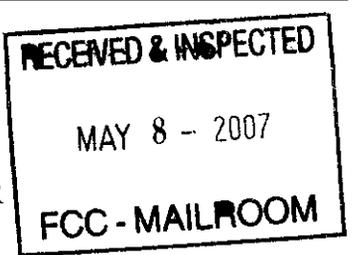


THE UNIVERSITY OF MISSISSIPPI MEDICAL CENTER
2500 North State Street
Jackson, Mississippi 39216-4505



School of Medicine
Department of Emergency Medicine

Office (601) 984-5572
Fax (601) 815-3487

May 3, 2007

Federal Communications Commission
Commission's Secretary
Office of the Secretary
236 Massachusetts Ave, N.E.
Suite 110
Washington, D.C. 20002

RE: Rural Pilot Network Program

To Whom It May Concern:

Please accept the attached proposal in response to the FCC's Rural Network Pilot Program WC Docket Number 02-60. This proposal request funding for a statewide template for connectivity that will provide an infrastructure for HIT development and implementation across the continuum of healthcare providers within our state.

If additional information is needed or if you have questions regarding the proposal, please feel free to call me at 601-984-5572. We represent an interdisciplinary team of healthcare providers from throughout our state and look forward to working with the FCC in the implementation of this pilot network

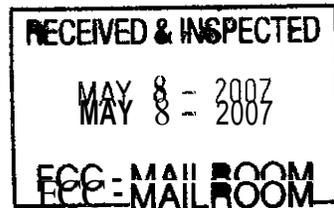
Respectfully,

A handwritten signature in cursive script, appearing to read "R. Galli".

Robert Galli, M.D.
Chair, Emergency Medicine
Director, Telemedicine Project

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Introduction

Since President Bush's 2004 announcement that every American would have an Electronic Health Record (EHR) within 10 years, significant national initiatives have been undertaken to meet this objective. In 2004, AHRQ initiated a \$139 million dollar program to promote health information technology (HIT) adoption and exchange. Awards were spread across 41 states; approximately 50% included an HIT exchange component. The FCC's Rural Health Care 2006-2007 pilot program has allocated \$100 million dollars for broadband expansion and development of a statewide health information exchange (HIE) infrastructure. In addition to funding initiatives, additional examples of national initiatives are the following: the creation of the Office of the National Coordinator (ONC); the Certification Commission for Health Information Technology (CCHIT) announced in July, 2006 to provide certification for EHR's; the Doctor's Office Quality-Information Technology (DOQ-IT) program focusing on physician office HIT adoption funded through CMS. In addition, the Health Information Technology Standards Panel (HITSP) and the American Health Information Community (AHIC) headed by Secretary Leavitt were formed to create support groups for development and use of HIT. Concurrent with these national initiatives, the Southern Governors' Association (SGA) has been commissioned to examine the feasibility of creating an HIT infrastructure to support healthcare data exchange among the Gulf States. Finally, the e-Health initiative and the Health Information Security and Privacy Collaboration (HISPC) analyzed HIT integration and adoption, barriers and benefits to HIT adoption, and offered suggestions for creating solutions and implementation of HIT and improving the state HIE infrastructure.

Although several national HIT initiatives are underway, less than 10% of US hospitals have an electronic medical record; 19% of healthcare providers and 5% of clinicians utilize a completely computerized patient record. Research has shown that phone, fax, or mail continues to account for over 90% of all healthcare communication and that only one-third of US hospitals have implemented computerized physician order entry (CPOE).

In general, most HIT efforts have focused on large hospitals, urban areas, and individual providers. In order for HIT to reach the maximum potential in providing quality healthcare for all Americans, efforts must span the health care continuum. Efforts must include rural as well as urban areas, providers across the continuum of care including hospitals, private offices, mental health clinics, state health clinics, rural health clinics/federally qualified health clinics, and, most importantly, be implemented across multiple systems of providers. This is especially important to Mississippi given the state's rurality, poverty, and lack of healthcare providers in geographically isolated areas. Mississippi is the 4th most rural state, and by most measures the poorest and least healthy state in America. Mississippi ranks 50th in per capita income and 50th in overall health. *The need to extend medical training through CME/CEUs to health care professionals throughout the state, to provide telemedicine assistance to primary physicians, emergency rooms and mental health professionals, and to offer education to help in the patient empowerment process cannot be underestimated.*

Improving Access, Quality, and Continuum of Care in Mississippi to Improve Health Disparities

Goals and Objectives of Proposed Network

Our proposal is focused on upgrading the technical quality and bandwidth of our current telemedicine network, extending access of this network to geographically isolated rural providers, and expanding the continuum of care across a variety of healthcare providers. Specifically, we will upgrade the current network that ranges from 64K - 6M to T1 - 9M. We will extend access coverage of the network to: 20 rural hospitals, 22 Community Health Centers (Rural Health Centers (RHC's) and Federally Qualified Health Centers (FQHC's)), 28 Department of Mental Health facilities, 5 private physician offices, 9 Mississippi State Department of Health Clinics, as well as seek additional opportunities to work with other healthcare provider agencies throughout the state of Mississippi. This not only increases our geographic outreach, but also expands coverage across a broad continuum of care by creating an HIT infrastructure to connect this variety of healthcare providers. In addition to expanding access to the current UMMC telemedicine services, in order to improve the quality of care provided to patients in rural areas, we will add three additional applications: 1) telehealth as part of the provider educational initiatives, 2) web-based patient education, and 3) hyperlinks to UMMC's knowledge base for network provider participants.

This is a pilot project in which we will demonstrate our ability by building a template for a statewide infrastructure for HIT across the continuum of healthcare providers. Our current telemedicine network connects 10 rural hospitals. Since the inception of this network, over 40,000 patients have received medical treatment from rural healthcare providers in consultation with UMMC physicians (see below for a description of the current system). The current network utilizes an ATM backbone with Frame Relay provisioned to the edge employing a variety of capacity circuits ranging from 64K to 6Mb. The existing infrastructure will be upgraded through the deployment of Multi-Protocol Label Switching (MPLS) technology and increasing the bandwidth at each site to support the deployment of the proposed applications. Multi-protocol Label Switching (MPLS) offers simpler mechanisms for packet-oriented traffic engineering and multi-service functionality with the added benefit of greater scalability. MPLS brings to the table many benefits, in particular for a network requiring high reliability and efficient QoS capabilities such as the proposed health information network. Some of the benefits include: 1) increased scalability relative to the currently deployed ATM/Frame Relay network, 2) reduction in the complexity of network operations, 3) facilitates the delivery of new routing capabilities that enhance conventional IP routing techniques, 4) provides a standards-based solution that promotes multi-vendor interoperability, 5) is built to support applications (video and voice) requiring priority treatment and a high level of performance, and 6) provides reliability, performance, and flexibility without dramatic affects on budgets. As will be noted later, the sustainability of this project will depend directly on the program applications. During the first year, we will employ telemedicine and telehealth to sites wishing to participate in the UMMC program. In addition, we will

provide a hyperlink to the UMMC knowledge base for all participants in the project. In addition to the above, through IQH, we will create a Community of Practice Support Network (COPSN) for providers and educational initiatives for consumers. During this time period and into the next year we will begin implementing electronic health records across the network and employ a syndromic surveillance Bayesian modeling system (as noted later).

By successfully connecting the network of providers from geographically isolated areas and from a broad continuum of care providers, we will be able to meet President Bush's mandate to electronically connect health care providers in a meaningful way.

Why Mississippi?

Data from the 2004 American Community Survey indicates that approximately 77 percent of individuals aged 25 years and older have completed high school (including equivalency), and only 19 percent of individuals aged 25 years and older have completed a bachelor's degree. National averages are higher; 84 percent of all Americans have attained a high school education, while 27 percent have obtained a bachelor's degree. Poverty in Mississippi continues to be a chronic problem. The per capita income in 2000 was \$15,853, compared to \$21,587 nationally. The median household income in 2003 was \$32,397 compared to \$43,318 nationally. Issaquena County is often cited as the poorest county in America with an average per capita income of \$11,860.00. Twenty three percent of the entire Mississippi population lives under 100 percent of the Federal Poverty Level. Fifty four percent of the population lives under 200 percent or greater of the Federal Poverty Level.

Approximately one-half million citizens (18 percent of the total population) in Mississippi do not have health insurance. Employers provide private health insurance to only 1.3 million residents, which comprise 47 percent of the total population. Medicaid provides coverage to 19 percent of the total population, while Medicare provides health insurance to 11 percent of the total population in Mississippi.

According to the America's Health Rankings™ 2005, the state of Mississippi ranks 50th among all states in terms of health status (as categorized by the United Health Foundation), down from 49th in the 2004 edition. Mississippi has ranked in the lowest three states since the 1990 edition. The state ranks well in access to prenatal care and immunization coverage. The state also spends \$197 per person on public health that is the 11th highest in the United States. However, Mississippi ranks in the lowest five states in nine of the 18 measures that the United Health Foundation tracks, with high rates of premature death, infant mortality, total mortality and cardiovascular death. Mississippi also has an alarmingly high percentage of children in poverty, high prevalence of obesity, high rates of motor vehicle deaths, high occupational fatalities rate, and a high number of limited activity days. In short, Mississippi is an unhealthy state.

With these statistics as the state's healthcare backdrop, unequal access to care is a critical concern in Mississippi. Although Mississippi is close to the national average in the number of primary care physicians (one for every 1,488 citizens as compared to the

national average of one for every 1,429 potential patients), the distribution of physicians through out the state is severely uneven. Data show that 56% of all Mississippi physicians are located in four urban areas: Jackson, Tupelo, Gulf Coast, and the Mississippi comdor to Memphis. Jackson, alone, hosts 28% of the state's doctors. Only 31 of Mississippi's 82 counties have enough doctors, and only 11 counties meet COGME standards for adequate care by primary care physicians. Two counties (Benton and Issaquena) had no primary care physicians at the time of the Mississippi Health Policy Research Center survey in 2003. In Mississippi only 11 of 82 counties did not have physician shortages; 54 counties were designated as HPSA counties, and only 12% of doctors practiced in the Delta region. The state's HPSA counties include 42% of the state's population as compared to the national average of 20% of the population living in HPSA counties. Similar patterns exist for other healthcare professionals such as nurses, allied health professionals, and dentists. The maps shown on the ensuing page visually depict these patterns for federally designated HPSA areas by primary care, dental, and mental health.

Governor's Executive Order

On March 7, 2007, Governor Haley Barbour issues an Executive Order to create the Health Information Technology Infrastructure Taskforce. Three members of that taskforce, Drs. Jones and Rudman, and the Director of Information Technology Services (ITS), David Litchliter are integral parts of this grant proposal. The taskforce was commissioned to assess the HIT infrastructure of the state, make recommendations and begin developing a statewide HIT infrastructure. If this proposal is funded, we will be able to create the blueprint on which the statewide HIT infrastructure may be built. We can not over emphasize the importance of this funding in helping the state of Mississippi to develop a statewide HIT infrastructure that will connect geographically isolated areas in order to provide more efficient, effective, and timely care. (A copy is shown in the Appendix).

The Role of ITS

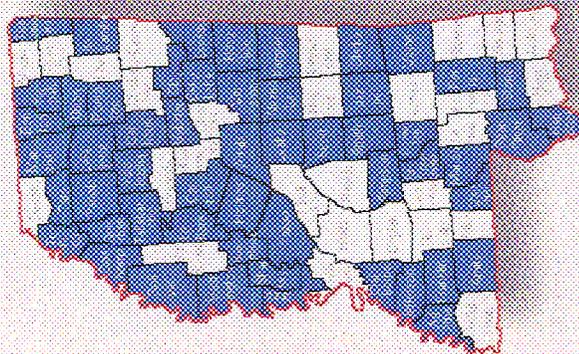
Information Technology Services' Gary Rawson and Jimmy Webster will play an integral part in the success of this pilot project. Both will participate in the needs assessment, evaluation, and rollout of the network. ITS will manage the MPLS system as part of the state initiative for HIT infrastructure. Mississippi has been very successful with the FCC e-rate program. ITS e-rate program is utilized for schools and libraries in the state and will continue to supply e-rate in conjunction with the health programs.

Dr. Robert Gailli
UMMC
Jackson, MS

FCC Pilot Program: WC Docket Number : 02-60

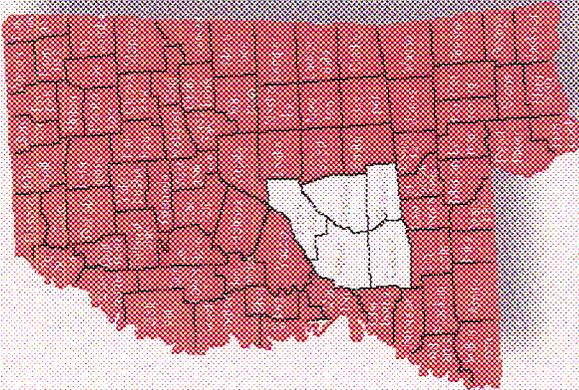
Mississippi Health Providers Shortage Areas – Single Counties

Dental



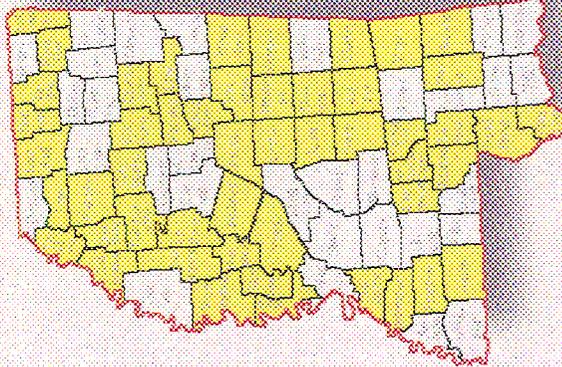
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Mental Health



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Primary Medical Care



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Data source: <http://hpsafind.hrsa.gov/HPSA/Search.aspx>
Maps created on: <http://monarch.tamu.edu/~mms2/newmaps/ms.htm>

Mississippi HIT

In a 2006 study on HIT adoption in the state of Mississippi, IQH estimated that 10 percent of rural hospitals had adopted some form of an electronic information system. Nine of 82 hospitals statewide had adopted bar-coding technology, 22 had adopted teleradiology, and four utilized telemedicine. Additionally, one hospital in the state had adopted a CPOE system, although several hospitals indicated that they were thinking about adopting a CPOE system within the next two years. Based on interviews conducted by IQH with various payor stakeholders in the state, no payors had made commitments to partially fund HIT adoption or implementation at this time. The Mississippi State Medical Association, at the time of the release of the IQH Environmental Scan, did not have information regarding the penetration of HIT in physicians' practices. The e-health initiative identified only 29 independent pockets of HIT activity in the state of Mississippi. However, this study found that none of the 29 projects were integrated across independent provider systems.

In November 2005, IQH and several partners conducted a survey of physicians to assess the degree of utilization of HIT within the state. Selected results from the 149 respondents are highlighted below:

- 23 percent of practices have an electronic health or medical record
- 58 percent of those who do not currently have an electronic health or medical record plan on implementing one
- 49 percent of these respondents indicated they will adopt such a system within two years, while 51 percent were unsure
- 52 percent of physician practices responded that a lack of capital resources to invest in an EHR makes implementation extremely difficult
- 24 percent of respondents indicated that they have insufficient time to select, contract, install and implement an EHR which makes implementation extremely difficult
- 29 percent of respondents indicated that the inability to easily input historic medical history into an EHR system makes implementation extremely difficult
- 24 percent of respondents cited a potential loss of productivity during the implementation phase as a barrier

In Mississippi, both the e-health initiative and HISPC Variations report expanded upon barriers to HIT adoption. From these two reports, seven general barriers were identified: lack of a centralized authority to oversee the implementation of an integrated, interoperable information network; lack of resources (trained personnel and cost of the initial investment and maintenance of technology); lack of standardized policies and procedures across healthcare organizations and providers, which lead to variations in business practices associated in the transfer of health information; lack of a standardized nomenclature, software and taxonomy between healthcare organizations (forms and

format of information, data standards, terminology and exchange protocols); lack of knowledge of state and federal laws among direct care health providers; lack of state laws governing maintenance, access and transmission of electronic health information (the HISPC Legal Working Group did not find any Mississippi laws that addressed electronic authorization to release PHI and authentication of the recipient); and lack of a secure integrated network/system connecting healthcare organizations and healthcare providers (interoperable framework).

Findings from both reports noted that the creation of a statewide information infrastructure should be the first step in providing broad based HIT integration within the state. The lack of an interoperable information infrastructure may lead to delays in the transmission of healthcare data, security breaches, and violation of state and federal laws (HISPC Variations Report, 2007). Creating a blueprint for a statewide infrastructure is essential in Mississippi's effort to provide quality care to rural areas within the state.

Experience in Developing and Managing TeleEmergency Programs

Telemedicine (TM) offers promise for improving the quality of care in rural areas but previous models were not well designed to provide affordable care to unstable or potentially unstable patients. Previous models relied on physician to physician consultation, usually required the presence of a sub-specialist to provide the consultation and in EM lacked CPT codes for TM providers to bill for their services. The TeleEmergency (TE) program was developed to overcome these limitations by providing quality, affordable medical care to patients in rural emergency departments (REDs) utilizing specially trained NPs linked in real-time via TM with their collaborating physicians at the University of Mississippi Medical Center Adult Emergency Department (UMCAED). The current network is connected on a frame relay network employing T1 1.5 Mb bandwidth lines. Between October 2003 and October 2006 the TE program has evaluated approximately 40,000 patients in rural emergency departments in Mississippi. Of particular interest, the TeleEmergency Program has developed a rural bio-terror surveillance network, allowing the Health Department investigative capabilities of emergency patients throughout the state.

Nurse Practitioners

In the TE model, NPs and collaborating TE physicians manage ED patients at multiple geographically distant sites. NPs were chosen rather than Physician Assistants (PAs) or other mid-level practitioners due to the availability of NPs as well as hospitals' and patients' familiarity with NPs in our state. With the cooperation of the Mississippi State Board of Medical Licensure and the Mississippi Board of Nursing, a waiver was obtained which allowed NPs who participated in the pilot program to collaborate with physicians who were more than 15 miles away using a telemedicine link.

The NPs recruited for the TE program were required to have specific qualifications. These qualifications include: 1) a master's degree in nursing from an accredited institution (NLN or CCNE), 2) certification as a Family NP with a current unrestricted license (RN and NP) to practice in the United States and eligibility for licensure in Mississippi, 3) current Basic Cardiac Life Support (BCLS), Advanced Cardiac Life Support (ACLS), and Pediatric Advanced Life Support (PALS) and 4) completion of the Mississippi Nurse's Association Controlled Substance Workshop. Preference was given to NPs who had completed one year of clinical experience as an NP and those who held a second certification as an Acute Care NP. If the NP was not dually certified, registration into an Acute Care NP Post Master's program was recommended.

An educational program was designed specifically for the TE nurse practitioners. It consists of approximately 40 hours of continuing medical education on topics felt to be critical to the evaluation, diagnosis and treatment of ED patients, combined with clinical and procedural training. A list of the lecture topics is given in Table 1. The NPs are required to complete four exams based on the lectures and case presentations from a required text prior to completion of their clinical rotation.

Table 1: TE Didactic Lecture Series

Approach to the ED patient	Chest pain	Syncope	Hypertensive Emergencies	ACS
EKG Interpretation	C-spine trauma	Head trauma	Abdominal and blunt trauma	Penetrating trauma
Extremity trauma	Open injuries to the hand	Antiarrhythmics	ACLS drugs	Fibrinolytics
Intubation drugs	Stroke	Acute dyspnea	OB Emergencies	Acute abdominal pain
Acute GI bleeding	Adult febrile patients	Pediatric febrile patients	Telemedicine equipment	Acute Complications of Diabetes
Anaphylaxis	ATLS	Advanced airway management	Headache	Controlled substances
Seizures	Wheezing	Altered mental status	The poisoned patient	The swollen and painful joint
Electronic Medical Record Keeping				

The clinical training consists of clinical hours in the UMMCAED and various skill labs, including a cadaver lab. The clinical hours vary from a minimum of 135 hours to approximately 200 clinical hours and must include at least 100 patient encounters under the supervision of attending EM physicians at UMCAED. At the end of the clinical and skill lab rotation, NPs are required to document the patient log as well as the procedure log shown in Table 2.

Table 2: NP Procedure Requirements

<ul style="list-style-type: none"> ■ Arterial Blood Sampling (3) ■ Defibrillation/Cardioversion (2) ■ Needle Decompression (1) ■ Venous Access – Femoral (3) ■ Venous Access – EJ (1) ■ Dislocation Reduction (1) ■ Closed Fracture Splinting (1) ■ Intubations – Adult (5) ■ Intubations – Pediatric (5) ■ Laceration Repair (3) ■ Adult Medical Resuscitation (3) ● Adult Trauma Resuscitation (3)

All NPs must obtain a DEA certificate and meet privileges and credentialing requirements at the hospitals in which they were to be employed. In addition, NPs are required to meet Continuing Education (CE) requirements, including attending quarterly Performance Improvement (PI) and educational “Update” conferences, and to document

the performance of a requisite number of selected clinical procedures to continue to remain active in the TE program.

Of the 34 NPs who have completed the requisite training, 27 have maintained the required CE and procedural documentation. Of this 27, a total of 23 are actively participating in the TE program at site hospitals; showing an ongoing retention rate of 68% over the past 28 months.

Collaborating Physicians

The TE program is an extension of UMMCAED and all Collaborating Physicians (CPs) are either faculty or senior residents at UMMCAED. UMMCAED is an urban teaching emergency department with an annual census of approximately 65,000 visits. Dedicated CP coverage for the TE program is provided 16 hours a day. Fifty percent of the dedicated CP coverage is provided by UMMCAED attending physicians and 50% by senior (PGY3 or PGY4) emergency medicine residents with attending physician backup. PGY3 and PGY4 residents participate in TE rotations of four and six weeks, respectively, as part of their residency training, while EM faculty members cover on average 2 TE shifts per month. Prior to covering any TE shifts, all CPs undergo an orientation session that familiarizes them with the use of the TE cameras and monitors as well as the specific capacities and limitations of the participating hospitals and EDs.

TE coverage consists of two eight-hour shifts, between 10AM to 2AM. Between the hours of 2AM and 10AM a senior emergency medicine resident or faculty member, who also has clinical responsibilities in the ED, provides coverage as TE hourly census decreases considerably.

CPs also perform PI reviews on selected patient charts during their TE shifts. This ensures familiarity with problem or potential problem cases and provides the CPs with an understanding of the overall TE system.

Reimbursement

A major barrier to effective TM services in emergency medicine has been reimbursement. No federal Medicare reimbursement for TM services existed until 1997. The Balanced Budget Act of 1997 directed The Health Care Financing Administration (HCFA) to make part B payments for professional consultations via TM, but these rules were so restrictive that from April 1999 through December 2000 HCFA paid only 235 total telemedicine claims.

In 2001, Medicare expanded payment for TM services following the passage of the Medicare, Medicaid, and SCHIP Benefits Improvement and Protection Act of 2000. Among other things, this act created CPT codes for office or outpatient visits, psychotherapy and pharmacologic management, allowing for payment to a provider who furnishes TM services at a distant site at the same rate that would have been paid if the service had been furnished without the use of a telecommunications system. It expanded the areas covered, and removed the requirement for the practitioner requesting TM service to be present. While this act expands reimbursement for TM services, it does not

Hospital Name	Hospital Site	Town Population	County Population	Distance from UMC	UMC Primary Referral Center?
Hospital of Aberdeen					
Humphries Co. Hospital	Belzoni	2,663	11,206	76 miles	No
UMC Lexington	Lexington	2,025	21,609	60 miles	Yes
Quitman Co. Hospital	Starks	1,551	10,177	167miles	No
Franklin Co. Hospital	Meadvile	519	8,488	89 miles	No
Scott Regional Hospital	Morton	3,482	28,423	39 miles	Yes
Claiborne Co. Hospital	Port Gibson	1,840	11,831	77 miles	Yes
Prentiss Co. Regional Hospital	Prentiss	1,158	13,962	62miles	No
Perry Co. Hospital	Richton	1,083	12,236	114 miles	No
Lawrence Co Hospital	Monticello	1,726	13,258	66miles	Yes

*Source: US Census Bureau 2000

In the PHs, there is also variability in the EDs staffed by TE. This information is given in Table 4. The EDs served by TE range from 2 to 6 beds with an average of 3.6. The average yearly ED census ranges from approximately 3000 to 9500 with a mean of 5500. The total yearly census of the combined ten hospitals is approximately 50,000. No PH uses TE exclusively for ED coverage; rather it is used to complement their existing physician coverage. On average the EDs utilize TE for 281 hours a month, with a range

from 71 to 505 hours per month. Ten of the eleven hospitals that have participated during the TE project remain involved in the program.

Table 4. Hospital Characteristics

Hospital Name	Begin Date	End Date	Total Yearly ED Census	ED Beds	TE Cameras	Avg hours per mo.	Avg pts per 12 ^o shift	Total 12 ^o shifts	Total TE pts
Pioneer Community Hospital -Aberdeen	5/1/2005	n/a		2	1	71.9	5.8	40.5	234
Humphreys County Memorial Hospital	10/1/2003	n/a	3700	4	3	321.0	4.1	702.3	2900
University Hospitals and Clinics - Holmes co.	10/1/2003	n/a	n/a	6	4	216.8	6.8	452.7	3084
Magee General Hospital	3/1/2004	1/31/2005	7500	5	1	165.1	13.1	151.4	1976
Quitman County Hospital	10/1/2003	n/a	n/a	3	2	166.6	4.3	329.3	1403
Franklin County Memorial Hospital	6/1/2005	n/a	7800	2	1	90.3	8.1	36.0	292
Lawrence County Hospital	8/1/2004	n/a	n/a	3	2	505.6	9.9	633.3	6266
Scott Regional Hospital	12/1/2003	n/a	n/a	4	3	117.7	12.9	222.1	2869
Claiborne County Hospital	10/1/2003	n/a	n/a	3	2	268.3	5.2	580.8	3036
Jefferson Davis Community Hospital	1/1/2005	n/a	8400	2	1	301.3	7.8	233.0	1818
Perry County Hospital	10/1/2003	n/a	n/a	3	2	281.1	4.6	610.4	2819
Total				37	22	2505.6	82.6	3991.7	26697
Average				3.4	2	227.7	7.5	362.8	2427

Patient Evaluation Protocols

Initially, all patients were required to be seen and evaluated by both a NP and a CP but this was unwieldy in the evaluation of non-urgent patients and increased the wait time for minor complaints. A set of protocols was created to identify patients who the NPs could assess and treat primarily as well as patients requiring immediate consultation and transfer. These criteria are listed in Table 5a, Table 5b, and Table 5c.

Patients are divided into three categories: Category 1 patients who may be seen by the NP alone, Category 2 patients who are seen in conjunction with the CP in a non-urgent time frame, and Category 3 patients who mandate immediate consultation with the CP and for whom expedited transfer to a facility offering a higher level of care is recommended. These categories were created using input from both NPs and CPs in our system and are felt to be a reasonable compromise between NP autonomy and CP oversight. The patients who are classified as Category 1 are similar to those who are seen independently

by NPs in the Fast Track at UMMCAED. These Categories are meant to be used only as guidelines, and NPs are encouraged to involve the CP in the care of any and all patients if there is any uncertainty as to the most appropriate means of diagnosis and treatment.

<p>Table 5a. Category I (consult not required) Patients with the following complaints meet Category I criteria and can be evaluated, treated and referred by the NP without required consultation with UMC:</p> <ul style="list-style-type: none">■ Abdominal pain- stable vitals, no significant PE findings, age <50 years■ Allergic reactions not associated with shortness of breath, wheezing or hypotension■ Animal bites- not involving the hand or face■ Cerumen removal■ Chronic peripheral vascular disease■ Conjunctivitis■ Constipation/diarrhea■ Contact Dermatitis■ Dental Pain■ Dizziness- vital signs stable, no significant PE findings, age < 50 years■ Fatigue without associated symptoms■ Follow up wound check, cast check or suture removal■ Foreign body removal (uncomplicated and not involving the eye)■ Gastritis- suspected food poisoning, no associated dehydration with limited duration■ Gynecological disorders- vaginitis, insignificant abnormalities in menstruation, cramps■ Hemorrhoids■ Hypertension that is asymptomatic and accompanied by a diastolic pressure of < 120 mm Hg■ Incision and drainage of simple abscess- not involving rectal area■ IV hydration/antibiotics > 8 yrs old■ Low back pain that is chronic and not associated with neurological findings■ Migraines- pt states typical migraine, no new features, stable vital signs, afebrile, no significant PE findings, no trauma■ Minor burns■ Minor eye injury- corneal abrasion■ Minor lacerations or abrasions■ Nausea/Vomiting■ Otitis media, otitis externa., ear pain > 3 months old■ Pharyngitis -no sign of abscess or airway compromise■ Pregnancy without bleeding, pain■ Prescription refills- non narcotic or controlled substance until next business day■ Puncture wounds not requiring exploration■ Sexually transmitted diseases excluding PID■ Skin rashes, pruritis■ Sprains/Strains■ Swollen lymph nodes■ Uncomplicated hepatitis or exposure to hepatitis■ Upper respiratory infection, congestion, cough, flu■ Urinary tract infections- > 6 months old■ Work releases● Wound care
<p>Any of the above listed conditions with the presence of a complex medical history or at the discretion of the NP may require consultation with IJMC. If the NP consults with UMC via telemedicine, proper notation should be documented in the patient's medical record stating the consult was made, name of the physician and their recommendations.</p>

Table 5b Category II (consult required)

Patients presenting to the EDs with the following complaints require consultation with the UMC Emergency Department Physicians via Telemedicine:

- Abdominal pain- all patients with acute pain or >50 yrs old
- Abnormal vital signs; SBP <100 or >180, HR <50 or >110, RR >24, Fever >101.5
- Age <1 or >75 (all patients!)
- Alcohol or drug withdrawals
- Allergic reaction with shortness of breath, wheezing, or hypotension
- Arrhythmias
- Bleeding- significant bleeding from any orifice
- Burns- any third degree; second degree of more than 10% TBS; burns of the face, hands, feet, perineum; electrical injury; inhalation injury
- Chest pain- all patients
- Coma or change in mental status
- Complicated lacerations
- Drug overdose
- Fever < 6 months old
- Fever and toxic appearance or of unknown origin < 1 yr old
- Foreign body of the eye
- Fractures with vascular impairment or displacement
- Head trauma
- Headache- associated with neurologic findings, fever or meningeal signs
- Heat illnesses- hyperthermia- temp >40.5C or hypothermia- temp <35 C
- Hypertension- diastolic pressure of 120 mm Hg or greater with or without symptoms
- IV hydration/antibiotics in children <8 yrs old
- Neurological deficits
- Pain management- chronic, oncologic
- Patient with complex medical history
- PID
- Post op related problems
- Postpartum pelvic pain
- Pregnancy complications (i.e. Abdominal pain, bleeding, fever)
- Psychiatric patients with abnormal findings
- Puncture wounds requiring exploration
- Seizures
- Shock
- Shortness of breath
- Sickle cell crisis
- Testicular pain
- Upper abdominal pain not clearly of GI origin (possible cardiac)
- UTI/dysuria/hematuria in children < 4 months old
- Vaginal bleeding- saturation of full size pad 1 or more per 2 hr

Any patient that the NP is concerned about regardless of its presence on this list requires consultation with JMC via telemedicine.

Any patient with the following test or laboratory ordered requires consultation with UMC via telemedicine: EKG, CT scan, Cardiac enzymes, Lumbar puncture, (if in the NP's scope of practice,) C-spine x-rays

<p>Table 5c. Category III (consult required and possible transfer) Patients with the following complaints meet Category III criteria and require emergency consult for stabilization and transfer. The NPs will consult with UMC emergency physician on all patients presenting with the following conditions:</p> <ul style="list-style-type: none"> • Acute Head Injury • Advanced airway management- intubation • All resuscitahons • Bum management • Dizziness with unstable vital signs • Multi system trauma evaluation and resuscitation • Serious or complex medical emergencies • Shock of any etiology
<p>Transfer of these patients should not be delayed due to the telemedicine consult but should be utilized through the stabilization of these patients. Definitive management of these patients should not occur in the outlying emergency departments. Referral should be made to the closest appropriate facility able to provide the services needed. The UMC Helicopter transport service (AirCare) can be utilized as deemed appropriate by the UMC TelEmergency physician on duty.</p>

Patient Characteristics

Between October 2003 and October 2006, the TE program has grown from an initial four hospitals to a total of ten. During that time period the TE program has evaluated over 40,000 patients. Details of these patients are given in Table 6 while their diagnoses are given in Table 7. Approximately two-fifths (40.5%) of all patients were evaluated collaboratively by both NPs and CPs, while 59.6% were seen independently by NPs. Overall our patient population demonstrated a slight female predominance (54.8% female to 45.2% male). A majority (62.3%) of our patients were African American while 37% were Caucasian and <1% were of other ethnicity. The average age of the patients was 58 years with a range from 0 months to 111 years. Pediatric patients (under 16) comprised 23% of the patients while 18% of patients were 65 years of age or older, with 11% being over the age of 75. The majority of patients (62%) were discharged directly from the ED at the TE participating site, compared to 18% who were admitted to the PH, and 18% who were transferred to other hospitals including 7% to UMC. A small number of patients (0.05%) left prior to being seen, while 1% left against medical advice, and 0.6% expired while in the TE site ED.

Table 6a Patient Characteristics

Dispositions	
Admitted	18.2%
Discharged	62.1%
LBBS	0.05%
Left AMA	0.9%
Expired in ED	0.65%
Bum center	0.03%
Transferred	18.3%
Transferred to UMC	5.9%

Consults	
NP and CP	40.5%
NP only	59.5%
Gender	
Male	45.2%
Female	54.8%
Race	
African American	62.32%
White	36.98%
Hispanic	0.66%
Native American	0.04%

Table 6b. Patient Characteristics

	%Admit	% Discharged	%Transfer	%Total
	18%	65%	17%	
Mean Age	55.94	30.24	43.53	37.1
<1 year	12%	69%	19%	1.8%
<36 months	10%	81%	9%	11%
<16 year	7%	82%	10%	24.3%
16-64	48%	60%	61%	58%
65 and Older	43%	35%	22%	18%
>75	46%	33%	21%	10.0%

The most common complaints (12.4%) were musculoskeletal in nature followed by abdominal pain/nausea and vomiting (11.7%), Chest Pain (10.7%) and Upper Respiratory Infection (9.9%). In patients admitted to PHs, the most common complaints were Chest Pain (34.2%) followed by Asthma/COPD (18.2%), Diabetes/General Medicine 15.4%, and abdominal pain/nausea and vomiting (10.7%). Upper respiratory infection and otitis media were complaints in over 54% of pediatric patients. Trauma represented a relatively small percentage of our patients (6.2%).

Table 7. Ten most common patient complaint categories by age

All Patients	
Musculoskeletal	12.40%
Abdominal Pain/ Nausea Vomiting	11.75%
Chest pain	10.75%
Upper Respiratory Infection	9.94%
General Medical/ Diabetes	7.17%
Pulmonary/COPD/ Asthma	7.13%
Trauma	6.16%
Genitourinary/Pregnancy	5.52%
Ear	4.30%
Headache	3.68%
Admitted Patients	
Chest Pain	34.26%
Pulmonary/COPD/ Asthma	18.16%

General Medical/ Diabetes	15.37%
Abdominal Pain/ Nausea Vomiting	10.74%
Congestive Heart Failure	6.84%
Genitourinary/ Pregnancy	3.97%
Neurologic/Stroke/ Altered Mental Status	3.09%
Musculoskeletal	2.79%
Ear	2.57%
Upper Respiratory Infection	2.21%

Patients Under 1 year old

Upper Respiratory Infection	40.28%
Ear	14.58%
Abdominal Pain/ Nausea Vomiting	13.19%
Pulmonary/COPD/ Asthma	10.42%
General Medical/ Diabetes/Electrolyte	9.03%
Genitourinary/ Pregnancy	4.86%
Dermatologic/Rash	3.47%
Throat	1.39%
Eye	1.39%
Trauma	1.39%

Patients Over 75 years old

Chest Pain	18.42%
General Medical/ Diabetes/Electrolyte	16.15%
Abdominal Pain/ Nausea Vomiting	14.02%
Musculoskeletal	13.35%
Pulmonary/COPD/ Asthma	11.48%
Congestive Heart Failure	6.81%
Neurologic/Stroke/ Altered Mental Status	5.87%
Trauma	5.07%
Genitourinary/ Pregnancy	4.94%
Upper Respiratory Infection	3.87%

Performance Improvement

The overriding goal of the Performance Improvement (PI) program is to ensure that patients receive appropriate treatment in a timely fashion. If the program is unsuccessful in achieving that goal then all other measurements are meaningless. The TE program's PI director reviews all cases involving complications from treatment, adverse drug reactions, and patient deaths on a monthly basis. Trends of missed intubations, negative outcomes, investigation requests (by CPs) and other indicators of education or skill needs were also monitored on an ongoing basis by the PI director.

With the development of patient evaluation protocols it was felt that adherence to these protocols was an important outcome measurement. A randomized chart review of patients evaluated independently by the NPs has been instituted. Each quarter 40 cases seen independently by NPs are reviewed by CPs. These charts are evaluated for:

1. Adequate documentation appropriate for visit complaint
2. Documentation of vital signs

3. Appropriate treatment and documentation of patient response
4. Documentation sufficient to support final diagnosis
5. Appropriate referral and/follow-up plan
6. Documentation of patient education and outpatient instructions
7. Controlled substance usage

Reviewed charts are then returned to the NP for review with notations attached. Ongoing projects include chart reviews for patients with specific diagnosis such as acute coronary syndromes, major trauma and cardiac arrest.

Patient Satisfaction

In addition to ensuring quality patient care it was felt that it was important to ascertain patient satisfaction with their experience with the TE program. To measure patient satisfaction, telemedicine patients were periodically surveyed during their visit. These surveys were completed by the patient or family member and returned at the time of discharge. To date a total of 434 responses have been received representing 2% of TE patients.

In this survey overall patient satisfaction with the TE program was very high; with 93.6% of patients stated they were comfortable or very comfortable with the system. A high percentage (98.7%) stated they were able to communicate with the CP without difficulty. A majority (87.3%) felt their care was as good as or better than they would have received with an MD alone. Overall, 91.2% of patients stated they were more likely to come back to the rural ED because of TelEmergency, while 85.6% rated their overall care as good or excellent.

Hospital Administrator Satisfaction

Under the TE model we are contracted by the PHs to provide care for their patients who then charge the patient or any second party payers for the care we provided as contractors. Given the current financial climate, hospital administrators are interested in not only the quality of care and patient satisfaction but also financial issues. Therefore, a hospital administrator questionnaire was created that addressed these issues.

All administrators surveyed feel the level of care has improved or remained the same in the ED. Seven of eight administrators (87.5%) feel the TE program is cost equivalent or less expensive than their previous means of providing coverage for their EDs. The same proportion (87.5%) feels that ED volume and admissions from the ED have increased. To date seven of eight administrators surveyed have a favorable overall impression of the TE program.

A good indicator of PH satisfaction can also be deduced by the fact that seven of eight hospitals that have participated in the program for greater than one year have elected to continue participating in the system. To date we have only had one hospital that has withdrawn from the TE system.

Proposed Pilot Network

Clearly, the FCC pilot program will enable us to lay the foundation for connectivity across the state of Mississippi. This connectivity will provide the healthcare infrastructure to do what we have not been able to do before, e.g. connect to one another. Our proposal is focused on upgrading the technical quality and bandwidth of our current telemedicine network, extending access of this network to geographically isolated rural providers, and expanding the continuum of care across a variety of healthcare providers

Listing of Healthcare Facilities Included in the Network

1. Rural Hospitals and Telemedicine Hospitals

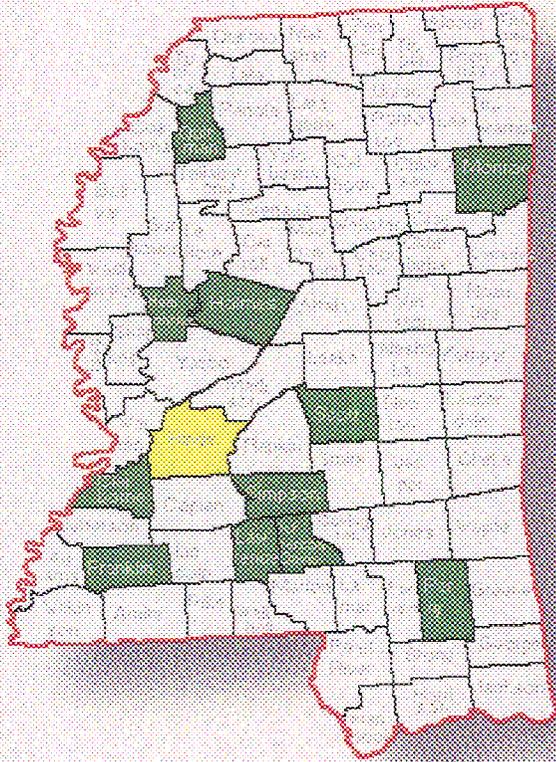
As proposed, twenty rural hospitals will be connected to the network through this pilot project. The project will upgrade the bandwidth of T1 lines in the current network from 1.5Mb to a bandwidth of 3.0Mb. Table 8 provides a listing of the current TE hospitals along with the rural hospitals participating in this pilot project.

Table 8. Rural Hospitals and Telemedicine Hospitals Participating in FCC Pilot Project

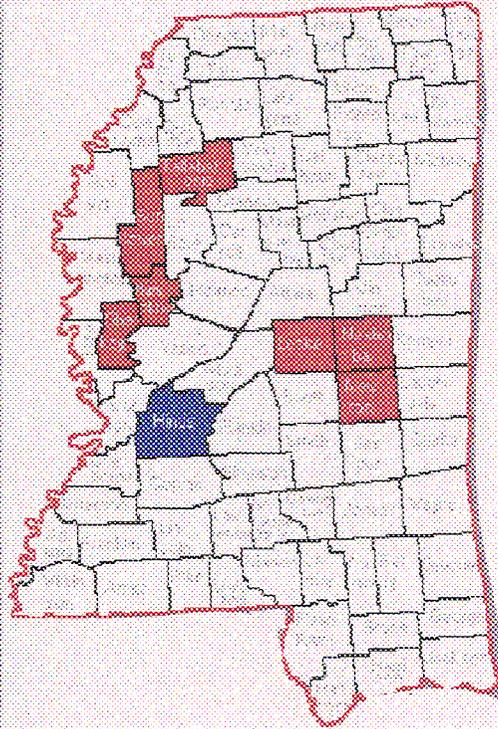
Network	Facility	Address	City	County	Zip	Phone	RUCA
Rural	Tallahatchie General Hospital	201 South Market Street	Charleston	Tallahatchie	38921	662-647-5535	7.4
Rural	North Sunflower County Hospital	840 North Oak Avenue	Ruleville	Sunflower	38771	662-756-2711	7.4
Rural	South Sunflower County Hospital	121 East Baker Street	Indianola	Sunflower	38751	662-887-5235	4
Rural	Humphreys County Memorial Hospital	500 C C Road	Belzoni	Humphreys	39038	662-247-3831	7
Rural	Sharkey-Issaquena Community Hospital	47 South 4th Street	Rolling Fork	Sharkey	39159	662-873-4395	10
Rural	Leake Memorial Hospital	310 Ellis Street	Carthage	Leake	39051	601-267-1432	8
Rural	Neshoba County General Hospital	1001 Holland Avenue	Philadelphia	Neshoba	39350	601-663-1200	9
Rural	Laird Hospital	25117 Highway 15	Union	Newton	39365	601-774-8214	10
Telemedicine	Claiborne County Hospital	123 McComb Avenue	Port Gibson	Claiborne	39150	601-437-5141	10.6
Telemedicine	Magee General Hospital	300 Southeast Third Avenue	Magee	Simpson	39111	601-849-5070	7.3
Telemedicine	Quitman County General Hospital	340 Getwell Drive	Marks	Quitman	38646	662-326-8031	10.5
Telemedicine	University Hospitals and Clinics	239 Bowling Green Rd	Lexington	Holmes	39095	662-834-5182	7
Telemedicine	Lawrence County Hospital	1065 East Broad Street	Monticello	Lawrence	39654	601-587-4051	10.5
Telemedicine	Pioneer Community Hospital	400 South Chestnut Street	Aberdeen	Monroe	39730	662-369-2455	7.4
Telemedicine	Humphreys County Memorial Hospital	500 C C Road	Belzoni	Humphreys	39038	662-247-3831	7
Telemedicine	Franklin County Memorial Hospital	40 Union Church Road	Meadville	Franklin	39653	601-384-5801	10.5
Telemedicine	Scott Regional Hospital	317 Highway 13 South	Morton	Scott	39117	601-732-6301	3
Telemedicine	Jefferson Davis Community Hospital	1102 Rose Street	Prentiss	Jefferson Davis	39474	601-792-4276	10
Telemedicine	Perry County Hospital	206 Bay St	Richton	Perry	39476	601-788-6316	10.1
Telemedicine	University of MS Medical Center	2500 N. State Street	Jackson	Hinds	39216	601-815-4057	1

A complete listing of the pilot network participating sites is shown with a RUCA in Appendix 5

The maps below show the geographic location of each of the participating hospitals and provide a graphic presentation of the breadth of coverage area proposed through the inclusion of these participating sites.



Telemedicine Hospitals



Rural Hospital Sites

Table 9 provides demographic information for the participating hospital coverage areas. As with the current TE hospitals, the additional hospital sites are located in rural, geographically isolated areas of the state and serve economically disadvantaged residents. Moreover, the proposed expansion of broadband connectivity for hospital partners within this FCC pilot program will extend access of the telehealth network to geographically isolated rural providers, and expand the continuum of care across a variety of healthcare provider settings.

Table 9. Demographics Surrounding Participating Hospitals

Hospital Name	Town Population*	County Population*	Per Capita Income	% Below Poverty
Pioneer Community Hospital of Aberdeen	6,415	38,041		
Humphreys Co. Hospital	2,663	11,206	\$17,422	38.2
UMC Lexington - Holmes	2,025	21,609	\$10,683	41.1
Quitman Co. Hospital	1,551	10,177	\$10,817	33.1
Franklin Co. Hospital	519	8,488	\$13,643	24.1
Scott Regional Hospital	3,482	28,423	\$14,013	20.7
Claiborne Co. Hospital	1,840	11,831	\$11,244	32.4
Prentiss Co. Regional Hospital	1,158	13,962	\$14,131	16.5
Perry Co. Hospital	1,083	12,236	\$12,837	22
Lawrence Co Hospital	1,726	13,258	\$14,469	19.6
Tallahatchie General Hospital	2,198	14,903	\$17,185	32.2
North Sunflower County Hospital	3,234	34,369	\$15,537	30
South Sunflower County Hospital	12,066	34,369	\$15,537	30
Sharkey-Issaquena Community Hospital	2,486	6,540	\$16,082	38.3
Leake Memorial Hospital	4,637	20,940	\$19,933	23.2
Laird Hospital	2,021	21,838	\$14,008	19.9
Claiborne County Hospital	1,840	11,831	\$11,244	32.2
Magee General Hospital	5,019	27,639	\$13,344	21.6
Neshoha County General	7,303	28,684	\$23,921	21
University of Mississippi Medical Center - Hinds	184,256	250,800	\$17,785	19.9

2. Community Health Centers (CHC)

Traditionally, CHCs have a broad “public health” perspective providing a healthcare home for all residents of underserved communities. CHCs, which are owned by their communities through volunteer governing boards, function as non-profit businesses under the direction of professional managers. The CHCs purchase goods and services, provide employment, and make an economic impact within their communities.

Mississippi’s CHCs have seen a 107% increase in the number of patients seen from 150,210 in 1990 to 310,807 in 2004 (44.1% of which were uninsured). The increase in the number of families living in poverty, without health insurance, and the number of elderly Mississippians unable to afford the high cost of medical care have made these Centers even more necessary and valuable assets to the communities they are serving.

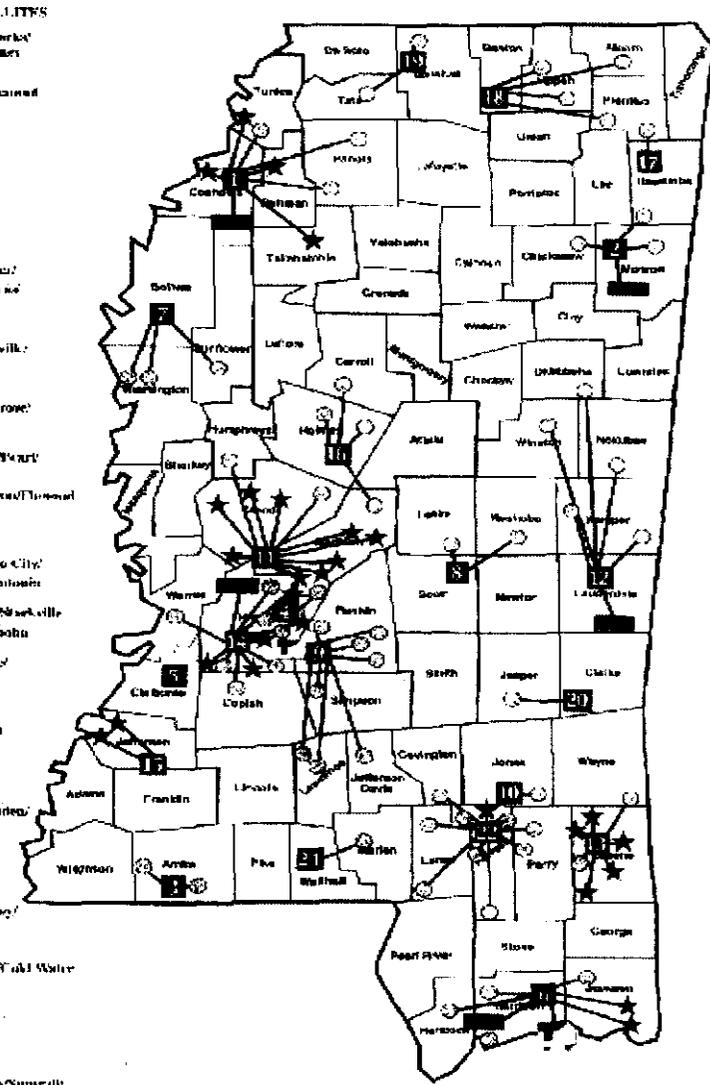
The names of the CHCs are shown on the map below. The CHCs are located in both urban and rural areas of Mississippi. Currently, there are 22 CHCs with 128 sites including more than 100 primary care delivery sites. Health services are also provided via school-based clinics and mobile units staffed by CHC employees. Board certified/eligible physicians and dentists, nurse practitioners, nurses, social workers, and other auxiliary providers staff CHCs. The centers provide comprehensive primary and preventive health services, including medicine, dentistry, radiology, pharmacy, nutrition, health education, social services, and transportation.

The 22 Community Health Centers in the State and other community-based healthcare providers in the state are represented by a membership organization, the Mississippi Primary Healthcare Association, Inc. (MPHCA). MPHCA is a non-profit 501 (c) (6) organization representing the interests of its members in statewide efforts to improve access to healthcare for the medically underserved and indigent population of Mississippi (See Letter of Support in Appendix 1)

Map of Community Health Centers and Satellite Clinics

**MISSISSIPPI PRIMARY HEALTH CARE
 COMMUNITY HEALTH CENTERS**

CHC	MAIN SITES/SATELLITES
1. Aaron L. Henry Community Health Services Center	Charleston/Trenton/Merke/Butte/Bryce/Casco/Southaven
2. ACCESS Family Health Services	Saverville/Bloomfield/Trinidad
3. Amite County Medical Services	Liberty/Oklawaha
4. Central MS Health Services	Jackson/Madison
5. Chickasaw County Family Health Center	Port Gibson
6. Coastal Family Health Center	Thibodaux/Port/Bourbon/Vicksburg/Bay St. Louis/Slidell Point
7. Delta Health Center	Elmwood/Bassett/Oreenville/Meridian
8. East Central MS Health Care	Sheridan/Valmont/Losone/Philadelphie
9. Family Health Care Clinic	Boonville/Philo/Chickasaw/Prentiss/Mendenhall/Monticello/New Echols/Tipton
10. Family Health Center	Lumberton/Sandersville
11. G. A. Crumpler Family Health Center	Camden/Polk/Buzzard City/Curtis/Vicksburg/Benton
12. Greater Meridian Health Clinic	Meridian/Humboldt/Muskogee/DuKoff/Lumberton/South
13. Green Area Medical Extension	Lumberton/State Line/McLain/Rising
14. Jackson-Hinds Comprehensive Health Center	Jackson/Cuba/Vicksburg/Hazlewood
15. Jackson Comprehensive Health Center Bayate	
16. Madaya Community Health Center	Lexington/Trenton/Merke/Thruway/Curtis
17. Monticello Clinic	Monticello/Heriberto
18. North Central County Health Care	Ashland/Vicksburg/Ripley/Rossmore/Cornith
19. Northeast MS Health Care	Dyersburg/ME. Pleasant/Fall Water
20. Outreach Health Services	Shubuta/Thalberg
21. SHARP Family Care Center	Tylertown/Columbus
22. SouthEast MS Rural Health Initiative	Hamlet/Sunberry/Sunfield/New Augusta/Reynolds/Lumberton/Deenoxas



Primary Site	Satellite Clinic	School-based Clinic	Homeless Clinic	Mobile Unit
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