



BACKGROUND

- Telehealth has long been used as a tool to extend access to healthcare to those in rural and underserved communities.¹
- The rise of telehealth during the COVID-19 pandemic has raised important policy questions regarding continued coverage after the public health emergency and equitable access to this modality.²
- Applying mapping techniques to claims, social determinants of health, and telehealth administrative data has potential to speed the data to telehealth policy pipeline.
- The Medical University of South Carolina (MUSC) began using geographic heat mapping to inform its strategic planning and advocacy among policymakers in South Carolina (SC). Three mapping methods were deployed to investigate:
 - a) Gaps in access to outpatient specialty care in SC to inform targeted telehealth specialty services,
 - b) Hospital outmigration patterns to inform hospital-based telehealth consultative support to rural hospitals, and
 - c) Virtual urgent care utilization among vulnerable populations to inform advocacy for payment by Medicaid.

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REFERENCES

- 1. Nesbitt T.S., & Katz-Bell J (2017). History of telehealth. Rheuban K, & Krupinski E.A.(Eds.), Understanding Telehealth. McGraw Hill.
- 2. Shachar, C., Engel, J., & Elwyn, G. (2020). Implications for Telehealth in a Postpandemic Future: Regulatory and Privacy Issues. JAMA, 323(23), 2375-2376.
- 3. McElligott, J.T. and Summer, A.P. (2013), Health Care Utilization Patterns for Young Children in Rural Counties of the I-95 Corridor of South Carolina. Journal of Rural Health, 29:198-204.
- 4. Healthcare Cost and Utilization Project (HCUP). Agency for Healthcare Research and Quality, Rockville, MD. https://www.ahrq.gov/data/hcup/index.html
- 5. Lame, M., Leyden, D., & Platt, S. L. (2021). Geocode Maps Spotlight Disparities in Telehealth Utilization During the COVID-19 Pandemic in New York City. Telemedicine journal and e-health : the official journal of the American Telemedicine Association, 27(3), 251–253.

Use of health care utilization heatmaps to inform statewide telehealth policy and expansion in South Carolina

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OUTPATIENT SPECIALTY CARE

METHODS:

• Using a 5% national Medicare data set from 2018-2019, E/M CPT codes were filtered by billing provider specialty and grouped by patient county.

• Specialty visit volumes per capita for each county were calculated, and counties were stratified into quartiles for mapping based on county visit rates.

• For the counties in the bottom 3 quartiles, the number of visits needed for each county to advance to the quartile above them was calculated and overlayed onto the county map.

• This helped visualize the scale of added telehealth specialty visits needed in each county to achieve more equitable access.



Figure 1. SC Counties by *In-County Service Indicator* for Neurology

- To visualize hospital outmigration, we analyzed the same 5% sample of Medicare data from 2018-2019.
- were used to determine *demand* for inpatient specialty services per capita by county.
- Inpatient specialty CPT codes and patient county
- This was then compared with HCUP hospital admission data³ during the same time period to determine county supply per capita.
- The difference between hospital specialty *supply* and demand numbers was calculated for each county to create an *in-county service indicator* to visualize the extent to which patients were able to receive care in their home county.
- Counties were placed in quartiles based on *in-county* service indicator to show gaps that might be mitigated by telehealth consultative support.





Figure 2. SC Counties by *In-County Service Indicator* for Neurology among Medicare Patients

RESULTS & DISCUSSION

• Map results show low neurology outpatient utilization and neuro admissions to local county hospitals among Medicare participants in rural counties in SC, particularly along the I-95 corridor which is a region known for low access to care and poorer health outcomes.⁴

• Maps of virtual urgent care visits per capita (that were free during COVID) within the large contiguous Charleston tri-county area in coastal SC show an inverse relationship to the areas with the lowest social vulnerability. This trend of low utilization among the most vulnerable population was also found in a New York study.⁵

• Simple but powerful data driven methods are needed to ensure state policymakers understand and support efforts to reach the most vulnerable populations in order to realize the promise of increased access using telehealth particularly in rural and underserved states.

METHODS & MAPS

HOSPITAL OUTMIGRATION

METHODS:



METHODS:





VIRTUAL URGENT CARE USE

• Rates of virtual urgent care (VUC) encounters were calculated per capita by patient zip code using MUSC's VUC telehealth platform data.

• Zip codes were stratified into quartiles based on VUC utilization rates and quartiles were mapped.

• Utilization rate maps of MUSC's primary tri-county market (Charleston, Berkley, and Dorchester counties) were then compared with zip code mapping of social vulnerability based on the CDC's social vulnerability index (SVI).

> **Figure 4.** Tri-County Social Vulnerability (darker = higher social vulnerability)