

# Health Care



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**Content** There are currently two separate, yet similar, database products offered. The first is based upon the primary diagnosis upon release from hospital and the second based on procedures undertaken by emergency departments. While there is much overlap in terms of disease, these measure two separate types of health care utilization.

**Hospital Discharges** For each of the current and five year projected years, this dataset includes the estimated number of hospital discharges and the total length of the stays to be expected in a year by diagnostic category. These are standard categories as defined by the ICD-10 (International Classification of Diseases), of which there are 822, with summarizations to the MDC (Major Diagnostic Category) , and MDC by type (Surgical, Medical).

For each of these categories, an estimate of the number of expected cases for the year and the total length of hospital stays associated with them. These are available for block group and higher. From these building blocks can be constructed such measures as average hospital stays for individual or groups of categories, estimated total demand in terms of bed-nights, and so forth.

The primary data source is the Nationwide Inpatient Sample (NIS) for 2010, available from H-CUP (Healthcare Cost and Utilization Project) of the US Department of Health and Human Services.

The database consists of a sample of approximately 8 million hospital stays from 1000 hospitals nationwide, approximately 20% of all hospital stays for the year. The sample is drawn from all "community" hospitals, which includes public hospitals, academic medical centers, and specialty facilities such as obstetrics-gynecology, ear-nose-throat, short-term rehabilitation, orthopedic, and pediatric institutions. Excluded are federal government run hospitals, such as VA hospitals. This has some implications for specific diagnoses including mental disorders which may be therefore underestimated for the total population.

The hospitals are sampled based on five characteristics –

- US Census Region
- Bed Size (small, medium, and large, defined by region to be

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- 33% of the regional total)
- Teaching Status (teaching, non-teaching)
- Ownership/Control – public (government non-Federal), private not for profit (voluntary), and private investor-owned (proprietary)
- Urban/Rural, urban being defined as a hospital located in a county which is part of a CBSA.

Each hospital then contributes their entire discharge database for the year. The records include basic patient demographics, insurance information, diagnoses, and length of stay. Each record is weighted in accordance with the sampling frame in order to approximate the national discharge profile by age, income, sex, and race.

Because the sample does not have detailed geographic information, and because many conditions are extremely rare, the basic demographics of patients were used – age, sex, race and Hispanic origin, and geographic region. Five year age cohorts were used initially, with a collapsing to seven groups. Five non-overlapping race/Hispanic origin include White Non-Hispanic, Black Non-Hispanic, Asian Non-Hispanic, Hispanic, and all other.

All records were then weighted (using H-CUP weights) to national totals for each of the age-sex-race categories, then adjusted to match the 2010 Census in order to eliminate any sampling issues. For each cell (e.g. age 75+, male, Hispanic), rates of incidence and total number of hospital stay days per 100,000 population were determined. Rates per 100,000 are used in health care because of the relative rarity of many diagnoses.

These initial estimates were then applied to the AGS estimates and projections in order to create the base ICD-10 category estimates of both number of cases and total number of hospital days.

These were then summarized across the cells to create a single estimate of each measure for each block group, with further aggregation of these categories undertaken on these results. Please note that SnapSite uses 4 significant digits of precision in order to enable more accurate representation of rare conditions.

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## Emergency Department Diagnoses and Procedures

This dataset includes estimates of the total number of procedures by category likely to be performed on residents of any particular area in a year. It is not a count of individual patients, as many incoming patients have multiple procedures.

The data source is the Nationwide Emergency Department Sample (NEDS) for 2010, available from H-CUP (Healthcare Cost and Utilization Project), US Department of Health and Human Services.

The database consists of data from 29 states, representing a total of 961 emergency departments. A total of 28.6 million "events" are recorded, roughly 20% of the estimated 130 million events nationwide per year. The sampling frame is similar, utilizing US Census region, urban/rural location, teaching status, ownership/control. Rather than use the number of beds, the sample utilizes whether the facility is a trauma center.

The results are presented at the block group level and above, again to four digits of significance. There are a total of 259 procedural categories, organized into 17 groups and a total. In addition, a tally of total trauma and multiple trauma cases is created.

Note that it is not possible to add together discharge and emergency department numbers, since many emergency department visits culminate in admission to the hospital. Since the admission rate varies by condition, it is not possible to add numbers together.

## Further Information

Contact customer service at 877-944-4AGS or email [support@appliedgeographic.com](mailto:support@appliedgeographic.com).