Telehealth Centers of Excellence

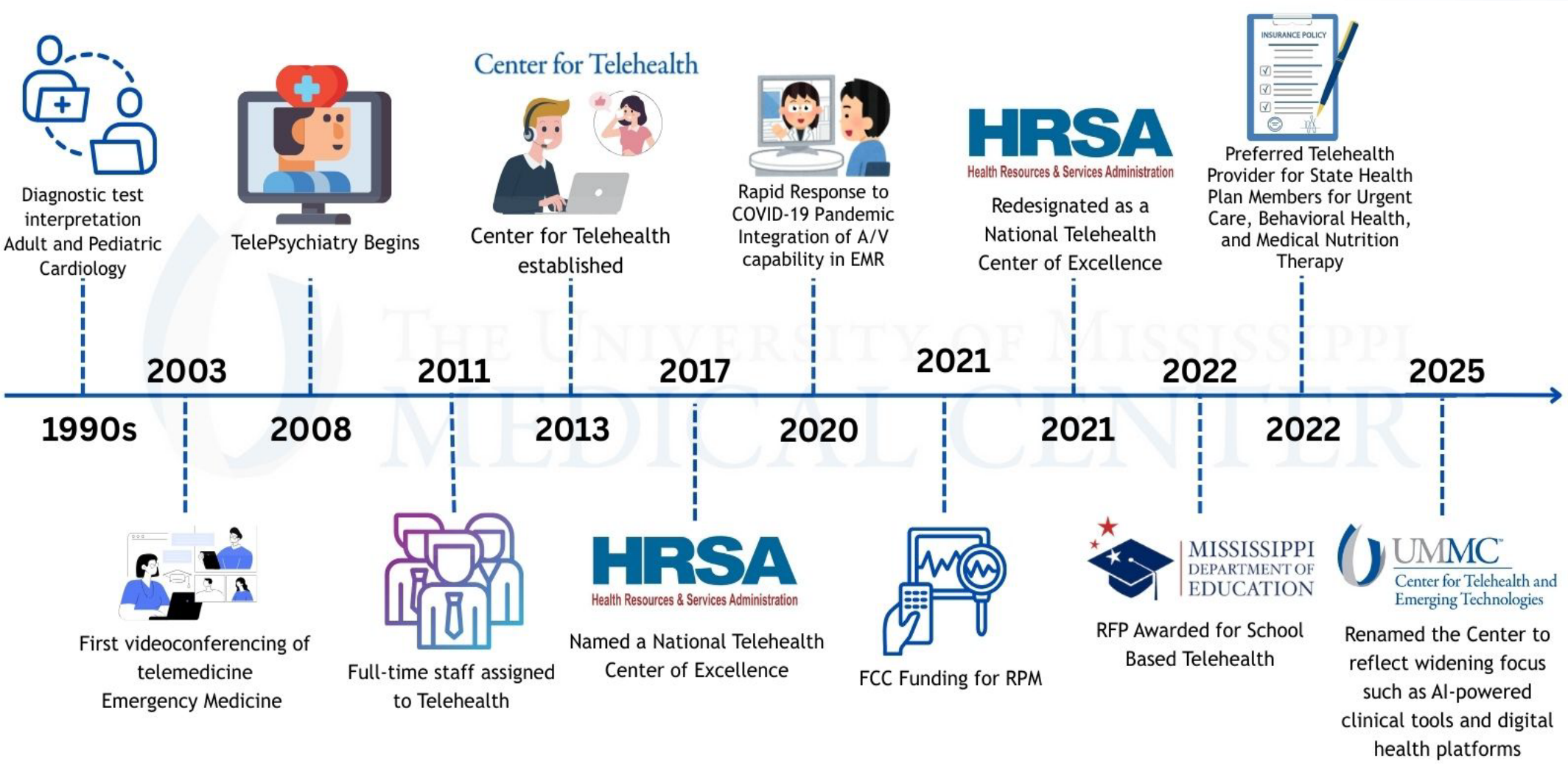
Leveraging Telehealth to Transform Rural Health: Building Sustainable Models for Access to Healthcare

October 13, 2025

University of Mississippi Medical Center
Telehealth Center of Excellence

This presentation is supported by the **Health Resources and Services Administration (HRSA)** of the U.S. Department of Health and Human Services (HHS). The contents are those of the author(s) and do not necessarily represent the official views of, nor an endorsement by, HRSA, HHS, or the U.S. Government.

Important Milestones - CFTET



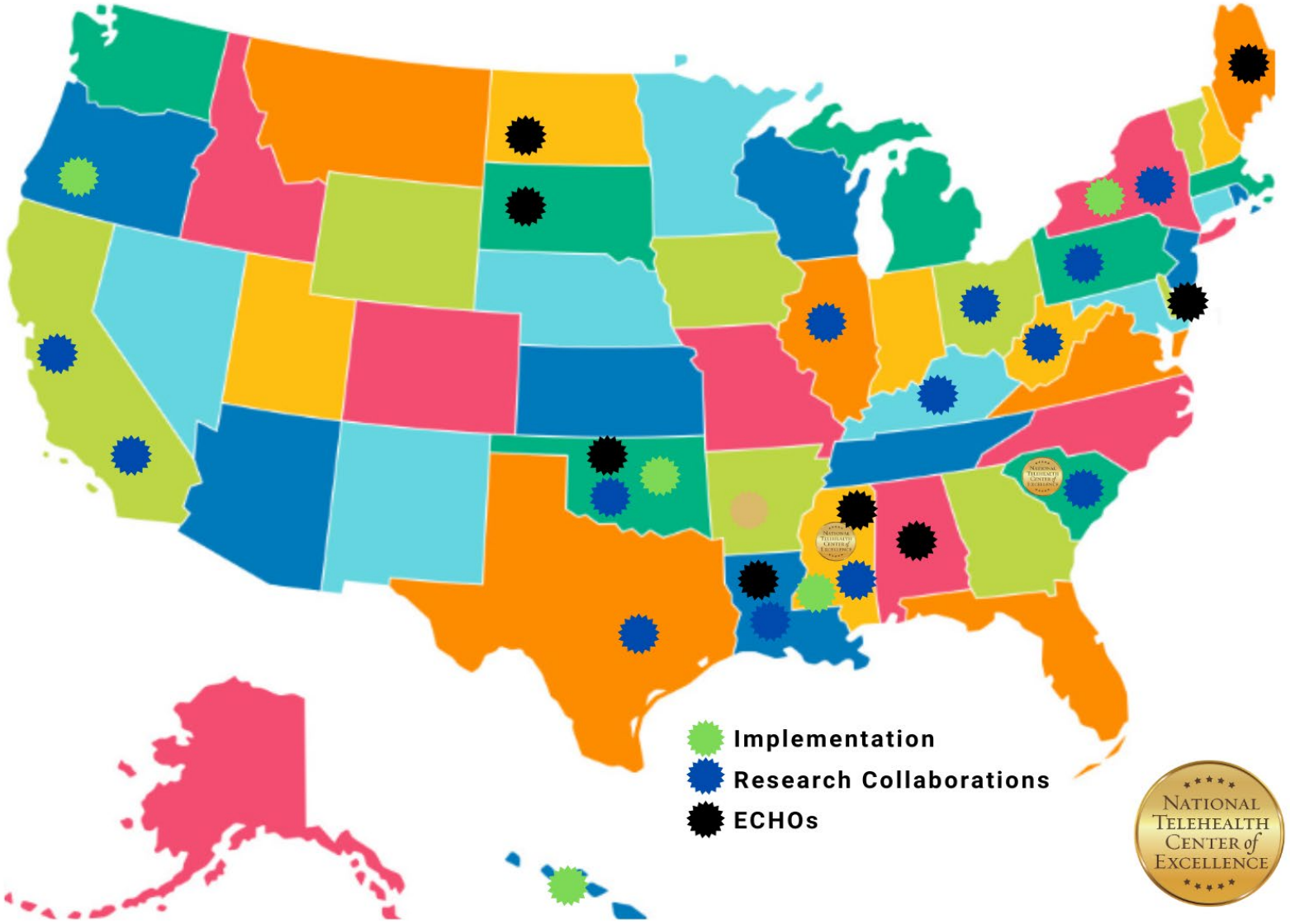
National Telehealth Center of Excellence (COE)

One of the only two in the country designated by HRSA

1. Improve access to healthcare via Telehealth services
2. Expand overall innovation and the research portfolio
3. Assess telehealth's impact on health care spending
4. Collaborate and share best practices

Program Accomplishments October 2021-Present	
Funded Projects	64
Manuscripts Published	33
Oral Presentations	48
Poster Presentations	31

UMMC - Telehealth Center of Excellence National Presence



University of Texas Health
Northwell Health
Oklahoma State University
Medical University of South Carolina
Waianae Coast Comprehensive Health Center
Louisiana State University
West Virginia University
University of North Carolina Chapel Hill
University of California San Francisco
Tulane University
Finger Lakes Community Health
Northeast Ohio Medical University
University of Arkansas Medical Sciences
Coquille Valley Hospital, Oregon
Appalachian Regional Healthcare
Pediatric Dermatology ECHO
Manatt Health (Chicago, IL)
University of California, Los Angeles
National MS Society
University of Pittsburg

UMMC

Healthcare Challenges in Rural America

Provider and Nursing Shortages, Chronic Disease Burden, and Access Barriers

Rural America: Definition and Demographics

Definition of Rural (U.S. Census Bureau, 2020)

Rural areas include all population, housing, and territory not within urban areas.
Urbanized areas: **≥50,000** people
Urban clusters: **≥2,500** people.
All other regions are classified as rural.

Landmass of Rural America

Rural areas make up approximately 97 % of the U.S. landmass, spanning agricultural,

mountainous, and frontier regions.
Despite this, they represent only a small share of the population.

Population and Demographics

About **64.5 million Americans (~20 %)** live in rural areas (US Census Bur. 2020).

Rural residents are older (**20% > 65 years vs 15% >65 years urban)** and experience greater health disparities.

Public Health Context

Rural America faces higher rates of chronic disease, limited access to healthcare, and lower insurance coverage, contributing to **increased mortality from preventable causes**.

Sources: U.S. Census Bureau (2023); USDA ERS (2024); CDC (2023).

Provider and Nursing Shortages in Rural America

Physician Workforce Gap

AAMC projects a shortage of **13,500–86,000** physicians by 2036, including up to **40,000** primary care physicians

Source: AAMC Report: Physician Shortage Worsening.

Rural Distribution Imbalance

Only **10-12%** of U.S. physicians practice in rural areas, while 20% of Americans live there.

Source: AMA (2023), What Rural Health Looks Like in America.

Nursing Workforce Crisis

There is a projected **10% shortage** of RNs in 2027, shortage higher in non-metro areas **24%** vs **7%** in metro areas.

Rural hospitals and long-term care most affected; vacancy rates exceed 20%.
Source: HRSA (2023), National Center for Health Workforce Analysis.

Specialist Scarcity

Severe shortages in psychiatry, OB-GYN, and general surgery; many rural counties lack specialists.
Source: AAMC (2024), Physician Workforce Projections Report.

).

Chronic Disease Burden in Rural America

Diabetes

Rural prevalence is **5–17 %** higher than in urban areas.
20% higher mortality from Diabetes complication

Limited access to endocrinology care and preventive screening drives higher complication rates.

Source: CDC, 2025 – Rural–Urban Disparities in State-Level Diabetes Prevalence.

Hypertension / Uncontrolled BP

Self-reported unadjusted hypertension affects ~40 % of rural adults vs 29 % in urban areas.

Uncontrolled hypertension contributes significantly to excess cardiovascular mortality.

CDC 2020

Obesity

Nearly **34%** live with obesity—significantly higher than urban rates.

Contributing factors include food insecurity, limited recreation spaces, and fewer wellness programs.

Source: CDC

Cardiovascular Disease

Rural residents experience % higher cardiovascular mortality than urban populations.

Limited access to acute cardiac care and preventive cardiology intensifies disparities.

Source: ACC 2024 report

Sources: CDC (2025); AHA (2023); Health Policy Today (2025).

UMMC

Social Determinants and Hospital Closures in Rural America

Social Determinants of Health in Rural America

- Transportation: 6.8% of rural households lack reliable vehicle access.
- Broadband: 24 million Americans lack access to fixed broadband service (FCC, 2024).
- Poverty: 13.6% rural poverty rate vs 10.7% urban (U.S. Census Bureau, 2023).
- Education: Only 21% of rural adults hold a bachelor's degree vs 37% urban. (ERS, USDA 2023)
- Health Insurance: 11% uninsured in rural vs 7% urban (KFF, 2024).

Rural Hospital Closures and Financial Risk

- Since 2010: Over 140 rural hospitals have closed across 32 states (Chartis, 2024).
- About 600 rural hospitals (~30%) are operating at a financial loss. (CHQPR)
- Around 418 hospitals are at immediate risk of closure (NRHA, 2024).
- Loss of local care increases travel times by 30–60 minutes for emergencies.
- Key drivers: Low reimbursement, workforce shortages, declining inpatient volume.

Sources: HRSA (2024); U.S. Census Bureau (2023); FCC (2024); KFF (2024); Chartis (2024); NRHA (2024); Kaufman Hall (2024).

How Telehealth Addresses Rural Healthcare Gaps

Expanding Access to Care

- Virtual primary and specialty consults including tele-neurology, tele-OB, and tele-psychiatry.
- School-based and home-based telehealth programs increase reach across remote counties.

Enhancing Chronic Disease Management

- Remote Patient Monitoring (RPM) for diabetes, CHF, and hypertension.
- Virtual nursing and care coordination improve patient engagement.

Supporting Rural Hospitals

- Tele-Emergency and Tele-ICU services enable local stabilization and reduce transfers.
- Virtual specialist consults help retain patients and revenue locally.

Addressing Workforce Shortages

- Provider-to-provider eConsults and tele-education programs (Project ECHO model).
- AI-supported triage and decision support extend provider reach.

UMMC

Clinical Program Strategies

Telehealth Modalities

Telemedicine: Distance Care via Live (Audio-Video) / Audio only Interaction

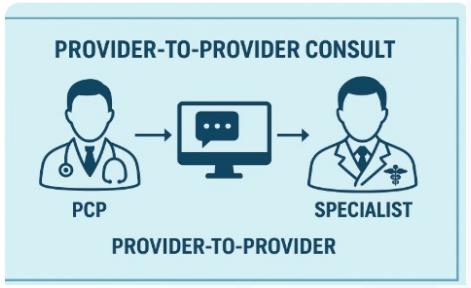
- Emergency Medicine / Inpatient
- D2C at Home
- School-based Specialty consults

Store & Forward & Diagnostic Tests Interpretation

- Dermatology
- Radiology

Mobile Health & Remote Patient Monitoring

- Diabetes
- CHF & HTN
- Asthma, COPD



Provider to Provider (e-consult)

Primary care physician
To
Any specialist

UMMC

Healthcare Challenges in Mississippi

Provider Shortages

- Projected 118 physicians per 100,000 by 2030 (42% below US avg)
- 3 counties with no primary care providers
- RN vacancy rate >24.5%
- >50% of counties are maternity care deserts

Chronic Disease Burden

- 40.1% adult obesity
- 15.3% diabetes
- 43.9% hypertension
- >12% with ≥3 chronic conditions

(Disproportionately affects rural, low-income residents)

Hospital Closures & Risk

- 6 rural hospitals closed since 2005
- 34 of 74 hospitals operating at a loss
- 25 hospitals at immediate risk of closure
- Rural Emergency Hospital designation may limit inpatient access

Social Determinants of Health (SDOH)

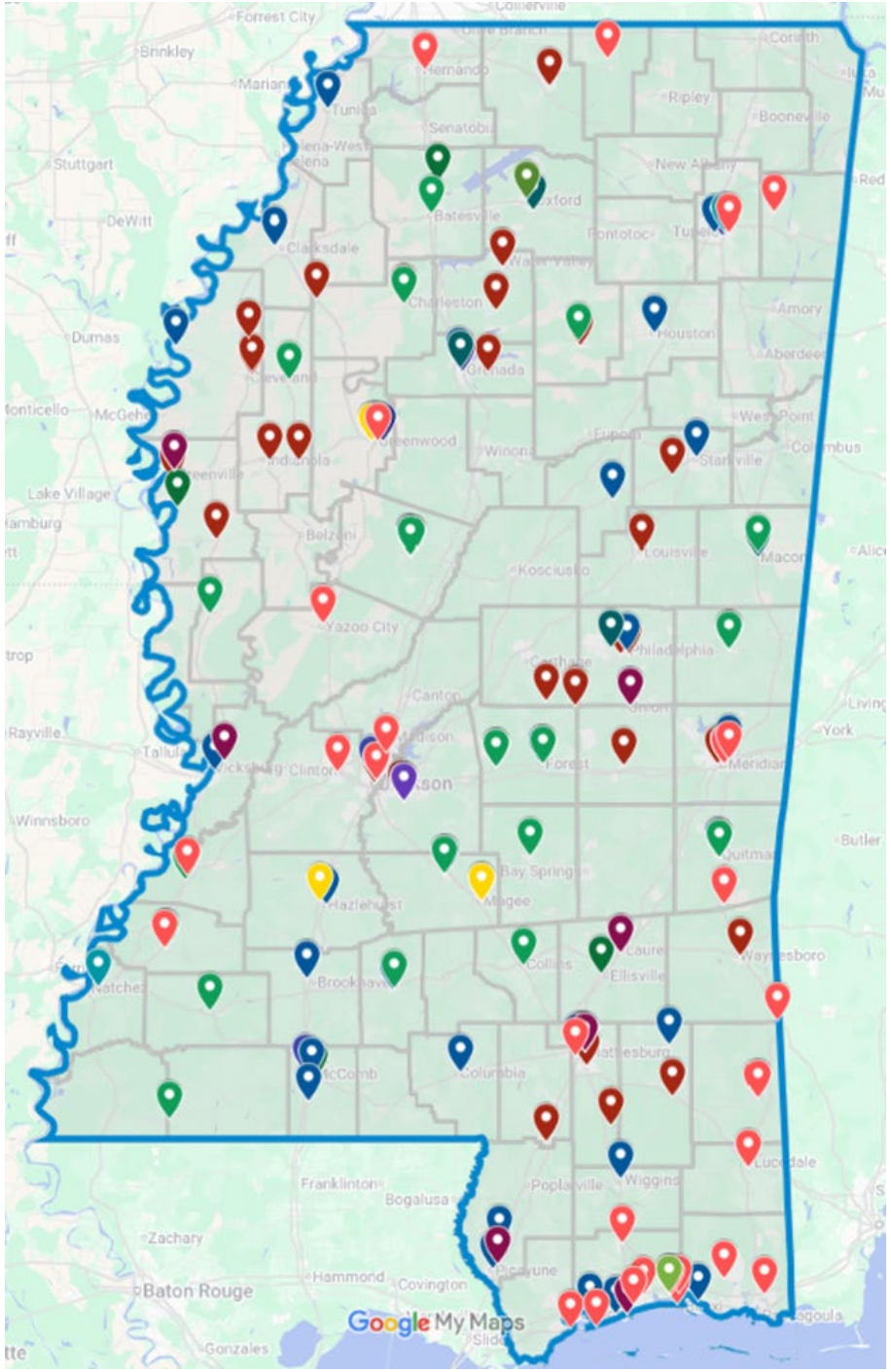
Multiple barriers impede care access:

- Transportation
- Broadband / digital divide
- Poverty / financial strain
- Education disparities

Data snapshot: state-level indicators (obesity, diabetes, hypertension, chronic conditions), hospital financial status, provider workforce projections. For teaching purposes.

UMMC

- Cardiology (48)
- MS SBTH (32)
- Tele-Mental Health (28)
- TelEmergency® (21)
- Peds-Neurology (12)
- Child Safe Center (7)
- Mental Health Drug Screening (6)
- Radiology (5)
- Pediatric Genetics (4)
- Mind Center (3)
- TeleCritical Care (3)
- Neurology (2)
- Corporate Health- UC/BH (1)
- Dermatology (1)
- Infectious Disease (1)
- Nephrology (1)
- Opthomology Retinopothy (1)
- Pathology (1)
- Peds Psychiatry (1)
- Peds-Urology (1)



Telehealth Service Locations (contracted)

61 Counties
180 Sites

UMMC

What Does Success Look Like?

- **Acute Care**
  - Telemergency – time to transfer, patient disposition, patient status
  - TeleCritical Care – time to consult completion, timely interventions, improved patient status
- **Clinic-Based**
  - Specialty Care – reduced wait, timely interventions, reduced hospital stays
  - Behavioral Health- timely visits, better access, sharing of resources
- **Chronic Disease Management**
  - RPM – Improved patient adherence, improved patient outcomes, fewer admissions, shorter stays, timely intervention
  - CCM – Same as RPM
- **School based**
  - Urgent Care – improved access
  - Behavioral Health – timely access, better coordination of student needs, better school performance

Patient and Provider Satisfaction

Urgent Care & Behavioral Health Services

Behavioral Health Services

Provided by Licensed Professional Counselors (LPCs) & Psych NP's

- Therapy and follow-up care for anxiety, depression, behavior, coping, emotional expression, and more
- Medication referrals made by LPCs when no local provider is available
- Non-urgent, scheduled visits

Urgent Care Services

Provided by UMMC Pediatric Nurse Practitioners- SAME DAY!

- Treatment for:
  Asthma, allergies, colds, flu, headaches, fever, rashes, skin irritation, lice, pink eye & more

Parents/guardians may join visits virtually

UMMC

TelEmergency Outcomes Evaluation

New Site-Satisfaction Survey
Community Hospital (Q1 2014)

<u>100% physician satisfaction</u>

Total patients seen with TelEmergency: 884

Total admission to that facility: 208

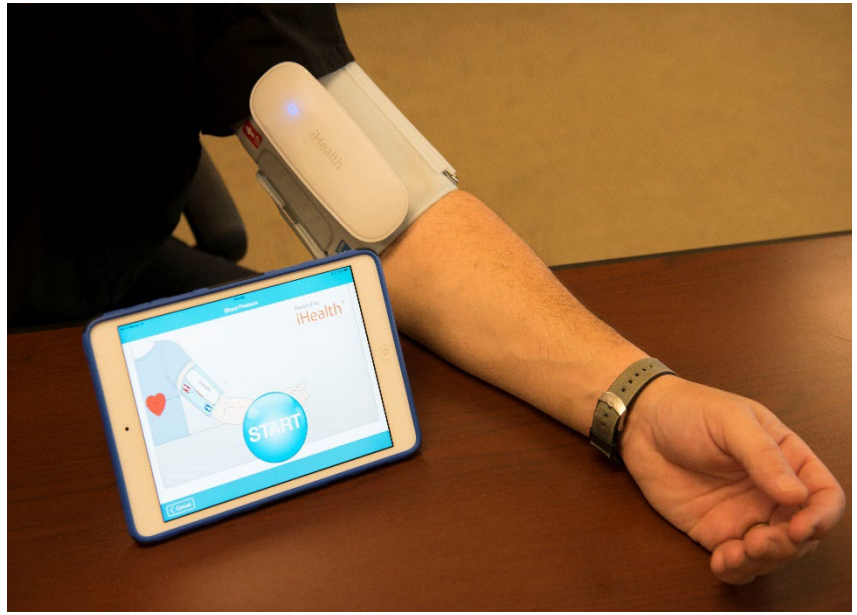
Total transfers from that facility: 68

Total discharges: 608

Total admissions to this facility increased by 101 patients in Q1 of program

Remote Patient Monitoring (RPM)

The delivery of home health services using telecommunications to enhance the delivery of home health care including:

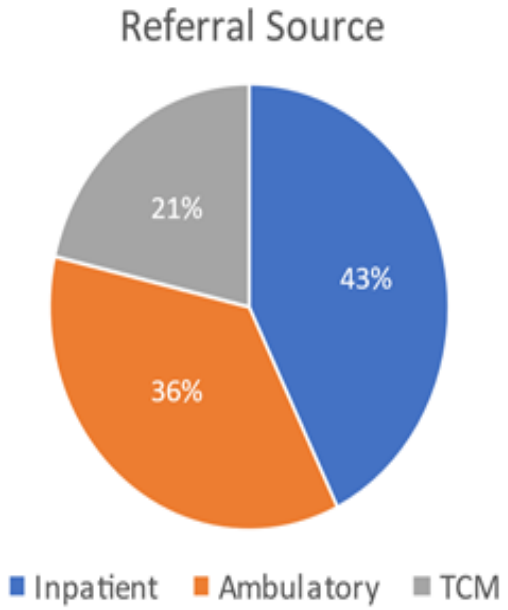


- Daily Health Sessions
- Personalized Interventions
- Targeted Education
- Health Coach
- Behavior Modification
- Patient Empowerment

UMMC

CHF RPM Outcomes

Patient Groups	Patients	Prior HDPY per patient	HDPY per patient on RPM	HDPY Difference (95% CI)	% Change (5% CI)	P-value
All Onboarded Patients	83	13.36145	7.169667	-6.19 (-9.21, -3.02)	-46.3% (-62.6%, -24.7%)	0.0016
Patients with ≥ 1 Review	62	11.87097	5.964600	-5.90 (-9.21, -2.60)	-49.7% (-67.2%, -25.9%)	0.0036

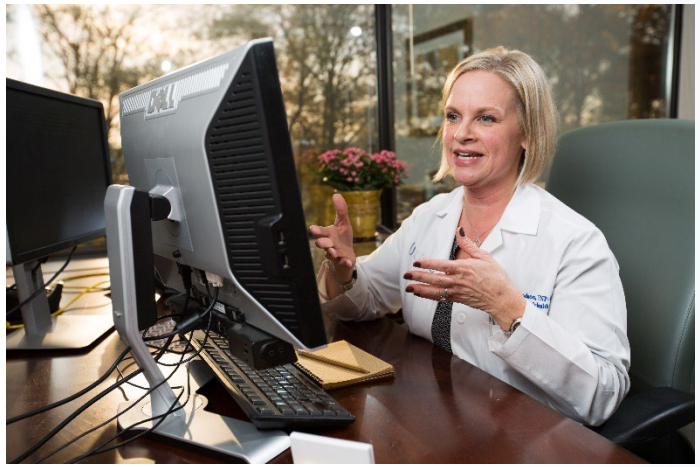


Center for Telehealth Administered Clinical Programs

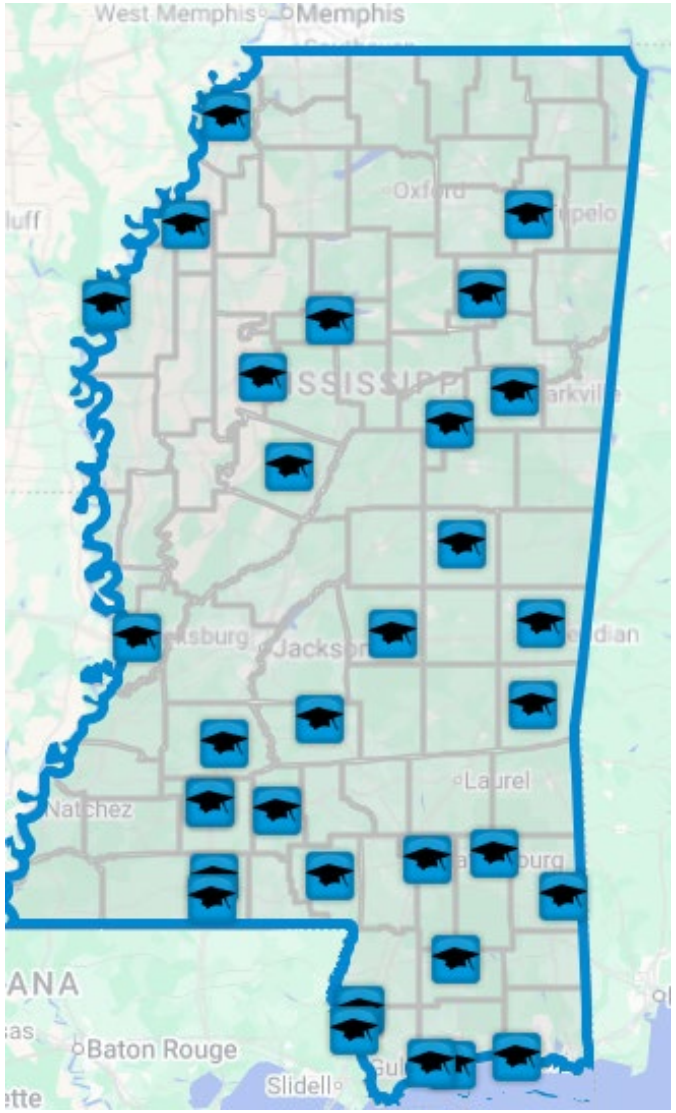
Tele Urgent Care- D2C

Telehealth providers examine and treat patients remotely, in real time, using online streaming video technology via UMMC 2 U app.

- Fast, convenient minor medical care online
- Access to a board- certified UMMC provider via your smartphone, tablet or computer
- An alternative to taking off work and sitting in a waiting room to receive treatment for minor illnesses
- Same-day appointments, which typically take 15 minutes or less
- 2,392 urgent care visits in 2023



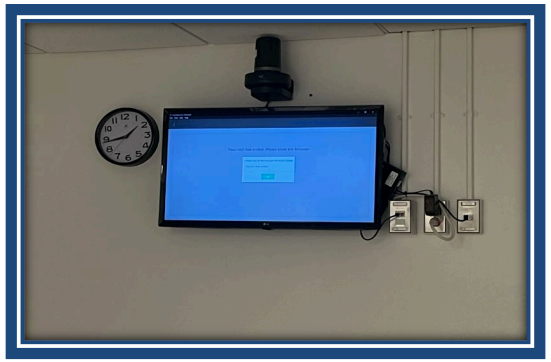
MS School Based Telehealth

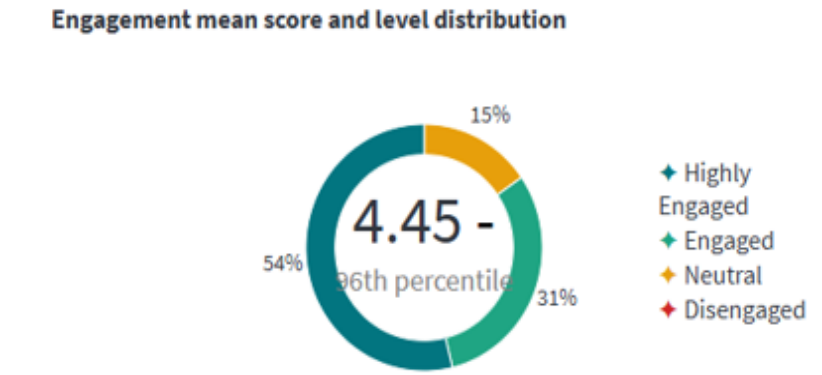


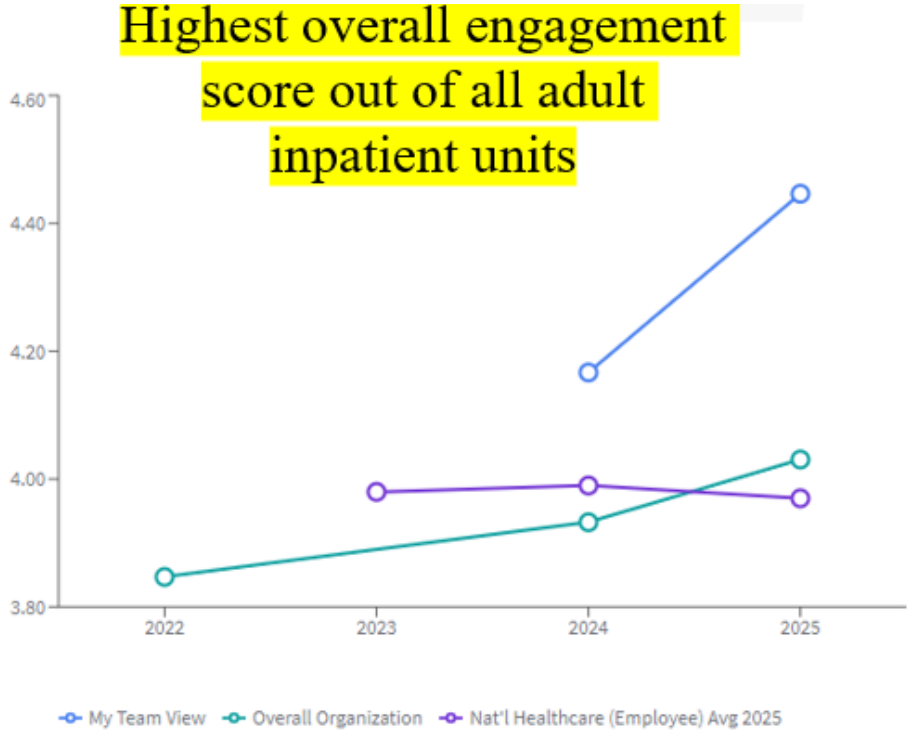
- 32 Participating School Districts
- Serving 205 Schools
- Access to 79,189 students
- 6,051 Telehealth Encounters Since Inception
- 3,237 Unique Students Treated Since Inception

UMMC

Virtual Nursing Pilot Program Results







UMMC

The Value of Telehealth

- Telehealth **offers multiple delivery models**: live video/audio visits, medical imaging, remote patient monitoring, and provider-to-provider e-consults.

- **Broad reach across settings**: inpatient, emergency, school-based, home, and specialty care.

- **Supports diverse clinical needs**: from acute care to chronic disease management (e.g., diabetes, CHF, hypertension, asthma, COPD).

- **Improves access** to expertise: connects primary care physicians to specialists quickly and efficiently.

- Enhances equity in care delivery: **expands access for rural, underserved, and high-need populations**.

- **Strengthens continuity of care**: integration of monitoring, diagnostics, and consultations **reduces care gaps.**

Vendor Partnerships for Sustainability

Vendor Partnerships for Sustainability

- Shared Vision and Goals
  - Align values early (pre-contract)

- Contract Framework
  - Sustainability clauses
  - Transparency (clear expectations, measurable outcomes)

- Innovation and Co-Investment
  - Have collaborative R&D
  - Pilot Programs
  - Shared Investment (if possible)

- Data Considerations

Implementing Technology Tools

AI Scribe Example

Tech Key to Success

Provide Technical Solutions that Meets the Clinical Need

Implementation Tips

Pre-Implementation Phase
Planning & Preparation

Technology & Vendor Selection

When choosing an AI scribe platform, it's important to evaluate several key factors to ensure the platform meets your needs, integrates seamlessly into your workflow, and provides long-term value.

Here are the main considerations:

Functional Requirements

- Real-time transcription and note-taking.
- Compatibility with telehealth sessions and EHR systems.
- User-friendly interface with minimal manual input.
- Multi-speaker differentiation and medical terminology accuracy.
- Automated summarization and categorization of notes.

Technical Requirements

- Integration capabilities (API compatibility with EHR/telehealth platforms).
- Data storage, encryption, and backup policies.
- Performance metrics (accuracy rate, speed, uptime).
- Scalability for future expansion.

UMMC

Key Questions to Ask an AI-Scribe Vendor

Legal Issues/Data Governance

- How is patient data used within your AI scribe system (e.g., documentation only, model training, product improvement)?
- What is your policy for retaining patient data, and how long is it stored?
- Under what circumstances is patient data deleted, and what is the process for deletion?
- Do clients have the ability to request the deletion of patient data at any time?
- How do you verify and document that data has been permanently deleted once a request is made?

UMMC

Key Questions to Ask an AI-Scribe Vendor

Data Use & Secondary Analysis:

- Do you use de-identified transcripts for training models? If so, what governance or consent structures are in place?
- Can clients opt out of having their data used for secondary purposes?
- Will you retain access to our data if we discontinue use?

UMMC

Key Questions to Ask an AI-Scribe Vendor

Interoperability:

- How does your system integrate with EHRs (Epic, Cerner, etc.)?
- Do you comply with HL7 FHIR standards and maintain minimal workflow disruption for clinicians?

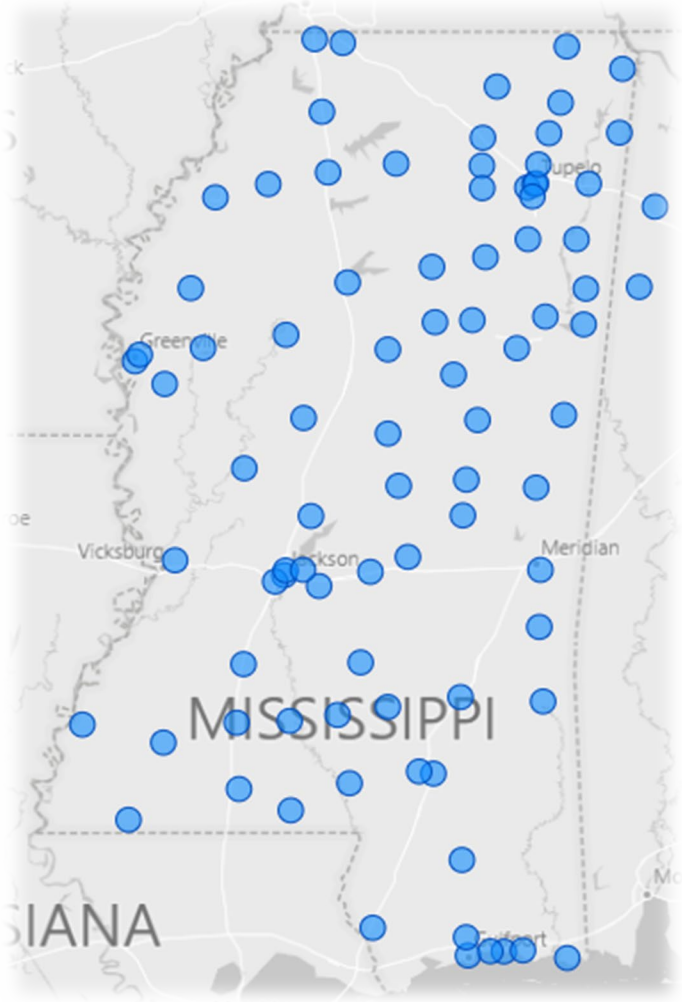
Liability and Accountability

- How does your company define its responsibilities and liability in the event of system errors, downtime, or data breaches?

UMMC

Bridging the Data Gap Utilizing a Statewide HIE

HIE in Mississippi



2025 YTD Stats:

2,036,708 Patients

5,080,919 Shared Notes

25,908,862 ADTs Processed

We've processed over **100 million patient events** using our **AI-powered HIE platform in Mississippi.**

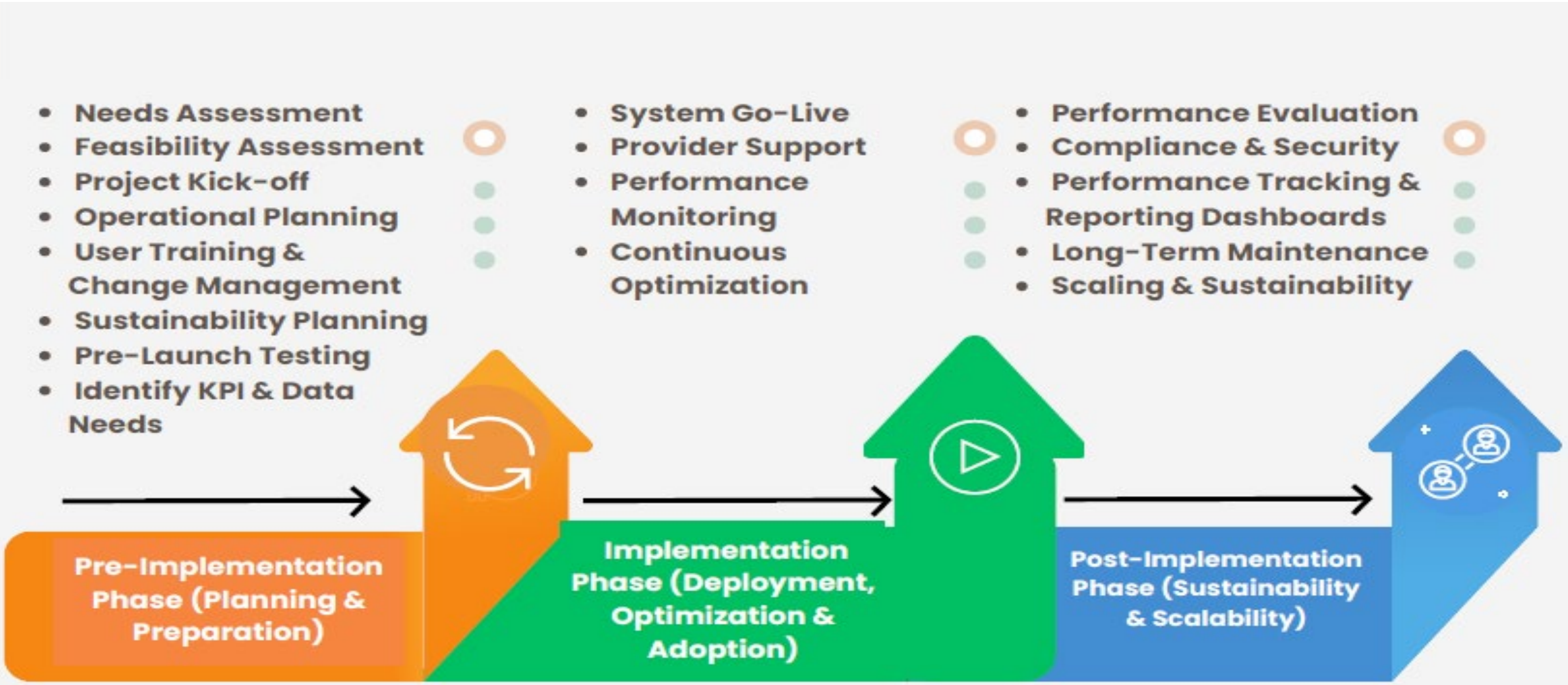
Our approach delivers:

- 98% coverage of hospital-based visits across the state
- Real-time patient event notifications and clinical documents
- A rapidly expanding network of directly integrated participants

Operational & Implementation Strategies

Operations and infrastructure are the backbone of successful telehealth.

Implementation Phases and Key Activities



Example of AI Scribe Needs Assessment

1. Burnout and Job Dissatisfaction

- Up to **60% of clinicians report burnout**, with documentation burden being a top driver.
- Emotional fatigue increases, and retention rates drop.

2. Patient Engagement

3. Financial and Operational Waste

- Incomplete or inaccurate notes result in **under-coding** and **missed revenue**.
- Hiring human scribes is costly and difficult to scale.

Example of AI Scribe Needs Assessment

Priority Tier	Category	KPI	Description	Data Source
Tier 1: Essential Early KPIs	**Clinical Efficiency**	Documentation Turnaround Time	Time from encounter to signed note	EHR metadata (timestamps)
		Documentation Completeness & Accuracy	% of notes meeting clinical, billing standards	EHR chart audits; coding reviews
	Provider Experience	Provider Burnout & Workload Scores	Burnout/workload changes (e.g., MBI)	Surveys; Employee Engagement Scores
		Provider Satisfaction with Documentation	Clinician satisfaction with documentation & workflow	Surveys; interviews

Example of AI Scribe Stakeholder 'buy-in'

- Identify Executive Sponsor: Appoint a senior leader to champion the AI Scribe project and align it with organizational goals.
- Engage Stakeholders: Involve clinical, administrative, and IT stakeholders early to build support and ensure cross-functional collaboration.
- Secure Funding & Resources: Confirm availability of necessary funding, equipment, and personnel. Explore internal budgets or external funding (e.g., grants).
- Determine Scope: Based on needs and resource availability, decide whether to launch a pilot or pursue enterprise-wide implementation.

Determining Scope

Criteria	Pilot	Enterprise-wide
Overall Risk	Low risk	High risk
Cost (Upfront & Ongoing)	Lower cost	Higher cost
Potential Impact/Scope	Limited impact	Broad impact
User Adoption & Feedback	Easier to manage	Harder to manage
Speed of Implementation	Faster rollout	Slower rollout
Organizational Readiness	Easier with small group	More complex coordination
Data for Optimization	Limited data	Rich data sets
Change Management Complexity	Simpler	Complex

Contracts & Partnerships

Structuring Agreements for Rural Health Initiatives

- Align goals across hospitals, clinics, payors, and vendors.
- Build in flexibility for scalability and amendments.
- Define risk allocation: liability, compliance, uptime, data ownership.
- Lesson Learned: Contracts are the foundation for success.

Key Challenges:

- Multiple layers of oversight (State law, procurement rules, DFA/ITS).
- Errors can cancel and restart a contract, adding months of delay.

Takeaway

- Build extra time in, ensure accuracy upfront and educate partners.

UMMC

Building Systems and Value-Based Care Models

Telehealth Value Proposition

Access to Care

- Reach Underserved Areas
- Reduce Travel Time and Costs for Patients

Quality of Care

- Continuous Monitoring and Follow-Up Care
- Improved Patient Outcomes Through Timely Interventions

Cost Efficiency

- Reduction in Hospital Admissions
- Lower Operational Costs for HealthCare Providers

Building Systems and Value-Based Care Models

Rural Revenue Cycle Limitations

- Limited Workforce
- Lack of Telehealth Billing Experience

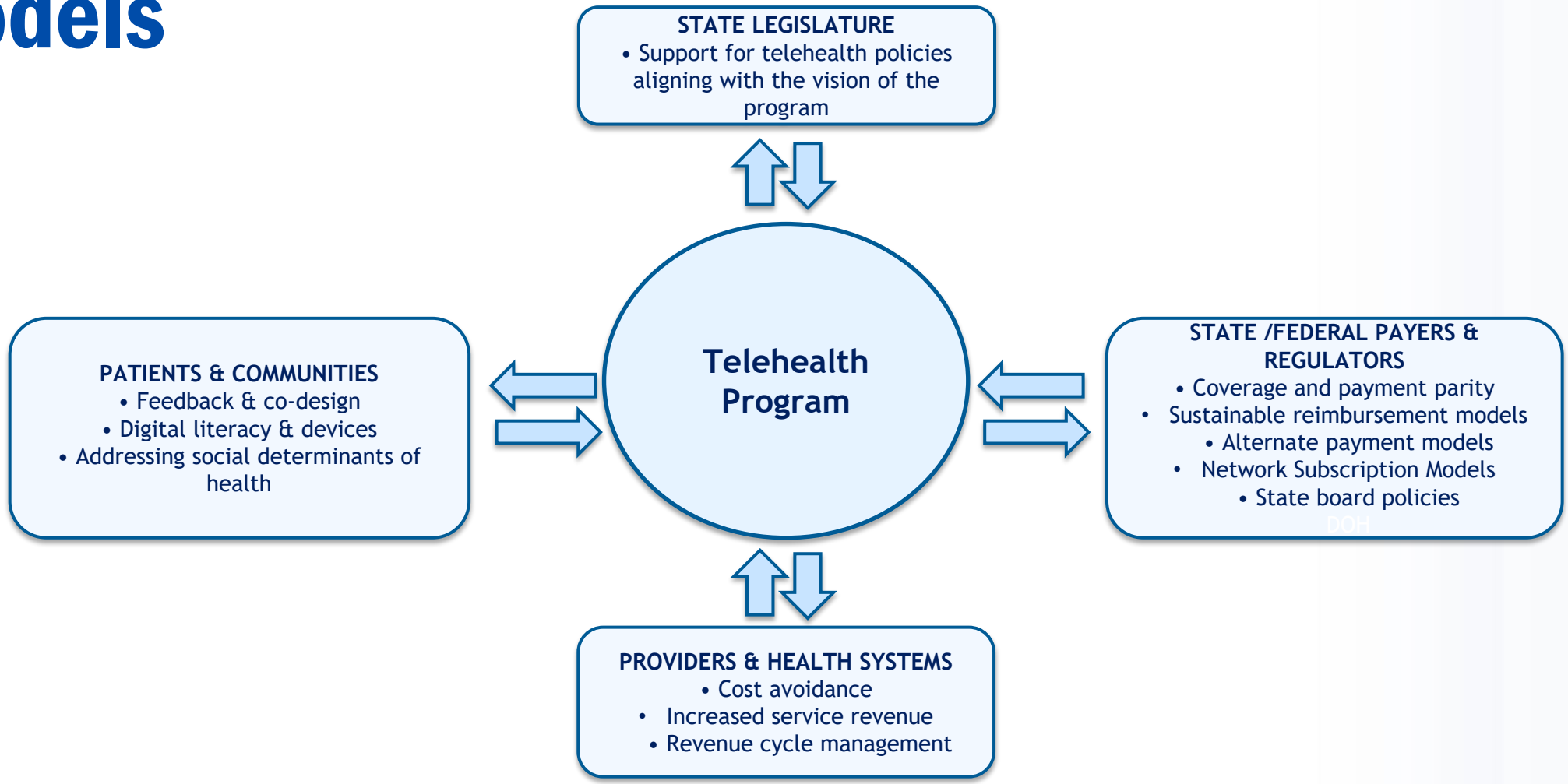
Reimbursement

- Continuous Monitoring
- Internal Revenue Cycle Resources
- External Evaluations

Shift to Value-Based Care

- Data
- Partnerships (Payers & ACOs)

Building Systems and Value-Based Care Models



Follow us!

UMMC Center for Telehealth and Emerging Technologies

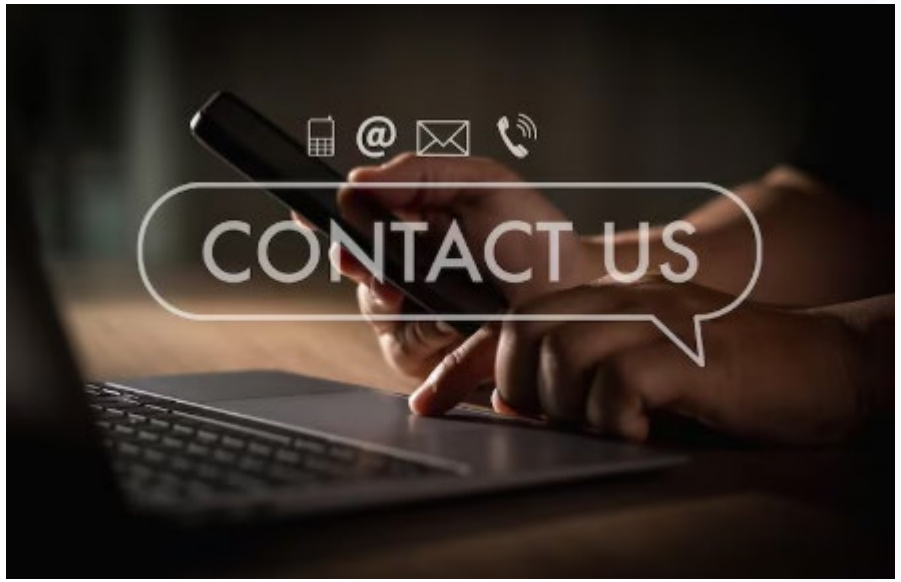
UMMC is home to a National Telehealth Center of Excellence.

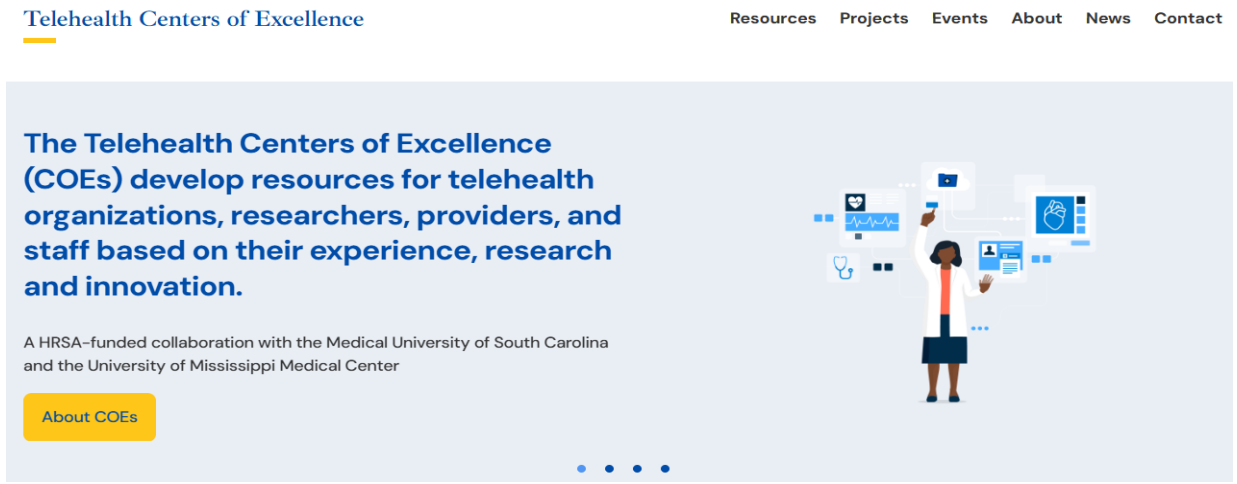
UMMC Center for Telehealth and Emerging Technologies

UMMC

Contact Information

Hollie Thomas
hnthomas@umc.edu





UMMC

The Telehealth Centers of Excellence(COEs) develop resources for telehealth organizations, researchers, providers, and staff based on their experience, research, and innovation.

TelehealthCOE.org

Telehealth Centers of Excellence

The University of Mississippi Medical Center

National Telehealth Center of Excellence

This presentation was made possible by the Health Resources and Services Administration (HRSA) of the US Department of Health and Human Services (HHS) as part of the National Telehealth Center of Excellence Award (U66 RH31458). The contents are those of the author(s) and do not necessarily represent the official views of, nor an endorsement, by HRSA, HHS or the US Government.