Sample Text for Describing NHAMCS in a Research Article

NOTE: This sample text was written to cover, in general, all years of NHAMCS. It can be customized for your particular analysis. For more precise statements, please refer to the annual public use file documentation as noted below.

Methods

Study Design and Setting

This study is a secondary analysis of data collected in the National Hospital Ambulatory Medical Care Survey (NHAMCS). NHAMCS is an annual, national probability sample of ambulatory visits made to non-federal general, and short-stay hospitals in the U.S. conducted by the National Center for Health Statistics (NCHS). Although the survey included visits to hospital outpatient departments from 1992-2017, this analysis focuses solely on visits to hospital emergency departments (EDs). The survey has been conducted annually since 1992. The sample design includes three stages for the ED component: (1) 112 geographic primary sampling units that comprise a probability subsample of primary sampling units from the 1985 to 1994 National Health Interview Surveys; (2) approximately XXX *(number varies by survey year and can be obtained from the annual public use file documentation; typically ranges between 450-500)* hospitals within primary sampling units; and (3) patient visits within all of the emergency service areas within sampled EDs. In addition, in 2012, a supplemental sample was added to produce estimates for the five largest states. Sample hospitals are randomly assigned to 16 panels that rotate across 4-week reporting periods so that each hospital is surveyed about once every 15 months. The initial sample frame of hospitals was based on the 1991 SMG hospital database now maintained by IQVIA.

Data collection and processing

Hospitals are inducted into NHAMCS by field representatives of the U.S. Census Bureau. From 1992-2011, NHAMCS used paper Patient Record forms (PRFs), and data collection was carried out by hospital staff and Census Bureau field representatives. Starting in 2012, NHAMCS switched to an automated mode of data collection, and, by 2016, all data collection was performed by Census Bureau field representatives who abstracted data from medical records for each sampled visit. Data are collected on patient demographics, reasons for visit, vital signs, causes of injury, diagnoses, diagnostic tests ordered or provided, procedures provided, medications given in the ED or prescribed at discharge, providers seen, and visit disposition including hospital discharge information if admitted (since 2005). Approximately X% of sampled hospitals participated annually in the survey, and about X% of sampled EDs provided complete information on their sample visits for a total unweighted response rate of X%. (*Complete the X's for the data year[s] you are using. Use the response rates provided in the annual public use file documentation. If analyzing multiple years of data, average the response rates for the years included.*)

NHAMCS is approved annually by the NCHS Ethics Review Board with waivers of the requirements to obtain informed consent of patients and patient authorization for release of patient medical record data by health care providers. Medical coding of verbatim text entries for patients' reasons for visit, causes of injury, medications (through 2011), and providers' diagnoses is performed by contracted medical coders. *(See annual public use file documentation for specifics.)* Since 2012, medication coding and adjudication has been performed by NCHS. As part of the quality assurance procedure, a quality control sample of PRFs is independently keyed and coded. Error rates typically range between 0.1% and 1.5%

for various survey items *(See annual public use file documentation for specifics. Add here specifics about the number of years you are using, the case inclusion definitions, and the raw number of records meeting your definition. If you are using particular items, provide more information such as item wording, classification used [e.g., Reason for Visit Classification for Ambulatory Care {NCHS}; ICD-9-CM (for years 1980-2015) or ICD-10-CM (for 2016 forward)for diagnosis and external causes of injury. Indicate if you are including only the first-listed reason for visit, diagnosis, and/or cause of injury versus any-listed. (If you are analyzing drug data, add the following and revise according to the years used: "Since 2006, drug characteristics have been assigned using Cerner Multum's Lexicon Plus Drug [Database](#). Therapeutic classification reflects Multum's 3-level nested category system. In previous years, the FDA's National Drug Code [Directory](#) was used for therapeutic classification.)*

Statistical Analysis

Survey data were analyzed using the sampled visit weight that is the inverse of the selection probabilities, which in turn is the product of the corresponding sampling probabilities at each stage in the sample design. The sampling weights have been adjusted by NCHS for survey nonresponse within time of year (assuming sufficient response by season), geographic region, urban/rural and ownership designations, yielding an unbiased national estimate of ED visit occurrences, percentages, and characteristics. Because of the complex sample design, sampling errors were determined using *{insert the software you used – SUDAAN, SAS SVY PROCS, STATA}* which takes into account the clustered nature of the sample. *(Insert here the definition of the main dependent variable measure you are using, such as percentage of visits, population rates, and frequency count. If you use population rates, be sure to include the definitions and source of the population used in the denominator, e.g., civilian, noninstitutionalized population, population with a known characteristic such as asthma, institutionalized population.)*

Checklist for NHAMCS Article Submission:

1. Is each point estimate or rate estimate based on at least 30 sample or unweighted records?

2. Does each point estimate or rate estimate have a relative standard error (RSE) <30 percent?

3. If using estimates of proportions, do they meet the new reliability standards proposed by NCHS and described [here](#)?

4. Is the item nonresponse rate < 30%?

5. Are the estimates rounded to the nearest 1,000?

6. If using population rates (number of visits per population), did you provide the definition of the specific population?

7. Did you make sure all of the records in the data files were included in the analysis to obtain the correct sample variance estimate?

Note about variance estimation: From 1992-2009, NHAMCS only included two components (EDs and outpatient departments OPDs). Researchers using the ED public use data files were encouraged to combine ED and OPD data for variance estimation purposes. This ensured that even if not all hospitals were represented on the ED file, the inclusion of records from the OPD file resulted in a complete set of

participating hospitals and their sampling design variables. When the ambulatory surgery component was added to NHAMCS in 2010, analysis was conducted by NCHS to ensure that the sampling design information was complete when combining the ED and OPD public use files, even though the ambulatory surgery public use file was not available until 2017. OPD data have not been released for 2012-2016, but in internal research was conducted to study the effects of only using ED data, without the accompanying OPD data, on variance estimation. It was found that the effects on variance estimation were not problematic when compared with variance estimation using internal data and non-masked design variables. The effects of the missing sampling design information were more pronounced in 2015 and 2016 and may lead to more variances being understated compared with what was found in previous years. For most standard error estimates tested, the differences were small, but the possible understatement in variances for other estimates means a higher likelihood of a Type I error (finding a significant difference in the data that may not actually exist). In order to decrease the possibility of a Type I error when analyzing the 2015 and 2016 NHAMCS ED public use files, we recommend that researchers test for significant differences at the alpha=0.01 level, rather than the more commonly used 0.05 level.

8. Are the correct table headings used for percentages, i.e., percentage distribution if adds to 100%) or percentage of visits (used for items where more than response may be recorded, e.g., providers seen)? *(As mentioned earlier, NCHS recently published new guidelines for the presentation of proportions based on NCHS data.)*

9. Are estimates presented as numbers of visits rather than persons or patients?

10. When using multiple years of data, were data collected consistently for the variable(s) for each year in the analysis? If no, then explain.

11. If multiple years of data were combined, were average annual estimates presented?