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, 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. 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 Web site should be understood as representing county-level statistics or county-equivalent statistics (e.g., boroughs or parishes).

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 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. For stays involving alcohol and other drugs, the data can be further subdivided by the type of stay (maternal/neonatal and nonmaternal/nonneonatal) and substance 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 discharges 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 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.

Metrics

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

Table 1. Metrics for Reporting

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 region level for all discharges, all major diagnostic categories (MDCs), all diagnosis-related groups (DRGs), most Clinical Classifications Software (CCS) principal diagnoses, most CCS all-listed procedures, and stays in a category of diagnoses related to alcohol and other drugs. All CCS categories were included except those that were nonspecific groupings of "other" conditions or those related to administrative classifications.

For selected ambulatory care sensitive conditions corresponding to AHRQ Prevention Quality Indicators (PQIs) and Pediatric Quality Indicators (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.

Finally, 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.

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 Pediatric Quality Indicators: 0–4, 5–9, 10–14, 15–17
- Expected payer: Medicare, Medicaid, private insurance, uninsured, missing
- Type of stay: maternal/neonatal, nonmaternal/nonneonatal (see the Appendix for the definition of maternal/neonatal stays)

- 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.

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 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 childrens hospitals, whose facilities and services are available to the public."[1] 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. To maintain consistency with the PQIs and PDIs reported in the National Healthcare Quality and Disparities Report, LTAC facilities are included for PQI and PDI reporting.

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.[2] 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

[1] AHA Annual Survey Database™, Fiscal Year 2016
[2] See 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.

less than 98 percent were excluded (the actual percentages were rounded).[3]

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. U.S. territory counties, 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 their 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. In addition to these sub-State regions, counties in States located on the U.S.-Mexico border were grouped into border and nonborder regions. Border regions were identified using the same methodology as the U.S.-Mexico Border Health Commission. 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,[4] 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[5] is a vendor that compiles and adds value to the 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*,[6] 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 intracensus methods to estimate

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

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

[5] Claritas. Claritas Demographic Profile. www.claritas.com. Accessed June 23, 2017.

[6] 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.

household and demographic statistics for geographic areas.[7] Claritas was used rather than the Population File because the Census Bureau does not provide intracensus ZIP Code-level population estimates. Using the ZIP Code-based 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.[8] 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.

The county population data from Claritas includes a 0–4 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

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[7] 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.

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

quality indicators, see the Quality Indicators Web site.[9]

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 National Healthcare Quality and Disparities Report, starting in 2012, county- and region-level PQIs and PDIs are computed using an analysis file derived from the SID. This file is designed to provide national estimates using weighted records from a sample of hospitals from participating HCUP Data Partners, using the same methodology employed for the Nationwide Inpatient Sample prior to 2012. 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, long-term acute care facilities are included among community nonrehabilitation hospitals.

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 AHRQ Quality Indicator software v4.4[10] 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). 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.

Composite PQIs

- PQI 90 – The overall adult PQI composite is based on the 12 AHRQ PQIs for angina, asthma, bacterial pneumonia, chronic obstructive pulmonary disease, congestive heart failure, dehydration, long- and short-term diabetes, uncontrolled diabetes without complications, lower-extremity amputation for diabetes, hypertension, and urinary tract infection.
- PQI 91 – The acute adult PQI composite is based on the three AHRQ PQIs for bacterial pneumonia, dehydration, and urinary tract infection.
- PQI 92 – The chronic adult PQI composite is based on the nine AHRQ PQIs for angina, asthma, chronic obstructive pulmonary disease, congestive heart failure, long- and short-term diabetes, uncontrolled diabetes without complications, lower-extremity amputation for diabetes, and hypertension.

Individual Acute PQIs

- PQI 10 – Dehydration
- PQI 11 – Bacterial pneumonia

[9] For information about the AHRQ Quality Indicators™, see www.qualityindicators.ahrq.gov/.
[10] See AHRQ QI Software Web site. www.qualityindicators.ahrq.gov/software/. Accessed October 23, 2017.

- PQI 12 – Urinary tract infection

Diabetes-Related PQIs

- PQI 1 – Diabetes short-term complications
- PQI 3 – Diabetes long-term complications
- PQI 14 – Uncontrolled diabetes without complications

Respiratory-Related PQIs

- PQI 5 – Chronic obstructive pulmonary disease (ages 40+ years)
- PQI 15 – Adult asthma (ages 18–39 years)

Other PQIs

- PQI 2 – Perforated appendix
- PQI 9 – Low birth weight

The PDIs included in community-level statistics are described below.

Composite PDIs

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

Individual Acute PDIs

- PDI 16 – Gastroenteritis
- PDI 18 – Urinary tract infection

Individual Chronic PDIs

- PDI 14 – Asthma
- PDI 15 – Diabetes short-term complications

Other PDIs

- PDI 17 – Perforated appendix

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 less than 11 discharges. Data from counties that did not meet minimum reporting rules (i.e., less 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 included discharge counts, length

of stay, charges, CCS principal diagnosis, MDC, CCS all-listed procedures category, sex, age, and expected payer. Missing charges and length of stay were imputed by assigning the average charges for the patient's State and DRG.[11] 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.[12]

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. Long-term acute care facilities were excluded from the NIS-based benchmarks to be consistent with the hospital selections used for county-level reporting. As a result, the national statistics developed as benchmarks for the community statistics project differ from NIS statistics reported elsewhere in HCUPnet.

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 2011 AHA survey and the total discharges in the SID for the same stratum. It is important to note that, except for the PQIs, these calculations used patient residence rather than hospital location to identify the State. Use of hospital location is the standard for the National Healthcare Quality and Disparities Report, 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.

[11] Technically, the data element DRG_NoPOA was used to classify the patient.
[12] See *Costs* in HCUPnet Glossary of Terms at https://hcupnet.ahrq.gov/#glossary. Accessed October 23, 2017.

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, 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 codes that were included is shown in Table 2. 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.

Maternal records: 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 records: 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 2. Definition of substance use

ICD-9 Description	ICD-9 Code	Type of Substance or Substance-Related Condition
ICD-9 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

ICD-9 Description	ICD-9 Code	Type of Substance or Substance-Related Condition
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
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
ICD-9 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
ICD-9 Chapter 11: Complications of Pregnancy, Childbirth and the Puerperium (630-679)		
Drug dependence complicating pregnancy	648.3x	Other
ICD-9 Chapter 15: Newborn (Perinatal) (760-779)		
NOXIOUS INFLUENCES AFFECTING FETUS OR NEWBORN VIA PLACENTA OR BREASTMILK (760)		
Fetal alcohol syndrome	760.71	Alcohol

ICD-9 Description	ICD-9 Code	Type of Substance or Substance-Related Condition
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
ICD-9 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
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

ICD-9 Description	ICD-9 Code	Type of Substance or Substance-Related Condition
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
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

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