Center for Mississippi Health Policy

# HEALTHCARE SYSTEM PERFORMANCE

## *Mississippi Indicators & Healthcare Infrastructure: Opportunities for Improvement*

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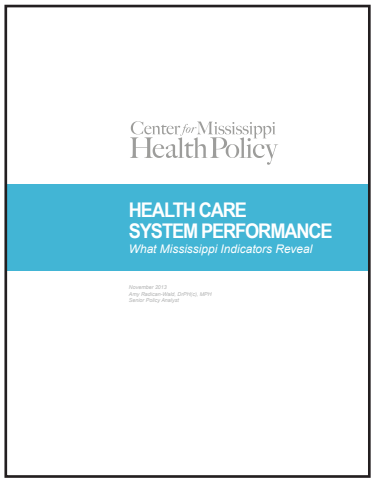
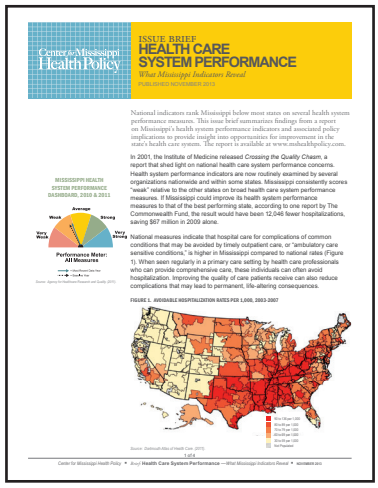
## EXECUTIVE SUMMARY




The performance of Mississippi's healthcare system is consistently ranked as one of the lowest in the nation. In 2013, the Center for Mississippi Health Policy (Center) published the report, "*Healthcare System Performance: What Mississippi Indicators Reveal,*" which included an analysis of national health system performance indicators and discussed the weaknesses of the state's healthcare system. At the time, the state's use of hospital care for chronic and preventable conditions was one of the highest in the nation, while the utilization of primary and preventive care was one of the lowest. Low rates of utilization such as this result in very poor health outcomes and financial burdens on the state's healthcare resources. The report also discussed strategic actions and opportunities for addressing these weaknesses, and categorized those strategies into four dimensions of healthcare performance:

- Workforce
- Payment Systems
- Service Delivery Models
- Performance Measurement

The report discussed initiatives from each of the four performance dimensions Mississippi and private organizations had taken to address the state's poorly performing healthcare system. For example, the Mississippi Office of Physician Workforce was developed in 2012 to address the state's healthcare workforce by creating enhanced family medicine residency programs. In the same year, the Mississippi Division of Medicaid reformed their payment systems by implementing the Mississippi Coordinated Access Network (MSCAN) program to address quality of care and rising costs through the coordination of care for Mississippi Medicaid beneficiaries.

Mississippi was making significant efforts to address healthcare performance issues but, at the time of our 2013 report, was severely lacking in their coordination of strategies and efforts. The report explained several action points related to four dimensions of healthcare system performance that the National Academy for State Health Policy recommended states collaborate and coordinate their efforts to improve health outcomes and healthcare system performance. Some of the action points that were most relevant to the improvement of Mississippi's healthcare system included:

- Increase providers trained in primary and preventive care
- Revise payment models to incentivize improvements in health outcomes and the expansion of patient care coordination
- Adopt use of electronic health records and enhancement of data systems
- Report health quality measures to Medicare to improve the development of current performance measurements

Over the past decade, Mississippi policies and initiatives have addressed many of those points and have made improvements across several indicators in each dimension of national health system performance. Throughout the same period, Mississippi's healthcare system has continued to rank as the poorest performing state healthcare system of the United States and the District of Columbia.

This report will review current data from the Agency for Healthcare Research and Quality and the Commonwealth Fund to analyze trends in Mississippi's most improved indicators by using the same data referenced in the 2013 report. This analysis will also identify dimensions in which the least amount of change has occurred or have worsened and will explore policy action and implications impacting these indicators. The report will address ways to better coordinate the efforts of the state and improve its overall health system performance.

To expound upon the state's opportunities for improvement, this report will also take into consideration several internal and external factors that have taken place since the publication of our 2013 performance report. This report will examine the impact of these factors on key determinants of health for many Mississippians. ***Determinants of health*** are a broad range of factors that influence an individual's health status, which, ultimately, impacts the performance and quality of the state's healthcare system. Determinants of health are typically categorized into the following categories:


*Source: Healthy People 2030*

**Over the past decade, the factors discussed in this performance evaluation have changed almost every aspect of how healthcare systems operate across the United States and have had major impacts on both the cost and the quality of care that is provided. This updated report on Mississippi's healthcare system performance will assess existing and potential impacts these factors have on the state's health performance indicators and will explore potential strategies and actions for continued improvement.**

**HEALTH OUTCOMES**

The outcome or result of medical care, in terms of recovery, restoration of function and of survival, are used as an indicator of medical care.

*Donabedian A. (2005). Evaluating the quality of medical care. 1966. The Milbank Quarterly, 83(4), 691-729. https//doi.org/10.1111/j.1468-0009.2005.00397.x*

Mississippi is capable and obtains the resources necessary to improve ***health outcomes*** and its overall healthcare system performance while also reducing costs. There are opportunities to improve Mississippi's national health indicators and enhance its healthcare infrastructure by using available resources, taking advantage of economic incentives and opportunities for improvement, and coordinating and collaborating with federal and state governments for strategic planning.

## INTRODUCTION

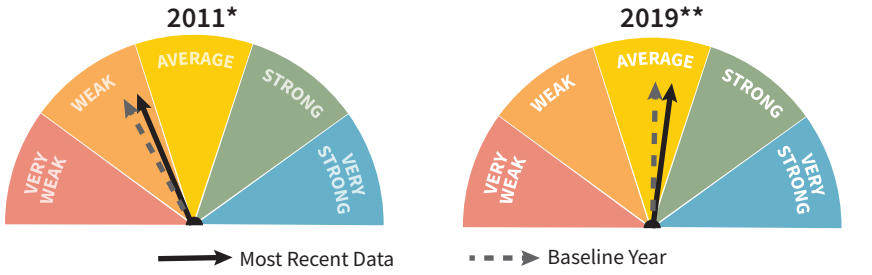
**The Center published "Healthcare System Performance: What Mississippi Indicators Reveal" in 2013, which referenced studies and data from the Agency for Healthcare Research and Quality (AHRQ), Mississippi State Department of Health, The Commonwealth Fund, and the Dartmouth Atlas of Healthcare to discuss the state health system's performance[1]. Since then, major reforms to our national and state-level health systems have occurred. Some of the most notable reforms were to encourage and incentivize quality improvement initiatives that address access and delivery of healthcare, as well as innovative models for the payment and delivery of healthcare. Another key factor of these reforms are data enhancement and reporting regulations that were established to improve the quality of data being used to determine performance measures.**

Enhanced data standards led to higher quality data, which, in turn, resulted in a more comprehensive and reliable monitoring of health system performance with greater access to performance measure data. Across the country, great strides have been made in the development and enhancement of healthcare system performance measures. Through collaborations between the AHRQ and a multitude of healthcare entities, medical claims and population data have been used in the development of more than 250 measures for assessing healthcare quality, access, and disparities[2]. This achievement has allowed public and private organizations to greatly improve and expound upon their evaluations of health system performance. Mississippi has implemented many initiatives and programs to address healthcare costs, quality, and access. The state has tested and adopted innovative models for the payment and delivery of services and has enhanced data standards to better monitor measures of quality and performance.

This report will use the sources and data points referenced in the 2013 report as a baseline to present changes in quality and performance measures for Mississippi healthcare systems. An assessment of the impact state initiatives had on these measures will allow us to further explore strategies and policy considerations for improvement.

## MISSISSIPPI HEALTHCARE SYSTEM PERFORMANCE: UPDATES FROM CURRENT DATA

### FIG. 1 AHRQ STATE SNAPSHOT




*Based on a composite of 105 measures[3]

**Based on a composite of more than 250 measures[4]

The United States implemented national healthcare reform efforts upon passage of the Patient Protection and Affordable Care Act. As a result of these national reforms, states across the country saw improvements throughout various components of their healthcare systems. Strategies to monitor the quality of care and address inequities in Mississippi's healthcare system have been implemented to improve the state's performance. Coordination of efforts have improved, and the state's approach to the development of strategies has become increasingly comprehensive and collaborative. Despite diligent efforts, Mississippi continues to maintain the worst performing state healthcare system in the United States. AHRQ and The Commonwealth Fund have reported on the healthcare system performance for Mississippi consistently over recent years. Findings from these reports show where Mississippi stands today and their opportunities for improvement.

On an annual basis, the AHRQ uses national quality measures to report on the overall performance of our national and state-level healthcare systems in their report titled, the National Healthcare Quality and Disparities Report (NHQDR). In 2011, AHRQ scored the state's overall health system performance based on a composite of 105 measures[3]. In 2019, scores were based on a composite of more than 250 measures and showed improvements to health system performance in Mississippi. In Fig. 1, the AHRQ State Snapshots show the state's level of improvement over the past decade. Health system performance improved from "weak" overall performance in 2011, to "average" overall performance in 2019[4].

**THE COMMONWEALTH FUND**

A private healthcare research foundation that also reports on health system performance on an annual basis.

The ***Commonwealth Fund's*** State Scorecard of Health System Performance is based on a smaller, typically more state-specific, number of performance measures. Performance scores for these reports are based on a range of 40 to 50 measures that are categorized into five dimensions of health system performance that will be key to this analysis. Three of these dimensions relate to the overall quality and costs of care, while the other two concentrate more on measures of health determinants and equity. Indicators for

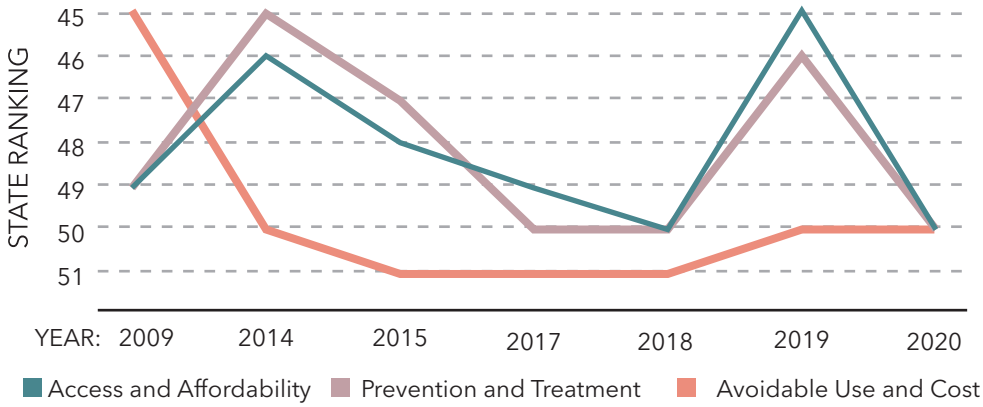
each of these dimensions are listed in Appendix A. Each dimension is given a composite score, which makes up the overall performance score for the state's health system. Since 2009, Mississippi has ranked last on overall health system performance every year. Some improvements across various measures have been made, but there are also some that have worsened. Quality and cost dimensions include access and affordability, prevention and treatment, and avoidable use and cost. Fig. 2 represents the Commonwealth Fund scores for these dimensions in Mississippi from 2009 to 2020.

**HOSPITAL READMISSIONS REDUCTION PROGRAM (HRRP)**

A Medicare value-based purchasing program that encourages hospitals to improve communication and care coordination to better engage patients and caregivers in discharge plans and, in turn, reduce avoidable readmissions.

*Source: www.cms.gov/Medicare/Medicare-Fee-for-Service-Payment/AcuteInpatientPPS/Readmissions-Reduction-Program*

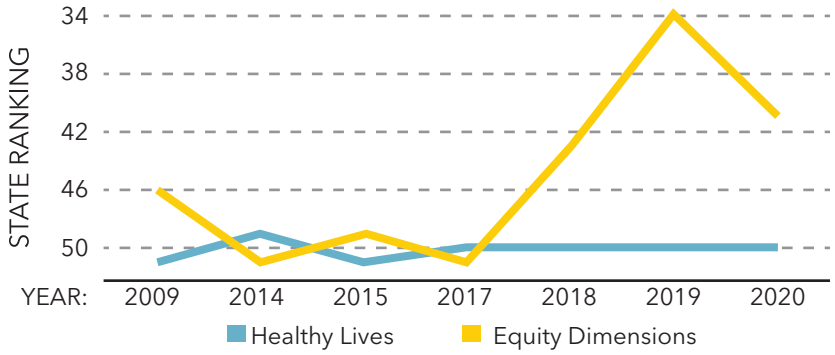
**Fig. 2: COMMONWEALTH FUND COST & QUALITY**




*Source: Commonwealth Fund Scorecard on State Health System Performance*

The Commonwealth Fund includes a healthy lives and equity dimension in their performance reports each year. These dimensions take into consideration various determinants of health and health behaviors of the population and identifies disparities in the state healthcare system based on income or race and ethnicity. These measures are important as they provide policy makers with a deeper understanding of the state's healthcare and the implications that has for its residents. Fig. 3 outlines Mississippi scores in healthy lives and equity for 2009 to 2020[5].

**FIG. 3: COMMONWEALTH FUND HEALTHY LIVES & EQUITY**




*Source: Commonwealth Fund Scorecard on State Health System Performance*

AHRQ and Commonwealth Fund reports on state health system performance have indicated major issues with the cost and utilization of services in Mississippi – specifically, preventable

hospital readmissions and high rates of preventable hospital admissions due to ambulatory care conditions. These findings emphasize the widespread issue of chronic illness and low utilization of primary and preventive care for Mississippi.To prevent avoidable hospitalizations, the quality of primary care services must first improve and become more efficient in the treatment and maintenance of chronic conditions.[6]

## CURRENT TRENDS & IMPLICATIONS OF MISSISSIPPI'S PERFORMANCE

Sources such as AHRQ and the Dartmouth Atlas of Healthcare found slight improvements in the areas of preventable hospitalizations, readmissions, and the utilization of primary and preventive care among Medicare beneficiaries in the United States[7]. Throughout the United States, the 30 day readmission rate for medical discharges among Medicare beneficiaries dropped from 16.1% in 2009 to 15.1% in 2018. This has been, in part, due to the CMS Hospital Readmission Reduction Program, which penalizes hospitals for excessive readmissions[8]. The maps in Figure 4 identify areas of the state in which the hospital readmission rate was higher than the national average in 2009 and 2018. During this time, areas of the state where the largest hospital systems are located saw the greatest reductions in readmissions. This geographic difference highlights the disparities in access and quality of care that exist throughout the state.

**FIG. 4: 30 DAY HOSPITAL READMISSION RATES (HRR) IN MISSISSIPPI COMPARED TO THE NATIONAL AVERAGE, 2009 -2018**

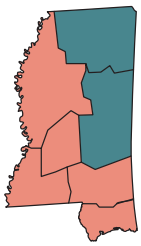

*Source: After Hospitalization: A Dartmouth Atlas Report. (2011).*
*Source: The Dartmouth Atlas of Healthcare: 2018 Data Update. (2018).*

**RATES OF CHRONIC CONDITIONS IN MISSISSIPPI HAVE PLAGUED THE STATE FOR YEARS AND THE MOST SIGNIFICANT CONDITIONS CONTINUE TO BE RELATED TO HEART DISEASE, DIABETES, AND CHRONIC OBSTRUCTIVE PULMONARY DISEASE (COPD).**

The utilization of primary and preventive care is a typical indicator for hospital readmission rates within state healthcare systems because of this type of care's implications on the prevalence and severity of chronic conditions. Rates of chronic conditions in Mississippi have plagued the state for years and the most significant conditions continue to be related to heart disease, diabetes, and chronic obstructive pulmonary disease (COPD). Based on state level data from 2016, Mississippi has the highest rates of potentially preventable hospitalizations for chronic conditions in the United States.

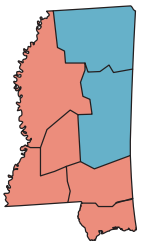
## FIG.6 PREVENTABLE HOSPITALIZATIONS FOR CHRONIC CONDITIONS

POTENTIALLY PREVENTABLE INPATIENT STAYS FOR CONGESTIVE HEART FAILURE, 2016*



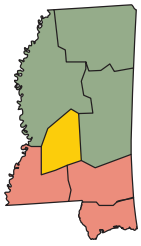
- 94.5 to 228.5 (Quintile 1)
- 235.5 to 291.0 (Quintile 2)
- 294.0 to 365.0 (Quintile 3)
- 366.3 to 426.7 (Quintile 4)
- 427.3 to 891.2 (Quintile 5)

POPULATION OF POTENTIALLY PREVENTABLE INPATIENT STAYS FOR DIABETES, 2016*



- 51.3 to 114.9 (Quintile 1)
- 115.3 to 142.2 (Quintile 2)
- 142.7 to 173.3 (Quintile 3)
- 176.6 to 210.0 (Quintile 4)
- 211.7 to 385.1 (Quintile 5)

POPULATION OF PREVENTABLE INPATIENT STAYS FOR CHRONIC OBSTRUCTIVE PULMONARY DISEASE, 2016*

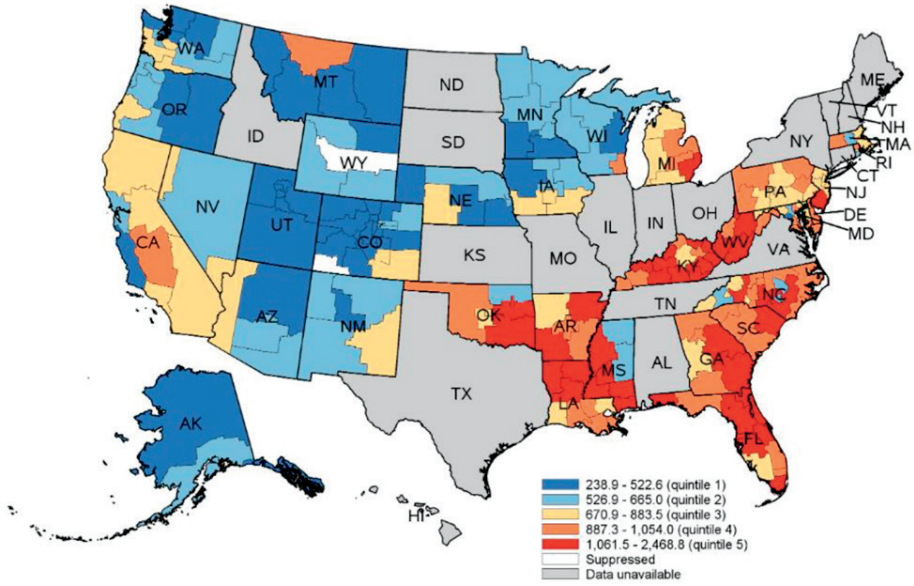


- 83.9 to 218.3 (Quintile 1)
- 225.9 to 311.4 (Quintile 2)
- 311.6 to 407.2 (Quintile 3)
- 411.4 to 544.6 (Quintile 4)
- 549.2 to 2,184.1 (Quintile 5)

**Substate region-level rates per 100,000*

*Internet Citation: Statistical Brief #264. Healthcare Cost and Utilization Project (HCUP). September 2020.*

## FIG. 5: AVOIDABLE HOSPITALIZATION RATES PER 1,000 POPULATION FOR CHRONIC CONDITIONS, 2016



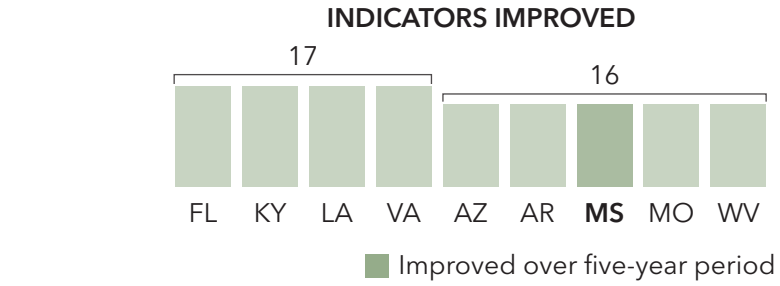

*Source: HCUP Brief 264: Fig. 2:Substate regional-level per 100,000*

The map in Fig. 5 represents preventable hospitalizations for all chronic conditions and shows the United States' regional differences. Rates of preventable hospitalization in Mississippi are highest for COPD related conditions, followed by congestive heart failure and diabetes. Fig. 6 shows regional variations in hospitalizations, which indicate disparities in the quality of care for chronic conditions in Mississippi[9].

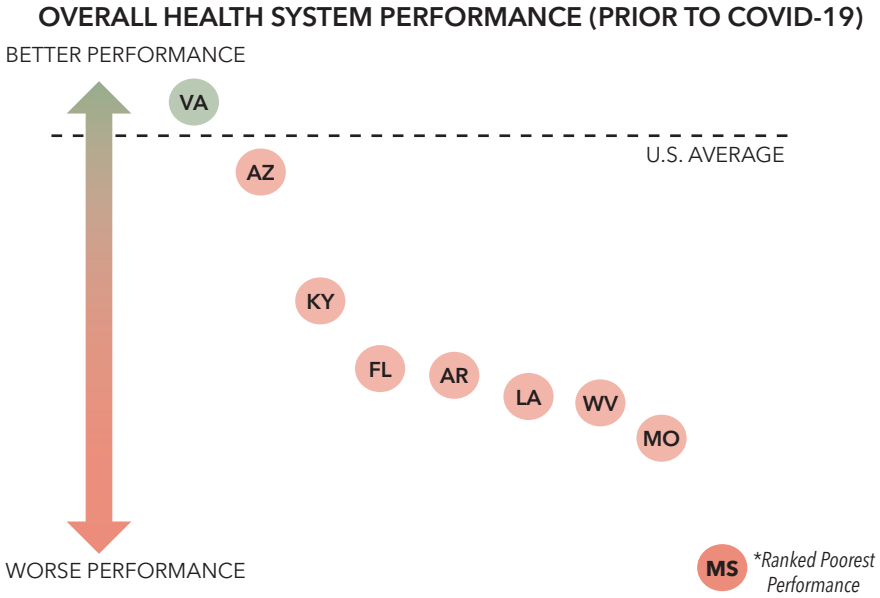
Since 2014, The Commonwealth Fund reports have included a more thorough view of how performance has improved or worsened in state healthcare systems by studying trends in specific performance metrics over time. With that information, they can identify and better understand the specific components of a healthcare system that are either positively or negatively affecting the healthcare system. In 2020, it was reported that Mississippi had made consistent improvements across 16 metrics between 2014 and 2018 - more than most other states. However, throughout this five-year period of notable improvement, overall performance of the state's healthcare systems were consistently the worst. The graphs in Fig. 7 show the level of improvement and overall performance for each state. When comparing the graphs in Fig. 7, it is important to note the contrast between a state's overall performance and the number of improved metrics.

## FIG. 7: MISSISSIPPI IMPROVEMENTS & OVERALL PERFORMANCE, 2020

More improvement than decline: Florida, Kentucky, Louisiana, and Virginia improved most, with gains on 17 indicators between 2014 and 2018, prior to COVID-19




Notes: Based on five-year trends for 43 of 49 total indicators (disparity dimension not included), generally reflecting 2014 to 2018, prior to COVID-19 pandemic; trend data are not available for all indicators. Bar length equals the total number of indicators with any improvement or worsening with an absolute value greater than 0.5 standard deviations (StDev) of the state distribution.




*Note: States are arranged in rank order from left (best) to right (worst), based on their overall 2020 Scorecard rank. The 2020 Scorecard rank reflects data generally from 2018, prior to the COVID-19 pandemic. *This ranking includes all 50 states and the District of Columbia.*

*Source: The Commonwealth Fund, 2020 Scorecard on State Health System Performance. (2020).*

Apart from Virginia, healthcare systems in the ten states that had improved the most during this time had continually performed well below the national average. The juxtaposition of these two points highlights the amount of work it will take to accomplish meaningful change that actively improves our healthcare systems. Even with considerable improvements in Mississippi, overall performance remains stagnant and improvement efforts are lacking the capacity to keep up and adjust to the state's ever changing healthcare landscape. Several measures and indicators have worsened or not improved over this time, which reflect greater problems for the state and highlight just how much work it will take to improve health systems performance and outcomes in Mississippi.

**PRIMARY CARE PHYSICIAN**

A primary care physician is a specialist in family medicine, general internal medicine or general pediatrics, who provides definitive care to the undifferentiated patient at the point of first contact and takes continuing responsibility for providing the patient's comprehensive care.

**SPECIALIST PHYSICIAN**

Surgery, Obstetrics & Gynecology, Emergency Medicine, Cardiology, Oncology, Neurology

**GENERALIST PHYSICIAN**

General Practice, Family Medicine, Internal Medicine

## MISSISSIPPI'S PROGRESS TOWARD IMPROVING HEALTH SYSTEMS & OUTCOMES

The relationship between healthcare quality, cost, and workforce suggest better access to primary care leads to higher quality outpatient care, which ultimately improves the health system's overall performance.[10] Literature reviews show even stronger evidence of this relationship and identify three major points in which higher quality primary care services can improve population health outcomes.[11]

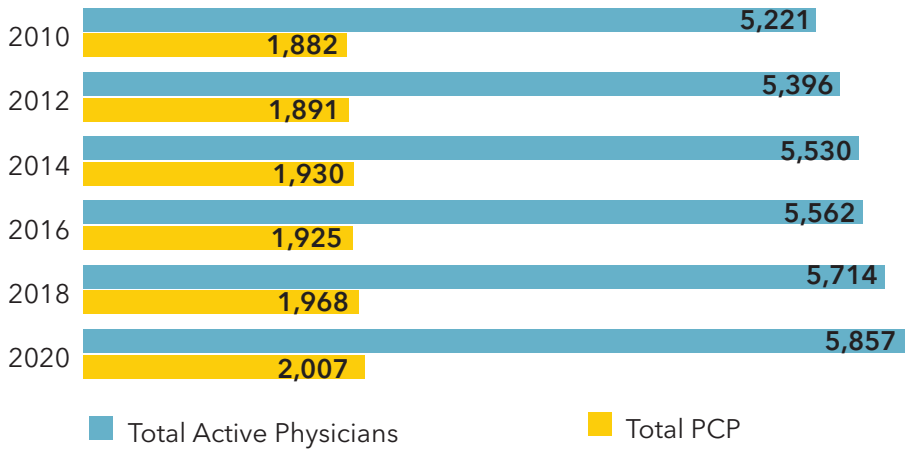
- Health is better in areas with more Primary Care Physicians.
- People who receive care from Primary Care Physicians are healthier.
- The characteristics of primary care are associated with better health.

In 2013, methods and strategies were initiated on the national- and state-levels to address health system performance in areas of healthcare workforce, payment systems, care delivery, and performance measures. Mississippi strategies included several efforts to reduce and maintain costs, bolster the provider workforce, and enhance the coordination of care with particular emphasis on general practitioners and the provision of primary and preventive care. The effectiveness and overall progress of these efforts have been monitored and expounded upon since our initial reporting.

### PROVIDER WORKFORCE

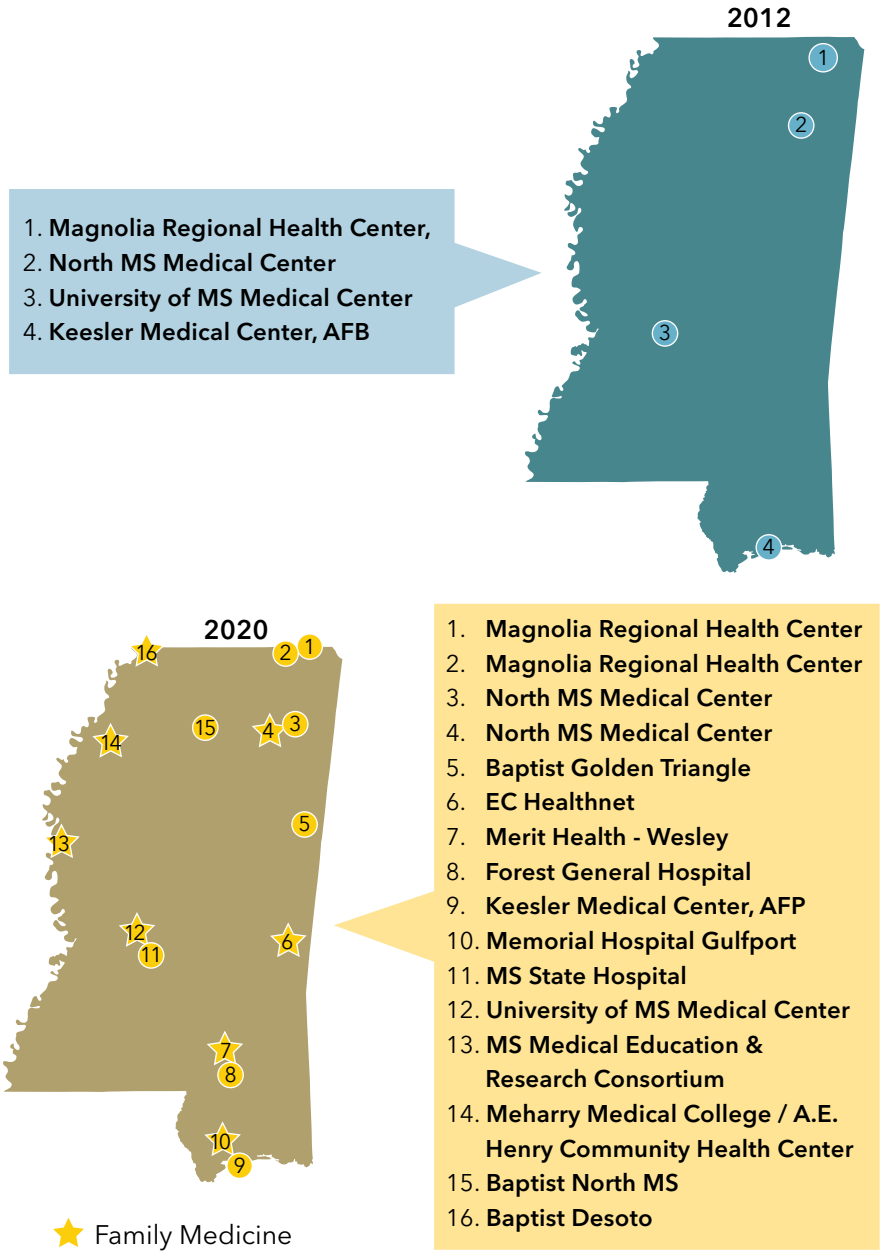
Increasing the number of ***primary care physicians*** has been the focus of efforts for improving the healthcare workforce in Mississippi. Our 2013 report explained that states with higher concentrations of ***specialist physicians*** and lower concentrations of ***generalist physicians*** had lower rankings for quality of care and higher spending per capita on healthcare costs. The Health Resources & Services Administration (HRSA) maintain Area Health Resource Files (AHRS) that provide current health professions and facilities information. Latest data from the HRSA showed trends in physician to patient ratios for Mississippi in which the rate of general physicians per 100,000 population has only increased by small percentages. Mississippi continues to maintain one of the lowest rates of general physicians per patient, and much higher rates of specialty physicians with at least 10 per patient.[12] Workforce and population projections from 2012 indicated that, for the state of Mississippi to increase the primary care physician (PCP) to patient ratio and improve access to primary and preventive care, an additional 2,100 PCPs would be needed by 2020.[13]

**FIG. 8: DOCTORS AS PROPORTION OF PRIMARY/ SPECIALTY CARE PHYSICIANS IN MISSISSIPPI**




In 2012, the Mississippi Legislature passed House Bill 317. This created the Office of Mississippi Physician Workforce (OMPW) to oversee workforce development and, most importantly, to administer financial support for the development of accredited graduate medical education (GME) programs in family medicine. Later in 2017, House Bill 422 was passed to broaden the scope of OMPW's GME program development to include additional specialties other than family medicine. While there has been some success, the intent of these bills was to foster a more robust provider workforce that would improve the quality of primary and preventive care. When the bill was passed, Mississippi had four institutions offering GME and, outside the University of Mississippi Medical Center, only three residency programs for internal or family medicine. As of 2020, Mississippi now has nine GME institutions with multiple residency programs for internal, family, and emergency medicine specialties.[14] Fig. 9, on page 13, shows the locations of new GME programs that have been implemented since 2012.

## FIG. 9: GRADUATE MEDICAL EDUCATION SITES: OMPW 2021 DIRECTOR'S REPORT




### UNDERGRADUATE MEDICAL EDUCATION (UME)

Undergraduate Medical Education (UME): following the completion of an undergraduate degree (Bachelors), UME involves medical school training in advanced sciences and clinical skills at MD-granting and DO-granting schools.

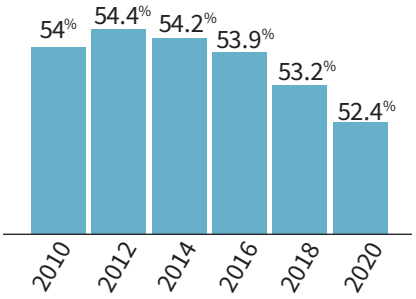
### GRADUATE MEDICAL EDUCATION (GME)

The period of training in a particular specialty (residency) or subspecialty (fellowship) following medical school.

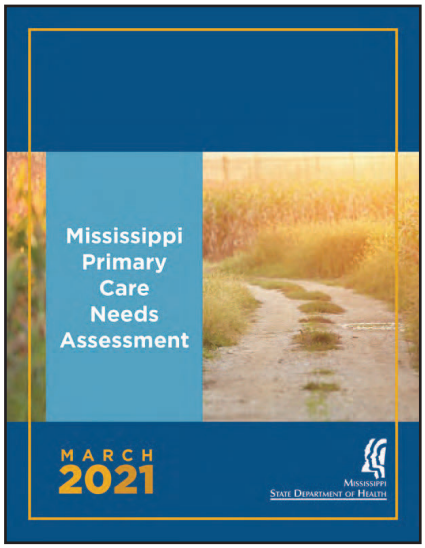
*Source for UME/GME definitions: AAMC.2019 State Physician Workforce Data Report. Washington, DC: AAMC; 2019.*

The Office of Mississippi Physician Workforce has been successful in the development of several additional family medicine residency programs and contributing to increased numbers of residents graduating in primary care specialties. However, this increase is being overshadowed by the state's retention rate of physicians graduating from Mississippi UME and GME programs. Since 2010, approximately 50% of these graduates stay in Mississippi to practice primary care each year. This retention rate is likely responsible for the slow and only slight increase in the number of primary care physicians in Mississippi over the past decade. The Association of American Medical Colleges (AAMC) publish state-specific physician workforce data

**UME RETENTION**




**THE MISSISSIPPI OFFICE OF RURAL HEALTH & PRIMARY CARE (MORHPC)**




**HEALTHCARE PROFESSIONAL SHORTAGE AREAS (HPSAs)**

Designations that identify areas, populations, or facilities within the United States that are experiencing a shortage of healthcare professionals.

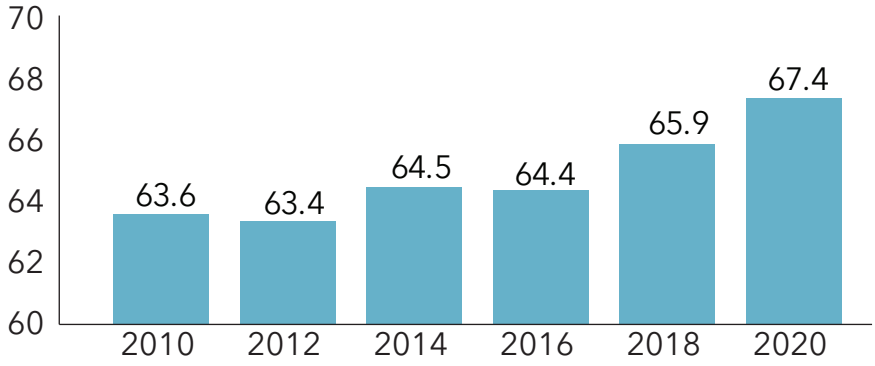
**MEDICALLY UNDESERVED AREAS (MUAs)**

Geographic areas with a lack of access to primary care services.

*Source: US Department of Health and Human Services.*

on an biannual basis. Based on this data and their most recent reports, Mississippi has only retained 116 additional primary care physicians since the inception of the Office of Mississippi Physician Workforce.[15]

**FIG 10: ACTIVE PCP PER 100,000**




The Office of Mississippi Physician Workforce has partnered with the Mississippi Office of Rural Health and Primary Care (MORHPC) at the Mississippi State Department of Health (MSDH) to address workforce shortages since 2012. The MORHPC published their first Mississippi Primary Care Needs Assessment in 2016. An updated assessment and report were published in March 2021 and indicated that one of the most important elements of the assessment is to establish groundwork and identify strategies for enhancing the healthcare workforce and improving the state's healthcare infrastructure. The process of doing so includes the designation of health professional shortage areas (HPSA) and medically underserved areas (MUA) and determining the number of primary care providers required for Mississippi to equitably provide care to underserved populations. **The MORHPC found that provider-to-patient ratios and population demographics indicated a "high need" for additional primary care facilities throughout the state.** Rural counties in Mississippi with predominantly low-income populations exhibit the highest need for primary care facilities. However, high rates of poverty and underemployment found in these areas create huge barriers to the development of medical practices of any type because they cannot be financially sustained by the residents alone.

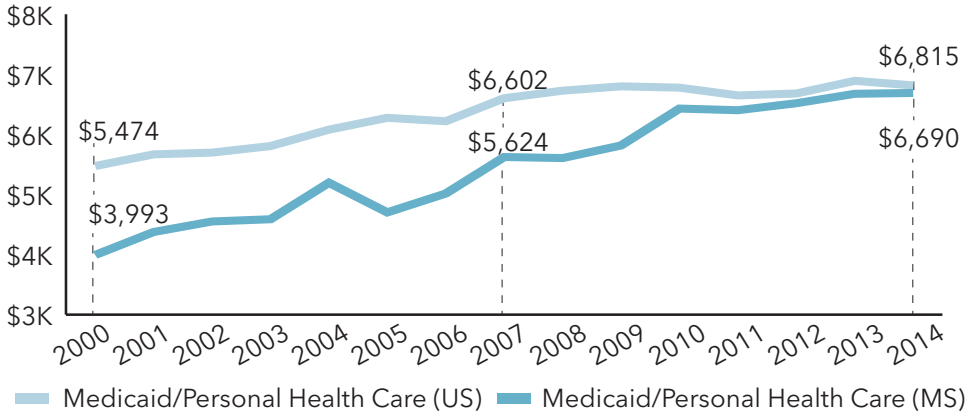
The updated Mississippi Primary Care Needs Assessment also discussed the success of the National Health Service Corps' loan repayment program in Mississippi, which forgives educational debt in exchange for practicing in an HPSA for an amount of time specific to each provider. From 2012 to 2019, Mississippi saw a 96% retention rate for the 299 providers that had fulfilled their service terms during that time, and 61% of those providers were placed in rural areas. While the program

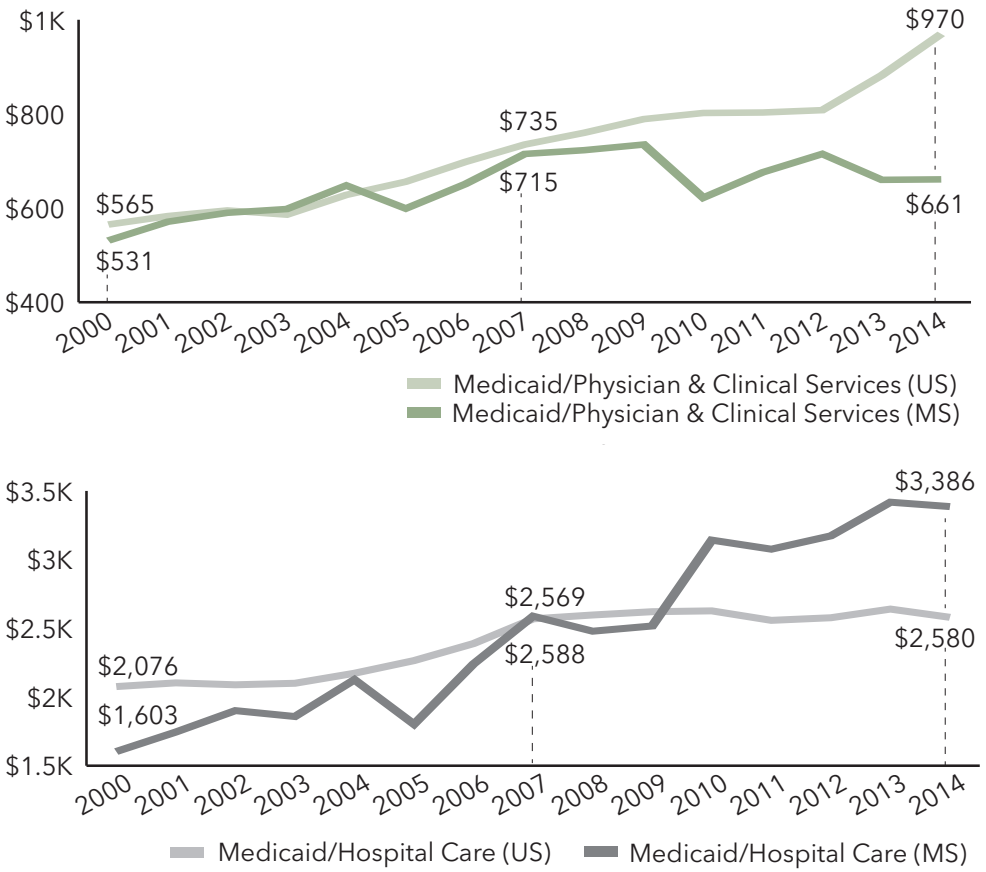
has had success throughout the state, it is not specific to primary care and the aforementioned AAMC data makes it clear that the program's success has not been enough to adequately increase and equitably distribute the number of primary care providers in Mississippi. **In conclusion, the report states that the successful reform of healthcare payment systems is key to the development of expanded primary care services with greater access and quality [16].**

## PAYMENT SYSTEM REFORM

Incentives for improving health outcomes and reducing healthcare costs have been the basis for healthcare payment system reforms in Mississippi. In conjunction with low concentrations of general physicians, another indicator of poor health system performance is the levels of health expenditures and the impacts of cost on patients seeking care. States with higher rates of healthcare spending per capita tend to have lower quality performance scores. Health expenditures in Mississippi, as well as across the country, have risen dramatically over recent years and are projected to continually increase. The expenditures presented in 2013 were based on data from the year 2000. CMS National Health Expenditure Data reports various categories of healthcare spending that are then aggregated further into Medicare, Medicaid, or private health insurance spending. **Fig. 11 shows trends in national health expenditures for Medicaid compared to the State of Mississippi from the year 2000 to 2014.**

**FIG. 11: CMS HEALTH EXPENDITURES BY STATE OF RESIDENCE, 2000-2014**






*Source: Centers for Medicare & Medicaid Services, 2021. Health Expenditures by State of Residence, 1991-2014.*

**COORDINATED CARE ORGANIZATION**

A healthcare entity in which the deliberate organization of patient care activities between two or more participants (including the patient) involved in a patient's care to facilitate the appropriate delivery of healthcare

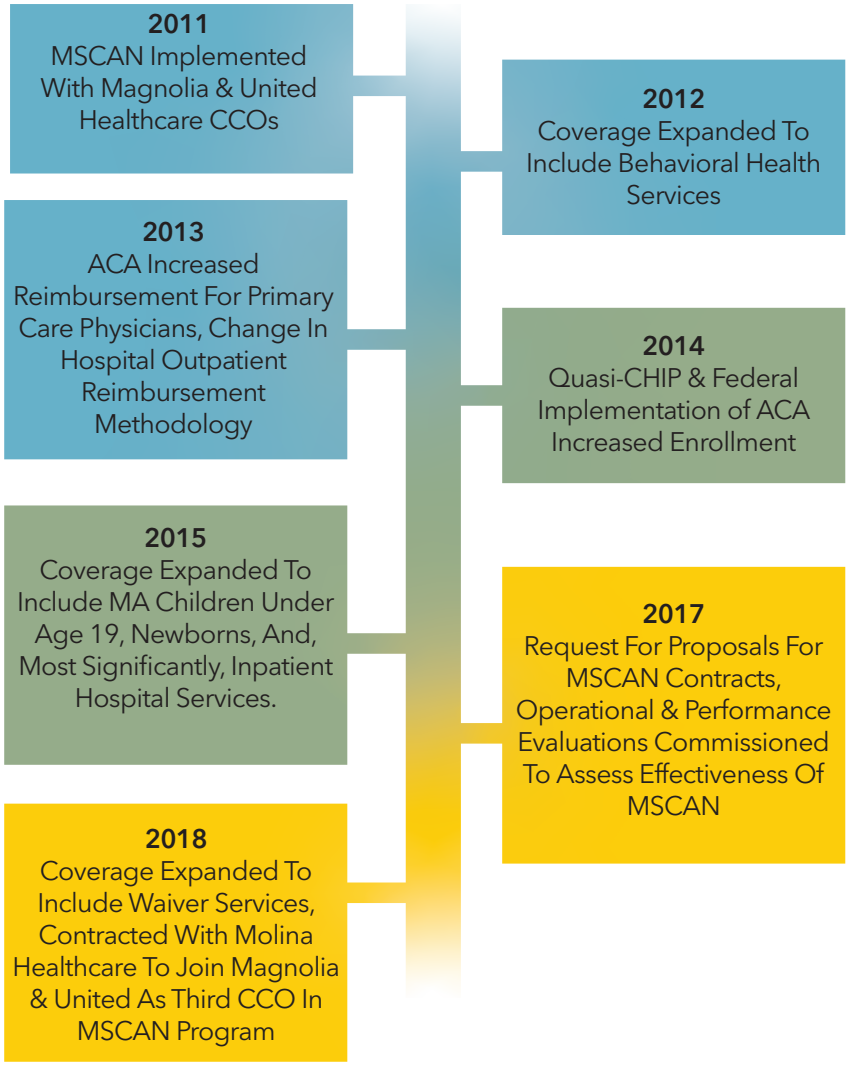
*Source: McDonald KM, Sundaram V, Bravata DM, Lewis R, Lin N, Kraft SA, et al.*

In 2014, the national average for per capita healthcare spending was $8,045. By 2019, it was $11,582.[17] As a whole, the United States is continuing to grapple with the rising costs of healthcare. Mississippi worked to address this growing problem in 2011 when the Mississippi Division of Medicaid (DOM) implemented the Mississippi Coordinated Access Network (MSCAN) as an effort to improve quality and lower costs. The MSCAN program was designed to meet three main goals:

- Improve beneficiary access to needed medical services,
- Improve quality of care, and
- Improve cost efficiency and effectiveness in the delivery of services.

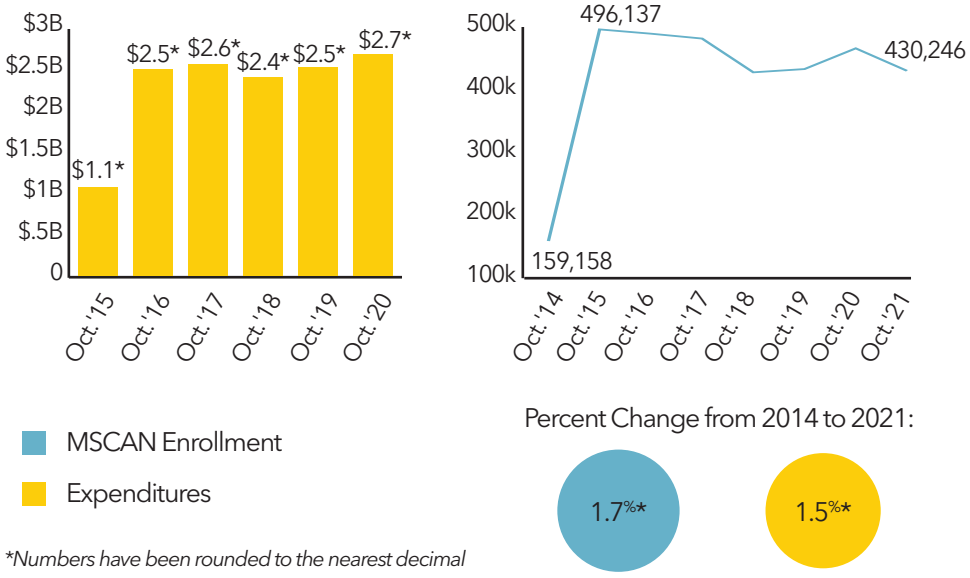
MSCAN has expanded its coverage population over the years and DOM currently holds contracts with three private, for-profit ***coordinated care organizations (CCOs)*** – Magnolia Health, United Healthcare Community Plan, and Molina Healthcare – that manage the delivery and payment of health services for approximately 65% of Medicaid beneficiaries.[18]

**FIG. 12: TIMELINE OF MSCAN PROGRAM EXPANSION**




In 2015, the MSCAN program was expanded to cover inpatient hospital care and to include children under 19 years of age. This expansion resulted in approximately 300,000 additional MSCAN beneficiaries and nearly doubled the overall cost of the program. In 2016, the Mississippi Legislature commissioned an external operational and performance evaluation of MSCAN managed care companies. With consideration for national trends in health expenditures and expanded coverage populations, higher program costs did not become an issue for the Mississippi Legislature until the Spring of 2017 when the report, Operational and Performance Assessment of the Governor's Office, Division of Medicaid, was completed. The report indicated insufficient oversight and monitoring of the program as well as minimal improvements in select measures, while several other basic health measures had worsened.[19] The findings were presented to the Mississippi Legislature at a time when MSCAN enrollment numbers were dropping, and the program was becoming more expensive to fund, which raised serious questions over the validity and efficacy of MSCAN quality and cost improvement efforts.

## FIG. 13: ENROLLMENT & EXPENDITURE GRAPH




*Numbers have been rounded to the nearest decimal

**CAPITATION PAYMENT**

A per member monthly payment to a provider or Care Coordination Organization that covers contracted services and is paid in advance of its delivery.

*Source: Myers & Stauffer LC, 2017*

**POTENTIALLY PREVENTABLE EVENTS (PPEs)**

an overall term to describe healthcare events that may be preventable with high-quality healthcare and good coordination of care.

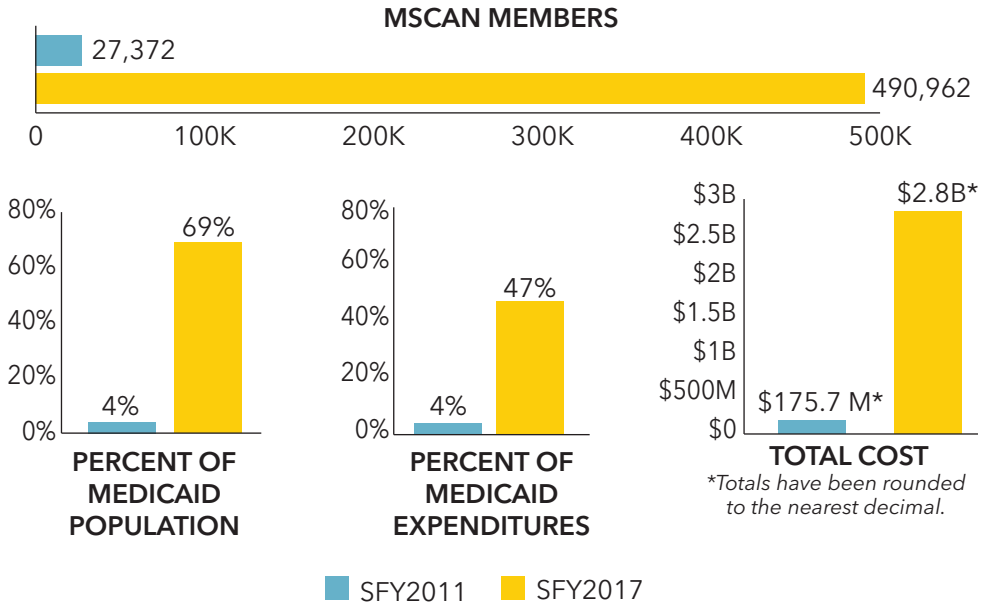
*Source: Myers & Stauffer LC, 2017*

Higher costs, lower enrollment, ineffective quality improvement efforts, and the procurement of a third MSCAN managed care contract prompted the Mississippi Legislature to assess the cost-effectiveness of the program that same year. Myers and Stauffer LC (Myers & Stauffer), an accounting firm specializing in government healthcare programs, submitted their findings to the Legislature in January 2017. The report was titled, Cost Effectiveness Study Report for Mississippi Coordinated Access Network, and presented findings based on ten key components used to assess the cost-effectiveness of the MSCAN program. The Executive Summary and Purpose & Approach of the study are included in Appendix B of this report and outline the ten components that were assessed. Each of the components fell into one of the following four areas:

1. Appropriateness of CCO ***capitation payments*** relative to CCO expenditures
2. Impact of managed care on Medicaid expenditures
3. Impact of managed care on ***potentially preventable events*** (PPEs), e.g., emergency deptartment visits, inpatient hospital admissions
4. Impact of managed care on health outcomes over time and compared to peer states

Myers & Stauffer reported that MSCAN saved the state $369.1 million in total funds between 2011 and 2017 with emphasis on the fact that Mississippi Medicaid inflationary costs were below CMS projections for the same period, which resulted in spending $147.7 million less than if those costs had been at the national level of inflation. Findings also indicated revenue generated by MSCAN during this time would not have been possible under traditional fee-for-service (FFS) payment systems.

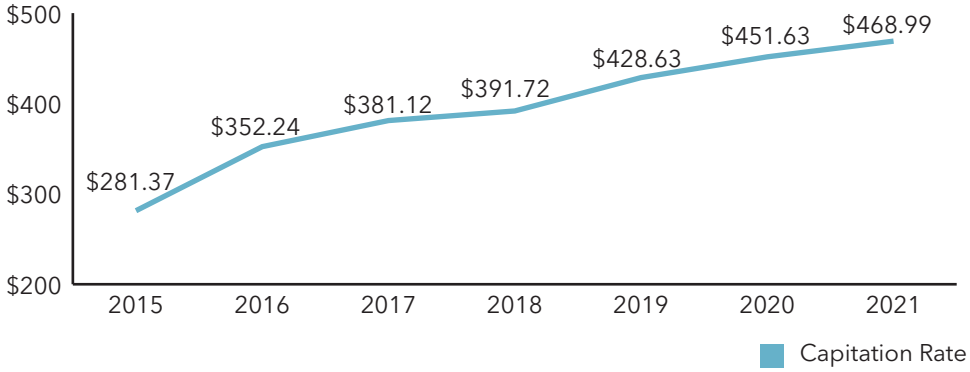
## FIG. 14: SFY2011 & SFY2017 ENROLLMENT & EXPENDITURES




In terms of improving cost efficiency and effectiveness through the delivery of care – one of three goals in which the MSCAN program was designed to achieve – the reported savings and lower inflationary rates do not necessarily translate to reduced costs or improved quality and access. To reiterate this point, consider the Myers & Stauffer's analysis of the development of CCO capitation payments. The analysis concluded that CCO capitation rates were appropriately developed and in alignment with actual CCO expenditures. The amount DOM paid each CCO to provide care for the Medicaid population on a per member per month (PMPM) basis was in line with the actual amounts CCOs were paying to providers for the care of beneficiaries each month.[20] CCO expenditures only reflect the cost of services provided and paid for with no consideration to services that were needed but not provided or for services that were not reimbursed. Therefore, the relationship between these figures should not be the only defining factor of appropriately developed capitation rates. Fig. 15 outlines changes in capitation rates between 2011 and 2021.

**REPORTED SAVINGS AND LOWER INFLATIONARY RATES DO NOT NECESSARILY TRANSLATE TO REDUCED COSTS OR IMPROVED QUALITY AND ACCESS.**

**FIG. 15: PMPM CAPITATION RATES 2011-2021**




In SFY 2016, drastic increases in enrollment and spending were the result of MSCAN expansions passed during the 2015 Legislative Session, in which MSCAN obtained 300,000 child beneficiaries and began covering inpatient hospital care. Enrollment in the MSCAN program was highest during May 2016 with 508,893. Average enrollment for state fiscal year (SFY) 2016 was 502,670 members and total expenditures were approximately $2.5 billion – nearly $1.5 billion more than the previous year. These expansions were the largest contributor to the 135% increase in expenditures. Enrollment in MSCAN consistently declined; however, throughout SFY 2017 and 2018, and by October 2018 enrollment had dropped by over 81,000 members since its highest point in May 2016. With enrollment averages approximately 30,000 less, expenditures for SFY 2017 were $50 million higher, and in SFY 2018 only $100 million less, than in SFY 2016. Table 1 shows that, since SFY 2019, enrollment has continued to decline, annual expenditures are $2.5 billion or more, and PMPM capitation rates increase every year.

**TABLE 1:MSCAN FISCAL & ENROLLMENT DATA, 2015-2020**

| SFY | CAPITATION RATE | AVERAGE ENROLLMENT SFY | FY CCO EXPENDITURES |
|---|---|---|---|
| 2015 | $281.37 | 227,070 | $1,074,000,000 |
| 2016 | $352.24 | 502,670 | $2,520,000,000 |
| 2017 | $381.12 | 490,962 | $2,571,000,000 |
| 2018 | $391.72 | 469,643 | $2,422,000,000 |
| 2019 | $428.65 | 435,842 | $2,534,000,000 |
| 2020 | $451.63 | 435,320 | $2,698,000,000 |

*Source: DOM website, MACSTATS, Milliman Actuarial Analysis*

CCOs are contractually obligated to maintain efforts directed at reducing costs by improving the quality of care provided. Primary and preventive care are less expensive services that improve health outcomes and prevent more expensive types of specialty and inpatient care. **Given the state's high rates of chronic conditions, high utilization of specialty care, and number of preventable hospitalizations, these numbers should be expected and indicate the ever-present, excessive need for enhanced primary and preventive care services.** The numbers also present major shortcomings in MSCAN CCO's obligation to adequately report, monitor, and improve upon performance measures. Costs have increased while only minimal improvements in health outcomes or the quality of care have been made. When considering the cost-effectiveness of Mississippi's managed care program or the appropriateness of capitation rates, savings are not the same as with reduced costs.

## SERVICE DELIVERY MODELS

Reformations to healthcare service delivery models were intended to enhance the coordination of care with interdisciplinary healthcare teams, improve the quality of services with enhanced monitoring and reporting, and to reward efforts and successes in improving patient outcomes. At the time of the 2013 report, ***Patient-Centered Medical Homes (PCMH)*** and ***Accountable Care Organizations (ACO)*** were newly developed healthcare delivery models being implemented in Mississippi. PCMHs are described as, "a model of primary care in which care teams – led by a primary care provider – provide accessible, comprehensive, coordinated, and continuous patient-centered care".[21]

**PATIENT-CENTERED MEDICAL HOMES (PCMH)**

A model for delivering high-quality, cost-effective primary care that uses patient-centered, culturally appropriate, and team-based approaches to coordinate patient care across the healthcare system. Source: Centers for Disease Control & Prevention.

**ACCOUNTABLE CARE ORGANIZATIONS (ACO)**

A group of doctors, hospitals, and other healthcare providers, who come together voluntarily to coordinate the provision of high-quality care to Medicare patients, while avoiding unnecessary duplication of services and preventing medical errors. Source: Centers for Medicare & Medicaid Services.

The National Committee for Quality Assurance (NCQA) establishes accreditation guidelines for PCMH. Mississippi adopted these guidelines in 2011. In 2012, four medical practices in Mississippi received PCMH accreditation, and, as of March 2022, 68 practices throughout the state have achieved and maintained PCMH recognition through NCQA.

Innovative service delivery models implemented in the Mississippi Delta Region have made impacts on health outcomes in an area of the state historically stricken with higher prevalence of disease, extreme poverty, and geographic isolation. These interventions require special attention and efficient use of resources, and their implementation has highlighted the need for enhanced coordination and oversight at the state-level. An example of such interventions includes the Mississippi Delta

**POPULATION HEALTH**

The health outcomes of a group of individuals that considers both clinical and non-clinical factors, including the distribution of such outcomes within the group.

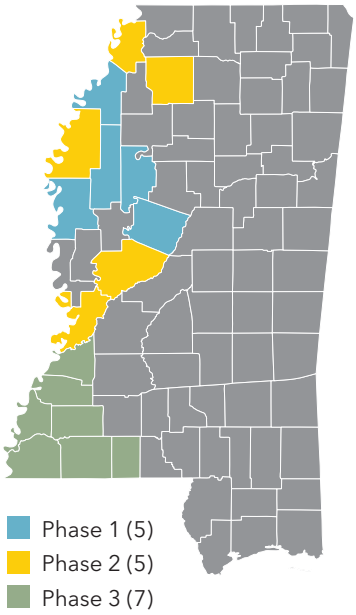
*Source: "What Are We Talking About When We Talk About Population Health?", Health Affairs Blog, April 6, 2015.*

Medicaid Population Health Demonstration Project, a partnership with Delta Health Alliance and Cerner Corporation, and in coordination with Mississippi Division of Medicaid. The project,

> **"Uses *population health* strategies and technologies to identify high-risk patients and to help clinics to provide patients with clinical care coordination, education, and support. The goal of the project is to reduce the incidence of type II diabetes and preterm births by 5% each among the Medicaid population in a 10-county service area. The service area includes Bolivar, Coahoma, Holmes, Leflore, Panola, Sunflower, Tunica, Warren, Washington, and Yazoo counties."** [22]

The Mississippi Delta Medicaid Population Health Demonstration Project (the project) was established in 2014 and program interventions began in 2017. The Delta Health Alliance (DHA) is the managing entity of the project, which was developed under the premise that targeted improvement strategies for the sickest and most vulnerable populations are the most likely to result in improved outcomes and overall quality of life.[23] It was initially implemented in ten counties throughout the Delta Region in two phases between 2016 and 2018. By 2019, the project was expanded due to the need for preterm birth support and potential expansion opportunities. The southernmost counties along the Mississippi River were chosen for expansion because of comparable demographics and historical health outcomes. The map in Fig. 16 outlines the implementation and expansion of the project overtime.

**FIG.16 EXPANSION OF MISSISSIPPI DELTA MEDICAID POPULATION HEALTH DEMONSTRATION, 2016-2019**




*Source: PEER Report #659, September 2021*

**TABLE 2: PROGRAMMATIC INTERVENTIONS OF THE MISSISSIPPI DELTA**

| DELTA MEDICAID PREDIABETES PROGRAM: *started in August 2016* | HEALTHY PREGNANCY PROGRAM: *started in January 2017* |
|---|---|
| An intervention program aimed at decreasing the number of participants who progress from prediabetes to diabetes. | An intervention program aimed at decreasing the number of pregnancies resulting in preterm births (delivery at <37 weeks). |
| Participants receive home visits, telephonic health coaching, educational classes, grocery store tours, and opportunities for physical activity. | Participants receive tailored educational resources, coordinated services with provider clinics, assistance with support services, and 3 months postpartum support. |

*Source: PEER Report #659, September 2021*

The projects' programmatic interventions included The Delta Medicaid Prediabetes Program and The Healthy Pregnancy Program (Table 2). The project has also supported multiple

activities related to health coaching and the enhancement of clinical operations for clinics within the service areas[24]. While reasonable to assume a level of success for these interventions and an overall positive impact on outcomes and reductions in diabetes and preterm births, recent evaluations conclude the data and information available is insufficient to determine any level of program success. The inability to meet contractual obligations has resulted in a reduction of state funding to the project, from $4.2 million in 2021 to $1 million in 2022. Reductions in funding could impact the diabetes and pregnancy program's ability to make further progress in the Mississippi Delta. The service area must now decrease from 17 counties to the original 10 counties of phases one and two, and the databases that were in progress will no longer be accessible in any meaningful way.

Upon receipt of DOM funding, the DHA was contractually obligated to submit project reports and comprehensive progress reports at the conclusion of each implementation phase. By the end of the second phase of implementation; however, neither DHA or DOM could confirm the completion or receipt of reporting. As a result, appropriations language was amended to codify the necessity of annual progress reports as a condition of future funding during the 2018 Legislative Session. By February of the same year, DHA released an annual report for 2016-2017, and has done so annually for each subsequent year. The annual reports cite data intended to reflect improvements in metrics used to determine the success of the Delta Medicaid Prediabetes Program. Reductions in the rates of low birth weight and infant mortality amongst African Americans were used in discussing the success of The Healthy Pregnancy Program.[25] Unfortunately, performance measures and project outcome metrics were inconsistently recorded and monitored; therefore, the missing or incomplete datasets made it impossible for external evaluators to identify a research plan or methodology to determine project success. Evaluations also revealed that, due to such insufficient records, there was no way for the program to determine if there were any overlaps in care or duplication of services provided to the program recipients. This factor is crucial to the evaluability of the program because participants could have easily received services through the MDMPHDP that were later duplicated through a service paid for directly by the Mississippi DOM.

**INSUFFICIENT MONITORING AND EVALUATION OF A STATE FUNDED PROGRAM, OR THE LIMITED AMOUNT OF DATA OR RESULTS THEY CAN INITIALLY PRODUCE, SHOULD NOT BE THE SOLE FACTORS OF DETERMINING THE EFFECTIVENESS OF A PROGRAM OR ITS INTERVENTIONS.**

The insufficient monitoring and evaluation of a state funded program, or the limited amount of data or results they can initially produce, should not be the sole factors of determining the effectiveness of a program or its interventions. State entities operating in coordination with these projects are just as responsible for their success as the other managing entities. With

broader, more consistent oversight and enhanced coordination efforts from DOM, the insufficiencies in performance indicators found in evaluation of the Mississippi Delta Medicaid Population Health Demonstration Project should have been avoided.

**TRIPLE AIM**

1. Better Care

2. Healthy People/Healthy Communities

3. Affordable Care

## PERFORMANCE MEASUREMENT

The enhanced monitoring and reporting of performance measures and more comprehensive aggregations of patient data have been key to better understanding health system performance and the health of a population. Since the 2013 report on health system performance, a major driver of the enhanced collection and use of performance measures has been the AHRQ's National Quality Strategy (NQS). Upon passage of the Affordable Care Act (ACA), the United States Department of Health and Human Services was required to "establish a national strategy to improve the delivery of healthcare services, patient health outcomes, and population health" and deliver those findings to Congress.[26] The strategy was originally titled the National Strategy for Quality Improvement in Healthcare and first published in 2011. Development of this strategy began with the establishment of three aims and six priority areas for addressing the quality and costs of healthcare in the United States. The aims, commonly referred to as the "Triple Aim," are three broad goals for improving health system performance and outcomes (see side panel).

**NATIONAL QUALITY STRATEGY DOMAINS**

1. Patient Safety

2. Patient & Family Engagement

3. Care Coordination

4. Clinical Processes & Effectiveness

5. Population & Public Health

6. Efficient Use of Healthcare Resources

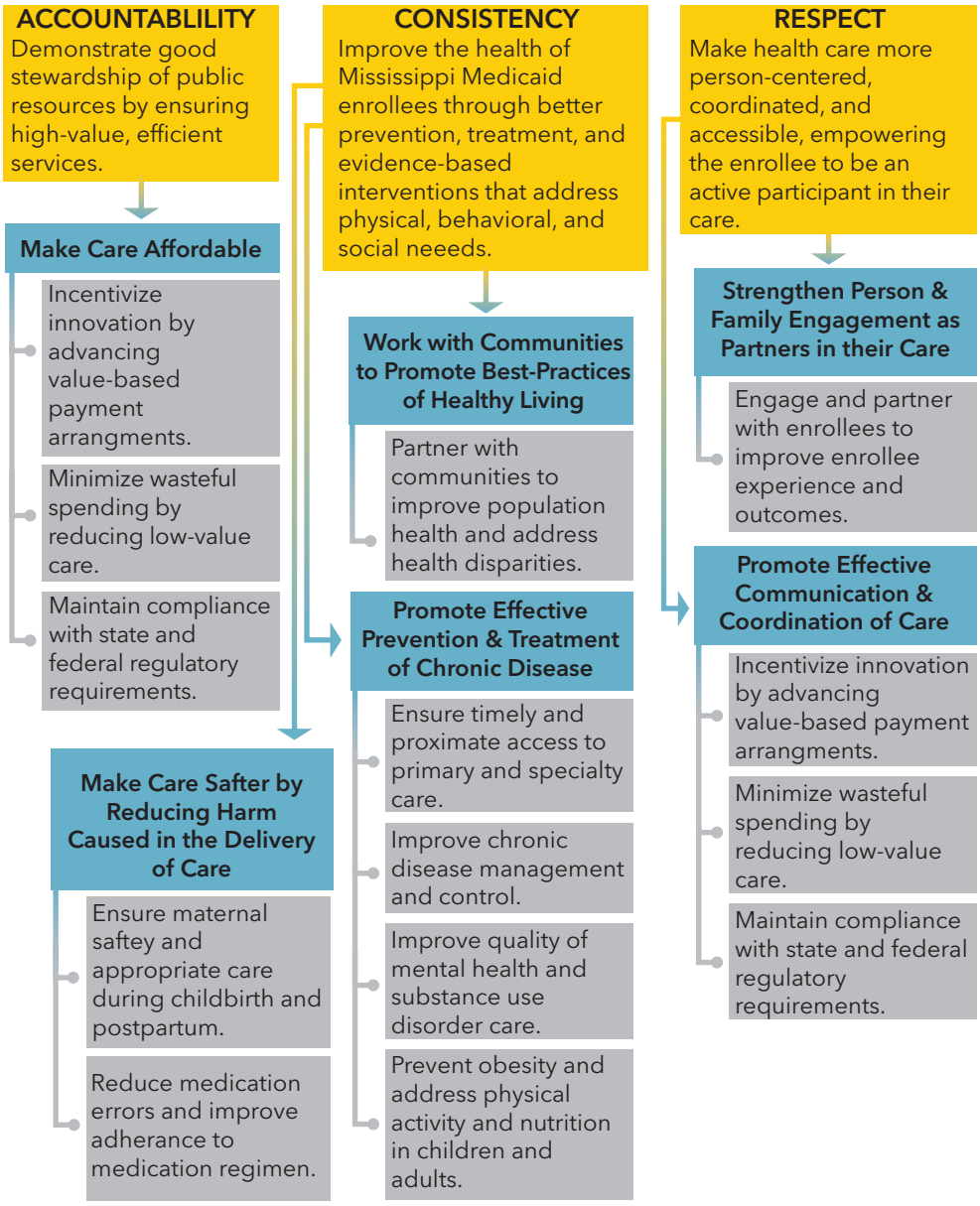
By identifying the most common health concerns for Americans, six priorities were established with intent to advance those aims and guide improvement efforts on local, state, and national levels. These priority areas align with the AHRQ National Healthcare Quality & Strategy Report's six dimensions of quality and are now known as the National Quality Strategy Domains.

In 2013, the center's analysis on health system performance outlined the initial development and implementation of the strategy, but results and overall outcomes were inconclusive. The most recent reports from the NQS highlight innovative quality improvement efforts, discuss the outcomes and implications of improvements made by organizations that adopted the NQS framework, and discuss the current landscape of health system quality and improvements or other recent trends in performance measures.[27]

In conjunction with the NQS, passage of the ACA also required states to develop a Managed Care Quality Strategy to address and improve the state's quality of care.[28] Mississippi DOM's Managed Care Quality Strategy includes performance measures and strategies for improving the quality of care, reducing disparities, and the continued reform of delivery and payment

systems. The overall scope of Mississippi's Managed Care Quality Strategy was broadened in 2021 to better coordinate efforts and unify approaches occurring throughout DOM. This strategy, known as the Comprehensive Quality Strategy, aligns with the aims and objectives of the NQS. DOM's Comprehensive Quality Strategy includes three aims for accountability, consistency, and respect. Table 3 defines these overall aims and outlines individual goals and objectives of the strategy.[29]

**Table 3: Mississippi Division of Medicaid, Comprehensive Quality Strategy Aims, Goals, & Objectives**




*Source: Mississippi Division of Medicaid, Comprehensive Quality Strategy, 2021.*

The Comprehensive Quality Strategy published by DOM in 2021 includes updates on performance measures and related improvement projects. DOM has voluntarily reported child and adult core set measures on an annual basis to CMS since 2015 and has consistently used these measures to assess the quality and necessity of care and services provided to Medicaid beneficiaries.

CCOs operating within the MSCAN program are required to submit annual reports on patient outcome performance measures such as the Healthcare Effectiveness Data and Information Set (HEDIS®) metrics, CMS Adult and Children Core Set, AHRQ Prevention Quality Indicators (PQIs), and the Consumer Assessment of Healthcare Providers and Systems (CAHPS) measures. When assessing the progress CCO's have made toward their objectives, factors typically include the effective utilization of data, the review of periodic reports to monitor performance and evaluate compliance, and the review of performance measures specific to individual programs to demonstrate progress made over the previous year. Additionally, an external quality review organization performs quality and performance assessments on MSCAN CCOs.

**THE QUALITY INCENTIVE PAYMENT PROGRAM (QIPP), MEDICAID ACCESS TO PHYSICIAN SERVICES (MAPS), AND MANAGED CARE VALUE-BASED WITHHOLD PROGRAM QUALITY INITIATIVES ARE INTENDED TO IMPROVE THE QUALITY OF CARE AND HEALTH OUTCOMES, INCREASE ACCESS TO PRIMARY AND SPECIALTY CARE, AND BASE CAPITATION RATES ON PERFORMANCE OF QUALITY METRICS.[30]**

In July 2019, DOM was authorized by CMS to initiate three quality initiatives covering the state's largest sources of Medicaid expenditures: hospital care, managed care, and the state academic medical center. The Quality Incentive Payment Program (QIPP), Medicaid Access to Physician Services (MAPS), and Managed Care Value-Based Withhold Program quality initiatives are intended to improve the quality of care and health outcomes, increase access to primary and specialty care, and base capitation rates on performance of quality metrics.[30]

## DETERMINANTS OF HEALTH & INFRASTRUCTURE SYSTEMS IN MISSISSIPPI

The World Health Organization (WHO) defines determinants of health as the conditions in which people are born, live, learn, work, play, worship, and age.[31] Populational or regional differences in these conditions affect a broad range of health outcomes and overall quality of life. Determinants of health are commonly grouped into the following five domains:

1. Economic Stability
2. Education Access & Quality
3. Health & Healthcare Systems
4. Social & Community Environment

**CRITICAL INFRASTRUCTURE**

Infrastructure sectors whose assets, systems, and networks, whether physical or virtual, are considered so vital to the United States that their incapacitation or destruction would have a debilitating effect on security, national economic security, national public health or safety, or any combination thereof. Federal regulations are in place to strengthen and maintain secure, functioning, and resilient critical infrastructure.

*Source: Department of Homeland Security, Cybersecurity and Infrastructure Security Agency.*

5. Neighborhood & Built Environment

Determinants of health are also commonly referred to as social determinants of health because they occur within and have impacts on the societal level. However, determinants that have the greatest impacts on population health are those occurring outside of social settings or the healthcare system and are largely influenced by the quality of other key ***critical infrastructure*** systems. Therefore, when considering the performance of healthcare systems in Mississippi, it is essential to have an understanding of both the societal and physical conditions in which those systems are operating.

A foundational principle of the Healthy People 2030 Framework explains, **"Achieving health and well-being requires eliminating health disparities, achieving health equity, and attaining health literacy"**.[32] Determinants of health contribute to these health disparities and inequities, especially in Mississippi. Health disparities are particular differences in individual health that are closely linked to social, economic, and/or environmental disadvantages, and prevent the attainment of health equity.

Various determinants of health from each of the five domains have created a wide range of disparities and inequities within the state of Mississippi. These disparities and inequities are most prevalent and have had the greatest impacts on health in rural areas of the state, which, according to the federal Office of Management and Budget, is 79% of the state[33]. An understanding of how these determinants have contributed to health disparities in Mississippi is necessary for the state to improve its health system performance.

## ECONOMIC STABILITY

Economic determinants of health consist of factors related to income and employment. In 2019, the median household income for the United States was $62,843 and $45,081 in Mississippi. For the same year, the average per capita income for rural areas of the state was $36,677, compared to the state's overall income of $38,914. Poverty is a major economic determinant of health because of the barriers it creates for an individual or family's ability to afford adequate housing, healthy food, and timely healthcare services. Mississippi consistently has high rates of poverty and, in 2019, 19.6% of the population was living below the federal poverty level with rates as high as 22.5% in rural areas of the state. These rates are almost double the national average of 10.5% for the same year. Deep racial and geographic disparities exist among Mississippians living in poverty where rates are

highest throughout the Mississippi Delta Region, and among Black adults (33%) and Black children (46%). Fig. 17 presents county level poverty rates and health rankings that exhibit the relationship between poverty and health outcomes.[34]

Individuals who are able to maintain consistent employment are less likely to live below the federal poverty line and typically have better health outcomes. Considering most of the state is rural, finding and maintaining employment opportunities can be difficult for those with disabilities or limited financial resources. **Between 2015 and 2019, only 56.7% of Mississippians 16 years of age or older were involved in the labor force, which was lower than the national average of 63% for the same period.** In 2018, only 4.8% of unemployed Mississippians were also seeking work during their reported time of unemployment, almost double the national rate. This particular rate of unemployment was highest in Jefferson County (13.3%) and Claiborne County (9.2%) – two neighboring counties at the foot of the Mississippi Delta.[35] Unemployment presents major barriers to improving health outcomes and to the attainment of health equity because the option for obtaining health insurance through an employer-based health plan is no longer available. Lack of employment restricts financial resources and the availability of health insurance coverage, therefore impeding one's ability to improve and maintain their health.

## EDUCATION ACCESS & QUALITY

High quality education throughout all stages of life is key to the attainment of safe jobs that provide a living wage and are instrumental in the reduction of negative health outcomes. Mississippi has historically had much lower rates of educational attainment than the rest of the United States, but improvements in these rates have been made over recent years.

**FIG. 18: EDUCATIONAL ATTAINMENT RATES**

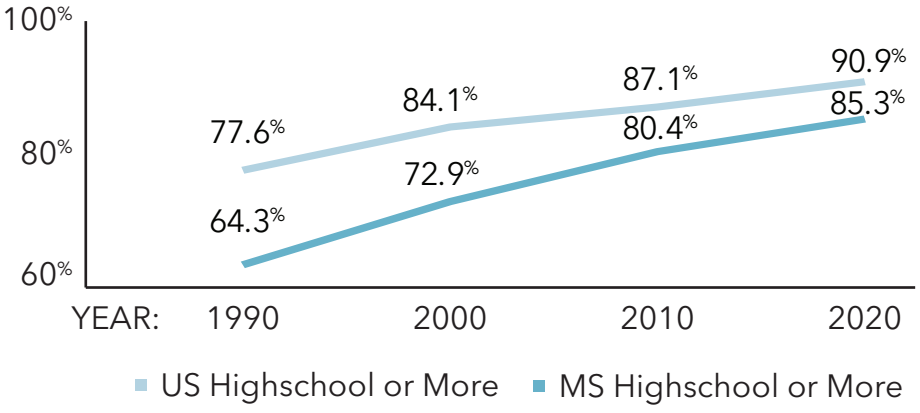
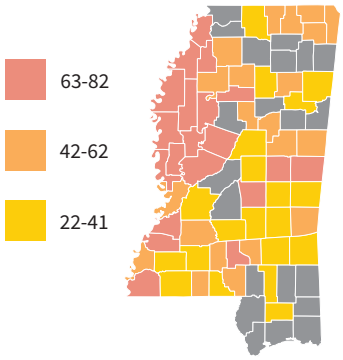
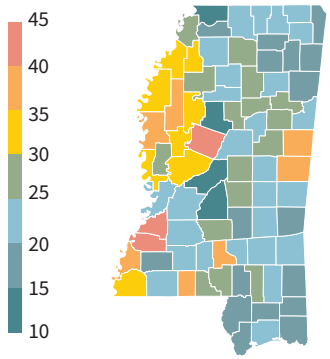



**FIG.17**

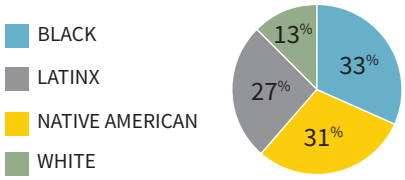
COUNTY HEALTH RANKINGS FOR MISSISSIPPI, 2020




MISSISSIPPI POVERTY RATE COUNTY COMPARISON



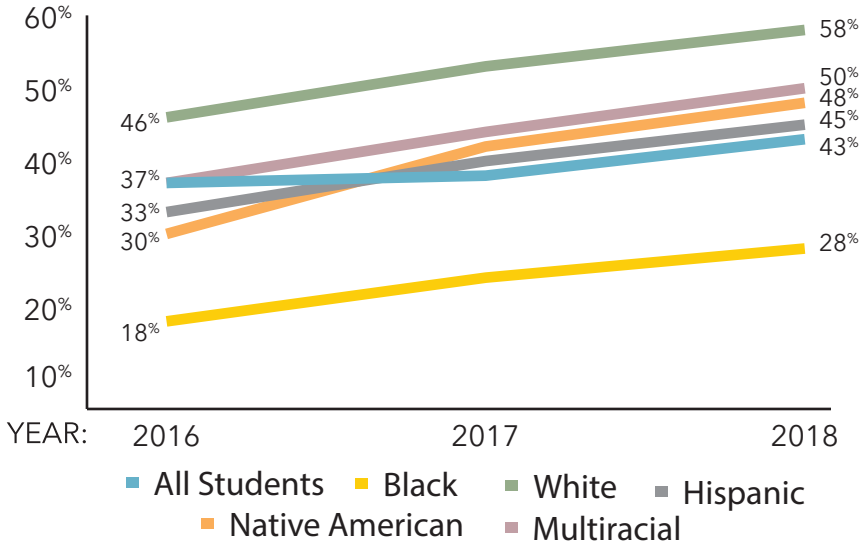

RACIAL DIFFERENCES IN POVERTY, 2017



Between 2016 and 2018 the state saw reading proficiencies improve by 10% for fourth graders and by 11% for eighth graders. Additionally, there was a 9% increase in the number of students graduating from high school on time, and a 5% decrease in the number of households with children in which the head of household was lacking a high school education.[36]

The MSDH Primary Care Needs Assessment emphasizes the importance of educational attainment at all levels and its association with improved health and overall quality of life. Disparities in education present themselves throughout Mississippi and disproportionately affect low-income families and children of color.[37] According to Healthy People 2030, children from low-income families and children who face social discrimination at school are more likely to struggle with reading and math, less likely to graduate from high school, but are also more likely to experience health conditions such as heart disease, diabetes, and depression.[38]

**FIG. 19 - STUDENT ACHIEVEMENT GRAPHS**




*Source: Mississippi Department of Education*

Based on performance data from the Mississippi Academic Assessment Program, shown in Fig. 19, children of color have the lowest rates of proficiency in Mathematics and English/ Language Arts. Low-income, rural areas, which include most of the 48% of Black children living in poverty, have schools with the least amount of resources available and highlight the inequitable performance of the state's education system.[39]

## HEALTH & HEALTHCARE SYSTEMS

Health factors contributing to determinants of health and overall disparities fall into categories of clinical care and health

**CLINICAL CARE**

Involves access to care and the quality of care that is being provided.

**ACCESS TO CARE**

Measured on population to primary care physicians, dentists, and mental health providers ratios, and considers the uninsured population as an indicator for the level of access to care.

**BASED ON 2019 DATA, THE PERCENTAGE OF UNINSURED MISSISSIPPIANS WAS THE FIFTH HIGHEST IN THE UNITED STATES.**

behaviors. ***Clinical care*** involves access to care and the quality of care that is being provided. ***Access to care*** is measured on population to primary care physicians, dentists, and mental health providers ratios, and considers the uninsured population as an indicator for the level of access to care. The current condition of the healthcare workforce and its effects on health outcomes in Mississippi were previously discussed. Insurance coverage, however, is a major determinant to the level of access in seeking and receiving healthcare services; and, without adequate coverage, large barriers to quality care exist. Greater accessibility to high quality care provided in a timely manner has positive results on health outcomes and leads to greater quality of life. Clinical care on all levels is continually evolving and becoming more scientifically and technologically advanced; and, as a result, people are living longer, healthier lives[40]. Availability of such high-quality care and medically advanced interventions are only truly accessible to those with adequate insurance coverage. Based on 2019 data, the percentage of uninsured Mississippians was the fifth highest in the United States, meaning over 370,000 people throughout the state do not have adequate access to healthcare services[41]. Not only is affordable quality care more difficult to obtain for those without insurance, but the lack of coverage often leads to untimely care, late diagnoses and, for many Mississippians, the development of chronic conditions.

Health behaviors affect individual health and either improve health or increase one's risk for disease. Eating healthy and exercising regularly improve individual health outcomes. Unhealthy diets, physical inactivity, smoking, drinking, and sexual activity are all behaviors that increase an individual's risk for disease[42]. This increased risk for disease, however, is not always an individual choice or behavior, but rather a consequence of their situation. Food insecurity is defined as being unable to provide enough food for oneself or their families because of a lack of resources. In Mississippi, one of the agriculturally richest areas of the country, the rate of food insecurity was 15.7% of the state population in 2019, the highest in the nation[43].

## SOCIAL & COMMUNITY ENVIRONMENTS

**SOCIAL COHESION**

The strength of relationships and the sense of solidarity among members of a community.

Social cohesion, family and community support, and community safety comprise the social and community context for determinants of health. Healthy People 2030 defines social cohesion as, "the strength of relationships and the sense of solidarity among members of a community"[44]. Strong social cohesion among communities allows social support systems to serve as safeguards against risks for disease and ultimately result in positive impacts on health outcomes.

People are often dealt with internal struggles or situations that are out of their control, and this can have negative effects on their health and well-being. Family dynamics impact the health of the entire family. This is especially true for children as it contributes to their overall development, as well as their perceptions of themselves and the world around them. When family dynamics include abuse and neglect, unhealthy attachment styles, parental figures with mental illness and substance use disorders, or the foster care system, children are much more likely to experience negative health outcomes overall, but especially those of behavioral health and mental well-being. Child welfare data shows that in 2019, there were 9,377 reported child maltreatment victims in Mississippi. Of these victims, 51.9% were white, 39.7% were black, 39.2% were five years of age or younger. Neglect accounted for 77.6% of all child maltreatment cases, while sexual abuse accounted for 14.2% of cases – a 39.2% increase since 2015[45].

Without strong community support and social safety net programs, the abuse and maltreatment experienced by these children will have lasting impacts on both their physical and socioemotional well-being.  Family and community support systems with strong social cohesion have the potential to mitigate the risk of such struggles having considerable impacts on health outcomes.

## NATURAL & BUILT ENVIRONMENTS

Aspects of the natural and built environments that are key determinants of health include physical infrastructure, housing, transportation, food systems, and environmental conditions. The quality of air we breathe and water we drink, and the safety and affordability of neighborhoods we live in have direct impacts on individual ability to stay healthy. Physical infrastructure such as transportation and water systems can either enhance or diminish quality of life. Strong infrastructure systems reduce barriers to accessing healthcare services and positively affect health outcomes. The Mississippi Section of the American Society of Civil Engineers (ASCE) recently published their 2020 Report Card for Mississippi's Infrastructure. The report assesses twelve areas of infrastructure and provides an overall grade based on those assessments. In 2020, Mississippi infrastructure systems received a D+ on overall strength and stability, suggesting,

> **"The infrastructure is in poor to fair condition and mostly below standard, with many elements approaching the end of their service life. A large portion of the system exhibits significant deterioration. Condition and capacity are of significant concern with strong risk of failure."**

IN MISSISSIPPI, THE NUMBER OF URBAN ROADS IN POOR CONDITION AND DISREPAIR IS TWICE AS HIGH AS THE NATIONAL RATE.

Road conditions in Mississippi received a D- grade score. There are 77,000 miles of roads throughout the state, and out of that total, 64,000 are rural roads and 13,000 are urban roads. ASCE assessments concluded 40% of urban miles and 25% of rural miles are in poor condition. The number of urban roads in poor condition and disrepair is twice as high as the national rate. The largest health centers and specialty care providers are concentrated within urban areas of the state, so with most roadways in poor condition and consideration of those associated risks, this may prohibit access to care or even deter individuals from seeking needed care.

MISSISSIPPI'S WATER SUPPLY SYSTEMS RECEIVED A D GRADE SCORE IN ASCE ASSESSMENTS.

The quality of drinking water is a determinant of health outcomes because of its necessity to human life. Safe drinking water is essential to good health. Mississippi's water supply systems received a D grade score in ASCE assessments. The report card highlights high rates of leakages and water main breaks and attributes those rates to legacy water systems consisting of pipelines nearly 100 years old[46]. In calendar year 2020, Mississippi reported 461 EPA water violations with 415 of those being monitoring and reporting violations (323), treatment technique violations (41), and other miscellaneous violations (51). The remaining 46 were maximum contaminant level (MCL) violations. Two of the MCL violations were regarding the levels of arsenic and coliform in drinking water, all others were related to the levels of disinfectant byproducts in drinking water[47]. The EPA considers disinfectant byproducts to be bromate, chlorite, haloacetic acids, and total trihalomethanes – all of which pose potential health threats such as problems with central nervous system, kidney, and liver functioning, anemia, and increased risks of cancer[48]. Considering most violations were for monitoring and reporting, the presence of other dangerous contaminants drinking water cannot be completely ruled out.

## POLICY CONSIDERATIONS & OPPORTUNITIES FOR IMPROVEMENT

Over the past decade, several obstacles and barriers have impeded the state's ability to enhance the performance of Mississippi healthcare systems. These obstacles have, however, highlighted some of the state's biggest population health issues, revealed considerable insufficiencies within entities of the state healthcare system, and have further proven that the health of a population is largely dependent on the physical and social environments in which they live.

Throughout the next decade, the state has the capacity to apply lessons learned and to pass meaningful healthcare reforms that actively improve population health and the quality of life for all

Mississippians. Proper coordination of efforts and oversight will be necessary for the success of any health intervention, especially in Mississippi where population health is not only critical, but also very unique. As evidenced by data presented within this report, societal and physical conditions have some of the largest impacts on individual health outcomes. Therefore, cross-sector collaborations throughout the state that consider these factors will be essential to the development and success of public policies and initiatives to improve health.

The Center for Mississippi Health Policy has begun research and analysis on examples of cross-sector collaborations and policies that are working to improve population health and healthcare system performance. As a supplement to this report, an issue brief regarding the findings of this analysis, as well as policy considerations for the state of Mississippi, will be published in Summer 2022.

## REFERENCES


1. Radican-Wald, A. (2013). Health Care System Performance: What Mississippi Indicators Reveal. Jackson, MS: Center for Mississippi Health Policy.
2. National Healthcare Quality and Disparities Report Introduction and Methods. Rockville, MD: Agency for Healthcare Research and Quality; December 2020. AHRQ Publication No.20(21)-0045-EF.
3. NHQDR Web Site Mississippi Snapshot Summary. (2011).
4. NHQDR Web Site Mississippi Snapshot Summary. (2019).
5. The Commonwealth Fund. (2020, September 11). 2020 Scorecard on State Health System Performance. Retrieved December 9, 2021, from www.commonwealthfund.org website: https://www.commonwealthfund.org/publications/scorecard/2020/sep/2020-scorecard-state-health-system-performance.
6. Radican-Wald, A. (2013). Health Care System Performance: What Mississippi Indicators Reveal. Jackson, MS: Center for Mississippi Health Policy.
7. The Dartmouth Atlas of Health Care: 2018 Data Update. (n.d.). Retrieved December 10, 2021, from https://data.dartmouthatlas.org/downloads/reports/2018_data_report_081821.pdf.
8. Centers for Medicare and Medicaid Services. (2020a, August 24). Hospital Readmissions Reduction Program (HRRP) | CMS. Cms.gov. https://www.cms.gov/Medicare/Medicare-Fee-for-Service-Payment/AcuteInpatientPPS/Readmissions-Reduction-Program.
9. Weiss, A., & Jiang, H. (2016). STATISTICAL BRIEF #264 September 2020. https://www.hcup-us.ahrq.gov/reports/statbriefs/sb264-Chronic-Condition-Preventable-Hospitalizations-2016.pdf.
10. Radican-Wald, A. (2013). Health Care System Performance: What Mississippi Indicators Reveal. Jackson, MS: Center for Mississippi Health Policy.
11. STARFIELD, B., SHI, L., & MACINKO, J. (2005). Contribution of Primary Care to Health Systems and Health. The Milbank Quarterly, 83(3), 457–502. https://doi.org/10.1111/j.1468-0009.2005.00409.x.
12. Health Resources and Services Administration. (n.d.). Area Health Resources Files. Retrieved from data.hrsa.gov website: https://data.hrsa.gov/topics/health-workforce/ahrf.
13. Radican-Wald, A. (2013). Health Care System Performance: What Mississippi Indicators Reveal. Jackson, MS: Center for Mississippi Health Policy.
14. Mitchell, J. (2021). The Office of Mississippi Physician Workforce DIRECTOR'S REPORT 2021. Retrieved December 10, 2021, from https://www.ompw.org/OMPW/files/Directors_Report_2021.pdf.
15. AAMC. 2019 State Physician Workforce Data Report. Washington, DC: AAMC; 2019.
16. Williams, C., & Sprinkle, R. (2021). Mississippi Primary Care Needs Assessment. Mississippi State Department of Health.
17. Centers for Medicare and Medicaid Services. (2020b, December 16). NHE Fact Sheet | CMS. Cms.gov. https://www.cms.gov/research-statistics-data-and-systems/statistics-trends-and-reports/nationalhealthexpenddata/nhe-fact-sheet

18. Medicaid Fact Sheet The Mississippi Division of Medicaid responsibly provides access to quality health coverage for vulnerable Mississippians. (2020). https://medicaid.ms.gov/wp-content/uploads/2020/01/2020_Medicaid-Fact-Sheet.pdf.
19. Navigant Consulting. (2017). Mississippi Operational and Performance Assessment of the Governor's Office, Division of Medicaid (DOM). Prepared for: Mississippi State Legislature (in response to Mississippi Regular Session 2016 House Bill 1650).
20. Cost Effectiveness Study Report for Mississippi Coordinated Access Network (MississippiCAN) (pp. 1–200). (2017). Myers and Stauffer LC. https://medicaid.ms.gov/wp-content/uploads/2017/12/Cost-Effectiveness-Study-Report-for-MississippiCAN-to-DOM-122817.pdf
21. Takach, M. (2012). About Half of The States Are Implementing Patient-Centered Medical Homes For Their Medicaid Populations. Health Affairs, 31(11), 2432–2440. https://doi.org/10.1377/hlthaff.2012.0447.
22. Mississippi Division of Medicaid. (2018, December). Progress Report on Mississippi Delta Medicaid Population Health Demonstration Project. Retrieved from https://medicaid.ms.gov/wp-content/uploads/2019/02/Progress-Report-on-the-MS-Delta-Population-Health-Demonstration-Project.pdf.
23. Martinez, J., King, M., & Cauchi, R. (2016). Improving the Health Care System: Seven State Strategies. Retrieved from National Conference of State Legislatures website: https://www.ncsl.org/Portals/1/Documents/Health/ImprovingHealthSystemsBrief16.pdf .
24. PEER Committee. (2021). An Evaluability Assessment of the Mississippi Delta Medicaid Population Health Demonstration Project. In peer.ms.gov. Retrieved from Joint Legislative Committee on Performance Evaluation and Expenditure Review website: https://www.peer.ms.gov/Reports/reports/rpt659.pdf.
25. Delta Health Alliance. (2020, May 4). 2019 Annual Report. Retrieved December 10, 2021, from Publications & News website: https://deltahealthalliance.org/2019-annual-report/.
26. Patient Protection and Affordable Care Act of 2010, Pub. L. No. 111-148, 124 Stat. 119 (2010), Codified as Amended 42 U.S.C. § 18001.
27. 2015 Annual Progress Report to Congress: National Strategy for Quality Improvement in Health Care. Content last reviewed November 2016. Agency for Healthcare Research and Quality, Rockville, MD. https://www.ahrq.gov/workingforquality/reports/2015-annual-report.html.
28. 2017 State Quality Strategies | Medicaid. (n.d.). www.medicaid.gov. Retrieved December 10, 2021, from https://www.medicaid.gov/medicaid/quality-of-care/medicaid-managed-care-quality/state-quality-strategies/index.html.
29. Snyder, D. L. (2021). Comprehensive Quality Strategy The Mississippi Division of Medicaid responsibly provides access to quality health coverage for vulnerable Mississippians. https://medicaid.ms.gov/wp-content/uploads/2021/09/MS-DOM-Comprehensive-Quality-Strategy-2021.pdf.
30. Ibid.
31. World Health Organization. (2021). Social Determinants of Health. Retrieved from World Health Organization website: https://www.who.int/health-topics/social-determinants-of-health#tab=tab_1.

32. US Department of Health and Human Services. (2021). Education Access and Quality - Healthy People 2030 | health.gov. Retrieved from health.gov website: https://health.gov/healthypeople/objectives-and-data/browse-objectives/education-access-and-quality.
33. Williams, C., & Sprinkle, R. (2021). Mississippi Primary Care Needs Assessment. Mississippi State Department of Health.
34. Ibid.
35. Ibid.
36. Ibid.
37. Williams, C., & Sprinkle, R. (2021). Mississippi Primary Care Needs Assessment. Mississippi State Department of Health.
38. US Department of Health and Human Services. (2021). Education Access and Quality - Healthy People 2030 | health.gov. Retrieved from health.gov website: https://health.gov/healthypeople/objectives-and-data/browse-objectives/education-access-and-quality
39. Skinner, K. (2018, November 5). "Miseducation" in Mississippi: Racial disparities persist in discipline, access to advanced classes. Retrieved from Mississippi Today website: https://mississippitoday.org/2018/11/05/more-students-take-ap-courses-but-racial-disparities-persist/
40. County Health Rankings & Roadmaps. (2021). Clinical Care. Retrieved December 11, 2021, from County Health Rankings Model website: https://www.countyhealthrankings.org/explore-health-rankings/measures-data-sources/county-health-rankings-model/health-factors/clinical-care
41. Health Insurance Coverage of the Total Population. (2020, October 23). Retrieved December 11, 2021, from KFF website: https://www.kff.org/other/state-indicator/total-population/?dataView=1¤tTimeframe=0&sortModel=%7B%22colId%22:%22Uninsured%22
42. County Health Rankings & Roadmaps. (2021b). Health Behaviors. Retrieved from https://www.countyhealthrankings.org/explore-health-rankings/measures-data-sources/county-health-rankings-model/health-factors/health-behaviors
43. Explore Food Insecurity in Mississippi | 2021 Health of Women And Children Report. (n.d.). Retrieved December 11, 2021, from America's Health Rankings website: https://www.americashealthrankings.org/explore/health-of-women-and-children/measure/food_insecurity_household/state/MS
44. US Department of Health and Human Services. (n.d.-b). Social Cohesion - Healthy People 2030 | health.gov. Retrieved from health.gov website: https://health.gov/healthypeople/objectives-and-data/social-determinants-health/literature-summaries/social-cohesion
45. Child Welfare Outcomes. (2020). Mississippi. Retrieved December 11, 2021, from cwoutcomes.acf.hhs.gov website: https://cwoutcomes.acf.hhs.gov/cwodatasite/pdf/mississippi.html
46. Mississippi | ASCE's 2021 Infrastructure Report Card. (2016, October 27). Retrieved from ASCE's 2021 Infrastructure Report Card | website: https://infrastructurereportcard.org/state-item/mississippi/
47. Mississippi State Department of Health. (2021). EPA Region Primacy Agency Code Violation Category Rule Group Rule Name # of Viols # of Resolved Viols # of PWS in Viols. Retrieved from https://msdh.ms.gov/msdhsite/_static/resources/14706.pdf

48. US EPA,OW. (2018, December 21). Stage 1 and Stage 2 Disinfectants and Disinfection Byproducts Rules | US EPA. Retrieved from US EPA website: https://www.epa.gov/dwreginfo/stage-1-and-stage-2-disinfectants-and-disinfection-byproducts-rules

## GLOSSARY OF TERMS

**Access to Care:** Measured on population to primary care physicians, dentists, and mental health providers ratios, and considers the uninsured population as an indicator for the level of access to care.

**Accountable Care Organization (ACO):** A group of doctors, hospitals, and other healthcare providers, who come together voluntarily to coordinate the provision of high-quality care to Medicare patients while avoiding unnecessary duplication of services and preventing medical errors. Source: Centers for Medicare & Medicaid Services.

**Capitation payment:** A per member monthly payment to a provider or care coordination organization that covers contracted services and is paid in advance of its delivery.

**Clinical Care:** Involves access to care and the quality of care that is being provided.

**Coordinated care organization:** A healthcare entity in which the deliberate organization of patient care activities between two or more participants (including the patient) involved in a patient's care to facilitate the appropriate delivery of healthcare.

**Critical Infrastructure:** Infrastructure sectors whose assets, systems, and networks, whether physical or virtual, are considered so vital to the United States that their incapacitation or destruction would have a debilitating effect on security, national economic security, national public health or safety, or any combination thereof. Federal regulations are in place to strengthen and maintain secure, functioning, and resilient critical infrastructure. Source: Department of Homeland Security, Cybersecurity and Infrastructure Security Agency.

**Generalist physician:** General practice, family medicine, internal medicine.

**Graduate Medical Education (GME):** The period of training in a particular specialty (residency) or subspecialty (fellowship) following medical school.

**Health outcomes:** The outcome or result of medical care, in terms of recovery, restoration of function and of survival, are used as an indicator of medical care.

**Hospital readmissions reduction program (HRRP):** A Medicare value-based purchasing program that encourages hospitals to improve communication and care coordination to better engage patients and caregivers in discharge plans and, in turn, reduce avoidable readmissions.

**Healthcare professional shortage areas (HPSA's):** Designations that identify areas, populations, or facilities within the United States that are experiencing a shortage of healthcare professionals.

**Medically Undeserved Area (MUAs):** Geographic areas with a lack of access to primary care services.

**Patient-Centered Medical Home (PCMH):** A model for delivering high-quality, cost-effective primary care that uses patient-centered, culturally appropriate, and team-based approaches to coordinate patient care across the healthcare system. Source: Centers for Disease Control & Prevention.

**Population Health:** The health outcomes of a group of individuals that considers both clinical and non-clinical factors, including the distribution of such outcomes within the group. Source: "What Are We Talking About When We Talk About Population Health?", Health Affairs Blog, April 6, 2015.

**Potentially Preventable Events (PPEs):** An overall term to describe healthcare events that may be preventable with high-quality healthcare and good coordination of care. PPEs include potentially preventable admissions, ED visits, ancillary services, and readmissions.

**Primary Care physician:** A primary care physician is a specialist in family medicine, general internal medicine or general pediatrics who provides definitive care to the undifferentiated patient at the point of first contact and takes continuing responsibility for providing the patient's comprehensive care.

**Specialist physician:** Surgery, obstetrics and gynecology, emergency medicine, cardiology, oncology, neurology

**Undergraduate medical education (UME):** Following the completion of an undergraduate degree (bachelors), UME involves medical school training in advanced sciences and clinical skills at md-granting and do-granting schools.

# APPENDIX A

## Table 1. State Health System Performance Indicator Data by Dimension

| Dimension and indicator | Data year | State rate | U.S. average | Best state rate | State rank | Data year | State rate | U.S. average | Change over time[b] |
|---|---|---|---|---|---|---|---|---|---|
| **Access & Affordability** | **2020 Scorecard** | | | | | **Baseline** | | | |
| Adults ages 19–64 uninsured | 2018 | 19 | 12 | 4 | 47 | 2014 | 22 | 16 | Improved |
| Children ages 0–18 uninsured | 2018 | 5 | 5 | 1 | 24 | 2014 | 6 | 6 | No Change |
| Adults age 18 and older without a usual source of care | 2018 | 26 | 23 | 13 | 38 | 2014 | 27 | 23 | No Change |
| Adults age 18 and older who went without care because of cost in past year | 2018 | 18 | 13 | 7 | 50 | 2014 | 19 | 14 | No Change |
| Individuals under age 65 with high out-of-pocket medical costs relative to their annual household income | 2017–18 | 10.5 | 8.3 | 4.8 | 46 | — | — | — | — |
| Employee insurance costs as a share of median income | 2018 | 9.7 | 6.8 | 4.1 | 50 | 2014 | 8.9 | 6.6 | Worsened |
| Adults age 18 and older without a dental visit in past year | 2018 | 46 | 34 | 24 | 51 | 2014 | 43 | 36 | Worsened |
| **Prevention & Treatment** | **2020 Scorecard** | | | | | **Baseline** | | | |
| Adults without all age- and gender-appropriate cancer screenings | 2018 | 35 | 32 | 24 | 39 | 2014 | 36 | 32 | No Change |
| Adults without age-appropriate flu and pneumonia vaccines | 2018 | 70 | 69 | 57 | 35 | 2014 | 66 | 63 | Worsened |
| Diabetic adults without an annual hemoglobin A1c test | 2017 | 11.9 | 10.7 | 6.5 | 31 | 2015 | 14.8 | 16.9 | Improved |
| Elderly patients who received a high-risk prescription drug | 2016 | 15.5 | 9.6 | 4.6 | 51 | — | — | — | — |
| Children without a medical home | 2018 | 55 | 52 | 41 | 42 | 2016 | 49 | 51 | Worsened |
| Children without age-appropriate medical and dental preventive care visits in the past year | 2018 | 50 | 42 | 29 | 50 | — | — | — | — |
| Children who did not receive needed mental health care | 2018 | 18 | 18 | 5 | 28 | 2016 | 22 | 18 | Improved |
| Children ages 19–35 months who did not receive all recommended vaccines | 2018 | 29 | 27 | 16 | 31 | 2014 | 29 | 28 | No Change |
| Hospital 30-day mortality | 07/2015 – 06/2018 | 14.5 | 13.7 | 12.5 | 47 | 07/2011 – 06/2014 | 13 | 12.8 | Worsened |
| Central line-associated bloodstream infections (CLABSI), Standardized Infection Ratio | 2018 | 0.864 | 0.739 | 0.087 | 48 | 2015 | 1.108 | 0.994 | Improved |
| Hospitals with lower-than-average patient experience ratings | 2018 | 43 | 46 | 15 | 25 | — | — | — | — |
| Home health patients without improved mobility | 2018 | 17 | 22 | 17 | 1 | 2014 | 34 | 37 | Improved |
| Nursing home residents with an antipsychotic medication | 2017 | 19 | 15 | 7 | 44 | 2013 | 25 | 21 | Improved |

## Table 1. State Health System Performance Indicator Data by Dimension (continued)

| Dimension and indicator | Data year | State rate | U.S. average | Best state rate | State rank | Data year | State rate | U.S. average | Change over time[b] |
|---|---|---|---|---|---|---|---|---|---|
| **Prevention & Treatment (continued)** | **2020 Scorecard** | | | | | **Baseline** | | | |
| Adults with any mental illness reporting unmet need | 2016–17 | 22 | 22 | 14 | 15 | 2012–14 | 22 | 20 | No Change |
| Adults with any mental illness who did not receive treatment | 2016–17 | 55 | 57 | 41 | 23 | 2012–14 | 61 | 57 | Improved |
| **Avoidable Hospital Use & Cost** | **2020 Scorecard** | | | | | **Baseline** | | | |
| Potentially avoidable emergency department visits | | | | | | | | | |
| Ages 18–64, per 1,000 employer-insured enrollees | 2017 | 173.7 | 149.5 | 84.2 | 45 | 2015 | 182.6 | 159 | No Change |
| Age 65 and older, per 1,000 Medicare beneficiaries | 2016 | 229.3 | 189.4 | 140.9 | 49 | 2013 | 222 | 181.4 | No Change |
| Admissions for ambulatory care–sensitive conditions | | | | | | | | | |
| Ages 18–64, per 1,000 employer-insured enrollees | 2017 | 7.3 | 6.8 | 6 | 43 | 2015 | 6.1 | 4.6 | Worsened |
| Ages 65–74, per 1,000 Medicare beneficiaries | 2018 | 55 | 41.6 | 20.4 | 49 | 2014 | 61.8 | 44.7 | Improved |
| 30-day hospital readmissions | | | | | | | | | |
| Ages 18–64, per 1,000 employer-insured enrollees | 2017 | 3.1 | 3.2 | 2.3 | 19 | 2015 | 2.9 | 2.9 | No Change |
| Age 65 and older, per 1,000 Medicare beneficiaries | 2018 | 45.3 | 40 | 18.5 | 42 | 2014 | 47.8 | 42 | No Change |
| Skilled nursing facility patients with a hospital readmission | 2016 | 22 | 19 | 11 | 47 | 2012 | 24 | 20 | Improved |
| Long-stay nursing home residents hospitalized within a six-month period | 2016 | 28 | 15 | 5 | 51 | 2012 | 29 | 17 | No Change |
| Home health patients also enrolled in Medicare with a hospital admission | 2018 | 17 | 16 | 14 | 43 | 2014 | 17 | 16 | No Change |
| Adults with inappropriate lower-back imaging | 2017 | 64.7 | 70.1 | 57.5 | 8 | 2015 | 63.5 | 71.1 | No Change |
| Employer-sponsored insurance spending per enrollee | 2017 | $3,606 | $5,137 | $3,606 | 1 | 2013 | $3,982 | $4,697 | Improved |
| Medicare spending per beneficiary | 2018 | $11,193 | $9,847 | $6,473 | 49 | 2014 | $10,087 | $9,025 | Worsened |
| Primary care spending as a share of total health care spending | | | | | | | | | |
| Ages 18–64 (employer-insured enrollees) | 2018 | 5.3 | 6.0 | 11.3 | 36 | — | — | — | — |
| Age 65 and older (Medicare beneficiaries) | 2017 | 5.6 | 5.7 | 7.2 | 26 | — | — | — | — |
| **Healthy Lives** | **2020 Scorecard** | | | | | **Baseline** | | | |
| Mortality amenable to health care, deaths per 100,000 population | 2016–17 | 143.4 | 84.5 | 54.5 | 51 | 2012–13 | 136.7 | 83.7 | No Change |
| Breast cancer deaths per 100,000 female population | 2018 | 21.5 | 19.7 | 15.1 | 41 | 2014 | 23.8 | 20.6 | Improved |
| Colorectal cancer deaths per 100,000 population | 2018 | 16.1 | 12.6 | 9.1 | 50 | 2014 | 19.3 | 14.3 | Improved |

## Table 1. State Health System Performance Indicator Data by Dimension (continued)

| Dimension and indicator | Data year | State rate | U.S. average | Best state rate | State rank | Data year | State rate | U.S. average | Change over time[b] |
|---|---|---|---|---|---|---|---|---|---|
| **Healthy Lives (continued)** | **2020 Scorecard** | | | | | **Baseline** | | | |
| Suicide deaths per 100,000 population | 2018 | 13.8 | 14.2 | 7.5 | 16 | 2014 | 12.5 | 13 | No Change |
| Alcohol-related deaths per 100,000 population | 2018 | 5.9 | 9.9 | 5.7 | 3 | 2014 | 5.7 | 8.5 | No Change |
| Drug poisoning deaths per 100,000 population | 2018 | 10.8 | 20.7 | 6.9 | 6 | 2014 | 11.6 | 14.7 | No Change |
| Infant mortality, deaths per 1,000 live births | 2017 | 8.7 | 5.8 | 3.7 | 51 | 2013 | 9.6 | 6 | Improved |
| Adults who report fair or poor health | 2018 | 20 | 17 | 11 | 44 | 2014 | 20 | 16 | No Change |
| Adults who smoke | 2018 | 21 | 16 | 9 | 44 | 2014 | 23 | 17 | Improved |
| Adults who are obese | 2018 | 41 | 32 | 23 | 50 | 2014 | 37 | 29 | Worsened |
| Children who are overweight or obese | 2018 | 39 | 31 | 19 | 51 | 2016 | 37 | 31 | No Change |
| Adults who have lost six or more teeth | 2018 | 17 | 9 | 5 | 49 | 2014 | 19 | 10 | Improved |
| State-based public health spending per resident | 2018 | $15 | $37 | $137 | 44 | 2014/15 | $12 | $36 | Improved |

## Table 2. State Income Disparity Data

| | Data year | Low-income rate[d] | Disparity[e] | State rank | Data year | Low-income rate[d] | Disparity[e] | Change over time[f] |
|---|---|---|---|---|---|---|---|---|
| **Disparity Indicator** | **2020 Scorecard** | | | | **Baseline** | | | |
| Adults ages 19–64 uninsured | 2018 | 32 | -25 | 45 | 2014 | 35 | -29 | Improved |
| Adults age 18 and older who went without care because of cost in past year | 2018 | 30 | -26 | 51 | 2014 | 32 | -26 | No Change |
| Individuals under age 65 with high out-of-pocket medical costs relative to their annual household income | 2017–18 | 19 | -17.4 | 17 | — | — | — | — |
| Adults age 18 and older without a dental visit in past year | 2018 | 58 | -31 | 31 | 2014 | 56 | -34 | No Change |
| Adults without all age- and gender-appropriate cancer screenings | 2018 | 38 | -10 | 19 | 2014 | 41 | -14 | Improved |
| Children without a medical home | 2018 | 66 | -25 | 29 | 2016 | 59 | -37 | No Change |
| Children without age-appropriate medical and dental preventive care visits in the past year | 2018 | 57 | -18 | 8 | — | — | — | — |
| Children ages 19–35 months who did not receive all recommended vaccines | 2018 | 35 | -15 | 28 | 2014 | 33 | -22 | No Change |
| Adults who report fair or poor health | 2018 | 32 | -25 | 39 | 2014 | 28 | -22 | Worsened |
| Adults who are obese | 2018 | 46 | -5 | 16 | 2014 | 42 | -10 | No Change |
| Adults who have lost six or more teeth | 2018 | 24 | -16 | 40 | 2014 | 26 | -17 | Improved |

## Table 3. State Race and Ethnicity Disparity Data

| | Data year | U.S. average | State White rate | State Black rate | Black-White disparity | State Hispanic rate | Hispanic-White disparity | State Other rate | Other-White disparity |
|---|---|---|---|---|---|---|---|---|---|
| **Disparity Indicator** | | | | | | | | | |
| Adults ages 19–64 uninsured | 2018 | 12 | 16 | 21 | -5 | 40 | -24 | 23 | -7 |
| Adults age 18 and older who went without care because of cost in past year | 2018 | 13 | 15 | 20 | -5 | — | — | 32 | -17 |
| Adults age 18 and older without a usual source of care | 2018 | 23 | 23 | 29 | -6 | — | — | 50 | -27 |
| Adults age 18 and older without a dental visit in past year | 2018 | 34 | 44 | 49 | -5 | — | — | 50 | -6 |
| Adults without all age- and gender-appropriate cancer screenings | 2018 | 32 | 38 | 29 | 9 | — | — | 49 | -11 |
| Adults without age-appropriate flu and pneumonia vaccines | 2018 | 69 | 67 | 73 | -6 | — | — | 78 | -11 |
| Adults who smoke | 2018 | 16 | 21 | 19 | 2 | — | — | 28 | -7 |
| Adults who are obese | 2018 | 32 | 38 | 47 | -9 | — | — | 37 | 1 |
| Mortality amenable to health care, deaths per 100,000 population | 2016–17 | 84.5 | 115.7 | 202.3 | -86.6 | 43.5 | 72.2 | 98.4 | 17.3 |
| Infant mortality, deaths per 1,000 live births | 2017 | 5.8 | 6.3 | 11.7 | -5.4 | — | — | — | — |

**Notes**

(a) The 2020 Scorecard rankings generally reflect 2018 data. The 2020 Scorecard added or revised several performance measures since the June 2019 Scorecard report; rankings are not comparable between reports. Rank change from the baseline period represents states' rank difference from the baseline data year (generally 2013 or 2014). Positive values represent an improvement in rank; negative values are a worsening in rank.

(b) Trend data available for 43 of 49 total Scorecard indicators. Improved/worsened denotes a change of at least one-half (0.5) standard deviation larger than the indicator's distribution among all states over the two time points. No change denotes no change in rate or a change of less than one-half standard deviation.

(c) Estimated impact if this state's performance improved to the rate of two benchmark levels — a national benchmark set at the level of the best-performing state and a regional benchmark set at the level of the top-performing state in region (defined using Bureau of Economic Analysis (www.bea.gov) regions: Great Lakes, Mid-Atlantic, New England, Plains, Rocky Mountains, Southeast, Southwest, West). Benchmark states have an estimated impact of zero (0). Equivalent estimated impact based on national and regional benchmarks indicate that the best observed rate in the region was equal to the best observed rate nationally.

(d) Rates are for states' low-income population, generally those whose household income is under 200% of the federal poverty level (FPL).

(e) Income disparity is the difference between the states' low-income and higher-income (400%+ FPL) populations.

(f) Improvement indicates that the low-income rate improved and the disparity between low- and higher-income populations narrowed; worsening indicates the low-income rate worsened and the disparity between low- and higher-income populations widened.

# Executive Summary

The Mississippi Division of Medicaid (DOM) engaged Myers and Stauffer LC (Myers and Stauffer) to coordinate a cost effectiveness study of the Mississippi Medicaid managed care program known as MississippiCAN. DOM used existing agency contractors to prepare various components of the study. Myers and Stauffer's primary role was to assemble the analytical components completed by different DOM contractors. Due to time constraints explained in the *Purpose and Approach* section, Myers and Stauffer was not engaged by DOM to fully validate the information provided by each contributing contractor. Instead, Myers and Stauffer has cited the specific contractor providing the component as the source of information and analysis.

This study presents 10 analytical components to assess cost effectiveness in four areas:

1) The appropriateness of coordinated care organization (CCO) capitation payments relative to actual CCO expenditures for MississippiCAN beneficiaries.
2) The impact of managed care on Medicaid expenditures.
3) The impact of managed care on potentially preventable events (PPEs) such as emergency department visits and inpatient hospital admissions.
4) The impact of managed care on health outcomes over time and compared to peer states.

## Key Cost Effectiveness Study Factors and Considerations

Determining Medicaid managed care cost effectiveness is a complex process. There are many different factors and considerations that must be taken into account in order to provide a constructive assessment. Factors such as the evolution of beneficiary and service coverage, federal requirements, the state's health care status, and access to care must be considered when analyzing and interpreting data.

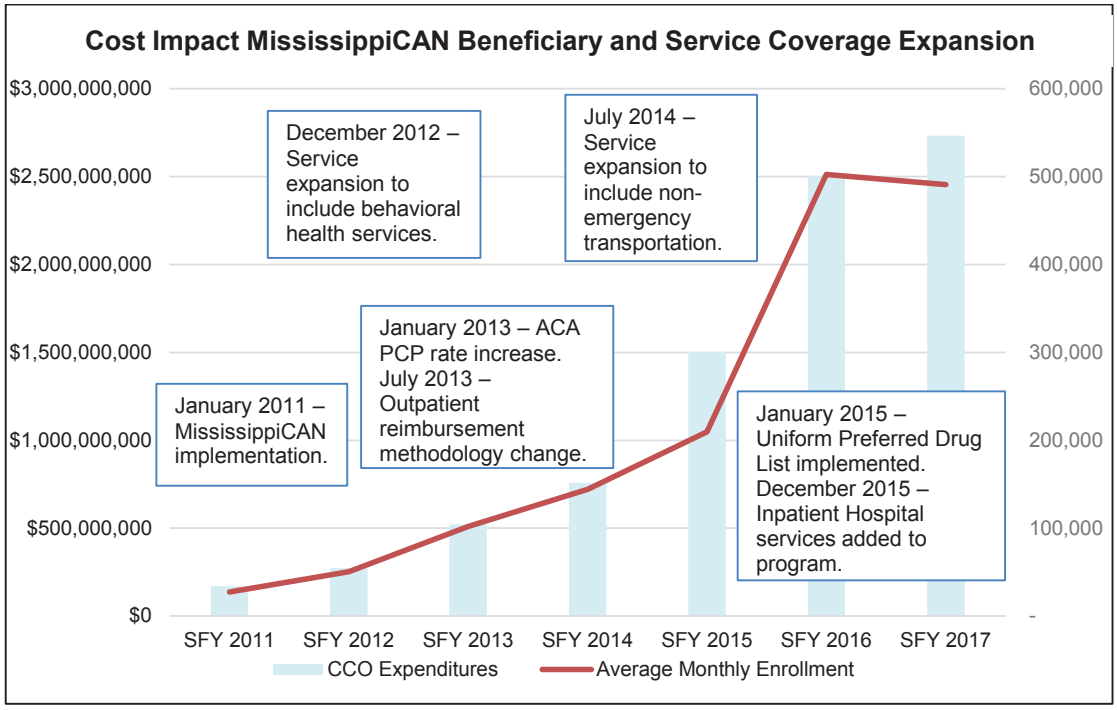
The study findings must also be viewed in the context of Mississippi's health status relative to other states' and national data. Mississippi has ranked the lowest in the nation in terms of overall health and on numerous health indicators such as obesity, infant mortality, cardiovascular disease, and diabetes.[1] Mississippi's health status has been attributed to behavioral risk factors, poverty, lack of access to primary and specialty care, and inadequate supply of health professionals throughout much of the state[2]. This situation creates unique challenges for improving the health of MississippiCAN beneficiaries and the overall cost effectiveness of the program.

The evolution of the MississippiCAN program in terms of beneficiary and service coverage has taken place over several years, with major expansions occurring between calendar year (CY) 2013 and CY 2016. The magnitude and timing of these expansions is a major factor when assessing program cost effectiveness. Nearly 300,000 children were transitioned into the program during the period of May through July 2015, more than doubling the total number of

[1] United Health Foundation. America's Health Rankings. https://www.americashealthrankings.org/
[2] Mississippi Department of Health. Building a Healthier Mississippi from the Ground UP State Health Assessment and Improvement Plan May, 2016

covered beneficiaries. More significantly, inpatient hospital services were added to the program in December 2015. Prior to the inclusion of inpatient care, CCOs had few incentives to prevent hospitalizations which are typically a large contributor to overall health care costs. *Figure 1* illustrates the evolution of MississippiCAN beneficiary and service expansion between SFY 2011 through SFY 2017.

*Figure 1. Cost Impact MississippiCAN Beneficiary and Service Coverage Expansion*




## Cost Effectiveness Findings

Overall, the study results indicate that MississippiCAN is cost effective in terms of the appropriateness of CCO capitation payments and the impact on Medicaid expenditures. In addition, actuarial analysis indicates that MississippiCAN has saved $369.1 million in total funds and $285.5 million in state funds between January 1, 2011 and June 30, 2017. In terms of the program's impact on health outcomes and PPEs such as inpatient admissions and emergency department visits, the results are mixed. Further in-depth study with longer term data should be used to assess these two areas of cost effectiveness.

### *Appropriateness of CCO Capitation Payments*

The analytical components used to assess the appropriateness of CCO capitation payments compared to actual CCO provider payments for beneficiary services indicate program cost effectiveness. Specific findings include:

- CCO capitation rates have been developed appropriately and substantially align to the CCO's payments to providers on behalf of MississippiCAN beneficiaries. Between CY 2011 and CY 2015 there was a 0.7 percent difference between actuarial assumptions

built into the CCO rates and actual CCO payments. This difference was driven by the use of FFS data for new populations added to the program. Furthermore, the capitation rates are best estimates of future activity.

- A review of the increase in capitation payments between state fiscal year (SFY) 2015 and SFY 2017, indicates that increases were passed on to providers.
- A review of the SFY 2017 capitation rate development process indicates that DOM and its actuary complied with federal regulations, Centers for Medicare & Medicaid Services (CMS) requirements, and actuarial standards. In addition, it appears that defendable assumptions for the cost of care were the basis of the SFY 2017 recommended capitation increase.

***MississippiCAN Impact on Medicaid Expenditures and Beneficiary Costs***

The analytical components used to assess the impact of MississippiCAN on Medicaid expenditures and beneficiary costs indicate program cost effectiveness. Specific findings include:

- The significant enrollment growth that occurred in SFY 2014 and SFY 2015 could have greatly increased costs under an unmanaged FFS system. Instead, Mississippi Medicaid inflationary costs ran mostly below the CMS medical inflation projection for SFY 2011 through SFY 2017. In the years where the Mississippi inflationary costs ran above CMS medical inflation, it was due to state and federal program and policy changes.
- The cumulative difference in total Medicaid spending for SFY 2011 through SFY 2017 was $147.7 million total funds less than what would have been spent at the national medical inflation level.
- Enrollment growth, primarily due to the federal Patient Protection and Affordable Care Act (ACA), was the main driver of cost increases between SFY 2011 and SFY 2017.
- A comparison of state Medicaid managed care cost rankings for SFY 2016 shows that Mississippi, relative to other states, ranks 28th in terms of overall costs[3]. For Medicaid administrative costs, Mississippi had the third lowest cost in the nation.
- MississippiCAN generated $188.2 million in net revenues through the state insurance premium tax between January 2011 through June 2017. This additional source of state revenue would not have been generated under a traditional FFS system.

***MississippiCAN Impact on Potentially Preventable ED Visits, Inpatient Hospital Admissions, and Duplicative or Unnecessary Services***

The analysis on MississippiCAN's impact on PPEs such as ED visits, inpatient hospital admissions, and duplicative or unnecessary services indicates mixed results for cost effectiveness. The analysis reviewed data for December 2013 through November 2016. A major limitation of this analysis is there is only one year of data where hospital admissions were reimbursed by CCOs. Analysis resulted in the following findings:

[3] Public Consulting Group, Inc. Analysis of Medicaid and CHIP Payment and Access Commission (MACPAC) MACStats data. Refer to Appendix E.

- MississippiCAN showed a decrease in potentially preventable inpatient hospital admissions throughout the study timeframe, while FFS held steady.
- MississippiCAN showed an increase in potentially preventable ED visits, while FFS held steady throughout the study timeframe. This could be attributable to the expansion of MississippiCAN beneficiary coverage between CY 2013 and CY 2016.
- MississippiCAN appears to perform worse than FFS in terms of reducing duplicative or unnecessary services, but was closing the gap by the end of the study timeframe.
- The MississippiCAN reduction in inpatient hospital admissions appears more favorable than in FFS. This may indicate that the program's care coordination efforts are having a positive impact. However, the differences in the demographics of the MississippiCAN and FFS populations must also be considered when reviewing this data. Therefore, a more in-depth review of the data is recommended.

***MississippiCAN Impact on Trends in Beneficiary Health over Time and Compared to Peer States***

MississippiCAN is starting from a more challenging position relative to its health status, poverty rate, and health care professional workforce shortages when compared to other states. However, for the 15 categories of health measures reviewed, MississippiCAN results are low but appear to be gradually improving in some areas.

- Compared to the national average and peer states (Georgia, Michigan, and Tennessee), MississippiCAN's performance on the timeliness of prenatal care was at the national average and better than the peer states. MississippiCAN showed trending improvement in well child visits for children and adolescents, screening programs, and the timeliness of prenatal care.
- While well child visits are trending up for MississippiCAN members, the program still lags below the national average and peer states.
- The data showed a declining trend in dental visits and postpartum care.
- In terms of access to primary care physicians (PCPs), the program was also above the national average, but performed below the peer states which are older, more established managed care programs.
- This high-level assessment of MississippiCAN's impact on beneficiary health indicates that health outcomes are improving, which should promote cost effectiveness over time. However, given the transition of beneficiaries and services into MississippiCAN, the utilization needs time to stabilize in order to conduct a more comprehensive analysis of this impact. Trends based on later data should be assessed to establish a firm conclusion regarding health outcomes and cost effectiveness.

## Medicaid Managed Care Systems Compared to FFS

Managed care provides the following tools to improve cost effectiveness, which would not be available in FFS:

- Managed care programs offer additional services such as patient-centered medical homes, care coordination, disease management, 24-hour nurse call lines, educational programs, member education, member and provider incentive programs, and the ability to provide other in lieu of services permitted under the 2016 Medicaid managed care final rule.
- States have the ability to offer financial incentives to their managed care plans to improve beneficiary health. Such incentives tie annual performance targets to contractually-specified goals and outcomes. If performance targets are met, the plan receives either a portion of withheld capitation payments, shared savings, or additional payments. If the plan does not meet the target, they are ineligible for payment and the state retains the funds. Currently, MississippiCAN does not have any incentive payments, though contractually DOM maintains the option.
- Medicaid managed care plans also have the opportunity to offer financial incentives at the provider level for making improvements in service delivery. These incentives may be aligned with the managed care plan's contractual obligations to the state to produce certain outcomes.
- Medicaid managed care programs are subject to extensive federal regulatory requirements regarding plan performance, access to care, quality of care, financial management, collection of data, member services, program integrity, and program oversight. In 2017 and 2018, in order to promote transparency, the federal government is requiring states to post specific content on their public websites including an annual managed care program report, network adequacy standards, state-determined managed care plan quality rating, quality measures and performance outcomes, annual external quality review (EQR) reports, and the State Quality Strategy. This level of transparency and accountability is not currently required in FFS.
- The Medicaid managed care system provides states with contractual leverage, through sanctions and incentives, to hold the managed care plans accountable for member health outcomes, network access, data and reporting, financial performance, and overall program performance.
- Medicaid managed care also generates state revenues since the managed care plans are subject to the state insurance premium tax. These revenues cannot be generated in FFS since the premium tax only applies to health insurance plans.

## Recommendations to Promote Cost Effectiveness

The following high-level recommendations are proposed to improve MississippiCAN cost effectiveness:

- CMS is encouraging states to adopt their annual Core Set of Health Care Quality Measures for Adults and Children. This core set includes and will increase the number of Healthcare Effectiveness Data and Information Set (HEDIS®) performance measures

being tracked for MississippiCAN. DOM representatives advised that effective January 1, 2018, DOM will adopt the CMS core set. In addition, given the higher cost typically associated with the Supplemental Security Income (SSI) population, DOM should consider including additional measures specific to this population group. SSI and SSI-related populations are typically the highest utilizers of services and account for a significant percentage of savings opportunity in managed care.

- DOM should develop and routinely share CCO dashboards with DOM leadership. The dashboards serve as a management tool and are a distillation of critical information from the many CCO reports. DOM can use the dashboards to follow program trends, set program goals, and identify quality improvement strategies and delivery system changes to improve health outcomes. DOM can then use this information, not only to monitor performance, but to collaborate with health plans on areas of improvement. Some states also post public dashboards on their websites in order to increase program transparency and inform public stakeholders.
- DOM should exercise its contractual option to implement a value-based payment (VBP) aligned to target health outcomes for MississippiCAN beneficiaries. This will involve DOM researching and identifying specific performance measures, payment approach, and inclusion of this provision in the rate setting process by DOM's actuary.
- A key consideration in monitoring cost effectiveness is having access to complete and accurate claims history data. This is an area where DOM has been proactive by implementing bi-monthly reconciliations of encounter claims to the CCOs' (and/or respective sub-contractor's) cash disbursement journals. DOM should continue to perform encounter data reconciliations and validation.
- To ensure cost effectiveness, DOM should review and evaluate its current oversight and monitoring procedures for the CCOs. Should performance issues be identified, assurances should be made that CCOs are performing consistent with contractual obligations, and full remediation and remedy strategies are deployed.

## Recommendations for Future Cost Effectiveness Studies

Due to the limited time to conduct this study, it is recommended that DOM consider additional cost effectiveness reviews in the following areas:

- An assessment of the most feasible and appropriate approach for implementing a MississippiCAN VBP program.
- A more in-depth review of PPEs stratified by population and service type, and covering a later timeframe. The study should also include a focus on why emergency department visits increased in MississippiCAN between December 2013 and November 2016.
- A study of FFS health care outcomes for MississippiCAN beneficiaries prior to their coverage in the MississippiCAN program to use for baseline measurement.
- An in-depth study of best practices related to population health initiatives to address Mississippi Medicaid health challenges such as obesity, women's health, prenatal care, low birth weight deliveries, and chronic diseases such as diabetes.

These recommended studies will help inform DOM for compliance with reporting requirements mandated under the federal managed care rule (42 CFR 438). The rule was significantly updated in 2016. States now have requirements to perform the following studies and/or reporting, and must post the findings on their public websites. These requirements will promote program transparency and opportunities to identify areas of improvement for managed care cost effectiveness. Depending on the reporting requirement, the initial website posting dates occur on different timeframes.

- Annual managed care program report that includes financial performance, encounter data reporting, enrollment, benefits covered, grievances and appeals, availability and accessibility of covered services, evaluations of plan performance on quality measures, and sanctions or corrective action plans. Report due date is pending CMS guidance.
- Statewide network adequacy requirements to be posted in SFY 2019.
- Accreditation status of the CCOs to be posted in SFY 2018.
- Quality rating given by the state to each managed care plan to be posted in SFY 2019.
- State quality strategy to be posted by July 1, 2018.
- Quality measures and performance outcomes to be posted by July 1, 2018.
- Annual EQR technical reports to be posted by July 1, 2018.

## Purpose and Approach

The SFY 2018 Legislative Medicaid appropriations bill, House Bill 1510, required the Mississippi DOM to commission a cost effectiveness study of the Mississippi Medicaid managed care program known as the Mississippi Coordinated Access Network (MississippiCAN). The study was to be performed and submitted to the legislature by November 1, 2017 and $250,000 state dollars were earmarked. Initially, DOM issued a Request for Proposals for a qualified vendor to perform the entire study. However, all interested bidders cited the condensed timeline as a barrier and the received bid was deemed unresponsive due to the requirements of the work not being met due to timing concerns. As a result, DOM revised its approach by separating the study into 10 analytical components. By matching the component analysis to existing contractors, DOM determined the work was achievable and the contractors agreed to perform the component analysis under a very short deadline. Because of the lengthy procurement process required by the state and the study deadline, the only viable way to present the compilation of the component information by year end was to use an existing contract as the vehicle for the work performance. All associated contractors with relevant knowledge were asked to submit a quote for the study compilation.

DOM awarded the second solicitation to Myers and Stauffer. Specifically, Myers and Stauffer was engaged to assemble the analytical components completed by different DOM contractors and to present findings and recommendations. Due to time constraints in providing meaningful information to the legislature prior to the start of the 2018 session, Myers and Stauffer was not engaged to fully validate the information provided by each contributing DOM contractor and has cited the specific contractor providing the component as the source of information and analysis.

The contractors submitting cost effectiveness component information and analysis are:

- Milliman, Inc.
- Conduent, Inc.
- Public Consulting Group, Inc.
- Cornerstone Healthcare Financial Consulting, LLC.
- Gary L. Owens, LLC.

For this study, Myers and Stauffer also conducted a high-level analysis of existing health outcomes for members enrolled in MississippiCAN compared to select peer states with reasonably comparable demographics and readily available public information. Myers and Stauffer also provided an overview of best practices for evaluating and improving the Mississippi Medicaid managed care program's cost effectiveness.

## Cost Effectiveness Study Components

The components of this cost effectiveness study are based on recommendations from a 2016 report submitted to the legislature and entitled the Mississippi Operational and Performance Assessment of the Governor's Office, Division of Medicaid[4]. One of the report findings recommended an assessment of the MississippiCAN program cost effectiveness. The assessment would evaluate the appropriateness of CCO capitation payments and the impact of managed care on Medicaid expenditures, beneficiary costs, and beneficiary health outcomes. There are 10 specific components covered in this report:

- Actuarial calculations to determine whether past projections used for capitation rate development align with actual CCO experience.
- Comparison of risk-adjusted costs per beneficiary to determine MississippiCAN impact on beneficiary acuity.
- MississippiCAN impact on duplicative or unnecessary services, ED visits, and inpatient stays.
- MississippiCAN impact on potentially preventable hospital and ED admission among CCO beneficiaries, with comparisons to previous years for FFS beneficiaries of the same population.
- The decrease in inpatient hospital utilization attributable to Medicaid beneficiaries over time, in order to assess the efficacy of MississippiCAN toward coordination of care, the treatment of chronic conditions, and reductions in readmissions.
- Comparison of MississippiCAN per member per month (PMPM) and non-claims costs to peer states, DOM's FFS beneficiaries of the same populations, and to national benchmarks.
- The necessity and/or benefit of DOM increasing SFY 2017 payments to the CCOs following a legislative session that funded DOM at approximately $75 million below spending projections for SFY 2017.
- Comparison of annual growth in Medicaid and MississippiCAN spending to medical cost inflation, and the impact of enrollment changes on MississippiCAN and Medicaid spending.
- Extent to which CCO payments increased after DOM provided increases to the annual capitation rates.
- Trends over time in MississippiCAN health outcome results and compared to peer states.

This report also reviews Medicaid managed care best practices to improve cost effectiveness and makes recommendations specific to the MississippiCAN program.

A glossary of terms and acronyms is available beginning on page 6 for the convenience of the reader.

[4] Navigant Consulting. Mississippi Operational and Performance Assessment of the Governor's Office, Division of Medicaid (DOM). Prepared for the Mississippi State Legislature in response to Mississippi Regular Session 2016 House Bill 1650. February 28, 2017.

## APPENDIX C

| MONTH | YEAR | MSCAN ENROLLMENT |
|---|---|---|
| October | 2014 | 159,158 |
| November | 2014 | 160,000 |
| December | 2014 | 185,307 |
| January | 2015 | 188,079 |
| February | 2015 | 190,345 |
| March | 2015 | 206,137 |
| April | 2015 | 209,172 |
| May | 2015 | 319,743 |
| June | 2015 | 425,692 |
| July | 2015 | 505,038 |
| August | 2015 | 501,140 |
| September | 2015 | 498,108 |
| October | 2015 | 496,137 |
| November | 2015 | 496,156 |
| December | 2015 | 498,302 |
| January | 2016 | 503,347 |
| February | 2016 | 506,798 |
| March | 2016 | 507,404 |
| April | 2016 | 503,546 |
| May | 2016 | 508,893 |
| June | 2016 | 507,173 |
| July | 2016 | 502,276 |
| August | 2016 | 496,561 |
| September | 2016 | 491,661 |
| October | 2016 | 489,352 |
| November | 2016 | 487,864 |
| December | 2016 | 488,399 |
| January | 2017 | 491,073 |
| February | 2017 | 489,593 |
| March | 2017 | 488,853 |
| April | 2017 | 489,302 |
| May | 2017 | 487,428 |
| June | 2017 | 489,176 |
| June | 2017 | 487,201 |
| August | 2017 | 483,337 |
| September | 2017 | 480,956 |
| October | 2017 | 481,590 |
| November | 2017 | 479,267 |
| December | 2017 | 476,166 |
| January | 2018 | 470,595 |
| February | 2018 | 465,017 |
| March | 2018 | 457,903 |
| April | 2018 | 454,495 |
| May | 2018 | 451,931 |
| June | 2018 | 447,263 |
| July | 2018 | 441,782 |
| August | 2018 | 433,139 |
| September | 2018 | 432,195 |
| October | 2018 | 427,819 |
| November | 2018 | 434,047 |
| December | 2018 | 436,221 |
| January | 2019 | 437,875 |
| February | 2019 | 437,329 |
| March | 2019 | 437,194 |
| April | 2019 | 437,150 |
| May | 2019 | 436,689 |
| June | 2019 | 438,658 |
| July | 2019 | 436,028 |
| August | 2019 | 432,943 |
| September | 2019 | 433,998 |
| October | 2019 | 433,022 |
| November | 2019 | 435,586 |
| December | 2019 | 438,029 |
| January | 2020 | 435,561 |
| February | 2020 | 434,678 |
| March | 2020 | 431,523 |
| April | 2020 | 431,466 |
| May | 2020 | 436,099 |
| June | 2020 | 444,903 |
| July | 2020 | 450,665 |
| August | 2020 | 459,511 |
| September | 2020 | 462,070 |
| October | 2020 | 466,000 |
| November | 2020 | 472,821 |
| December | 2020 | 475,636 |
| January | 2021 | 480,405 |
| February | 2021 | 484,232 |
| March | 2021 | 485,435 |
| April | 2021 | 485,995 |
| May | 2021 | 488,759 |
| June | 2021 | 490,408 |
| July | 2021 | 475,168 |
| August | 2021 | 453,428 |
| September | 2021 | 441,231 |
| October | 2021 | 430,246 |

# HEALTHCARE SYSTEM PERFORMANCE

*Mississippi Indicators & Healthcare Infrastructure: Opportunities for Improvement*

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