Acquiring State Hospital Discharge Data and Identifying the Availability and Consistency of Homelessness Indicators of Interest

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Abstract

In an article published in the American Journal of Public Health, *Madigan et al. (2019) provided evidence that estimates of homeless populations may be strengthened by analyzing homelessness indicators in hospital discharge data. To further explore Madigan et al.'s (2019) approach to estimating homelessness, I intend to conduct analyses of hospital discharge data for states across the United States with U.S. Department of Housing and Urban Development (HUD) Social Science Analyst Brent Mast. As a supplement to this ongoing project, the purpose of this article is to report the information that was gained during the data acquisition process, as access to hospital discharge data pertinent to the estimation of homeless populations was requested from each state. In doing so, this analysis will provide background on the role and maintenance of hospital discharge databases (HDDs) in state health systems, outline if and how homelessness is indicated in such databases, and illustrate state-to-state variability in the process of data acquisition of HDDs.*

Over the past four decades, state hospital discharge databases (HDDs) have become a vital data source for guiding state healthcare delivery and assessing healthcare utilization longitudinally (Love and Steiner, 2011). Statewide HDDs capture a complete receipt of patients' hospital-based care, providing records of payer types and reliable patient data sources for research at various aggregation levels (Andrews, 2015). All 50 states—except for Idaho and Alabama—maintain HDD systems in some form; however, they differ between states based on the data elements collected,

the definition of data elements, data completeness, the voluntary or mandatory nature of data submission, and data release policies (Schoenman et al., 2005). Laws mandate the collection and maintenance of HDDs in some states, whereas this is voluntary in other states. State government agencies oversee data maintenance in some states, while in other states, the data are maintained by private organizations (Andrews, 2015). HDDs have strengths that make them advantageous for studying homeless populations: inexpensive collection and obtainment costs, reliability, inclusion of uninsured patients, and capacity to perform multi-year trend analyses (Schoenman et al., 2005).

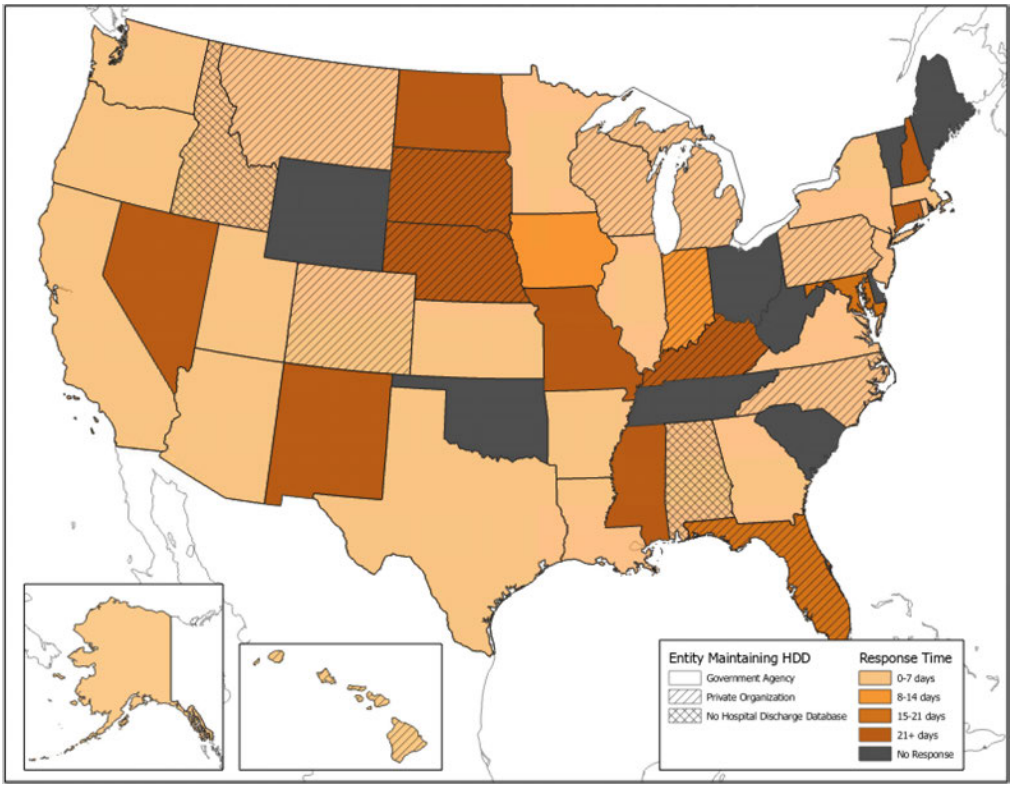
However, inconsistencies in the reporting of data elements between states, providers, and hospitals can lead to problems with data quality, resulting in state HDDs improperly accounting for care-seeking homeless populations (Schoenman et al., 2005). Accurately identifying and recording homeless individuals is vital to providing appropriate care and ensuring that referrals are made to improve continuity and quality of health care (Biederman et al., 2019). However, many health systems do not screen for homelessness routinely, and other health systems underutilize existing homelessness indicators, making identification difficult (Zech et al., 2015). Homelessness is identified in numerous ways by different providers and health systems, including through International Classification of Diseases (ICD)-9 and ICD-10 codes,[1] patient discharge status codes, and recorded patient addresses (which may be written as "homeless" on the address line or use the address of a local shelter). As a result of the variability and underutilization of homelessness indicators, research aimed at improving health care for homeless populations may be limited and incapable of fully demonstrating such populations' needs.

After 3 months of initial and follow-up outreach during the data acquisition process, I had received responses from the health departments of 41 states and the District of Columbia. Twenty-six states responded within the first week of being contacted, and the average response time for responding states was 19 days. Exhibit 1 reflects the response time of each state as well as whether or not a state government agency maintains the state's hospital discharge database. In 28 of the responding states, state government agencies maintained the HDDs, while private organizations maintained the HDDs in 12 other reporting states. Exhibit 2 demonstrates whether each state HDD contains a homelessness indicator. Furthermore, the exhibit acknowledges those states whose data analytics representatives considered the existing homelessness indicator(s) as inconsistently reported or underutilized. Of the reporting states, 33 reported the presence of a homelessness indicator in their HDDs, with 21 of these states relying on ICD codes for the indication of homelessness. Twelve of the 33 states had representatives who expressed concern regarding the use of such data for this research purpose. The most common sources of reservation cited by data representatives were the underutilization and inconsistent use of indicators across health systems and the increased use of ICD homelessness codes that could misrepresent trends in the sizes of homeless populations in recent years.

[1] The International Classification of Diseases (ICD) is a compiled list of medical classifications maintained by the World Health Organization. The ICD codes are assigned to and recorded for each patient to ensure that proper treatment is provided and that patients are charged for services appropriately. The 9th version (ICD-9) was used until October 2015, and the 10th version has been used since then.

Exhibit 1

State Response Times and Hospital Discharge Database Maintaining Entities

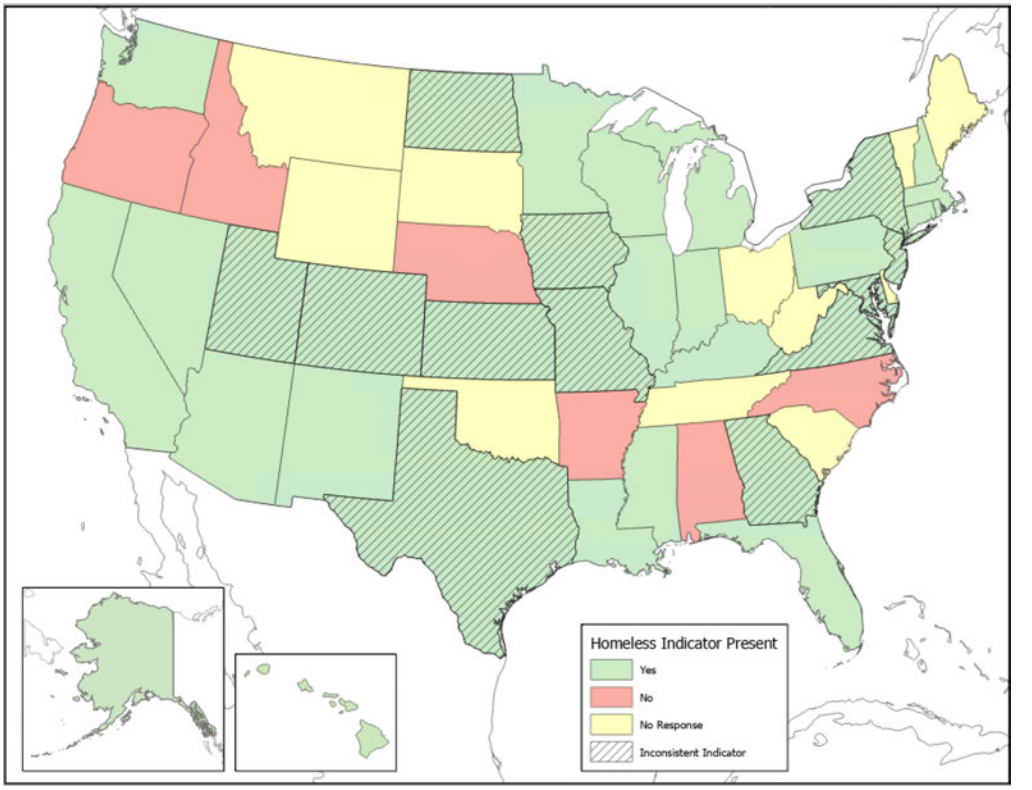


HDD = Hospital Discharge Database.

Sources: World Countries (Generalized) Feature Layer, ArcGIS Hub. ACS State Feature Layer, HUD Official Content

Exhibit 2

Presence and Identified Inconsistency of Homelessness Indicators



Sources: World Countries (Generalized) Feature Layer, ArcGIS Hub. ACS State Feature Layer, HUD Official Content

As a result of these concerns, we are re-evaluating how the confounding elements present within the available HDDs might be addressed to compose reliable homelessness estimates. In doing so, these data sources' analytic capacity will be compared to the current Point-In-Time counts used to measure the number of individuals experiencing homelessness in the United States, assessing whether this alternative method of estimation can improve the prevailing methodology.

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