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CALCULATING COMMUNITY-LEVEL STATISTICS FOR HCUPNET: METHODS

This document provides details on the methods used to develop Community-Level Statistics based on Agency for Healthcare Research and Quality (AHRQ) Healthcare Cost and Utilization Project (HCUP) data from 2011–2020 for HCUPnet. The information is tabulated based on the patient residence geography, in contrast to other sections of HCUPnet which focus on hospital geography.

Purpose of Community-Level Statistics

AHRQ has developed county- and sub-State region-level information about inpatient hospital stays to be used by local communities, State and Federal agencies, health care provider organizations, and other stakeholders. These sub-State data provide the focused view necessary to support health policy and improvements in the health care system.

Starting in data year 2011, Community-Level Statistics are included on HCUPnet as a drill-down category. Users can query volume, rates, length of stay, and costs for all inpatient discharges in the county or sub-State region and by selected diagnosis and procedure categories. Data are subdivided further by demographic characteristics such as patient sex, age group, and payer type. State-level and national statistics also are presented for comparison.

The following are some caveats for working with Community-Level Statistics:

- Community-Level Statistics are based on the patient's county of residence rather than the location of the hospital where the patient was treated.
- Unless otherwise noted, rates of discharges are calculated using HCUP State Inpatient Databases (SID) counts as the numerator and county population estimates from Claritas[1] as denominators. Details on the methods are provided below.
- Community-Level Statistics should be used cautiously for comparative purposes, and statistics based on small numbers of hospital discharges should be interpreted carefully. Please consider the following:
    - There may be some instances where data are not complete (e.g., data from specific hospitals may be missing in the source data originally provided to HCUP).
    - Community-Level Statistics are adjusted for age and sex, but not for other demographic characteristics (e.g., race, socioeconomic status).
    - Rates based on a small number of observations may fluctuate more widely than rates based on larger sample sizes.
    - Information on the ZIP Code for the patient's residence is mapped to county. The set of ZIP Codes assigned to a county may change from year to year. This may cause spurious changes in rates reported by patient county.

[1] Claritas is a vendor that produces population estimates and projections based on data from the U.S. Census Bureau (www.claritas360.claritas.com/mybestsegments/).

Metrics

The community-level metrics consist of various measures of hospital utilization and costs (Table 1).

Table 1. Metrics Reported in Community-Level Statistics

Metric
Number of discharges
Rate of discharges per 100,000 population
Age–sex adjusted rate of discharges per 100,000 population
Mean length of stay, days
Aggregate number of days in the hospital
Rate of inpatient days per 100,000 population
Age–sex adjusted rate of inpatient days per 100,000 population
Mean cost per stay, $
Aggregate costs of hospital stays, $
Cost of inpatient stays per capita, $
Age–sex adjusted costs of inpatient stays per capita, $

The metrics are reported at the county and sub-State region level annually and aggregated across 3 years. Note that the term “county” in the Community-Level Statistics context refers to counties as well as county equivalents such as boroughs, parishes, independent cities, and Census Areas. Since 2011, the statistics made available by Community-Level Statistics have changed. For example, region-level statistics were first released for data year 2012.

Clinical dimensions

Community-Level Statistics are delineated along the following clinical dimensions:

- Major Diagnostic Categories (MDCs) (all years)
- Diagnosis-Related Groups (DRGs) (all years)
- AHRQ’s Prevention Quality Indicators (PQIs) and Pediatric Quality Indicators (PDIs) (all years)
- Diagnoses
    - Clinical Classifications Software (CCS)[2,3] principal diagnoses (2011–2015)
    - Clinical Classifications Software Refined (CCSR) for ICD-10-CM[4] principal diagnoses (starting in 2016)
- Procedures
    - CCS[2,3] all-listed operating room[5] procedures (2011-2015)
    - CCSR for ICD-10-PCS[4] all-listed operating room[6] procedures (starting in 2016)
- Maternal/neonatal stays involving alcohol and other drugs (2013–2016)

[2] All CCS categories were included except those that were nonspecific groupings of “other” conditions or those related to administrative classifications.

[3] Clinical Classifications Software (CCS) for ICD-9-CM. Healthcare Cost and Utilization Project (HCUP). Agency for Healthcare Research and Quality, Rockville, MD. hcup-us.ahrq.gov/toolssoftware/ccs/ccs.jsp

[4] Clinical Classifications Software Refined (CCSR) for ICD-10-CM/PCS. Healthcare Cost and Utilization Project (HCUP). Agency for Healthcare Research and Quality, Rockville, MD. hcup-us.ahrq.gov/toolssoftware/ccsr/ccs_refined.jsp

[5] Procedure Classes for ICD-9-CM. Healthcare Cost and Utilization Project (HCUP). Agency for Healthcare Research and Quality, Rockville, MD. hcup-us.ahrq.gov/toolssoftware/procedure/procedure.jsp

[6] Procedure Classes Refined for ICD-10-PCS. https://hcup-us.ahrq.gov/toolssoftware/procedureicd10/procedure_icd10.jsp

For selected sensitive conditions corresponding to AHRQ's PQIs and PDIs, the only metrics reported are the rates. Generally, the rate is reported per 100,000 population with the exception of the indicators for perforated appendix and low birth weight. Further details about PQI and PDI reporting are provided below.

Demographic and Other Stratification

Users can obtain metrics stratified by the demographic characteristics sex, age, and expected payer. For stays involving alcohol or other drugs, the metrics also can be stratified by the type of stay and substance type.

The stratifiers include the following:

- Sex: male, female, missing
- Age group (in years): <1, 1–17, 18–44, 45–64, 65+, missing
- Age group (in years) for Pediatric Quality Indicators: 0–4, 5–9, 10–14, 15–17
- Expected payer: Medicare, Medicaid, private insurance, self-pay/no charge, missing, other
- For stays involving alcohol or other drugs:
    - Type of stay: maternal/neonatal, nonmaternal/nonneonatal (see the Appendix for the definition of maternal/neonatal stays). Note that for maternal/neonatal stays involving alcohol and other drugs, the rate is reported per 100,000 inpatient deliveries, rather than per 100,000 individuals in the population.
    - Type of substance or substance-related condition: alcohol; cannabis; drug-induced mental disorders; hallucinogens; opioids; other drug abuse; sedatives, hypnotics, anxiolytics, tranquilizers, barbiturates; and stimulants. The International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM) codes defining these substances are shown in the Appendix. Note, the substance use conditions were identified by the CCSR categories for Mental and Behavioral Disorders (MBD) starting in 2016 based on ICD-10-CM diagnosis codes.

Per capita rates are available by sex and age group. However, at present, there are no AHRQ-endorsed estimates of payer-specific denominators that can be used to compute payer-specific per capita rates, so population-based statistics by payer are not available for Community-Level Statistics, although the number of discharges by payer are included.

Hospital Selection

The HCUP SID are the primary data sources for Community-Level Statistics. The SID include records of all discharges from community hospitals as defined by the American Hospital Association (AHA), excluding rehabilitation facilities. The AHA defines *community hospitals* as "all non-federal, short-term general, and special hospitals, including special children's hospitals, whose facilities and services are available to the public."[7]

Discharges from long-term acute care (LTAC) facilities were specifically excluded from Community-Level Statistics because evaluation of discharges from these hospitals revealed significantly longer lengths of stay and higher mortality rates than those from other

[7] American Hospital Association designation of "community hospital" (www.aha.org/statistics/fast-facts-us-hospitals#footnote1)

community hospitals. Diagnoses, treatment, and procedures also tend to be different in LTAC facilities compared with other community hospitals. An exception to the exclusion of LTAC facilities is made for reporting PQIs and PDIs in certain years. To maintain consistency with the PQIs and PDIs reported in the National Healthcare Quality and Disparities Report (NHQDR), LTAC facilities are included for PQI and PDI reporting through 2015. In 2016, Community-Level Statistics began excluding LTAC facilities, consistent with the exclusion of LTAC facilities in the NHQDR.

County and Region Selection

Contiguous counties were grouped to form regions within States. Definitions of sub-State regions were provided by some HCUP Partner organizations. If not provided, sub-State regions defined by the Substance Abuse and Mental Health Services Administration (SAMHSA) were used.[8]

Data from community hospitals may be missing from the SID because some HCUP Partner organizations exempt certain types of hospitals (e.g., small rural hospitals) from reporting, and reporting is voluntary in some Partner areas. Missing hospitals may have small discharge volumes or be geographically concentrated. Alternatively, missing hospitals may have large volumes and be geographically dispersed. The Medicare Hospital Service Area File (HSAF)[9] was used to identify counties and sub-State regions with incomplete HCUP data. The HSAF contains the universe of Medicare discharges in the United States and includes the patient's ZIP Code, Medicare provider identification number, and a sum of patient discharges, days, and charges for all Medicare patients. This de-identified file is available to the public.

Capture rates computed from the HSAF and SID allowed us to examine several thresholds for excluding county and sub-State region information because of hospitals missing from the SID. The capture rate for each area is calculated as the number of discharges in the area according to the HSAF data from hospitals also in the SID, divided by the HSAF total number discharges in the area. As a result of this investigation, areas (counties and sub-State regions) where the capture rate was less than 98 percent were excluded from Community-Level Statistics. For example in data year 2018, 38 States released data for Community-Level Statistics, representing 2,422 counties (10.4% of which were excluded based on their capture rate, N=251) and 252 regions (0.8% of which were excluded based on their capture rate, N=2). All years are listed in Table 2.

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[8] Substance Abuse and Mental Health Services Administration. 2010-2012 National Survey on Drug Use and Health Substate Region Definitions. www.samhsa.gov/data/sites/default/files/substate2k12-RegionDefs/NSDUHsubstateRegionDefs2012.htm. Accessed October 7, 2020.

[9] Centers for Medicare & Medicaid Services. Hospital Service Area File. Last modified July 5, 2013. www.cms.gov/Research-Statistics-Data-and-Systems/Files-for-Order/NonIdentifiableDataFiles/HospitalServiceAreaFile.html. Accessed August 12, 2013.

Table 2. Number and percent of counties and sub-State regions excluded from Community-Level Statistics because of low capture rate, 2011–2020

Year	Counties				Regions			
	States that release county-level statistics	Total counties	Counties excluded		States that release region-level statistics	Total regions	Regions excluded	
	N	N	N	%	N	N	N	%
2011	31	1,926	292	15.16	N/A	N/A	N/A	N/A
2012	31	1,926	307	15.94	31	205	7	3.41
2013	31	1,926	311	16.15	31	205	6	2.93
2014	31	1,926	312	16.20	31	205	3	1.46
2015	31	1,926	232	12.05	31	205	7	3.41
2016	37	2,356	297	12.61	37	254	3	1.18
2017	37	2,356	238	10.10	36	250	2	0.80
2018	38	2,422	251	10.36	37	252	2	0.80
2019	38	2,422	174	7.18	37	252	0	0.00
2020	38	2,421	241	9.95	37	252	2	0.79

In addition, counties and sub-State regions were excluded from States that did not contribute SID in any year during the time of the development of these statistics. U.S. territory counties, counties with invalid information, and States that do not participate in HCUP also were excluded. Community-Level Statistics are published on HCUPnet only after the HCUP Partner organization gives written permission (Table 3).

Table 3. States that release Community-Level Statistics and data years available

State	Releases county-level statistics	Releases PQI/PDI statistics	Releases sub-State region-level statistics
Alaska	2016+	2016+	2016+
Arizona	2011+	2011+	2013+
Arkansas	2011+	2011+	2013+
California	2011+	2011+	2013+
Colorado	2016+	2016+	2016+
Delaware	2016+	2016+	Does not release region-level statistics
Florida	2011+	2011+	2013+
Georgia	2016+	2016+	2016+
Hawaii	2011+	2017+	2013-2016
Illinois	2011+	Does not release PQI/PDI statistics	2013+
Indiana	2011+	Does not release PQI/PDI statistics	2013+
Iowa	2011+	2011+	2013+
Kentucky	2011+	2011+	2013+
Louisiana	2011+	2011+	2013+
Maryland	2011+	2011+	2013+
Massachusetts	2011+	2016+	2013+
Michigan	2011+	2011+	2013+
Minnesota	2011+	2011+	2013+
Mississippi	2016+	2016+	2016+

State	Releases county-level statistics	Releases PQI/PDI statistics	Releases sub-State region-level statistics
Montana	Does not release county-level statistics	2016+	2016+
Nebraska	2016+	2016+	2016+
Nevada	2011+	2011+	2013+
New Jersey	2011+	2011+	2013+
New Mexico	2011+	2011+	2013+
North Carolina	2011+	2011+	2013+
North Dakota	2011+	Does not release PQI/PDI statistics	2013+
Oklahoma	2011+	2011+	2013+
Oregon	2011+	2011+	2013+
Pennsylvania	2011+	2011+	2013+
Rhode Island	2011+	2011+	2013+
South Carolina	2011+	2011+	2013+
South Dakota	2018+	2018+	2018+
Tennessee	2011+	Does not release PQI/PDI statistics	2013+
Texas	2011+	None	2013+
Utah	2011+	2011+	2013+
Washington	2011+	2011+	2013+
West Virginia	2011+	2011+	2013+
Wisconsin	2011+	2011+	2013+
Wyoming	2011+	2011+	2013+

Suppression of Statistics

All metrics based on fewer than 11 observations were suppressed,[10] which is consistent with the terms of the HCUP Data Use Agreement. Statistics that could indirectly identify a hospital also were suppressed (i.e., at least two hospitals needed to be represented in all cells). Specifically,

- If number of hospitals <2 or total discharges <=10, set all outcomes to missing.
- If number of hospitals with non-missing LOS <2 or number of discharges with non-missing LOS <=10, set all LOS-related outcomes to missing.
- If number of hospitals with non-missing Cost <2 or number of discharges with non-missing COST<=10, set all cost-related outcomes to missing.

Population Estimates and Assignment of Patient County

The SID include the ZIP Code of the patient's residence. The county of residence was identified for each discharge using the Claritas data to cross-reference ZIP Code to the county. Patients with missing or invalid counties or patients from U.S. or foreign territories were excluded (0.41% of discharges in the 2018 SID).

County-level population estimates by sex and age were used for the per capita measures. Two sources of population estimates were considered. The first source was the *Population*

[10] The term *suppression* refers to statistics. Statistics that are based on fewer than 11 observations or could indirectly identify a hospital are suppressed.

File for Use with AHRQ Quality Indicators,[11] which is based on county-level data available from the U.S. Census Bureau. The second source was ZIP Code-level population estimates from Claritas. Claritas uses intracensus methods to estimate household and demographic characteristics by 18 age groups and sex at the ZIP Code level.[12] Claritas was chosen rather than the QI Population File because the QI File includes five age groups. Using the Claritas population estimates allowed more granularity in the reporting by age.

The county population data from Claritas include an age group of 0–4 years. For Community-Level Statistics, the population aged less than 1 year in each county was estimated by dividing the 0–4 age group by 5. This assumed a uniform distribution by age in the population. After subtracting the <1-year estimates, the remainder of the 0–4 age group was combined with the older group (ages 1–17 years).

In 2010, the Census Bureau made changes to county borders in Alaska.[13] For 2010 and 2011, Community-Level Statistics use the pre-2010 county boundaries because the changes had not yet been incorporated in the Claritas ZIP-to-County crosswalk file. For 2012 and later, the new Alaska boundaries are used.

Adjusted Statistics

Observed rates are computed using present year population denominators for each of the age/sex groups. Adjusted rates for a county or State are computed as a weighted sum of observed rates for each of the sex/age groups within the county, with groups weighted by 2010 national population proportions. This process consists of the following steps:

1. Weights within age-sex strata are computed using national population counts from Claritas for 2010 as the standard population. There are 36 strata total—18 age categories for both males and females. The age categories are in approximately 5-year increments from 0 to 84 years and 85+ years. To create the weights, the number of U.S. residents in each of the 36 age-sex strata is divided by the total U.S. population.

2. The number of discharges, inpatient days, and costs from the HCUP SID are each summed within each of the 36 age-sex strata.

3. The number of discharges, inpatient days, and costs in $strata_s$ is divided by the population count in $strata_s$ and multiplied by the weight in $strata_s$. The age-sex adjusted rate is calculated by summing these values across the 36 age-sex strata.

Prevention Quality Indicators and Pediatric Quality Indicators

The PQIs and PDIs are a set of measures developed by AHRQ that identify issues of access to outpatient care. Specifically, these indicators use data from hospital discharges to identify admissions that might have been avoided through access to higher-quality outpatient care. They are population-based indicators that capture all cases of the potentially preventable

[11] Agency for Healthcare Research and Quality. 2012 Population File for Use with AHRQ Quality Indicators. Version 4.4. March 2012. www.qualityindicators.ahrq.gov/Downloads/Software/SAS/V44/AHRQ%20QI%20Population%20File%20V4.4.pdf. Accessed August 12, 2013.

[12] For a description of the Claritas (formerly Nielsen) methodology, see Nielsen Pop-Facts™ Methodology. July 2012. www.tetrad.com/pub/documents/popfactsmeth.pdf. Accessed August 12, 2013.

[13] See United States Census Bureau. Last modified December 5, 2012. www.census.gov/geo/reference/county-changes.html. Accessed August 12, 2013.

conditions that occur either during an initial or subsequent hospitalization. The PQIs/PDIs are a key tool for assessing community health needs and can be used to flag potential healthcare quality problems that require further investigation, identify access issues to outpatient care, and help organizations respond to unmet needs at local, regional, State, and national levels. For the most recent information about the PQIs and PDIs and other quality indicators, see the Quality Indicators Web site.[14]

National PQI and PDI statistics for 2011 are computed using the National Inpatient Sample (NIS). To maintain consistency with the PQIs and PDIs computed for the National Healthcare Quality and Disparities Report, starting in 2012, national PQIs and PDIs in Community-Level Statistics are computed using a nationally weighted analysis file derived from the SID. From 2012–2015[15], this file provides national estimates using weighted records from a sample of hospitals from SID with race/ethnicity data, using the same methodology employed for the Nationwide Inpatient Sample prior to 2012. Starting in 2015[16] this file provides national estimates using weighted records from SID that had (1) less than 10 percent of records failing present on admission (POA) edits, (2) information on day of principal and secondary procedure days, and (3) race/ethnicity data. Missing age and sex values are imputed.

The PQIs and PDIs are presented as rates per 100,000 population. Numerators for PQIs and PDIs are counts of hospital stays for conditions that are conceptually related to the quality of outpatient care in the community according to the AHRQ Quality Indicator software.[17] Denominators are computed using Claritas county, state, and national population estimates[18,19]. Rates are adjusted by age and sex using direct standardization with the 2010 U.S. population as the standard, except for perforated appendix and low birth weight, which are indirectly adjusted using all eligible discharges as the reference population. For the PQIs and PDIs, age-stratified rates are adjusted for sex, and sex-stratified rates are adjusted for age.

County-level rates for PQIs and PDIs are based on the patient's county of residence. In contrast, State-level estimates are reported by hospital State and are consistent with those reported in the National Healthcare Quality and Disparities Report.

The PQIs and PDIs included in Community-Level Statistics are described below. The software specifying the PQI/PDI definitions has changed several times since 2011. Please refer to the software archives for more information[20] and Table 4, which contains the QI software version used in each data year and the number of States included in the analysis file from which weighted national estimates were derived. Although the QI software versions changed over time, the clinical definition of these PQIs and PDIs did not change substantially from 2011-2015 under ICD-9-CM and from 2016 forward under ICD-10-CM/PCS. The change in coding systems from ICD-9-CM to ICD-10-CM will cause some discontinuities in the trends.

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[14] For information about the AHRQ Quality Indicators™, see www.qualityindicators.ahrq.gov/.

[15] During the International Classification of Diseases, Ninth Revision, Clinical Modification [ICD-9-CM] period

[16] With the transition to the International Classification of Diseases, Tenth Revision, Clinical Modification/Procedural Coding System (ICD-10-CM/PCS)

[17] See AHRQ QI Software Web site. www.qualityindicators.ahrq.gov/software/. Accessed October 23, 2017.

[18] Perforated appendix is an exception, which uses the number of appendicitis discharges as the denominator, and low birth weight, which uses the number of births as the denominator.

[19] These indicators were retired in data year 2017.

[20] For information about the AHRQ Quality Indicators™, see www.qualityindicators.ahrq.gov/.

Table 4. Version of the PQI/PDI software by year

Data year	Software version	Number of States included in weighted national estimates
2011	v4.4	39
2012	v4.4	38
2013	v4.4	34
2014	v4.4	36
2015	v4.4	36
2016	v7.0.1	34
2017	v2019.01	36
2018	v2020.1	47
2019	v2020.1	48
2020	v2022.1	48

The PQIs included in Community-Level Statistics are described below

Composite PQIs

- PQI 90 Prevention Quality Overall Composite. The overall adult PQI composite is based on the AHRQ PQIs for asthma, community acquired pneumonia, chronic obstructive pulmonary disease, congestive heart failure, long- and short-term diabetes, uncontrolled diabetes without complications, lower-extremity amputation for diabetes, hypertension, and urinary tract infection.
- PQI 91 Prevention Quality Acute Composite. The acute adult PQI composite is based on the AHRQ PQIs for community acquired pneumonia and urinary tract infection.
- PQI 92 Prevention Quality Chronic Composite. The chronic adult PQI composite is based on the AHRQ PQIs for asthma, chronic obstructive pulmonary disease, congestive heart failure, long- and short-term diabetes, uncontrolled diabetes without complications, lower-extremity amputation for diabetes, and hypertension.
- PQI 93 Prevention Quality Diabetes Composite. The diabetes composite is based on the diabetes-related PQIs for long- and short-term diabetes, uncontrolled diabetes without complications, lower-extremity amputation for diabetes. PQI 93 was added in data year 2017.

Individual Acute PQIs

- PQI 10 Dehydration (retired in data year 2017)
- PQI 11 Community Acquired Pneumonia Admission Rate
- PQI 12 Urinary Tract Infection Admission Rate

Diabetes-Related PQIs

- PQI 01 Diabetes Short-term Complications Admission Rate
- PQI 03 Diabetes Long-term Complications Admission Rate
- PQI 14 Uncontrolled Diabetes Admission Rate (without complications)

Respiratory-Related PQIs

- PQI 05 Chronic Obstructive Pulmonary Disease (COPD) or Asthma in Older Adults Admission Rate (ages 40+ years)
- PQI 15 Asthma in Younger Adults Admission Rate (ages 18–39 years)

Other PQIs

- PQI 02 Perforated Appendix Admission Rate (retired in data year 2017)
- PQI 09 Low Birth Weight Rate (retired in data year 2017)

The PDIs included in Community-Level Statistics are described below.

Composite PDIs

- PDI 90 Pediatric Quality Overall Composite. The overall PDI composite is based on the four AHRQ PDIs for asthma, diabetes short-term complications, gastroenteritis, and urinary tract infection.
- PDI 91 Pediatric Quality Acute Composite. The acute PDI composite is based on the two AHRQ PDIs for gastroenteritis and urinary tract infection.
- PDI 92 Pediatric Quality Chronic Composite. The chronic PDI composite is based on the two AHRQ PDIs for asthma and diabetes short-term complications.

Individual Acute PDIs

- PDI 16 Gastroenteritis Admission Rate
- PDI 18 Urinary Tract Infection Admission Rate

Individual Chronic PDIs

- PDI 14 Asthma Admission Rate
- PDI 15 Diabetes Short-term Complications Admission Rate

Other PDIs

- PDI 17 Perforated Appendix Admission Rate (retired in data year 2017)

Reporting Cell Decision Rules and Handling Missing Data

HCUPnet cell suppression rules were applied. These rules require the exclusion of a reporting cell (i.e., a combination of a metric and stratification variable level) that draws from fewer than two hospitals or contains less than 11 discharges. Data that did not meet these reporting rules were suppressed and not released on HCUPnet.

Community-Level Statistics consist of discharge counts, length of stay, and charges, and are stratified on age, sex, and expected primary payer. Missing charges and length of stay were imputed by assigning the average charges (or length of stay) for the patient's State and DRG.[21] Missing values for the patient's age, sex, county, or expected primary payer were included in the stratification analyses as a missing category. One exception was made for expected primary payer if the payer was missing and the patient was aged 65 years or older;

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[21] Technically, the data element DRG_NoPOA was used to classify the patient.

in those cases, Medicare was assumed as the primary expected payer.

The cost of inpatient care for a discharge was estimated by multiplying total charges by the All-Payer Inpatient Cost-to-Charge Ratio (APICC) or by the Group Average All-Payer Inpatient Cost-to-Charge Ratio (GAPICC) from the HCUP supplemental Cost-to-Charge Ratio files. These ratios are based on data from Medicare Cost Reports from the Centers for Medicare & Medicaid Services.[22]

National and State Comparisons

For comparison purposes, Community Level Statistics include State and national estimates as benchmarks. Computation of the State and national estimates followed procedures that were slightly different from those used for the county- and region-level statistics.

The HCUP NIS is the data source for national benchmark values. In 2011, LTAC facilities were excluded from the Community-Level Statistics national benchmarks to be consistent with the hospital selections used for Community-Level Statistics county- and sub-State region-level reporting. As a result, the national statistics developed as benchmarks for Community-Level Statistics in 2011 differ from NIS statistics reported elsewhere in HCUPnet, which do not exclude long-term care facilities. Starting in 2012, both the Community-Level Statistics national benchmarks and the NIS statistics reported elsewhere on HCUPnet exclude LTAC facilities.

State-level benchmarks required completion weights. Because the SID are missing about 7 percent of community hospitals and about 1.5 percent of discharges, the national and State Community-Level Statistics incorporate completion weights to account for community, nonrehabilitation hospitals that are not included in the SID. Weighting to account for missing hospitals uses the following information from the American Hospital Association (AHA) Annual Survey of Hospitals to define strata within the State:

- Ownership: government, private nonprofit, and private investor-owned
- Size of the hospital based on the number of beds: small, medium, and large categories defined within region
- Location and teaching status: rural, urban nonteaching, urban teaching

If a stratum is missing one or more hospitals in the State, then the completion weight is set to the total number of discharges reported in the AHA divided by the total number of discharges in the SID. If all hospitals in a stratum are represented in the State data, then the completion weight is set to 1. The completion weights are also adjusted for hospitals that have missing discharge quarters of data, provided there is no indication in the AHA Annual Survey that the facility had closed.

[22] See *Costs* in HCUPnet Glossary of Terms at https://hcupnet.ahrq.gov/#glossary. Accessed October 23, 2017.

APPENDIX

Payer: The expected primary payer, based on the first-listed expected payer

Substance use: any alcohol or illicit drug use, including any use of illegal drugs, misuse of prescription drugs or other substances. For prescription drugs and other substances, if it could not be determined that the substance was misused or whether the poisoning was caused inadvertently by medical treatment, only substances that are likely to be abused were included, which were defined as barbiturates, benzodiazepines, sedatives, prescription opioids, dextromethorphan, pseudoephedrine, amphetamines, and methylphenidate. A full list of ICD-9-CM codes that were included is shown in Table 5. Substance-related statistics are based on all-listed diagnoses. If a record included codes that fell into multiple categories for the type of substance or substance-related condition, the record was counted in each row.

Note, the substance use path was retired in data year 2016 because the CCSR offer query of similar statistics specified by the Mental and Behavioral Disorders (MBD) categories.

Maternal delivery hospitalization records on or before September 30, 2015: maternal records are identified by all-listed diagnoses Clinical Classification Software (CCS) categories 176-196, or a subset of individual ICD-9-CM diagnosis codes within mental health-related CCS categories: V617, 7965, 64831, 64832, 64833, 64834, 65551, 65553, 64840, 64841, 64842, 64843, 64844.

Neonatal birth hospitalization records on or before September 30, 2015: neonatal records are identified by all-listed diagnoses Clinical Classification Software (CCS) categories 218–224, or a subset of individual ICD-9-CM diagnosis codes that are not included within neonatal-related CCS categories: 77181, 27701, 74783, 76071, 76072, 76073, 76075, 7795.

Table 5. Definition of substance use on or before September 30, 2015

ICD-9-CM Description	ICD-9-CM Code	Type of Substance or Substance-Related Condition
Chapter 5: Mental Disorders (290-319)		
ALCOHOL INDUCED MENTAL DISORDERS (291)		
Alcohol withdrawal delirium	291.0	Alcohol
Alcohol induced persisting amnestic disorder	291.1	Alcohol
Alcohol induced persisting dementia	291.2	Alcohol
Alcohol induced psychotic disorder with hallucinations	291.3	Alcohol
Idiosyncratic alcohol intoxication	291.4	Alcohol
Alcohol induced psychotic disorder with delusions	291.5	Alcohol
Other specified alcohol-induced mental disorders		
Alcohol withdrawal	291.81	Alcohol
Alcohol induced sleep disorders	291.82	Alcohol
Other alcohol induced mental disorders	291.89	Alcohol
Unspecified alcohol induced mental disorder	291.9	Alcohol
DRUG INDUCED MENTAL DISORDERS (292)		
Drug withdrawal	292.0	Drug-induced mental disorders
Drug induced psychotic disorders with delusions	292.11	Drug-induced mental disorders
Drug induced psychotic disorders with hallucinations	292.12	Drug-induced mental disorders
Pathological drug intoxication	292.2	Drug-induced mental disorders
Drug induced delirium	292.81	Drug-induced mental disorders
Drug induced persisting dementia	292.82	Drug-induced mental disorders
Drug induced amnestic disorder	292.83	Drug-induced mental disorders
Drug induced mood disorder	292.84	Drug-induced mental disorders
Drug induced sleep disorders	292.85	Drug-induced mental disorders
Other specified drug induced mental disorders	292.89	Drug-induced mental disorders
Unspecified drug induced mental disorder	292.9	Drug-induced mental disorders
ALCOHOL AND DRUG DEPENDENCE (303,304)		
Acute alcohol intoxication	303.0x	Alcohol
Other and unspecified alcohol dependence	303.9x	Alcohol
Opioid type dependence	304.0x	Opioids
Sedative dependence	304.1x	Sedatives, hypnotics, anxiolytics, tranquilizers, barbiturates
Cocaine dependence	304.2x	Stimulants
Cannabis dependence	304.3x	Cannabis
Amphetamine dependence	304.4x	Stimulants
Hallucinogen dependence	304.5x	Hallucinogens
Other specified drug dependence (absinthe, glue, inhalant, phencyclidine)	304.6x	Other
Combinations of opioid with other drug dependence	304.7x	Opioids
Combinations of drug dependence excluding opiates	304.8x	Other
Unspecified drug dependence	304.9x	Other
NON-DEPENDENT ABUSE OF DRUGS (305)		
Non-dependent alcohol abuse	305.0x	Alcohol
Non-dependent cannabis abuse	305.2x	Cannabis

ICD-9-CM Description	ICD-9-CM Code	Type of Substance or Substance-Related Condition
Non-dependent hallucinogen abuse	305.3x	Hallucinogens
Non-dependent sedative abuse	305.4x	Sedatives, hypnotics, anxiolytics, tranquilizers, barbiturates
Non-dependent opioid abuse	305.5x	Opioids
Non-dependent cocaine abuse	305.6x	Stimulants
Non-dependent amphetamine abuse	305.7x	Stimulants
Non-dependent anti-depressant abuse	305.8x	Other
Non-dependent other mixed or unspecified drug abuse	305.9x	Other
Chapters 6, 7 & 9: Diseases of the Nervous System and Sense Organs (320-389), Diseases of the Circulatory System (390-459), and Diseases of the Digestive System (520-579)		
Alcoholic polyneuropathy	357.5	Alcohol
Alcoholic cardiomyopathy	425.5	Alcohol
Alcoholic gastritis, without hemorrhage	535.30	Alcohol
Alcoholic gastritis, with hemorrhage	535.31	Alcohol
Fatty liver	571.0	Alcohol
Alcohol hepatitis	571.1	Alcohol
Cirrhosis of liver	571.2	Alcohol
Liver damage unspecified	571.3	Alcohol
Chapter 11: Complications of Pregnancy, Childbirth and the Puerperium (630-679)		
Drug dependence complicating pregnancy	648.3x	Other
Chapter 15: Newborn (Perinatal) (760-779)		
NOXIOUS INFLUENCES AFFECTING FETUS OR NEWBORN VIA PLACENTA OR BREASTMILK (760)		
Fetal alcohol syndrome	760.71	Alcohol
Narcotics affecting newborn	760.72	Opioids
Hallucinogens affecting newborn	760.73	Hallucinogens
Cocaine affecting newborn	760.75	Stimulants
OTHER AND ILL-DEFINED CONDITIONS ORIGINATING IN THE PERINATAL PERIOD (779)		
Drug withdrawal syndrome in newborn	779.5	Opioids
Chapter 17: Injury and Poisoning (800-999)		
POISONING BY DRUGS, MEDICINAL AND BIOLOGICAL SUBSTANCES (960-979)		
Opium (alkaloids)	965.00	Opioids
Heroin	965.01	Opioids
Methadone	965.02	Opioids
Other narcotics	965.09	Opioids
Barbiturates	967.0	Sedatives, hypnotics, anxiolytics, tranquilizers, barbiturates
Chloral hydrate group	967.1	Sedatives, hypnotics, anxiolytics, tranquilizers, barbiturates

ICD-9-CM Description	ICD-9-CM Code	Type of Substance or Substance-Related Condition
Paraldehyde	967.2	Sedatives, hypnotics, anxiolytics, tranquilizers, barbiturates
Bromine compounds	967.3	Sedatives, hypnotics, anxiolytics, tranquilizers, barbiturates
Methaqualone compounds	967.4	Sedatives, hypnotics, anxiolytics, tranquilizers, barbiturates
Glutethimide group	967.5	Sedatives, hypnotics, anxiolytics, tranquilizers, barbiturates
Mixed sedatives, not elsewhere classified	967.6	Sedatives, hypnotics, anxiolytics, tranquilizers, barbiturates
Other sedatives and hypnotics	967.8	Sedatives, hypnotics, anxiolytics, tranquilizers, barbiturates
Unspecified sedative or hypnotic (sleeping pills)	967.9	Sedatives, hypnotics, anxiolytics, tranquilizers, barbiturates
Surface [topical] and infiltration anesthetics	968.5	Stimulants
Benzodiazepine	969.4	Sedatives, hypnotics, anxiolytics, tranquilizers, barbiturates
Tranquilizer NEC	969.5	Sedatives, hypnotics, anxiolytics, tranquilizers, barbiturates
Poisoning by hallucinogens	969.6	Hallucinogens
Psychostimulant NOS (Begin 2009)	969.70	Stimulants
Amphetamine (Begin 2009)	969.72	Stimulants
Methylphendate (Begin 2009)	969.73	Stimulants
Psychostimulant NEC (Begin 2009)	969.79	Stimulants
Opiate antagonist	970.1	Opioids
CNS stimulant NEC (only 2006-2010)	970.8	Stimulants
Cocaine (Begin 2010)	970.81	Stimulants
CNS stimulant NEC (Begin 2010)	970.89	Stimulants
CNS stimulant NOS	970.9	Stimulants
Antitussives	975.4	Other
Anti-common cold drugs	975.6	Other
Ethyl alcohol	980.0	Alcohol
Other specified alcohols	980.8	Alcohol
Unspecified alcohol	980.9	Alcohol
Supplemental Classification of External Causes of Injury and Poisoning (E-Codes)		
ACCIDENTAL POISONING BY DRUGS, MEDICINAL SUBSTANCES, AND BIOLOGICALS (E850-E858)		
Accidental poisoning by heroin	E850.0	Opioids
Accidental poisoning by methadone	E850.1	Opioids
Accidental poisoning by other opiates and related narcotics	E850.2	Opioids
Accidental poisoning by barbiturates	E851	Sedatives, hypnotics, anxiolytics, tranquilizers, barbiturates
Chlorl hydrate	E852.0	Sedatives, hypnotics, anxiolytics, tranquilizers, barbiturates
Paraldehyde	E852.1	Sedatives, hypnotics, anxiolytics, tranquilizers, barbiturates

ICD-9-CM Description	ICD-9-CM Code	Type of Substance or Substance-Related Condition
Bromine compound	E852.2	Sedatives, hypnotics, anxiolytics, tranquilizers, barbiturates
Methaqualone compounds	E852.3	Sedatives, hypnotics, anxiolytics, tranquilizers, barbiturates
Glutethimide group	E852.4	Sedatives, hypnotics, anxiolytics, tranquilizers, barbiturates
Mixed sedatives NEC	E852.5	Sedatives, hypnotics, anxiolytics, tranquilizers, barbiturates
Sedatives NEC	E852.8	Sedatives, hypnotics, anxiolytics, tranquilizers, barbiturates
Sedatives NOS	E852.9	Sedatives, hypnotics, anxiolytics, tranquilizers, barbiturates
Benzodiazepine tranquilizers	E853.2	Sedatives, hypnotics, anxiolytics, tranquilizers, barbiturates
Tranquilizer NEC	E853.8	Sedatives, hypnotics, anxiolytics, tranquilizers, barbiturates
Tranquilizer NOS	E853.9	Sedatives, hypnotics, anxiolytics, tranquilizers, barbiturates
Accidental poisoning by hallucinogens	E854.1	Hallucinogens
Accidental poisoning by psychostimulants	E854.2	Stimulants
Accidental poisoning by central nervous system stimulants (analeptics, opiate antagonists)	E854.3	Stimulants
ACCIDENTAL POISONING BY OTHER SOLID AND LIQUID SUBSTANCES, GASES, AND VAPORS (E860-E869)		
Alcohol beverage	E860.0	Alcohol
Ethyl alcohol	E860.1	Alcohol
Alcohol NEC	E860.8	Alcohol
Alcohol NOS	E860.9	Alcohol
DRUGS, MEDICINAL AND BIOLOGICAL SUBSTANCES CAUSING ADVERSE EFFECTS IN THERAPEUTIC USE (E930-E949)		
Heroin causing adverse effects in therapeutic use	E935.0	Opioids
SUICIDE AND SELF-INFLICTED POISONING BY SOLID OR LIQUID SUBSTANCES (E950)		
Suicide and self-inflicted poisoning by barbiturates	E950.1	Sedatives, hypnotics, anxiolytics, tranquilizers, barbiturates
Suicide and self-inflicted poisoning by other sedatives/hypnotics	E950.2	Sedatives, hypnotics, anxiolytics, tranquilizers, barbiturates
Suicide and self-inflicted poisoning by tranquilizers and other psychotropic agents	E950.3	Sedatives, hypnotics, anxiolytics, tranquilizers, barbiturates
Poisoning by solid or liquid substances, undetermined whether accidentally or purposely inflicted (E980-E989)		
Undetermined poisoning by barbiturates	E980.1	Sedatives, hypnotics, anxiolytics, tranquilizers, barbiturates
Undetermined poisoning by othe rsedatives and hypnotics	E980.2	Sedatives, hypnotics, anxiolytics, tranquilizers, barbiturates
Undetermined poisoning by traquilizers and other psychotropic agents	E980.3	Sedatives, hypnotics, anxiolytics, tranquilizers, barbiturates

ICD-9-CM Description	ICD-9-CM Code	Type of Substance or Substance-Related Condition
Classification of Factors Influencing Health Status and Contact with Health Services (V-Codes)		
Counseling, substance use	V65.42	Other