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NHAMCS has been a trusted source of data for healthcare disparities research since 1992

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The National Center for Health Statistics (NCHS) conducts the National Hospital Ambulatory Medical Care Survey (NHAMCS), a national probability sample survey of visits to U.S. hospital emergency departments (EDs). NCHS staff recently became aware of a Brief Report published in the July 2022 issue of *Public Health Nursing* (Marye 2022) which claimed that healthcare disparities research was limited with NHAMCS data; however, the report included inaccuracies about the survey and its data that should be clarified. NHAMCS has been conducted annually since 1992 and has been used for decades to understand the provision of ambulatory medical care at hospitals, as well as disparities in this care. A brief search in the *PubMed*® database returns hundreds of peer-reviewed research manuscripts using NHAMCS data, with at least 40 focusing on healthcare disparities. Furthermore, NHAMCS continues to be used in various U.S. government reports that focus on health care and health disparities (Agency for Healthcare Research and Quality, 2022; National Center for Health Statistics, 2023).

In this letter, we aim to correct inaccuracies contained in the Brief Report, specifically those concerning both the time series analyses and the various patient and visit characteristics.

First, the author states that time series are not possible with NHAMCS variables, as the variables of interest are not consistent over time. While it is true that changes are periodically made to the NHAMCS survey instrument, most variables have remained consistent across years, including patient characteristics and reason for visit. Regarding the statement about the inability to conduct trends due to changes with ICD coding over time, NHAMCS data are currently coded using ICD-10-CM (not ICD-10 as stated by the author). Once ICD-10-CM was adopted for U.S. medical billing in 2016, NHAMCS (like other healthcare surveys) was obliged to change diagnosis coding from ICD-9-CM to ICD-10-CM. However, this does not prevent time series analyses from being performed on diagnoses, as crosswalks between these two ICD versions are freely available, for example from the Centers for Medicare & Medicaid Services (2021). In addition, guidance

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and considerations on standardizing to ICD-10-CM are also available (e.g., for asthma, see Centers for Disease Control and Prevention [2019]). While the need for diagnosis crosswalks is not ideal for researchers (Mainor et al., 2019; Simeone et al., 2021), this issue is not unique to NHAMCS, nor should it preclude a time series analysis of asthma or any other diagnosed condition.

Second, it was stated that an asthma diagnosis cannot be correlated with a reason for visit because the unit of analysis for this database is the visit and not the individual. In fact, it is possible to correlate reasons for visit with diagnoses for each sampled visit. For every sampled visit in NHAMCS, data are collected on up to five clinician diagnoses and up to five reasons for the visit as expressed by the patient or the patient's surrogate. The first-listed reason for visit is defined as the most important complaint for the current visit. NHAMCS does not track individual patients so it does not allow for estimates of disease incidence or prevalence.

Third, the statement was made that geographic variability is operationalized by region, not state. In addition, metropolitan statistical area (MSA) classification is only available as a yes or no variable. It is correct that geographic granularity is limited to region and MSA status on NHAMCS public use files. Additional granularity could pose an increased disclosure risk and ensuring the confidentiality of patients and survey respondents is paramount to NCHS. However, NCHS recognizes that this level of detail has value in healthcare research. Therefore, NCHS makes both state-level identifiers and a 5-level urban/rural classification by both hospital location and patient ZIP code available in the NCHS Research Data Center (RDC). Researchers can find out more at: https://www.cdc.gov/rdc/index.htm.

Fourth, the statement was made that patient age is only available as a dichotomous variable (<15 and ≥15 years). This is not correct. NHAMCS has always included the specific age in years of the patient making the ED visit, so researchers have the flexibility to create their own age groups. In addition, there is a six-level age group variable for use if desired. It was also noted by the author that there is a field for patient date of birth in the NHAMCS data collection instrument. This is accurate, but because of confidentiality concerns, patient date of birth is not included on the public use file and is only available through the NCHS RDC.

A final point made in the Brief Report is that the social construct of ethnicity in NHAMCS reduces this variable to Hispanic or Non-Hispanic, and that finer categorization of ethnicity would be valuable for disparities research. We agree. However, NHAMCS data are limited by their source. Race and ethnicity data are collected through field abstraction from medical records where they are typically missing for more than 10–15% of sampled visits. Even if more detailed race and ethnicity data were available in medical records and were able to be collected by NHAMCS, these data might have limited analytic value due to small sample sizes. In addition, such detailed demographic data would also be subject to disclosure risk.

In conclusion, NHAMCS has been a trusted nationally representative data source for healthcare disparities research for over 30 years and is a rich source of information on health care in EDs throughout the United States. It can be used to perform time series analyses, contains detailed information on reasons for visit and clinical diagnoses, and

allows the study of ED visits among various geographic levels, patient age groups, and racial and ethnic groups. While NHAMCS data may not be perfect for every research study, it has a long history of use to study a variety of healthcare topics. We encourage researchers to explore NHAMCS in case it is useful for their own research agenda. For insight into how NHAMCS data can be used, a list of publications from scientific studies is available: https://www.cdc.gov/nchs/data/ahcd/namcs_nhamcs_publication_list.pdf. More information on NHAMCS can be found on the NHAMCS website: https://www.cdc.gov/nchs/ahcd/about_ahcd.htm.

References

Agency for Healthcare Research and Quality. (2022). 2022 national healthcare quality and disparities report. Retrieved May 22, 2023 from https://www.ahrq.gov/research/findings/nhqrdr/nhqdr22/index.html

Centers for Disease Control and Prevention. (2019). Asthma: ICD-9-CM to ICD-10-CM conversion. Retrieved May 22, 2023 from https://www.cdc.gov/asthma/data-analysis-guidance/ICD-9-CM-ICD-10-CM.htm#:~:text=The%20ICD%2DCM%20codes%20for,10%2DCM%20(Table).

Centers for Medicare & Medicaid Services (2021). Medicare: Coding: ICD-10. Retrieved May 22, 2023 from https://www.cms.gov/medicare/coding/icd10

Mainor AJ, Morden NE, Smith J, Tomlin S, & Skinner J (2019). ICD-10 Coding Will Challenge Researchers- Caution and Collaboration May Reduce Measurement Error and Improve Comparability Over Time. Medical Care, 57(7), e42–e46. 10.1097/MLR.0000000000001010 [PubMed: 30489544]

Marye S (2022). NHAMCS database variables limit healthcare disparities research. Public Health Nursing, 39(4), 865–866. 10.1111/phn.13048 [PubMed: 35005803]

National Center for Health Statistics. (2022). 2020 NHAMCS micro-data file documentation. Retrieved May 22, 2023 from https://ftp.cdc.gov/pub/Health_Statistics/NCHS/Dataset_Documentation/NHAMCS/doc20-ed-508.pdf.

National Center for Health Statistics. (2023). Health, United States, 2020–2021: Annual perspective. Retrieved May 22, 2023 from https://www.cdc.gov/nchs/hus/report.htm.

Office of Management and Budget. (1997). Revisions to the standards for the classification of Federal data on race and ethnicity. Federal Register, 62(210), 58782–58790. Retrieved May 22, 2023 from Federal Register :: Revisions to the Standards for the Classification of Federal Data on Race and Ethnicity

Simeone JC, Liu X, Bhagnani T, Reynolds MW, Collins J, & Bortnichak EA. (2021). Comparison of ICD-9-CM to ICD-10-CM Crosswalks Derived by Physician and Clinical Coder vs. Automated Methods. Perspectives in Health Information Management, 18(Spring), 1e. Retrieved May 22, 2023 from Comparison of ICD-9-CM to ICD-10-CM Crosswalks Derived by Physician and Clinical Coder vs. Automated Methods - PMC (nih.gov)