ANNUAL ACTIVITIES REPORT

March 24, 2021
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Social Determinants of Health

American Hospital Association

Association of Statisticians of American Religious Bodies
U.S. Religion Census (ASARB)

Bureau of Economic Analysis (BEA)

Bureau of Labor Statistics (BLS)

Centers for Disease Control and Prevention (CDC)

Census Bureau

Housing and Urban Development (HUD)
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INTRODUCTION

The mission of the Agency for Healthcare Research and Quality (AHRQ) is to produce evidence to make healthcare safer, higher quality, more accessible, equitable, and affordable, and to work with the U.S. Department of Health and Human Services (DHHS) and with other partners to make sure that the evidence is understood and used.

AHRQ works to fulfill its mission by conducting and supporting health services research, both within AHRQ as well as in leading academic institutions, hospitals, physicians' offices, healthcare systems, and many other settings across the country. The Agency has a broad research portfolio that touches on nearly every aspect of healthcare. AHRQ develops the knowledge, tools, and data needed to improve the healthcare system and help Americans, healthcare professionals, and policymakers make informed health decisions.

The AHRQ-sponsored Healthcare Cost and Utilization Project (HCUP, pronounced “H-Cup”) is a vital resource, helping the Agency achieve its research agenda and thereby furthering its goal of improving the delivery of healthcare in the United States.

AHRQ releases the HCUP Annual Activities Report each spring to describe HCUP accomplishments in the previous year and to detail current plans for the upcoming year. This report is intended to inform HCUP Partners about project activities and ways in which HCUP data are currently used.

HEALTHCARE COST AND UTILIZATION PROJECT

In 2018, AHRQ began the first year of a five-year plan which carries HCUP forward through 2022. The scope of HCUP builds on and maintains a strong foundation of valuable data, useful analytic tools, and important partnerships with State data organizations, hospital associations, and private data organizations (referred to collectively as “HCUP Partners”).

HCUP’s objectives are to accomplish the following:

➢ Create and enhance a powerful source of national, State, and all-payer healthcare data.
➢ Produce a broad set of software tools and products to facilitate the use of HCUP and other administrative data.
➢ Enrich a collaborative partnership with statewide data organizations aimed at increasing the quality and use of healthcare data.
➢ Conduct and translate research to inform decision making and improve healthcare delivery.

The current plan focuses on the following strategies to increase the impact of HCUP:

➢ Maintain a strong core while enhancing data tools and measures.
➢ Improve the value of HCUP by producing and disseminating information derived from the data.
➢ Explore additional data and linkages that would enable HCUP to examine a wider set of healthcare encounters.
➢ Place greater emphasis on and capacity for research analyses that use the breadth and depth of HCUP data to explore the impact of changes in health policy on healthcare.
➢ Emphasize the importance of data partnerships.
➢ Expand outpatient data and obtain data at more frequent intervals, as available.

AHRQ continued to hold HCUP Partners Meetings via webinar on a quarterly schedule during 2020. Partners were invited to provide input regarding their priorities, to suggest possible changes for the project, and to discuss current data activities in their organizations. AHRQ shared challenges and accomplishments of the project as well as upcoming plans and initiatives. Many interesting topics were reported, such as an update on 2019 HCUP Activities; HCUP Central Distributor: 2019 Activity Summary, and the Clinical Classifications Software Refined (CCSR); HCUP and COVID-19 Response; AHRQ Quality Indicators Software, and Payer Identifiers and Typology. AHRQ will continue the HCUP Partners Meetings by webinar. Notes from the HCUP Partners Meetings are available on the password-protected Partners section of the HCUP-US website: www.hcup-us.ahrq.gov/login.jsp. AHRQ places great value on Partner input and will continue to seek Partner guidance on the use and development of HCUP data.

HCUP Partner Participation by Data Type

The current status of States participating in HCUP data collection and a description of the types of data they provide are displayed in the map below.

Alabama (AL), Alaska (AK), Arizona (AZ), Arkansas (AR), California (CA), Colorado (CO), Connecticut (CT), Delaware (DE), District of Columbia (DC), Florida (FL), Georgia (GA), Hawaii (HI), Idaho (ID), Illinois (IL), Indiana (IN), Iowa (IA), Kansas (KS), Kentucky (KY), Louisiana (LA), Maine (ME), Maryland (MD), Massachusetts (MA), Michigan (MI), Minnesota (MN), Mississippi (MS), Missouri (MO), Montana (MT), Nebraska (NE), Nevada (NV), New Hampshire (NH), New Jersey (NJ), New Mexico (NM), New York (NY), North Carolina (NC), North Dakota (ND), Ohio (OH), Oklahoma (OK), Oregon (OR), Pennsylvania (PA), Rhode Island (RI), South Carolina (SC), South Dakota (SD), Tennessee (TN), Texas (TX), Utah (UT), Vermont (VT), Virginia (VA), Washington (WA), West Virginia (WV), Wisconsin (WI), Wyoming (WY)
Overview of HCUP

HCUP develops and maintains healthcare databases, related software tools, support services, and products created through a Federal-State-Industry partnership and sponsored by AHRQ. HCUP databases are derived from administrative data and contain encounter-level, clinical and nonclinical information including all-listed diagnoses and procedures, discharge status, patient demographics, and charges for all patients, regardless of payer (e.g., Medicare, Medicaid, private insurance, and self-pay or no charge), beginning in 1988. These databases enable research on a broad range of health policy issues, including cost and quality of health services, medical practice patterns, access to healthcare programs, and outcomes of treatments at the national, State, and local market levels.

The HCUP databases are based on the data collection efforts of data organizations that maintain statewide data systems and are developed in partnership with AHRQ.

HCUP databases include the following:

- **National (Nationwide) Inpatient Sample (NIS)** is the largest publicly available, all-payer inpatient healthcare database in the United States (U.S.), yielding national estimates of hospital inpatient stays. Beginning with the 2012 data year, the National Inpatient Sample (NIS) was redesigned to improve national estimates. The NIS contains a sample of inpatient discharges equal to approximately 20 percent of the total discharges from U.S. community hospitals, representing more than 97 percent of inpatient discharges from community hospitals in the U.S. The NIS contains information on all patients, regardless of payer, including individuals covered by Medicare, Medicaid, private insurance, and self-pay, or those billed as ‘no charge’. The NIS is released annually starting with data year 1998.

- **Kids’ Inpatient Database (KID)** is the largest publicly available, all-payer national pediatric inpatient care database in the United States. The KID contains a nationwide sample of two to three million hospital pediatric discharges per year for patients younger than 21 years of age and is a calendar year file generally produced every three years from 1997-2012. The most recent KID is available for 2016.

- **Nationwide Ambulatory Surgery Sample (NASS)** is the largest ambulatory surgery database that has been constructed in the U.S., with an approximate 50 percent sample of major ambulatory surgery visits performed in hospital-owned facilities. The NASS sample includes all patients regardless of the expected payer for the hospital stay. The NASS is released annually starting with data year 2016.

- **Nationwide Emergency Department Sample (NEDS)** is the largest emergency department (ED) database in the United States. The NEDS includes discharge data on ED visits from a nationwide sample of approximately 950 hospitals each year. It captures information for both treat-and-release visits and visits resulting in a hospital admission. The NEDS sample includes all patients regardless of the expected payer for the hospital stay. The NEDS is released annually starting with data year 2006.

- **Nationwide Readmissions Database (NRD)** is designed to create national readmission rates. The NRD includes a sample of approximately 18 million discharges each year for discharges with and without readmissions, obtained from HCUP Partners with verified patient linkage numbers. It addresses the need for nationally representative information on hospital readmissions for all ages. The NRD is released annually starting with data year 2016.
➢ **State Inpatient Databases (SID)** contain the universe of inpatient discharges from participating States. The data are translated into a uniform format to facilitate multi-State comparisons and analyses. Together, the SID encompass more than 97 percent of all U.S. community hospital discharges.

➢ **State Ambulatory Surgery and Services Databases (SASD)** include encounter-level data for ambulatory surgery and other outpatient services from hospital-owned facilities. In addition, some States provide ambulatory surgery and outpatient services from nonhospital-owned facilities.

➢ **State Emergency Department Databases (SEDD)** contain data from hospital-affiliated emergency departments for visits that do not result in hospitalizations. The SEDD files include all patients, regardless of payer, providing a unique view of emergency department care in a State or in a defined market over time.

Supplemental files for use with HCUP databases include the following:

➢ **Cost-to-Charge Ratio for Inpatient Files (CCR for IP Files)** are hospital-level files that facilitate the conversion of total hospital charges into total hospital costs (expenses) for providing care. The ratios are constructed from appropriate cost centers in the Centers for Medicare & Medicaid Services Healthcare Cost Report Information System (CMS HCRIS) hospital cost reports. The CCR for Inpatient Files can be used with the NIS, KID, NRD, or SID to estimate the resource cost of inpatient care and its variation across hospitals and conditions. These files are not applicable to other administrative databases.

➢ **Cost-to-Charge Ratio for Emergency Department (ED) Files (CCR for ED Files)** are hospital-level files that facilitate the conversion of total hospital ED charges into total hospital ED costs (expenses) for providing care. The ratios are constructed from appropriate cost centers in the Centers for Medicare & Medicaid Services Healthcare Cost Report Information System (CMS HCRIS) hospital cost reports. The CCR for ED Files can be used with the SEDD to estimate the resource cost of ED care and its variation across hospital-owned EDs and conditions. These files are not applicable to other administrative databases.

➢ **Hospital Market Structure Files (HMS Files)** are hospital-level files that contain various measures of hospital market competition. These measures are aggregate and are meant to provide a broad characterization of the intensity of competition that hospitals may be facing under various definitions of market area.

➢ **Kids’ Inpatient Database Trend Weights (KID Trend Weights) File** is a discharge-level file that aids analysts who wish to estimate trends or conduct other analyses based on multiple years of the KID. The KID Trend Weights File provides KID data users with trend weights for the 1997 KID that are calculated in the same way as the weights for the 2000 and later years of the KID.

➢ **NIS Trend Weights Files** provide revised weights for the 1993-2011 NIS that adjust for changes in the eligible hospitals and sampling approach of the 2012 NIS design. The trend weights were calculated in the same way as weights for the 2012 and later NIS. For trends analysis using NIS data 2011 and earlier, the revised weights should be used to make national estimates comparable to the new design beginning with 2012 data.

➢ **NIS Supplemental Discharge-Level Files** provide data elements that were not contained on the original 1993-2002 NIS files, which were added to the design in later years. These supplemental data elements are provided to allow researchers conducting...
longitudinal analyses to utilize the same data elements, consistently defined across data years, in analysis using earlier years of NIS data.

- **Supplemental Variables for Revisit Analyses** are discharge-level variables designed to facilitate analyses that track patients within a State as well as across time and hospital settings (inpatient, emergency department, and ambulatory surgery) while adhering to strict privacy guidelines. For data years 2003-2008, the revisit variables were provided in separate supplemental files. Beginning with 2009 data, the revisit variables are included in the SID, SASD, and SEDD databases and are no longer released separately.

**Highlights of 2020**

In 2020, HCUP focused on expanding the type and number of data projects and resources available to researchers and policymakers. Project achievements during 2020 included the following:

**Databases and Software Tools**

- HCUP produced and released the 2018 NIS, NASS, NEDS, and NRD.
- HCUP produced and released the 2018 SID, SASD, and SEDD.
- HCUP began creating the 2019 SID, SASD, and SEDD.
- HCUP continued to release the State and nationwide databases via the Central Distributor. In 2020, 4,363 nationwide databases and 3,633 State databases were distributed through the HCUP Central Distributor.
- HCUP made further progress in producing timely information, using quarterly data for 2019–2020 from 24 HCUP Partners to perform “quick response” analyses and support analytic research tasks.
- HCUP software tools using HCPCS Level I (CPT®) Codes and Level II Codes were updated, including Surgery Flags for Services and procedures, and Clinical Classifications Software for Services and Procedures. AHRQ updated HCUP software tools using ICD-10-CM/PCS Codes including the Clinical Classification Software Refined (CCSR) for diagnoses, Elixhauser Comorbidity Software Refined, Chronic Conditions Indicator, and Procedure Classes (beta version). The update to the CCSR and the Elixhauser Comorbidity Software Refined were major enhancements, while all the other software tools updates were annual updates.
- HCUP released the 2018 Partner-approved inpatient Cost-to-Charge Ratio (CCR) Files that contain hospital-specific, cost-to-charge ratios based on all-payer cost for nearly every hospital in the corresponding NIS, KID, NRD, and SID.
- HCUP released the new Partner-approved Cost-to-Charge Ratios for Emergency Department Files (CCR for ED file) beginning with the 2017 data year. The files are available for the corresponding SEDD.
- HCUP produced 2017 updates for Community-level Statistics on HCUPnet and backfilled the 2016 data year with diagnoses grouped using the Clinical Classifications Software Refined (CCSR) so that the 2016 data would be consistent with the new statistics produced for 2017. A new quality assurance process was developed to identify and review outlier statistics. HCUPnet was also updated to include the 2017 SID and NIS and the 2016 and 2017 NRD.
- AHRQ updated HCUP Fast Stats by adding a new topic on Trends in Emergency Department Visits (National) that explores nationwide emergency department (ED) trends
over the last 10 years, including trends in the number and rate of ED visits provided overall and by patient age, sex, expected payer, patient location, and community-level income. The Neonatal Abstinence Syndrome (NAS) Among Newborn Hospitalizations topic was updated to add Hawaii-and 2018 statistics for 42 States. The Hurricane Impact on Hospital Use topic was updated to delineate three new medical conditions - circulatory conditions, infections, and respiratory conditions. AHRQ also added more recent data through 2020 where available.

➢ AHRQ released the new HCUP Summary Trend Tables, downloadable tables containing State-specific monthly trends in hospital utilization from the HCUP SID. For some States, the tables include emergency department volume information using a combination of the SID and SEDD. The tables include information on several topics, including an overview of monthly trends in inpatient and emergency department utilization, inpatient encounter types, inpatient stays by priority conditions, and inpatient service lines. For most topics, the downloadable files begin in January 2017 and include the monthly number of discharges, percent of discharges, average length of stay, and in-hospital mortality rate. The HCUP Summary Trend Tables will be updated four times in 2021, as new data become available. This information may be used to examine COVID-19 outbreaks and the effect on hospital utilization.

Reports and Analyses

➢ HCUP added four new Findings-At-A-Glance reports:

1. Adult, Nonmaternal Inpatient Stays Related to Sepsis: National Trends by Expected Primary Payer, 2012-2018
2. Injuries and External Causes: Reporting of Causes on the HCUP State Inpatient Databases, 2016-2017
3. Injuries and External Causes: Reporting of Causes on the HCUP State Emergency Department Databases (SEDD), 2016-2017

These Findings-At-A-Glance reports and others can be found at  https://hcup-us.ahrq.gov/reports/ataaglance/findingsataglance.jsp

➢ HCUP added two Topical Reports using State data: Utilization of Inpatient and Emergency Department Care Following Medicaid Expansion: A Comparison Between Safety-Net and Non-Safety-Net Hospitals; and Health Insurance for Young Adults: An Observational Study of Health Capital and Aging Out.

➢ HCUP continued to produce the Statistical Briefs series on the HCUP User Support (HCUP-US) website, releasing fifteen new Statistical Briefs. The Statistical Briefs covered topics such as Costs of Emergency Department Visits in the United States; Impact of Hurricanes on Injury-Related Emergency Department Visits; Characteristics and Costs of Potentially Preventable Inpatient Stays; and Obstetric Delivery Inpatient Stays Involving Substance Use Disorders and Related Clinical Outcomes.

➢ AHRQ released the 2019 National Healthcare Quality and Disparities Report (NHQDR), which included national and State-level estimates from the 2017 HCUP data. Additionally, in 2020 AHRQ provided estimates of selected AHRQ Quality Indicator (QI) measures using 2016-2018 HCUP data that were created in preparation for the next annual NHQDR. All applicable measures were risk adjusted. The NHQDR reports are available at www.ahrq.gov/research/findings/nhqdr/index.html. The NHQDR Data Query is available at https://nhqrdnnet.ahrq.gov/inhqrdr/data/query.
HCUP released four new or updated Methods Series reports. The reports covered topics such as Population Denominator Data Sources and Data for Use with HCUP Databases (updated); An Examination of Expected Payer Coding in the HCUP Databases (updated); An Examination of Ambiguous Source Payer Codes Among Individuals Aged 65+ Years in HCUP Data; and Methods Applying AHRQ Quality Indicators to HCUP Data for the 2019 NHQDR.

Presentations and Outreach

➢ The User Support team showcased HCUP resources via virtual exhibit booths, virtual presentations, and online webinars.

➢ AHRQ held four webinars for Partners to discuss:
  1. 2019 HCUP and Central Distributor activities; Clinical Classifications Software Refined (CCSR)
  2. Fast Stats updates and upcoming Statistical Briefs; HCUP and COVID-19
  3. The 2019 National Healthcare Quality and Disparities Report; Severe Maternal Morbidity and Racial Differences in Postpartum Revisits; AHRQ Quality Indicators Software Version 2020
  4. Assessing and Predicting Medical Needs in a Natural Disaster; Payer Identifiers and Typology challenges to standardization

In addition, AHRQ hosted two topical webinars to discuss COVID-19 reviewing average hospital occupancy rates (including baseline estimates for occupancy by condition (excluding healthy newborns), intensive care beds, and ventilators).

➢ AHRQ recognized healthcare services researchers with the HCUP Outstanding Article of the Year Award for three articles for excellent use of HCUP Data in a clinical and policy field. Recipients were announced during the 2020 AcademyHealth Annual Research Meeting.

➢ HCUP released quarterly newsletters to provide a summary of HCUP activities.

Partnership Activities and Resources

➢ HCUP updated the Border Crossing Report with the 2018 HCUP SID, which provides information on the flow of patients into and out of HCUP States. The Report is exclusive to HCUP Partners and is available on the HCUP-US Partners page.

➢ AHRQ sent HCUP Partners a set of State-specific tables containing estimated occupancy rate, intensive care unit (ICU) beds and ventilators and occupancy rates by condition. The mailing included a methods document to support local planning and response to COVID-19.

➢ HCUP continued to provide Partners with technical support, software tools, and reports designed to enhance the collection and use of inpatient and outpatient data.

Objectives for 2021

In 2021, HCUP will continue to maintain the databases, tools, and reports as part of our commitment to ensure that HCUP remains a unique and valuable resource for health services research. We remain committed to supporting communication among HCUP Partners as well as between Partners and AHRQ. During the coming year, the project goals are to accomplish the following:
➢ Produce and release the 2019 NIS, KID, NASS, NEDS, and NRD.
➢ Release the Partner-approved CCR files for the 2012-2018 NEDS and the 2012-2016 SEDD.
➢ Update and release back year CCR CD-SID files for 2012-2016 and intramural SID CCR files with edited outliers for back years.
➢ Put the CCSR for ICD-10-CM diagnosis, the CCSR for ICD-10-PCS procedures, and the Elixhauser Comorbidity Software Refined tools on the 2019 nationwide databases and 2020 State databases.
➢ Release major enhancements to three software tools. The Chronic Condition Indicator for ICD-10-CM and the Procedure Classes for ICD-10-PCS will both transition out of beta. The Elixhauser Comorbidity Software Refined for ICD-10-CM will be updated to include an index. The other AHRQ software tools will have annual updates this year.
➢ Continue to produce HCUP Statistical Briefs—a series of online reports available on the HCUP-US website that are designed to summarize HCUP data for policy and nontechnical audiences. AHRQ will also produce a series of COVID-19 related Statistical Briefs using quarterly data that will be updated during 2021.
➢ Generate estimates using HCUP data for the National Healthcare Quality and Disparities Report (NHQDR).
➢ Conduct research and analyses using HCUP data to explore the impact of changes in health policy, to analyze trends, and to evaluate structural and clinical factors on healthcare outcomes.
➢ Conduct quick turn-around analyses using HCUP data in collaboration with federal agencies and other entities to address timely health issues (such as COVID-19), forecast medical needs in a disaster, and monitor ongoing trends.
➢ Continue enhancing the Community-Level Statistics on HCUPnet by adding 2018 data.
➢ Develop enhancements to HCUP Fast Stats, including developing a Severe Maternal Morbidity (SMM) pathway.
➢ Update and add new HCUP Methods Series Reports that assist users with using the HCUP databases and software tools. This includes "Methods for Calculating Distance to Hospital in HCUP Data," a report to help users understand methods to calculate distance between the patient and hospital, assess the accuracy of these hospital distance measures, and propose a recommended method for use with HCUP data.
➢ Conduct new HCUP intramural studies (see Studies Planned for 2021 below).
➢ Communicate changes in databases, tools, and query sites to Partners and provide briefings on research studies.
➢ Develop a portfolio of COVID-19-related research projects based on 2020–2021 quarterly inpatient and emergency department data. Additional information from other Federal sources will be used to supplement information related to the spread of COVID-19. Studies will focus on the impact of the pandemic on hospital utilization and the healthcare system, with a particular emphasis on health disparities. More specifically, research projects will focus on answering the following general questions:
What is the capacity of the hospital care system to meet the COVID-19 demands of the population before, during, and after the pandemic (or a surge of cases)?

What is the capacity of the hospital care system to meet the COVID-19 demands of vulnerable populations?

Which communities need which COVID-19 resources at what time?

What is the impact of the pandemic on COVID-19 healthcare outcomes and resources (quality of care, readmissions, morbidity, in-hospital mortality, expected payer)?

What is the healthcare impact of the pandemic on vulnerable populations (e.g., access to quality of care before, during, and after the pandemic by social determinants of health, race/ethnicity, or geographic location or income)?

What additional resources need to be available to address the needs of the population post-COVID-19?

What is the capacity of the hospital care system to meet the non-COVID-19* demands of the population before, during, and after the pandemic (or a surge of cases)?

Which communities need which non-COVID-19 resources at what time?

What is the impact of the pandemic on non-COVID-19 healthcare outcomes and resources (quality of care, readmissions, morbidity, in-hospital mortality, expected payer)?

**Summary of HCUP Research Activities for 2020**

AHRQ conducts exploratory studies using HCUP data to examine current health research topics and to identify areas for further data refinement. The studies described in this section were in response to carefully selected topics that are consistent with the AHRQ research agenda. AHRQ develops this agenda in consultation with many agencies within the Department of Health and Human Services and with prominent healthcare organizations and institutions. AHRQ’s research agenda reflects current priorities and emerging policy issues.

AHRQ also consults with industry experts, public officials, and other researchers to select topics for study. Finally, AHRQ solicits advice from data organizations participating in HCUP concerning product development and research.

In addition to exploratory studies conducted by the HCUP team, HCUP produces software tools and supplemental files to further enhance the administrative databases and to improve their value and ease of use. HCUP also produces methods reports including statistics, findings, and special technical analyses aimed at communicating and disseminating information about HCUP data.

Finally, AHRQ researchers use HCUP data to conduct their own research and to engage in collaborations intended for publication in peer-reviewed journals or disseminated through other mediums. AHRQ conducts specific studies using HCUP data in collaboration with other Federal agencies, including the Centers for Disease Control and Prevention (CDC), the Health Resources and Services Administration (HRSA), and the Substance Abuse and Mental Health Services Administration (SAMHSA). In these instances, an AHRQ HCUP team member works with a colleague at another agency, bringing together expertise in knowledge areas and respective data resources. All collaborations using HCUP data are conducted under the supervision of the AHRQ HCUP researcher.

In 2020, AHRQ investigated numerous HCUP-related topics with the dual goals of developing data for research use and exploring health outcomes to inform policy decisions. Studies that
began in 2020 or began earlier but changed significantly in 2020 are listed below. The HCUP databases used in these studies are shown in parentheses.

**Studies Using State Databases**

- Access to Obstetric, Behavioral Health, Surgical, and Other Inpatient Services After Hospital Mergers in Rural Areas (SID)
- Effects of Rural Hospital Closure on Inpatient Outcomes (SID)
- Examining Rural Hospital Quality After Mergers and Acquisitions (SID)
- Examining the Impact of the Recent Healthcare Reform on Racial and Ethnic Disparities in Coverage and Access to Care (SID, SEDD)
- Explaining Differences Between Safety-Net Hospitals and Non-Safety-Net Hospitals in Rates of Postpartum Readmissions: Relative Roles of Patient and Hospital Factors (SID)
- Exploring the Relationship Between Local Macroeconomic Conditions and Hospital Inpatient and Emergency Department Admissions (SID, SEDD)
- Federally Qualified Health Centers and Severe Maternal Morbidity (SID)
- Hospital Use by People With HIV in Four States From 2013 Through 2017 (SID)
- Medicare Advantage and Postdischarge Quality: Evidence From Hospital Readmissions (SID)
- Methods for Estimating the Cost of Treat-and-Release Emergency Department Visits (SEDD)
- The Effects of Access to Insurance Coverage on Emergency Department Visits Due to Diabetes-Related Complications (SID, SEDD)
- The Impact of the Affordable Care Act Insurance Expansions on Opioid-Related Emergency Department Visits (SID, SEDD)

**Studies Using Nationwide Databases**

- The Trend in Treatment Cost of Emergency Department Visits (NEDS)

**Ongoing Studies**

- National Healthcare Quality and Disparities Report

Descriptions for these studies are provided below. The databases used in these studies are shown in parentheses above.

**Studies Using State Databases**

*Access to Obstetric, Behavioral Health, Surgical, and Other Inpatient Services After Hospital Mergers in Rural Areas*

Despite their central role in rural communities, rural hospitals are increasingly in financial distress and may seek to merge with other hospitals or health systems, which could result in reduction of service lines that are less profitable or duplicative of services the acquirer offers. Using hospital discharge data from 32 Healthcare Cost and Utilization Project (HCUP) State Inpatient Databases (SID), we examined the influence of rural hospital mergers from 2009 to 2016 on changes to inpatient service lines at hospitals and within their catchment areas. Merged hospitals were more likely than independent hospitals to eliminate maternal/neonatal and surgical care. Whereas the number of mental and substance use disorder-related stays
decreased or remained stable at merged hospitals and within their catchment areas, it increased for unaffiliated hospitals and their catchment areas. Although a merger might salvage a hospital's sustainability, it may reduce service lines or a hospital's responsiveness to community needs. External data sources used include hospital mergers and acquisition data from Levin Irving Associates, rural ZIP Codes from Federal Office of Rural Health Policy, the America Hospital Association Annual Survey, the Area Health Resource Files, and the American Community Survey.

H. Joanna Jiang, PhD, Lan Liang, PhD, Rachel M. Henke, PhD, Kathryn R. Fingar, PhD, and Teresa B. Gibson, PhD

Effects of Rural Hospital Closure on Inpatient Outcomes
Since 2005, more than 160 rural hospital closures have occurred nationwide. Although a hospital closure has the potential to benefit patients by referring them to institutions that provide higher quality care and the latest technologies, it also can lead to increased negative health outcomes. Research has noted that among the potential negative consequences resulting from hospital closures is an increase in adverse health outcomes due to delayed treatment, particularly for time-sensitive conditions, such as myocardial infarction (MI) and stroke. As the number of rural hospital closures continues to increase, it is important to understand the ultimate effects of these closures. This study examines the consequences of hospital closures in rural areas using all-payer hospital discharge data from across the United States. We will use the Healthcare Cost and Utilization Project (HCUP) State Inpatient Databases (SID) from approximately 28 States to track rural hospital closures from 2009 through 2017. We compare outcomes for patients who lose their closest hospital with outcomes for patients who lose their second closest hospital as a result of the same closure. Outcomes include in-hospital mortality, cost and length per stay, and complications for time-sensitive conditions (e.g., MI, stroke) and time-insensitive or planned procedures. External data sources include hospital closure data from the Rural Health Research Program of the Cecil G. Sheps Center for Health Services Research at the University of North Carolina, the America Hospital Association Annual Survey, the Area Health Resource Files, and American Community Survey.

Lan Liang, PhD, H. Joanna Jiang, PhD, Rachel M. Henke, PhD, Kathryn R. Fingar, PhD, and Teresa B. Gibson, PhD

Examining Rural Hospital Quality After Mergers and Acquisitions
In attempts to avoid closure, gain access to capital, or improve service offerings and technology, hospitals can merge with other hospitals or be acquired by health systems. Multihospital systems have the potential to provide more financial and structural resources to rural institutions, potentially improving quality of care. However, to address the financial needs of acquired hospitals, these hospitals may reduce service lines provided, potentially affecting travel distance necessary to obtain care. The goal of this study was to examine the influence of mergers and changes in system affiliation on quality at rural hospitals. We used the Healthcare Cost and Utilization Project (HCUP) State Inpatient Databases (SID) from 32 States to track rural hospital mergers and system affiliation changes from 2009 through 2017. Changes in the outcomes (mortality rate, complications) were compared across hospitals that merged or joined a system with hospitals that did not merge or join a system using a difference-in-differences approach and coarsened exact matching. External data sources include hospital mergers and acquisition data from Levin Irving Associates, rural ZIP Codes from the Federal Office of Rural Health Policy, the America Hospital Association Annual Survey, Area Health Resources Files, and American Community Survey.

H. Joanna Jiang, PhD, Lan Liang, PhD, Rachel M. Henke, PhD, Kathryn R. Fingar, PhD, and Teresa B. Gibson, PhD
Exposing the Impact of the Recent Healthcare Reform on Racial and Ethnic Disparities in Coverage and Access to Care

This study examines the impact of the Affordable Care Act Medicaid expansion on racial and ethnic disparities in hospitalizations, especially preventable hospitalizations. **Data:** Healthcare Cost and Utilization Project (HCUP) State Inpatient Databases (SID) and State Emergency Department Databases (SEDD), 2011–2018. **External data:** Data on State Medicaid expansion status compiled by the authors, and U.S. population data obtained from the National Cancer Institute’s Surveillance Epidemiology and End Results (SEER) program.

**Asako Moriya, PhD, and Sujoy Chakravarty, PhD**

Explaining Differences Between Safety-Net Hospitals and Non-Safety-Net Hospitals in Rates of Postpartum Readmissions: Relative Roles of Patient and Hospital Factors

Safety-net hospitals (SNHs) treat a higher proportion of maternal patients with risk factors for postpartum readmission than do non-SNHs. Identifying factors associated with the disparity in postpartum readmission rates between SNHs and non-SNHs can help improve obstetric practice. The objective of this study was to assess the relative contribution of patient, hospital, and community characteristics in explaining the SNH/non-SNH disparity in postpartum readmission rates. This study used the 2016–2018 Healthcare Cost and Utilization Project (HCUP) State Inpatient Databases (SID) for 25 States (AK, AR, DE, FL, GA, HI, IN, IA, LA, MD, MS, MO, NV, NM, NY, OR, PA, SC, SD, TN, VT, VA, WA, WI and WY). We examined 3.5 million maternal delivery stays for females aged 12–55 years in non-Federal community acute care hospitals. We used a linear probability model to measure the association between covariates and postpartum readmissions followed by Oaxaca-Blinder decomposition estimates to quantify the contribution of covariates to the SNH-non/SNH disparity in postpartum readmission rates. We examined a variety of patient, hospital, and community characteristics that could contribute to the SNH/non-SNH disparity in postpartum readmission rates, including patient-level severe maternal morbidity, high-risk pregnancy, other comorbidities, and delivery stay characteristics (HCUP SID); hospital characteristics (HCUP SID; Annual Survey of Hospitals, American Hospital Association; and Hospital Consumer Assessment of Healthcare Providers and Systems Survey, Centers for Medicare & Medicaid Services); community-level income (HCUP SID); county population rate of obstetricians/gynecologists (Area Health Resource File); and percentage of uninsured females and female-headed households in patient’s ZIP Code of residence (American Community Survey, U.S. Census Bureau). The unadjusted postpartum readmission rate was 4.2 per 1,000 index deliveries higher at SNHs than at non-SNHs (19.1 vs. 14.9, p < .001). The single largest contributors to the disparity were race/ethnicity (20%), hypertension (12 percent), hospital preterm delivery rate (10 percent), and whether the delivery was preterm (7 percent). Higher postpartum readmission rates at SNHs versus non-SNHs were largely due to differences in patient mix rather than hospital factors. Still, hospital initiatives are needed to reduce postpartum readmission among the high-risk populations that SNHs serve.

**Lawrence D. Reid, PhD, MPH, Kathryn R. Fingar, PhD, MPH, and Audrey J. Weiss, PhD**

Exploring the Relationship Between Local Macroeconomic Conditions and Hospital Inpatient and Emergency Department Admissions

This study analyzes the relationship between inpatient and emergency department (ED) admissions and local economic conditions measured by unemployment rate. This study uses Healthcare Cost and Utilization Project (HCUP) State Inpatient Databases (SID), 1988-2017, and HCUP State Emergency Department Databases (SEDD), 1998–2017, along with Bureau of Labor Statistics (BLS)’s Labor’s Local Area Unemployment Statistics (LAUS) Database, and
U.S. population data obtained from the National Cancer Institute’s Surveillance Epidemiology and End Results (SEER) program

Asako Moriya, PhD, and Yaa Akosa Antwi, PhD

Federally Qualified Health Centers and Severe Maternal Morbidity

Although about 40 percent of births in the U.S. are financed by Medicaid, lower provider payment rates in many States have led to concerns about accessibility of care since not all providers accept Medicaid. Since Federally Qualified Health Centers (FQHCs) accept Medicaid, the presence of an FQHC in an area may improve access to prenatal care which in turn may help to reduce maternal morbidity. We test this hypothesis using 2018 Healthcare Cost and Utilization Project (HCUP) State Inpatient Databases (SID) data for 2006-2017 merged with data from Health Resources and Services Administration and the Centers for Medicare & Medicaid Services on the presence of at least one FQHC delivery site in a ZIP Code of residence. The sample will be limited to maternal discharges (excluding transfers) for the 37 States with SID data in every year in the 2006-2017 range. Initial analyses will be limited to discharges with an expected source of payment of Medicaid. The dependent variable will consist of whether or not severe maternal morbidity (SMM) was present. Independent variables of interest will be whether at least one FQHC exists in the mother’s ZIP Code of residence, the Medicaid-to-Medicare fee ratio for obstetric services, and the interaction between these two variables. We will test the hypotheses that the presence of FQHCs decreases births involving SMM, especially in States with low Medicaid-to-Medicare fee ratios for non-FQHC providers. Control variables will include maternal age or age group, race/ethnicity, expected source of payment, several area characteristics that vary by ZIP Code and year, county number of primary care providers per capita (including obstetrics/gynecology) and State (or maybe ZIP Code) and quarter-year fixed effects. Some analyses will be limited to ZIP Codes without FQHCs in 2006. An event study analysis analyzing the effect of “time to/from an FQHC is added to the ZIP Code” will then be conducted. The dependent variable will alternatively consist of any SMM or any SMM by type (blood transfusion or other or more specific categories such as eclampsia). HCUP data AZ, AR, CA, CO, CT, FL, GA, HI, IL, IN, IO, KS, KY, MD, MA, MI, MN, MO, NE, NV, NH, NJ, NY, NC, OH, OR, RI, SC, SD, TN, UT, TX, VT, WA, WV, and WI are included in this study. ICD9 and 10 codes identifying SMM will be taken from the Centers for Disease Control and Prevention.

In addition to the analyses above, additional analyses will add a control group of discharges with an expected source of payment of private insurance, and relevant interactions.

Sandra L. Decker, PhD

Hospital Use by People With HIV in Four States From 2013 Through 2017

This study examines hospital utilization by patients living with HIV from 2013 through 2017 in four States (FL, NJ, NY, and SC) using hospital discharge data from the State Inpatient Databases (SID). There is little information about recent trends in hospital care for people living with HIV. This study compares the average number of hospitalizations per person living with HIV as well as the average cost for hospital care per person living with HIV in four States (FL, NJ, NY, and SC) for the years 2010, 2013, 2014 and 2017. It also compares the average length of stay for persons with HIV disease and examines covariates in equations explaining the average cost of a hospital stay and the probability of dying during hospitalization in each of the four States. This study finds that the probability of a person living with HIV disease being hospitalized fell between 2000 and 2010 and between 2010 and 2017. At the same time, the average length of stay of an HIV inpatient rose between 2000 and 2010 and fell 2010 and 2017. This study also found that fewer persons living with HIV were hospitalized in 2017 than in 2014 even though the number of persons living with HIV increased. In addition, this study found that
the average length of a hospital stay and the average cost of a hospital stay fell substantially between 2010 and 2017.

Fred Hellinger, PhD

Medicare Advantage and Postdischarge Quality: Evidence From Hospital Readmissions
The study examines trends in readmission rates among Medicare Advantage (MA) and traditional Medicare™ enrollees between 2009 and 2014. This study uses the Agency for Healthcare Research and Quality’s 2009 and 2014 Healthcare Cost and Utilization Project (HCUP) State Inpatient Databases (SID) for four States, linking these data to hospital and area characteristics from the American Hospital Association and the Health Resources and Services Administration, respectively, as controls.

Jayasree Basu, PhD, and Paul Jacobs, PhD

Methods for Estimating the Cost of Treat-and-Release Emergency Department Visits
The study objective was to evaluate and compare approaches to estimating the service delivery cost of emergency department (ED) visits from total charge data only. We compared a baseline approach (requiring cost-center-level charge detail) and four alternative methods (relying on total charges only) for estimating ED visit costs. Estimation errors were calculated after applying each method to a sample of ED visits, treating estimates from the baseline approach as the “true” cost. Performance metrics were calculated for each method at the visit and hospital levels. Data sources used were the 2013–2017 Healthcare Cost and Utilization Project (HCUP) State Emergency Department Databases (SEDD) and the Centers for Medicare & Medicaid Services Healthcare Cost Report Information System (HCRIS) public use files. The HCRIS and SEDD files were linked using the CMS Certification Number (CCN) provided in the American Hospital Association annual survey for each year.

Gary Pickens, PhD, Brian Moore, PhD, Mark W. Smith, PhD, Kimberly W. McDermott, PhD, Amanda Mummert, PhD, and Zeynal Karaca, PhD

The Effects of Access to Insurance Coverage on Emergency Department Visits Due to Diabetes-Related Complications
This study assesses the association between access to health insurance coverage and emergency department (ED) admissions due to diabetes-related complications. Preliminary results were presented at an internal seminar. This study uses Healthcare Cost and Utilization Project (HCUP) State Inpatient Databases (SID) and State Emergency Department Databases (SEDD), 1999–2018, along with U.S. population data obtained from the National Cancer Institute’s Surveillance Epidemiology and End Results (SEER) program are merged at the State-age level to obtain the rate of ED visits for each year of age.

Asako Moriya, PhD

The Impact of the Affordable Care Act Insurance Expansions on Opioid-Related Emergency Department Visits
Amid rising opioid-related deaths and hospital use, the 2010 Patient Protection and the Affordable Care Act was signed into law with the central coverage provisions implemented in 2014. This study explored the impact of the Affordable Care Act Medicaid expansion and ACA Affordable Care Act marketplace insurance on opioid-related emergency department (ED) visits using ZIP Code-level emergency department utilization data from the 2010–2018 Healthcare Cost and Utilization Project (HCUP) State Inpatient Databases (SID) and State Emergency Department Databases (SEDD) for 17 States that adopted Medicaid expansion on January 1, 2014 (AZ, CA, CT, HI, IL, IA, KY, MD, MA, MN, NV, NJ, NY, ND, OH, RI, and VT) and 12 States that did not implement Medicaid expansion during the study period (FL, GA, KS, ME, MO, NE, NC, SC, SD, TN, UT, and WI). The analysis also accounted for several time-varying covariates.
and the implementation of relevant State-level policies using multiple data sources. These sources included ZIP Code Tabulation Area (ZCTA)-level population, income, poverty, and uninsurance data from the U.S. Census Bureau American Community Survey; ZIP Code-level data on the availability of substance abuse treatment facilities from the U.S. Census County Business Patterns; and county-level unemployment data from the U.S. Census Bureau of Labor Statistics’ Local Area Unemployment Statistics. Sources of State-level policy data included the Prescription Drug Abuse Policy System (PDAPS), the American Society of Addiction Medicine (ASAM), and Kaiser Family Foundation Health Reform State Indicators. We used a difference-in-differences estimation strategy as well as a dose-response variation based on pre-Affordable Care Act uninsurance levels to estimate the Affordable Care Act impact in the five years following the 2014 insurance expansions. We found that the effect varied over time. Opioid-related ED visits in expansion States remained the same or decrease slightly in the first 1 to 3 years relative to non-expansion States with a more marked decline in the fourth and fifth year, 2017 and 2018.

Sandra L. Decker, PhD, Michael Dworsky, PhD, Teresa B. Gibson, PhD, Rachel M. Henke, PhD, and Kimberly W. McDermott, PhD

Studies Using Nationwide Databases

The Trend in Treatment Cost of Emergency Department Visits

The study objective was to analyze trends in emergency department (ED) treatment costs using a new method for translating hospital charges into costs. This study estimated treatment cost per ED visit using Cost-to-Charge Ratios. We analyzed mean and total costs by patient and hospital characteristics across years and calculated compound annual growth rate in costs and patient volumes. Data sources used were the 2012–2017 Healthcare Cost and Utilization Project (HCUP) Nationwide Emergency Department Sample (NEDS) and Centers for Medicare & Medicaid Services (CMS) Healthcare Cost Report Information System (HCRIS) public use files. The HCRIS and NEDS files were linked using the CMS Certification Number (CCN) provided in the AHA annual survey for each year.

Gary Pickens, PhD, Mark W. Smith, PhD, Kimberly W. McDermott, PhD, Amanda Mummet, PhD, and Zeynal Karaca, PhD

Ongoing Studies

National Healthcare Quality and Disparities Report

Since 2003, the Agency for Healthcare Research and Quality (AHRQ) has produced congressionally mandated reports each year on healthcare quality and disparities for vulnerable populations in the United States. The National Healthcare Quality and Disparities Report (NHQDR) includes information from the Healthcare Cost and Utilization Project (HCUP) and from numerous other organizations, including the Centers for Disease Control and Prevention, the National Center for Health Statistics, and the Centers for Medicare & Medicaid Services.

The NHQDR provides a comprehensive overview of the quality of healthcare received by the general population and disparities in care experienced by different racial, ethnic, and socioeconomic groups. More detailed information is available through chartbooks on specific topics, such as access to care, patient safety, and healthy living. The chartbooks are updated each year.

The NHQDR and chartbooks are organized around the concept of access to care, quality of care, disparities in care, and six priority areas: patient safety, person-centered care, care coordination, effective treatment, healthy living, and care affordability. With a focus on priority populations, the NHQDR summarizes the quality of and disparities in care for populations at
elevated risk for receiving poor healthcare. This aspect of the NHQDR includes HCUP-based measures related to racial, ethnic, and socioeconomic factors for priority populations as well as changes over time and across the urban-rural continuum.

The 2020 NHQDR (to be released in 2021) will include national estimates of the AHRQ Quality Indicators™ (QIs) v2020.1 for data years 2016-2018. Rates prior to data year 2016 are not reported because of the transition to the International Classification of Diseases, Tenth Revision, Clinical Modification/Procedure Coding System. The 2020 NHQDR will include adjusted rates for all applicable QIs for 2016-2018.

AHRQ disseminates the NHQDR and related products through the AHRQ website at www.ahrq.gov/research/findings/nhqdr/index.html. There also is an integrated website at www.nhqrdnet.ahrq.gov that provides a single access point to the NHQDR reports, chartbooks, and NHQDR data, including State-specific information (i.e., the State Snapshots and a query tool for accessing the underlying data).

**NEW STUDIES PLANNED FOR 2021**

**Studies Using State Databases**
- All-Payer Comparison of Hospital Service Areas From Dartmouth Atlas and All-Payer HCUP Data: Utilization and Capacity (SID)
- Differential Effects of Patient Risk and Hospital Acuity on Severe Maternal Morbidity at Delivery Across Racial/Ethnic Groups (SID)
- Examining the Missingness of Race/Ethnicity in the State Inpatient Databases (SID)
- Impact of COVID-19 on Hospitalizations and ED Visits (SEDD)
- Investigating the Impact of Public Health Insurance on Coverage, Healthcare Utilization, and Health Outcomes (SID, SEDD)
- Multisystem Inflammatory Syndrome in Children Compared With Other Pediatric Hyperinflammatory Syndromes in the United States (SID)
- Patterns of Variation Through Time: A Seven-State Analysis of the Hospital Care Received by HIV Patients in 2014, 2017, 2018, and 2019 (SID)
- Persistence of Disparities in Latino and Black Hospitalizations Across COVID-19 Hot Spots (SID)
- Severe Maternal Morbidity (SID)
- The Heterogeneous Effects of Policy-Induced Health Insurance Coverage Transitions on Hospitalizations (SID, SEDD)
- The Potential Financial Impact of COVID-19 on Hospitalizations (SID)
- The Sustainability of Rural Hospitals: Independent, Merged/Acquired, or Closed (SID, SASD)
- Tracing Out the Short-and Long-Term Effects of Childhood Medicaid Coverage on Healthcare Utilization and Health: New Evidence From Healthcare Cost and Utilization Project Data (SID, SEDD)
- Where Are the Beds? Disparities in the Distribution of Hospital Capacity Across the United States (SID)
Studies Using Nationwide Databases
➢ Racial and Ethnic Disparities in Cesarean Section Rates for Low-Risk Women Across U.S. Hospitals, 2016 (NIS)

Descriptions for these studies are provided below. The databases used in these studies are shown in parentheses above.

Studies Using State Databases

All-Payer Comparison of Hospital Service Areas From Dartmouth Atlas and All-Payer HCUP Data: Utilization and Capacity

Pioneering work by John Wennberg and colleagues in the early 1970s utilized data from northern New England to highlight the role of geographic regions in explaining variability in how health services are delivered. This work evolved into what would become the Dartmouth Atlas of Health Care—a multifaceted approach to classifying, analyzing, and explaining the variation in patterns of care across the United States. The Dartmouth Atlas Project uses a methodology commonly known as small area analysis, which is population based. Small area analysis focuses on the population that uses a specific hospital service area (HSA). In the Dartmouth Atlas, HSAs are collections of ZIP Codes whose residents receive most of their hospitalization from the hospitals in that area. To construct the HSAs, the Dartmouth team used the most comprehensive nationwide data available at the time—Medicare fee-for-service data—to examine variation at a national level. The Dartmouth HSAs were produced more than two decades ago, and research suggests they are unable to represent contemporary healthcare markets. The objective of this study is to compare an all-payer-derived set of HSAs using Healthcare Cost and Utilization Project (HCUP) data with the Medicare fee-for-service HSAs from Dartmouth Atlas and to understand the variation in hospital care across the new all-payer HSAs. The study will use HCUP State Inpatient Databases (SID) from 2016–2018 from all available States. Hospital-level data from the American Hospital Association (AHA) Annual Survey and ZIP Code-level data from the Dartmouth Atlas of Care—Hospital Market Definitions (Hospital Service Area) will be used to help construct the all-payer HSAs with HCUP data. Subsequently, variation in hospital utilization among the all-payer HCUP HSAs will be examined based on a number of population, hospital, and community (e.g., healthcare capacity) characteristics, defined at the hospital, ZIP Code, county, and/or State level and obtained from data sources that may include the AHA Annual Survey, the Trauma Information Exchange Program, the U.S. Census Bureau’s American Community Survey, the U.S. Census Bureau’s County Business Patterns, the Centers for Medicare & Medicaid Services’ National Plan and Provider Enumeration System, and the Health Resources and Services Administration’s Area Health Resources Files.

Pamela L. Owens, PhD, Teresa B. Gibson, PhD, Gary Pickens, PhD, Audrey J. Weiss, PhD, and J. Scott Ashwood, PhD

Differential Effects of Patient Risk and Hospital Acuity on Severe Maternal Morbidity at Delivery Across Racial/Ethnic Groups

Hospital volume has been associated with increased quality of care and better patient outcomes. With respect to maternity care, recent research has found that, relative to low-risk patients, high-risk patients treated at low-acuity hospitals had higher risk of severe maternal morbidity (SMM) than those treated at high-acuity hospitals. Thus, hospitals that treat more high-risk patients may be better equipped to manage patient risk factors and prevent serious outcomes, such as SMM at delivery. It is unknown how these findings vary for racial/ethnic minorities, specifically for Black women, who have higher rates of SMM than other groups. Prior research suggests Black women are more likely to deliver in a concentrated group of lower-
quality hospitals that contribute to their increased SMM rates. The purpose of this study is to examine whether the effects of patient risk and hospital obstetric level of care on SMM at delivery differ by race/ethnicity. These results may inform maternal regionalization efforts to increase the frequency with which high-risk maternal patients are treated at hospitals equipped to provide the appropriate level of care. The analysis will use the 2016–2019 Healthcare Cost and Utilization Project (HCUP) State Inpatient Databases (SID) for 47 States and the District of Columbia, in conjunction with county-level healthcare access data from the Area Health Resources Files, ZIP Code Tabulation Area-level population data from the American Community Survey, and hospital-level data from the American Hospital Association Annual Survey and the Centers for Medicare & Medicaid Services Hospital Consumer Assessment of Healthcare Providers & Systems Survey.

Kathryn R. Fingar, PhD, MPH, Lawrence D. Reid, PhD, and Kimberly W. McDermott, PhD

Examining the Missingness of Race/Ethnicity in the State Inpatient Databases

Using the 2018 State Inpatient Databases (SID), we examine the rates of missing race/ethnicity by State and hospital. We explore the feasibility of extrapolating missing race/ethnicity information, based on age- and condition-specific utilization in similar areas (population characteristics) and similar hospitals. Data from the American Hospital Association Annual Survey and the American Community Survey are included in the analysis. The purpose of this exploration is to inform Healthcare Cost and Utilization Project (HCUP) data development, such as appropriate use in the National Healthcare Quality and Disparities Report and recommendations to HCUP data users on the missingness of race/ethnicity information. No research manuscript is planned at this time.

Pamela L. Owens, PhD, Lan Liang, PhD, Marc Zodet, PhD, and Kilem L. Gwet, PhD

Impact of COVID-19 on Hospitalizations and ED Visits

Several research projects are being developed related to the impact of COVID-19 on hospital and emergency department (ED) utilization. Initial projects will focus on racial/ethnic and rural disparities in COVID-19 hospitalizations and in-hospital mortality, as well as the impact of the pandemic on hospitalizations and ED visits related to other health conditions. For example, one study will examine how characteristics of communities (ZIP Code and county code) are associated with COVID-19-related hospitalizations, with special emphasis on minority communities and racial disparities at the community level. Another study will examine the relative contributions of patient clinical factors, community characteristics, and hospital characteristics on explaining the disparities among non-Hispanic Black and Hispanic individuals versus non-Hispanic White individuals in in-hospital mortality related to COVID-19 (and its association with mortality related to COVID-19 in the community).

Pamela L. Owens, PhD, and colleagues in AHRQ’s Center for Financing, Access and Cost Trends

Investigating the Impact of Public Health Insurance on Coverage, Healthcare Utilization, and Health Outcomes

Public health insurance programs constitute some of the largest and most far-reaching social programs in the United States today. Almost 71 million individuals are enrolled in Medicaid or the Child Health Insurance Program, and 60 million are covered by Medicare. Eligibility for public health insurance is based on some combination of age, income, State of residence, and medical condition. Moreover, program eligibility and re-enrollment rules are set at the State level and vary over time. This means that similar individuals may be eligible for public health insurance in some jurisdictions and time periods but not in others. Even federally operated programs often operate on “local market” level, typically defined based on geography, and may differ significantly in terms of plan offerings, premiums, out-of-pocket costs, and covered
services. This project has two main aims. The first aim is to investigate the implications of eligibility rules for public health insurance on the number and characteristics of the population who gain or lose coverage, their healthcare utilization, and their health outcomes. The second aim of this project is to characterize heterogeneity in public health insurance eligibility, coverage utilization, and health outcomes across geographic regions. This project will use the 2000-2018 Healthcare Utilization Project (HCUP) State Inpatient Databases (SID) and State Emergency Department Data (SEDD). Given the ZIP Code of residence and/or hospitals, we may bring additional data about economic circumstances in the ZIP Code from the United States census, as well as information about local medical facilities from the American Hospital Association, Area Resource Files, and IQVIA physician information files. We may also use ZIP Code level data from Centers for Medicare and Medicaid Services (CMS) and MarketScan.

Zeynal Karaca, PhD, Janet Currie, PhD, Anna Chorniy, PhD, and Fred Rohde, MA

Multisystem Inflammatory Syndrome in Children Compared With Other Pediatric Hyperinflammatory Syndromes in the United States

Multisystem inflammatory syndrome in children (MIS-C) can occur weeks after SARS-CoV-2 infections, with life-threatening cardiac, respiratory, and circulatory complications. Our objective is to conduct a national comparison of MIS-C to other hyperinflammatory syndromes: Kawasaki disease (KD), toxic shock syndrome (TSS), macrophage activation syndrome (MAS), and hemophagocytic lymphohistiocytosis (HLH). This is an observational study of all U.S. pediatric hospitalizations in community hospitals from the Agency for Healthcare Research and Quality’s (AHRQ’s) 2016–2017 Healthcare Cost and Utilization Project (HCUP) State Inpatient Databases (SID), augmented with Centers for Disease Control and Prevention (CDC) 2020 MIS-C metadata from 53 sites from around the United States. A total of 14,072 KD, TSS, and HLH/MAS hospitalizations are compared with 186 MIS-C hospitalizations. Outcomes consist of 20 complications, including cardiac, respiratory, neurological, gastrointestinal, hematological, musculoskeletal, and renal complications. The 2020 SID will be used to compare MIS-C patients with pediatric COVID-19 patients, as well as to explore MIS-A (adult version). The COVID-19 county data are from The New York Times: https://github.com/nytimes/covid-19-data. CDC MIS-C data are not linked to the SID. The MIS-C data are national.

William Encinosa, PhD, Youssef Elias, MD, PhD (University of Illinois), and Jessica Figueroa, MPP (Johns Hopkins)

Patterns of Variation Through Time: A Seven-State Analysis of the Hospital Care Received by HIV Patients in 2014, 2017, 2018, and 2019

Data on all human immunodeficiency virus (HIV) related hospital admissions will be obtained from the State Inpatient Databases (SID) for California, Florida, Michigan, New Jersey, New York, Ohio, and South Carolina for 2014, 2017, 2018, and 2019. In addition, data on the number of people living with HIV in each State during a given year will be obtained from the Centers for Disease Control and Prevention 2019. Using these databases, this study compares the average number of hospitalizations per person living with HIV as well as the average cost for hospital care per person living with HIV. This study also compares the average length of stay for people with HIV and examines covariates in equations explaining the average cost of a hospital stay and the probability of dying during hospitalization.

Fred Hellinger, PhD

Persistence of Disparities in Latino and Black Hospitalizations Across COVID-19 Hot Spots

Black and Latino individuals are experiencing COVID-19 morbidity and mortality at rates that are more than twice those of White individuals. This has raised concerns about just how persistent healthcare disparities have existed long before the COVID-19 pandemic. In this work, we
examine all-cause Black and Latino (nonneonatal) hospitalizations across the COVID-19 hot spots prior to the COVID-19 pandemic in order to identify baseline disparities using the 2016–2017 Healthcare Cost and Utilization Project (HCUP) State Inpatient Databases (SID). In 2017, 20 percent of hospitalizations in COVID-19 hot spots versus 14 percent in non-hot spots were for Black patients. This finding tracks with the population rates for Black individuals in these areas: 19 percent versus 13 percent, respectively. However, this is not the case for Latino individuals. A total of 23 percent of hospitalizations in COVID-19 hot spots were for Latino patients, compared with 11 percent for non-hot spots. However, Latino individuals made up only 16 percent of the population in hot spots, compared with 19 percent in non-hot spots. Next, we compare these disparity rates with the 2020 HCUP SID during the COVID-19 pandemic to see how COVID-19 changed disparities in all-cause hospitalizations, within counties. We also examine hospitalization disparities by the top five diagnosis categories (e.g., mood disorders). In addition to hospitalization rates, we analyze the change in disparities for all-cause predicted severity and mortality indices. Next, we repeat this analysis for 2016–2017 influenza-like illness (ILI) versus 2020 COVID-19 hospitalizations. Influenza (and ILI) measures are from COVID-19 reports from MPR (2020) and Azar et al. (2020, Health Affairs, Sutter Health cases). ILI complications include pneumonia, myocarditis, encephalitis, myositis, rhabdomyolysis, sepsis, and respiratory and kidney failure. COVID-19 complications are coded from our multisystem inflammatory syndrome in children project. By comparing 2016–2017 with 2020, we hope to get a glimpse into the dynamics of racial disparities in hospital care and to tease out persistent disparities existing before the COVID-19 pandemic.

Some controls are county variables from the Health Resources and Services Administration’s Area Health Resources Files (toxic environment, Prevention Quality Indicators, etc.). We include some Centers for Medicare & Medicaid Services (CMS) Hospital Compare and Healthcare Cost Report Information System (CMS Cost Reports) controls, linked by hospital. The COVID-19 county data are from The New York Times: https://github.com/nytimes/covid-19-data.

William Encinosa, PhD, Didem Bernard, PhD, and Noelle Cornelio, MS (AHRQ fellow, University of Pittsburgh)

Severe Maternal Morbidity

Hospital discharge records remain a common data source for tracking severe maternal delivery hospitalizations. The transition to the International Classification of Diseases, Tenth Revision, Clinical Modification/Procedure Coding System (ICD-10-CM/PCS) from the Ninth Revision (ICD-9-CM) in October 2015 provided specificity in clinical coding. Understanding the impact of the transition to ICD-10-CM/PCS on the identification of severe maternal morbidity is essential to tracking cases and implementing prevention initiatives. Using the 2013–2018 State Inpatient Databases (SID), this project evaluates the impact of the coding transition on trends in severe maternal morbidity and details the rationale for changes in the algorithm to identify severe maternal morbidity cases.

Pamela L. Owens, PhD, Lawrence D. Reid, PhD, Ashley Hirai, PhD (HRSA), Elena Kuklina, MD (CDC), and Elliott Mann, MD (Stanford University)

The Heterogeneous Effects of Policy-Induced Health Insurance Coverage Transitions on Hospitalizations

In the United States, access to public and private health insurance coverage can vary by age. Currently, with a few exceptions, Medicare coverage is available to people who are aged 65 years or older, and private insurance dependent coverage ceases at age 26 years. Prior to the Affordable Care Act of 2010, for a large proportion of young adults, private insurance dependent coverage stopped at 19 for nonstudents and at 23 for students. Transitioning into or out of health insurance can lead to changes in the use of emergency and inpatient care. The purpose
of this project is to (1) explore the heterogeneous effect of age-based changes in health insurance coverage on emergency and inpatient care use by disease category, (2) understand the insurance and noninsurance drivers of changes in emergency and inpatient care use at age eligibility thresholds (19, 23, 26, and 65 years), and (3) estimate the effect of recent healthcare reforms on emergency and inpatient care use at age eligibility thresholds (19, 23, 26, and 65 years). The data are from the 2004–2018 Healthcare Cost and Utilization Project (HCUP) State Inpatient Databases (SID) and State Emergency Department Databases (SEDD). The U.S. population data obtained from the National Cancer Institute’s Surveillance, Epidemiology, and End Results (SEER) program will be merged at the county or ZIP Code level.

Asako Moriya, PhD, and Yaa Akosa Antwi, PhD (Johns Hopkins University)

The Potential Financial Impact of COVID-19 on Hospitalizations

During the COVID-19 Public Health Emergency in 2020, the Federal Government and various States and medical societies have called for the suspension of nonessential medical care at hospitals and ambulatory surgery centers as well as possible shifts of such care to offices, all to free up capacity, personal protective equipment, and medical staff to treat COVID-19. Using the 2016, 2017, and 2020 State Inpatient Databases (SID), we simulate the potential impact of this reduction in care on hospital revenues and operating margins across procedure groups, reporting nationally aggregated statistics. We report the drop in admissions by broad categories (elective, emergent, urgent, and births) between 2017 and 2020, stratified by race/ethnicity. We also subdivide the national statistics by COVID-19 hot spots and non-hot spots, based on county COVID-19 cases, as well as by hospital-level COVID-19 caseloads. We link COVID-19 county data to the Centers for Medicare & Medicaid Services Medicare Cost Report, which is then linked to the SID by hospital. The COVID-19 county data are from The New York Times: https://github.com/nytimes/covid-19-data. The 2017 Maryland State Ambulatory Surgery and Services Database (Sasd) will be used for exploratory work on elective outpatient procedure groupings.

William Encinosa, PhD, and Didem Bernard, PhD

The Sustainability of Rural Hospitals: Independent, Merged/Acquired, or Closed

The past few decades have seen substantial changes among rural hospitals. An increasing number of rural hospitals closed, whereas others became members of a healthcare system through merger or acquisition. Because these changes have significant implications for access to care and quality of care in rural areas, it is important to identify potential predisposing and enabling factors for these changes. In 2020, we used Healthcare Cost and Utilization Project (HCUP) data to examine the impact of rural hospital mergers on changes to service lines offered and quality of care. We found an association between rural hospital mergers and reduced provision of maternal/neonatal, behavioral health, and surgical services. Further, we found that in-hospital mortality rates decreased after mergers. In a parallel study, we examined the impact of rural hospital closure on quality of care. We found that, after closure, the distance traveled to the hospital increased, but there was no impact on quality of care received by the patients whose first closest hospital closed. These studies confirmed that rural hospital mergers and closures have implications for access to care and quality of care in rural communities. The proposed study will inform rural health policymakers and stakeholders of the risks associated with a change in the hospital market. We will use the HCUP State Inpatient Databases (SID) to track rural unaffiliated hospitals from 2007 through 2019. We will examine outcomes for these hospitals, including whether they closed, merged, transitioned to another type of healthcare facility, or remained independent. External data sources are linked at the hospital level and include hospital closure data from the Rural Health Research Program of the Cecil G. Sheps Center for Health Services Research at the University of North Carolina, hospital merger and acquisition data from Levin Irving Associates, rural ZIP Codes from the Federal Office of Rural
Health Policy, the America Hospital Association Annual Survey, the Area Health Resources Files, and the American Community Survey.

Lan Liang, PhD, H. Joanna Jiang, PhD, Rachel M. Henke, PhD, and Kathryn R. Fingar, PhD

Tracing Out the Short- and Long-Term Effects of Childhood Medicaid Coverage on Healthcare Utilization and Health: New Evidence From Healthcare Cost and Utilization Project Data

Prior research has documented long-term health improvements for children with exposure to Medicaid, including better self-reported health in adolescence, decreased mortality, fewer chronic health conditions, and fewer hospitalizations as young adults. However, little evidence exists on the timing of these improvements relative to the gain in insurance coverage, or the mechanisms behind these changes in health. In addition, there is no information on whether these health benefits persist over time or become larger at later ages.

This project aims to use the large library of intramural Healthcare Cost and Utilization Project (HCUP) data on inpatient and emergency department utilization to provide new evidence on the effects of childhood Medicaid coverage on healthcare utilization and health over the life course. It builds on prior work by the study team evaluating a large national expansion in Medicaid coverage for children in 1991. This expansion only applied to children born after September 30, 1983, creating a sharp increase in eligibility for childhood Medicaid coverage at this birthdate cutoff. Using quasi-experimental research methods, the authors document that this led to a sizable difference in Medicaid coverage at ages 8 to 14 for children born after this date compared to those born just before. They also find evidence of a decrease in mortality at later ages (ages 15 to 18) and a reduction in hospitalizations at age 25 among the children who gained Medicaid eligibility. This prior analysis used a sample of State Inpatient Databases (SID) and State Emergency Department Databases (SEDD) for 2009 available from the HCUP Central Distributor.

Using SID and SEDD data for all States and years with date of birth information available, the proposed project will extend this prior work by tracing out the effects of the gain in Medicaid eligibility at each age during the period of coverage gain (ages 8-14) and at later ages (ages 15-34). By examining changes in healthcare utilization at all ages, these analyses will provide valuable new information to further understand the long-term health effects of the 1991 Medicaid expansion. This project will also contribute to our broader understanding of the effects of health insurance on health.

Sandra L. Decker, PhD, Robert Kaestner, PhD, Bruce Meyer, PhD, Sarah Miller, PhD, and Laura Wherry, PhD

Where Are the Beds? Disparities in the Distribution of Hospital Capacity Across the United States

Using a near-census of U.S. hospital inpatient discharges (State Inpatient Databases [SID] 2017), data from the American Hospital Association Annual Survey, and data from the U.S. Census Bureau’s American Community Survey, we allocate hospital capacity across patient ZIP Codes using an innovative approach. We use this definition to examine the distribution of hospital capacity across the United States, including dimensions of capacity related to the treatment of COVID-19. Our objective is to offer insights into the social determinants of inpatient hospital care across age, income, race and ethnicity, and urbanicity. As of 2017, the distribution of hospital beds and of equipment relevant to COVID-19 treatment modestly favored non-Hispanic Black and lower income individuals, as well as those living in more rural areas. In contrast, the hospital capacity available to these groups was characterized by lower staffing,
lower expenditures per bed, less hospital capital, and poorer quality care across many, though not all, observable dimensions of care quality. People living in more rural areas also typically lived further from available hospital capacity. These capacity differences were large enough to be of interest from a broader public health perspective. With regard to the treatment of COVID-19 patients, the differences we observed likely had a smaller impact on mortality than did differences across socioeconomic lines with respect to infection rates and surges in the need for COVID-19 care.

Thomas Hegland, PhD, Pamela L. Owens, PhD, and Thomas Selden, PhD

Studies Using Nationwide Databases


Rates of preventable maternal mortality and morbidity continue to rise in the United States, and racial/ethnic minority women are disproportionately affected. Over- and underuse of health services are key drivers of poor obstetric outcomes. In recent years, there has been an increased focus on safely reducing the country’s high rates of non-medically indicated cesarean delivery. Despite new American College of Obstetricians and Gynecologists guidelines, revised hospital policies, and quality improvement initiatives, significant variations in these low-risk cesarean delivery (LRC) rates across hospitals and between sociodemographic groups persist. A recent National Center for Health Statics study of 2018 birth certificates noted large disparities in total and low-risk cesarean section rates between racial/ethnic groups, with non-Hispanic Black women suffering from both the highest rates and least reductions in LRC. Although prior studies have explored LRC variations and disparities using Healthcare Cost and Utilization Project (HCUP) data, this body of research is often limited to subsets of States and/or assesses disparities other than race/ethnicity. An up-to-date national analysis of racial/ethnic disparities in LRC rates at both the patient and hospital levels is warranted. Drawing on data from the 2016 HCUP National Inpatient Sample (NIS), the objectives of the current study are to (1) provide a nationally representative estimate of the 2016 LRC rate and (2) assess the extent to which race/ethnicity is independently associated with LRC delivery after adjusting for characteristics at the patient and hospital levels.

Camille Fabiyi, PhD, MPH, Glenna Urquhart, MPH, and Kamila Mistry, PhD, MPH

USING HCUP DATA IN CONJUNCTION WITH OTHER DATA SOURCES

To enhance the value of the Healthcare Cost and Utilization Project (HCUP) data as a research tool, AHRQ supplements the HCUP databases with information about hospital and community characteristics obtained from Partner-approved and other external sources. AHRQ conducts this data augmentation for three reasons: (1) to supplement information available to AHRQ intramural researchers and their contractors on specific, approved research projects; (2) to create derivative data elements for the externally released State and Nationwide Databases; and (3) to add supplementary data elements for the externally released State and Nationwide Databases. These types of linkages leverage other data sources, thus increasing the value of HCUP data for research.

The following descriptions provide a sample of the protocols used to link HCUP data to other data files.

Agency for Healthcare Research and Quality Social Determinants of Health

The Agency for Healthcare Research and Quality (AHRQ) Social Determinants of Health (SDOH) data files are curated from existing federal datasets and other publicly available data sources. The purpose of these files is to make it easier to find a range of well documented,
readily linkable SDOH variables across domains without having to access multiple source files, facilitating SDOH research and analysis. The SDOH beta data files are a starting point to inform additional work AHRQ is undertaking to develop SDOH data.

**American Community Survey**

The U.S. Census Bureau's American Community Survey is linked to HCUP data by ZIP Code information to obtain population estimates in a given ZIP Code by insurance status and federal poverty level.

**American Hospital Association**

Annual linkage of the American Hospital Association (AHA) Annual Survey of Hospitals Database to HCUP data is necessary for the creation of the HCUP databases. HCUP uses the AHA data for three principal purposes: (1) to obtain characteristics of the hospitals for intramural research; (2) to add hospital characteristics to restricted-access, public release data; and (3) to sample and weight hospital discharges for the NIS, NEDS, NRD, and KID.

1. HCUP develops a separate AHA file for intramural research that contains basic institutional characteristics such as size, ownership, teaching status, location, utilization, finance, and personnel. A “crosswalk” file is developed to link the State’s hospital identifier to the AHA identifier, which also links the HCUP and AHA data sets. This linkage of supplemental hospital characteristics to HCUP databases greatly enriches the discharge data for intramural research at AHRQ.

2. HCUP adds hospital information from the AHA Annual Survey Database to the NIS, KID, NEDS, and NRD. Hospital identifiers have never been included in the NEDS or NRD, but prior to 2012 data when permitted by the data organizations, the NIS and KID included the AHA hospital identifier, hospital name, and address. Beginning with 2012 data, hospital identifiers, name, and address are no longer included in the NIS or KID. AHA hospital identifiers are included on the Central Distributor State Databases when permitted by the data organizations. Use of the data for approved research purposes is permitted, such as linking to other institutional information from non-HCUP data sets for analysis and aggregate statistical reporting. However, users of any HCUP data are prohibited from identifying individual facilities directly or by inference in disseminated material. This restriction is listed in all HCUP Data Use Agreements (DUAs). In addition, users of the data must not contact establishments directly concerning data in the HCUP databases.

3. HCUP creates the NIS, KID, and NRD sampling frames from all community, nonrehabilitation hospitals in the SID. The NEDS sampling frame includes hospital-owned emergency departments (EDs) for which both SEDD and SID data are available. Information on hospital characteristics was provided in the AHA Annual Survey Database. To obtain national estimates, HCUP develops discharge weights using information from the AHA Annual Survey of Hospitals Database. Beginning with 2012 data, the NIS contains a sample of approximately 20 percent of inpatient discharges from all community, nonrehabilitation hospitals participating in HCUP. The NEDS contains all emergency department visits from a stratified sample representing 20 percent of hospital-owned EDs in U.S. community, nonrehabilitation hospitals. The NRD contains a sample of discharges for patients treated at community nonrehabilitation hospitals in States where verified patient linkage numbers are available.

The AHA’s Hospital Information Technology Database is a supplement to the American Hospital Association (AHA) Annual Survey of Hospitals. The AHA Annual Survey IT Database, formerly
called the Hospital Electronic Health Record (EHR) Adoption Database, contains current information on healthcare technology adoption and indicators in response to the Health Information Technology for Economic and Clinical Health (HITECH) Act in terms of clinical documentation, lab reports and test results, computerized provider order entry, and decision support and bar coding. The database also pinpoints where in the hospital these functions are implemented. These data can be linked to the HCUP databases by the AHA hospital identifier. The results help users understand the capabilities of the hospitals’ EHR systems, and they reveal the major and minor barriers to implementation. The databases include only those hospitals that respond to the supplemental information technology survey.

The AHA Survey of Care Systems and Payment is a supplement to the AHA Annual Survey of Hospitals Database. All U.S. community hospitals are invited to participate in the Survey. In addition, responses are gathered from non-hospital organizations, such as payers. This database allows hospitals and researchers to track and monitor the evolution of new systems of care, including Accountable Care Organizations, Patient-Centered Medical Homes, clinically integrated networks, and other systems innovations. These data can be linked to the HCUP databases by the AHA hospital identifier. Databases enhanced with this information facilitates research on a variety of policy-relevant issues such as: identifying which types of hospitals are engaged in new care models; ascertaining current and expected payment structures; understanding current care coordination models; and recognizing risk arrangements, governance, and physician arrangements.

**Association of Statisticians of American Religious Bodies U.S. Religion Census (ASARB)**

The U.S. Religion Census reports the number of congregations in every U.S. county equivalent for each of 236 faith groups. Each participating religious body supplies the number of churches, full members, adherents, and attendees for each county. U.S. Religion Census collects data on the number of congregations, members, adherents, and attendees. Not all groups collect or report all items. A variety of county-level factors are examined, including affiliation with a religious congregation.

**Bureau of Economic Analysis (BEA)**

Bureau of Economic Analysis (BEA) Gross Domestic Product (GDP) deflator data is used to adjust HCUP cost data for inflation. The GDP deflator is a measure of the level of prices of all new, domestically produced, final goods and services in an economy. GDP is the total value of all final goods and services produced within that economy during a specified period.

**Bureau of Labor Statistics (BLS)**

The Bureau of Labor Statistics (BLS) of the U.S. Department of Labor is the principal federal agency responsible for measuring labor market activity, working conditions, and price changes in the economy. The BLS is used in conjunction with HCUP data to determine unemployment rates for a given area and to convert annual cost and charge estimates from earlier years.

**Centers for Disease Control and Prevention (CDC)**

*CDC WONDER website*. Bridged-Race Population Estimates are produced by the U.S. Census Bureau in collaboration with the National Center for Health Statistics (NCHS) and released by NCHS. The WONDER data bridges 31 race categories accounted for in the 2000 Census down to the four race categories in the 1977 Census. These population estimates are used to calculate rates with HCUP NIS race variables.
**The CDC U.S. Prescribing Rate and Overdose Maps.** These maps are used to examine county-level retail opioid prescriptions dispensed per 100 persons. These maps and a variety of other variables from the CDC WONDER Multiple Cause of Death, Local Health Department (LHD) such as substance abuse treatment services, increased tobacco, alcohol or other drug prevention, and population-based primary prevention activities related to substance abuse or mental illness are used at the county level.

**CDC Diabetes County Data Indicators.** The County Data application allows views of data and trends of diagnosed diabetes, obesity, and leisure-time physical inactivity at the national, State, and county levels. Information includes: 1) State and county-level data in the United States, 2) data on how counties compare with each other, and 3) maps and motion charts to examine how changes in diabetes coincide with changes in obesity over time and by location.

**CDC Grant Funding Profiles.** This website provides interactive data and summaries of CDC cooperative agreement and grant funding to recipients in U.S. States and territories, and the District of Columbia, starting with fiscal year (FY) 2010. The data allows users to analyze funding data by funding opportunity announcement, funding source (CDC funding category and sub-category), geography, and recipient name and type.

**Census Bureau**

**Census Bureau’s American Community Survey (ACS) Tables.** The ACS is a nationwide survey designed to provide communities a look at how they are changing. It is a critical element in the Census Bureau's decennial census program. The ACS provides single-year and multi-year estimates on several important factors, such as age, sex, race, insurance status, and households. Information is available at several geographic levels, including national, regional, State, county, and census tract.

**Census County Business Patterns (CBP).** CBP is an annual series that provides subnational economic data by industry. Statistics are available on business establishments at the U.S. level and by State, County, Metropolitan area, ZIP Code, and Congressional District Levels. Data for Puerto Rico and the Island Areas are available at the State and county equivalent levels. Data for establishments are presented by geographic area, 6-digit North American Industry Classification System (NAICS) industry, legal form of organization (U.S. and State only), and employment size class. The data may be linked to HCUP data at the State, county, metropolitan area, or ZIP Code level.

**Small Area Health Insurance Estimates for Counties and States.** Census Bureau Small Area Health Insurance Estimates (SAHIE) produces and disseminates model-based estimates of health insurance coverage for counties and States. SAHIE data are included in the study of the relationship between Medicare Advantage enrollment rates and overall utilization (e.g., hospital admission and readmission rates, types of hospitalizations, and associated costs).

**Housing and Urban Development (HUD) Comprehensive Housing Affordability Strategy (CHAS) Data**

The Department of Housing and Urban Development (HUD) receives custom tabulations of American Community Survey (ACS) data from the U.S. Census Bureau, which is based on five-year averages. These data, known as the CHAS data set, provide information on the extent of housing problems and housing needs, particularly for low income households. Information is available at the State, county, census tract, and smaller sub-division levels.
The HUD Annual Homeless Assessment Report to Congress (AHAR) provides Point-in-Time (PIT) estimates, offering a snapshot of homelessness—both sheltered and unsheltered—on a single night. The one-night counts are conducted in late January of each year. The PIT counts also provide an estimate of the number of people experiencing homelessness within particular populations, such as people with chronic patterns of homelessness, veterans experiencing homelessness, and people under the age of 25 who are experiencing homelessness on their own, not in company of their parent or guardian. In addition, the AHAR includes demographic characteristics for all people experiencing homelessness, people experiencing homelessness in households without children, people in families with children, and veterans experiencing homelessness. National estimates, State estimates, and estimates for “Continuums of Care” with the highest and lowest rates of homelessness are provided.

**KIDS COUNT Child Well-Being Index**

KIDS COUNT is a project of the Annie E. Casey Foundation and a source of data on children and families. Each year, the KIDS COUNT Data Book assesses child well-being in the United States. A variety of county-level factors, including pharmacy density are examined.

**Centers for Medicare & Medicaid Services (CMS)**

*Medicare Cost Reports (Healthcare Cost Report Information System (HCRIS)).* Using hospital identifiers, AHRQ links the cost information obtained from the Centers for Medicare & Medicaid Services (CMS) Hospital Cost Report data files, which are collected by CMS, to the intramural HCUP data to create the annual HCUP Cost-to-Charge Ratio Files (CCR Files). The HCUP CCR Files are hospital-level files that enable the conversion of charges into costs for nearly every hospital in the corresponding NIS, SID, NEDS, SEDD, NRD, or KID.

*Hospital Compare.* The CMS Hospital Compare tool provides information about the quality of care for over 4,000 Medicare-certified hospitals in the United States. Using the tool, AHRQ examines the role of various hospital factors, such as nurse-to-patient ratio and surgical quality, on racial and ethnic disparities in in-hospital postsurgical complications identified in HCUP data.

*County-level and Hospital-level Information.* For certain research projects, AHRQ links county-level and hospital-level information obtained from CMS to the HCUP data. County-level databases contain such information as the number of beneficiaries in the county, the number of beneficiaries by type of plan coverage, and the area wage index. These data are linked to the discharge files using the patient’s or hospital’s county. Hospital-level files maintained by CMS include the Medicare Cost Reports, area wage index, and case-mix index. These data are linked using the hospital identifier. The State’s hospital identifier is cross walked to the identifier on the AHA Annual Survey of Hospitals Database, which contains the Medicare hospital identifier.

*Hospital Service Area File.* The CMS Medicare Hospital Service Area File (HSAF) is used for the community-level statistics initiative to estimate the impact of missing hospitals on HCUP community-level statistics. The HSAF identifies counties with incomplete data. It provides the universe of Medicare discharges in the United States and contains the patient’s residential ZIP Code, Medicare provider identification number (ID), and a sum of patient discharges, days, and charges for all Medicare patients. Capture rates computed from the HSAF and SID allows HCUP to examine several thresholds for suppression of county information that is due to missing hospitals in the SID.
The CMS Denominator File. CMS County to Core Based Statistical Area (CBSA) Crosswalk, CMS Medicare Provider Analysis and Review (MedPAR) Hospital File, and the CMS National Physician Fee Schedule Relative Value File data sources are used in HCUP studies.

CMS Medicare Opioid Prescribing Map Tool. This interactive tool shows geographic comparisons, at the State, county, and ZIP Code levels, of de-identified Medicare Part D opioid prescription claims – prescriptions written and then submitted to be filled – within the United States. The mapping tool presents Medicare Part D opioid prescribing rates for 2015 as well as the change in opioid prescribing rates from 2013 to 2015.

Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) Survey. HCAHPS patient survey responses at U.S. hospitals are aggregated for each hospital and reported publicly by the Centers for Medicare & Medicaid Services (CMS) on their Hospital Compare website starting March 2008. AHRQ links these data with hospital-level characteristics to control for patients’ perceptions of the quality of hospitals. In these studies, AHRQ typically “controls” for the percent of patients that replied in a certain way to a particular question or group of questions by entering hospital percentages as they vary across time and hospitals in a regression model.

National Plan and Provider Enumeration System (NPPES) The Centers for Medicare & Medicaid Services (CMS) developed the National Plan and Provider Enumeration System (NPPES) to assign unique identifiers to healthcare providers and health plans who apply for the National Provider Identifier (NPI). NPIs are being used across the healthcare industry and government healthcare programs. Computer systems that serve providers, healthcare plans, Medicare and Medicaid are the target users of these NPIs. NPPES contains information that is used to uniquely identify the healthcare provider and health plan.

Children’s Hospital Association (formerly National Association of Children’s Hospitals and Related Institutions) During the construction of the KID, the American Hospital Association (AHA) hospital identifier is used to link this database to a list of children’s hospitals provided to AHRQ by the Children’s Hospital Association. The Children’s Hospital Association data are used to help identify children’s hospitals and to determine the teaching status of these facilities.

Compendium of United States (U.S.) Health Systems The Compendium of U.S. Health Systems is a data resource for AHRQ’s Comparative Health System Performance Initiative. It includes information on U.S. health systems such as system identification number (a unique number assigned by AHRQ), name, home office city, and State; and total counts of system hospitals in multiple States, total acute care beds, discharges, and residents.

Council for Community and Economic Research Cost of Living Index The Cost of Living Index (COLI) is the most reliable source of city-to-city comparisons of key consumer costs available since 1968. The Council for Community and Economic Research (C2ER) collects and compares COLI data on more than 300 U.S. cities in order to publish COLI on a quarterly basis. Both data and methodology are reviewed by an Advisory Board composed of academic researchers and government.
County Health Rankings Health Status Determinants

The annual County Health Rankings measure vital health factors, including high school graduation rates, obesity, smoking, unemployment, access to healthy foods, the quality of air and water, income inequality, and teen births in nearly every county in America. The annual Rankings provide a snapshot of how health is influenced by where individuals live, learn, work and play.

Dartmouth Atlas of Care – Hospital Market Definitions (Hospital Service Area)

AHRQ uses the Hospital Market Definitions (Hospital Service Area) from Dartmouth Atlas of Health Care to compare hospital markets. This information helps map geographic areas to hospital markets to determine which ZIP variables are most appropriate to use when using the HCUP data.

Decision Resources Group (DRG) Managed Market Surveyor (formerly HealthLeaders–Interstudy Managed Market Surveyor County Database)

The Managed Market Surveyor Database contains State, county-level, and Metropolitan Statistical Area (MSA) enrollment in managed care plans, including health maintenance organization (HMO) and preferred provider organization (PPO) penetration. For specific projects, AHRQ links this database to HCUP data at the county level on the basis of the hospital’s location.

Environmental Files

AHRQ links county-level data to HCUP county-level hospitalization and emergency department data using three external data sets: (1) weather station data maintained by the National Oceanic and Atmospheric Administration (NOAA); (2) modeled data covering the entire county from the North American Land Data Assimilation System (NLDAS), which is obtained from the National Aeronautics and Space Administration (NASA); (3) disaster declaration information from the Federal Emergency Management Agency (FEMA).

The Aerometric Information Retrieval System (AIRS) is the largest database documenting air pollutant concentrations across the country. This database is maintained by the United States Environmental Protection Agency (EPA). For some research projects, AHRQ links nationwide air pollutant data from the AIRS to HCUP nationwide hospitalization data using admission data and patient ZIP Code.

HCUP Supplemental Files

AHRQ releases two hospital-level HCUP Supplemental Files based on external data that are designed to augment the data elements in the National Inpatient Sample (NIS), Kids’ Inpatient Database (KID), Nationwide Readmissions Database (NRD), and State Inpatient Databases (SID).

The HCUP Cost-to-Charge Ratio Files (CCR Files) provide a conversion between the total charge information (representing the amount hospitals billed for services) and the cost for hospital services. CCR File measures, which are developed using Centers for Medicare & Medicaid Services (CMS) Hospital Cost Report data, are available at the hospital level for inpatient and emergency department records.

The HCUP Hospital Market Structure Files (HMS Files) contain various measures of hospital market competition. These measures are available at the hospital level and are developed using data from the American Hospital Association (AHA) Annual Survey of Hospitals Database,
Area Health Resource File (AHRF), linkage to urban/rural indicators, and ZIP Code data based on longitude and latitude for calculations of distance and travel times. Data for a State’s hospitals are included in the CCR and HMS Files at the discretion of the participating data organization. Beginning with 2012 data, the HMS Files are no longer linkable to the national inpatient databases – the NIS and KID files. HMS Files are not available for the NRD.

**Healthcare Information and Management Systems Society (HIMSS) Analytics® Database**

The HIMSS Analytics® Database provides information on health information technology (IT) adoption. HIMSS Analytics, a subsidiary of the Healthcare Information and Management Systems Society, annually surveys a sample of U.S. non-Federal hospitals affiliated with integrated healthcare delivery systems (IHDSs). The HIMSS data include information about the extent of electronic medical records functionality, which is reflected in a score from 0 to 7. This database is used with the HCUP SID and SEDD to track Health Information Exchanges and other information technology variables.

**Health Care Services Acquisition Report**

The Health Care Services Acquisition Report, created and maintained by Irving Levin Associates, provides additional information on integration events between hospitals and physician groups. Levin analyzes key information such as price, revenue, target, acquirer, price per bed per unit, and income multiples when available.

**Health Resources and Services Administration (HRSA) Products**

The Area Health Resource File (AHRF) is a publicly available database developed by the Health Resources and Services Administration (HRSA) Bureau of Health Professions. The AHRF contains county-level statistics on healthcare professions, hospitals and healthcare facilities, and population and environmental classifications. The AHRF county-level data can be linked to the HCUP databases to provide additional information such as demographic data on the hospital’s county or patient’s county of residence. The AHRF is not part of the HCUP databases; researchers are required to obtain the AHRF separately.

The HRSA Data Warehouse (HDW) integrates data with various external sources, enabling researchers to collect relevant and meaningful information on healthcare programs and the associated populations they serve. For some research projects, AHRQ links primary care service area (PCSA) data from the HDW—which contains nationwide data on U.S. primary healthcare resources, populations, and utilizations—with patient PCSA-level data in the HCUP SID.

**Inter-University Consortium for Political and Social Research (ICPSR) Uniform Crime Reporting (UCR) Program Data**

Each year, participating law enforcement agencies contribute crime reports to the Federal Bureau of Investigation (FBI) either directly or through their State reporting programs. ICPSR archives the UCR data as five separate components: (1) summary data, (2) county-level data, (3) incident-level data (National Incident-Based Reporting System [NIBRS]), (4) hate crime data, and (5) various, mostly nonrecurring, data collections. Summary data are reported in four types of files: (a) Offenses Known and Clearances by Arrest, (b) Property Stolen and Recovered, (c) Supplementary Homicide Reports (SHR), and (d) Police Employee (LEOKA) Data (Law Enforcement Officers Killed or Assaulted). The county-level data provide counts of arrests and offenses aggregated to the county level. County populations are also reported. These data may be linked to HCUP data at the State or county level.
IQVIA Institute for Human Data Science Report: Use of Opioid Recovery Medications

The IQVIA Institute for Human Data Science contributes to the advancement of human health globally through timely research, analysis and scientific expertise applied to granular non-identified patient-level data. Several State-level policy variables from the Institute are examined including out of pocket share of buprenorphine prescription payments.

Kaiser Family Foundation Website

The Kaiser Family Foundation website contains Medicaid program information by State and was used in conjunction with HCUP and other data sources to estimate changes in hospital inpatient and emergency department utilization rates, cost, and acuity by payer.

State Health Facts provides health data for all 50 States, the District of Columbia, and the United States. In some cases, data are available for counties, territories, and other geographies. State Health Facts is comprised of more than 800 health indicators and provides users with the ability to map, rank, trend, and download data. Data come from a variety of public and private sources, including Kaiser Family Foundation reports, public websites, government surveys and reports, and private organizations.

Medicare Patient Safety Monitoring System

For certain research projects, AHRQ enhances the analytical capabilities of HCUP by linking to the Medicare Patient Safety Monitoring System (MPSMS). MPSMS is a national surveillance project aimed at identifying the rates of specific adverse events that occur in the hospital for Medicare patients. MPSMS includes a subset of hospitals participating in the Medicare Hospital Payment Monitoring Program with chart abstraction of randomly selected, all-payer adult discharges. MPSMS is a de-identified, record-level database that includes information abstracted about the patient’s stay in the hospital, including healthcare associated injury or harm. MPSMS hospital level information can be linked to the HCUP data to provide a more robust understanding of the frequency and epidemiology of healthcare associated injury or harm for the inpatient population. The MPSMS hospital identifier must first be linked to the Centers for Medicare & Medicaid Services (CMS) Provider of Services (POS) file, which then can be cross walked to the identifier on the American Hospital Association (AHA) Annual Survey Databases and then linked to HCUP. Individual records can be linked using a probabilistic approach; linking does not identify patients because both HCUP data and the MPSMS are de-identified databases.

Merchant Medicine

Merchant Medicine is a research and consulting firm specializing in the field of walk-in medicine, tracks the location of all retail clinics in the United States on an ongoing basis in an effort to inform businesses specializing in walk-in medicine. These data include the dates of opening and closing and geocoded addresses of all retail clinics in the United States. These data can be linked to HCUP databases at the ZIP Code level by calculating the percentage of emergency department (ED) catchment areas (ZIP Codes that accounted for three-quarters of all ED visits for low-acuity conditions in the pre-study period) that overlapped with the geographic area within a 10-minute drive from a retail clinic.

National Association of County & City Health Officials (NACCHO) Local Health Department Profiles

The National Association of County and City Health Officials (NACCHO) regularly conducts two surveys to assess local health department (LHD) infrastructure and activities over time. The
National Profile of Local Health Departments (commonly referred to as “the Profile study”) represents the largest, most reliable source of data on LHDs and collects information on LHD infrastructure, workforce, finance, governance, activities, and services. The Forces of Change surveys assess the impact of a variety of trends affecting change in LHDs, including health reform, economic factors, and accreditation.

**National Alliance for Model State Drug Laws (NAMSDL) Pain Management and Prescribing Practices**

NAMSDL provides an overview regarding State statutes, regulations, and guidelines related to the treatment of chronic pain and prescribing practices; information related to the regulation of pain clinics and facilities with a focus on the treatment of pain. Several State-level policy variables including pain management prescribing restrictions are examined.

**National Cancer Institute**

The National Institutes of Health’s National Cancer Institute provides a table of incidence statistics for use in assessing the burden and risk for a major cancer site for the U.S. overall and for States with cancer registries whose data have met the criteria required for inclusion in the U.S. Cancer Statistics External Web Site Policy. The 95 percent confidence intervals for the rates provide a measure of how certain or uncertain the point estimate is and can be used to generally assess how different one rate is from another. The Institute also provides information on cancer statistics via its Surveillance, Epidemiology, and End Results (SEER) Program. Statistical summaries for a number of common cancer types as well as mortality, prevalence, and lifetime risk statistics are available through the SEER Program.

**Penn State Northeast Regional Center for Rural Development Social Capital Index**

Composite index of social capital based on total associations (i.e. religious organizations, civic and social associations, business associations, political organizations, professional organizations, labor organizations, bowling centers, sports and fitness centers, country clubs, sports teams) per 1,000 population in 2014, 2012 voter turnout, 2010 census response rate, and number of non-profit organizations without an international approach in 2014.

**Prescription Drug Abuse Policy System (PDAPS)**

PDAPS is developed by Legal Science, LLC, in collaboration with legal experts at Temple University’s Center for Health Law, Policy and Practice. PDAPS tracks key State laws related to prescription drug abuse. Several State-level policy variables including prescription drug monitoring program policies and naloxone availability policies are examined.

**QuintilesIMS Outpatient Surgery Centers Profiling Solution**

For certain intramural research projects, AHRQ may link facility-level data from the Outpatient Surgery Centers Profiling Solution database (formerly called SDI Freestanding Outpatient Surgery Center (FOSC) database) to freestanding ambulatory surgery data in the HCUP SASD. The Outpatient Surgery Centers Profiling Solution, created by SDI (now QuintilesIMS), contains facility-level data on free-standing ambulatory care centers in the United States. Data include operational characteristics (e.g., number of operating rooms, number of physicians), surgical characteristics (e.g., types and number of surgeries performed), purchasing patterns, facility name and address, and personnel information.
SK&A Data Products

QuintilesIMS' SK&A Data Products provides the largest telephone-verified national dataset of 7 million profiles of healthcare providers and over 1 million profiles of healthcare organizations. The profiles include detail characteristics about individual providers and organizations, such as affiliations with health systems and Accountable Care Organizations. This supplemental database allows for analyses to understand how organizational structures and market forces influence the delivery, costs, and quality of healthcare.

State Board of Medical Examiners Physician Data

In order to understand physician practice styles for specific research, AHRQ links the HCUP SID to State-specific Board of Medical Examiners physician data in order to create files for analysis. AHRQ contacted and received permission from select State Partners to conduct this study.

Substance Abuse and Mental Health Services Administration (SAMHSA)

The SAMHSA Buprenorphine Treatment Locator tool allows examination of a variety of county-level factors related to buprenorphine treatment provider availability. The Behavioral Health Treatment Services Locator is an online source of information for persons seeking treatment facilities in the United States or U.S. Territories for substance abuse/addiction and/or mental health problems.

Substance Use Files

AHRQ uses State-level data sources to obtain information about the status of Medicaid medication-assisted treatment (MAT) policies: (1) The American Society of Addiction Medicine article regarding access to addiction medications and implications for opioid addiction treatment; and (2) preferred drug lists from the Florida and Georgia Medicaid Comprehensive Preferred Drug Lists. Several State-level data sources from the LawAtlas Project were also used to obtain information about implementation dates for naloxone standing orders and Good Samaritan Laws.

amtAR Opioid & Health Indicators Database. The database contains the total number of drug seizures that were tested by forensic laboratories and reported to contain fentanyl to the Drug Enforcement Agency’s (DEA) National Forensic Laboratory Information System (NFLIS) in a calendar year. The NFLIS collects drug chemistry analysis results, as well as other related information, from cases analyzed by State, local and federal forensic laboratories. These laboratories analyze substances secured in law enforcement operations across the country. Several State-level policy variables including law enforcement seizures of fentanyl are examined.

Substance Use-Related Data Sources

- The CDC U.S. Prescribing Rate and Overdose Maps
- CMS Medicare Opioid Prescribing Map Tool
- IQVIA Institute for Human Data Science Report: Use of Opioid Recovery Medications
- Prescription Drug Abuse Policy System (PDAPS)
- Substance Abuse and Mental Health Services Administration (SAMHSA)
➢ The American Society of Addiction Medicine
➢ Florida and Georgia Medicaid Comprehensive Preferred Drug Lists
➢ LawAtlas Project
➢ amfAR Opioid & Health Indicators Database

Surescripts
Surescripts®, an e-prescribing network, links to the HCUP data by geographical market, or Hospital Referral Region (HRR). Surescripts is an e-prescription network used by the majority of all community pharmacies in the U.S. routing prescriptions, excluding closed systems such as Kaiser Permanente. This includes chain, franchise, and independently owned pharmacies. Surescripts network data exclude controlled substances.

Trauma Information Exchange Program (TIEP)
For certain intramural research projects, AHRQ may link hospital-level data from the Trauma Information Exchange Program (TIEP) to the HCUP SEDD and SID. The TIEP data are maintained by the American Trauma Society and the Johns Hopkins Center for Injury Research and Policy, which receive funding from the CDC. The database maintains a national inventory of trauma centers in the United States and designates the trauma level (I, II, III, IV, or V). Trauma-level data are also used for the NEDS as one of the sample selection criteria and for post-stratification for weighting.

Urban/Rural Indicators
AHRQ also links files in the HCUP data that provide measures of the urban character or rural character of the patient’s residence or hospital’s location. This information includes the county-based Core-Based Statistical Area (CBSA), Urban Influence Code, and the Rural Urban Continuum Code. These codes are available through files maintained by the U.S. Department of Agriculture, the Census Bureau, and the Health Resources and Services Administration (HRSA). Linkages to these files are made using the patient’s county or hospital’s county. Another urban/rural measure has been developed through linkage to the ZIP Code-based Rural Urban Commuting Area (RUCA) codes available from the Washington, Wyoming, Alaska, Montana, Idaho (WWAMI) Rural Health Research Center. This linkage is made using the patient’s ZIP Code of residence or the hospital’s ZIP Code.

HCUP creates a version of the urban/rural codes through linkage to National Center for Health Statistics (NCHS) data available from the Centers for Disease Control and Prevention (CDC). The NCHS provides county-level classifications of urban/rural location, which includes gradations of metropolitan, micropolitan, and noncore counties by population size. Population counts from the ZIP Code-level Claritas files are assigned to a county and then aggregated to the NCHS urban/rural designation. Both patient and hospital locations are reported by NCHS designation.

Any patient ZIP Code linkage would conform to Partner and Data Use Agreement (DUA) restrictions.

HCUP uses the Sheps Center (University of North Carolina) North Carolina Rural Health Research Program to track rural hospital closures. The North Carolina Rural Health Research Program has been studying rural hospital closures since the 1980s and began tracking closures in 2013 (from 2005 to present). Rural hospital closures are defined as rural hospitals (including
all Critical Access Hospitals) that close their inpatient service or move their services fifteen or more miles away from the current location.

HCUP uses the Federal Office of Rural Health Policy (FORHP) data to match the ZIP Code of hospital to determine rurality. FORHP has created a crosswalk of ZIP Codes identifying the set of Non-Metro Counties and rural Census Tracts (CTs) that comprise rural areas as defined by FORHP.

ZIP Code-Based and County-Based Census Data

For database development and specific research, AHRQ links data from the U.S. Census to the HCUP intramural data to obtain additional characteristics of the patient’s community, such as the demographics, the urban or rural character, and the longitude and latitude for calculations of distance and travel times. AHRQ frequently uses the population ZIP Code-level counts from Demographic Update Files provided by Claritas (a vendor that compiles and adds values to the U.S. Bureau of Census data).

During construction of the HCUP State Databases, AHRQ uses the patient’s ZIP Code to link to the ZIP Code-based Claritas data to create two derived data elements representing median income categories for the patient’s ZIP Code. One data element is based on the distribution of the U.S. population; the other data element is based on the distribution of the population in the State. For each variable, the four median income categories are designed to be broad enough to protect patient confidentiality. Ultimately, no category contains fewer than two ZIP Codes in a State. The data element with the national income quartiles is included on the restricted-access, public release NIS, KID, NEDS, and NRD. ZIP Code-based and county-based census data cannot be linked to the restricted-access public release NIS, KID, NEDS, and NRD because neither the ZIP Code or county of the patient or hospital are included in the databases (as of 2012 data).

The U.S. Census Bureau’s ZIP Code Tabulation Area (ZCTA) is used with HCUP data for population counts of people who self-pay or are billed as “no charge” for studies that require ZIP Code information.

HCUP Statistics Provided to Agencies

Federal and other agencies rely on AHRQ for statistics to fulfill some of their program data needs. These are usually recurring, annual requests. The table below lists the agencies to which AHRQ provided statistics in 2020, what they are used for and the statistics provided.

<table>
<thead>
<tr>
<th>HCUP Statistics Routinely Provided to Federal Agencies</th>
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<tbody>
<tr>
<td><strong>Agency</strong></td>
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<tr>
<td>Assistant Secretary for Planning and Evaluation (ASPE)/DHHS</td>
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</table>
| Center for Medicare & Medicaid Services (CMS) | Partnership for Patients (PfP) | • National benchmark for readmissions to U.S. community hospitals, so that clinicians and policy makers can accurately measure improvements in the rate of readmissions for patients as interventions are implemented under the PfP  
• National estimate for readmissions of all conditions combined, as well as the rate of readmissions for specific conditions  
• Several of the measures in support of the PfP healthcare associated condition initiative including the maternal safety indicator |
| Centers for Disease Control and Prevention (CDC)/National Center for Health Statistics (NCHS) | Healthy People 2030 | • Rate of hospitalization per 100,000 population for pressure ulcers, falls, selected Prevention Quality Indicators (PQIs), diabetes, and urinary tract infections for Healthy People 2030 monitoring  
• The statistics are based on HCUP NIS and NEDS and are provided by age, gender, urban/rural residence. |
<table>
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<tr>
<th>Agency</th>
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</tr>
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<tbody>
<tr>
<td>Health Resources and Services Administration (HRSA)/Maternal and Child Health, (DHHS)</td>
<td>Emergency Medical Services for Children (EMSC) program</td>
<td>• National estimates of trends in the number of severely injured children treated in acute care settings, where the treatments are occurring (e.g., Level I/II trauma centers, Level III trauma centers, non-trauma centers), and the associated outcomes</td>
</tr>
</tbody>
</table>
| Health Resources and Services Administration (HRSA) /Maternal and Child Health, (DHHS) | Create benchmarks for performance and outcome measures for Maternal & Child Health (MCH) Title V block grants to States | • Estimates of national performance measures:  
• Rates of hospital admission for injuries for children  
• Rates of childbirth hospitalizations with an indication of severe maternal morbidity (e.g. heart or kidney failure, stroke, embolism, hemorrhage)  
• Rates of newborn infants diagnosed with neonatal abstinence syndrome |
| Intergovernmental and External Affairs (IEA), DHHS | Maternal Health Statistics | • Average length of stay and mortality for deliveries and severe maternal morbidity based on the 2017 HCUP National Inpatient Sample (NIS) and State Inpatient Databases (SID). |
| Office of the Assistant Secretary of Health, DHHS | Longitudinal evaluation of the DHHS Action Plan to prevent Healthcare-Associated Infections (HAIs) | • Estimates of hospitalizations for community acquired and hospital acquired Clostridium difficile infection for the National Action Plan, to track its success in preventing Healthcare-Associated Infections (HAIs)  
• Provide independent baseline of infection rates for the six HAIs for inpatient hospitals at the State, regional, and national levels intended to complement the baseline being generated as part of the DHHS Action Plan. |
| Office of the Secretary (OS)/DHHS | Maternal Health Action Plan | • Trends in C-Sections and Low-Risk C-Sections  
• State Variation in Maternal Conditions  
• Deliveries with Hypertension |
| Office of the Secretary (OS)/DHHS | Frequency of influenza-like illnesses 2016-2018 by State and urban city | • Using the 2016-2018 State Inpatient Databases (SID), estimated occupancy rate and utilization of ventilators and intensive care units for patients with influenza-like illnesses. |
HCUP Statistics Routinely Provided to Federal Agencies

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<tr>
<td>Office of Science, Center for Tobacco Products (CTP), Food and Drug Administration (FDA)</td>
<td>Trends in Emergency Department visits for seizures or convulsions, 2016-2018</td>
<td>• Using the 2016-2018 Nationwide Emergency Department Sample (NEDS), State Inpatient Databases (SID) and State Emergency Department Databases (SEDD), examined trends in emergency department visits for seizures or convulsions for those with and without tobacco use.</td>
</tr>
<tr>
<td>Organization for Economic Co-operation and Development (OECD)</td>
<td>Provide National estimates of Quality Indicators</td>
<td>• Provided national 2017-2018 estimates of AHRQ Quality Indicators: Inpatient Quality Indicators (IQIs), Patient Safety Indicators (PSIs) and Prevention Quality Indicators (PQIs)</td>
</tr>
</tbody>
</table>

Abbreviations: AHA, American Hospital Association; AHRQ, Agency for Healthcare Research and Quality; ASPE, Assistant Secretary for Planning and Evaluation; CMS, Centers for Medicare & Medicaid Services; CTP, Center for Tobacco Products; DHHS, Department of Health and Human Services; EMSC, Emergency Medical Services for Children; FDA, Food and Drug Administration; HAI, healthcare-associated infection; HCUP, Healthcare Cost and Utilization Project; HRSA, Health Resources and Services Administration; IEA, Intergovernmental and External Affairs; IQI, Inpatient Quality Indicator; MCH, Maternal & Child Health; NCHS, National Center for Health Statistics; NEDS, Nationwide Emergency Department Sample; NIS, National (Nationwide) Inpatient Sample; OECD, Organization for Economic Co-operation and Development; OS, Office of the Secretary; PfP, Partnership for Patients; PQI, Prevention Quality Indicator; PSI, Patient Safety Indicator; SEDD, State Emergency Department Databases; SID, State Inpatient Databases
TECHNICAL SUPPORT TO HCUP USERS

Users of HCUP data, software tools, and products include health services researchers, policymakers, consumers, providers, and other constituent groups.

HCUP technical support provides a bridge between the project and its users by facilitating and promoting the use of HCUP data, software tools, and products. This support is intended to increase awareness of the value of HCUP resources, educate individuals on appropriate uses of HCUP data, and showcase the myriad of potential research and policy analysis applications.

The HCUP-US website (www.hcup-us.ahrq.gov) is integral in providing technical support to HCUP users. Please refer to the HCUP Online Resources section of the HCUP Project Overview Binder for more detailed information about the website.

As part of technical support, the Technical Assistance team answers user questions about HCUP databases and the application of HCUP tools and products. Complex questions are answered by research personnel trained in epidemiology, health services research, statistics, economics, and medicine. Programming staff provide advice on technical issues related to HCUP data and HCUP-provided programs. The Technical Assistance team forwards specific user questions, such as media and interagency requests and high-profile inquiries, to AHRQ staff. The Technical Assistance staff may be reached through a dedicated toll-free telephone number and email address: 1-866-290-HCUP or hcup@ahrq.gov.

TECHNICAL SUPPORT FOR HCUP PARTNERS

HCUP is made possible through the voluntary participation of State data organizations, hospital associations, and private data organizations that have partnered with AHRQ.

In addition to the products and technical support that are available to all HCUP users, the Partners are afforded other benefits for their participation in the project. HCUP creates analytic tools, data products, and reports for Partners; provides subject-matter expertise on data issues to Partners; promotes communication and information exchange among Partners about inpatient and outpatient data collection and use; and returns complimentary copies of the HCUP databases to participating data organizations.

For more information on technical support for HCUP Partners, see the section on Benefits of Partnership provided with this Annual Activities Report.

We hope you and your affiliates find this report helpful. AHRQ values the extensive contributions of each HCUP Partner and will continue to seek Partner guidance on the use and development of HCUP data in 2020. We value and welcome your feedback and suggestions. Please contact Jenny Schnaier at AHRQ to share your comments or pose questions about the project.

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