

Emergent Care in Hospitals within the Deep South US: Findings from the 2020 Release of the American Hospital Association Database

Submitted in partial completion for the Bachelor of Science Degree in Management with a Concentration in Health Analytics at The University of Alabama

Due to the Family Educational Rights and Privacy Act of 1974, all student authors' names have been removed to protect the privacy of student records. Prospective employers and graduate schools can verify the identity of student authors upon the request of students, by having the student contact LEWIS060@cba.ua.edu. Thereafter, verification of authorship will be supplied by faculty mentor to the student with the prospective employer or graduate program cc'd on the emailed response.

Introduction:

The use of emergency room services for non-emergent health conditions has been a historical concern for the US (1). There is evidence suggesting that 14%-27% of care at US emergency rooms, could have been performed at an urgent care clinic, with a non-inflation adjusted savings of \$4.4 billion annually (2). The topic we explored within this report is hospitals within the United States that provide urgent care. We limited our scope to focus on Alabama, Georgia, and Mississippi to determine if there are disparities of urgent care access in the Deep South.

Urgent care facilities treat a wider scope of illness than primary care centers and can serve to alleviate overcrowding in emergency departments (3). The rates of non-urgent patient visits in emergency departments (EDs) ranges from 20 to 50% (4). Despite the possibility for urgent care centers to address bottlenecks in EDs, the availability of such facilities remains limited. Urban areas can benefit from more urgent care facilities because they are most affected by overcrowding, but only 20% are located in urban areas (4). Urgent care centers can also fill access gaps in rural and medically underserved areas on an outpatient basis. According to the American Hospital Association (5), urgent care centers would allow struggling hospitals to maintain an access point for urgent medical conditions that can be treated without emergency medical services or inpatient acute care services. They are sustainable in underserved areas as they are usually less expensive to maintain than a hospital ED, but can meet common medical needs (6).

An observational study by Carlson et al. found that the number of ED visits falls about 17% among patients who live near urgent care facilities when they are opened (7). It is suggested that the long wait times in EDs may be associated with adverse outcomes including increased

mortality, a higher length of stay, and medication errors. The study found that the urgent care centers had a more significant impact among the uninsured population, as well as Medicaid enrollees. These groups use the ED for non-urgent care at higher rates than other groups and are more likely to be impacted by insufficient access to care (7). Therefore, urgent care centers can be especially useful in areas with large populations of individuals of lower socioeconomic status to improve accessibility to healthcare.

To date, the literature on hospitals with urgent care access in the Deep South is limited, so we are seeking to perform analysis of AHA and U.S. Census data to examine if there are disparities in access. Our research aims to explore the research question: How does rurality and socioeconomic status impact the access to hospitals with urgent care facilities in the Deep South of the United States?

Methods:

Data on the location and attributes of hospitals in the US comes from the American Hospital Association Database (8). Identification of hospitals in the U.S. that provide urgent care occurs through the column [URGCCHOS], which comes from one of the hospital service tables in the AHA Database (i.e., [dbo].[as19svc3]). The socioeconomic status of the population's census tract was defined using the Area Deprivation Index (ADI) (9). We operationalized socioeconomic status as follows given a neighborhood's deprivation score: 0-25 High SES, 25-75 Middle SES, and 76+ Low SES. Rurality was defined using HRSA's Rural Health Area (10). The Federal Office of Rural Health Policy uses components of multiple definitions of rurality when determining a classification for a geographic region. Vehicle routing data was generated by a faculty mentor using ESRI's StreetMap Premium (11). In this analysis, we examined 1) the

rates of urgent care facilities within hospitals 2) travel times to the closest hospital with urgent care 3) the rurality and socioeconomic status of the regions with and without hospitals with urgent care access. We limited our analysis to Alabama, Mississippi, and Georgia to explore access in the Black Belt region and Deep South of the United States.

Full details of the database, and schema of data sources used in this project can be found here: <https://bit.ly/3nLuYMF>. T-SQL programming in SQL Server Management Studio © and Azure Data Studio © were used to execute most queries presented in this report. Tableau © was used among group members to discuss and internalize findings. A faculty mentor assisted in the development of some maps in ArcGIS Pro ©, and advanced queries not covered during lecture.

Results:

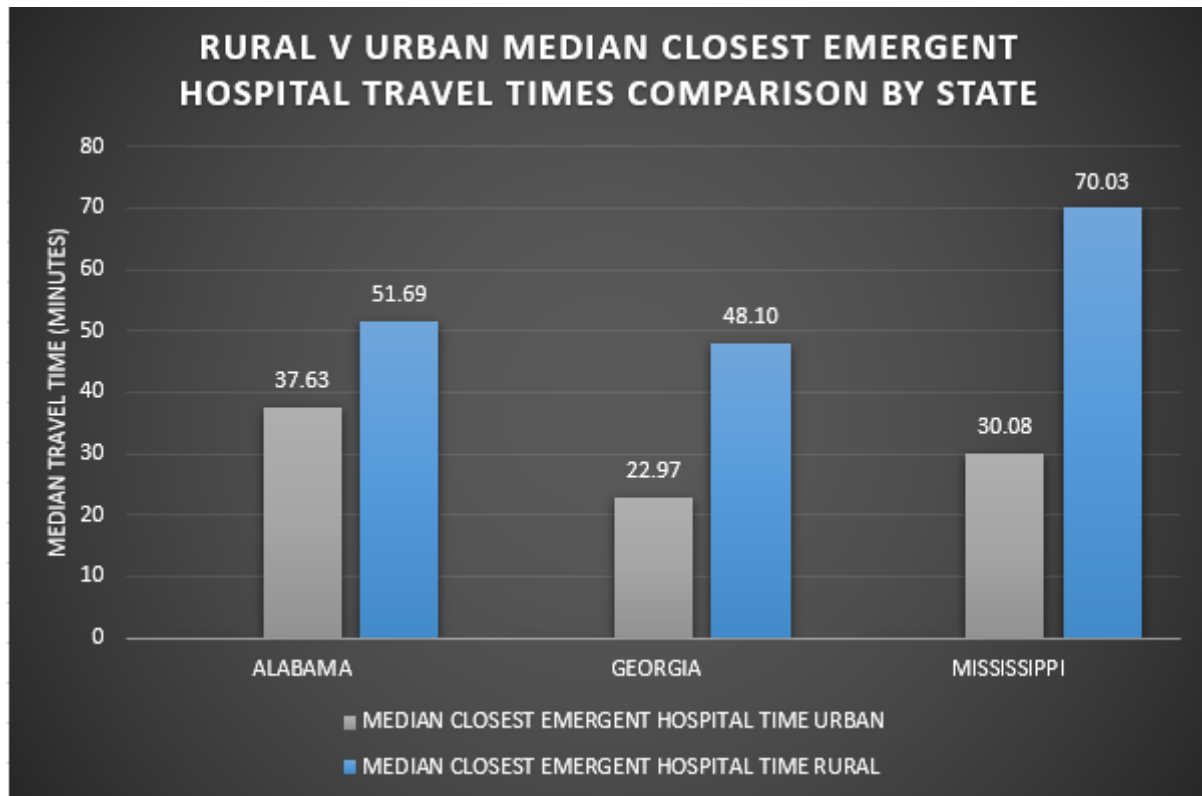
We identified a disparity in the median travel time to the closest provider with an urgent care between socioeconomic levels (see below table for breakdown) within Alabama, Georgia, and Mississippi. Those geographical tracts ranked as ‘Upper Class’ saw a lower median travel time (AVG of the median travel time of all 3 states) of **20.03** minutes to the closest provider with an urgent care as opposed to **42.36** minutes for Middle Class and **48.80** minutes for Lower Class.

Mississippi’s disparity between socioeconomic classes was the greatest of note with a difference of **43.93** minutes in average travel time to the closest hospital with an urgent care between the Upper and Lower Class in the state.

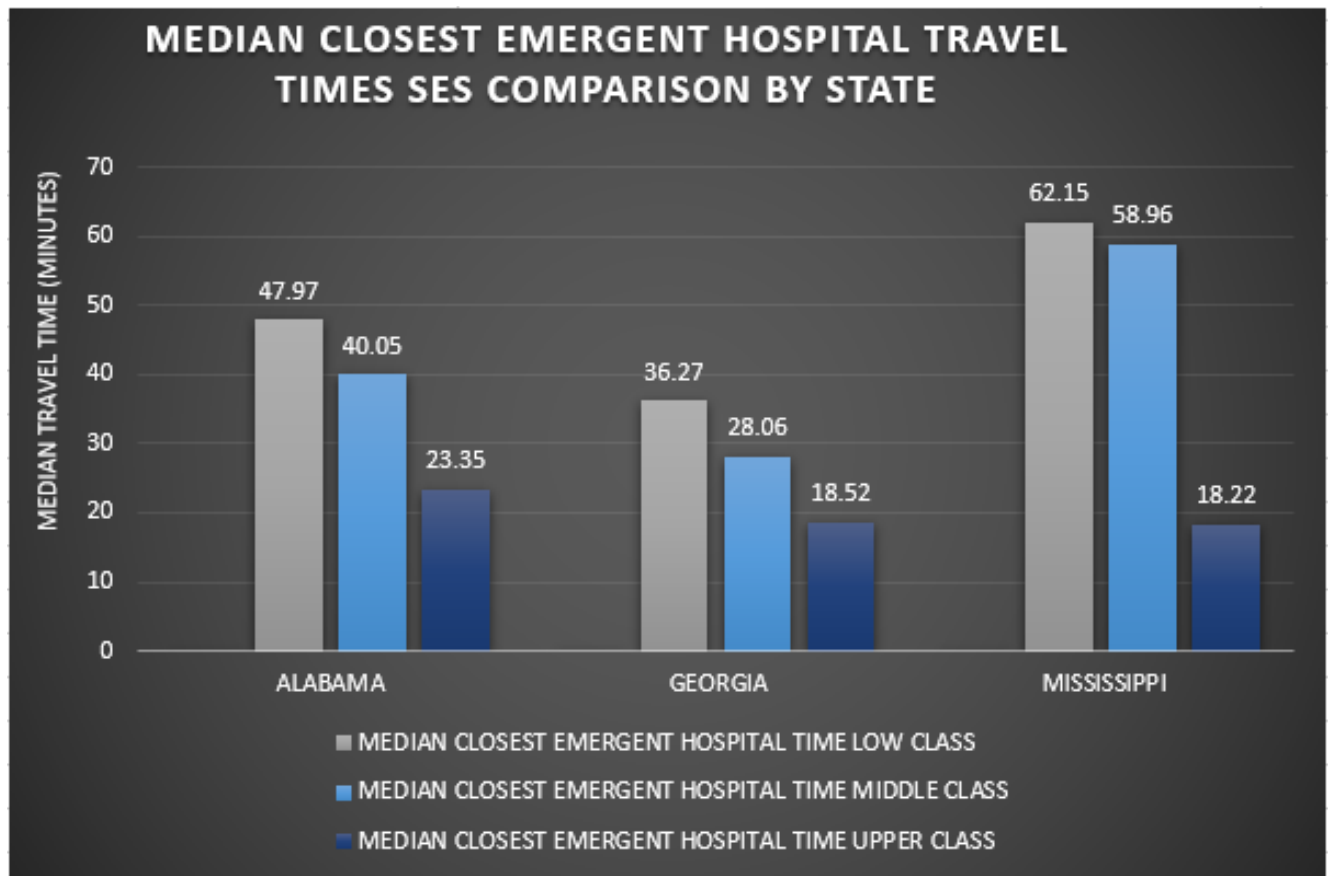
We also noted a disparity in the median travel time to the closest provider between rural and urban areas within Alabama, Georgia, and Mississippi (see below table for breakdown). Those geographical tracts labelled ‘Rural’ saw a much larger median travel time (AVG of the median travel time of all 3 states) of **56.60** minutes to the closest hospital with an urgent care compared

to an urban median travel time of **30.22** minutes. Mississippi again had the highest disparity with a difference of **39.95** minutes between urban and rural median travel times to the closest hospital with an urgent care.

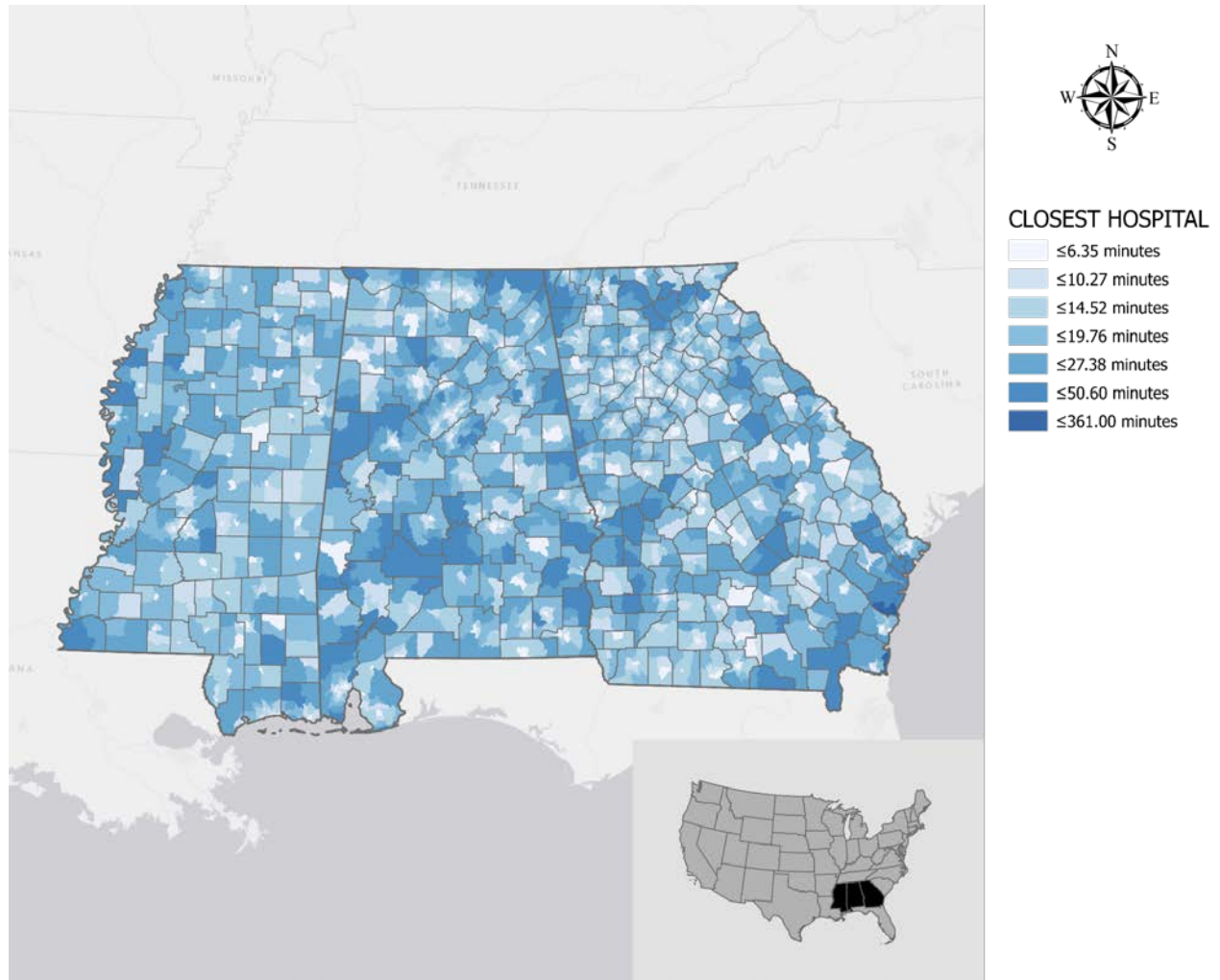
Rural v. Urban Hospital Urgent Care Access:



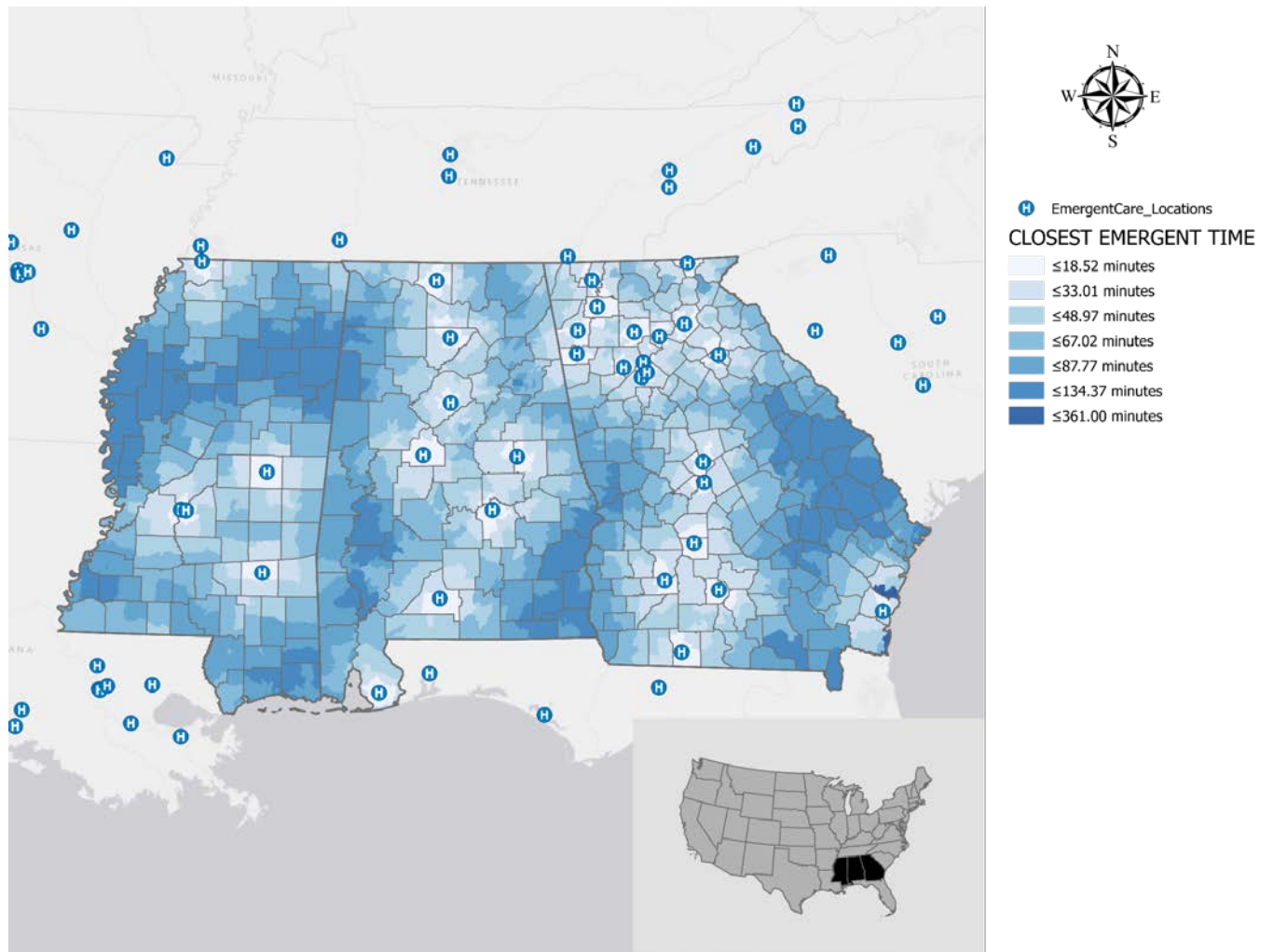
Socioeconomic Status Hospital Urgent Care Access Comparison:



Travel Time to Closest Hospital (With or Without Urgent Care) in Alabama, Georgia, and Mississippi:



Travel Time to Closest Hospital with Urgent Care Facility in Alabama, Georgia, and Mississippi:



Conclusions:

In conclusion, the impact of rurality and socioeconomic status greatly affects the access of hospitals with urgent care facilities in rural areas as well as impoverished areas in the Deep South. The data above provides a diverse visual representation of each state's travel times and a comparison between each socioeconomic class as well as comparison between rural and urban areas. The conclusive result is that lower socioeconomic regions as well as rural regions have less/more difficult access to hospitals with urgent cares. Travel times for areas in which the closest provider did not respond on their urgent care status were calculated based on the next closest hospital which provided a response of yes.

The literature discussed the need for more urgent care centers in urban areas due to the overcrowding of emergency departments. Despite the shorter travel times for urban areas than rural areas, travel times for urban areas were still lengthy in some states. Alabama's median travel time to the nearest hospital with an urgent care is 37 minutes in urban areas. This could suggest a need for more hospitals with urgent care centers to reduce wait times in EDs. There may be urgent care centers that are not attached to hospital systems, which could be considered with further analysis.

Because the AHA hospital survey responses were optional, over a third (38.52%) of respondents did not answer the question about the presence of an urgent care facility within the hospital and/or respond to the AHA survey at all. The large amount of null values heavily affected our analysis because of the potential hospitals with urgent cares that were not documented.

References:

1. U.S. Department of Health and Human Services. Trends in the Utilization of Emergency Department Services, 2009-2018. 2021 [cited 2021 April 1]; Available from: <https://aspe.hhs.gov/system/files/pdf/265086/ED-report-to-Congress.pdf>.
2. Weinick RM, Burns RM, Mehrotra A. Many Emergency Department Visits Could Be Managed At Urgent Care Centers And Retail Clinics. Health Affairs. 2010;29(9):1630-6.
3. Allen L, Cummings JR, Hockenberry J. Urgent care centers and the demand for non-emergent emergency department visits: National Bureau of Economic Research 2019. Report No.: 0898-2937.
4. Borkowski S. Solutions for ED overcrowding: increasing urgent care centers. Journal of Emergency Nursing. 2012;38(2):116-7.
5. American Hospital Association. Urgent Care Center Discussion Guide. 2017 [cited 2021 April 1]; Available from: <https://www.aha.org/guidesreports/2017-11-01-urgent-care-center-discussion-guide>.
6. Health S. Using Urgent Care Centers to Support Rural Patient Care Access. 2017 [cited 2021 April 26]; Available from: <https://patientengagementhit.com/news/using-urgent-care-centers-to-support-rural-patient-care-access>.
7. Carlson LC, Raja AS, Dworkis DA, Lee J, Brown DFM, Samuels-Kalow M, et al. Impact of Urgent Care Openings on Emergency Department Visits to Two Academic Medical Centers Within an Integrated Health Care System. Ann Emerg Med. 2020 Mar;75(3):382-91.
8. American Hospital Association. AHA Annual Survey Database: 2019 Release. 2021 [cited 2021 April 1]; Available from: <https://www.ahadata.com/aha-annual-survey-database>.

9. University of Wisconsin School of Medicine and Public Health. Neighborhood Atlas. 2021 [cited 2021 April 1]; Available from: <https://www.neighborhoodatlas.medicine.wisc.edu/>.
10. US Health Resources and Services Administration. Rural Health. 2021 [cited 2021 April 1]; Available from: <https://data.hrsa.gov/topics/rural-health>.
11. ESRI. ArcGIS StreetMap Premium: 2020 Release. 2021 [cited 2021 April 1]; Available from: <https://www.esri.com/en-us/arcgis/products/arcgis-streetmap-premium/overview>.