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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 for HCUPnet.

Purpose of Community-Level Statistics

AHRQ has developed county- and region-level information to be used by local communities, state and federal agencies, healthcare provider organizations, and other stakeholders. These sub-state data provide the focused view necessary to support health policy and improvements in the healthcare system. Community-level statistics are measures created at the county (or county-equivalent) and sub-state regional levels. The term *county-level statistics* used here or under the "Community" link on the HCUPnet website should be understood as representing county-level statistics or county-equivalent statistics (e.g., boroughs or parishes).

Since data year 2011, community-level statistics have been 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 region and by selected diagnosis and procedure categories, including stays for alcohol and other drugs. Data are subdivided further by demographic characteristics such as patient sex, age group, and payer type. State-level and national benchmarks also are presented.

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 discharge are calculated using HCUP State Inpatient Databases (SID) data as the numerator and Claritas county population estimates 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 by HCUP Partners).
    - Community-level statistics (CLS) are available adjusted for age and sex, but not for other demographic characteristics (e.g., race, socioeconomic status).
    - Rates based on small sample sizes may fluctuate more widely than rates based on larger sample sizes.
    - Claritas ZIP Codes are mapped to counties to obtain denominator data. The collection of ZIP Codes forming a county may change from year to year in Claritas. This may cause spurious changes in population rates.

- Because of these caveats, starting with the data year 2017, CLS has released a quality assurance document tracking changes in rates, costs, and length of stay greater than 100 percent, comparing the current data release with the prior year. This information can be found at https://hcupnet.ahrq.gov/downloadables/CLS_QA_PctChange100plus_20201006.xls.

Metrics

The community-level metrics capture various measures of hospital utilization and expenditures (table 1).

Table 1. Metrics for reporting

Metric
Total 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
Number of inpatient days per 100,000 population
Age–sex adjusted number of inpatient days per 100,000 population
Mean cost per stay, $
Aggregate costs for all hospital stays, $
Cost for inpatient stays per capita, $
Age–sex adjusted costs for inpatient stays per capita, $

The metrics are reported at the county and sub-state regional level annually and aggregated across 3 years. Over time, the statistics made available by CLS have changed. Region-level data were first released for data year 2012. U.S.-Mexico border statistics were first released for data year 2013. At a minimum, at the county level, statistics are available for:

- All discharges (all years)
- All major diagnostic categories (all years)
- All diagnosis-related groups (DRGs) (all years)
- Clinical Classifications Software (CCS)[1,2] principal diagnoses (2011–2015)
- CCS[1,2] all-listed procedures (2011–2015)
- AHRQ's Prevention Quality Indicators (PQIs) and Pediatric Quality Indicators (PDIs) (all years)
- Maternal/neonatal stays involving alcohol and other drugs (2013–2016)

[1] All CCS categories were included except those that were nonspecific groupings of "other" conditions or those related to administrative classifications.
[2] HCUP CCS. Healthcare Cost and Utilization Project (HCUP). March 2017. Agency for Healthcare Research and Quality. (2017, March). *Clinical Classifications Software (CCS) for ICD-9-CM* [Computer software]. https://www.hcup-us.ahrq.gov/toolssoftware/ccs/ccs.jsp , Rockville, MD. www.hcup-us.ahrq.gov/toolssoftware/ccs/ccs.jsp

- Clinical Classifications Software Refined (CCSR)[3] principal diagnoses (2017)
- CCSR[3] all-listed diagnoses (2017)

For selected ambulatory care 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.

Stratification

Users can obtain county-level metrics stratified by 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 categories include the following:

- Sex: male, female, missing.
- Age group (in years): <1, 1–17, 18–44, 45–64, 65–84, 85+, missing.
- Age group (in years) for PDIs: 0–4, 5–9, 10–14, 15–17.
- Expected payer: Medicare, Medicaid, private insurance, self-pay/no charge, missing.
- For stays involving alcohol or other drugs:
    - Type of stay: maternal/neonatal, nonmaternal/non-neonatal (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, and barbiturates; and stimulants. The *International Classification of Diseases, Ninth Revision, Clinical Modification* (ICD-9-CM) codes defining these substances are shown in the appendix.

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. Counts by payer are included.

Hospital Selection

The HCUP SID are the primary data sources for community-level statistics. The databases include records from all discharges from community hospitals as defined by the American Hospital Association (AHA). The AHA defines *community hospitals* as "all non-federal, short-term general, and special hospitals, including special children's hospitals,

[3] Agency for Healthcare Research and Quality. (2020, May). *Clinical Classifications Software Refined (CCSR) for ICD-10-CM Diagnoses* [Computer software].. Healthcare Cost and Utilization Project (HCUP). https://www.hcup-us.ahrq.gov/toolssoftware/ccsr/ccs_refined.jsp May 2020. Agency for Healthcare Research and Quality, Rockville, MD. www.hcup-us.ahrq.gov/toolssoftware/ccsr/ccs_refined.jsp

whose facilities and services are available to the public."[4] Discharges from long-term acute care (LTAC) facilities were specifically excluded from the county-level statistics because evaluation of discharges from these hospitals revealed significantly longer lengths of stay and higher mortality rates than those from other community hospitals. Diagnoses, treatment, and procedures also tend to be different from LTAC facilities compared with other community hospitals. An exception to the exclusion of LTAC facilities is made for reporting the county- and region-level PQIs and PDIs in certain years. To maintain consistency with the PQIs and PDIs reported in the National Healthcare Quality and Disparities Reports (QDRs), LTAC facilities are included for PQI and PDI reporting through 2015. In 2016, the QDR began excluding LTAC facilities, consistent with the exclusion of LTAC facilities in CLS.

County and Region Selection

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) was used to estimate the impact of missing hospitals on HCUP community statistics and, therefore, to identify counties and regions with incomplete data.[5] The HSAF provides the universe of Medicare discharges in the United States and contains the patient's ZIP Code; Medicare provider identification number (ID); 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 exclusion of county and region information because of missing hospitals in the SID. As a result of this investigation, counties and regions where the capture rate was less than 98 percent were excluded (the actual percentages were rounded).[6]

In addition, counties and regions were excluded from states that did not contribute SID data in any year during the time of the development of these statistics. Counties in U.S. territories, counties with invalid county information, and states that do not participate in HCUP also were excluded. County- and region-level statistics were produced for all contributing states. The results are published on HCUPnet only after each state gives written permission to publish its statistics.

Contiguous counties were grouped to form regions within states. Regionalization schemes were provided by HCUP Partner Organizations when available. If a specific scheme was not provided, a regionalization scheme created by the Substance Abuse and Mental Health Services Administration (SAMHSA) was used.[7] In addition to these sub-state

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[4] American Hospital Association, Fiscal Year 2016, *AHA Annual Survey Database™*, https://www.ahadata.com/Fiscal Year 2016

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

[6] The term *exclusion* refers to the completeness criteria. Records from counties with incomplete data are excluded.

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

regions, counties in states located on the U.S.-Mexico border were grouped into border and non-border regions. Border regions were identified using the same definition as the U.S.-Mexico Border Health Commission.[8] Border counties are within 100 kilometers (about 60 miles) from the U.S.-Mexico border.

Suppression of Statistics

All metrics based on fewer than 11 observations were suppressed,[9] which is consistent with the terms of the HCUP Data Use Agreement. Results that could indirectly identify a hospital also were suppressed (i.e., at least two hospitals needed to be represented in all cells).

Population Estimates and Assignment of Patient County

All HCUP Data Partners collect the ZIP Code of the patient's residence. The county was identified for each discharge in the SID using the patient's ZIP Code and the Claritas ZIP Code to cross-reference the county. Claritas[10] is a vendor that compiles and adds value to U.S. Census Bureau data. Patients with missing or invalid counties or patients from U.S. or foreign territories were excluded.

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 File for Use with AHRQ Quality Indicators*,[11] which is based on actual county-level data available from the U.S. Census Bureau. The second source was ZIP Code-level population estimates from Claritas. Claritas uses intra-census methods to estimate household and demographic statistics for geographic areas.[12] Claritas was used rather than the Population File because the Census Bureau does not provide intra-census ZIP Code-level population estimates. Using the ZIP Code-based proximal county population estimates also is consistent with the SID patient residence information, which is based on the ZIP Code of the patient's residence.

In 2010, the Census Bureau made changes to county borders in Alaska.[13] For 2010 and

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[8] U.S. Department of Health & Human Services, Office of Global Affairs. (2017, December 13). The U.S.-Mexico border region.Border Region. https://www.hhs.gov/about/agencies/oga/about-oga/what-we-do/international-relations-division/americas/border-health-commission/us-mexico-border-region/index.htmlwww.hhs.gov/about/agencies/oga/about-oga/what-we-do/international-relations-division/americas/border-health-commission/us-mexico-border-region/index.html. Accessed October 7, 2020.

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

[10] Claritas. (2020). Claritas. Retrieved Demographic Profile. www.claritas.com. Accessed June 23, 2017, from https://claritas.com.

[11] Agency for Healthcare Research and Quality. 2012, March. *2012 Population file*File *for use*Use *with AHRQ Quality Indicators, version*. Version *4.4*. March 2012. https://www.qualityindicators.ahrq.gov/Downloads/Software/SAS/V44/AHRQ%20QI%20Population%20File%20V4.4.pdf 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 The Nielsen Company. (2012, July). *Nielsen Pop-Facts™ methodology*.Methodology. July 2012. http://www.tetrad.com/pub/documents/popfactsmeth.pdf . Accessed August 12, 2013.

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

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.

The county population data from Claritas includes a 0- to 4-year age group. 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).

Adjusted Statistics

To account for differences in the demographic makeup of counties and regions that may influence the rates of statistics, direct standardization is used for age and sex adjustment of rates based on population denominators (e.g., per capita or per 100,000 population). Direct standardization involves the following steps:

1. Standard population weights are computed using Claritas population counts. To avoid residual confounding by age, 18 age categories provided by Claritas are used for the standardization procedure. The age categories are in approximately 5-year increments from 0 to 84 years and 85+ years. To create weights, the number of U.S. residents in each of the 36 age-by-sex categories is cross-tabulated and divided by the total U.S. population.

2. Using HCUP SID data for the county- or region-level statistic of interest to be adjusted, the county- or region-level statistic of interest is computed, stratified by the 36 age-by-sex levels.

3. For each statistic of interest, the age-by-sex stratified statistics are multiplied by their corresponding age-by-sex standard population weights and then summed across all 36 stratified weighted statistics. The result is the age-sex adjusted statistic.

Prevention Quality Indicators and Pediatric Quality Indicators

The PQIs and PDIs are a set of measures developed by AHRQ that use hospital discharge data to quantify admissions for ambulatory care sensitive conditions. These indicators are intended to identify hospitalizations that are potentially preventable by good outpatient care. For the most recent information about the PQIs and PDIs and other Quality Indicators™, see the Quality Indicators website.[14]

PQI and PDI statistics prior to 2012 are computed using the National Inpatient Sample (NIS). To maintain consistency with the PQIs and PDIs computed for the QDR, starting in 2012, county- and region-level PQIs and PDIs are computed using an analysis file derived from the SID. From 2012–2015 (during the International Classification of Diseases, Ninth Revision, Clinical Modification [ICD-9-CM] period), 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 with the transition to the International Classification of Diseases, Tenth

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

Revision, Clinical Modification/Procedural Coding System (ICD-10-CM/PCS), this file provides national estimates using weighted records from SID that had (1) less than 10 percent of records failing POA edits, (2) information on day of principal and secondary procedure days, and (3) race/ethnicity data. Missing age and sex values are imputed, and state-level rates are weighted for missing hospitals. As noted above, for computing county- and region-level PQI and PDI rates only, LTAC facilities are included among community non-rehabilitation hospitals through 2015.

The community-level PQIs and PDIs are presented as rates per 100,000 population within counties, county-level equivalents, or regions. 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. These numerator conditions are counted using the most current version, at the time, of the AHRQ Quality Indicators (QI) software[15] applied to the NIS (prior to 2012) and SID quality analysis file (2012 and after). Denominators are computed in the same manner as other community-level statistics, using Claritas county population estimates (except for perforated appendix, which uses the number of appendicitis discharges as the denominator, and low birth weight, which uses the number of births as the denominator).[16] 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. Age-specific rates are adjusted for sex, and sex-specific rates are adjusted for age.

The PQIs included in community-level statistics are described below. PQI/PDI definitions may change over time. Please refer to the software archives for more information[17] and Table 2, which contains the software version used in each data year and the number of States included in the weighted national estimates.

Table 2. PQI/PDI specifications

Data year	Software version	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

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

[15] See Agency for Healthcare Research and Quality. (2020, July). *AHRQ QI Software.* https://www.qualityindicators.ahrq.gov/software See AHRQ QI Software Web site. www.qualityindicators.ahrq.gov/software/. Accessed October 23, 2017.
[16] These indicators were retired in data year 2017.
[17] For information about the AHRQ Quality Indicators™, see www.qualityindicators.ahrq.gov/.

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, and 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 (age 40 years and older)
- 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 for a given county) that draws from fewer than two hospitals or contains fewer than 11 discharges. Data from counties that did not meet minimum reporting rules (i.e., fewer than 11 discharges or fewer than two hospitals) were suppressed and not released on HCUPnet.

The HCUP data used in the production of the statistics are based on 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 for the patient's state and DRG.[18] 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; 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 or by the group average all-payer inpatient cost-to-charge ratio based on data from Medicare cost reports from the Centers for Medicare & Medicaid Services.[19]

National and State Comparisons

The community statistics results include state and national values as benchmarks. Computation of the national and state-level statistics 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. Through 2011, LTAC facilities were excluded from the CLS NIS-based benchmarks to be consistent with the hospital selections used for CLS county- and region-level reporting. As a result, the national statistics developed as benchmarks for the community statistics project through 2011 differ from NIS statistics reported elsewhere in HCUPnet. Starting in 2012, the NIS

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

[19] See Agency for Healthcare Research and Quality. (n.d.). Costs. In in *HCUPnet Healthcare Cost and Utilization Project glossary.* Retrieved October 23, 2017, from https://hcupnet.ahrq.gov/#glossary.

has excluded LTAC facilities.

State-level benchmarks involved creation of discharge-level completion weights, which were functions of hospital strata (i.e., ownership, location, teaching status, and bed size). The completion weight was the quotient of stratum-specific total discharges reported in the annual AHA survey and the total discharges in the SID for the same stratum. It is important to note that, except for the PQIs and PDIs, these calculations used patient residence rather than hospital location to identify the state. Use of hospital location is the standard for the QDR, and thus the results will differ.

Note that the adjusted national rates presented will be the same as the observed national rates. This is because the national population distribution is the standard that is used to adjust state-, county-, and region-level rates.

APPENDIX

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

Substance use: Any alcohol or illicit drug use, including any use of illegal drugs or 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 and *International Classification of Diseases, Tenth Revision, Clinical Modification* (ICD-10-CM) codes that were included is shown in table 3. 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 that the substance use path was retired in data year 2017 because the CCSR offers the ability to conduct queries of similar statistics specified by the mental and behavioral disorders categories.

Maternal delivery hospitalization records on or before September 30, 2015: Maternal records are identified by all-listed diagnoses within 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, and 64844.

Neonatal birth hospitalization records on or before September 30, 2015: Neonatal records are identified by all-listed diagnoses within 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, and 7795.

Maternal delivery hospitalization records after September 30, 2015: Maternal records are identified by all-listed ICD-10-CM/PCS codes categorized into DRGs 765–768 and 774–775.

Neonatal birth hospitalization records after September 30, 2015: Neonatal records are identified by all-listed ICD-10-CM codes beginning with Z38.

Table 33. 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 opioid type drug	304.8x	Other
Unspecified drug dependence	304.9x	Other
NONDEPENDENT ABUSE OF DRUGS (305)		
Nondependent alcohol abuse	305.0x	Alcohol
Nondependent cannabis abuse	305.2x	Cannabis

ICD-9-CM Description	ICD-9-CM Code	Type of Substance or Substance-Related Condition
Nondependent hallucinogen abuse	305.3x	Hallucinogens
Nondependent sedative abuse	305.4x	Sedatives, hypnotics, anxiolytics, tranquilizers, barbiturates
Nondependent opioid abuse	305.5x	Opioids
Nondependent cocaine abuse	305.6x	Stimulants
Nondependent amphetamine abuse	305.7x	Stimulants
Nondependent antidepressant abuse	305.8x	Other
Nondependent 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
Alcoholic 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 BREAST MILK (760.7)		
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 not elsewhere classified (NEC)	969.5	Sedatives, hypnotics, anxiolytics, tranquilizers, barbiturates
Poisoning by hallucinogens	969.6	Hallucinogens
Psychostimulant not otherwise specified (NOS) (Begin 2009)	969.70	Stimulants
Amphetamine (Begin 2009)	969.72	Stimulants
Methylphenidate (Begin 2009)	969.73	Stimulants
Psychostimulant NEC (Begin 2009)	969.79	Stimulants
Opiate antagonist	970.1	Opioids
Central nervous system (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
Chloral hydrate	E852.0	Sedatives, hypnotics, anxiolytics, tranquilizers, barbiturates

ICD-9-CM Description	ICD-9-CM Code	Type of Substance or Substance-Related Condition
Paraldehyde	E852.1	Sedatives, hypnotics, anxiolytics, tranquilizers, barbiturates
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 other sedatives and hypnotics	E980.2	Sedatives, hypnotics, anxiolytics, tranquilizers, barbiturates

ICD-9-CM Description	ICD-9-CM Code	Type of Substance or Substance-Related Condition
Undetermined poisoning by tranquilizers and other psychotropic agents	E980.3	Sedatives, hypnotics, anxiolytics, tranquilizers, barbiturates
Classification of Factors Influencing Health Status and Contact with Health Services (V-Codes)		
Counseling, substance use	V65.42	Other