ACCESS TO CARE

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IN THIS SECTION:

ACCESS TO CARE

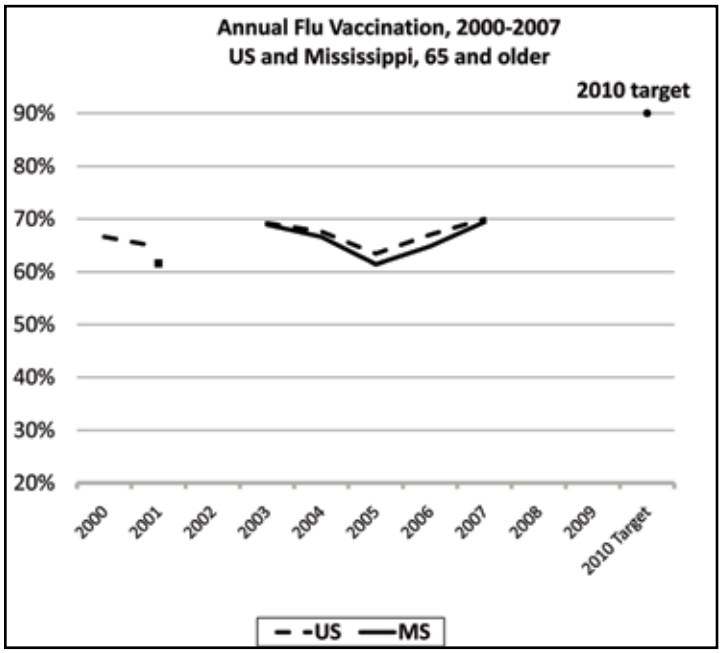
"Access to care is important for prevention, for prompt and continuing treatment of illness and injury, and to avoid possible hospitalization" (CDC, 2008, Access to care section, para. 1).

Access to Care refers to the relative ease with which an individual or group can attain adequate healthcare. Access typically comprises not only the availability of health resources but also economic constraints. Disparities in access to care arise between rural and urban areas as well as among minority populations. Here we look at several indicators of access to care, including levels of vaccination, insurance coverage, and utilization of primary care providers. We will also touch on affordability of health care, problems of transportation, and availability of medical professionals.

VACCINATION: A Measure of Access to Preventative Care

ADULT IMMUNIZATION

Because elderly patients are at greater risk for adverse effects from influenza and pneumonia, immunizations for persons over the age of 65 are crucial (CDC, 2010). Immunization levels thus serve as an important indicator of the care available to older populations.



Source: CDC, Behavioral Risk Factor Surveillance System Survey Data (BRFSS), n.d..

Influenza is an acute viral infection that spreads easily from person to person, causing annual epidemics that peak during the winter of temperate regions. Symptoms include high fever, muscle and joint ache, cough, and sore throat. Flu affects all age groups, but children younger than two years of age and people 65 or older have the highest risk of complications from the flu, such as severe illness or even death

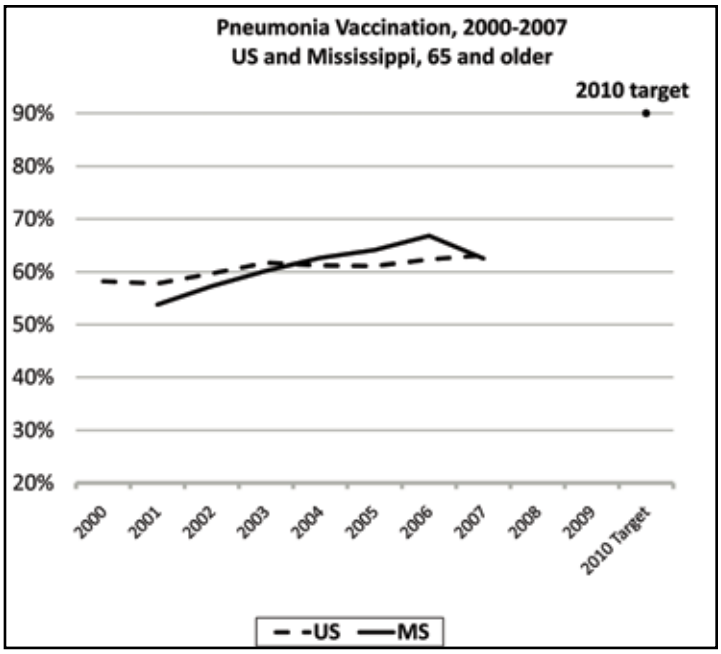
(World Health Organization (WHO), 2009).

Mississippi, the Nation, and Healthy People 2010

Using the 1998 baseline of 64% of adults 65 and older receiving a yearly influenza vaccination and 46% receiving a pneumococcal vaccine, Healthy People calls for an increase in the proportion of adults 65 and older who receive these vaccines to 90% (U.S. Department of Health and Human Services (DHHS), n.d).

From 2001 to 2007, an average of 61.7% of elderly Americans received an annual flu vaccination compared to 62.6% of elderly Mississippians. By 2007, 70% of elderly Americans received an annual flu vaccination, and Mississippians only trailed the US by 0.6%. **While the nation and Mississippi are moving forward, current trends may not be sufficient for them to achieve the Healthy People goal by 2010 (DHHS, n.d.).**

Over the same period, an average of 61% of elderly Americans and 61.1% Mississippians received pneumococcal vaccinations. By 2007, 63.1% of elderly Americans and 62.5% of elderly Mississippians were immunized against pneumonia. Given current trends, **neither Mississippi nor the nation is likely to achieve the Healthy People pneumococcal vaccination target**.

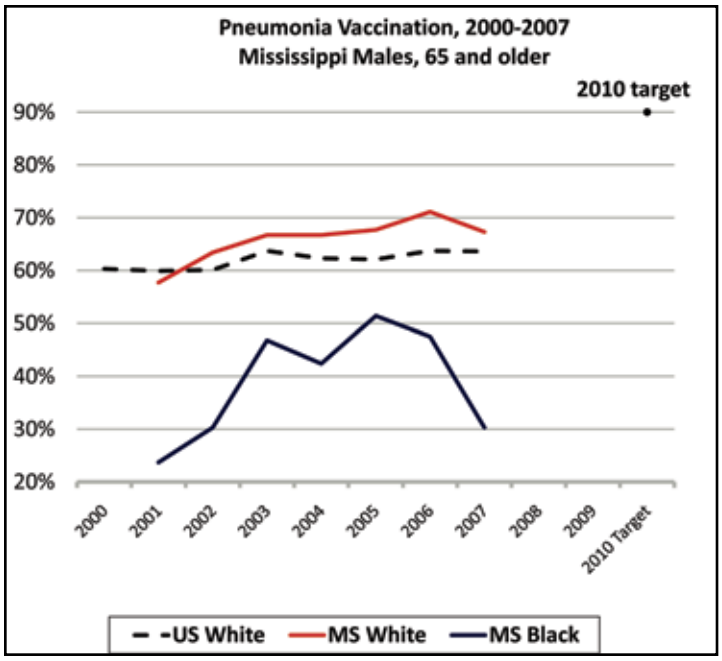


Source: CDC, BRFSS, n.d.

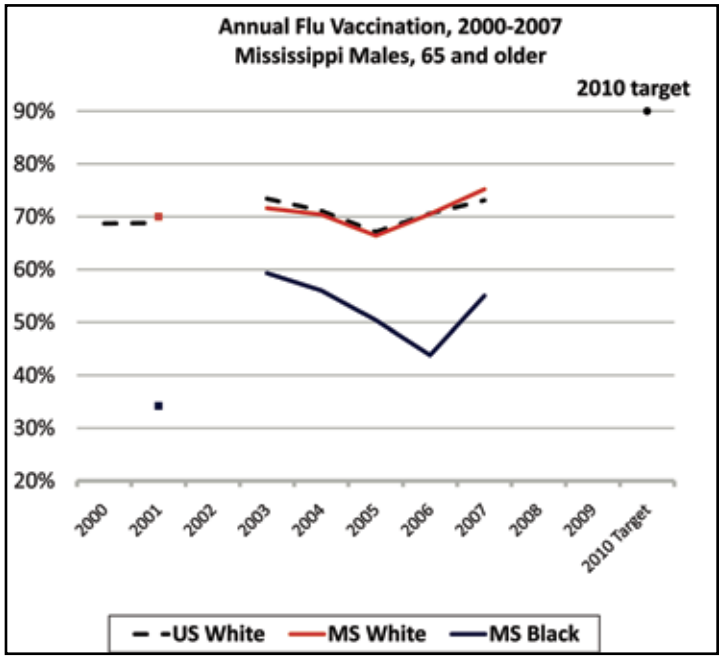
Pneumonia is an inflammation of the lungs that can be caused by bacteria, viruses, fungi, or parasites. Pneumonia is known for its ability to mimic other viruses, especially the flu. Common symptoms are "fever, cough, shortness of breath, sweating, fatigue, and chest pain that fluctuates with breathing" (Mayo Clinic Manager, 2009, Symptoms section, para. 2). Pneumonia's severity ranges from mild to life-threatening; it is especially dangerous to individuals over age 65 and those suffering from chronic illnesses or weakened immune systems

(Mayo Clinic Manager, 2009).

In 2007, the US and Mississippi fell short of the Healthy People annual **flu vaccination goal** by **20%** and **21%**, respectively, while both fell short of the pneumococcal goal by **27%**.



Source: CDC, BRFSS, n.d.



Source: CDC, BRFSS, n.d.

Flu Vaccination (over 65 years old)	Average 2001-07	2007
US white male	65.0%	73.1%
MS white male	65.3%	75.2%
MS black male	46.4%	55.0%

Pneumonia Vaccine (over 65 years old)	Average 2001-07	2007
US white male	62.2%	63.6%
MS white male	65.8%	67.3%
MS black male	38.9%	30.3%

Mississippians: How Have We Compared?

Blacks are significantly disadvantaged when it comes to immunization for flu and pneumonia. From 2001 to 2007, white males across the US over the age of 65 and white males in MS achieved similar average rates of flu vaccination (65.0% and 65.3%, respectively). Over this same period, 18.9% fewer elderly black males in MS were vaccinated (46.4%).

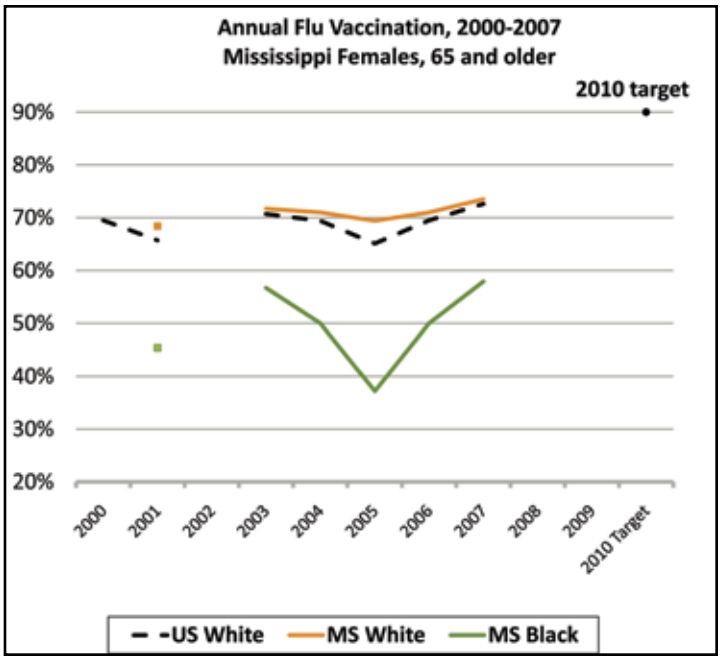
Similarly, elderly white males in MS achieved an average rate of pneumococcal vaccination 3.6% higher (at 65.8%) than the national rate (62.2%), while an average of 23.3% fewer black males in Mississippi (with a rate of 38.9%) were vaccinated.

"Between 5 and 10 million people get pneumonia in the United States each year, and more than 1 million people are hospitalized due to the condition. As a result, pneumonia is the fourth most frequent cause of hospitalizations"

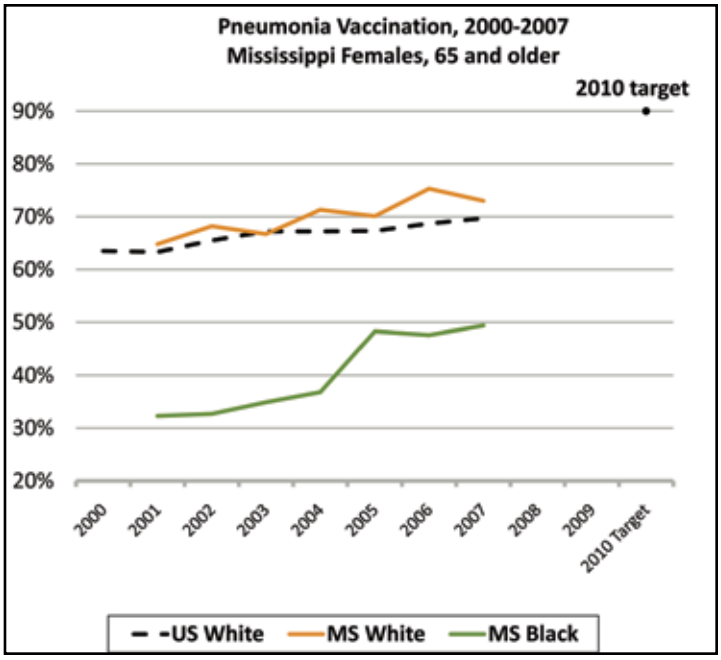
(University of Maryland Medical Center, 2009, Prognosis section, para. 1).

Elderly females achieved immunization in patterns like those of their male counterparts. From 2001 to 2007, white elderly females in Mississippi received flu vaccination at slightly higher rates (65.7%) than their national counterparts (64.0%). Like their male counterparts, black females in Mississippi (with an average of only 45.6%) received vaccination at much lower rates; 18.4% more black elderly females in Mississippi would have received flu vaccination if we achieved at white national levels.

Similarly, while an average of 67% of white elderly females across the nation and 69.9% of white elderly females in Mississippi received pneumococcal vaccination, black elderly females in Mississippi (with a rate of 40.3%) trailed by 26.7%.



Source: CDC, BRFSS, n.d.



Source: CDC, BRFSS, n.d.

Flu Vaccination (over 65 years old)	Average 2001-07	2007
US white female	64.0%	72.6%
MS white female	65.7%	73.5%
MS black female	45.6%	57.9%

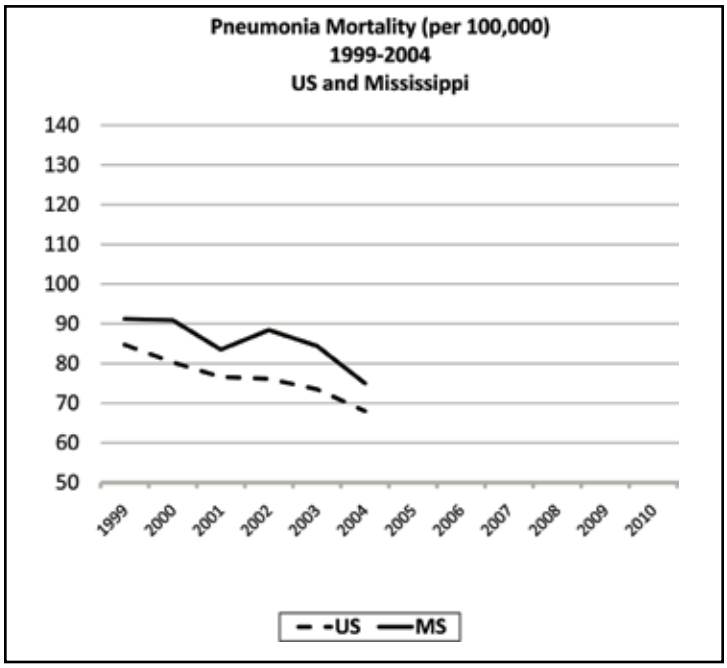
Pneumonia Vaccine (over 65 years old)	Average 2001-07	2007
US white female	67.0%	69.7%
MS white female	69.9%	73.0%
MS black female	40.3%	49.4%

Because we were not equal...
15% fewer black females in Mississippi
18% fewer black males in Mississippi
...65 and older received annual flu vaccinations in 2007.

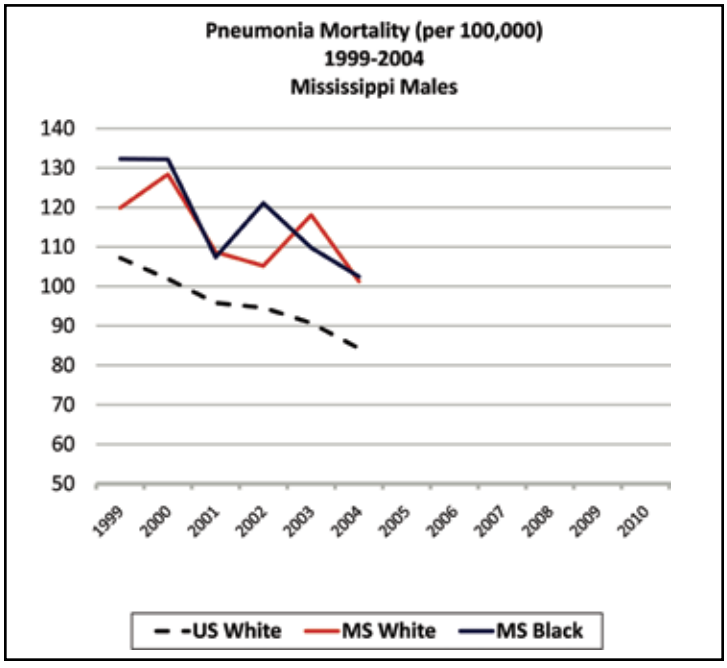
Because we were not equal...
21% fewer black females in Mississippi
34% fewer black males in Mississippi
...65 and older had ever received a pneumonia vaccination in 2007.

PNEUMONIA MORTALITY

Mortality due to influenza is uncommon for both the United States and Mississippi; therefore recorded rates of influenza mortality in Mississippi are too low to be reliable for study. Pneumonia mortality, on the other hand, is far more common. **While pneumonia responds well to treatment, the infection still takes the life of roughly 40,000 to 70,000 people every year** (University of Maryland Medical Center, 2009).



Source: CDC, Compressed Mortality Data, n.d.



Source: CDC, Compressed Mortality Data, n.d.

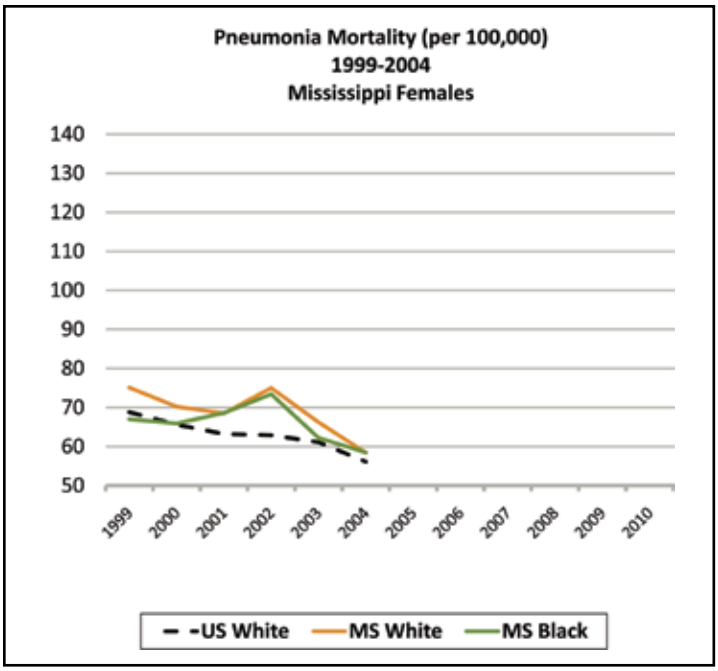
Mississippi, the Nation, and Healthy People 2010

Pneumonia mortality is declining for the nation as well as for Mississippi. From 1999 to 2004, rates of pneumonia morality declined across the US (84.7 per 100,000 deaths to 68 per 100,000 deaths). However, **Mississippi rates are consistently higher than national pneumonia mortality rates** (falling from 91.2 per 100,000 in 1999 to 75 per 100,000 in 2004).

Mississippians: How Have We Compared?

Pneumonia deaths among white males across the nation decreased from 1999 to 2004 (107.2 deaths per 100,000 to 84.3 per 100,000). Although rates among white and black males in Mississippi also dropped (119.9 to 101.3 deaths per 100,000 for white males and 132.3 per to 102.5 per 100,000), pneumonia rates for males in Mississippi remain much higher than rates for their white national counterparts. **In 2004, 17 more white males per 100,000 and 18.2 more black males per 100,000 would have survived if Mississippi experienced pneumonia mortality at national levels.**

Pneumonia deaths among white females dropped from 1999 to 2004 (68.8 per 100,000 to 56.1 per 100,000). Although rates among white females in Mississippi spiked in 2002, the rate dropped to near-national rates by 2004 (from 75.1 in 1999 to 58.4 per 100,000). Similarly, rates among black females experienced an increase in 2002, but decreased overall from 1999 to 2004 (67 to 58.5 per 100,000). **2.3 more white females per 100,000 and 2.4 more black females per 100,000 would have survived** in Mississippi if we experienced pneumonia mortality at national levels.



Source: CDC Compressed Mortality Data, n.d.

Pneumonia Mortality (per 100,000)	1999	2004
US white male	107.2	84.3
MS white male	119.9	101.3
MS black male	132.3	102.5
US white female	68.8	56.1
MS white female	75.1	58.4
MS black female	67	58.5

Because we were not equal...
14 more black females in Mississippi
21 more white females in Mississippi
92 more black males in Mississippi
150 more white males in Mississippi
...died of pneumonia in 2004.

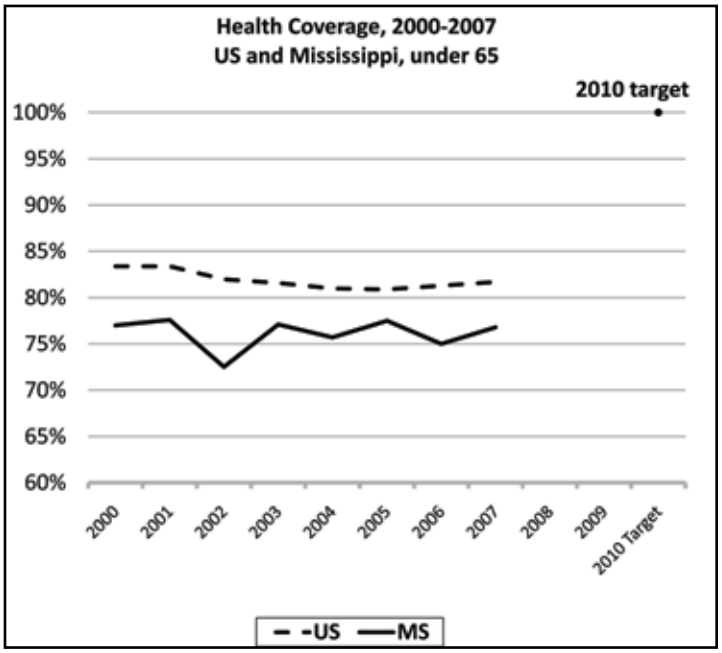
The G.V. Sonny Montgomery VA Medical Center *seeks to serve the needs of America's veterans by providing primary care, specialized care, and related medical and social support services. (Provided by Emily Nations, 2010.)*

AVAILABILITY OF CARE

INSURANCE

"Health insurance coverage is an important determinant of access to health care. Uninsured children and non-elderly adults are substantially less likely to have a usual source of health care or a recent health care visit than their insured counterparts "

(CDC, 2008, Health insurance and access to care section, para. 1).



Source: CDC, BRFSS, n.d.

Mississippi, the Nation, and Healthy People 2010

Using the 1997 rate of 83% of Americans (under the age of 65) with health insurance, Healthy People calls for universal health coverage for individuals under the age of 65 by 2010. From 2000 to 2007, an average of only 81.9% of the nation had health coverage.

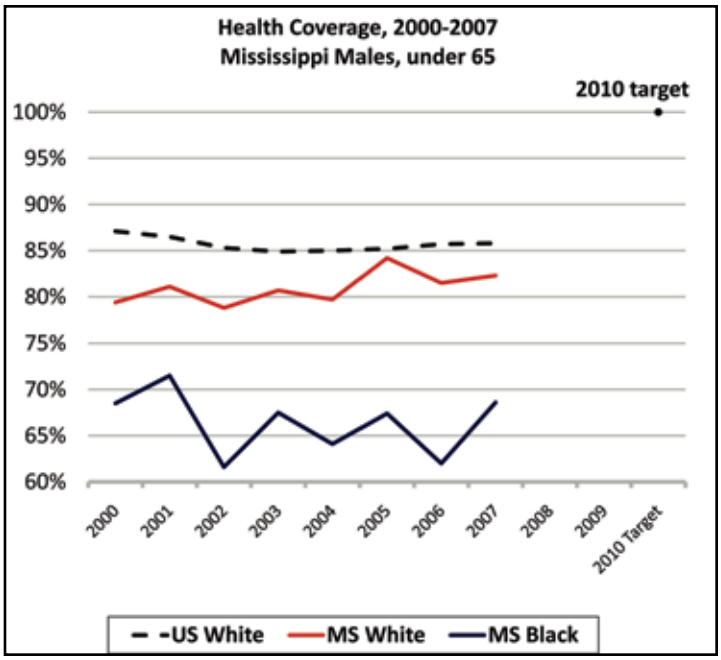
An average of 76.2% of Mississippians received coverage over the same period. On average, from 2000 to 2007, **6% more Mississippians would have received health coverage if we achieved at the national level. Neither Mississippi nor the US is approaching the HP2010 target of universal health coverage**.

"The major source of coverage for persons under 65 years of age is private employer-sponsored group health insurance. Private health insurance may also be purchased on an individual basis, but it costs more and generally provides less coverage than group insurance. Public programs such as Medicaid and the State Children's Health Insurance Program provide coverage for many low-income children and adults" (CDC, 2008, Health insurance and access to care section, para. 1).

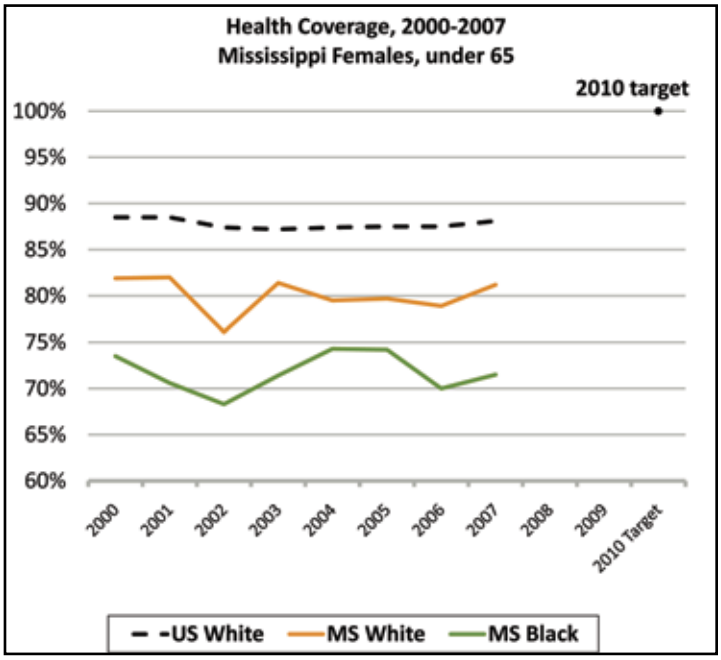
Mississippians: How Have We Compared?

Black Mississippi males are furthest behind in health coverage. From 2000 to 2007, an average of 85.7% of white males across the US and 81% of white males in Mississippi had health insurance. Meanwhile, average coverage among black males in Mississippi was 66.4%. On average, from 2000 to 2007, **5% more white males and 19% more black males in Mississippi would have received health coverage if we achieved at white national levels**.

Black females in Mississippi fare only slightly better than their male counterparts in health coverage. From 2000 to 2007, an average of 87.8% of white females across the US had health coverage. Meanwhile, average coverage among white females in Mississippi was 80.1%, and average coverage among black females in Mississippi was 71.7%. On average from 2000 to 2007, **8% more white females and 16% more black females in Mississippi would have received health coverage if we achieved at white national levels**.



Source: CDC, BRFSS, n.d.



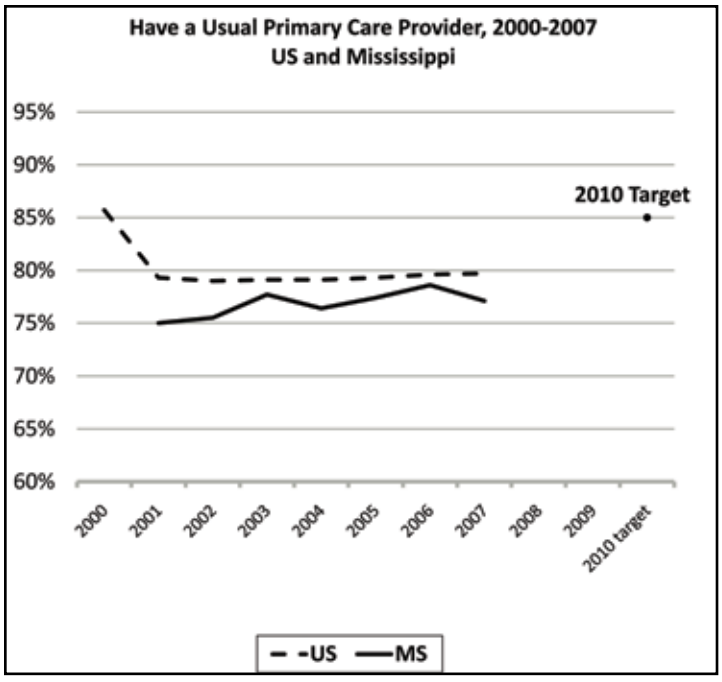
Source: CDC, BRFSS, n.d.

Health Coverage (under 65)	Average 2000-07	2007
US white male	85.7%	85.8%
MS white male	81.0%	82.3%
MS black male	66.4%	68.6%
US white female	87.8%	88.1%
MS white female	80.1%	81.2%
MS black female	71.7%	71.5%

Because we were not equal...
4% fewer white males in Mississippi
7%fewer white females in Mississippi
16% fewer black females in Mississippi
17% fewer black males in Mississippi
...under 65 had health coverage in 2007.

On average from 2000 to 2007, white US females and **black MS females** received health coverage at **higher rates** than their male counterparts. In contrast, **white females in Mississippi** received health coverage at **slightly lower rates** than white MS males.

Health insurance coverage falls under two categories, private or government. Private coverage is purchased from a private company by an individual, an employer, or a union. Programs such as military health care, Medicare, and Medicaid typify government healthcare coverage. A major obstacle to obtaining health care coverage is its high cost. At higher incomes, lower proportions of people lack health insurance. In 2007, among households with annual incomes of less than $25,000, 24.5% of people had no health insurance, and among households with incomes of $25,000 to $49,999, the rate was 21.1%. Among households with incomes of $50,000 to $74,999, the rate dropped even further to 14.5%, and among households with incomes of $75,000 or more, only 7.8 percent were uninsured (DeNavas-Walt, Proctor, & Smith, 2008).



Source: CDC, BRFSS, n.d.

USUAL PRIMARY CARE PROVIDER

Mississippi, the Nation, and Healthy People 2010

Primary care providers can monitor health *progress* in patients and ensure proper, long-term health management. Healthy People calls for 85% of the population to have a usual primary care provider by 2010 — an 8% increase from the 1996 baseline of 77%. From 2001 to 2007, an average of 79.3% of people in the US had a usual primary care provider compared to an average of 76.8% of Mississippians. **Neither Mississippi nor the nation is likely to meet the Healthy People goal by 2010**.

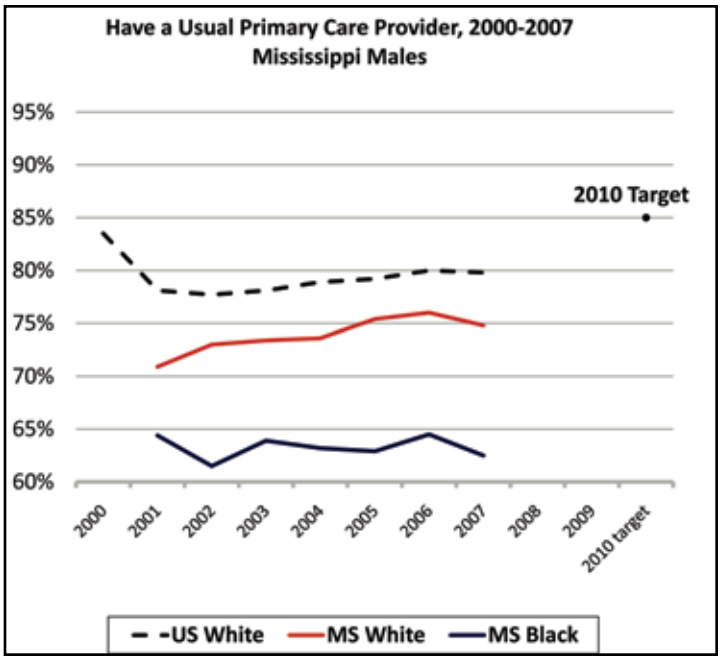
Mississippians: How Have We Compared?

Black males in Mississippi are the least likely to have a primary care provider. From 2001 to 2007, an average of 78.8% of white males across the US had a usual primary care provider compared to only 73.9% of white males and 63.3% of black males in Mississippi. **5% more white males and 16% more black males in Mississippi would have had a usual source of care if we achieved at white national levels**.

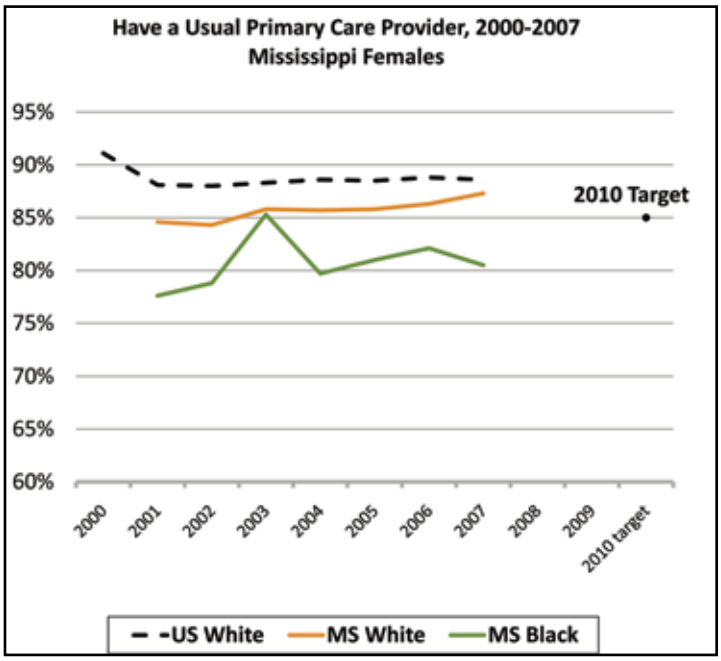
Females are much more likely to have a usual source of primary care, but black females in Mississippi, like their male counterparts, are the least advantaged. On average, 88.4% of white females across the US have a usual primary care provider, compared to 85.7% of white females and 80.7% of black females in Mississippi. **3% more white females and 8% more black females in Mississippi would have had a usual source of care if we achieved at white national levels**.

"People who lack a usual source of care or who change their usual source of care are more likely to have unmet health care needs than people with a continuous usual source of care"

(Costello, Cossman, Ritchie, & Breen, 2006, Medical Homes and Quality of Care section, para. 3).



Source: CDC, BRFSS, n.d.



Source: CDC, BRFSS, n.d.

Ususal Primary Care Provider	Average 2001-07	2007
US white male	78.8%	79.8%
MS white male	73.9%	74.8%
MS black male	63.3%	62.5%
US white female	88.4%	88.6%
MS white female	85.7%	87.3%
MS black female	80.7%	80.5%

Because we were not equal...
2% fewer white females in Mississippi
5% fewer white males in Mississippi
8% fewer black females in Mississippi
17% fewer black males in Mississippi
...had a usual primary care provider in 2007.

There are distinct disparities between whites and blacks in access to care, with major racial differences arising in vaccination levels, health coverage, and access to primary care providers. Gender differences also come into play in a major way with regards to pneumonia mortality and access to primary care providers. These race and gender disparities are even more perceptible when access to care is examined more intensively.

MMMH

MISSISSIPPI MEDICAID MEDICAL HOME

"The [Mississippi Medicaid Medical Home] legislation, passed into law in 2004 for implementation starting in 2005, has two main components: provision of an annual physical examination for all Medicaid enrollees and encouraging enrollees to identify a usual source of care for their primary health care needs. Although not a component of MMMH, the legislation also requires annual face-to-face eligibility interviews for Medicaid enrollees. At the eligibility interview, Medicaid enrollees will have the MMMH program and its functions explained to them. (Costello, Cossman, Ritchie, & Breen, 2006, Medical homes - a Review of the Concept section, para. 1)

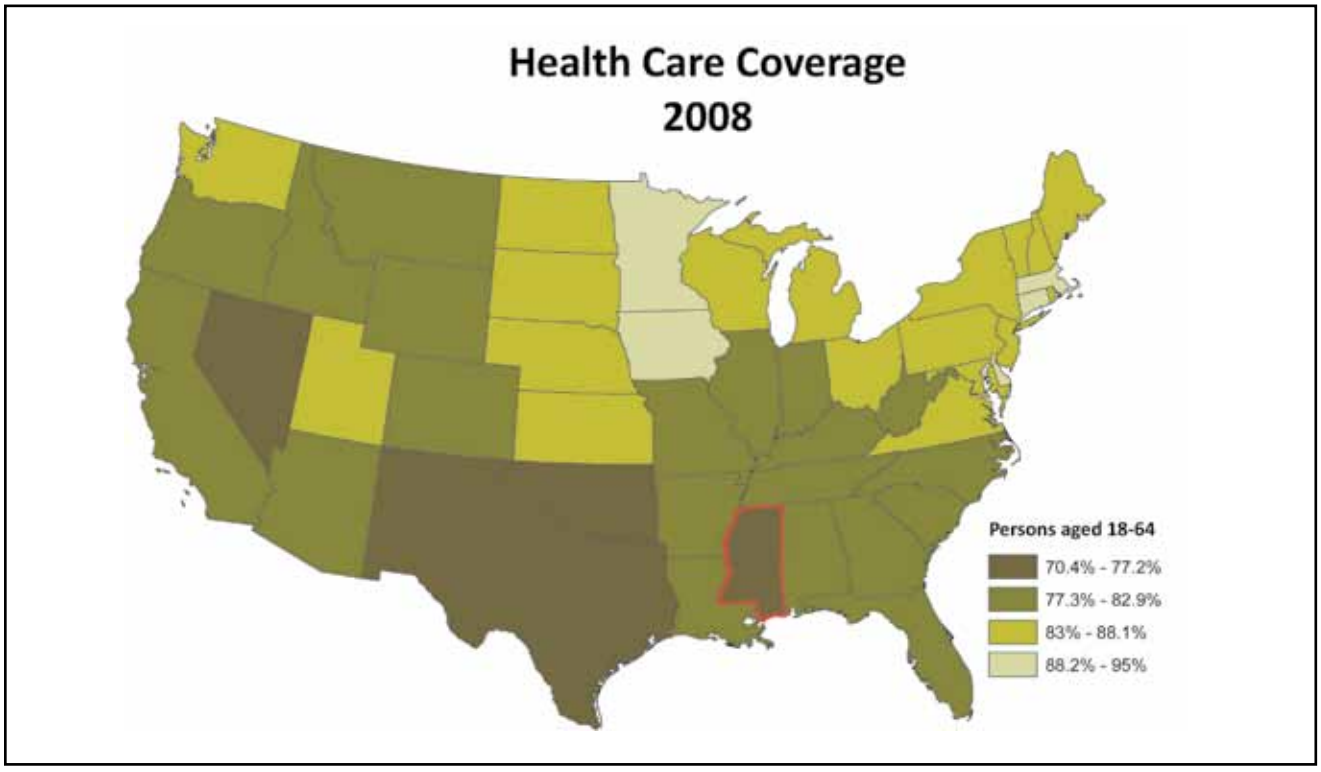
"The basic idea of MMMH is that although it may cost the state more money upfront, preventive services, continuity of care, and avoiding hospitalization and emergency department (ED) use will eventually save money. Regularly scheduled periodic examinations should encourage participants to rely on a usual source of care, encouraging better use of preventive services and greater continuity of care, thereby reducing avoidable ED use and hospitalizations. Periodic examinations should reduce hospital and ED costs both through enrollees' better health – once conditions identified during initial physical exams are addressed – and because enrollees will get appropriate services at the doctor's office or clinic, not the hospital" (Costello, Cossman, Ritchie, & Breen, 2006, Medical homes - a Review of the Concept section, para. 3).

"Narrowly defined, access to health care is a question of whether there is sufficient supply of providers to match patient demand. More broadly, access encompasses availability (whether patients can physically reach care), appropriateness (whether patients receive the appropriate level of care), preference (whether patients can get medical services from the recommended provider) and timeliness (avoiding substantial waiting periods for appointments)"

(Costello, Cossman, Ritchie, & Breen, 2006, The Mississippi Medicaid Medical Home: Concept and Baseline Data section, para. 5).

ECONOMIC & RESOURCE LIMITATIONS IN ACCESS TO CARE

Access to health care is affected by a multitude of factors, such as availability and affordability of health insurance, affordability of health care, availability of transportation, and availability of local physicians. The Mississippi Health Survey (MHS) includes measures for many of these important factors. However, since this is a state-wide survey, comparable national data is not always available.



Source: U.S. Census Bureau. ACS, 2006-2008.

Mississippi 2008	White Male	Black Male	White Female	Black Female
Did not pursue care due to cost	13.0%	23.8%	19.1%	28.3%
Did not pursue dental care due to cost	20.8%	27.6%	24.5%	32.8%
Did not pursue mental health care due to cost	6.8%	6.2%	8.6%	10.2%

In Mississippi **16%** more black females and **15.2%** more black males would have received medical care in 2008, if they pursued care at the same rates as their white national counterparts in 2007.

7% more white females and **4.2%** more white males would have received medical care in 2008, if they pursued care at the same rates as their national counterparts in 2007.

Roughly **1 in 3 black females** and **1 in 4 white females** did not pursue dental treatment **due to cost** in Mississippi in 2008.

With Mississippi falling behind the nation in health coverage, the affordability of health care weighs more heavily on Mississippians. In 2007, the Behavioral Risk Factor Surveillance System (BRFSS) found that 8.8% of white males across the US did not pursue medical care because of cost.

In contrast, only a year later, the MHS found that **13% of white males and 23.8% of black males in Mississippi had not seen a doctor because of cost**.

Women are even more likely to avoid health care because of cost. In 2007, 12% of white females across the US did not pursue care because of cost. Meanwhile, in Mississippi in 2008, **19.1% of white females and 28.3% of black females did not see a doctor when they needed to because of cost**.

Similar patterns emerge with access to dental care. In 2008, 20.8% of white men and 27.6% of black men in Mississippi had foregone dental treatment because of cost. Females were even less likely to pursue treatment; 24.5% of white females and about 32.8% of black females in Mississippi did not pursue dental treatment due to cost.

Mississippians also forgo mental health care due to cost. In 2008, **10.2% of black females and 8.6% of white females did not pursue mental health care because of cost**.

Males were again more likely to have the resources for such care with only 6.8% of white males and 6.2% of black males in Mississippi forgoing treatment. Because mental health care is a lesser known field, patients may be less likely to identify their problems as mental health care needs.

Black females in Mississippi are not only the most likely to forgo health care, dental care, and mental health care due to cost – they are also most likely to owe a provider for prior services. In 2008, 51% of black females in Mississippi owed a hospital or other medical facility money for services or care compared to 40.4% of white females. **Males in Mississippi are less likely to owe money**, with 34% of black males and 24.6% of white males reporting owing a provider.

Black females in Mississippi, at 46.1%, **are also most likely to have had their medical debts turned over for collection** compared to white females, at 28%. **Black males**, at 30.1%, **are also particularly high risk** for medical debts turned over for collection.

Interestingly, while compared to black MS males, 6.4% more white females in Mississippi owed money for health services or care in 2008, 2.1% more black MS males had medical debts turned over for collection, compared to white MS females.

White males are least likely to have their medical debt turned over for collection at 21.4%. **Black patients are also disproportionately more likely to have their wages garnished** with 6.4% of black patients having had their wages garnished to pay for medical services compared to 1-2% of white patients.

Mississippi 2008	White Male	Black Male	White Female	Black Female
Owed hospital or other medical facility	24.6%	34.0%	40.4%	51.0%
Medical debts turned over for collection	21.4%	30.1%	28.0%	46.1%
Wages garnished to pay for medical services	0.8%	6.4%	1.9%	5.5%

Black females in Mississippi are not only the most likely to forgo health care, dental care, and mental health care due to cost – they are also most likely to owe a provider for prior services and have their medical debts turned over for collection.

1 in every 2 black females in Mississippi owed a hospital or other medical facility money for services or care in 2008, as did **2 in every 5 white females in Mississippi**.

1 in every 3 black males in Mississippi owed a hospital or other medical facility money for services or care in 2008, as did **1 in every 4 white males in Mississippi**.

While **black males in Mississippi** are **least likely to have health coverage** and a primary care provider, **black females** are **most likely to forgo medical care**, dental care, and mental health care due to cost.

Moreover, **black females in Mississippi** are **most likely to owe money** for medical services and have medical debts turned over for collection (nearly 1 in 2).

"One of the primary factors influencing access is physician reimbursement. For Medicaid patients, some research has shown that higher reimbursement rates lead to higher physician participation, more office visits among adults and no change in children's rate of office visits. On the other hand, others have claimed that fee changes do not influence physician participation, which calls into question their impact on access to care. Nonetheless, with Medicaid payments increasing at a rate slower than inflation (as a national average) through most of the 1990s and falling relative to Medicare payments, there has been a rising concern that physicians will be less willing to accept new Medicaid patients. It is unclear whether payment for annual physicals through the MMMH program will provide an incentive for providers to treat Medicaid patient"

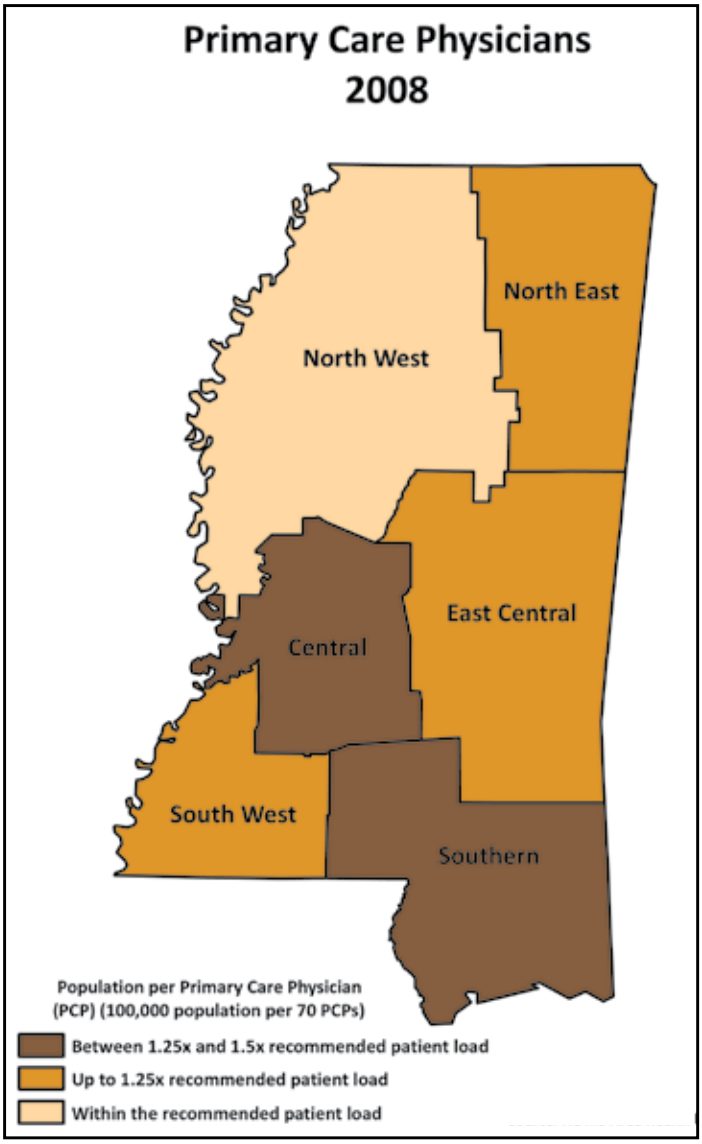
(Costello, Cossman, Ritchie, & Breen, 2006, The Mississippi Medicaid Medical Home: Concept and Baseline Data section, para. 6).

"Mississippi physicians are not evenly distributed relative to the population, which produces gaps in access to physician care. More than half (56%) of all Mississippi physicians are located in four urban areas, leaving 51 of 82 counties underserved. Only 12% of the state's doctors are located in the Mississippi Delta"

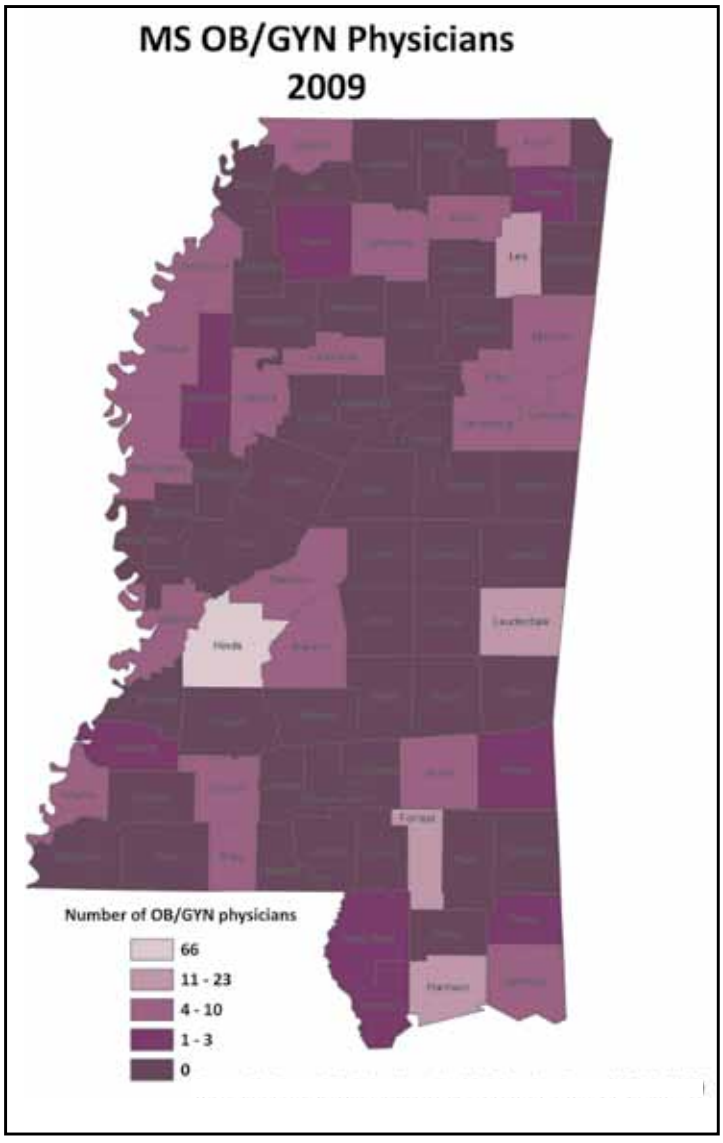
(Cossman, 2003, The Findings Section, para. 2).

"Nationally, there are three doctors to every 1,000 residents; however, in Mississippi, there are only two doctors to every 1,000 residents"

(Cossman, 2003, The Findings Section, para. 1).



Source: NE MS Area Health Education Center



Source: NE MS Area Health Education Center

Mississippi 2008	White Male	Black Male	White Female	Black Female
No treatment pursued due to transportation issues	2.1%	12.9%	2.7%	12.6%
No treatment pursued due to distance to physician	2.9%	7.3%	4.1%	7.7%

Indirect costs can also play a large role in the decision to pursue medical care. Access to adequate transportation is one example. In Mississippi in 2008, **12.9% of black males and 12.6% of black females did not pursue medical treatment because they lacked access to transportation**. In contrast, 2.1% of white males and 2.7% of white females in Mississippi forwent treatment because of lack of transportation. **Black patients in Mississippi are also disproportionately affected by the distance to a physician**. 7 to 8% of black patients reported being too far from a provider to pursue care compared to only 3-4% of white patients.

In 2008, more than **1 in every 10 black Mississippians** did not seek medical attention because of lack of transportation.

"Nationally, rural Americans represent 20 percent of the population, but only 11 percent of physicians are located in rural areas. The rural physician supply is already a problem and projections indicate that the problem may get worse. While the physician workforce grew nationally by nearly 25 percent from 1990 through 1997, in rural areas the physician workforce grew only by 11 percent. Rural areas started the 1990s with a physician shortage and this disadvantage increased through most of the decade"

(Cossman, Ritchie, & Breen, 2006, The Mississippi Medicaid Medical Home: Concept and Baseline Data section, para. 7).

REFERENCES

Centers for Disease Control and Prevention (CDC), National Center for Health Statistics. (2008, September). *NCHS data on health insurance and access to care.* Retrieved from http://www.cdc.gov/nchs/data/infosheets/infosheet_hiac.htm#hiac

Cossman, J. S. (2003, October). *Mississippi's physician labor force: Current status and future concerns.* Mississippi Health Policy Research Center, Social Science Research Center, Mississippi State University. Retrieved from http://www.healthpolicy.msstate.edu/publications/pubsviewer.html#http://www.healthpolicy.msstate.edu/publications/laborforcesumm.pdf

Costello, H., Cossman, J. S., Ritchie, J. B., & Breen, J. J. (2006). *The Mississippi Medicaid medical home: Concept and baseline data.* Mississippi Health Policy Research Center, Social Science Research Center, Mississippi State University. Retrieved from http://www.healthpolicy.msstate.edu/publications/pubsviewer.html#http://www.healthpolicy.msstate.edu/publications/mmmhbaseline.pdfRit

DeNavas-Walt, C., Proctor, B. D., & Smith, J. C. (2008). *Income, poverty, and health insurance coverage in the United States: 2007.* US Department of Commerce, US Census Bureau. Retrieved from http://www.census.gov/prod/2008pubs/p60-235.pdf

Mayo Clinic Health Manager. (2009, May). *Pneumonia*. Retrieved from http://www.mayoclinic.com/health/pneumonia/DS00135

Northeast Mississippi Area Health Education Center (NE MS AHEC). (2008, October). *Where's the primary care? : A spatial analysis of Mississippi generalists.* Social Science Research Center, Mississippi State University. Accessed from http://nemsahec.msstate.edu/publications/healthmaps/generalist.pdf

University of Maryland Medical Center. (2009, reviewed). *Pneumonia-prognosis.* Retrieved from http://www.umm.edu/patiented/articles/how_serious_pneumonia_000064_4.htm

World Health Organization (WHO). (2009, April). *Influenza (seasonal).* Retrieved from http://www.who.int/mediacentre/factsheets/fs211/en/