jsp>. Accessed November 21, 2013.

Highlights

- In 2011, hospitalizations that involved operating room (OR) procedures constituted 29 percent of the total \$8.6 billion hospital stays in the United States and 48 percent of the total \$387 billion in hospital costs.
- Hospital stays that involved an

STATISTICAL BRIEF #172

April 2014

Conditions With the Largest Number of Adult Hospital Readmissions by Payer, 2011

Anika L. Hines, Ph.D., M.P.H., Marguerite L. Barrett, M.S., H. Joanna Jiang, Ph.D., and Claudia A. Steiner, M.D., M.P.H.

Introduction

Health care reform has pinpointed hospital readmissions as a key area for improving care coordination and achieving potential savings.¹ Stakeholders are using data to devise strategies to reduce readmissions. Two criteria for evaluating potential areas of impact include volume and costs. For example, the Centers for Medicare & Medicaid Services (CMS) Hospital Readmissions Reduction Program has selected acute myocardial infarction, heart failure, and pneumonia as target areas for the Medicare population. CMS chose these conditions, in part, because of their high prevalence and their associated high costs for total admissions and readmissions among Medicare beneficiaries.² In 2015, CMS will expand their assessment of readmissions to additional conditions that represent high volume and costs.

Identifying conditions that contribute the most to the total number of readmissions and related costs for all payers may aid health care stakeholders in deciding which conditions to target to maximize quality improvement and cost-reduction efforts. This Statistical Brief uses readmissions data from the Healthcare Cost and Utilization Project (HCUP) to present the conditions with the largest number of 30-day all-cause readmissions among U.S. hospitals in 2011 and their associated costs. We limited the study population to Medicare beneficiaries aged 65 years and older and to individuals aged 18–64 years who were privately insured, uninsured, or covered by Medicaid. We display the 10 conditions with the largest number of readmissions for each payer.

Readmission was defined as a subsequent hospital admission within 30 days following an original admission (or index stay) that occurred from January through November 2011. Patients were followed across the same and different hospitals. All-cause readmissions were examined; thus, readmissions may or may not include conditions that were listed as the principal diagnosis

¹ Orszag PR, Emanuel EJ. Health care reform and cost control. *New England Journal of Medicine*. 2010;363(7):601-3.

² Thorpe JT, Casio J. Medicare Hospital Readmissions Reduction Program. *Legal Notes*. 2011;3(4):1-3. <http://www.nwf.org/content/dam/web-36646/2011/10/medicare-hospital-readmissions-reduction-program>. Accessed December 6, 2013.

STATISTICAL BRIEF #171

March 2014

Trends in Operating Room Procedures in U.S. Hospitals, 2001–2011

Audrey J. Weiss, Ph.D. and Anne Elixhauser, Ph.D.

Introduction

More than 24 million hospital stays (63% of all stays) in 2011 involved some type of procedure.¹ Some of these procedures (such as a chest X-ray or skin biopsy) occurred outside of the operating room (OR). Others were major OR procedures (such as hip replacement) that, on average, than stays

STATISTICAL BRIEF #172

Highlights

- In 2011, there were approximately 3.3 million adult hospital readmissions in the United States, and they were associated with about \$41.3 billion in hospital costs.
- For Medicare patients, the three conditions with the largest number of readmissions were congestive heart failure (134,500 readmissions), septicemia (92,900 readmissions), and pneumonia (88,900 readmissions). These conditions resulted in about \$4.3 billion in hospital costs.
- For Medicaid patients, the three conditions with the largest number of readmissions were mood disorders (41,600 readmissions), schizophrenia (35,800 readmissions), and diabetes (23,700 readmissions). These conditions resulted in about \$639 million in hospital costs.
- For the privately insured, the three conditions with the largest number of readmissions were maintenance chemotherapy (25,500 readmissions), mood disorders (19,000 readmissions), and complications of surgical or medical care (18,000 readmissions). These conditions resulted in about \$785 million in hospital costs.

come more prevalent. For instance, prior coronary artery bypass in 1997 to 2007, while coronary angioplasty is the same time period. In surgical care, the shift in procedure aging population, among

Healthcare Cost and R procedures from 2001 R procedures are es tool.⁴ In this tool, OR osis-related groups rmine whether the tal OR in most hospitals. ent an update of 2007 news.⁵ We present the y major clinical body ures, we provide the 1-year period examined.

cedures Performed in U.S. er 2013. Agency for Healthcare

HCUP Project (HCUP). Rockville, MD. Updated

Accessed December 4,

Highlights

- In 2011, over 15 million operating room (OR) procedures were performed in U.S. hospitals. Although the overall number of procedures remained stable from 2001–2011, the mix of procedures changed.
- In 2001, musculoskeletal procedures constituted 17.0 percent of all procedures. By 2011, this figure rose to 24.2 percent, which is a 38 percent increase in 11 years.
- Within the musculoskeletal system, knee arthroplasty had the largest growth in volume, nearly doubling between 2001 and 2011 (a 93 percent increase). Approximately 718,500 knee arthroplasties were performed in 2011. There was a 70 percent growth in spinal fusion during the 11-year period.
- Among digestive-related procedures, appendectomies decreased by 13 percent, while colorectal resection and cholecystectomy procedures remained relatively stable over time.
- Two common cardiovascular procedures decreased from 2001–2011. Coronary artery bypass graft (CABG) procedures decreased by nearly half to 213,700 procedures in 2011, and percutaneous coronary angioplasty (PTCA) decreased by more than one-fourth to 560,500 procedures in 2011.

Methodological information on the HCUP databases and software tools



Q

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
News & Events
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 by year in chronological order. A list of Method Series is also available by [topic](#).

Report Number	Title
2014	
Report #2014-01	HCUP External Cause of Injury (E Code) Evaluation Report (Updated with 2011 HCUP Data) (PDF file, 296 KB)
2013	
Report #2013-01	Population Denominator Data for use with HCUP Databases (Updated with 2012 Population data) (PDF file, 338 KB) Appendix A Population Data Tables (in ZIP format for downloading)
Report #2013-02	HCUP External Cause of Injury (E Code) Evaluation Report (Updated with 2010 HCUP Data) (PDF file, 227 KB)
2012	
Report #2012-01	Population Denominator Data for use with HCUP Databases (Updated with 2010 Population data) (PDF file, 436 KB) Appendix A Population Data Tables (in ZIP format for downloading)
Report #2012-02	Methods Applying AHRQ Quality Indicators to Healthcare Cost and Utilization Project (HCUP) Data for the Tenth (2012) National Healthcare Quality Report (NHQR) and National Healthcare Disparities Report (PDF file, 134 KB; HTML)
Report #2012-03	Methods Applying AHRQ Quality Indicators to Healthcare Cost and Utilization Project (HCUP) Data for the Eleventh (2013) National Healthcare Quality Report (NHQR) and National Healthcare Disparities Report (NHDR) (PDF file, 458 KB; HTML)
Report #2012-04	Overview of Key Readmission Measures and Methods (PDF file, 348 KB)
2011	

Favorites

HCUP Statistical Briefs

present simple, descriptive statistics on a variety of specific, focused topics. Statistical Briefs are organized by [topic](#) and in [chronological order](#). Most recent briefs include:

- [Complicating Conditions Associated With Childbirth, by Delivery Method and Payer, 2011](#)
- [Conditions With the Largest Number of Adult Hospital Readmissions by Payer, 2011](#)

HCUP Infographics

present a visual representation of data found in the HCUP Statistical Brief series. A full list is available [here](#). The most recent infographic is:

- [The Top Five Most Expensive Conditions Treated in U.S. Hospitals, 2011](#) (PDF file, 275 KB)

HCUP Projections

use longitudinal HCUP data to project national and regional estimate health care priorities.

- [Clostridium Difficile Hospitalizations 2001 to 2013](#) (PDF file, 1.2 MB)
- [Cost of Inpatient Discharges 2012 to 2013](#) (PDF file, 6.2 MB)
- [Mobility/Orthopedic Procedures 2011 to 2012](#) (PDF file, 5.1 MB)
- [Cardiovascular/Cerebrovascular Conditions and Procedures 2001 to 2012](#) (PDF file, 7.6 MB; [HTML](#))

Information About Using HCUP Data

HCUP Methods Series

feature a broad array of methodological information on the HCUP databases and software tools. Reports in the HCUP Methods Series are organized by [topic](#) and in [chronological order](#). Most recent reports include:

- [HCUP External Cause of Injury \(E Code\) Evaluation Report \(Updated with 2011 HCUP Data\)](#) (PDF file, 296 KB)
- [Population Denominator Data for use with HCUP Databases \(Updated with 2012 Population data\)](#) (PDF file, 338 KB)
- [Appendix A Population Data Tables](#) (in ZIP format for downloading)

HCUP Nationwide Database Reports

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

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

HCUP State Database 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 \(SEDD\)](#)

Additional Topics

Topical Reports

provide information on various priority populations.

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

HCUP Publications

include a collection of publications based on HCUP data, software products, and tools.

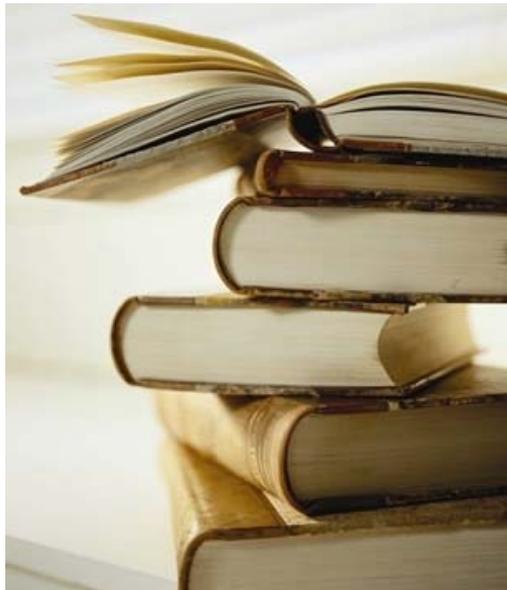
- [Search for HCUP publications](#)
- [Research Spotlights](#) on recent peer-reviewed journal articles
- [Review comprehensive list of AHRQ publications](#)

HCUP Archive

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

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

- **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

THE LANCET

INQUIRY

International Journal of
Health Care Finance & Economics

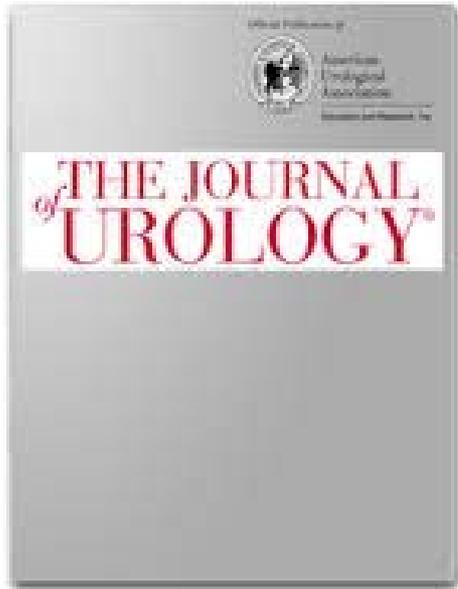
RURAL HEALTH THE JOURNAL OF

MIMWR
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>



Lloyd JC, Wiener JS, Gargollo PC, Inman BA, Ross SS, Routh JC.

Contemporary epidemiological trends in complex congenital genitourinary anomalies. J Urol 2013;190(4 Suppl):1590-5.



Webinar Overview



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



HCUP User Support Web Site



- 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 homepage of the HCUP User Support website. The header includes the H-CUP logo and the text "Healthcare Cost and Utilization Project (HCUP)". Below the header is a navigation menu with links for Home, Databases, Tools & Software, Reports, News & Events, and Technical Assistance. The main content area is titled "Welcome to the HCUP User Support (HCUP-US) Web site" and contains a brief description of the site's purpose. It also features sections for "What is HCUP?" with links to an overview, an online tutorial course, and an index of topics; "HCUP Products" listing databases, HCUPnet, and reports; and "HCUP Services" including a central distributor, technical assistance, and an online tutorial series. A "What's New" sidebar on the right highlights recent updates such as AHRQ Hands-On Workshops, new HCUPnet courses, and webinar series.

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

Active Technical Assistance

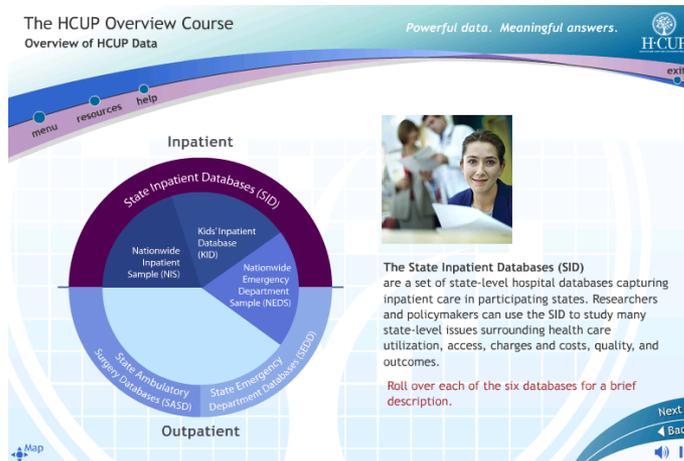
- Responds to inquiries about HCUP data, products, and tools
- Collects user feedback and suggestions for improvement



E-mail: hcup@ahrq.gov

Interactive On-line HCUP Overview Course Available

- Provides information about HCUP data, software tools, and products
- Length 90 min



The HCUP Overview Course
Overview of HCUP Data

Powerful data. Meaningful answers.

exit

menu resources help

Inpatient

State Inpatient Databases (SID)

Nationwide Inpatient Sample (NIS)

Kids' Inpatient Database (KID)

Nationwide Emergency Department Sample (NEDS)

State Ambulatory Surgery Databases (SASD)

State Emergency Department Databases (SEDD)

Outpatient

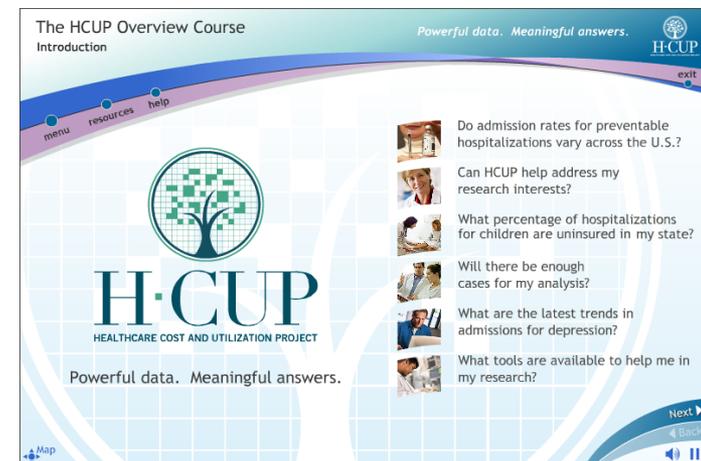
The State Inpatient Databases (SID) are a set of state-level hospital databases capturing inpatient care in participating states. Researchers and policymakers can use the SID to study many state-level issues surrounding health care utilization, access, charges and costs, quality, and outcomes.

Roll over each of the six databases for a brief description.

Map

Next ▶

◀ Back



The HCUP Overview Course
Introduction

Powerful data. Meaningful answers.

exit

menu resources help

H-CUP
HEALTHCARE COST AND UTILIZATION PROJECT

Powerful data. Meaningful answers.

Do admission rates for preventable hospitalizations vary across the U.S.?

Can HCUP help address my research interests?

What percentage of hospitalizations for children are uninsured in my state?

Will there be enough cases for my analysis?

What are the latest trends in admissions for depression?

What tools are available to help me in my research?

Map

Next ▶

◀ Back

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

- Tutorial explains the sampling strategy of the three nationwide databases – the NIS, KID, and NEDS
- Length 30 min

HCUP Sample Design: National Databases

Introduction NIS NEDS KID Common Errors Wrap-Up



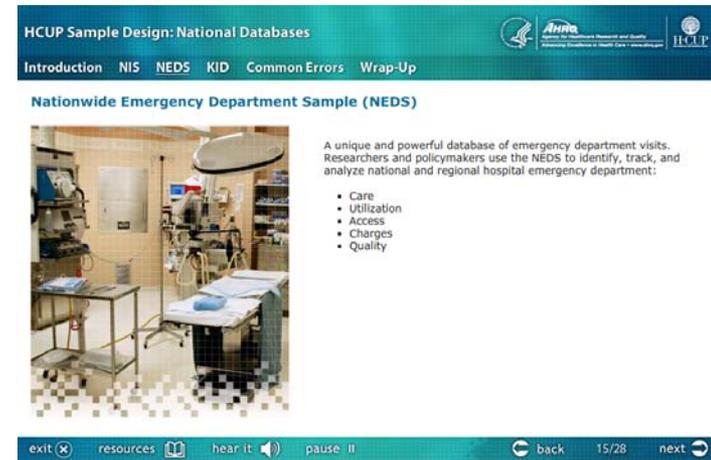
Healthcare Cost and Utilization Project

Sample Design: National Databases

HCUP Sample Design: National Databases

Introduction NIS NEDS KID Common Errors Wrap-Up

Nationwide Emergency Department Sample (NEDS)



A unique and powerful database of emergency department visits. Researchers and policymakers use the NEDS to identify, track, and analyze national and regional hospital emergency department:

- Care
- Utilization
- Access
- Charges
- Quality

http://www.hcup-us.ahrq.gov/tech_assist/tutorials.jsp

Load and Check HCUP Data

- Provides instructions on how to unzip HCUP data, save it on your computer, and load data into a statistical software package
- Length 20 min

Load and Check HCUP Data

Introduction Load Check Wrap-Up



Healthcare Cost and Utilization Project

Load and Check

exit resources hear it play back 1/16 next

Load and Check HCUP Data

Introduction Load Check Wrap-Up

Running Check Programs

My NIS Data Means and Frequencies:

AGE (Age)	Frequency	Percent of Total
0 (Length of Stay)		
1 (Days)		

FACT (Expected Primary Payer)

Frequency	Percent of Total
1: Medicare	
2: Medicaid	

HCUP-US Summary Statistics Means and Frequencies:

AGE (Age)	Frequency	Percent of Total
0 (Length of Stay)		
1 (Days)		

FACT (Expected Primary Payer)

Frequency	Percent of Total
1: Medicare	
2: Medicaid	

Create tables of means and of frequency distributions from the data on your computer.

Compare those statistics to the summary statistics available on HCUP-US.

exit resources hear it pause II back 13/16 next

http://www.hcup-us.ahrq.gov/tech_assist/tutorials.jsp

Producing National HCUP Estimates

- Explains how to produce national estimates from the three nationwide databases (NIS, NEDS, KID)
- Length 45 min



HCUP National Estimates

Introduction NIS NEDS KID Wrap-Up

Healthcare Cost and Utilization Project
National Estimates

exit resources hear it play back 1/39 next



HCUP National Estimates

Introduction NIS NEDS KID Wrap-Up

Key Points
Weighting is a key concept when working with the HCUP national databases.
Click each option to learn more.

What to do What NOT to do

NIS
KID
NEDS
DISCWT
HOSPWT

What to do

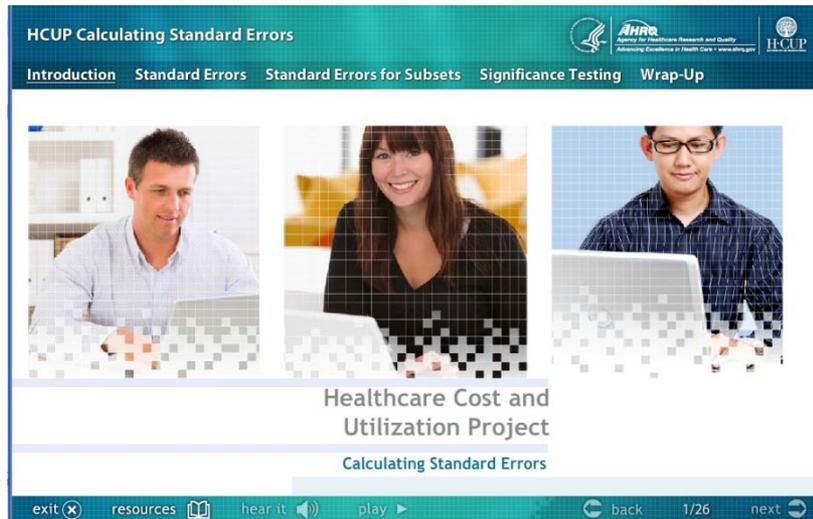
- The NIS, NEDS, and KID are sample databases. To produce national or regional estimates from these databases, you must be sure to properly weight the data. It is important that you select the proper weight based on the database, the year of data, and the type of analysis you are conducting.

exit resources hear it pause II back 38/39 next

http://www.hcup-us.ahrq.gov/tech_assist/tutorials.jsp

Calculating Standard Errors

- Explains how to accurately determine the precision of the estimates produced from the HCUP nationwide databases
- Length 30 min

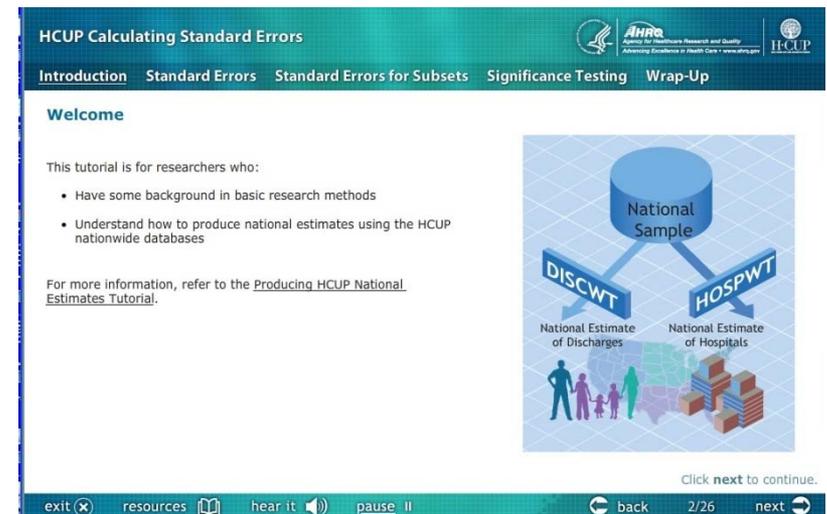


HCUP Calculating Standard Errors

Introduction Standard Errors Standard Errors for Subsets Significance Testing Wrap-Up

Healthcare Cost and Utilization Project
Calculating Standard Errors

exit resources hear it play back 1/26 next



HCUP Calculating Standard Errors

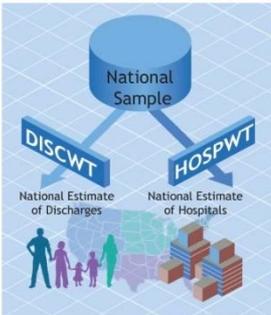
Introduction Standard Errors Standard Errors for Subsets Significance Testing Wrap-Up

Welcome

This tutorial is for researchers who:

- Have some background in basic research methods
- Understand how to produce national estimates using the HCUP nationwide databases

For more information, refer to the [Producing HCUP National Estimates Tutorial](#).



Click next to continue.

exit resources hear it pause II back 2/26 next

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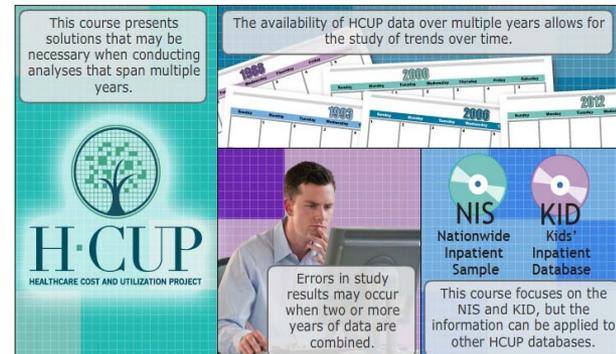
- Describe problems that may arise when using multiple years of HCUP data and provides solutions for addressing these issues
- Length 30 min



Healthcare Cost and
Utilization Project
Trend Analysis



Introduction



This course presents solutions that may be necessary when conducting analyses that span multiple years.

The availability of HCUP data over multiple years allows for the study of trends over time.

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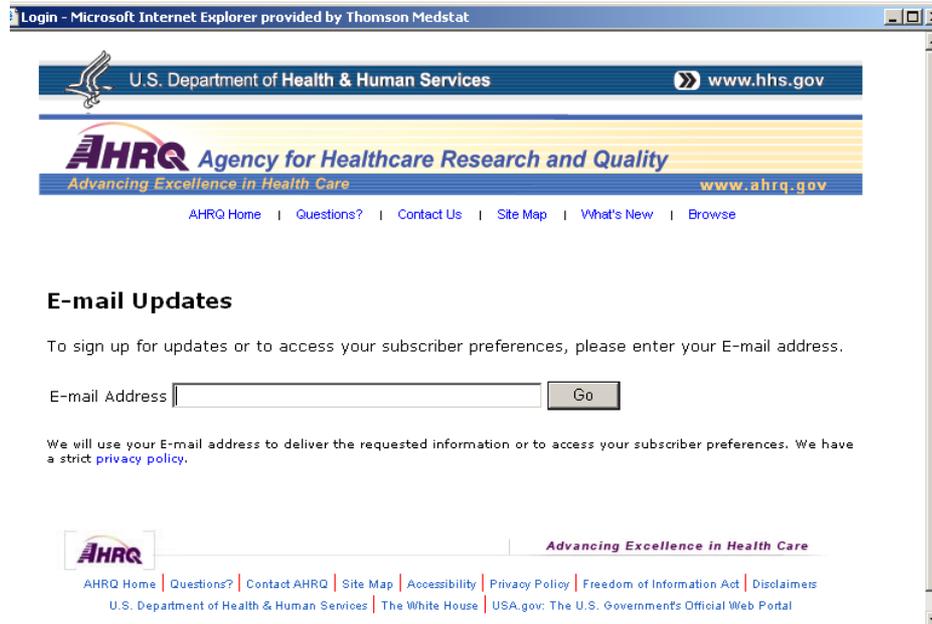
NIS
Nationwide Inpatient Sample

KID
Kids' Inpatient Database

Errors in study results may occur when two or more years of data are combined.

This course focuses on the NIS and KID, but the information can be applied to other HCUP databases.

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Healthcare Cost and Utilization Project (HCUP)



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

