Introducing the Commonwealth Institute of Kentucky's American Hospital Association (AHA) Data

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1. Background

American Hospital Association (AHA) Annual Survey Database (ASD) is a hospital database for peer comparisons, market analysis, and health services research that started in 1946. The Database is primarily from the Annual Survey of Hospitals administered by the AHA. AHA curates data and information from more than 6,200 hospitals and healthcare systems throughout the U.S. and associated areas. The purpose of the survey is to collect information on the organizational structure, service lines, utilization, finances, insurance and payment models, and staffing of U.S. hospitals. The survey's overall response rate averages approximately 80% each year. For hospitals that do not respond at all or do not respond fully, a statistical methodology is run against their records to estimate some missing values.

2. Documentation

Each year, AHA administers the Annual Survey of Hospitals. The latest survey questionnaire is available at this Questionnaire link.

3. AHA Hospital Summary Statistics

Many of the AHA data are summarized at the national and state levels in AHA Hospital Statistics Link.

4. Commonwealth Institute of Kentucky's (CIK) AHA Data

4.1. Years of Data

The CIK purchased the AHA datasets from 2009 to 2020.

4.2. Data Format

The Database includes data files in multiple formats, namely,
- Microsoft Access,

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- CSV,
- SAS, and
- flat.

4.3. Components of the Data

For each year, there are multiple data files:
- Unit Information (*FUNIT_ID*): hospitals' name, location information, address, contact information, and primary service type
- Demographic and descriptive fields for each facility (*ASYYDEM*)
- Facilities and services field 1 (*ASYYSVC1*):
  - Different types of care (e.g., medical and surgical, obstetric, and cardiac intensive care)
  - Different types of beds (e.g., medical and surgical, obstetric care, and cardiac intensive beds)
  - Ambulance services
  - Hospital centers (namely, Alzheimer's, ambulatory surgery, and blood donor centers)
  - Programs (namely, adult day care, children wellness, and diabetes prevention programs)
- Facilities and services field 2 (*ASYYSVC2*):
  - Services (e.g., enabling, enrollment/insurance assistance, employment support, geriatric, HIV/AIDS, and home health services)
  - Hospital clinics (fertility clinic and indigent care clinic)
  - Other hospital centers (namely, certified trauma, fitness, Freestanding outpatient, hospital-based outpatient care, patient education, and assistive technology centers)
  - Other hospital programs (namely, hospice, immunization, nutrition, pain management, and palliative programs)
- Facilities and services field 3 (*ASYYSVC3*):
  - Different diagnostic services
  - Different therapies
  - Different transplants
  - Telehealth
- Utilization, personnel, and financial fields 1 (*ASYYUTIL1*):
  - Expenses
  - Admissions
  - Discharges
  - Inpatient days
  - Emergency room visits
  - Outpatient visits
  - Number of full-time and part-time staff

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- o Number of technicians
- o Number of vacancies
- Utilization, personnel, and financial fields 2 (*ASYYUTIL2*):
  - o Total employed
  - o Total privileged
  - o Closed unit
  - o Nurses
  - o Assistants
  - o Number of on-campus site centers

where, Y.Y. indicates the year (e.g., 18, 19, or 20)

4.4. Documentation

There is a documentation folder for each year which contains four files:
- *ASYY_v_ASYY_SummaryofChanges*: Provides information on how an AHA survey in a given fiscal year changed with respect to the previous year.
- *ASYYappendices*: Contains the complete codebook for each AHA survey
- *ASYYlay:* Contains field descriptions
- *SASLAYOUT2019:* A text file of the SAS layout.

4.5. Information Technology (I.T.) Supplement

Since 2008, the AHA has been conducting a healthcare I.T. supplemental survey focusing on indicators illustrating the depth and level of technology integration within hospitals.

CIK has the AHA IT supplement database from 2008 to 2020. The documentation for each year is available, three documentation files for each year: an introductory file, the questionnaire, and the data file layout.

4.6. Codebooks

Annual survey pdf files are available from 2009 to 2020.

4.7. Healthcare Cost Report Information System (HCRIS) data

CIK has HCRIS data from 2009 to 2020. The data includes the following information:
- Hospital address
- Hospital wage index
- Hospital assets (e.g., total current assets, building equipment depreciation accumulated on related assets used in hospital operations)
- Hospital liabilities (e.g., current liabilities, estimated liabilities of the hospital for amounts payable for payroll taxes)

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- Hospital revenues (e.g., revenues from ambulance services, revenue from inpatient and outpatient ancillary services)
- Hospital costs (e.g., cost of automobiles and trucks used in hospital operations, cost of all buildings and subsequent additions used in hospital operations)
- Hospital incomes (e.g., incomes from investments and renting vending machines)
- Hospital expenses (e.g., depreciation expense, tax expense)

Each filed description of HCRIS data is available in HCRIS Custom Glossary.

5. Limitations of the Data

- Although the AHA reports a consistently high response rate (approximately 75%) for its annual survey, inconsistent hospital participation limits analytical procedures.
- AHA identifiers and characteristic crosswalks do not include identifiers for Hospital Service Areas or Hospital Referral Regions (Dartmouth Atlas).
- The AHA annual survey data is not available until a year after collection; the time delay between collection and availability may interfere with time-sensitive research.
- Some services' metrics are provided dichotomously hence providing minimal information on actual staffing levels. Examples:
  - "On campus Emergency Department - hospital" / "- health system" / - "joint venture" (yes/no)
  - "Chaplaincy Department - hospital" / "- health system" / - "joint venture" (yes/no)
  - "Social Work Services - hospital" / "- health system" / - "joint venture" (yes/no)
- Some variables/services lack standardized definitions allowing for varied interpretations.
- Misestimation of ED services between AHA data and other data sources with similar measures.

6. Ten Highly Cited Peer-Reviewed Articles Used the AHA Data

Adler-Milstein, J., Holmgren, A. J., Kralovec, P., Worzala, C., Searcy, T., & Patel, V. (2017). Electronic health record adoption in US hospitals: the emergence of a digital "advanced use" divide. *Journal of the American Medical Informatics Association*, *24*(6), 1142-1148.

Adler-Milstein, J., Kvedar, J., & Bates, D. W. (2014). Telehealth among US hospitals: several factors, including state reimbursement and licensure policies, influence adoption. *Health Affairs*, *33*(2), 207-215.

Adler-Milstein, J., DesRoches, C. M., Furukawa, M. F., Worzala, C., Charles, D., Kralovec, P., & Jha, A. K. (2014). More than half of US hospitals have at least a basic EHR, but stage 2 criteria remain challenging for most. *Health Affairs*, *33*(9), 1664-1671.

Arslanian, K. J., Vilar-Compte, M., Teruel, G., Lozano-Marrufo, A., Rhodes, E. C., Hromi-Fiedler, A., & Pérez-Escamilla, R. (2022). How much does it cost to implement the Baby-

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Friendly Hospital Initiative training step in the United States and Mexico?. *PloS one*, *17*(9), e0273179.

Dumanovsky, T., Augustin, R., Rogers, M., Lettang, K., Meier, D. E., & Morrison, R. S. (2016). The growth of palliative care in US hospitals: a status report. *Journal of palliative medicine*, *19*(1), 8-15.

Merchant, R. M., Yang, L., Becker, L. B., Berg, R. A., Nadkarni, V., Nichol, G., ... & Groeneveld, P. W. (2011). Incidence of treated cardiac arrest in hospitalized patients in the United States. *Critical care medicine*, *39*(11), 2401.

Owens, P. L., Barrett, M. L., Gibson, T. B., Andrews, R. M., Weinick, R. M., & Mutter, R. L. (2010). Emergency department care in the United States: a profile of national data sources. *Annals of emergency medicine*, *56*(2), 150-165.

Rana, I., von Oehsen, W., Nabulsi, N. A., Sharp, L. K., Donnelly, A. J., Shah, S. D., & Durley, S. F. (2021). A comparison of medication access services at 340B and non-340B hospitals. *Research in Social and Administrative Pharmacy*, *17*(11), 1887-1892.

Simpson, K. R. (2011). An overview of distribution of births in United States hospitals in 2008 with implications for small volume perinatal units in rural hospitals. *Journal of Obstetric, Gynecologic & Neonatal Nursing*, *40*(4), 432-439.

Walker, D., Lawrence, J., & Yeager, V. (2020). Progress and challenges with connecting hospitals with the public health system. *Health Services Research*, *55*, 128-129.

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