

Expanding Neurological Care to Rural Areas using Telehealth

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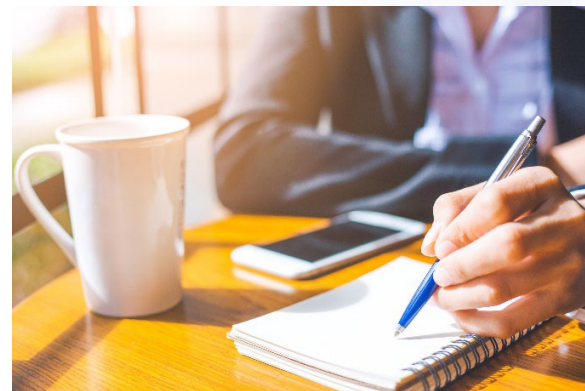
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Acknowledgement

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Disclosures

- None.



Objectives

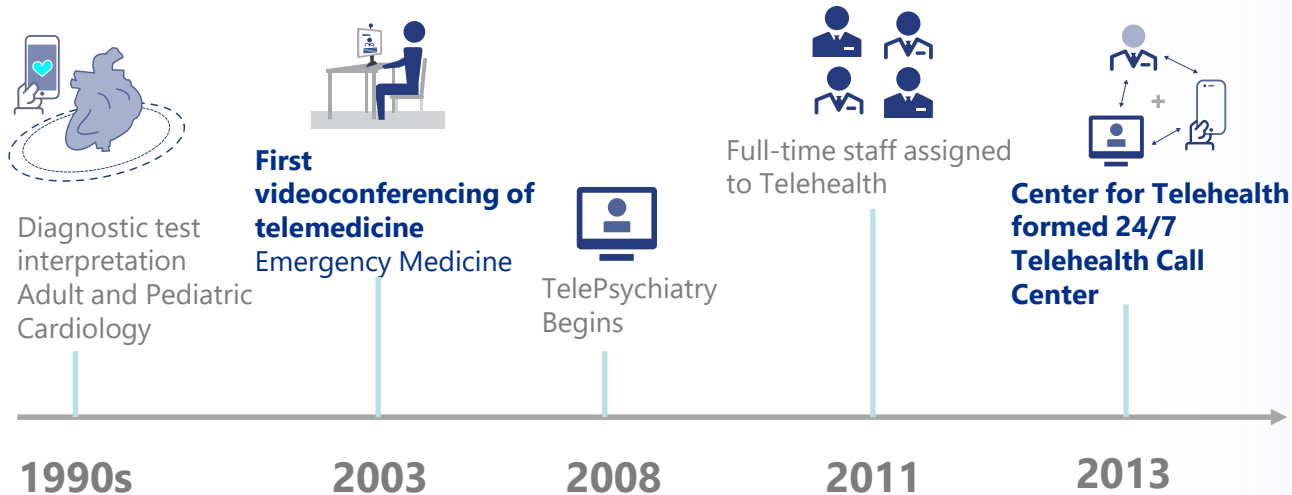
- Introduction to UMMC Telehealth Center of Excellence.
- Discuss relevance of telehealth in the post pandemic era.
- Describe our teleneurology model to bridge neurological care in rural areas.



Introduction to the Center for Telehealth at UMMC



Center for Telehealth History



Center for Telehealth History



Telehealth Center of Excellence awarded to UMMC



Rapid Response to COVID-19 Pandemic
Integration of A/V capability in EMR



FCC Funding for rpm



Telehealth Center of Excellence awarded to UMMC

Preferred Telehealth Provider for State BCBS Members for Urgent Care, Behavioral Health and Medical Nutrition Therapy



RFP Awarded for School Based Telehealth

2017

2020

2021

2021

2022

2022



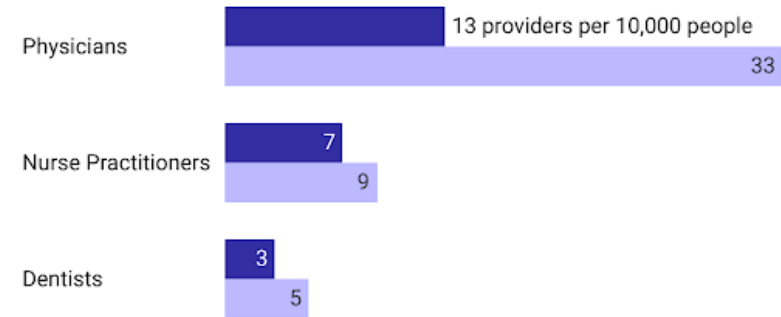
Shortage of Specialists in Mississippi



Rural Health Inequities, by the Numbers

- Primary care physicians.
 - Rural: 55.1 per 100,000 residents in 2013.
 - Urban: 79.3 per 100,000 in 2013.¹
- Specialists. The National Rural Health Association reports there are only
 - Rural: 30 specialists per 100,000 population.
 - Urban: 263 specialists per 100,000 population.²
- Death rate.
 - Rural: 830.5 per 100,000 people in 2014
 - Urban: 704.3 per 100,000 in 2014.¹

Health provider density within metropolitan and nonmetropolitan areas, 2019



Data source: Assistant Secretary for Planning and Evaluation; Health Resources and Services Administration

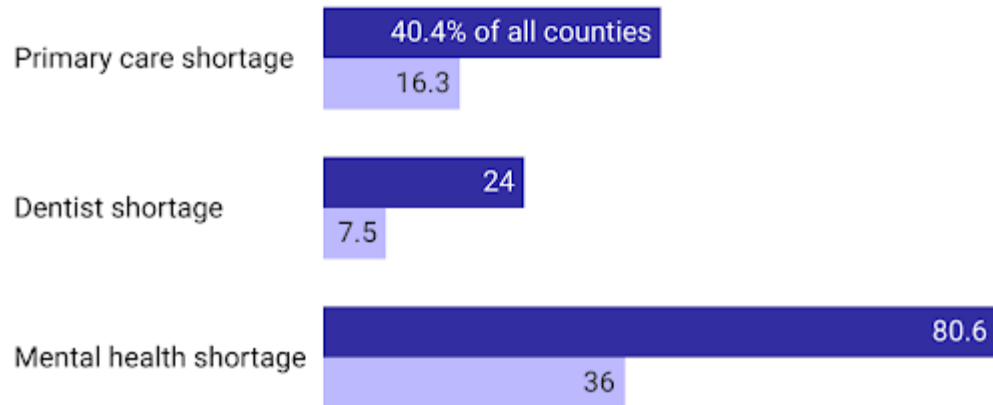
1. AAMC. <https://www.aamc.org/news/health-disparities-affect-millions-rural-us-communities#:~:text=Specialists,.,specialists%20per%20100%2C000%20urban%20residents.>

2. National Rural Health Association Report.

Rural Health Inequities, by the Numbers

Counties within health professional shortage areas

Share of rural and metropolitan counties located entirely within a health professional shortage area



Data source: Department of Agriculture

Rural Health Inequities, by the Numbers

- Nearly 4 in 5 rural U.S. communities are short on medical staff.
- Although nearly 20% of the U.S. population lives in rural areas, less than 10% of U.S. doctors practice in rural areas.
- Center for Healthcare Quality and Payment Reform reports that 34 of Mississippi's 74 rural hospitals are struggling financially and at risk of closure.

Shortage of Neurologists

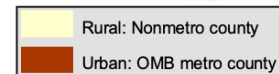
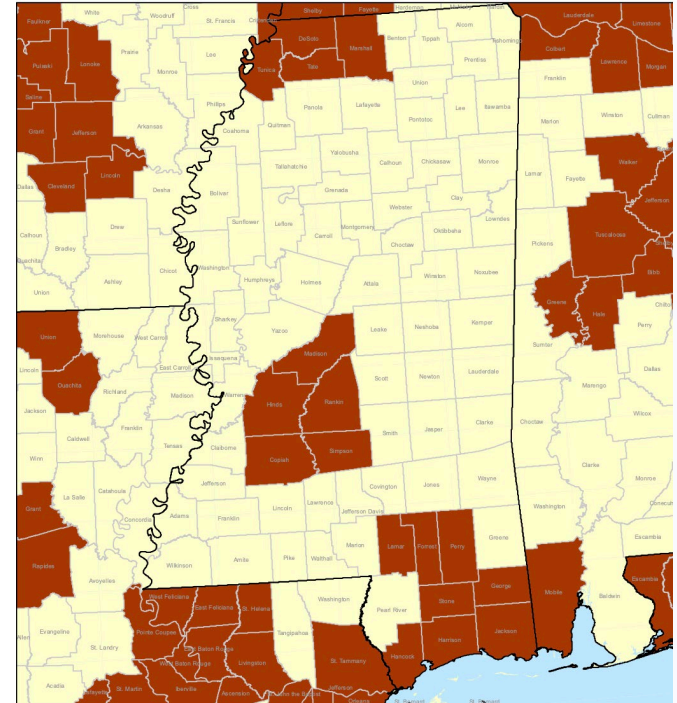
- A national shortage of neurologists is creating "neurology deserts" around the country.
- Leads to longer wait and driving times for patients. This is particularly problematic for our patients with mobility issues such as stroke or spinal cord injury survivors.
- Overall, 24% of people with a neurologic condition were seen by a neurologist. (Rural 21% vs urban 27%).¹

Shortage of Neurologists

- Increasing demand:
 - Recent advances in treatment of dementias, migraine, stroke etc.
 - Aging population.
- Over the next 7 to 27 years, as the number of Americans over age 65 increases, the incidences of Parkinson's and dementia are set to double, and stroke cases are expected to rise by 20%.
- Number of neurologists who treat patients in the United States grew by only 598 over the last decade, from 12,761 to 13,359.
- At UMMC, we see patients from AL and LA in addition to our own state, many of whom drive for about 3 hours.

Mississippi Demographics

- 18% of US lives in rural areas. By contrast, over half (54%) of the MS lives in what is considered a rural or nonmetropolitan area.
- There are 82 counties in Mississippi, and 65 of them are considered rural.
- All 82 counties in Mississippi are designated as either whole or partial-county Medically Underserved Areas (MUA).
- More than half of Mississippi's doctors practice in four main urban areas.



Our teleneurology model

- UMMC collaborated with South Central Regional Medical Center to implement a hybrid care model for rural Neurology inpatients in Laurel, MS.
- SCRMC has only one in-patient neurologist. We provide gap coverage and cover 15 days every month.
- We are available 24x7 for any emergent consults and we provide rounding service daily for non emergent consults and follow up.



Our teleneurology model

- We utilize audio-video technology. Equipment provided by UMMC Center of Telehealth via a grant from HRSA.
- We have full access to patients medical record including MRI/CT images.
- We document in the native electronic medical record and communicate with local physicians via a HIPAA compliant communication app.





Our embedded research project

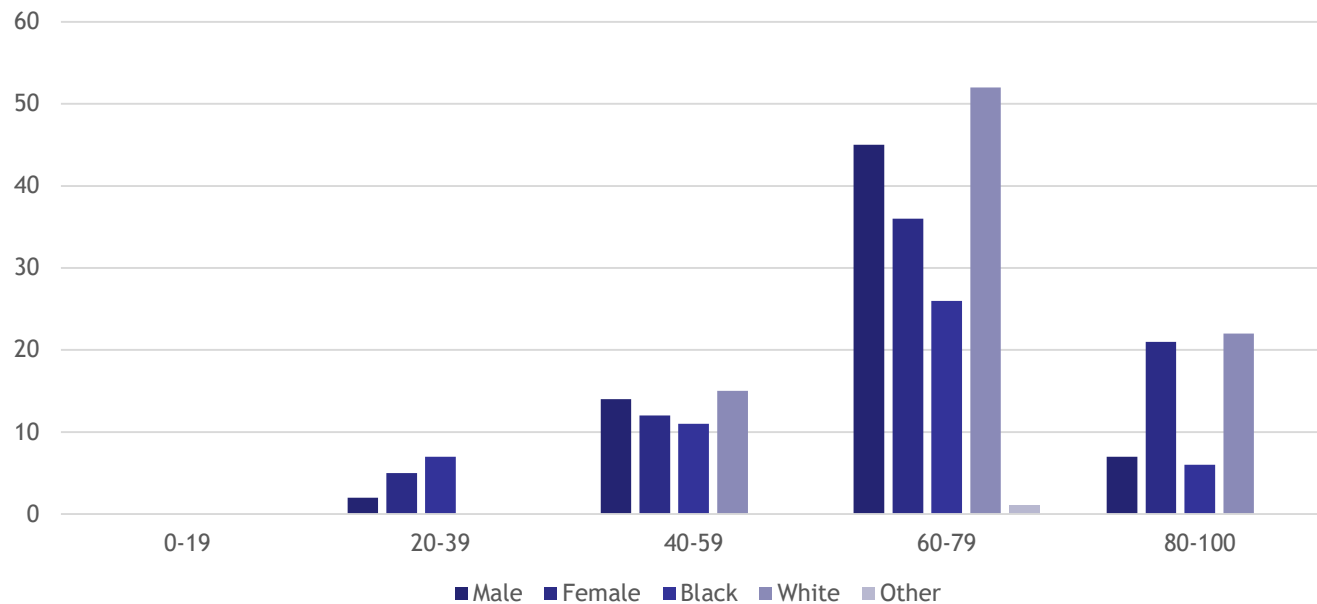
Retrospective, observational, quality improvement study evaluating telehealth utilization among inpatient Neurology patients between January 18-June 30 of 2023.

Hybrid model consisted of 15 days of in-person neurology consults and follow up visits followed by 15 days of patient care by a remote teleneurology team.

1 neurologist was available for in-person care, while 8 neurologists participated as part of the remote teleneurology team.

Data were collected on patient demographics, diagnoses, service types, and care utilizations.

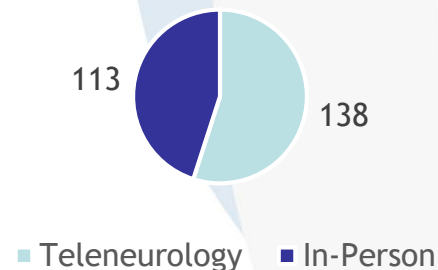
Data: Patient Demographics



Results

- 138 of 251 total patients seen exclusively through teleneurology team.
- 4 patients required transfer to higher level of care.
- Common diagnoses via telehealth:
 - Stroke (32%)
 - Epilepsy (10%)
 - Encephalopathy (8%).
- 61% of teleneurology patients were discharged home with self-care or home health care.
- Other diagnoses included myocardial infarction, acute kidney injury, and sepsis, among others.

Mode of consultation





Conclusion

It is feasible to implement teleneurology service in rural Mississippi.

A hybrid model is feasible and helps with gap coverage where rural hospitals do not have personnel for 24x7 coverage.

We can provide specialty care via telemedicine that the underserved population would otherwise not have.

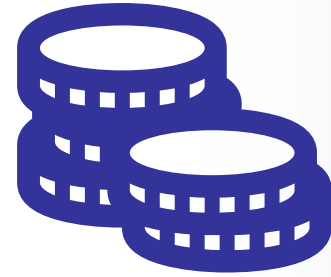
Teleneurology service may reduce interfacility transfers for specialty care.

Future research is necessary to evaluate the long-term clinical outcomes and patient satisfaction with Teleneurology services.

Future direction for this project

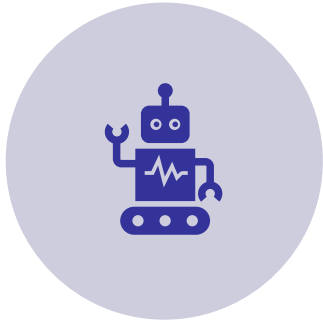


Expand the service to other hospitals.



Financial analysis for cost effectiveness.

Future teleneurology projects in pipeline



ARTIFICIAL INTELLIGENCE
ASSISTED TELE-REHAB.



INTERPROFESSIONAL
E-CONSULTS.



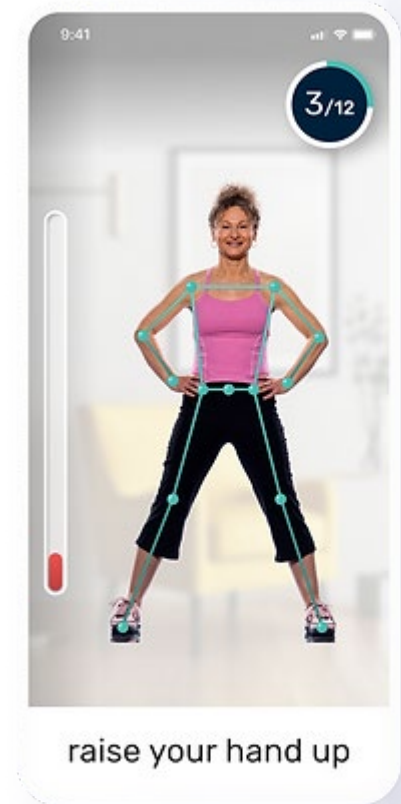
TELE-NEUROCRITICAL
CARE.

AI assisted tele-rehab



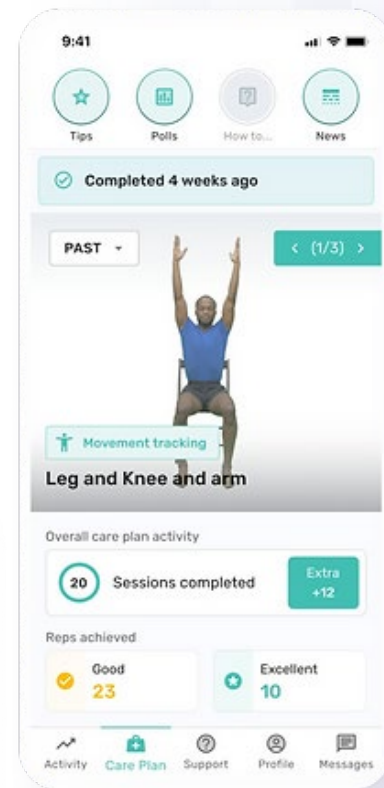
AI assisted tele-rehab

- Partnering with WizeCare, an app-based AI assisted tele-rehab company.
- Patients download the app on their smartphones.
- Physical therapists create the first patient specific treatment plan which is then monitored by AI for accuracy, compliance, consistency and to monitor progress.



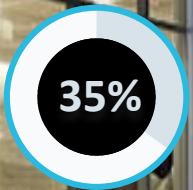
AI assisted tele-rehab

- Via a mobile device camera, it automatically detects and accurately analyzes live movement patterns of patients performing prescribed exercises via a virtual reality video session.
- Increased patient engagement.
- Speeds up recovery.
- Improves compliance.



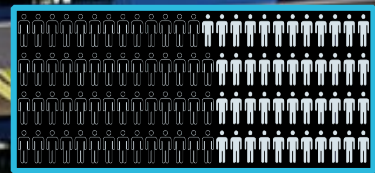
PCP Referrals to Specialty

Up to 35% of primary care patients are referred to Specialists annually



- Wait Times
- Travel
- Absenteeism
- Duplication
- Increased Cost
- Poor Communication
- Health Inequity

Up to 52% of these referrals DO NOT require a face-to-face visit

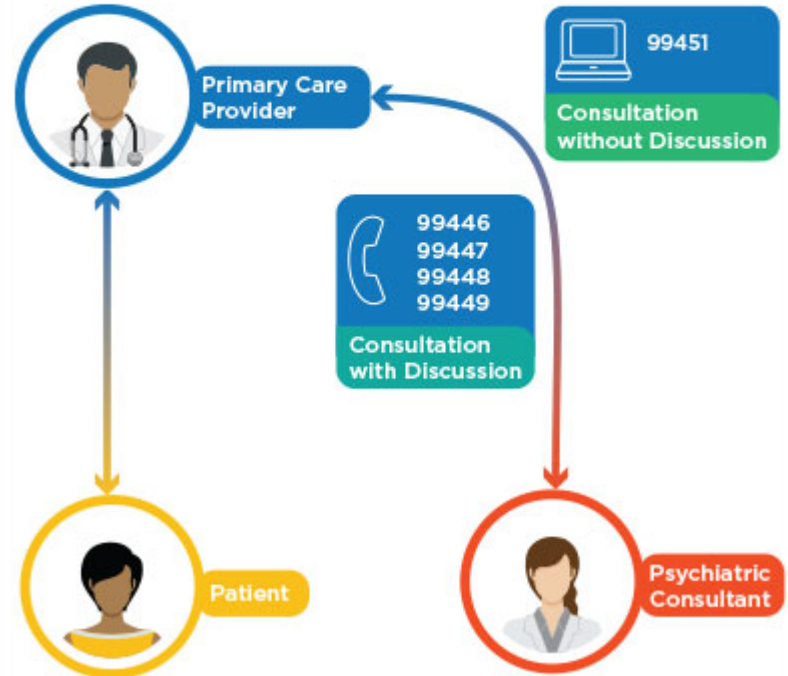


E-consults

- e-consult is an asynchronous electronic communication that enables primary care providers to obtain specialists' inputs into a patient's care treatment without requiring the patient to go to a face-to-face visit.
- The initiating provider sends a secure message, often with lab reports, images, or other necessary documentation, to the specialist asking advice about diagnosis and patient management.

CMS to Pay for Non-Face-to-Face Interprofessional Consults

Billable codes for non-face-to-face consultations include those for "Consult With Discussion" (99446-99449) and "Consult Without Discussion" (99451).



Source: APA Committee on Integrated Care

E-consults

TABLE 5. INTERPROFESSIONAL CONSULTATION CODING			
Verbal and written report	Time	Written report only	Provider and time
99446	5-10 min	99451	Consulting provider 5 min or more
99447	11-20 min		
99448	21-30 min		
99449	>31 min	99452	Treating/requesting provider 30 min

E-consult (Evidence from the literature)

- e-consults for four specialties, cardiology, gastroenterology, rheumatology, and endocrinology, were implemented in a large, multi-site FQHC.
- Prior to implementation, 23% of uninsured patients referred to the specialties completed a visit with a specialist.
- After implementation, 62% received a specialty consultation either through an e-consult or face-to-face. Wait for referrals improved from a median of 54 days to 7 days.

E-consult (Evidence from the literature)

- This retrospective cohort study Medicaid patients referred to an endocrinologist 1 year before the implementation of eConsults to 1 year after implementation.
- Results:
 - Before eConsult implementation: only 138 out of 365 (37.8%) of referrals to endocrinology were completed.
 - Post-implementation, 281 out of 469 (59.9%) of referrals were completed either by face-to-face visit or by an eConsult, of whom 194 (41.4%) did not require a F2F.



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