The Healthcare Cost and Utilization Project (HCUP)

September 10, 2008

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Healthcare Cost and Utilization Project (HCUP)

THE LARGEST COLLECTION OF MULTI-YEAR, ALL-PAYER, ENCOUNTER-LEVEL, HEALTH CARE DATA
The HCUP Partnership: A Voluntary Federal-State-Private Sector Collaboration

39 states
90% of all discharges
The Making of HCUP Data

Patient enters hospital

Billing record created

AHRQ standardizes data to create uniform HCUP databases

States store data in varying formats

Hospital sends billing data and any additional data elements to Data Organizations
### What is HCUP? And what is it not?

<table>
<thead>
<tr>
<th>HCUP is...</th>
<th>HCUP is not...</th>
</tr>
</thead>
<tbody>
<tr>
<td>Discharge database for health care encounters</td>
<td>A survey</td>
</tr>
<tr>
<td>All payer, including the uninsured</td>
<td>Specific to a single payer, e.g. Medicare</td>
</tr>
<tr>
<td>Hospital, ambulatory surgery, emergency department data</td>
<td>Outpatient visits, pharmacy, laboratory</td>
</tr>
<tr>
<td>All hospital discharges</td>
<td>A sample</td>
</tr>
<tr>
<td>Accessible multiple ways: raw data, regular reports, on-line</td>
<td>Just another database</td>
</tr>
</tbody>
</table>
HCUP Is a Family of Databases, Tools, and Products
HCUP Supports High Impact Health Services, Policy, and Clinical Research
HCUP Supports Federal and Non-Federal Initiatives
Types of HCUP Databases

- State Inpatient Databases (SID)
- State Ambulatory Surgery Databases (SASD)
- State Emergency Department Databases (SEDD)

- Nationwide Inpatient Sample (NIS)
- Kids’ Inpatient Database (KID)
- Nationwide Emergency Department Sample (NEDS)
Allows state-level analysis of inpatient hospital utilization using one more states in a uniform format
1990 – 2006*

- Arizona
- California**
- Colorado
- Florida
- Hawaii
- Iowa
- Kentucky
- Maryland
- Massachusetts
- Michigan
- Nebraska
- Nevada
- New Jersey
- New York
- North Carolina
- Oregon
- Rhode Island
- South Carolina
- Utah
- Vermont
- Washington
- West Virginia
- Wisconsin

* Not all states participate in all years.
** Special application process.
The SID Supports Interesting Research Topics

- Enumeration of all hospitals and discharges within market areas or states
- Investigation of questions unique to one state
- Comparison of data from two or more states
- Research of market areas or small area variation analyses
- Identification of state-specific trends in inpatient care utilization, access, charges, and outcomes
Purpose of the NIS

Allows national and regional studies of inpatient hospital utilization *

* Not recommended for state-level analyses
The NIS Is a Stratified Sample of Hospitals from the SID

2006 State Inpatient Databases
N = 3,958 hospitals
32,114,909 records

2006 Nationwide Inpatient Sample
N = 1,045 hospitals
8,074,825 records

5 NIS Strata
- U.S. Region
- Urban/Rural
- Teaching Status
- Ownership/Control
- Bed Size

State is NOT included as a stratum
## Statewide Data Systems Participating in NIS

<table>
<thead>
<tr>
<th>Data Year</th>
<th># of States</th>
<th>States</th>
</tr>
</thead>
<tbody>
<tr>
<td>1988</td>
<td>8</td>
<td>CA, CO, FL, IA, IL, MA, NJ, WA</td>
</tr>
<tr>
<td>1989-1992</td>
<td>11</td>
<td>+ AZ, PA, WI</td>
</tr>
<tr>
<td>1993-1994</td>
<td>17</td>
<td>+ CT, KS, MD, NY, OR, SC</td>
</tr>
<tr>
<td>1995-1996</td>
<td>19</td>
<td>+ MO, TN</td>
</tr>
<tr>
<td>1997-1998</td>
<td>22</td>
<td>+ HI, UT, GA</td>
</tr>
<tr>
<td>1999</td>
<td>24</td>
<td>+ ME, VA</td>
</tr>
<tr>
<td>2000</td>
<td>28</td>
<td>+ KY, NC, TX, WV</td>
</tr>
<tr>
<td>2001</td>
<td>33</td>
<td>+ MI*, MN, NE, RI, VT</td>
</tr>
<tr>
<td>2002</td>
<td>35</td>
<td>+ NV, OH, SD [AZ not available]</td>
</tr>
<tr>
<td>2003</td>
<td>37</td>
<td>+ AZ, IN, NH [ME not available]</td>
</tr>
<tr>
<td>2004</td>
<td>37</td>
<td>+ AR [PA not available]</td>
</tr>
<tr>
<td>2005</td>
<td>37</td>
<td>+OK [VA not available]</td>
</tr>
<tr>
<td>2006</td>
<td>38</td>
<td>+VA</td>
</tr>
</tbody>
</table>
The NIS Can Be Used to Study Many Topics

- Use of and charges for hospital services
- Medical practice variation
- Medical treatment effectiveness
- Quality of care and patient safety
- Impact of health policy changes
- Diffusion of medical technology
Purpose of the KID

Allows national and regional studies of inpatient hospital utilization and charges for children and adolescents.

Designed for study of rare pediatric conditions.
The KID Is a Stratified Sample of Discharges from the SID

3 Strata

- **Uncomplicated Births**
  - 10% stratified sample of uncomplicated births

- **Complicated Births**
  - 80% stratified sample of other ped discharges

- **Pediatric Non-Births**

2006 State Inpatient Databases

- N = x
- Pediatric Discharges from x Hospitals

2006 Kids’ Inpatient Database

- N = x
- Pediatric Discharges from x Hospitals
## Key Differences Between the 1997, 2000, 2003, and 2006 KID

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong># HCUP states</strong></td>
<td>22</td>
<td>27</td>
<td>36</td>
<td>38</td>
</tr>
<tr>
<td><strong># Hospitals</strong></td>
<td>2,521</td>
<td>2,784</td>
<td>3,438</td>
<td>3,739</td>
</tr>
<tr>
<td><strong># Unweighted records</strong></td>
<td>1.9 million</td>
<td>2.5 million</td>
<td>3.0 million</td>
<td>3.1 million</td>
</tr>
<tr>
<td><strong># Weighted discharges</strong></td>
<td>6.7 million</td>
<td>7.3 million</td>
<td>7.4 million</td>
<td>7.6 million</td>
</tr>
<tr>
<td><strong>Age inclusion criteria</strong></td>
<td>≤ 18 years</td>
<td>≤ 20 years</td>
<td>≤ 20 years</td>
<td>≤ 20 years</td>
</tr>
</tbody>
</table>
Ambulatory surgery data:

Designated hospital beds; separate facilities with hospital affiliation included

Some data from free-standing centers

- Data organizations provides data to HCUP—collection varies by state

- HCUP collects and standardizes data to create SASD
States with HCUP Ambulatory Surgery Databases

- California**
- Colorado*
- Connecticut
- Florida*
- Georgia
- Indiana
- Iowa*
- Kansas
- Kentucky*
- Maine
- Maryland*
- Michigan*
- Minnesota
- Missouri
- Nebraska*
- New Hampshire
- New Jersey*
- New York*
- North Carolina*
- Ohio
- Oklahoma
- South Carolina*
- South Dakota
- Tennessee
- Utah*
- Vermont*
- Wisconsin*

*Data available through the HCUP Central Distributor

** Special application process.

Note: Not all states participate in all years.
Emergency department data: uniform billing data (UB-92), plus additional data elements, from hospital-affiliated emergency department sites

- Data organization provides data to HCUP
- HCUP collects and standardizes data to create SEDD
The SEDD can provide a more complete picture of care. The SID and the SEDD can be combined to get a full picture of care that began in the ED.
States with HCUP Emergency Department Databases

| Arizona*     | Missouri       |
| California*  | Nebraska*     |
| Connecticut  | New Hampshire |
| Florida*     | New Jersey*   |
| Georgia      | New York      |
| Hawaii*      | Ohio          |
| Indiana      | South Carolina* |
| Iowa*        | South Dakota  |
| Kansas       | Tennessee     |
| Maine        | Utah*         |
| Maryland*    | Vermont*      |
| Massachusetts* | Wisconsin*    |

*Data available through the HCUP Central Distributor

** Special application process.

Note: Not all states participate in all years.
Some Interesting Ways to Use the SEDD for Research

- Injury surveillance
- Trends in ED use
- Correlations between ED use and environmental events
- Emerging infectious diseases
- Occurrence of non-fatal, preventable illness
- ED visits and re-visits for some states
Coming Soon...

Nationwide Emergency Department Sample (NEDS)
HCUP ED Data

About 84% of ED visits are treat-and-release

About 16% of ED visits result in a hospital stay

SEDD
Treat-and-Release ED Visits

SID
Admitted ED Visits

NEDS
Comparable to other ED sources

- Consistent in terms of total ED visits
- Higher percent of inpatient admissions with ED source
- Larger amount of diagnostic and procedure information available
- Similar for injury rates
## Administrative Data Have Benefits and Limitations

<table>
<thead>
<tr>
<th>Benefits</th>
<th>Limitations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Large sample size</td>
<td>Differences in coding across hospitals</td>
</tr>
<tr>
<td>Uniformity of coding</td>
<td>No data on individuals outside of hospital system</td>
</tr>
<tr>
<td>Routine, regular collection</td>
<td>May not show complete episode of care</td>
</tr>
<tr>
<td>Ease of access</td>
<td>May not include all hospitals</td>
</tr>
<tr>
<td>All-payer</td>
<td>Lack revenue information</td>
</tr>
<tr>
<td>Available at local, state, regional, national level</td>
<td>Sparse clinical details</td>
</tr>
</tbody>
</table>
Pricing Information

National Databases (NIS, KID)
- $200 per data year (from CY2000 forward)
- $20 student price

State Databases (SID, SASD, SEDD)
- $20 - $3,000 per data year (varies by state)
The National Hospital Bill: Growth Trends and 2005 Update on the Most Expensive Conditions by Payer

Roxanne M. Andrews, Ph.D. and Anne Elixhauser, Ph.D.

Introduction

As health care costs rise and the population ages, policy makers are concerned with the growing burden of hospital-based care and expenses to governments, consumers, and insurers. This Statistical Brief presents data from the Healthcare Cost and Utilization Project (HCUP) on the national inpatient hospital (aggregate community hospital charges) in 2005 and an analysis of trends for 1997 through 2005.

This report provides information on the top 20 most expensive conditions and the growth in the national bill for each of these conditions between 1997 and 2005. This report also describes the distribution of the nation’s 2005 bill by primary payer and the conditions accounting for the largest percentage of a payer’s hospital bills. The primary payers examined are Medicare, private insurance, and the uninsured.

Findings

The 2005 national hospital bill and changes since 1997

The nation’s hospitals billed nearly $875 billion in total charges in 2005 for inpatient hospitalizations. These charges involve 1 in 10 million hospital stays, but do not include hospital outpatient services. This hospital bill is about twice as large in real terms as it was in 1997, and about 75% larger when adjusted for economy-wide inflation to 2005 dollars.

* Adjusted for economy-wide inflation to 2005 dollars.

Source: AHRQ, Center for Delivery, Organization, and Markets, Healthcare Cost and Utilization Project, Nationwide Inpatient Sample
Other Statistical Briefs

Include:

- Hospital stays related to depression
- Trends in risk-adjusted mortality
- Trends in preventable hospitalizations
- Infections with Clostridium difficile
- Childbirth-related stays
- Adverse drug events
- Admissions for traumatic brain injury
- Bariatric surgery utilization and outcomes
- Circumcisions
- …
HCUPnet is a powerful online query tool that gives you free, instant access to healthcare statistics.

HCUPnet provides national information on hospital stays based on the Nationwide Inpatient Sample.
... and it gives access to data from participating states from HCUP’s State Inpatient Databases.
Select the type of query you want:

- Statistics on specific diagnoses or procedures
  Information on specific diagnoses and procedures for a single year (select year on the next page)

- Statistics on all hospital stays
  Information on all stays for a specific year, not by diagnoses or procedures (select year on the next page)

- Trends
  State trends on all stays, diagnoses, and procedures

- Rank order specific diagnoses or procedures
  Rank diagnoses or procedures by key outcomes and measures such as number of discharges and total charges

HCUPnet takes you through a step-by-step process to select the information you want.
**Select outcomes and measures for which you want statistics**

*Check one or more*

- [x] Number of discharges
- [x] Length of stay, mean
- [x] Hospital charges, mean
- [x] Percent died in the hospital
- [ ] Discharge status
- [ ] Percent admitted from emergency department
- [ ] Percent admitted from another hospital
- [ ] Percent admitted from long term care facility

**HCUPnet provides information on:**
- numbers of discharges
- hospital LOS and charges
- discharge status
- how patients were admitted
Select patient and hospital characteristics

Check one or more

☑ All patients in all hospitals
☐ Patient age, in categories
☐ Gender
☐ Payer (insurance status)
☐ Location of patient’s residence (rural/urban)
☐ Race/ethnicity
☐ Hospital ownership (public, for-profit, not-for-profit)?
☐ Hospital teaching status (teaching vs. not)?
☐ Hospital location (metropolitan vs. non-metropolitan)?
☐ Hospital bedsize (small vs. medium vs. large)?

Are you interested in particular patient groups? Specific hospital characteristics?
### 2006 National statistics - all-listed

You have chosen all-listed procedures. The only possible measure for all-listed procedures is the number of discharges who received the procedures you selected. If you want to see statistics on length of stay or charges, go back and select "principal procedure."

#### Patient and hospital characteristics for CCS all-listed procedure category

**158 Spinal fusion**

<table>
<thead>
<tr>
<th></th>
<th>Total number of discharges</th>
<th>Standard errors</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>All discharges</strong></td>
<td>360,287 (100.00%)</td>
<td>19,445</td>
</tr>
<tr>
<td><strong>Age group</strong></td>
<td></td>
<td>*</td>
</tr>
<tr>
<td>&lt;1</td>
<td>9,337 (2.59%)</td>
<td>1,498</td>
</tr>
<tr>
<td>1-17</td>
<td>96,914 (26.90%)</td>
<td>5,695</td>
</tr>
<tr>
<td>18-44</td>
<td>173,644 (48.20%)</td>
<td>9,783</td>
</tr>
<tr>
<td>45-64</td>
<td>77,643 (21.55%)</td>
<td>4,259</td>
</tr>
<tr>
<td>65-94</td>
<td>2,662 (0.74%)</td>
<td>198</td>
</tr>
<tr>
<td><strong>Missing</strong></td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td><strong>Sex</strong></td>
<td></td>
<td>*</td>
</tr>
<tr>
<td>Male</td>
<td>165,112 (45.83%)</td>
<td>8,754</td>
</tr>
<tr>
<td>Female</td>
<td>194,984 (54.12%)</td>
<td>10,794</td>
</tr>
<tr>
<td><strong>Missing</strong></td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td><strong>Payer</strong></td>
<td></td>
<td>*</td>
</tr>
<tr>
<td>Medicare</td>
<td>97,189 (26.98%)</td>
<td>5,355</td>
</tr>
<tr>
<td>Medicaid</td>
<td>20,500 (5.69%)</td>
<td>1,457</td>
</tr>
<tr>
<td>Private insurance</td>
<td>195,340 (54.22%)</td>
<td>11,973</td>
</tr>
<tr>
<td>Uninsured</td>
<td>5,818 (1.61%)</td>
<td>508</td>
</tr>
<tr>
<td>Other</td>
<td>40,904 (11.35%)</td>
<td>3,122</td>
</tr>
<tr>
<td><strong>Missing</strong></td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td><strong>Median income for zip code</strong></td>
<td></td>
<td>*</td>
</tr>
<tr>
<td>Low ($0-35,999)</td>
<td>73,200 (21.70%)</td>
<td>*</td>
</tr>
<tr>
<td>Not low ($36,000+)</td>
<td>273,823 (75.00%)</td>
<td>*</td>
</tr>
<tr>
<td><strong>Missing</strong></td>
<td>8,264 (2.29%)</td>
<td>*</td>
</tr>
<tr>
<td><strong>Patient residence</strong></td>
<td></td>
<td>*</td>
</tr>
<tr>
<td>Large metro</td>
<td>152,011 (42.19%)</td>
<td>*</td>
</tr>
<tr>
<td>Small metro</td>
<td>129,402 (35.92%)</td>
<td>*</td>
</tr>
<tr>
<td>Non-metro</td>
<td>77,925 (21.63%)</td>
<td>*</td>
</tr>
<tr>
<td><strong>Missing</strong></td>
<td>948 (0.26%)</td>
<td>*</td>
</tr>
<tr>
<td><strong>Owner</strong></td>
<td></td>
<td>*</td>
</tr>
<tr>
<td>Government</td>
<td>34,156 (9.48%)</td>
<td>*</td>
</tr>
<tr>
<td>Private, not-for-profit</td>
<td>277,176 (75.93%)</td>
<td>*</td>
</tr>
<tr>
<td>Private, for-profit</td>
<td>45,955 (13.59%)</td>
<td>*</td>
</tr>
<tr>
<td><strong>Teaching status</strong></td>
<td></td>
<td>*</td>
</tr>
<tr>
<td>Nonteaching</td>
<td>146,713 (40.72%)</td>
<td>*</td>
</tr>
<tr>
<td>Teaching</td>
<td>213,574 (59.28%)</td>
<td>*</td>
</tr>
</tbody>
</table>

You get your results instantly. HCUPnet is based on aggregated statistics to speed data transfer and protect patient confidentiality.
Advancing Excellence in Health Care

HCUPnet provides trend information for the 14 year period: 1993-2006

Total number of discharges
CCS all-listed procedure category 158, Spinal fusion

You can request information on trends for the nation and for any participating state.
New Interactive On-line HCUP Overview Course Available

http://www.hcup-us.ahrq.gov/overviewcourse.jsp
Active Technical Assistance

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

E-mail: hcup@ahrq.gov
Phone: (866) 290-HCUP