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 13, 2017
What is the Agency for Healthcare Research and Quality (AHRQ)?

The Agency for Healthcare Research and Quality (AHRQ) is a Federal agency under the Department of Health and Human Services (HHS).
Webinar Overview

- 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)

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 multiyear inpatient and outpatient data based on hospital billing records.

HCUP Databases

Research Tools

Research Publications

User Support

SID

SEDD

SASD

NEDS

NIS

KID

NRD
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 Nationwide Databases
  - National Inpatient Sample (NIS)
  - Nationwide Emergency Department Sample (NEDS)
  - Kids’ Inpatient Database (KID)
  - Nationwide Readmissions Database (NRD)
<table>
<thead>
<tr>
<th>Database Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>State Inpatient Databases</strong> (SID)</td>
<td>All inpatient hospital discharge data (including those admissions that started in the ED) from participating HCUP States</td>
</tr>
<tr>
<td><strong>State Ambulatory Surgery &amp; Services Databases</strong> (SASD)</td>
<td>Ambulatory surgery data (hospital based and some freestanding) and other outpatient services from participating HCUP States</td>
</tr>
<tr>
<td><strong>State Emergency Department Databases</strong> (SEDD)</td>
<td>Emergency department data (treat and release) from participating HCUP States</td>
</tr>
<tr>
<td>Database Name</td>
<td>Description</td>
</tr>
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</tr>
<tr>
<td>National (Nationwide) Inpatient Sample (NIS)</td>
<td>Inpatient discharge data for a <strong>sample of discharges from all hospitals</strong> in SID</td>
</tr>
<tr>
<td>Kids’ Inpatient Database (KID)</td>
<td>Pediatric inpatient hospital discharge data from a <strong>sample of pediatric discharges</strong> in SID</td>
</tr>
<tr>
<td>Nationwide Emergency Department Sample (NEDS)</td>
<td>Emergency department data (treat and release &amp; admitted) from a <strong>sample of hospitals</strong> in SID and SEDD</td>
</tr>
<tr>
<td>Nationwide Readmissions Database (NRD)</td>
<td>Inpatient discharge data from <strong>all hospitals for SID with verified patient linkage numbers</strong></td>
</tr>
</tbody>
</table>
Webinar Overview

• Brief Database Review
• Tools & Software
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• How to Access HCUP Resources
Value-Added Clinical and Quality Measurement Tools

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

*Already available on most HCUP databases
^Available for ICD-9-CM and ICD-10-CM/PCS
Multiple Coding Systems

- 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/PCS

- **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
<table>
<thead>
<tr>
<th>Q1-Q3 2015</th>
<th>Q4 2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>► Q1 to Q3 contain ICD-9 codes</td>
<td>► Q4 contain ICD-10 codes</td>
</tr>
</tbody>
</table>

- File structure changed in 2015 to separate Q1-Q3 and Q4 data
  - **State databases**: all file types have records split into Q1-Q3 and Q4 files
  - **Nationwide databases**: only file types containing DX/PR related variables are split into Q1-Q3 and Q4 files

- AHRQ created resources to help users with transition:
  - [2015 HCUP State Databases: Change in Structure and Data Elements Caused by Transition to ICD-10-CM/PCS](https://www.hcup-us.ahrq.gov/datainnovations/icd10_resources.jsp) (PDF)
  - Data Innovations – ICD-10-CM/PCS Resources page: [www.hcup-us.ahrq.gov/datainnovations/icd10_resources.jsp](http://www.hcup-us.ahrq.gov/datainnovations/icd10_resources.jsp)
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/PCS 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
Clinical Classifications Software (CCS) for ICD-9-CM

- Clusters diagnosis and procedure codes into categories
  - >14,000 diagnoses codes → 285 categories
  - >4,000 procedure codes → 231 categories
- Useful for presenting descriptive statistics and 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**
Clinical Classifications Software (CCS) Versions

• ICD-9-CM diagnoses and procedures
  ► Single-level
  ► Multi-level

• ICD-10-CM diagnoses and ICD-10-PCS procedures
  ► Single-level
  ► First and second multi-level categories only

• 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
- ICD-10-CM/PCS
  - Diagnoses Codes
  - Procedure Codes
- CPT
- HCPCS

**GROUPED CODES**
- DRG
- MDC
- CCS

**Inpatient Databases**
- ICD-9-CM
- ICD-10-CM/PCS
  - DRG
  - MDC
  - CCS
  - CPT
  - HCPCS

**Outpatient Databases**
- ICD-9-CM
- ICD-10-PCS
  - CPT
  - HCPCS
  - CCS
Procedure Classes 1-4

• Groups procedure codes into one of four categories
  ▶ ICD-10-PCS procedure codes
  ▶ 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 diagnoses codes
- ICD-9-CM diagnoses codes

1. Chronic
   Ex: Diabetes

2. Non-Chronic
   Ex: Food Poisoning
Elixhauser Comorbidity Software

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

ICD-10-CM or ICD-9-CM Codes, DRGs on Administrative Data

Elixhauser 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 …
Two indices based on Elixhauser Comorbidity Software now available on HCUP-US

- SAS program, *Creation of Elixhauser Comorbidity Index Scores*, applies weights to inpatient records and creates the two indices for the software – one for in-hospital mortality and one for readmission.

- The resulting index score(s) can be used in analyses in place of the 29 individual measures.

Currently, the index program is only available for use with ICD-9-CM data
Utilization Flags

• Reveals additional information about the use of health care services
• Primarily uses UB-04 revenue codes, augmented with ICD-9-CM and ICD-10-PCS procedure codes
There are not ICD-9-CM codes and ICD-10 PCS codes for all services. Concern exists that some diagnostic procedures may be under-reported.
Surgery Flags

- 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**
• Users are advised to visit the HCUP-US Tools & Software page regularly to ensure they have the most recent version of the HCUP tools downloaded and applied to their data.

• HCUP database users should not rely on the tools-based data elements present on the data when the file was created.

https://www.hcup-us.ahrq.gov/tools_software.jsp
• Create measures of health care quality using inpatient administrative data

  4 Quality Indicator modules:

  1. Prevention Quality Indicators (PQIs)
  2. Inpatient Quality Indicators (IQIs)
  3. Patient Safety Indicators (PSIs)
  4. Pediatric Indicators (PDIs)
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
Inpatient Quality Indicators (IQI)

• 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
Patient Safety Indicators (PSI)

- 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
Quality Improvement and monitoring at your fingertips.

Get to know the AHRQ Quality Indicators

PQI  Prevention Quality Indicators
LEARN MORE

IQI  Inpatient Quality Indicators
LEARN MORE

PSI  Patient Safety Indicators
LEARN MORE

PDI  Pediatric Quality Indicators
LEARN MORE

Bringing excellence to healthcare decision making, quality improvement, and research

https://qualityindicators.ahrq.gov/
Webinar Overview

• Brief Database Review
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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
Enable conversion of charge data to cost data on the SID, NIS, KID, and NRD

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<th>B</th>
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<tbody>
<tr>
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<td>HOSPID</td>
<td>APICC</td>
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<tr>
<td>7</td>
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Hospital-Level Data → 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 identifier (VisitLink)
     o Verified against the patient’s date of birth and sex
     o Examined for completeness

  2. Timing variable determines the number of days between events for an individual (DaysToEvent)
     o 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 HCUP database – the Nationwide Readmissions Database (NRD) (NRD_VisitLink and NRD_DaysToEvent)

• Select national revisit statistics are also available on HCUPnet
2014 SID States with Revisit Variables
2014 SEDD States with Revisit Variables
2014 SASD States with 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
HCUPnet
HCUPnet is an online query system for identifying, tracking, analyzing, and comparing statistics on inpatient and outpatient care. HCUPnet provides statistics from the HCUP Nationwide Databases (NIS, KID, NEOHS, and NRD) and the State Databases (STD, SASH, and SEED) for those States that have agreed to participate.

HCUP Fast Stats
HCUP Fast Stats provides easy online access to the latest HCUP-based statistics for select State and national health information topics. HCUP Fast Stats uses interactive, side-by-side comparisons of visual statistical displays, trend figures, or simple tables to convey complex information at a glance.

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 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.) Software has been added to compute an index for in-hospital mortality and an index for readmissions.

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 nature.

AHRO Quality Indicators (QIs)
AHRO 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.

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.

Tools for ICD-10-CM/PCS

HCUP tools have been translated to ICD-10-CM/PCS as part of the 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.

Caution: These ICD-10-CM/PCS tools were created prior to the availability of ICD-10-coded data. AHRQ is conducting analyses of ICD-10 data; preliminary findings suggest some unexpected discontinuities between the tools based on ICD-9 and those based on ICD-10. See this page www.hcup-us.ahrq.gov/datainnovations/icd10_resources.jsp for details. The tools will undergo periodic updates and corrections as data using ICD-10 codes come into greater use. You are advised to visit this page regularly to download and apply the most recent version of the HCUP tools for your data throughout your research process.

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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
- Users can also generate county-level statistical maps
- Data can be cross-classified by patient and hospital characteristics
- Recently redesigned

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)?
HCUPnet Provides …

<table>
<thead>
<tr>
<th>Step-by-step queries on:</th>
<th>Specialized queries by:</th>
<th>Ready-to-use statistics on:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hospital inpatient data (SID, NIS, KID)</td>
<td>Hospital service line</td>
<td>Related conditions and procedures</td>
</tr>
<tr>
<td>Nationwide readmissions data (NRD)</td>
<td>Specific ICD-9-CM diagnoses and/or procedures (separately or combined)</td>
<td>Readmissions</td>
</tr>
<tr>
<td>Community-level statistics</td>
<td>County-level or region-level</td>
<td>Select AHRQ Quality Indicators (QIs)</td>
</tr>
</tbody>
</table>
How does HCUPnet Work?

- **Step 1:** What kind of data are you looking for?
- **Step 2:** Do you want information on a specific diagnosis or procedure?
- **Step 3:** Create your analysis
- **Step 4:** View and update your data results in real time
- **Step 5:** View your results in detailed graphs
- **Step 6:** Export your data for future use
How does HCUPnet Work:
Step 1

Analysis Setup

Choose a setting of care.

- Inpatient
- Emergency Department
- Ambulatory Surgery
- Community

Choose how you would like to analyze data.

- Descriptive Statistics
  Information about specific conditions or diseases or about specific surgeries or procedures.

- Trends
  Tables and graphs with trends over time.

- Rank Order
  Rank diagnoses or procedures by such factors as number of discharges, costs, or in-hospital mortality rate.
How does HCUPnet Work?

• Step 1: What kind of data are you looking for?
• Step 2: Do you want information on a specific diagnosis or procedure?
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How does HCUPnet Work: Step 2
How does HCUPnet Work?

- Step 1: What kind of data are you looking for?
- Step 2: Do you want information on a specific diagnosis or procedure?
- **Step 3: Create your analysis**
- Step 4: View and update your data results in real time
- Step 5: View your results in detailed graphs
- Step 6: Export your data for future use
How does HCUPnet Work: Step 3

Analysis Setup

Choose how you would like to analyze data.

- Descriptive Statistics
- Trends
- Rank Order

Choose a year.

2014

Do you want data on a specific diagnosis or procedure?

- Yes
- No

Choose how you want to classify diagnoses or procedures.

Diagnoses—Clinical Classification Software (CCS)

Choose your diagnosis.

Enter each ICD-9-CM code with decimal point, separated by commas (e.g., 81.51, 81.52, 81.53), or specify the first 3 digits of the code to get list to select from. Then select the code. CTRL-click to select multiple codes.

1 Tuberculosis

Create Analysis
How does HCUPnet Work?

• Step 1: What kind of data are you looking for?
• Step 2: Do you want information on a specific diagnosis or procedure?
• Step 3: Create your analysis
• **Step 4: View and update your data results in real time**
• Step 5: View your results in detailed graphs
• Step 6: Export your data for future use
How does HCUPnet Work:
Step 4
How does HCUPnet Work?

• Step 1: What kind of data are you looking for?
• Step 2: Do you want information on a specific diagnosis or procedure?
• Step 3: Create your analysis
• Step 4: View and update your data results in real time
• Step 5: View your results in detailed graphs
• Step 6: Export your data for future use
How Does HCUPnet Work: Step 5

HCUPnet - Hospital Inpatient National Statistics

Column: Total number of discharges N -  
Row: All discharges -

2014 National – Diagnoses—Clinical Classification Software (CCS), Principal Diagnosis: #1 Tuberculosis – with Standard Errors

5.8%

All discharges
How does HCUPnet Work?

• Step 1: What kind of data are you looking for?
• Step 2: Do you want information on a specific diagnosis or procedure?
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• Step 4: View and update your data results in real time
• Step 5: View your results in detailed graphs
• Step 6: Export your data for future use
How does HCUPnet Work:
Step 6

GET MORE DETAILS
Outcomes and Measures
Number
Percent Admitted
Percent Ambulatory
Rate
Length of stay
Hospital charges
Hospital costs
Aggregate charges
Aggregate costs
Admission source

Submit Request

U.S. Department of Health & Human Services

HCUPnet
Healthcare Cost and Utilization Project

HCUPnet - Hospital Inpatient National Statistics

2014 National Diagnoses--Clinical Classification Software (CCS), Number

Total number of discharges

All discharges

- Weighted national estimates from HCUP National (Nationwide) Inpatient Sample (NIS), 2013.
- U.S. based on HCUP NIS = 45,258,828. Statistics based on estimates with a relative standard error of 20% and are designated with an asterisk (*).
- Beginning with the 2012 data, the National Inpatient Sample (NIS) was redesigned to optimize national estimates. Beginning with the 2012 data, the National Inpatient Sample (NIS) was redesigned to optimize national estimates. The statistics for years prior to 2012 NIS.
- See the ICD codes that comprise CCS categories.
- Citation: HCUPnet, Healthcare Cost and Utilization Project. Agency for Healthcare Research and Quality, Rockville, MD.
<table>
<thead>
<tr>
<th>CAN PRODUCE...</th>
<th>CANNOT PRODUCE...</th>
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<td>Simple statistics</td>
<td>More complicated queries</td>
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<tr>
<td>Sample size calculations</td>
<td>Multivariate analyses</td>
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<tr>
<td>Trends information</td>
<td>Statistics involving certain variables (ex. Indication that the diagnosis was present on admission)</td>
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<tr>
<td>Rank ordering of diagnoses and procedures</td>
<td>Statistics that may violate confidentiality (patient-, provider-, hospital-level data)</td>
</tr>
<tr>
<td>Significance testing</td>
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**HCUPnet Capabilities**
Webinar Overview

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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).

www.hcup-us.ahrq.gov/faststats/landing.jsp
State Trends in Inpatient Stays by Payer

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

*Medicaid expansion State Information is available for labeled States.*

A [tutorial for State Trends in Inpatient Stays by Payer](#) is available.

[Map showing states labeled as Medicaid expansion, Medicaid non-expansion, and non-HCUP states.]
HCUP Fast Stats – State Trends in Emergency Department Visits by Payer

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.

State Trends in Emergency Department Visits by Payer

Click map to select one of the identified States, or select from list and click Select: [Arizona] Select

Information is available for labeled States.

Medicaid expansion States in HCUP

Medicaid nonexpansion States in HCUP

Non-HCUP States
Includes information on trends in inpatient stays, the most common diagnoses for inpatient stays, and the most common operations during inpatient stays.
**Opioid-Related Hospital Use**, provides information on opioid-related inpatient stays and ED visits overall and by age group, sex, community-level income, and rural/urban location. Trends are presented graphically as population-based rates for the U.S. and by State.
Webinar Overview

- Brief Database Review
- Tools & Software
- Supplemental Files
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- Publications and Publication Search
- How to Access HCUP Resources
• Statistical Briefs
• Methods Series Reports
June 2017

**Patient Characteristics of Opioid-Related Inpatient Stays and Emergency Department Visits Nationally and by State, 2014**

Audrey J. Weiss, Ph.D., M.D., H. Kelly and Beverly C. Meara, M.D., M.P.H., J. David and Margarette L. Sarrel, M.D., M.P.H., Anne Ellman, Ph.D., and Claudia A. Tramer, M.D., M.P.H.

**Introduction**

Between 2006 and 2014 there was a dramatic increase nationally in hospitalizations involving opioids, the rate of opioid-related inpatient stays increased 44 percent, and the rate of opioid-related emergency department (ED) visits increased nearly 300 percent. In a series of Statistical Briefs, the Agency for Healthcare Research and Quality (AHRQ) is providing descriptive information on opioid-related hospitalizations nationally and at the state level. Based on data from the Healthcare Cost and Utilization Project (Hcup) Fast Facts entire cohort. AHRQ reported that across states in 2014 the rate of opioid-related inpatient stays varied more than five-fold and the rate of opioid-related ED visits varied more than ten-fold. Rates were reported for each state at the overall state level. This Hcup Statistical Brief extends the previous report by presenting data from Hcup Fast Facts on the rate of opioid-related inpatient stays and ED visits by patient sex and age group from 2006 to 2014. The patient sex and age groups with the highest opioid-related inpatient stays are presented for each of 44 states and the District of Columbia that provided patient data in 2014. Similarly, the patient sex and age groups with the highest opioid-related ED visit rates are presented for each of 44 states that provided ED visit data in 2014. Finally, rates are ranked overall on the rates of opioid-related inpatient stays and ED visits by patient sex and age group in 2014. Identification of opioid-related stays and visits is based on all-listed diagnoses and includes events associated with prescription opioids or illicit opioids such as heroin. The population denominator specified to each sex or age group was used to calculate rates.

**Highlights**

- Between 2006 and 2014, opioid-related inpatient stays and ED visits increased for both sexes and all age groups.
- Using the same timeframe, the national rate of opioid-related inpatient stays increased more for females than for males. Although the rate for males was higher in 2014 than it was in 2006, the rate was the same for both sexes.
- In contrast, the increase in the use of opioid-related ED visits was similar for males and females, with males always having the higher rate.
- In most states in 2014, females had a higher rate of opioid-related inpatient stays than males but males had a higher rate of opioid-related ED visits than females.
- From 2006 to 2014, the highest rates of opioid-related inpatient stays nationally were among patients aged 25–44 and 45–64 years. The highest rate of opioid-related ED visits was among patients aged 25–44 years.
- In 2014, there was a substantial state-to-state variation in the age group with the highest rate of opioid-related inpatient stays but patients aged 25–44 years had the highest opioid-related ED visit rate in all states.
- Access all patient sex and age group-related data.

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June 2017

**Trends in Hospital Inpatient Stays in the United States, 2005–2014**

Kimberly W. McCormick, Ph.D., Anne Ellman, Ph.D., and Ramin Sato, Ph.D.

**Introduction**

As a large component that accounts for one-third of health care expenditures in the United States, hospital inpatient care has experienced changes in utilization and costs over the past decade. Factors including general population growth, the aging baby boom generation, and the rising prevalence of chronic disease suggest that demand for hospital care will only increase. However, growing efforts to reduce unnecessary hospitalizations, greater use of chronic disease management programs, and a shift toward outpatient treatment may result in a decrease in hospital stays. Importantly, all of these factors may have a variable impact on different patient populations, which may vary in resulting trends in utilization, costs, and condition prevalence across demographic and payer groups.

This Healthcare Cost and Utilization Project (Hcup) Statistical Brief presents national data from Hcup Fast Facts on trends in national hospitalization and costs from 2005 to 2014, as well as the most common diagnoses for hospital inpatient stays during these years. Trends in the number of inpatient stays over the 10-year period are provided by hospitalization type (maternal neonatal, mental health, injury, surgical, and medical). The change in inpatient stays and cost per stay from 2005 to 2014 is broken down by select patient characteristics. Comparisons are provided for the population rates of hospitalization by age group, sex, and condition. The inpatient medical care costs are based on the Resource Utilization Groups (RUG) classification system, which uses an algorithm to assign each hospital stay to one of 28 groups. The cost is then adjusted to reflect the severity of the patient's condition. Finally, the most common diagnoses among inpatient stays overall by age group are presented. Differences greater than 10 percent between estimates are noted in the text.

**Highlights**

- Between 2005 and 2014, the inflation-adjusted mean cost per inpatient stay increased by 12.7 percent, from $9,900 to $10,930.
- Inflation-adjusted per stay payments for patients covered by private insurance or Medicaid increased 10.1 percent. Cost per stay for Medicare-covered patients and the uninsured remained unchanged.
- The rate of inpatient stays decreased the most among patients in the highest income quintiles (15–20 percent decrease).
- The proportion of Medicare-covered inpatient stays increased by 15.7 percent, whereas the proportion paid by private insurance and that were uninsured decreased by 12.5 and 10.3 percent, respectively.
- Mental health/behavioral use accounted for nearly 9 percent of all inpatient stays in 2014, up 201 percent from 2005.
- Between 2005 and 2014, separations for prenatal and postpartum births became two of the five most common diagnoses for inpatient stays. Separations for hospital stays due to surgical and medical conditions decreased by more than 50 percent from 2005 to 2014.
- Race-specific admission and coronary artery bypass operations decreased by more than 60 percent from 2005 to 2014, taking off the list of top 10 reasons for hospitalization.
Methodological information on the HCUP databases and software tools

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.

Calculating Costs
- Tools for More Accurate Inpatient Cost Estimates with HCUP Databases, 2002 (PDF file, 837 KB)
- Calculate Cost Adjustment Factors by APR-DRG and CCS Using Selected States with Detailed Charge (PDF file, 122 KB)
- The Cost of Ambulatory Surgery Visits, 2005 (PDF file, 187 KB)
- The Cost of “Treat and Release” to Hospital Emergency Departments, 2003 (PDF file, 166 KB)

Comparison Reports
- NIS
- KID

Evaluations of Data
- Emergency Department Data
- State Ambulatory Surgery and Services Databases
- Other (Patient Safety Variation, E Codes)

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

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HCUP Statistical Briefs
Statistical Briefs are simple, descriptive reports on a variety of specific health-care related issues. A full list is available by topic and chronological order. The most recent briefs are:

- Patient Residence Characteristics of Opioid-Related Inpatient Stays and Emergency Department Visits Nationally and by State, 2014
- Trends in Hospital Inpatient Stays in the United States, 2005-2014

ICD-10-CM/PCS Resources
These resources summarize key issues anticipated by researchers when analyzing health services outcomes using HCUP databases that include International Classification of Diseases, Tenth Revision, Clinical Modification/Procedure Coding System (ICD-10-CM/PCS) coding:

- General Information about ICD-10
- HCUP Databases and ICD-10 Related Data Elements
- Doing Analysis with ICD-10 Data

HCUP Infographics
Infographics provide a visual representation of Statistical Brief data. A full list is available. The most recent infographic is:

- Characteristics of Hospital Stays Involving Malnutrition, 2013 (PDF file, 734 KB)

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

- Calculating Nationwide Readmissions Database (NRD) Variances (PDF file, 325 KB)
- Feasibility Report on Redesigning the Nationwide Emergency Department Sample (NEDS) (PDF file, 770 KB)

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

- HCUP Projections (2012-2016)
- The Value of Hospital Discharge Data (PDF file, 66 KB) (Posted May 2005)
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