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Lessons Learned from Mississippi's Telehealth Approach to Health Disparities

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ABSTRACT

Many people see telemedicine as a solution to the nation's health disparities and in Mississippi as a solution to our last place in health. More than 13 years ago, the University of Mississippi Medical Center developed a successful TelEmergency program that saved rural Critical Access Hospitals and now provides telehealth services throughout the state. This occurred without acrimony because of partnerships that the University of Mississippi Medical Center developed with telecommunications companies, state government, health professions' licensure boards, and private donors. Today, the telemedicine market is exploding across the country with the entry of for-profit corporations into the medical market. These corporations often are more inclined to work with legislators rather than physicians, and some physician groups have attempted to limit their expansion. With the future of telemedicine now determined in part by the courts, rather than the providers, new pitfalls have arisen. The Mississippi experience may be helpful in navigating this new territory.

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KEYWORDS: Health disparities; Mississippi; Telehealth; Telemedicine

DOCTOR VISITS AT THE DOLLAR STORE

A neighbor stopped by to report that he had a seizure on a business trip. I asked about his medical follow-up. He said the pharmacy at our local dollar store had opened a telemedicine kiosk, you could see a nurse practitioner for a "doctor visit," and he planned to go there. More about this later.

HOW DID MISSISSIPPI BECOME A LEADER IN TELEHEALTH?

In Mississippi, the social determinants of health are stacked against us, and a libertarian approach to correcting them explains our perineal "last place in health" designation.[1] Medicaid expansion has yet to occur, leaving 165,000 residents without health insurance.[2] The lowest physician to patient ratio, rural geography, and a large African American population approaching a racial majority of whom 37% live in abject poverty also help explain our health disparities.[3] Twenty-one Federally Qualified Health Centers with clinics at 187 sites, pro bono care, teaching, state health department, Rural Health Clinics, and emergency departments staffed by nurse practitioners at Critical Access Hospitals have unsuccessfully attempted to fill the access gap.

Critical Access Hospitals, created in 1997 after an epidemic of rural hospital closures, have 25 or fewer inpatient beds and are required to provide around the clock emergency services to receive cost-based reimbursement.[4] By 2003, too few doctors were available to provide collaboration with nurse practitioners to staff Mississippi's Critical Access Hospitals. Robert L. Galli, MD, Chair of the University of Mississippi Medical Center Department of Emergency Medicine, conferred with faculty and piloted a 3-hospital "TelEmergency" system using off-the-shelf electronic components and specialized training for nurse practitioners. Clinical faculty and medical center leadership helped obtain scope of practice approval and new Mississippi code rulings on the practice of telemedicine, and a highly successful pilot program, the first of its type in the

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United States, began operations in 2003[5] (Table 1). Now, 15 Critical Access Hospitals form a statewide TelEmergency network (Figures 1 and 2). Installation of fiber optic cable across the state, clarification of billing status, and approval of these services for all Medicaid recipients have made telehealth widely available[6] (Table 2). The approximately 200,000 members of the State Employee Health Plan will be eligible for direct to consumer telemedicine starting in March 2017 (C. McIntosh, personal communication to K. Rodenmeyer, July 2016). This marketplace has resulted in a number of private initiatives (Table 3).

CLINICAL SIGNIFICANCE

- Telemedicine is changing the way healthcare is delivered in the United States.
- Quality and cost considerations between traditional care and care provided with telemedicine are yet inconclusive.
- Because physicians are stakeholders in telemedicine, familiarity with telemedicine is essential.

MISSISSIPPI'S FORMULA FOR THE GROWTH OF TELEHEALTH AND A COMMON ISSUE WITH OVERSIGHT

The Mississippi experience is an example of how a telemedicine enterprise can develop with limited resources and limited conflict among stakeholders.[7,8] The support of the state's only academic health center, the active participation of its clinical faculty in the state's medical and nursing organizations, and the positioning of health services as a growth industry to obtain legislative support have been key factors in the rapid expansion of telemedicine in Mississippi. These forces, with few exceptions, have spoken to the state legislature and congressional delegation as one, essential because the politicians control the scope of practice of health professionals through licensure boards and other state agencies (Table 4).[9]

Three different state legislative codes assign oversight responsibilities to 3 different state agencies (Table 4). The Department of Health had the major role, but their proposed regulations have not been taken up by the legislature. A Parity Law in the Mississippi Insurance Code requires reimbursement for telemedicine services at the same rate as regular medical services. The Board of Medical Licensure oversees medical practice, licensure, documentation of care, and collaborative relationships with nurse practitioners and physician assistants who do not have independent practice privileges in Mississippi. This delegated oversight to multiple agencies has lately fostered an environment of competing interests and active lobbying of legislators by in-state and out-of-state interests.

MEDICARE AND MEDICAID

Medicare, unlike the Department of Defense, Veteran's Administration, and Medicaid, has been slower to embrace telemedicine.[10] Telemedicine coverage by Medicare varies greatly by state. Medicare primarily reimburses for rural telemedicine services in Health Professions Shortage Areas (Table 5). There are 8 categories of eligible providers (Table 6). Almost every Medicare plan offers at least some telehealth services, but the information presently provided to beneficiaries is vague.[11] Store-and-Forward telemedicine, for example, review of remotely obtained radiologic images and histopathology, and synchronous (real-time) services are reimbursed as physicians services. However, only certain Current Procedural Terminology codes may be used.

State-sponsored Medicaid programs have the option to determine whether to cover telemedicine, what types of telemedicine to cover, where in the state it is covered, how it is provided, what providers will be reimbursed, and reimbursement rates (Table 7). The Center for Connected Health Policy provides updates on Medicaid telehealth programs.[12]

EFFECTIVENESS, ACCEPTABILITY, AND COSTS OF INTERACTIVE TELEMEDICINE WHEN COMPARED WITH USUAL CARE

By 2020, the rapidly expanding telehealth market will be worth more than 34 billion dollars per year. With the high demand for telemedicine, legislatures and Congress are rushing to pass oversight legislation and are heavily lobbied by providers and the industry. So, what information is available to them about effectiveness, acceptability, and cost? A computer-assisted review on these topics reveals published studies, including systematic reviews, too numerous to count. The majority of these are short term, have small patient numbers, and have methodological deficiencies readily acknowledged by those performing them, although standards have been established for such reviews.[13] It seems safe to say that telemedicine has utility in delivering care in military applications and in improving access to care for civilians in remote locations with few health providers. Available studies consistently demonstrate positive evaluations by providers and patients.

The Cochrane Library presently lists 13 active and ongoing systematic reviews of Telemedicine. Of the 13, 2 have not reached completion, 5 show some evidence of superiority over usual care, 3 show no evidence of superiority over usual care, and 3 found inadequate evidence to reach a conclusion. The most recent review, "Effects on Professional Practice and Health Care Outcomes," analyzed 93 high-quality publications that included 22,047 patients.[14] That review compares outcomes of telemedicine versus usual care in the management of

Table 1 Mississippi Code Rules for TelEmergency Medicine

Telemedicine is the communication of a physician in 1 location with a patient in another by electronic means.
TelEmergency Telemedicine is the combination of telemedicine and the consultation of a certified emergency medicine specialist with a skilled nurse practitioner or physician's assistant.
Only physicians licensed in Mississippi may practice telemedicine in the state. Those practicing TelEmergency medicine must be located at a Level 1 Trauma Center.
A patient—physician relationship must be established with the diagnosis, treatment, use of accepted medical practices, and establishment of a medical record available to other providers.
An examination must be performed before diagnosis but may be performed using technology sufficient to collect the same information as collected in person.

Adapted from Miss. Code Ann. 73-25-34 (1972 as amended), Part 2635, Chapter 5, Practice of Telemedicine. Amended 2003, 2004, 2006, 2010. Available at: http://www.macm.net/assets/telemedicine-msbml.pdf. Accessed May 9, 2016.

Figure 1 Robert Galli, MD, at the UMMC TelEmergency Telemedicine Center monitoring in-room care using audio and video access to both patients and providers at 9 critical care hospitals.

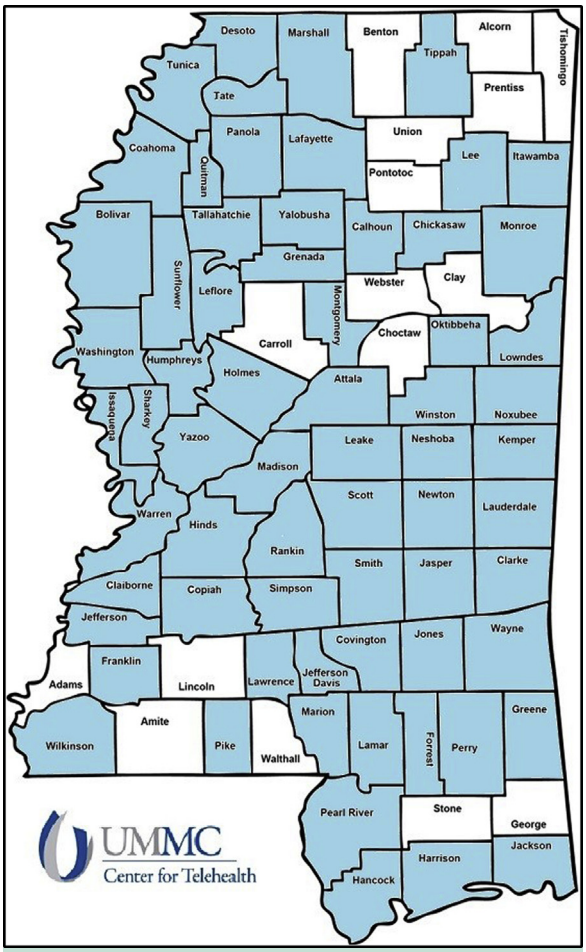

Figure 2 Counties in Mississippi with present access to Critical Access Hospitals Telehealth (https://www.umc.edu/Administration/Centers_and_Institutes/Center_for_Telehealth/About_University_Center_for_Telehealth.aspxhttps://www.umc.edu/Administration/Centers_and_Institutes/Center_for_Telehealth/About_University_Center_for_Telehealth.aspx).

Table 2 Telehealth Services Presently Provided by the University of Mississippi Medical Center

TelEmergency medicine for emergency medicine and trauma
Hospital medicine and ICU coverage, telemetry, inpatient monitoring, and consultation for critical care physicians and nurses
Corporate employee health programs
Telehealth training and development
Cardiology EKG, Holter, echocardiography, stress test, and CT angiography reading services
Synchronous telehealth services in real-time for consultations in specialties of medicine, pediatrics, and psychiatry

CT = computed tomography; EKG = electrocardiogram; ICU = intensive care unit.

The Center for Telehealth now delivers telehealth services to 213 Mississippi locations outside of Critical Access Hospitals. Courtesy of Critical Access Hospitals Center for Telehealth.

Table 3 Telehealth Providers Presently Operating in Mississippi

24/7 Dr. Help
American Wel
ClickMedix
Doctor on Demand
E-Psychiatry
First Stop Health
FlexCare
HealthTap
InSight Telepsychiatry
LiveHealth Online
MDLive
Memorial Hospital at Gulfport
My Dr. Now
North Mississippi Medical Center
Specialists on Call
St. Dominic Hospital
Teladoc
TelehealthONE
University of Mississippi Medical Center — Center for Telehealth
WorldClinic

Courtesy of Michael Adcock, MBA, University of Mississippi Medical Center for Telehealth (madcock@umc.edu).

diabetes, mental illness, urogenital, gastroenterological, neurologic, malignant, respiratory, and several other conditions. There were no differences in all-cause mortality in patients who received care by telemedicine versus usual care. Hospital admission rates of patients managed by telemedicine ranged from a 64% decrease to a 60% increase compared with usual care. There was "moderate certainty" for improved quality of life, decreases in blood pressure and low-density lipoprotein, and a "high certainty" of lower hemoglobin A1c values. There were no other quality or cost comparisons.

THE FUTURE OF TELEMEDICINE

On the positive side, telemedicine provides increased access and availability of healthcare, specialty consultation, and an opportunity for monitoring of healthcare. On the negative side, it may reduce in-person interaction with physicians, requires technical training and equipment, has potential quality concerns, and is complicated by changing policy, legislation, and reimbursement issues.[15] This disruptive sea change in medicine will cause increasing conflicts among stakeholders. Although best practice standards of care for telemedicine have been established by the Federation of State Medical Boards, the American Telemedicine Organization, and the American Medical Association, barriers exists to their adoption (**Table 8**).

Telemedicine has demonstrated the potential to play a role in addressing the long-term health disparities for the underserved populations in Mississippi. A pilot program in telemedicine-based diabetes management in the impoverished Mississippi Delta region has not only improved clinical markers of diabetes control but also strikingly decreased hospital admission rates for complications of diabetes.[16] Rather than undercutting local providers, consultative programs in critical care, asthma management, pediatric subspecialties, and TelEmergency medicine have allowed patients to receive healthcare near their homes and continue to use their local hospitals, clinics, and providers without traveling long distances.[7] In more urban areas, telemedicine promises to increase patient compliance and outcomes and to provide individualized patient education and rehabilitation.

There is an insatiable desire for convenient, quality, and low-cost health care by the government and consumers.[17,18] With political forces aligned to support telehealth as a way to meet those desires, the telehealth

Table 4 Delegated Oversight of Telemedicine by the Mississippi Legislature

State Board of Health*
Develops rules and regulations for health services and data
State Insurance Commission†
Insurance commissioner will ensure that all health insurable and employee benefit plans provide coverage for telemedicine services.
Types of Telemedicine Services‡,§
Real-time consultation through interactive video, not audio only or email or facsimile
Store and forward services using devices that record images sent via telecommunication
Physician Licensure Board||
Physicians practicing telemedicine must be licensed in Mississippi unless a licensed Mississippi physician has requested the consultation.
Standards of Practice¶
Physicians may prescribe drugs and medical supplies using the existing standards of care.

*Miss. Code Ann 41-3-15.
†Miss. Code Ann 83-9-351.
‡Miss. Code Ann 83-9-351.
§Miss. Code Ann 83-9-353.
||Miss. Code Ann 73-25-34.
¶Miss. Code Ann 41-127-1.
Courtesy Conner Reeves, Esq. Mississippi State Medical Association (creeves@msmaonline.com).

Table 5 Telemedicine Services Reimbursed by Medicare

Where provided An eligible provider not at the patient's location may provide services for a patient seen in a doctor's office, hospital, critical access hospital, rural health clinic, federally qualified health center, hospital-based dialysis center, state nursing home, or community mental health center.
Services provided Office visits, psychotherapy, consultations, "certain other services" under "certain conditions"
How provided 2-way telecommunication system "like real-time audio and video"

Medicare and You 2017. Centers for Medicare and Medicaid Services Product 10050-17. 2016. Centers for Medicare and Medicaid Services (7500 Security Blvd, Baltimore, MD 21244-1850).

Table 6 Telehealth and Medicine: Center for Connected Health Policy

Eligible Medicare Telehealth Providers
Physicians
Nurse practitioners
Physician assistants
Nurse midwives
Clinical nurse specialists
Clinical psychologists
Clinical social workers
Registered dieticians or nutrition professionals

Available at: http://cchpca.org/telehealth-and-medicare. Accessed September 15, 2016.

industry is shaping American medicine with little input from physicians. The Mississippi experience shows that partnerships between physicians in academic and private practice are an attractive option to protect the interests of patients and physicians.

When the Texas Board of Medical Licensure attempted to limit the use of some forms of telemedicine, ongoing tensions began between the for-profit telemedicine corporations and the state physician licensure board. For instance, Teladoc, based in Dallas, Texas, and the largest telehealth corporation, sued the Board for constraint of trade in 2011. The Board has lost 8 appeals, and Teladoc is directly lobbying the state legislature for legislation in their favor (C. Tucker, personal communication to K. Rodenmeyer, 2016). Teladoc operates in 46 states and in Mississippi provides services through employee health plans to 51,000 citizens. The Mississippi State Medical Association objected to proposed telehealth legislation in 2016 on the ground that it could lead to audio-only applications. Teladoc contended that their "interactive audio" allows access where broadband services are not available (C. Tucker, personal communication to K. Rodenmeyer, 2016). Lobbying is under way for the 2017 legislative session.

BACK TO THE DOLLAR STORE

I suggested to my neighbor that he might be better served by visiting a neurologist to review his seizure workup rather than first seeking care at a telemedicine kiosk. He thanked me and took my advice. I learned that with the low level of health literacy in the United States, physicians need to be actively involved in setting scope of practice guidelines for telemedicine and communicating them to the public. Some in Mississippi think telemedicine is a panacea for *all* of our health problems. I'm not so sure.

Table 7 Medicaid and Telemedicine

46 Medicaid programs cover live video
9 State Medicaid programs cover store-and-forward telemedicine
14 state Medicaid programs cover remote patient monitoring
3 Medicaid programs (Arkansas, Minnesota, Mississippi) offer coverage for all 3 types of telemedicine
26 Medicaid programs cover a facility or transmission fee or both

Available at: http://cchpca.org/sites/default/files/resources. Accessed May 9, 2016.

Table 8 Barriers to Telemedicine

- Legislation
- Reimbursement process
- Implementation/equipment costs
- State licensure requirements
- Lack of practice standards
- Lack of high-quality assessments and quality cost; acceptance and unanticipated consequences
- Scope of practice disputes among medical professionals

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