

PART

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ARKANSAS TOBACCO SETTLEMENT COMMISSION

"Biennial Report Response"

The Arkansas Tobacco Settlement Commission is pleased to present to the Governor and the Arkansas General Assembly the Commission's biennial, independent evaluation of the seven programs created under the Arkansas Tobacco Settlement Proceeds Act of 2000. Passed by over 64% of Arkansas voters, the Act created the following programs to accomplish the mission of advancing health in Arkansas:

Tobacco Prevention & Cessation Program, Arkansas Department of Health

Fay W. Boozman College of Public Health, University of Arkansas for Medical Sciences

Delta Area Health Education Center, University of Arkansas for Medical Sciences

Arkansas Aging Initiative, University of Arkansas for Medical Sciences

Arkansas Minority Health Initiative, Arkansas Minority Health Commission

Arkansas Biosciences Institute

Medicaid Expansion Program, Arkansas Department of Human Services

This biennial report summarizes information from the fifth and final independent evaluation report from the RAND Corporation of Pittsburgh, Pennsylvania. The data include not only findings for the 2010 and 2011 fiscal years but changes in outcomes that have occurred over the past decade. The Arkansas Tobacco Settlement Commission (ATSC) contracted with RAND, a health policy research institute, in 2003 to assist in its monitoring and evaluation of the ATSC programs' outcomes. RAND evaluations reflected the activities and progress made by the programs and their findings were reported to the Governor and General Assembly in 2004, 2006, 2008, and 2010.

The Commission is proud that this report will show the adherence by the seven programs to the goals of the Initiated Act of 2000. Overall, the report shows success in programs having reached applicable short-term goals and progress in attaining long-term goals. Arkansas' national ranking in geographic disparity of health moved up 10 places in the past decade.

Program Achievements

Tobacco Prevention & Cessation Program (TPCP): Smoking rates for adult Arkansans plummeted 31% over the past decade. Perhaps even more encouraging, the smoking rates among teens declined with only half as many high school-age Arkansans smoking. In 2010, fewer Arkansans were hospitalized with heart attacks and stroke than in 2001. However, RAND points out that the legislative transfer of \$4.5 million from the TPCP's cessation budget to drug courts is a plausible explanation for reduced Quitline activity. Since only 3 percent of drug court spending actually involves tobacco cessation-related activity, RAND also predicts a slowing of our state's progress in its battle against tobacco use if this practice continues.

UAMS Fay W. Boozman College of Public Health (COPH): As mandated in the Initiated Act, COPH is providing professional education, research, and services to the public health community of Arkansas. COPH has been successful in increasing its grant, contract, tuition, and other state

funding. As such, this long-term investment in the state's public health is becoming less reliant on MSA funds (38% of its total funding in 2005 to 18% in 2011). COPH boasts a diverse student enrollment and follow-up shows a large number of former students working in public health. The administration is working to attract more Hispanic students, to hire more research-oriented faculty members, and to more systematically follow up with former students.

UAMS Delta Area Education Center (Delta AHEC): This 7-county (Chicot, Crittenden, Desha, Lee, Monroe, Phillips, and St. Francis) health education outreach initiative of UAMS appears to be fulfilling its mission: to increase health care access and to provide health education to the people living in the Delta. There have been significant improvements in geographical health disparities. By 2011 Delta AHEC received 42 percent of its funding from non-MSA sources. In 2012 it successfully partnered with the UAMS Family Medicine Residence Program to bring residents to Helena for one-month rotations. Delta AHEC is concentrating an effort to encourage local school-age children to consider health careers as a new approach toward the growth of its local healthcare workforce.

UAMS Arkansas Aging Initiative (AAI): AAI has benefitted from strong and consistent leadership resulting in their success in improving the lives of the elderly and their education of health care professionals in all types of elder care. It has successfully sustained and grown its financial base and as a result the two-year total for 2010-2011 was \$2.15 million in leveraged funds. AAI's model is being replicated elsewhere in the country. AAI faces the challenge of affecting the state's ranking of avoidable hospitalizations for Medicare beneficiaries for this decade.

Arkansas Minority Health Commission Minority Health Initiative (MHI): Since its inception, MHI has struggled with several changes in management and other course corrections as late as 2010. It has been plagued by under-spending on its programming and activities as well as very high unit costs. MHI does play a leading role in tracking and supporting legislation and advocating for policy changes relevant to minority health. MHI contributes relevant research, and is successfully collaborating with the tobacco-funded programs (AAI, Delta AHEC, and COPH). Because of the late re-institution of some of the screenings, continued monitoring of outcomes will be necessary.

Arkansas Biosciences Institute (ABI): ABI has been faithful to its twin missions of training Arkansas students in bioscience research methods and of advising policymakers and the public in areas of its expertise. ABI has successfully used its MSA funding to attract additional research funding to the state and has produced a substantial body of research that has been published in scholarly journals. RAND recommends that ABI develop strategies for expanding the use and measuring the success of dissemination technology techniques (i.e. social media).

Arkansas Department of Human Services Medicaid Expansion Program (MEP): MSA dollars continue to fund the four expansion programs called for in the Initiated Act. MEP dramatically increased enrollment and spending since the inception of its subsidized private insurance program for low-income employees of small business (ARHealthNetworks) in 2007. They also have implemented an automated enrollment program to improve access. RAND recommends that MEP's efforts at balancing increasing costs with fluctuating program numbers be monitored to determine if dedicated resources are being spent for the intended segments of the state's disadvantaged population.

ARKANSAS TOBACCO SETTLEMENT COMMISSION

"Program Funding Recommendations"

The Commission is pleased to recommend to the Governor and the Arkansas General Assembly that these seven programs continue to receive full funding to carry out their important and vital work of improving the health and lives of Arkansans.

The Arkansas Tobacco Settlement Commission is pleased with the overall results being achieved by the seven Tobacco Settlement Programs. The lives of hundreds of thousands of Arkansans have been positively impacted through these many services and we look forward to seeing the continued leveraging of Tobacco funds to bring in additional investment here at home. The Commission fully believes each of these programs should go forward into the next biennium with a continued sense of mission and purpose of improving the health of Arkansans. In order to achieve this, the Commission firmly believes the seven programs of the Arkansas Tobacco Settlement Proceeds Act must continue to be funded at the percentages described in the Act. Therefore, the Commission has officially adopted the following recommendation to the Governor and General Assembly:

"The Arkansas Tobacco Settlement Commission, as authorized in the Arkansas Tobacco Settlement Proceeds Act of 2000, recommends that the Arkansas Governor and General Assembly provide all necessary appropriations and funding needed to keep the Act's Programs at their fully funded levels."

Arkansas has remained unique in keeping its pledge to use all the tobacco settlement proceeds for health advancement. Arkansans can be extremely proud of that strong and continued commitment. The Commission looks forward to the continued success of the programs in improving the health of the state. The Programs of the Arkansas Tobacco Settlement Proceeds Act are providing long-term rewards in health care savings and quality of life improvements for Arkansans, which is worth far more than dollars and cents.

PART

2

Evaluation of the Arkansas Tobacco Settlement Program

Progress Through 2011 – Summary

John Engberg, Deborah M. Scharf, Susan L. Lovejoy, Hao Yu, Shannah Tharp-Taylor

RAND RESEARCH AREAS
 CHILDREN AND FAMILIES
 EDUCATION AND THE ARTS
 ENERGY AND ENVIRONMENT
 HEALTH AND HEALTH CARE
 INFRASTRUCTURE AND TRANSPORTATION
 INTERNATIONAL AFFAIRS
 LAW AND BUSINESS
 NATIONAL SECURITY
 POPULATION AND AGING
 PUBLIC SAFETY
 SCIENCE AND TECHNOLOGY
 TERRORISM AND
 HOMELAND SECURITY

In November 1998, U.S. states and the major tobacco companies ended years of prolonged legal disputes by signing the Master Settlement Agreement (MSA). Under the terms of the agreement, the tobacco companies agreed to pay participating states more than \$206 billion over 25 years. Arkansas's share of these payments is .828 percent, approximately \$1.7 billion, which the state has been receiving since 2000.

Unique among the states, in Arkansas a commitment was made by both elected officials and the general public to invest its share of the MSA funds in health-related programs. The Tobacco Settlement Proceeds Act, a referendum passed by more than 65 percent of Arkansans in the November 2000 election (henceforth called the Initiated Act), established a comprehensive program that uses the MSA funds to invest in the health of Arkansans.

The Initiated Act created the Arkansas Tobacco Settlement Commission (ATSC), which is responsible for monitoring and evaluating the performance of the funded programs. To help carry out this evaluation function, the ATSC contracted with the RAND Corporation in 2002 to serve as an external evaluator. Since then, RAND conducted a comprehensive, ongoing evaluation of the progress made by the programs in fulfilling their missions and assessed the effects of these programs on smoking and other health-related outcomes. This report represents the fifth and final of RAND's evaluation reports.

This report should be of interest to national and state policymakers, health care researchers and providers, and others concerned with the effects of the tobacco settlement funds on the health of Arkansans. The research described in this report was sponsored by the Arkansas Tobacco Settlement Commission and was conducted in RAND Health, a unit of the RAND Corporation. We are grateful for the assistance and guidance of the ATSC and staff during the evaluation and the cooperation of the directors and staff of the seven funded programs. Their support derives from a commitment to objective evaluation and it adds value to our work. Within RAND, we are indebted to David Adamson for his draft of the executive summary; and Donna Farley, who served as project director for the first four years and has been an invaluable source of support throughout the project.

The Tobacco Settlement Proceeds Act

In Arkansas, the Initiated Act authorized the creation of seven programs to be supported by MSA funds, established short- and long-term goals for the performance of these programs, specified the funding shares to support the programs and a structure of funds for management and distribution of proceeds, and established the ATSC to oversee the overall initiative. Subsequent legislation slightly changed some of the goals and programs but maintained the original intentions.

The MSA imposed no restrictions on how states could spend their payments, and states have allocated them to a wide variety of activities. The people of Arkansas allocated the vast majority of MSA funds to seven programs intended to improve the state's health.

Goals and Funded Programs

The goals of the Initiated Act are to (1) reduce tobacco use and the resulting negative health and economic impacts; (2) expand access to health care, thereby improving the health of Arkansans; (3) develop new tobacco-related medical and agricultural research initiatives to improve access to new technologies, improve the health of Arkansans, and stabilize the economic security of Arkansas; and (4) improve the health care systems in Arkansas and access to health care delivery systems, thereby resolving critical deficiencies that negatively impact the health of the state's citizens. To address these goals, the act created the following seven programs:

- *Tobacco Prevention and Cessation Program (TPCP, 31.6 percent of annual funding)*. Managed by the Department of Health, TPCP aims to reduce initiation of tobacco use and resulting negative health and economic impacts. TPCP uses the Centers for Disease Control and Prevention (CDC) recommendations for tobacco cessation and prevention activities in developing its programs.
- *Medicaid Expansion Programs (MEP, 29.8 percent)*. The MEP seeks to expand access to health care

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Our intention is for ATSC and the programs to use this report to effectively build on their efforts to date.

through targeted expanded benefits packages that supplement the standard Arkansas Medicaid benefits. The programs are managed by the Arkansas Department of Human Services.

- *Arkansas Bioscience Institute (ABI, 22.8 percent).* ABI works to develop new tobacco-related medical and agricultural research initiatives, improve the health of Arkansans, improve access to new technologies, and stabilize the economic security of the state. The Initiated Act provides for ABI to be funded through separate appropriations to the participating institutions. The program's management reports to the ABI board, which also was established by the Initiated Act.
- *College of Public Health (COPH, 5.2 percent).* COPH is a resource to provide professional education, research, and services to the public health community of Arkansas. It is a unit of the University of Arkansas for Medical Sciences (UAMS).
- *Minority Health Initiative (MHI, 3.6 percent).* MHI aims to identify the special health needs of Arkansas's minority communities and to establish health care services to address these needs. MHI is managed by the Arkansas Minority Health Commission (AMHC).
- *Delta Area Health Education Center (Delta AHEC, 3.5 percent).* Delta AHEC is an additional unit in the statewide Arkansas AHEC system, which provides clinical education throughout the state. It was put into the Initiated Act to provide such services for the underserved and disproportionately poor Delta region of the state.
- *Arkansas Aging Initiative (AAI, 3.5 percent).* AAI provides community-based health education for senior Arkansas residents through outreach to the elderly and educational services for professionals. It is housed in the Reynolds Center on Aging, a unit of UAMS.

One of these programs, TPCP, is dedicated to smoking prevention and cessation and receives one-third of the MSA funds. Most, though not all, of TPCP funds are available for smoking cessation and prevention efforts. Most of the other programs primarily serve the health-related needs of disadvantaged Arkansas residents (MEP, MHI, AAI, Delta AHEC); others are long-term investments in the public health and health research infrastructure (ABI, COPH).

In addition to identifying basic goals, the Initiated Act also defined performance indicators for each funded program with respect to program initiation and short- and long-term actions. In a previous

report¹ RAND reported that all programs had achieved their initiation goals and short-term goals.

Purpose of This Report

This report is the fifth and final from the RAND evaluation. It includes findings for fiscal years 2010 and 2011, as well as a look back over the past ten years. The report describes program funding and spending, the effects on outcomes, and related policy issues. Our intention is for ATSC and the programs to use this report and our earlier reports to better understand their progress toward improving the health of Arkansans and toward their other goals, so that they can effectively build on their efforts to date.

RAND's Approach to the Evaluation

RAND's approach in this phase of the evaluation cycle differed from that followed in earlier phases. RAND responded to ATSC's request for more limited data collection and a more streamlined report. Our findings draw on several data sources, including quarterly reports and spending and funding data compiled by ATSC and the seven funded programs. Also, the process by which RAND received program data differed from that followed for past reports in key ways. Specifically, quarterly report data were requested and collected by the commission, then forwarded to the RAND team electronically. Further, the commission narrowed the scope so that RAND no longer conducted update calls, quarterly program calls, or annual site visits with the seven programs. In the past, the evaluation team used these calls and visits to gain information that contributed to the narrative explanation of the programs' successes and challenges, and programs provided input to the iterative evaluation process through which RAND used the information to describe program implementation processes and to explain unexpected results.

As in prior phases, RAND used data provided by the programs to calculate unit costs for several program initiatives. This allowed RAND to detect trends over time and to compare the relative costs of the various initiatives that programs are implementing. However, some of the programs were unable to allocate expenditures to specific initiatives, and others, such as COPH and ABI, did not have discrete activities for which to calculate unit costs.

Also (as in the prior phases), RAND relied on secondary data sources to assess health-related out-

¹ Dana Schultz, Tamara Dubowitz, Susan L. Lovejoy, Shannah Tharp-Taylor, Hao Yu, and John Engberg, *Evaluation of the Arkansas Tobacco Settlement Program: Progress During 2006 and 2007*, Santa Monica, Calif.: RAND Corporation, TR-611-ATSC, 2008.

comes. These sources include national surveys plus state supplements for the Behavioral Risk Factor Surveillance System; U.S. Census data; data summaries from nonprofit organizations such as the American Lung Association, Campaign for Tobacco-Free Kids, and the United Healthcare Foundation; and statistics from the Arkansas Department of Health.

Tobacco Control Trends and Results

In the past decade, Arkansas made significant progress in its tobacco control policy. Key among these improvements are significant increases in cigarette and smokeless tobacco taxes in 2009. In addition, new smoke-free air legislation was passed that protects nonsmokers in workplaces and many bars and restaurants, students and employees of public post-secondary schools, and children in cars.

Tobacco-Related Outcomes

Tobacco use and health trends related to tobacco use improved significantly in the past decade. TPCP played a role in these improvements.

Smoking Prevalence. As shown by Figure 1, fewer Arkansans smoke now than a decade ago. *Among adults, smoking prevalence declined by 31 percent, decreasing the*

adult smoking rate from 26 percent in 2001 to 18 percent in 2010.

Figure 2 shows that smoking rates among young people and pregnant women also declined. One of the largest decreases occurred among high school students. *Only half as many Arkansas high school students smoke today compared with a decade ago.*

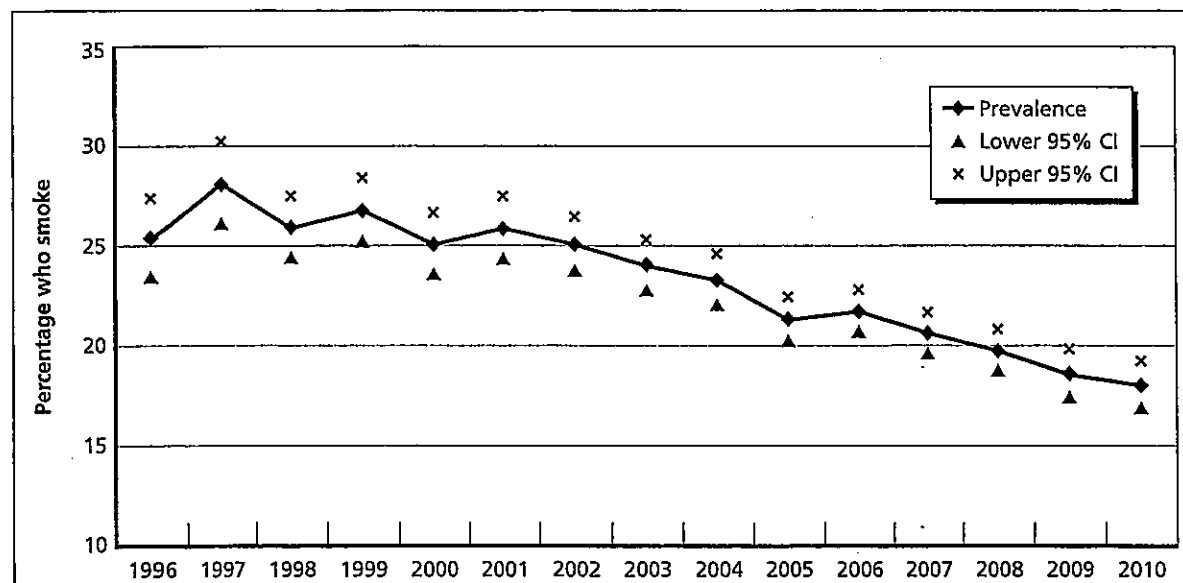
Figure 3 shows that Arkansas's smoking rate declined faster than the rate in the six neighboring states since the start of the programs in 2001 (after adjustment for differences in demographics among states and over time). This suggests that Arkansas's tobacco control programs are helping to reduce smoking rates. Although the most recent year, 2010, in Figure 3 suggests that the smoking rate increased even though rates for neighboring states continued to decline, the margin of error in these estimates is too large to make such a conclusion. However, recent reductions in prevention and cessation programming provide reasons to expect an end to Arkansas's progress in the battle against tobacco use, suggesting that these statistics should continue to be monitored.

Smoking and Health

With fewer smokers in the state and greater protections from secondhand smoke, changes in Arkansans'

Among adults, smoking prevalence declined by 31 percent.

Figure 1
Decline in Number of Adult Smokers in Arkansas, 1996–2010



SOURCE: RAND analysis of CDC Behavioral Risk Factor Surveillance System (BRFSS) micro data files, <http://www.cdc.gov/brfss>

NOTES: Decline in smoking from 2001 to 2010 is statistically significant (p -value < 0.05). This analysis of adult smoking rates accounts for the important design features of the BRFSS survey, including probability weights, as well as strata and sampling unit information. Including all these design features is of critical importance to make the sample representative of the entire state population. Many public sources (e.g., United Health Foundation, <http://www.americashealthrankings.org/Rankings>) do not use this information in their calculations and obtain different estimates. For example, United Health Foundation reports a 2010 smoking rate of 22% rather than the 18% used here. However, trend information is similar. CI is Confidence Interval.

Figure 2
Decline in Smoking Among Arkansas Youth and Pregnant Women, 2001–2011

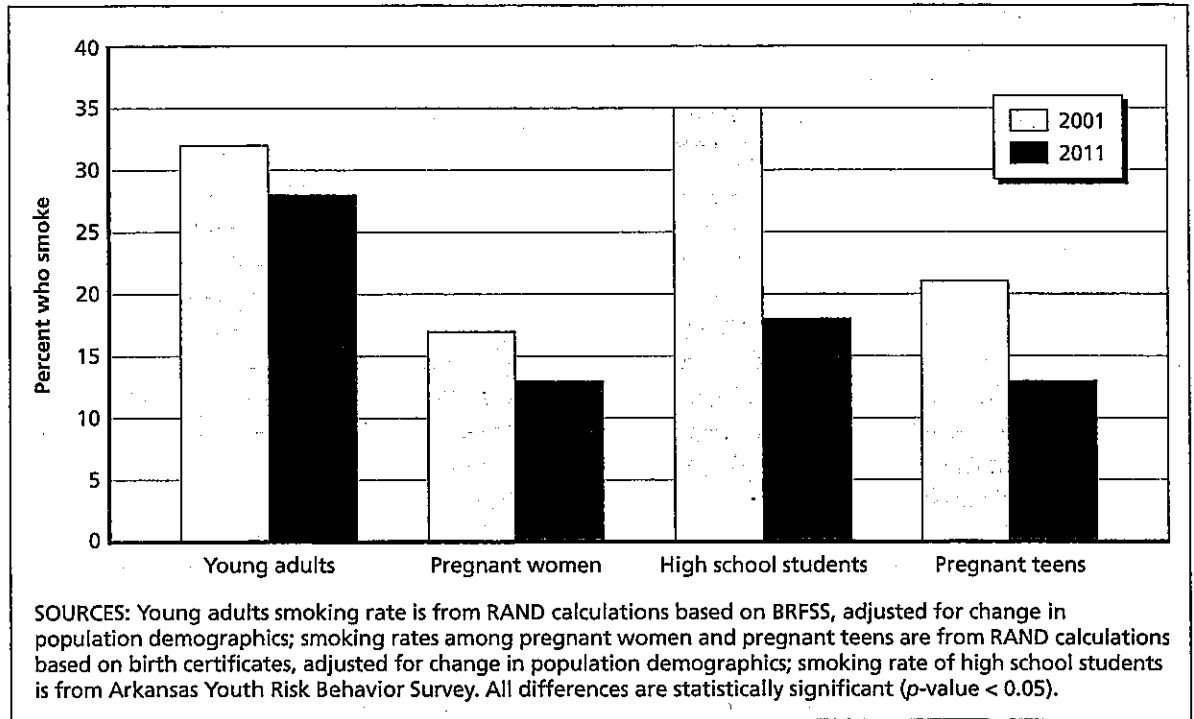
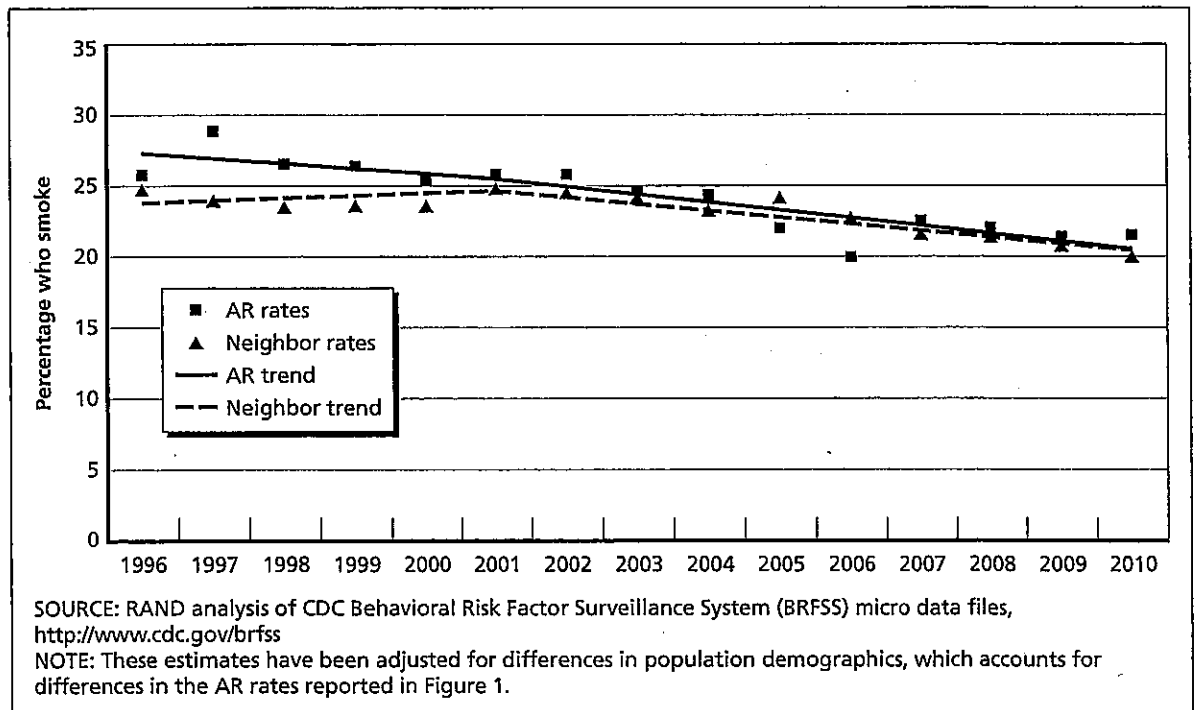


Figure 3
Smoking Rates and Trends in Arkansas and Its Six Neighboring States



health, are expected to follow. Specifically, rates of diseases that respond quickly to changes in smoking prevalence, such as low-weight births, strokes and heart attacks, pulmonary conditions, asthma, and diabetes, should also decline.

In fact, hospital discharge data show that *recent reductions in statewide smoking rates may be helping to protect Arkansans from smoking-related disease.* In 2010, fewer Arkansans were hospitalized for strokes and heart attacks than in 2001 (Figure 4). The reduction in hospitalization for each of these two conditions is statistically significant. And although rates of asthma, diabetes, pneumonia, and low-weight births did not decrease significantly from 2001 levels, earlier uptrends in these diseases were slowed. In other words, programs have helped protect Arkansans from tobacco-related harm.

Despite these advances, tobacco continues to take a staggering toll on the state's health, well-being, and finances. Each year 4,900 Arkansans die from direct smoking, and 64,000 Arkansan children alive today will ultimately die from smoking-related causes. Given racial and ethnic disparities in tobacco use within the state, the smoking-related disease burden among some groups, such as non-Hispanic blacks, is likely on the rise. Arkansas's annual health care expenditures directly caused by tobacco use total \$812 million. Citizens spend \$627.7 million (\$558 per household) to cover smoking-related government costs each year. This equates to health costs and pro-

ductivity losses of \$9.65 per pack of cigarettes sold in the state². In 2010, 18 percent of adult Arkansans smoked cigarettes, and this rate is among the highest (5 of 50 states) in the nation.

Nontobacco Health-Related Trends and Results

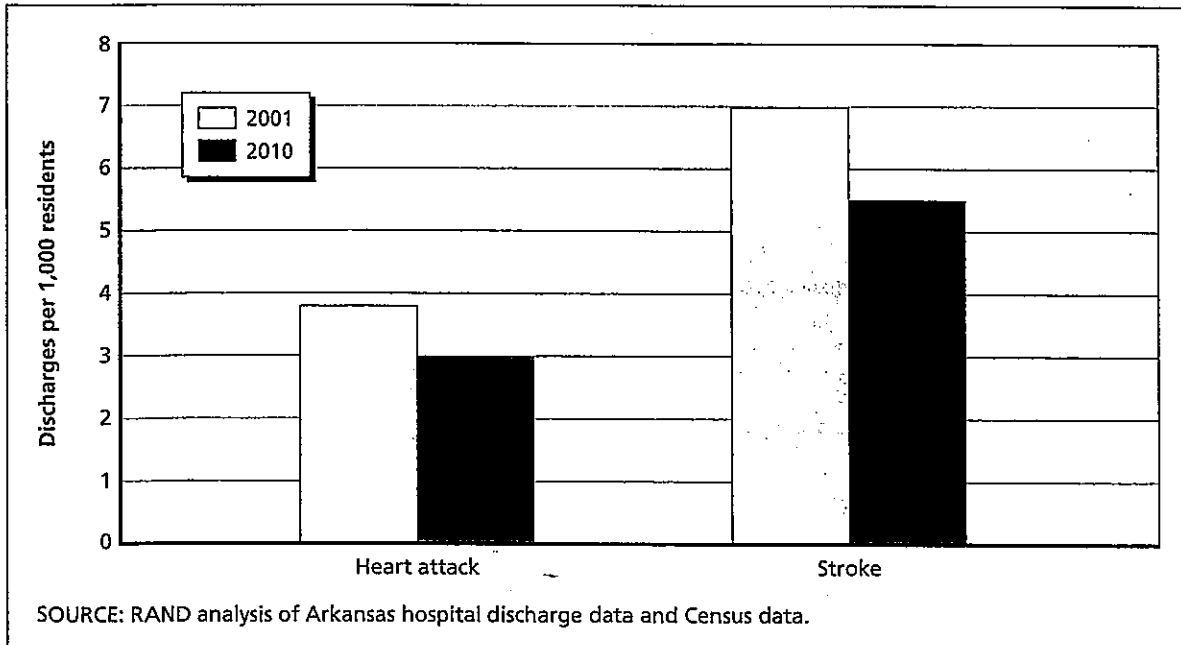
In 2001, Arkansas trailed the nation in many health measures, ranking 45 of 50 states on a composite score of all health outcomes. The Initiated Act dedicated more than two-thirds of Arkansas's share of the MSA funds to six nontobacco programs, each with specific goals for improving the health of Arkansans. In the past decade, Arkansas spent almost half a billion dollars on these efforts. Although this represents a sizable investment, it is a small fraction of what the Arkansas government spends on health care or the health care costs resulting from tobacco-related disease. Specifically, the Initiated Act's annual contribution to these six programs was approximately equal to 1 percent of annual Medicaid expenditures in Arkansas³ or equal to approximately 4 percent of the annual increased health care costs directly resulting from tobacco use in Arkansas. These investments have produced results in the past decade.

Despite these advances, tobacco continues to take a staggering toll on the state's health, well-being, and finances.

² Campaign for Tobacco Free Kids, "The Toll of Tobacco in Arkansas," 2011, http://www.tobaccofreekids.org/facts_issues/toll_us/arkansas

³ Kaiser Family Foundation, "State Health Facts: Medicaid and CHIP," 2012, <http://www.starehealthfacts.org/comparecat.jsp?cat=4&rgn=5&rqn=1>

Figure 4
Decrease in Heart Attacks and Strokes Among Arkansans After Program Implementation



The state's ranking in geographic disparity of health moved up 10 places.

Overall Health Status of Arkansans

Table 1 shows that Arkansas's health status remained virtually unchanged, according to the ranking of all health outcomes. Arkansas moved up one place from its ranking of 45 of 50 states in 2001. However, on another measure often used as a proxy for overall population health, infant mortality, Arkansas rose five places from 40 to 35 among the states. The state's ranking in geographic disparity of health moved up 10 places to above the median for states, which suggests that some of the racial and ethnic disparities have been mitigated. This also suggests that Arkansas made some progress on elevating the health status of all Arkansans, but there is much room for improvement.

Arkansas's progress on measures of specific health conditions was mixed. The state improved five places or more on rankings of individuals who report high cholesterol and obesity and in the rate of preterm births. The state retained the same poor ranking of those who report high blood pressure and the rate of low-birth-weight babies. On the other hand, the state's ranking of those reporting diabetes declined by six places to 33 among 50 states.

Overall, this suggests modest progress on most of the health measures that the MSA-funded programs, in one way or another, intended to improve.

**Table 1
Arkansas Health Ranking Among U.S. States**

Health Care Measure	Rank in 2011	Change from 2001
All Health Outcomes	44	+1
Premature Death	43	0
Specific Conditions		
High Blood Pressure	45	0
Low Birth Weight	42	0
SOURCE: United Health Foundation, http://www.americashealthrankings.org/Rankings		

- Ranking improved five places or more.
- Ranking changed by fewer than five places.
- Ranking fell five places or more.

Access to Health Care

Several of the programs were poised to improve access to health care. However, MEP is the program with the most direct impact on this health building block. With major expansions in several areas, it received the most funding by far for this task. We examine three measures of health care access that align with three of the MEP expansions.

First, we examine whether expectant mothers in Arkansas are more likely to have early and adequate prenatal exams than in the past. Arkansas's rank went down by one place to 41 among the states. The expansion of Medicaid to fund services for more pregnant women was not adequate to raise Arkansas's place among the states.

The second measure is avoidable hospitalizations for seniors. MEP's program to expand Medicaid to all elderly below 80 percent of the federal poverty level (FPL) was intended to provide primary care services to the most disadvantaged elderly, thereby helping them avoid hospitalization for conditions better served through preventive and outpatient care. In addition, AAI clinical and educational programs are aimed at providing better access to primary care for the elderly. In spite of these efforts, the ranking of Arkansas for the rate of avoidable hospitalizations for Medicare beneficiaries, the vast majority of whom are elderly, slipped by one place to 45 by 2009.

The final measure of access directly related to MEP expansions is the percentage of the working-age population with health care coverage of any kind. The ARHealthNetworks Medicaid expansion to subsidize employer-based basic health insurance for employees of small businesses is aimed at decreasing the number of working-age adults without health care coverage. In spite of this effort, Arkansas fell by six places during the last decade to 49 of 50 states.

The success of the programs at addressing issues of access can also be tracked by examining changes in disparities that affect underserved populations within Arkansas over the decade. Table 2 shows that the changes in both the access measures and the percent overweight remained approximately the same for African-Americans and whites, except that increases in one of the access measures—the percentage of African-Americans tested for HIV/AIDS—improved much more than for whites. With respect to region, some disparities changed for the worse, while others changed for the better. The percentage of elderly in the Delta region who receive flu shots increased, but this percentage increased more rapidly in the rest of the state and now is approximately equal to the rate in the Delta region. On the other hand, the percentage

Table 2
Change in Disparities Within Arkansas by Race and Region

Health Care Measure	Race			Region		
	2010 African-American (%)	Change in African-American (%)	Change in White (%)	2009-2010 Delta Region (%)	Change in Delta Region (%)	Change in Non-Delta Region (%)
Adults prevented from seeing doctor due to cost	25.7	+7.0	+2.8	17.7	-0.3	+4.8
Adults received routine check-up in past two years	85.1	-4.1	-8.1			
Adults received HIV/AIDS test				31.4	+2.6	+19.8
Adults (age 65+) received flu shot in past year	6.3	-2.1	-0.9			
Adults overweight or obese	78.5	-6.0	+7.2			

SOURCE: RAND analysis of CDC Behavioral Risk Factor Surveillance System (BRFSS) micro data files, <http://www.cdc.gov/brfss>

NOTES: Race percentages are for 2010 and the difference between 2000 and 2010 (except for the flu shot question, for which the percentages are for 2009 and the difference between 1999 and 2009). African-American and white are the only two race categories with sufficient sample sizes for reliable statistics. Region percentages are for 2009-2010 and the difference between 2000 and 2005 and 2009 and 2010. Multiple years are required in order to have a sufficient sample size for the Delta region. The Delta region includes Chicot, Crittenden, Desha, Lee, Monroe, Phillips, and St. Francis counties.

- Change in Arkansas percentage is better than U.S. change by statistically significant amount (p -value < 0.05).
- No statistically significant difference in Arkansas and U.S. changes.
- Change in Arkansas percentage is worse than U.S. change by statistically significant amount.

of adults in the Delta region who had a check-up rose faster and now exceeds that in the rest of the state. The percentage of adults who are overweight rose less rapidly than in the rest of the state, with the result that the rest of the state now has an equally high rate of 63 percent. On balance, these statistics echo the finding in geographic disparities in overall health outcomes presented above, which suggests improvement.

Healthy Behaviors

Virtually all of the programs are aimed at promoting healthy behaviors to some extent. However, four of the programs (COPH, AAI, MHI, and Delta AHEC) directly work to educate portions of the community in order to increase knowledge and skills that help them replace risky behaviors with healthy behaviors.

Table 3 provides information on the change in Arkansas's ranking on a variety of healthy and risky behaviors. Of the rankings we examined, two remained relatively constant and four deteriorated by five places or more. A healthy diet that includes fruits and vegetables, which contain vitamins, minerals, and fiber, is protective against many diseases. Similarly, regular physical exercise is crucial for combating a wide variety of diseases from heart disease and diabetes to some cancers and depression. Therefore, the deterioration of these

Table 3
Arkansas Health Behavior Ranking Among U.S. States

Behavior	Rank in 2011	Change in Rank from 2001
Risky		
Binge drinking	5	+1
Teens not using seat belts	47	+1
Healthy		

- Ranking improved five places or more.
- Ranking changed by fewer than five places.
- Ranking fell five places or more.

rankings, that is, healthy diet and exercise, was not consistent with the goals of the funded programs. Furthermore, as a leading indicator of health outcomes, these results suggest that the prospects for future improvement in the state health ranking are not good.

The improved rankings presented in Table 1 suggest that Arkansas made more progress in overall health outcomes relative to other states. However, Arkansas's overall progress in health outcomes may be tenuous because its citizens are lagging behind in preventive health behaviors (see Table S.3) that could contribute to an increase in future rates of disability and disease.

Arkansas's overall progress in health outcomes may be tenuous because its citizens are lagging behind in preventive health behaviors.

Specific Program Results

We found that the *Medicaid Expansion Program* dramatically increased enrollment and spending since the inception of its subsidized private insurance program for low-income employees of small business (ARHealthNetworks) in 2007. Spending and enrollment for the other three expansions, which target health care for pregnant women and low-income elderly and reduction of hospital costs for very short and very long hospital stays, remained relatively flat throughout the decade. Medicaid recently implemented a new web-based enrollment system and is working with the state's AHECS on mobile outreach. Other outreach efforts for these three programs that were scaled up in recent years have now been suspended due to budgetary concerns, although we have demonstrated in previous reports that the programs are not fully meeting the needs of their target populations.

Despite these efforts, Arkansas's rankings in measures related to these efforts—adequate prenatal care, avoidable hospitalizations for Medicare beneficiaries, and health care coverage for the working-age population—did not improve over the decade. Overall, MEP spent less than 50 percent of its allocated share of MSA funds over the past five years (prior to fiscal year 2011) on the intended expansion programs. MEP's efforts to balance the increasing cost of health care with fluctuations in program enrollment should be monitored in order to determine whether MEP actually does spend the resources dedicated to it by the Initiated Act on increasing medical care for the intended segments of the state's disadvantaged population.

The *Arkansas Biosciences Institute* successfully used its MSA funding to attract additional research funding to the state and to produce a substantial body of research that has been published in scholarly journals. The institute was also faithful to its twin missions of training students from throughout Arkansas in bioscience research methods and of advising policymakers and the public in areas of its expertise. Through the decade, Arkansas increased its level of

federal research funding in sciences and health by a much faster rate than its neighbors or the nation as a whole, although it remains at less than half the national average in per capita annual federal research funding. Although it is difficult to measure precisely how much ABI affected the state's economy, median weekly earnings for the state as a whole and the percentage of state residents employed in scientific research or other professional and technical services did not change appreciably over the decade. As ABI research findings are further disseminated and as the technologies it develops are adopted, the contributions of specific Arkansas research projects to the health of Arkansans and to the Arkansas economy should be easier to measure.

The *Fay W. Boozman College of Public Health* was created with MSA funds to fill a gap in the offerings of the UAMS. It receives approximately 5 percent of the annual MSA allocation, which it uses to train a diverse public health workforce for the state and to conduct research. Over the decade, it gained accreditation and continued to expand its research and teaching capacity. It dramatically increased its other sources of funding, in part, by fully spending and successfully leveraging its MSA funds. At the end of its first decade, COPH is tied for thirtieth in the *U.S. News and World Report* rankings⁴. Although signs indicate that COPH was very successful in fulfilling its mission, the long-term goal specified for COPH in the Initiated Act of elevating "the overall ranking of the health status of Arkansas" has not yet been attained.

The *Minority Health Initiative* was created with the short-term goal of prioritizing health problems and planned interventions for Arkansas's minority population and increasing the number of Arkansans screened and treated for tobacco-related illnesses. Through several changes in management and other course corrections during the decade, MHI settled on a strategy of performing health screenings through various outreach programs and funding pilot programs directed at improving minority health. It also monitors and advocates for health policy changes that will help minorities and it contributes relevant research. MHI wrestled with financial management issues, including keeping unit costs of screening and testing efforts in a reasonable range; it finally managed to fully use its resources for the intended purposes. However, MHI has yet to return to the levels of health screening activity that it provided in previous years. There has been no improvement in four of five measures in the racial disparity of health that we

⁴ *US News and World Report*, "Graduate School Rankings: Colleges of Public Health," 2012.

examined. However, Arkansas's racial disparities in HIV/AIDS testing improved over the decade, which is consistent with one of MHI's main goals.

Throughout the decade, *Delta Area Health Education Center* became a full-service health education center for the people of Arkansas's Delta region. Designed to increase health care access and to provide health education to the population and to health professionals, it consistently used its resources and annually increased the number of encounters with citizens and professionals. Following a trend of successful fund raising, in 2011 Delta AHEC received 42 percent of its funding from non-MSA sources—its highest level of non-MSA funding to date. Delta AHEC struggled to bring health professionals to the region; however, in 2012 it successfully partnered with the UAMS Family Medicine Residency Program to bring first-year family medicine residents to Helena in Phillips County for one-month rotations. Further, it sharpened its focus on encouraging local school-age children to consider health careers as a new strategy to grow its local health care workforce. There was significant improvement in geographical health disparities, which is a testament to Delta AHEC's impact on the region's health.

The *Arkansas Aging Initiative* benefited from strong and consistent leadership to leverage high-quality health care for the state's elderly and to help educate health care professionals of all types in elder care. It successfully influenced public policy and collaborated with researchers throughout the state to improve the health status of elders. It now has a national presence among elder health leaders, and AAI's model is being replicated elsewhere in the country. Despite these successes, Arkansas's ranking of avoidable hospitalizations for Medicare beneficiaries did not appreciably improve during the decade.

Recommendations and Concluding Observations

In the past decade, Arkansas saw significant improvement in several key areas of tobacco control and cor-

responding improvements in tobacco-related health outcomes. However, in order to become a national leader in tobacco control, Arkansas could take several additional steps, including the following:

- Further raise state taxes on cigarettes and other tobacco products (including smokeless tobacco) to meet or exceed the national average.
- Broaden its smoke-free air laws. For instance, Arkansas could ban (and not just restrict) smoking in restaurants and bars catering to adult clientele.
- Implement smoking bans in public and multiunit housing.
- Expand and strengthen existing community-level bans on smoking in recreational spaces, such as parks and zoos, by making such laws applicable statewide. As other nicotine-delivery systems become more widely available (e.g., electronic, or e-cigarettes), Arkansas may consider adding these devices to existing smoke-free legislation. Careful oversight of these products is critical for the health of Arkansans because they are being marketed particularly to youth and because the long-term health consequences of these products remain unclear.

Arkansas made substantial progress in the past decade in reducing smoking rates and improving tobacco-related health outcomes among its residents. However, the state still ranks near the bottom nationally in smoking rates, other health-related behaviors, health care access, and health outcomes. This does not represent a failure of the programs funded by the Initiated Act. In several cases, programs did not use all of their resources in the intended fashion. However, in most cases, the programs fulfilled their missions and met the start-up and short-term goals set by the act, as well as further goals set by the ATSC. These funded programs helped Arkansas make gains in its chosen areas. However, full use of MSA resources by the programs can be expected to lead to larger gains in the future. ■

Full use of tobacco settlement resources by the programs can be expected to lead to larger gains in the future.

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PART

3

EXHIBIT E

Evaluation of the
Arkansas Tobacco
Settlement Program

Progress Through 2011

John Engberg, Deborah M. Scharf, Susan L. Lovejoy,
Hao Yu, Shannah Tharp-Taylor

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Preface

The Tobacco Settlement Proceeds Act, a referendum passed by Arkansans in the November 2000 election, invests Arkansas's share of the tobacco Master Settlement Agreement (MSA) funds in seven health-related programs. The act also created the Arkansas Tobacco Settlement Commission (ATSC) to monitor and evaluate the performance of the funded programs. As part of its evaluation function, the ATSC contracted with the RAND Corporation in January 2003 to serve as an external evaluator. RAND was responsible for evaluating the progress of the seven programs in fulfilling their missions, as well as the effects of the programs on smoking and other health-related outcomes. RAND's first biennial report, which was submitted to the ATSC in July 2004, presented evaluation results for the first biennium of the tobacco settlement program (Farley et al., 2004). RAND submitted a subsequent interim report in June 2005 (Farley et al., 2005) and a second biennial report in June 2006 (Farley et al., 2007). A third official biennial report was submitted in 2008 (Schultz et al., 2008) and a fourth report in 2010 (Schultz et al., 2010).

This report is the fifth and final biennial report from RAND. We document continued activity and progress by the ATSC and the seven funded programs through December 2011, as well as changes in tobacco policy and relevant health-related outcomes. We summarize the history and policy context of the tobacco settlement funding in Arkansas and discuss the ATSC's activities. Then we evaluate the progress of each funded program, including progress in achieving long-range goals, and track process indicators directly related to the goals. We also update trends in outcome measures developed to monitor the effects of the funded programs on smoking and other health-related outcomes.

This report should be of interest to national and state policymakers, health care researchers and providers, and others concerned with the effects of the tobacco settlement funds on the health of Arkansans. This work was sponsored by the Arkansas Tobacco Settlement Commission and was carried out within RAND Health, which is a division of the RAND Corporation. Abstracts of all RAND Health publications and full text of many research documents can be found at the RAND Health website at <http://www.rand.org/health/>.

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Summary

In November 1998, U.S. states and the major tobacco companies ended years of prolonged legal disputes by signing the Master Settlement Agreement (MSA). Under the terms of the agreement, the tobacco companies agreed to pay participating states more than \$206 billion over 25 years. Arkansas's share of these payments is .828 percent, approximately \$1.7 billion, which the state has been receiving since 2000.

Unique among the states, in Arkansas a commitment was made by both elected officials and the general public to invest its share of the MSA funds in health-related programs. The Tobacco Settlement Proceeds Act, a referendum passed by more than 65 percent of Arkansans in the November 2000 election (henceforth called the Initiated Act), established a comprehensive program that uses the MSA funds to invest in the health of Arkansans.

The Initiated Act created the Arkansas Tobacco Settlement Commission (ATSC), which is responsible for monitoring and evaluating the performance of the funded programs. To help carry out this evaluation function, the ATSC contracted with the RAND Corporation in 2002 to serve as an external evaluator. Since then, RAND conducted a comprehensive, ongoing evaluation of the progress made by the programs in fulfilling their missions and assessed the effects of these programs on smoking and other health-related outcomes. This report represents the fifth and final of RAND's evaluation reports.

The Tobacco Settlement Proceeds Act

In Arkansas, the Initiated Act authorized the creation of seven programs to be supported by MSA funds, established short- and long-term goals for the performance of these programs, specified the funding shares to support the programs and a structure of funds for management and distribution of proceeds, and established the ATSC to oversee the overall initiative. Subsequent legislation slightly changed some of the goals and programs but maintained the original intentions.

The MSA imposed no restrictions on how states could spend their payments, and states have allocated them to a wide variety of activities. The people of Arkansas allocated the vast majority of MSA funds to seven programs intended to improve the state's health.

Goals and Funded Programs

The goals of the Initiated Act are to (1) reduce tobacco use and the resulting negative health and economic impacts; (2) expand access to health care, thereby improving the health of Arkansans; (3) develop new tobacco-related medical and agricultural research initiatives to improve

access to new technologies, improve the health of Arkansans, and stabilize the economic security of Arkansas; and (4) improve the health care systems in Arkansas and access to health care delivery systems, thereby resolving critical deficiencies that negatively impact the health of the state's citizens. To address these goals, the act created the following seven programs:

- *Tobacco Prevention and Cessation Program (TPCP, 31.6 percent of annual funding)*. Managed by the Department of Health, TPCP aims to reduce initiation of tobacco use and resulting negative health and economic impacts. TPCP uses the Centers for Disease Control and Prevention (CDC) recommendations for tobacco cessation and prevention activities in developing its programs.
- *Medicaid Expansion Programs (MEP, 29.8 percent)*. The MEP seeks to expand access to health care through targeted expanded benefits packages that supplement the standard Arkansas Medicaid benefits. The programs are managed by the Arkansas Department of Human Services.
- *Arkansas Bioscience Institute (ABI, 22.8 percent)*. ABI works to develop new tobacco-related medical and agricultural research initiatives, improve the health of Arkansans, improve access to new technologies, and stabilize the economic security of the state. The Initiated Act provides for ABI to be funded through separate appropriations to the participating institutions. The program's management reports to the ABI board, which also was established by the Initiated Act.
- *College of Public Health (COPH, 5.2 percent)*. COPH is a resource to provide professional education, research, and services to the public health community of Arkansas. It is a unit of the University of Arkansas for Medical Sciences (UAMS).
- *Minority Health Initiative (MHI, 3.6 percent)*. MHI aims to identify the special health needs of Arkansas's minority communities and to establish health care services to address these needs. MHI is managed by the Arkansas Minority Health Commission (AMHC).
- *Delta Area Health Education Center (Delta AHEC, 3.5 percent)*. Delta AHEC is an additional unit in the statewide Arkansas AHEC system, which provides clinical education throughout the state. It was put into the Initiated Act to provide such services for the underserved and disproportionately poor Delta region of the state.
- *Arkansas Aging Initiative (AAI, 3.5 percent)*. AAI provides community-based health education for senior Arkansas residents through outreach to the elderly and educational services for professionals. It is housed in the Reynolds Center on Aging, a unit of UAMS.

One of these programs, TPCP, is dedicated to smoking prevention and cessation and receives one-third of the MSA funds. Most, though not all, of TPCP funds are available for smoking cessation and prevention efforts. Most of the other programs primarily serve the health-related needs of disadvantaged Arkansas residents (MEP, MHI, AAI, Delta AHEC); others are long-term investments in the public health and health research infrastructure (ABI, COPH).

In addition to identifying basic goals, the Initiated Act also defined performance indicators for each funded program with respect to program initiation and short- and long-term actions. In a previous report (Schultz et al., 2008) RAND reported that all programs had achieved their initiation goals and short-term goals.

Purpose of this Report

This report is the fifth and final from the RAND evaluation. It includes findings for fiscal years 2010 and 2011, as well as a look back over the past ten years. The report describes program funding and spending, the effects on outcomes, and related policy issues. Our intention is for ATSC and the programs to use this report and our earlier reports to better understand their progress toward improving the health of Arkansans and toward their other goals, so that they can effectively build on their efforts to date.

RAND's Approach to the Evaluation

RAND's approach in this phase of the evaluation cycle differed from that followed in earlier phases. RAND responded to ATSC's request for more limited data collection and a more streamlined report. Our findings draw on several data sources, including quarterly reports and spending and funding data compiled by ATSC and the seven funded programs. Also, the process by which RAND received program data differed from that followed for past reports in key ways. Specifically, quarterly report data were requested and collected by the commission, then forwarded to the RAND team electronically. Further, the commission narrowed the scope so that RAND no longer conducted update calls, quarterly program calls, or annual site visits with the seven programs. In the past, the evaluation team used these calls and visits to gain information that contributed to the narrative explanation of the programs' successes and challenges, and programs provided input to the iterative evaluation process through which RAND used the information to describe program implementation processes and to explain unexpected results.

As in prior phases, RAND used data provided by the programs to calculate unit costs for several program initiatives. This allowed RAND to detect trends over time and to compare the relative costs of the various initiatives that programs are implementing. However, some of the programs were unable to allocate expenditures to specific initiatives, and others, such as COPH and ABI, did not have discrete activities for which to calculate unit costs.

Also (as in the prior phases), RAND relied on secondary data sources to assess health-related outcomes. These sources include national surveys plus state supplements for the Behavioral Risk Factor Surveillance System; U.S. Census data; data summaries from nonprofit organizations such as the American Lung Association, Campaign for Tobacco-Free Kids, and the United Healthcare Foundation; and statistics from the Arkansas Department of Health.

Tobacco Control Trends and Results

In the past decade, Arkansas made significant progress in its tobacco control policy. Key among these improvements are significant increases in cigarette and smokeless tobacco taxes in 2009. In addition, new smoke-free air legislation was passed that protects nonsmokers in workplaces and many bars and restaurants, students and employees of public postsecondary schools, and children in cars.

Tobacco-Related Outcomes

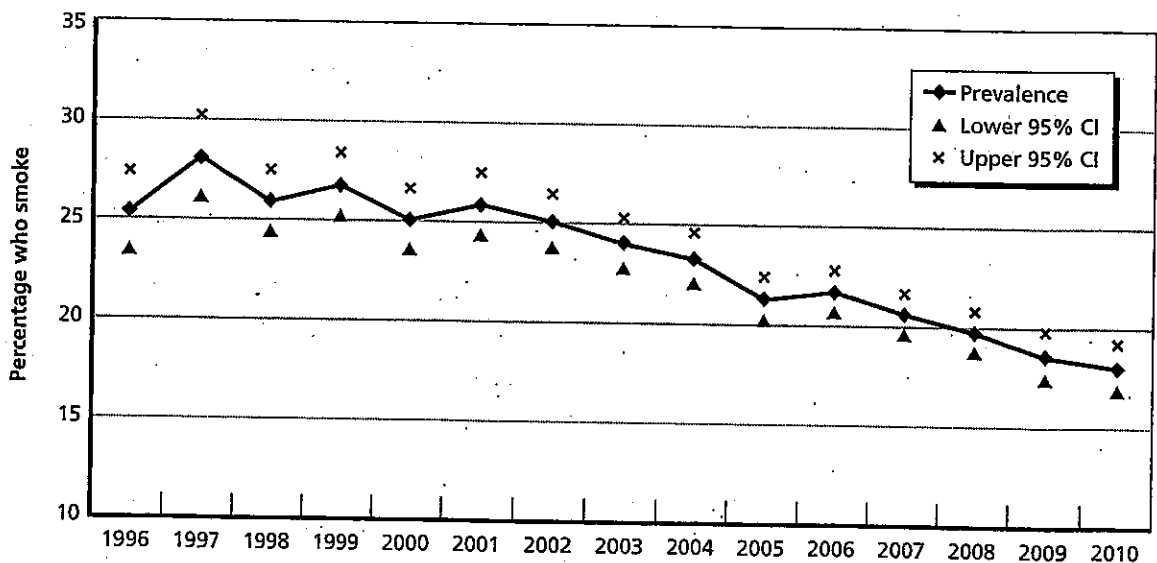
Tobacco use and health trends related to tobacco use improved significantly in the past decade. TPCP played a role in these improvements.

Smoking Prevalence. As shown by Figure S.1, fewer Arkansans smoke now than a decade ago. *Among adults, smoking prevalence declined by 31 percent, decreasing the adult smoking rate from 26 percent in 2001 to 18 percent in 2010.*

Figure S.2 shows that smoking rates among young people and pregnant women also declined. One of the largest decreases occurred among high school students. *Only half as many Arkansas high school students smoke today compared with a decade ago.*

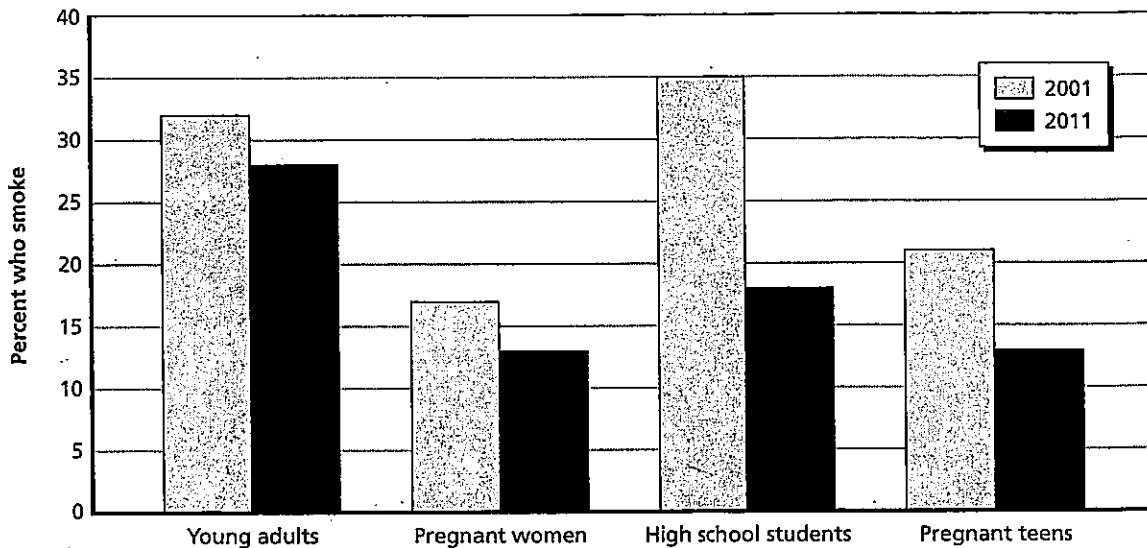
Figure S.3 shows that Arkansas's smoking rate declined faster than the rate in the six neighboring states since the start of the programs in 2001 (after adjustment for differences in demographics among states and over time). This suggests that Arkansas's tobacco control programs are helping to reduce smoking rates. Although the most recent year, 2010, in Figure S.3 suggests that the smoking rate increased even though rates for neighboring states continued to decline, the margin of error in these estimates is too large to make such a conclusion. However, recent reductions in prevention and cessation programming provide reasons to expect an end to Arkansas's progress in the battle against tobacco use, suggesting that these statistics should continue to be monitored.

Figure S.1
Decline in Number of Adult Smokers in Arkansas, 1996–2010



SOURCE: RAND analysis of Behavioral Risk Factor Surveillance System micro data files, US CDC 2012a.
 NOTES: Decline in smoking from 2001 to 2010 is statistically significant (p-value < 0.05). This analysis of adult smoking rates accounts for the important design features of the BRFSS survey, including probability weights, as well as strata and sampling unit information. Including all these design features is of critical importance to make the sample representative of the entire state population. Many public sources (e.g. United Health Foundation, 2011) do not use this information in their calculations and obtain different estimates. For example, United Health Foundation reports a 2010 smoking rate of 22% rather than the 18% used here. However, trend information is similar.

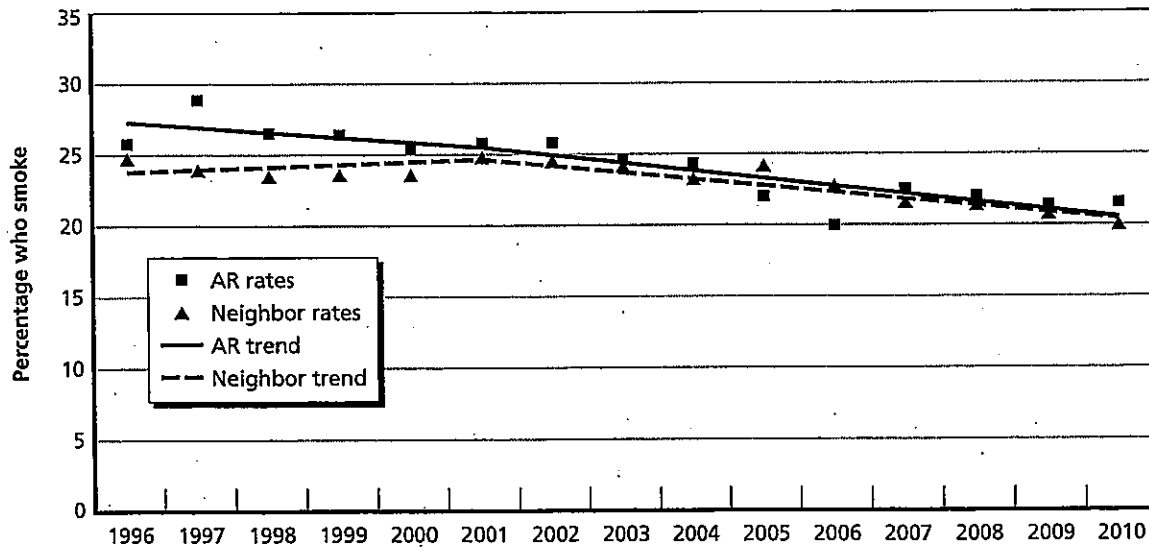
Figure S.2
Decline in Smoking Among Arkansas Youth and Pregnant Women, 2001–2011



SOURCES: Young adults smoking rate is from RAND calculations based on BRFSS, adjusted for change in population demographics; smoking rates among pregnant women and pregnant teens are from RAND calculations based on birth certificates, adjusted for change in population demographics; smoking rate of high school students is from Arkansas Youth Risk Behavior Survey. All differences are statistically significant (p-value < 0.05).

RAND TR1261-S.2

Figure S.3
Smoking Rates and Trends in Arkansas and Its Six Neighboring States



SOURCE: RAND analysis of Behavioral Risk Factor Surveillance System micro data files.
 NOTE: These estimates have been adjusted for differences in population demographics, which accounts for differences in the AR rates reported Figures 2.1 and 2.3.

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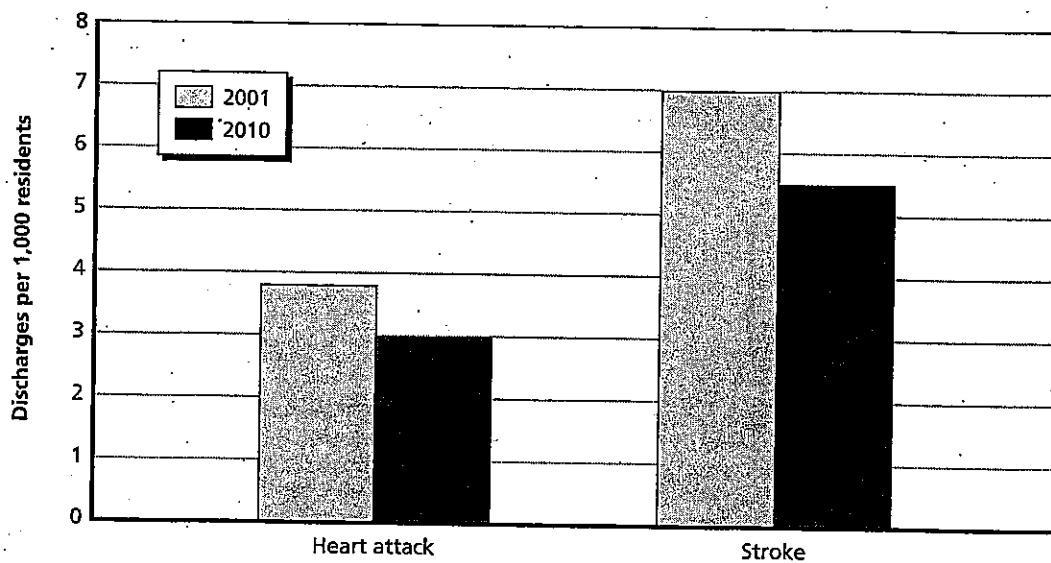
Smoking and Health

With fewer smokers in the state and greater protections from secondhand smoke, changes in Arkansans' health are expected to follow. Specifically, rates of diseases that respond quickly to changes in smoking prevalence, such as low-weight births, strokes and heart attacks, pulmonary conditions, asthma, and diabetes, should also decline.

In fact, hospital discharge data show that *recent reductions in statewide smoking rates may be helping to protect Arkansans from smoking-related disease*. In 2010, fewer Arkansans were hospitalized for strokes and heart attacks than in 2001 (Figure S.4). The reduction in hospitalization for each of these two conditions is statistically significant. And although rates of asthma, diabetes, pneumonia, and low-weight births did not decrease significantly from 2001 levels, earlier uptrends in these diseases were slowed. In other words, programs have helped protect Arkansans from tobacco-related harm.

Despite these advances, tobacco continues to take a staggering toll on the state's health, well-being, and finances. Each year 4,900 Arkansans die from direct smoking, and 64,000 Arkansan children alive today will ultimately die from smoking-related causes. Given racial and ethnic disparities in tobacco use within the state, the smoking-related disease burden among some groups, such as non-Hispanic blacks, is likely on the rise. Arkansas's annual health care expenditures directly caused by tobacco use total \$812 million. Citizens spend \$627.7 million (\$558 per household) to cover smoking-related government costs each year. This equates to health costs and productivity losses of \$9.65 per pack of cigarettes sold in the state (CTFK, 2011d). In 2010, 18 percent of adult Arkansans smoked cigarettes, and this rate is among the highest (5 of 50 states) in the nation.

Figure S.4
Decrease in Heart Attacks and Strokes Among Arkansans After Program Implementation



SOURCE: RAND analysis of Arkansas hospital discharge data and Census data.

RAND TR1261-S.4

Nontobacco Health-Related Trends and Results

In 2001, Arkansas trailed the nation in many health measures, ranking 45 of 50 states on a composite score of all health outcomes. The Initiated Act dedicated more than two-thirds of Arkansas’s share of the MSA funds to six nontobacco programs, each with specific goals for improving the health of Arkansans. In the past decade, Arkansas spent almost half a billion dollars on these efforts. Although this represents a sizable investment, it is a small fraction of what the Arkansas government spends on health care or the health care costs resulting from tobacco-related disease. Specifically, the Initiated Act’s annual contribution to these six programs was approximately equal to 1 percent of annual Medicaid expenditures in Arkansas (Kaiser, 2012) or equal to approximately 4 percent of the annual increased health care costs directly resulting from tobacco use in Arkansas. These investments have produced results in the past decade.

Overall Health Status of Arkansans

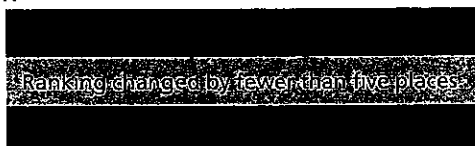
Table S.1 shows that Arkansas’s health status remained virtually unchanged, according to the ranking of all health outcomes. Arkansas moved up one place from its ranking of 45 of 50 states in 2001. However, on another measure often used as a proxy for overall population health, infant mortality, Arkansas rose five places from 40 to 35 among the states. The state’s ranking in geographic disparity of health moved up 10 places to above the median for states,

Table S.1
Arkansas Health Ranking Among U.S. States

Health Care Measure	Rank in 2011	Change from 2001
All health outcomes	44	+1
Premature death	46	0
Specific Conditions		
High blood pressure	45	0
Low birth weight	44	0

SOURCE: United Health Foundation, 2011.

KEY:



which suggests that some of the racial and ethnic disparities have been mitigated. This also suggests that Arkansas made some progress on elevating the health status of all Arkansans, but there is much room for improvement.

Arkansas's progress on measures of specific health conditions was mixed. The state improved five places or more on rankings of individuals who report high cholesterol and obesity and in the rate of preterm births. The state retained the same poor ranking of those who report high blood pressure and the rate of low-birth-weight babies. On the other hand, the state's ranking of those reporting diabetes declined by six places to 33 among 50 states.

Overall, this suggests modest progress on most of the health measures that the MSA-funded programs, in one way or another, intended to improve.

Access to Health Care

Several of the programs were poised to improve access to health care. However, MEP is the program with the most direct impact on this health building block. With major expansions in several areas, it received the most funding by far for this task. We examine three measures of health care access that align with three of the MEP expansions.

First, we examine whether expectant mothers in Arkansas are more likely to have early and adequate prenatal exams than in the past. Arkansas's rank went down by one place to 41 among the states. The expansion of Medicaid to fund services for more pregnant women was not adequate to raise Arkansas's place among the states.

The second measure is avoidable hospitalizations for seniors. MEP's program to expand Medicaid to all elderly below 80 percent of the federal poverty level (FPL) was intended to provide primary care services to the most disadvantaged elderly, thereby helping them avoid hospitalization for conditions better served through preventive and outpatient care. In addition, AAI clinical and educational programs are aimed at providing better access to primary care for the elderly. In spite of these efforts, the ranking of Arkansas for the rate of avoidable hospitalizations for Medicare beneficiaries, the vast majority of whom are elderly, slipped by one place to 45 by 2009.

The final measure of access directly related to MEP expansions is the percentage of the working-age population with health care coverage of any kind. The ARHealthNetworks Medicaid expansion to subsidize employer-based basic health insurance for employees of small businesses is aimed at decreasing the number of working-age adults without health care coverage. In spite of this effort, Arkansas fell by six places during the last decade to 49 of 50 states.

The success of the programs at addressing issues of access can also be tracked by examining changes in disparities that affect underserved populations within Arkansas over the decade. Table S.2 shows that the changes in both the access measures and the percent overweight remained approximately the same for African-Americans and whites, except that increases in one of the access measures—the percentage of African-Americans tested for HIV/AIDS—improved much more than for whites. With respect to region, some disparities changed for the worse, while others changed for the better. The percentage of elderly in the Delta region who receive flu shots increased, but this percentage increased more rapidly in the rest of the state and now is approximately equal to the rate in the Delta region. On the other hand, the percentage of adults in the Delta region who had a check-up rose faster and now exceeds that in the rest of the state. The percentage of adults who are overweight rose less rapidly than in the rest of the state, with the result that the rest of the state now has an equally high rate of 63

Table S.2
Change in Disparities Within Arkansas by Race and Region

Health Care Measure	Race			Region		
	2010 African-American (%)	Change in African-American (%)	Change in White (%)	2009–2010 Delta Region (%)	Change in Delta Region (%)	Change in Non-Delta Region (%)
Adults prevented from seeing doctor due to cost	25.7	+9.0	+2.8	17.7	+0.3	+2.8
Adults received routine check-up in past two years	83.1	+4.1	+8.1			
Adults received HIV/AIDS test				24.4	+20.6	+19.8
Adults (age 65+) received flu shot in past year	6.3	+2.1	+0.9			
Adults overweight or obese	78.5	+6.0	+7.2			

SOURCE: RAND tabulations of BRFSS, multiple years.

NOTES: Race percentages are for 2010 and the difference between 2000 and 2010 (except for the flu shot question, for which the percentages are for 2009 and the difference between 1999 and 2009). African-American and white are the only two race categories with sufficient sample sizes for reliable statistics. Region percentages are for 2009–2010 and the difference between 2000 and 2005 and 2009 and 2010. Multiple years are required in order to have a sufficient sample size for the Delta region. The Delta region includes Chicot, Crittenden, Desha, Lee, Monroe, Phillips, and St. Francis counties.

KEY:

No statistically significant differences in Arkansas are U.S. changes

percent. On balance, these statistics echo the finding in geographic disparities in overall health outcomes presented above, which suggests improvement.

Healthy Behaviors

Virtually all of the programs are aimed at promoting healthy behaviors to some extent. However, four of the programs (COPH, AAI, MHI, and Delta AHEC) directly work to educate portions of the community in order to increase knowledge and skills that help them replace risky behaviors with healthy behaviors.

Table S.3 provides information on the change in Arkansas's ranking on a variety of healthy and risky behaviors. Of the rankings we examined, two remained relatively constant and four deteriorated by five places or more. A healthy diet that includes fruits and vegetables, which contain vitamins, minerals, and fiber, is protective against many diseases. Similarly, regular physical exercise is crucial for combating a wide variety of diseases from heart disease

Table S.3
Arkansas Health Behavior Ranking Among U.S. States

Behavior	Rank in 2011	Change in Rank from 2001
Risky		
Binge drinking	16	+3
Teen birth rate	27	+1
Healthy		

and diabetes to some cancers and depression. Therefore, the deterioration of these rankings, that is, healthy diet and exercise, was not consistent with the goals of the funded programs. Furthermore, as a leading indicator of health outcomes, these results suggest that the prospects for future improvement in the state health ranking are not good.

The improved rankings presented in Table S.1 suggest that Arkansas made more progress in overall health outcomes relative to other states. However, Arkansas's overall progress in health outcomes may be tenuous because its citizens are lagging behind in preventive health behaviors (see Table S.3) that could contribute to an increase in future rates of disability and disease.

Specific Program Results

We found that the *Medicaid Expansion Program* dramatically increased enrollment and spending since the inception of its subsidized private insurance program for low-income employees of small business (ARHealthNetworks) in 2007. Spending and enrollment for the other three expansions, which target health care for pregnant women and low-income elderly and reduction of hospital costs for very short and very long hospital stays, remained relatively flat throughout the decade. Medicaid recently implemented a new web-based enrollment system and is working with the state's AHECS on mobile outreach. Other outreach efforts for these three programs that were scaled up in recent years have now been suspended due to budgetary concerns, although we have demonstrated in previous reports that the programs are not fully meeting the needs of their target populations.

Despite these efforts, Arkansas's rankings in measures related to these efforts—adequate prenatal care, avoidable hospitalizations for Medicare beneficiaries, and health care coverage for the working-age population—did not improve over the decade. Overall, MEP spent less than 50 percent of its allocated share of MSA funds over the past five years (prior to fiscal year 2011) on the intended expansion programs. MEP's efforts to balance the increasing cost of health care with fluctuations in program enrollment should be monitored in order to deter-

mine whether MEP actually does spend the resources dedicated to it by the Initiated Act on increasing medical care for the intended segments of the state's disadvantaged population.

The *Arkansas Biosciences Institute* successfully used its MSA funding to attract additional research funding to the state and to produce a substantial body of research that has been published in scholarly journals. The institute was also faithful to its twin missions of training students from throughout Arkansas in bioscience research methods and of advising policymakers and the public in areas of its expertise. Through the decade, Arkansas increased its level of federal research funding in sciences and health by a much faster rate than its neighbors or the nation as a whole, although it remains at less than half the national average in per capita annual federal research funding. Although it is difficult to measure precisely how much ABI affected the state's economy, median weekly earnings for the state as a whole and the percentage of state residents employed in scientific research or other professional and technical services did not change appreciably over the decade. As ABI research findings are further disseminated and as the technologies it develops are adopted, the contributions of specific Arkansas research projects to the health of Arkansans and to the Arkansas economy should be easier to measure.

The *Fay W. Boozman College of Public Health* was created with MSA funds to fill a gap in the offerings of the UAMS. It receives approximately 5 percent of the annual MSA allocation, which it uses to train a diverse public health workforce for the state and to conduct research. Over the decade, it gained accreditation and continued to expand its research and teaching capacity. It dramatically increased its other sources of funding, in part, by fully spending and successfully leveraging its MSA funds. At the end of its first decade, COPH is tied for thirtieth in the *U.S. News and World Report* rankings (US News, 2012). Although signs indicate that COPH was very successful in fulfilling its mission, the long-term goal specified for COPH in the Initiated Act of elevating "the overall ranking of the health status of Arkansas" has not yet been attained.

The *Minority Health Initiative* was created with the short-term goal of prioritizing health problems and planned interventions for Arkansas's minority population and increasing the number of Arkansans screened and treated for tobacco-related illnesses. Through several changes in management and other course corrections during the decade, MHI settled on a strategy of performing health screenings through various outreach programs and funding pilot programs directed at improving minority health. It also monitors and advocates for health policy changes that will help minorities and it contributes relevant research. MHI wrestled with financial management issues, including keeping unit costs of screening and testing efforts in a reasonable range; it finally managed to fully use its resources for the intended purposes. However, MHI has yet to return to the levels of health screening activity that it provided in previous years. There has been no improvement in four of five measures in the racial disparity of health that we examined. However, Arkansas's racial disparities in HIV/AIDS testing improved over the decade, which is consistent with one of MHI's main goals.

Throughout the decade, *Delta Area Health Education Center* became a full-service health education center for the people of Arkansas's Delta region. Designed to increase health care access and to provide health education to the population and to health professionals, it consistently used its resources and annually increased the number of encounters with citizens and professionals. Following a trend of successful fund raising, in 2011 Delta AHEC received 42 percent of its funding from non-MSA sources—its highest level of non-MSA funding to date. Delta AHEC struggled to bring health professionals to the region; however, in 2012 it successfully partnered with the UAMS Family Medicine Residency Program to bring first-year family

medicine residents to Helena in Phillips County for one-month rotations. Further, it sharpened its focus on encouraging local school-age children to consider health careers as a new strategy to grow its local health care workforce. There was significant improvement in geographical health disparities, which is a testament to Delta AHEC's impact on the region's health.

The *Arkansas Aging Initiative* benefited from strong and consistent leadership to leverage high-quality health care for the state's elderly and to help educate health care professionals of all types in elder care. It successfully influenced public policy and collaborated with researchers throughout the state to improve the health status of elders. It now has a national presence among elder health leaders, and AAI's model is being replicated elsewhere in the country. Despite these successes, Arkansas's ranking of avoidable hospitalizations for Medicare beneficiaries did not appreciably improve during the decade.

Recommendations and Concluding Observations

In the past decade, Arkansas saw significant improvement in several key areas of tobacco control and corresponding improvements in tobacco-related health outcomes. However, in order to become a national leader in tobacco control, Arkansas could take several additional steps, including the following:

- Further raise state taxes on cigarettes and other tobacco products (including smokeless tobacco) to meet or exceed the national average.
- Broaden its smoke-free air laws. For instance, Arkansas could ban (and not just restrict) smoking in restaurants and bars catering to adult clientele.
- Implement smoking bans in public and multiunit housing.
- Expand and strengthen existing community-level bans on smoking in recreational spaces, such as parks and zoos, by making such laws applicable statewide. As other nicotine-delivery systems become more widely available (e.g., electronic, or e-cigarettes), Arkansas may consider adding these devices to existing smoke-free legislation. Careful oversight of these products is critical for the health of Arkansans because they are being marketed particularly to youth and because the long-term health consequences of these products remain unclear.

Arkansas made substantial progress in the past decade in reducing smoking rates and improving tobacco-related health outcomes among its residents. However, the state still ranks near the bottom nationally in smoking rates, other health-related behaviors, health care access, and health outcomes. This does not represent a failure of the programs funded by the Initiated Act. In several cases, programs did not use all of their resources in the intended fashion. However, in most cases, the programs fulfilled their missions and met the start-up and short-term goals set by the act, as well as further goals set by the ATSC. These funded programs helped Arkansas make gains in its chosen areas. However, full use of MSA resources by the programs can be expected to lead to larger gains in the future.

Acknowledgments

We acknowledge with pleasure the thoughtful participation by numerous people in the evaluation process as RAND conducted this evaluation of the seven funded programs initiated by the Tobacco Settlement Proceeds Act. These participants include the members of the Arkansas Tobacco Settlement Commission and program directors and staff at the Department of Health, College of Public Health, Arkansas Biosciences Institute, Centers on Aging, Arkansas Minority Health Commission, Delta Area Health Education Center, and state Medicaid offices.

We also acknowledge the assistance and guidance of the Arkansas Tobacco Settlement Commission during the execution of our evaluation, including that of John Ahlen, executive committee member; Tina DeLay, executive assistant; Susan Hanrahan, commission chair; Christian Yarberry, former grants coordinator; and the commission members. Their support derives from a commitment to objective evaluation that continues to reinforce our evaluation work.

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Abbreviations

Symbol	Definition
AAI	Arkansas Aging Initiative
ABI	Arkansas Bioscience Institute
ACHRI	Arkansas Children's Hospital Research Institute
AHEC	Area Health Education Center
AMHC	Arkansas Minority Health Commission
AMOB	A Matter of Balance
APN	advanced practice nurses
AREHDS	Arkansas Racial and Ethnic Health Disparity Study
ASU	Arkansas State University
ATS	Arkansas Tobacco Survey
ATSC	Arkansas Tobacco Settlement Commission
BMI	body mass index
BRFSS	Behavioral Risk Factor Surveillance System
CDC	Centers for Disease Control
CDSMP	Chronic Disease Self-Management Program
CFTFK	Campaign for Tobacco-Free Kids
CMS	Centers for Medicare and Medicaid Services
COA	Centers of Aging
COPH	College of Public Health
Co-PI	co-principal investigator
Delta AHEC	Delta Area Health Education Center
DHS	Department of Human Services

FMAP	Federal Medicaid Assistance Percentage
FTE	full-time equivalents
FPL	Federal Poverty Level
HOFNOD	Hooked on Fishing Not on Drugs
MD	physician
MEP	Medicaid Expansion Programs
MESH	Marianna Examination Survey of Hypertension
MHI	Minority Health Initiative
MSA	Master Settlement Agreement
NATS	National Adult Tobacco Survey
NIH	National Institutes of Health
NSF	National Science Foundation
PI	principal investigator
QMB	qualified Medicare beneficiary
SHC	senior health clinics
SOS	Stamp Out Smoking
STOP	System Training Outreach Program
TPCP	Tobacco Prevention and Cessation Program
UA-Ag	University of Arkansas-Division of Agriculture
UAF	University of Arkansas, Fayetteville
UAMS	University of Arkansas for Medical Sciences
YTS	Youth Tobacco Survey

Introduction and Background

In November 1998, U.S. states and the major tobacco companies ended years of legal battles by signing the Master Settlement Agreement (MSA). Under the terms of the agreement, the tobacco companies agreed to pay participating states more than \$206 billion over 25 years. Arkansas's share of these payments is .828 percent, approximately \$1.7 billion in total, which the state has been receiving since the agreement went into effect.

Unique among the states, in Arkansas a commitment was made by both elected officials and the general public to invest its share of the MSA funds in health-related programs. The Tobacco Settlement Proceeds Act, a referendum passed by more than 65 percent of Arkansans in the November 2000 election (henceforth called the Initiated Act), established a comprehensive program that uses the MSA funds to invest in the health of Arkansans.

The Initiated Act created the Arkansas Tobacco Settlement Commission (ATSC), which is responsible for monitoring and evaluating the performance of the funded programs. As part of its evaluation function, the ATSC contracted with the RAND Corporation in 2002 to serve as an external evaluator. Since then, RAND has conducted comprehensive, ongoing evaluation of the progress made by the programs in fulfilling their missions and assessed the effects of these programs on smoking and other health-related outcomes.

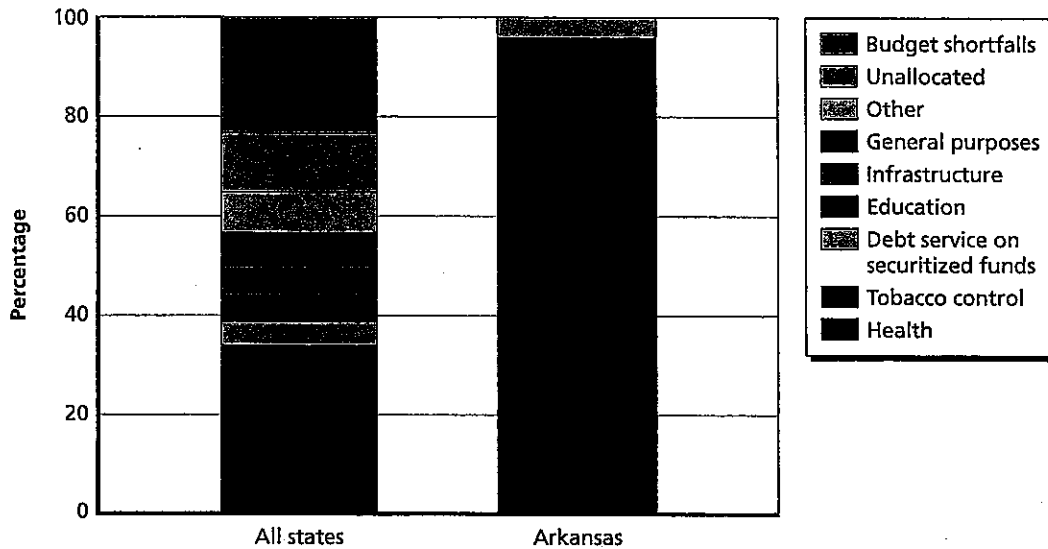
In the remainder of this chapter, we provide background information on the content of the Initiated Act, the objectives of this report, the methods utilized for the evaluation, and a guide to the report.

The Tobacco Settlement Proceeds Act

In Arkansas, the Initiated Act authorized the creation of seven programs to be supported by MSA funds, established short- and long-term goals for the performance of these programs, specified the funding shares to support the programs and a structure of funds for management and distribution of proceeds, and established the ATSC to oversee the overall initiative. Subsequent legislation made slight modifications to some of the goals and programs but maintained the original intentions.

The MSA imposed no restrictions on how states could spend their money, and states have chosen to allocate their monies to a wide variety of activities. The people of Arkansas voted to allocate the virtually all of their MSA funds to seven programs intended to improve the state's health. As detailed in Figure 1.1, states throughout the rest of the nation made other choices.

Figure 1.1
All States' and Arkansas's Allocation of MSA Payments and Securitized Proceeds (fiscal year 2000–2005)



SOURCE: GAO, 2007.

RAND TR1261-1.1

Funded Programs

The goals of the Initiated Act are to (1) reduce tobacco use and the resulting negative health and economic impacts; (2) expand access to health care, thereby improving the health of Arkansans; (3) develop new tobacco-related medical and agricultural research initiatives to improve access to new technologies, improve the health of Arkansans, and stabilize the economic security of Arkansas; and (4) improve health care systems in Arkansas and access to health care delivery systems, thereby resolving critical deficiencies that negatively impact the health of the state's citizens. The act established seven programs to address these goals:

- *Tobacco Prevention and Cessation Program (TPCP, 31.6 percent of annual funding)*. Managed by the Department of Health, TPCP aims to reduce the initiation of tobacco use and resulting negative health and economic impacts. TPCP uses the Centers for Disease Control and Prevention (CDC) recommendations for tobacco cessation and prevention activities in developing its programs.
- *Medicaid Expansion Programs (MEP, 29.8 percent)*. The MEP seeks to expand access to health care through targeted expanded benefits packages that supplement the standard Arkansas Medicaid benefits. The programs are managed by the Arkansas Department of Human Services (DHS).
- *Arkansas Bioscience Institute (ABI, 22.8 percent)*. ABI works to develop new tobacco-related medical and agricultural research initiatives, improve the health of Arkansans, improve access to new technologies, and stabilize the economic security of Arkansas. The Initiated Act provides for ABI to be funded through separate appropriations to the participating institutions. The program's management reports to the ABI board, which also was established by the Initiated Act.

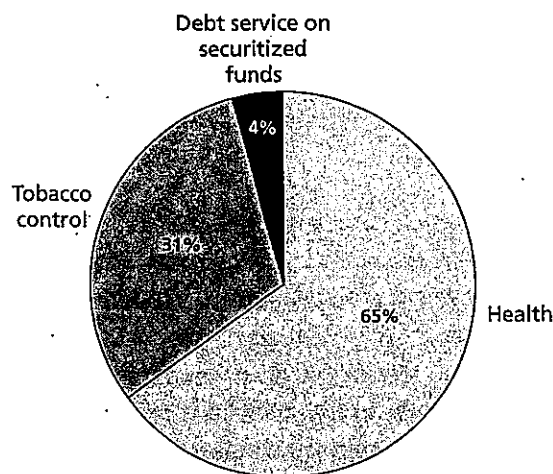
- *College of Public Health (COPH, 5.2 percent)*. COPH is a resource to provide professional education, research, and services to the public health community of Arkansas. It is a unit of the University of Arkansas for Medical Sciences (UAMS).
- *Minority Health Initiative (MHI, 3.6 percent)*. MHI aims to identify the special health needs of Arkansas's minority communities and to put into place health care services to address these needs. MHI is managed by the Arkansas Minority Health Commission (AMHC).
- *Delta Area Health Education Center (Delta AHEC, 3.5 percent)*. Delta AHEC is an additional unit in the statewide Arkansas Area Health Education Center (AHEC) system, which provides clinical education throughout the state. It was put into the Initiated Act to provide such services for the underserved and disproportionately poor Delta region of the state.
- *Arkansas Aging Initiative (AAI, 3.5 percent)*. AAI provides community-based health education for senior Arkansas residents through outreach to the elderly and educational services for professionals. It is housed in the Reynolds Center on Aging, a unit of UAMS.

One of these programs, TPCP, is dedicated to smoking prevention and cessation (although other programs occasionally offer smoking-related services). TPCP receives one-third of the MSA funds, a large portion of which are available for its cessation and prevention efforts. Most of the other programs primarily serve the health-related needs of disadvantaged Arkansas residents (MEP, MHI, AAI, Delta AHEC); others are long-term investments in the public health and health research infrastructure (ABI, COPH; Figure 1.2).

In addition to listing basic goals, the Initiated Act also defines initiation and short- and long-term objectives for each funded program. We reported previously (Schultz et al., 2008) that all the programs had achieved their initiation objectives and short-term objectives.

Each funded program works toward the larger goal of improving the health of Arkansans and has multiple effects on the determinants of health outcomes.

Figure 1.2
Arkansas Spending of MSA Funds



RAND TR1261-1.2

Objectives of This Report

This report is the fifth and final from the RAND evaluation. It includes findings for fiscal years 2010 and 2011 as well as a look back over the past ten years. The report describes program funding and spending, the effects on outcomes, and related policy issues. Our intention is for the ATSC and the programs to use this report and our earlier reports to better understand their progress toward improving the health of Arkansans and toward their other goals, so that they can effectively build on their efforts to date.

RAND Evaluation Methods

RAND's approach in this phase of the evaluation cycle responds to the ATSC's request for more limited data collection and a more streamlined report than in previous phases. Our findings draw on several data sources, including quarterly reports and spending and funding data compiled by the ATSC and the seven funded programs. The process by which RAND received program data differs from that followed for past reports in key ways. Specifically, quarterly report data were requested and collected by the Commission, then forwarded to the RAND team electronically. Further, the Commission narrowed the scope so that RAND no longer conducted update calls, quarterly program calls, or annual site visits with the seven programs. In the past, these calls and visits allowed the evaluation team to gain information that contributed to the narrative explanation of programs' successes and challenges, and programs provided input to the iterative evaluation process through which RAND used the information to describe program implementation processes and to explain unexpected results.

As in the prior phases, RAND used data provided by the programs to calculate unit costs for key program initiatives. This allowed RAND to detect trends over time and to compare the relative costs of various initiatives that programs are implementing. However, some of the programs are unable to allocate expenditures to specific initiatives, and others such as COPH and ABI, do not have discrete activities for which to calculate unit costs.

As in the prior phases, we relied on a number of secondary data sources to assess health-related outcomes. These include national surveys plus state supplements for the Behavioral Risk Factor Surveillance System (BRFSS); U.S. Census data; data summaries from non-profit organizations such as the American Lung Association, Campaign for Tobacco Free Kids, and the United Healthcare Foundation; and statistics from the Arkansas Department of Health.

Guide to This Report

The remainder of this report presents the results of RAND's evaluation. Chapter 2 describes tobacco-related policy, TPCP's activities, and tobacco-related outcomes in Arkansas over the past ten years. Chapter 3 describes other health-related challenges that Arkansas faced when the Act was passed, how the other programs funded by the MSA have responded to those challenges, and the outcomes related to activities of these programs over the decade. Finally, Chapter 4 presents our conclusions about the extent to which the programs have met the long-term goals stated in the Act and the State's original priorities.

Tobacco-Related Policy, Programming, and Outcomes

In this chapter we evaluate what the state of Arkansas is doing to protect its citizens from tobacco-related harm using MSA funds. We first examine the context by reviewing Arkansas's previous and current tobacco-control policies. We then describe the activities of Arkansas's MSA-funded TPCP, which are intended to prevent youth smoking uptake and help current smokers (and other tobacco users) to quit. Finally, we discuss changes in state smoking rates and other tobacco-related outcomes, such as tobacco-related disease.

Tobacco Control Policy in Arkansas

The relationship of Arkansans to tobacco has changed dramatically since 2000. The state now has 100,000 fewer smokers than it did a decade ago (CDC, 2012a), and its ongoing improvements in comprehensive tobacco control are likely to have been important factors behind this decline. Table 2.1 highlights key developments in Arkansas's tobacco control policy between 2002 and 2012.

Table 2.1
Key Developments in Arkansas's Tobacco Control

Development	Then (2002)	Now (2012)
State cigarette tax (per pack)	\$0.32	\$1.15
State smokeless tobacco tax	23 percent of manufacturer price	68 percent of manufacturer price
Smoking restrictions in:		
Workplaces	Permitted	Banned
Restaurants and bars	Permitted	Restricted*
Campuses of state-supported colleges	Permitted	Banned
Cars with youth	Permitted	Banned
Quitline	None	Statewide
Medicaid coverage for cessation treatments	None	Nicotine replacement, counseling

*Smoking is allowed in restaurants and bars that do not permit persons under 21 to enter at any time (American Lung Association, 2010).

The following three broad categories of tobacco control activities are proven to reduce tobacco-related harm (CDC, 2007): (1) *taxation and other policies* that raise the cost of tobacco use; (2) *smoke-free air legislation and policies* that reduce opportunities to smoke; and (3) *prevention and cessation initiatives* that help people refrain from using tobacco. In this section we focus on Arkansas's progress in the first two categories: taxation and smoke-free air legislation. Specifically, we describe science-based best practices, provide examples from leading states, and then comment on Arkansas's activities in these areas.

Taxation

Best Practices. *Raising cigarette taxes reduces smoking* (Chaloupka, 1999; Chaloupka, Straif, and Leon, 2010). Increases in cigarette tax promote smoking cessation among current users and reduce initiation among young people; they also lower consumption among those who continue to smoke (Chaloupka, Straif, and Leon, 2010). For every 10 percent increase in the real price of cigarettes, overall consumption is reduced by 3 percent to 5 percent (Tauras, O'Malley, and Johnston, 2001; Chaloupka et al., 2010). Cigarette tax and price increases are particularly effective for reducing smoking among males, pregnant women, youth, blacks, Hispanics, and lower-income groups (CDC, 1998), as well as individuals who abuse alcohol (except those with alcohol dependence) or drugs and persons with mental disorders (Ong, Zhou, and Sung, 2010).

Raising smokeless tobacco taxes reduces smokeless tobacco use, especially among adolescents and young adults (CTFK, 2008). For every 10 percent increase in smokeless tobacco prices, adult consumption is reduced by 3.7 percent and male youth consumption is reduced by 5.9 percent (Chaloupka, Tauras, and Grossman, 1997).

Taxes on one tobacco product should be approximately the same as taxes on other types of tobacco products. Specifically, the Campaign for Tobacco-Free Kids (2008) recommends that states tax all tobacco products at similar rates in order to minimize shifts from one tobacco product to another cheaper product and to maximize the overall reduction in tobacco use.

Exemplar State. New York State levies the highest cigarette taxes in the nation. In 2010, the state increased its cigarette tax from \$2.75 per pack to \$4.35 per pack. *The average price per cigarette pack in New York State is currently \$9.20*, and the average price per pack in New York City, which imposes its own cigarette taxes, is nearly \$11 per pack (Confessore, 2010). In addition to helping smokers quit by raising taxes, *the state of New York uses tobacco tax revenues to improve the health of its citizens.* The most recent cigarette tax increase in the state will provide \$440 million in revenue for health care programs, including subsidies for AIDS drugs, money for tobacco cessation programs, and \$71.6 million for the state cancer research center (Confessore, 2010).

New York State increased its tax on other tobacco products in 2010 as well. Currently, the state has a \$2.00 tax on snuff and a 75 percent wholesale price tax on chewing tobacco and cigars. However, New York State's smokeless tobacco taxes are approximately half of their current cigarette taxes (cigarettes are taxed at approximately 144 percent of the manufacturers' price; CTFK, 2011a and 2011c). Washington State is an example of a state with strong and equivalent smoking and smokeless tobacco rates. As of 2011, *Washington State taxed smokeless tobacco at 95 percent and cigarettes at 100 percent of the manufacturers' price.*

Arkansas. Arkansas ranks 29th in the nation in cigarette taxation (CTFK, 2011a), but is a regional exemplar. Five of six neighboring states are ranked lower nationally—between 50th (Missouri) and 30th (Oklahoma) in cigarette taxation; among Arkansas's neighbors, only

Texas has higher cigarette taxes (\$1.41 per pack, rank 24th). Including the most recent 56-cent tax increase in 2009, *Arkansas's cigarette taxes remain 13 cents below the national average at \$1.15 per pack* (CTFK, 2011a). Of course, higher taxes also have the added benefit of raising revenue for the state. Due to this recent tobacco tax increase, *Arkansas is receiving more tobacco-generated revenue than ever before.*

As we discuss in the next section, Arkansas has set tobacco control goals for the future. *Arkansas would likely achieve its tobacco control goals for 2014, without any additional cessation or prevention programming, by raising cigarette taxes to levels that result in a 10 percent increase in cigarette prices.* Because every 10 percent increase in the total price (i.e., price plus taxes) of cigarettes results in a 3 percent to 5 percent reduction in overall cigarette consumption (Tauras, O'Malley, and Johnston, 2001; Chaloupka et al., 2010), a 10 percent increase in the total price of cigarettes would be expected to reduce adult smoking rates from 18 percent¹ to 17.1 percent, youth smoking rates from 18 percent to 17.1 percent, and pregnant women's smoking rates from 13 percent to 12.1 percent. These reduced rates meet or exceed the Arkansas Tobacco Prevention and Cessation Program's goals for 2014. A 10 percent price increase would leave the total price of cigarettes in Arkansas close to the national average (Arkansas tax would increase to \$1.71 versus the national average of \$1.46). With the average cost per pack at \$5.61, a 10 percent increase in total price would raise the cost to \$6.17 per pack. The associated tax increase would put taxes at approximately \$1.00 more than the current average tax in Arkansas's six neighboring states (\$0.71). Although a substantial tax differential between Arkansas and its neighboring states could mean a potential loss of revenue for the state, Arkansas already has a variable within-state tax rate (tied to neighboring states' tax rates for border towns) that allows it to maximize tobacco tax revenues when between-state tax differentials exist (Robyn, 2009).

Consistent with the Campaign for Tobacco-Free Kids' recommendation (CTFK, 2009), Arkansas also increased smokeless tobacco taxes at the same time as its most recent increase in cigarette tax (2009). However, Arkansas's smokeless tobacco tax rate is nearly double its cigarette tax rate. Currently, Arkansas taxes smokeless tobacco at 68 percent and cigarettes at 38 percent of the manufacturers' price. This current tax structure may make cigarettes more appealing than smokeless tobacco due to their lower tax rate and associated lower cost. Per the CDC recommendation, future tax increases on tobacco products should focus on cigarette taxes until Arkansas's cigarette tax rates are brought in line with smokeless tobacco taxes.

Smoke-Free Air

Best Practices. *Smoke-free air laws substantially improve indoor air quality, help smokers quit, change social norms regarding the acceptability of smoking, and reduce smoking-related health problems for smokers and nonsmokers* (see Tynan et al., 2011). Limiting exposure to secondhand tobacco smoke reduces disease and death in nonsmokers (Hopkins et al., 2010). Secondhand smoke causes lung cancer, cardiovascular and respiratory diseases in nonsmoking adults and children, and, in Arkansas, it contributes \$54.9 million in health care expenses each year (CTFK, 2011d).

¹ Smoking prevalence rates are based on RAND analysis of microdata files from the Behavioral Risk Factor Surveillance System (BRFSS) (CDC 2012a). This analysis of adult smoking rates accounts for the important design features of the BRFSS survey, including probability weights, as well as strata and sampling unit information. Including all these design features is of critical importance to making the sample representative of the entire state's population. Many public sources (e.g., United Health Foundation, 2011) do not use this information in their calculations and obtain different estimates. For example, United Health Foundation reports a 2010 smoking rate of 22 percent rather than the 18 percent used here.

According to the CDC (2006), the only way to fully protect nonsmokers from secondhand smoke is to prohibit smoking in all indoor areas. Separating smokers from nonsmokers, cleaning the air, and ventilating buildings do not protect nonsmokers fully from the negative health effects of tobacco smoke exposure (CDC, 2006). According to the CDC, a state's smoke-free laws are comprehensive if they prohibit smoking at worksites, restaurants, and bars ("State Smoke-Free Laws for Worksites, Restaurants, and Bars," 2011).

Smoke-free air policies can lead to economic gains by saving costs through reductions in health care spending, productivity losses, and in nonhealth care losses such as damages from fires (Hopkins et al., 2010). Similarly, *bars and restaurants can improve their sales when they become smoke-free.* Smoking bans increase patronage from nonsmokers because nonsmokers are typically more comfortable in smoke-free environments. Because a substantial majority of Arkansans do not smoke, bars and restaurants in the state that become smoke-free can expect increases in sales (CTFK, 2011e).

Current smoke-free regulations do not explicitly address electronic cigarettes or other aerosolizing nicotine-delivery devices (e.g., see Cobb and Abrams, 2011). Conclusive studies have not yet been published about the safety of the delivered chemicals and delivery devices for users themselves (whether or not as a cigarette substitute) or others in their environment (Cobb and Abrams, 2011). *In order to create and maintain clean indoor air, states might consider adding noncigarette nicotine-delivery devices to their existing "smoke-free" air legislation.* Alternatively, they might make facilities entirely tobacco- or nicotine-free.

Exemplar States. At the end of 2010, 26 states (but not Arkansas) had implemented comprehensive smoke-free air laws (Tynan et al., 2011). Some state laws offer further protections such as smoking bans in some types of multi-unit housing. By 2005, Michigan, Maine, and California had statewide comprehensive smoke-free air laws and widely available, smoke-free public housing complexes (Smoke-Free Environments Law Project, 2009).

Arkansas. According to the American Lung Association (2011), Arkansas was 1 of 32 states (including Washington, D.C.) to receive a "B" grade or better in legislated environmental smoking restrictions. Arkansas received good (but not great) marks in smoke-free air because it bans smoking in workplaces but only restricts smoking in some bars and restaurants; bars and restaurants that prohibit persons under 21 to enter can allow patrons to smoke (American Lung Association, 2011). Currently, no Southern state has CDC-defined comprehensive smoke-free laws, suggesting that Arkansas is a regional leader in smoke-free air.

Arkansas has taken additional steps to protect young people from secondhand smoke. In 2006, Arkansas passed the Protection from Secondhand Smoke for Children Act (Act 13), which prohibits smoking in a car with a child under age 6. Then in July 2011, it passed Act 811, which raises the age of prohibition up to 14. Since Act 13 was passed, several other states have implemented similar legislation (ATSC, 2011). Unfortunately, these laws are difficult to enforce. The current fine for violating Act 811 is only \$25, which could have a negative impact on officers' motivation to enforce the law. In one region, only five tickets were issued for smoking in cars with young children in 2010 (Dungan, 2011). On the other hand, in 2009, Arkansas passed the Clean Air on Campus Act (Act 734). The primary aim of the act is to protect students, employees, and visitors at state-supported institutions of higher education from secondhand smoke on campus. Arkansas's Tobacco Prevention and Cessation Program (described below) provided technical assistance to institutions needing to comply with the act, and all Arkansas state-supported colleges and universities are now smoke-free.

Tobacco Prevention and Cessation Program (TPCP)

In this section, we focus on Arkansas's progress in the CDC's third domain of comprehensive tobacco control: tobacco prevention and cessation activities. The largest portion of Arkansas's share of MSA funds directly supports tobacco prevention and cessation activities through the TPCP, which is run by the Arkansas Department of Health. The TPCP, in turn, implements much of the prevention and cessation activities by choosing and monitoring contractors and grantees that provide the necessary programming.

TPCP's goals are the same as the CDC's goals for state tobacco prevention and cessation programs. TPCP's goals are to:

- Prevent the initiation of tobacco use among young people
- Promote quitting among young people and adults
- Eliminate exposure to secondhand smoke
- Identify and eliminate disparities related to tobacco use and its effects on population groups

In fiscal year 2010, Arkansas's MSA-funded Tobacco Prevention and Cessation Program adopted a *5-year strategic plan* for reducing tobacco-related harm. By 2014, it aims to:

- Reduce youth tobacco use to 17.5 percent
- Reduce adult tobacco use to 17.5 percent
- Reduce tobacco use by pregnant women to 12.5 percent
- Reduce employee exposure to secondhand smoke in workplaces to 2 percent
- Have statewide comprehensive clean indoor air legislation
- Implement an added goal of reducing smoking among minority populations by 5 percent in five years.

These goals are an elaboration of the long-term goal for TPCP that was set by the Initiated Act, which stated that "surveys [should] demonstrate a reduction in numbers of Arkansans who smoke and/or use tobacco."

According to the CDC, *comprehensive tobacco prevention and cessation programs should include the following five key components* (CDC, 2007):

- State- and community-based interventions
- Public education
- Cessation resources
- Monitoring and evaluation
- Administrative and managerial activities

For each tobacco prevention and cessation program component, we describe here the CDC's best practices (2007) and then report the TPCP's activities.

State- and Community-Based Interventions

Best Practices. *The CDC recommendation is that state-level programs provide information, guidance, and resources to community-level tobacco control initiatives.* State-level programs should

strategically fund: (1) community programs that create coalitions that influence social norms regarding tobacco use and educate the public and the media about the toll of tobacco as well as strategies to reduce the toll; (2) programs designed to reduce population-group disparities in tobacco-related risks, diseases, and death; (3) programs that target youth; (4) and partnerships with existing tobacco-related chronic disease programs.

The CDC recommends that only programs meeting established criteria for eligibility and accountability be supported. This ensures that community-directed funds are spent in the most effective way.

Arkansas. *TPCP supports the recommended array of state- and community-based interventions, including multiple coalition, disparity, youth, and chronic disease-focused programs.* Since the last evaluation report, coalition programs have been responsible for enacting smoking bans in churches, school districts, parks, and zoos. Community coalitions are also working toward the goal that all private colleges and universities in the state enact 100 percent tobacco-free campus policies by 2013. A recent survey showed that of the 27 institutions surveyed (82 percent response rate), 30 percent planned to implement a smoke-free policy and 70 percent planned to implement a tobacco-free policy. In other words, all responding institutions planned to implement moderate to aggressive tobacco control programs (Pippin, Ali, and Simon, 2010).

Partnerships with tobacco-related chronic disease programs have created networks of tobacco control advocates across public health regions, and minority initiative grantees have disseminated antitobacco messaging to more than 30,000 individuals. A youth initiative, YES! (Youth Extinguishing Smoking) Team—a statewide, youth-led, education and advocacy group designed to engage youth leaders in tobacco control legislative process—has had more than 10,000 web page visits and continues to expand its reach through social media outlets such as MySpace and Facebook.

Despite these successes and ongoing activities, it is extremely difficult to determine which state and community initiatives are having the greatest impact on tobacco policy, use, and health-related outcomes. Each TPCP initiative contains many subcomponents, only some of which have empirical support. For example, while YES! Team protests on “the hill” may be considered programs that influence social norms and educate the public about the health effects of smoking, the impact of including life-size coffins at these protests is unknown. *Whenever possible, TPCP should restrict its support to specific, evidence-based activities that support its tobacco control goals.*

Public Education

Best Practices. The CDC recommends that states fund counter-marketing media campaigns because research shows that they can prevent youth smoking uptake, promote cessation, and change social norms about tobacco use. Campaigns can include paid media, free media coverage such as news stories or opinion pieces, and other efforts across multiple channels (e.g., TV, radio, print, Internet). *Effective counter-marketing campaigns target youth and adults and include prevention and cessation messages.*

Arkansas. TPCP supports multiple counter-marketing media campaigns that include antismoking messages with prevention and cessation themes for both youth and adults. Among these are the Let’s Clear the Air media campaign and the Great American Smoke Out—two national media campaigns designed to raise awareness about the dangers of secondhand smoke. TPCP paid to have these campaigns aired on major state media outlets and to have materials

distributed through community organizations. Analyses presented in earlier evaluation phases suggest that both teens and adults had very high rates of recall of the messages from the media campaigns. We also reported that for every dollar spent on media by TPCP, it received at least an additional dollar of donated media.

TPCP also supports Stamp Out Smoking (SOS), a statewide campaign that promotes antismoking messages through traditional channels such as news releases and editorials, billboards, partnerships with community programs, its website, and social media outlets (e.g., Facebook), as well as other methods such as stickers, activity books, and drama contests. Smaller TPCP-funded media initiatives use posters, stickers, fact sheets, pledge cards, and PowerPoint presentations to promote antitobacco messages. The Hooked on Fishing Not on Drugs (HOFNOD) Program, for example, promotes fishing as an alternative to smoking and using drugs. Local media campaigns targeting minority groups have featured local minority celebrities. TPCP support includes financial and technical support, both directly and through grants to HOFNOD and other community partners.

Education curricula, such as the Healthy Lungs Program, which trains K–6 teachers regarding lung health and related health science, and the Smokeless Tobacco Program, which teaches students about the dangers of smokeless tobacco products, are part of TPCP's public education activities. Outreach at community events, particularly those targeting minority groups, is also supported by TPCP.

TPCP public education efforts appear to follow CDC recommendations in that they target adults and youth with both prevention and cessation messages. Some of the funding is spent on large evidence-based public education programs such as the Let's Clear the Air Campaign. Unfortunately, it is difficult to determine whether modifications for local context maintain the characteristics that lead to effectiveness. Given the state of knowledge regarding effective public education programs, TPCP appears to be using its resources effectively.

Cessation Resources

Best Practices. *States that provide evidence-based cessation resources can help more smokers quit.* State-level smoking cessation programs that offer *multiple, free-to-consumer resources* (e.g., individual, group, and telephone counseling, plus Food and Drug Administration–approved medications) can be expected to have the biggest effects. To ensure that cessation resources are widely used by all eligible smokers, cessation services must be strategically and systemically promoted and adopted, both directly to current tobacco users and to health professionals who can refer their patients for treatment.

Arkansas. TPCP provides multiple, evidence-based cessation resources to its residents, including telephone-based counseling via the Quitline and a time-limited offer of free nicotine patches or gum to registered adult Quitline users. Quitline users may also receive \$50 off prescription cessation medication (Varenicline). As of May 2010, *Arkansans as young as 13 years of age became eligible for Quitline counseling.* Youth Quitline counseling is a unique strength of the program. Throughout the nation, few easily accessible cessation services exist for adolescent tobacco users.

Other TPCP services, such as a new (2010) *evidence-based program that incentivizes pregnant women to stop smoking*, are being offered on a smaller scale. Non-TPCP programs such as *Medicaid coverage of counseling and nicotine replacement medications also effectively reduce smoking rates* (Land et al., 2010), thus supplementing TPCP's cessation initiatives.

TPCP aims for the Quitline to reach 6 percent of all Arkansas tobacco users, and it supports several strategic initiatives to help reach this goal. For example, TPCP supports training and outreach programs such as the System Training Outreach Program (STOP) for health care professionals that promotes awareness of the Quitline, increases health care provider comfort with addressing tobacco use, and encourages uptake of public health system–recommended changes for assessing and treating tobacco use.

In 2009, TPCP's Quitline goals appeared within reach. At that time, 4.2 percent of tobacco users in Arkansas were accessing Quitline services. Since then, *fewer Arkansans now access Quitline services*: Almost 25 percent fewer adults accessed the Quitline in 2011 than in 2009. In this biennium, \$4.5 million of TPCP's cessation budget was transferred to drug courts by legislative mandate. Only 3 percent of drug court spending actually involves tobacco cessation–related activity. Although we do not have sufficient information to determine definitively that the reduction in funding *caused* the reduction in Quitline activity, such a conclusion seems consistent with the limited evidence available.

Monitoring and Evaluation

Best Practices. The CDC recommends that all aspects of a state's tobacco prevention and cessation program be rigorously and continuously evaluated to ensure program effectiveness and accountability. It also recommends that states participate in national surveillance systems such as the BRFSS and the Youth Tobacco Survey (YTS) to facilitate regular tracking of tobacco use outcomes within the state, as well as outcomes that are comparable across states.

Arkansas. *Arkansas participates in several national- and state-level population surveys that monitor tobacco use.* These include the BRFSS, the YTS, the CDC's National Adult Tobacco Survey (NATS), and the supplemental Arkansas Tobacco Survey (ATS).

TPCP also monitors its own ongoing strategies, program activities, and costs. For example, TPCP analyzed media efforts to understand what prompts tobacco users to call the Quitline and which advertising efforts are most cost effective. Through data collected as part of this endeavor, TPCP learned that the cost of recruiting Quitline users can be as low as \$67 per user through television advertising and as high as \$1,270 per user through outdoor billboards. *Program monitoring efforts help TPCP set a smart, cost-effective strategy for its service initiatives.*

In its quarterly reports to the ATSC, TPCP reports on their monitoring of all major components of their program activities and costs. These reports include a description of activities, the level of associated expenditures, and, if available, the outcomes associated with the activities. These reports have become more detailed and more structured, both due to maturation of TPCP's management and ATSC's strengthened reporting requirements.

Additional monitoring efforts, such as the Synar report, *report tobacco sales compliance checks to ensure that laws restricting tobacco sales to minors are strictly enforced.* In fiscal year 2010, the Arkansas Tobacco Control Board performed 5,262 compliance checks of tobacco sales to minors in stores that have been noncompliant in the past or that have had a complaint made against them for selling to minors. Checks revealed a 7.2 percent violation rate, compared to a 24.1 percent violation rate in 2002.

TPCP also supports several smaller, local-level data collection efforts that support its community-level initiatives. For example, TPCP supported a collection of opinion surveys (e.g., Operation Storefront survey, Oxygen Project survey) about smoke-free air policies. It then used these survey results to successfully advocate for more comprehensive community-level smoke-free air laws.

Administration and Management

Best Practices. State programs require infrastructure for fiscal management and accountability. Programs also are more likely to thrive when staff is diverse, well trained, and able to communicate effectively within the organization and those outside of the organization. The CDC recommends that states' key management activities include strategic planning, awarding and monitoring program grants, tracking program expenditures, providing training and technical assistance to local organizations, communicating with partners, and public and policymaker education about the positive effects of the tobacco prevention programs.

Arkansas. TPCP staff oversees the distribution of TPCP funds to the major activities conducted under the four components of the CDC guidelines just described. It attends to developments in tobacco policy science and adjusts TPCP funding allocation (where possible) and programming accordingly. TPCP administration and management are actively involved in providing technical assistance to grantees and community-level groups, consolidating and summarizing the activities of all of its initiatives, and communicating these activities and their impacts to policymakers. Senior staff has made public television and community appearances to promote specific tobacco control initiatives. Since the last report, TPCP administration and management have worked to fill vacant positions for professional tobacco control and administration staff. TPCP administration and management staff also has applied for and received additional grants to help support tobacco control in Arkansas.

There are some weaknesses in TPCP's administration and reporting functions. As discussed in the next section, the quarterly reports provided to the ATSC do not discuss the difference between budgeted amounts and actual spending on prevention and cessation. TPCP's quarterly report to the ATSC does not contain explicit reports on staff characteristics, training, or communication skills.

However, the best evidence regarding the quality of TPCP's administration and management is their demonstrated ability to implement high-quality initiatives in the other four components of the CDC's recommended Best Practice Guidelines. TPCP's management is adhering closely to the CDC guidelines regarding the allocation of funds across components and has set up outcomes targets for tobacco use and harm reduction. The quarterly reports demonstrate that *TPCP management is engaged in the key management activities recommended by the CDC.*

Expenditures

In fiscal years 2010 and 2011, TPCP spent \$19.8 million and \$16.7 million, respectively (Table 2.2), which is more than its average spending over the last five years (\$15.8 million). However, spending on prevention and cessation increased to \$11.6 million in 2010, then dropped to its lowest level in 2011 at \$8.3 million. This decrease in prevention and cessation spending reflects a concurrent increase in funds allocated to drug court programs and maintenance and operations. As shown in the bottom two rows of Table 2.2, as a percentage of TPCP spending, prevention and cessation dropped from approximately 70 percent in fiscal years 2007 and 2008 to 50 percent in 2011, whereas spending on other types of programming rose from less than 10 percent to more than 20 percent. In other words, *in recent years, TPCP has been spending less on tobacco prevention and cessation and more on other nontobacco services.*

Table 2.3 shows that *TPCP's spending in all categories, except administration and management, is lower than the CDC-recommended percentage;* the percentage spent on administration and management is more than twice the recommended amount. The legislated redirection of

Table 2.2
Tobacco Settlement Funds Received and Spent by TPCP, by Fiscal Year

Line Item	2007	2008	2009	2010	2011
(1) Regular salaries	\$1,492,457	\$1,451,909	\$1,560,402	\$1,721,872	\$1,673,532
(2) Extra help	27,561	20,336	14,583	11,744	21,812
(3) Personal service matching	417,768	422,287	415,133	473,823	493,847
(4) Maintenance and operations	1,634,302	1,669,307	2,057,398	2,800,820	2,508,969
(5) Prevention and cessation programs ^a	10,456,376	9,856,735	10,461,985	11,639,769	8,343,743
(6) Nutrition and physical activity program	559,245	317,700	776,372	674,404	632,009
(7) Transfer to breast cancer control fund	500,000	500,000	500,000	500,000	500,000
(8) Drug court substance abuse treatment programs				1,500,000	1,500,000
(9) Juvenile drug court treatment programs				500,000	1,000,000
Total	\$15,087,707	\$14,238,274	\$15,801,572	\$19,822,432	\$16,673,912
Percentage of total spent on prevention and cessation programs (row 5)	69.3%	69.2%	66.2%	58.7%	50.0%
Percentage of total spent on nontobacco programs (rows 6–9)	7.0%	5.7%	8.1%	16.0%	21.8%

^a Includes amounts spent on minority initiatives.

Table 2.3
TPCP Fiscal Year 2011 Spending, by CDC Program Area

Activity Area	CDC Recommended (%)	2011 Spending	Percentage
State and community programs	43	\$5,493,625	33
Public education	14	1,371,668	8
Cessation	31	3,508,137	21
Monitoring and evaluation	9	1,018,120	6
Administration and management	4	1,514,031	9
Nontobacco programs	0	3,768,341	23
Total	100%	\$16,673,912	100%

TPCP funds to programs not directly related to tobacco prevention and cessation implies that much less prevention and cessation programming is reaching Arkansans than is recommended.

After adjusting for inflation and population growth, Arkansas's annual spending on tobacco prevention and cessation per capita has decreased from a high of approximately \$7 in 2003 to just under \$3.50 in 2011. The large reduction in prevention and cessation spending

suggests that the decrease in Quitline use mentioned above is likely due to less public awareness of this resource's availability. As we see in the following section, preliminary evidence suggests that the smoking rate is no longer declining as fast as it was prior to these cuts in tobacco prevention and cessation-specific spending.

Tobacco-Related Outcomes

In this section, we describe how rates of tobacco use and tobacco-related diseases have changed in the last decade and the possible role played by TPCP.

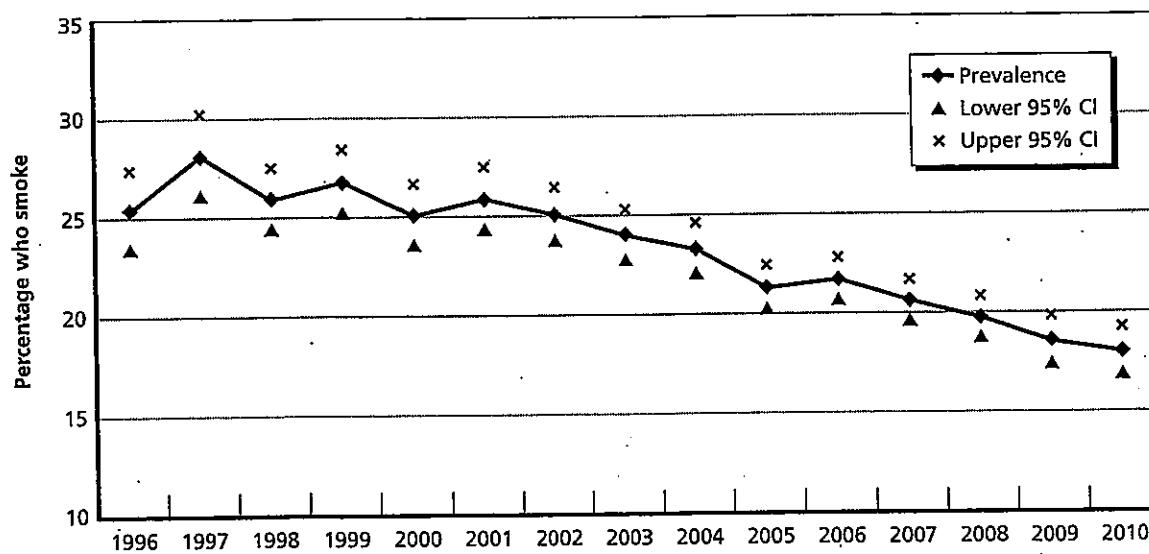
Smoking Prevalence

As shown by Figure 2.1, fewer Arkansans smoke now than a decade ago. *Among adults, smoking prevalence has declined by 31 percent, bringing the adult smoking rate from 26 percent in 2001 to 18 percent in 2010.*

Figure 2.2 shows that smoking rates among young people and pregnant women have also declined. One of the largest decreases occurred among high school students. *Only half as many Arkansas high school students smoke today compared with a decade ago.*

Figure 2.3 shows Arkansas's smoking rates over the past decade, broken down by racial and ethnic groups.

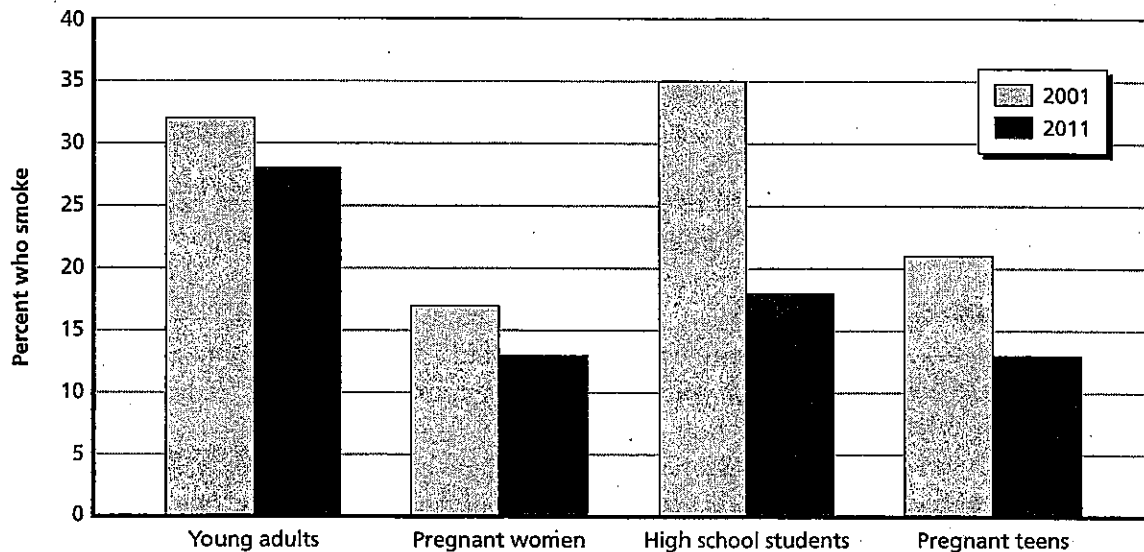
Figure 2.1
Decline in Number of Adult Smokers in Arkansas



SOURCE: RAND analysis of Behavioral Risk Factor Surveillance System micro data files, US CDC 2012a.

NOTES: Decline in smoking from 2001 to 2010 is statistically significant (p -value < 0.05). This analysis of adult smoking rates accounts for the important design features of the BRFSS survey, including probability weights, as well as strata and sampling unit information. Including all these design features is of critical importance to make the sample representative of the entire state population. Many public sources (e.g. United Health Foundation, 2011) do not use this information in their calculations and obtain different estimates. For example, United Health Foundation reports a 2010 smoking rate of 22% rather than the 18% used here. However, trend information is similar.

Figure 2.2
Decline in Smoking Among Arkansas Youth and Pregnant Women



SOURCES: Young adults smoking rate is from RAND calculations based on BRFSS, adjusted for change in population demographics; smoking rates among pregnant women and pregnant teens are from RAND calculations based on birth certificates, adjusted for change in population demographics; smoking rate of high school students is from Arkansas Youth Risk Behavior Survey. All differences are statistically significant (p -value < 0.05).

RAND TR1261-2.2

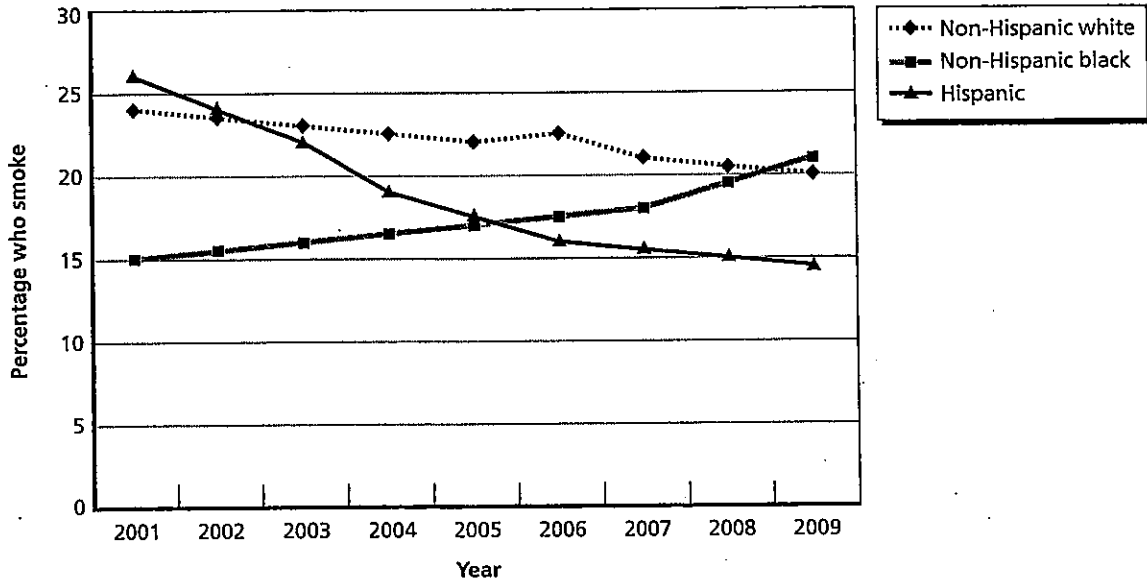
As of 2001, smoking rates were highest among Hispanics (26 percent) and non-Hispanic whites (24 percent) and lower among non-Hispanic blacks (15 percent).² By 2009, however, the prevalence of smoking among each group had changed: Hispanic Arkansans experienced a statistically significant decline in smoking prevalence while non-Hispanic blacks experienced an increase in smoking rate. Therefore, by 2009 there were no differences in smoking rates between non-Hispanic blacks and whites, while Hispanics smoked statistically significantly less than both non-Hispanic groups.³ Additional tobacco control programming targeting non-Hispanic blacks is needed to reduce this smoking disparity.

Overall, when we adjust for differences in demographics among states and over time, Figure 2.4 shows that Arkansas's smoking rate declined faster than the average rate in the six neighboring states since the start of the ATS programs in 2001. This suggests that Arkansas's tobacco control programs make a difference in smoking rates, over and above regional or national factors that affected smoking, such as changes in cigarette advertising and national antismoking campaigns. Although the most recent year, 2010 in Figure 2.3, makes it appear that the smoking rate increased even though rates for neighboring states continued to decline, the margin of error in these estimates is too large to make such a conclusion. However, recent reductions in prevention and cessation programming provide reasons to expect an end to

² Data are from RAND's analysis of the BRFSS, adjusting for sociodemographic factors. Note: There is a group of "Other non-Hispanic" in the study sample, but the group was too small (<5 percent of Arkansans) to provide interpretable results and is thus omitted from the figure.

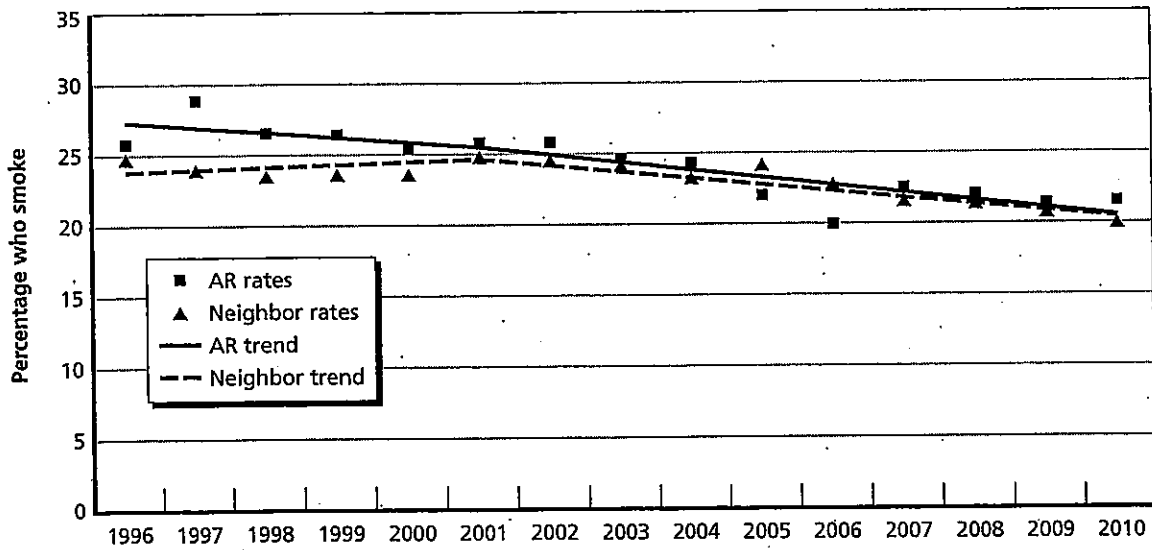
³ Additional RAND analyses of Arkansas smoking disparities can be found in Yu et al. (2012).

Figure 2.3
Adjusted Adult Smoking Rates Among Racial/Ethnic Groups



RAND TR1261-2.3

Figure 2.4
Smoking Rates and Trends in Arkansas and Its Six Neighboring States



SOURCE: RAND analysis of Behavioral Risk Factor Surveillance System micro data files.

NOTE: These estimates have been adjusted for differences in population demographics, which accounts for differences in the AR rates reported Figures 2.1 and 2.3.

RAND TR1261-2.4

Arkansas's progress in the battle against tobacco use, suggesting that these statistics should continue to be monitored.

Smoking and Health

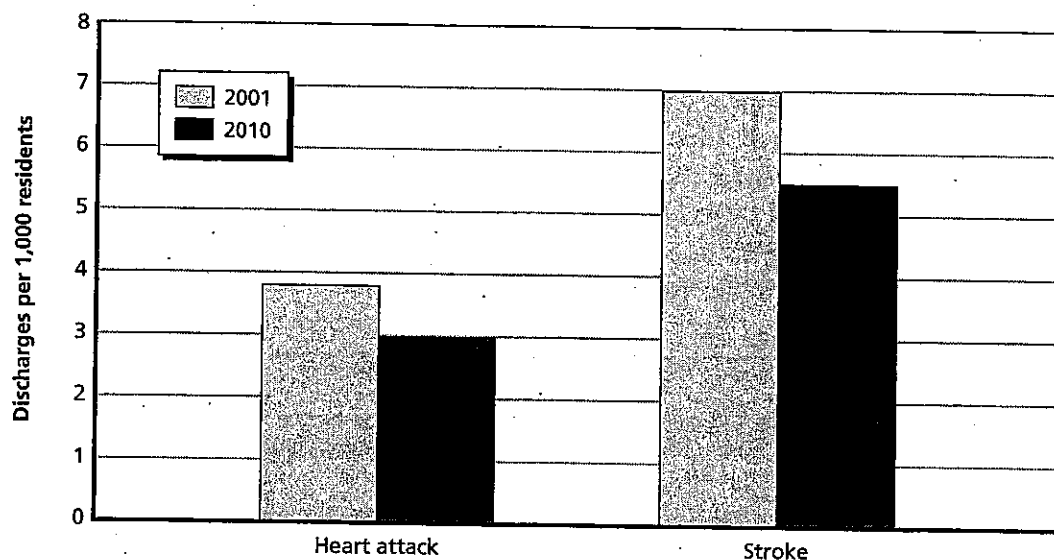
With fewer smokers in the state and greater protections from secondhand smoke, changes in Arkansans' health are expected to follow. Specifically, rates of diseases that respond quickly to changes in smoking prevalence, such as low-weight births (Lightwood et al., 1999; Adams et al., 2002), strokes and heart attacks (Lightwood and Glantz, 1997; Critchley and Capewell, 2003), pulmonary conditions (Nuorti et al., 2000), asthma (Floreani, 1999), and diabetes (Rimm et al. 1995; Hu et al. 2001) should also be on the decline.

Indeed, hospital discharge data show that *recent reductions in statewide smoking rates may be helping to protect Arkansans from smoking-related disease*. In 2010, fewer Arkansans were hospitalized for strokes and heart attacks than they were in 2001 (Figure 2.5). The reduction in hospitalizations for each of these two conditions is statistically significant. And although rates of asthma, diabetes, pneumonia, and low-weight births did not decrease significantly from 2001 levels, previously existing upward trends in these diseases were slowed.

Summary, Comments, and Recommendations

From 2001 through 2010, rates of smoking in Arkansas have trended downward. Declines in Arkansas's smoking rate have outpaced declines in other states in the region, suggesting that Arkansas's programs may be actively preventing smoking initiation and helping smok-

Figure 2.5
Reduction in Heart Attacks and Strokes After ATS Program Implementation



SOURCE: RAND analysis of Arkansas hospital discharge data and Census data.

RAND TR1261-2.5

ers quit. Early indicators show that rates of smoking-related diseases such as heart attacks and strokes are also declining as a result of ATS initiatives. In other words, *Arkansas's programs have helped protect Arkansans from tobacco-related harm*. However, reductions in spending on prevention and cessation and an increase in survey-based smoking rates suggests that these positive changes may not last for long.

Tobacco continues to take a staggering toll on the state's health, well-being, and finances. Each year 4,900 Arkansans die from their smoking directly, and 64,000 Arkansan children alive today will ultimately die from smoking-related causes (CTFK, 2011d). Given racial and ethnic disparities in tobacco use within the state, the smoking-related disease burden among some groups, such as non-Hispanic blacks, is likely on the rise. Arkansas's annual health care expenditures directly caused by tobacco use total \$812 million. Citizens spend \$627.7 million (\$558 per household) to cover smoking-related government costs each year. This equates to health costs and productivity losses of \$9.65 per pack sold in the state (CTFK, 2011d). In 2010, 18 percent of adult Arkansans smoked cigarettes (CDC, 2012a), and this rate is among the highest (5th of 50 states) in the nation (CTFK, 2012). If Arkansas's goal is continued reductions in tobacco use and the associated improvements in population health and decrease in health care costs that will follow, then there are many evidence-based policy options for the state to consider.

Policy. Overall, Arkansas has made significant advances in its tobacco control policy over the past decade. Key among these are significant increases in cigarette and smokeless tobacco taxes in 2009 and new smoke-free air laws that protect nonsmokers in workplaces, many bars and restaurants, and children in cars. With these changes in place, *Arkansas has become a regional leader in state-legislated tobacco control*.

At the same time, Arkansas needs to do more to become a *national* leader in tobacco control. In particular, we recommend that Arkansas raise cigarette taxes so that the real price of cigarettes is increased by at least 10 percent. This will help Arkansas achieve its current tobacco control goals. We also recommend that Arkansas improve its smoke-free air policies by banning smoking in all restaurants and bars, so that it meets the CDC's criteria for comprehensive tobacco control. Finally, Arkansas should enhance its laws for protecting young people from smoke by increasing the fine associated with violating laws against smoking with children in the car, by increasing enforcement of these laws, and by expanding Act 734 to include smoking restrictions on private (as well as public) higher education institutions.

Tobacco Prevention and Cessation Programs

Arkansas's TPCP is one that the state can be proud of. Many of its initiatives are state-of-the-art, and many of them reflect best practices in the field. Arkansas's long-term commitment to funding TPCP initiatives is vital to the program's success. The level at which state-level tobacco control programs are funded is strongly, positively associated with their impact on smoking rates. The more resources that states dedicate to sustained, comprehensive tobacco control programs, the greater the reductions in smoking. And the longer states invest in such programs, the greater and faster their impact on smoking and other tobacco outcomes (Farrelly, Pechacek, and Chaloupka, 2003).

Recent cuts in TPCP's budget likely resulted in declines in the reach of tobacco control initiatives, such as declines in teens' exposure to tobacco counter-marketing campaigns (Davis et al., 2010). In 2006, the tobacco industry spent more than \$155.7 million marketing tobacco products in Arkansas alone. If Arkansas wants to maintain the gains that it has made through

tobacco control efforts thus far, the state will need to reaffirm its commitment to providing continued support for TPCP *tobacco control-specific* activities.

In the face of additional looming funding cuts, Arkansas will need to find ways to support tobacco prevention and cessation with fewer resources. One way to do this is to direct spending (as much as possible) away from programs (or specific activities within programs) with no track record of changing tobacco use, policy, or health-related outcomes and retain support for tobacco-specific, evidence-based initiatives. Similarly, redirecting funds from administration and management so that the budget is within CDC-recommended levels could make additional funds available for evidence-based cessation and prevention initiatives.

Health Context, Programming, and Health Outcomes

Although the most visible focus of the Initiated Act is tobacco-related health issues, *the act directed the majority of the funds to improve Arkansans' health in other ways*. MSA funds were directed to six nontobacco programs targeting the root causes of poor health in Arkansas, including lack of access to health care and limited public knowledge regarding healthy behaviors.

In this chapter, we first describe Arkansas's health challenges at the time the act was initiated. Then we discuss how the funded programs were intended to help. Following this, we review each of the six nontobacco programs, including a review of their goals, their activities, and their spending. We conclude with a section that examines changes in Arkansas's health-related outcomes that are targeted by these programs.

Arkansas's Health Context in 2001

Overall Health Status

At the beginning of the decade, the people of Arkansas were in worse health, on average, than the rest of the United States. Arkansas's rates of major diseases and overall health status were among the poorest in the nation. In 2001, Arkansas was ranked 45 of 50 states in overall health status (United Health Foundation, 2011). As shown in Table 3.1, many major diseases were more prevalent in Arkansas than in other states in 2001.

Although Arkansas as a whole faced great health challenges in 2001, the health of Arkansas's low-income and minority communities was particularly poor. As of 2004, Arkansas had greater between-county health disparities than many other states. For example, Philips County in the Delta region, whose residents were 59 percent African American, had higher rates of death from cancer, diabetes, cardiovascular disease, and all total causes than the rest of the state (U.S. Census, 2000; ADH, 2011). Although there are no state rankings of racial and ethnic disparities in health, many have argued that geographic disparities in health and health care are a leading contributor to racial disparities (Chandra, 2009).

The Initiated Act aimed to improve both the health status of Arkansans and Arkansas's ranking relative to other states by funding programs that targeted the major building blocks of health. As shown in Figure 3.1, health status has multiple determinants. In the following sections, we focus on three of these: economic conditions, access to health care, and healthy behaviors. We examine Arkansas's ranking with respect to each of these building blocks at the time the Initiated Act was passed and describe how specific programs were intended to improve health by improving these building blocks.

Table 3.1
Major Health Status Indicators in 2001: Arkansas and the United States

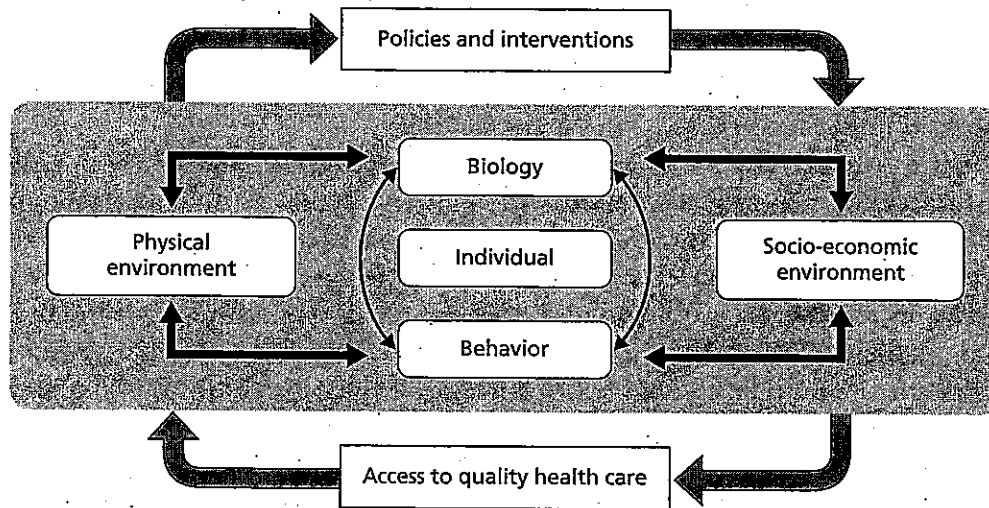
Health Status Indicator	Arkansas's Rank 2001	Arkansas (%)	All States (%)
All Health Outcomes	45	N/A	N/A
Premature death	46	N/A	N/A
Infant mortality	40	0.75	0.71
Geographic disparities ^a	30	N/A	N/A
Specific Conditions			
Diabetes	27	6.2	6.1
High blood pressure	45	28.4	23.9
High cholesterol	44	32.7	30.1
Low birth weight	44	0.1	0.08
Obesity	47	23.3	20
Preterm birth	45	0.13	0.12

SOURCE: United Health Foundation, 2011.

NOTE: N/A, not applicable.

^aThe earliest geographic health disparities ranking is from 2004.

Figure 3.1
Determinants of Individual Health Status



SOURCE: Healthy People, 2010.

RAND TR1267-3.1

Economic Conditions

Prosperous economic conditions support good health in many ways. An educated population, employed in stable, high-paying jobs, is most likely to engage in healthy behaviors and make use of high-quality health care, all of which result in better health outcomes (Subramanian, Belli, and Kawachi, 2002). Conditions that foster economic prosperity include a trained workforce with a high level of general education and a variety of productive skills. However, at the time the act was passed, Arkansas had few of these advantages. Although the state's unemployment rate was similar to the national average and to rates in its neighboring states, all with approximately 4 percent unemployment, working Arkansans were earning less than their peers. Arkansas's median weekly earnings ranked 46 of 50 states. It was 28 percent lower than the average median income of the 50 states and 12 percent lower than the average median income of the six neighboring states (US DOL BLS, 2012).

For the most part, the Initiated Act did not attempt to address economic conditions directly. However, the funding directed toward ABI was not only intended to create research results and develop technologies that would improve health but also was expected to leverage additional research funds from outside the state and lead to commercial applications that created stable, high-paying jobs. Although permanent economic growth requires a healthier, better educated workforce, the approximately \$100 million that ABI has received from the MSA could stimulate additional economic activity if these funds were used to increase additional federal research funding brought into the state and to help create new commercial enterprises.

Access to Health Care

Access to health care can be limited by the lack of health care coverage and by a limited supply of trained providers. Evidence of limited access is underutilization of preventive health care and overutilization of emergency and inpatient services for chronic and acute conditions that could have been successfully avoided with preventive care or treated in outpatient settings.

There was a lack of trained health care providers in many communities at the time of the Initiated Act. In 2001, more than 625,000 Arkansans lived in areas with a shortage of health professionals and more than 1,539,000 lived in medically underserved areas (ADH, 2002). In particular, the Delta region lacked primary care providers in many of its cities and towns. Shortages of specialty providers, such as those trained to meet the distinctive health care needs of elderly and minority populations, were widespread.

In addition, many Arkansans lacked health care coverage at the time of the Initiated Act. As shown in Table 3.2, Arkansas ranked 43rd in the percentage of working-age adults without any type of health care coverage in 2000 (CDC, 2012a). The percentage of adults in Arkansas who were prevented from seeing a doctor due to costs exceeded the percentage of the U.S. population as a whole.

Further evidence of limited access comes from Arkansas's rankings on the use of some preventive services and on the rate of avoidable hospitalizations. In 2001, Arkansas ranked 42nd among states in percentage of pregnant women obtaining adequate prenatal examinations (United Health Foundation, 2011). In 2003, Arkansas ranked 44th in the rate of avoidable hospitalizations of Medicare beneficiaries (Commonwealth Fund, 2007). Arkansas was lower than the national average in the percentage of adults who had a routine check-up, but was similar to the national average in the percentage who had been tested for HIV/AIDS and exceeded the national average in the percentage of elderly who had flu shots.

Table 3.2
Health Care Access, Lack of Preventive Care, and Avoidable Hospitalizations Prior to MSA: Arkansas and the United States

Health Care Measure	Arkansas	United States
Adults without health care coverage (state rank, 2000)	43	
Adults prevented from seeing doctor due to cost (percentage, 2000)	13.0*	10.5
Avoidable hospitalizations of Medicare beneficiaries (state rank, 2003)	44	
Adequate prenatal exams (state rank, 2001)	42	
Adults received routine check-up in past two years (percentage, 2000)	80.5*	83.3
Adults received HIV/AIDS test (percentage, 2000)	13.7	12.3
Adults (age 65+) received flu shot in past year (percentage, 1999)	14.0*	11.4

SOURCE: United Health Foundation, 2011; Commonwealth Fund, 2007; RAND tabulations of BRFSS, multiple years.

* Difference from U.S. average is statistically significant (p value < 0.05).

Lack of access frequently has the greatest impact on disadvantaged portions of the population. Table 3.3 shows that African-Americans and Delta residents are more likely than their counterparts to be prevented from seeing a doctor because of cost and more likely to be overweight. The elderly in these groups are less likely to have had a flu shot. African-Americans are much more likely to be overweight or obese. However, African-Americans are more likely to have had a routine check-up in the past two years and Delta residents are more likely to have been tested for HIV/AIDS.

Table 3.3
Disparities Within Arkansas by Race and Region

Health Care Measure	Race			Region		
	African-American (%)	White (%)	Odds Ratio	Delta (%)	Non-Delta (%)	Odds Ratio
Adults prevented from seeing doctor due to cost	18.7	12.0	1.69*	18.0	12.0	1.61*
Adults received routine check-up in past two years	89.2	79.5	2.13*	45.4	45.8	0.98
Adults received HIV/AIDS test	12.8	13.6	0.93	13.8	6.0	2.51*
Adults (age 65+) received flu shot in past year	8.4	15.1	0.52*	2.5	7.9	0.30*
Adults overweight or obese	72.5	56.0	2.07*	50.1	30.3	1.65*

SOURCE: RAND tabulations of BRFSS, multiple years.

NOTE: Race percentages are for 2000. African-American and white are the only two race categories with sufficient sample sizes for reliable statistics. Region percentages are for 2000–2005. Multiple years are required in order to have a sufficient sample size for the Delta region. The Delta region includes Chicot, Crittenden, Desha, Lee, Monroe, Phillips, and St. Francis counties.

* The difference between the target population rate and the rate for their counterpart is statistically significant (p -value > 0.05).

Three of the four MEP expansions directly address the limited access to health care demonstrated by these rankings. The ARHealthNetworks Program subsidizes private employer-based health insurance for employees of small businesses, with the intention of decreasing the percentage of working adults without health care coverage. The Pregnant Women's Expansion Program extends Medicaid benefits to a group of previously uncovered pregnant women. ARSeniors extends Medicaid benefits to poor elderly Medicare recipients so that they can receive the full range of preventive care services covered by Medicaid. More than \$50 million in MSA funds plus more than \$100 million in federal matching funds have been allocated to these three programs in the past decade.

Arkansas's deficits in access and disparities within the state were a primary target of the Initiated Act. Several MSA-funded programs have the goal of increasing the supply of trained providers. Delta AHEC, AAI, and MHI all engage in professional education or other efforts to increase the supply of providers for their target populations. In total, these programs have received approximately \$50 million over the past decade.

Although these are the main funded programs dedicated to improved access, others affect access as well. For example, COPH, through research into health disparities, provides knowledge that can lead to policies that improve access for underserved populations. It also trains a public health workforce that can help connect underserved populations with existing resources.

Healthy Behavior

High rates of risky behaviors and low rates of health-promoting behaviors also contributed to Arkansans' poor health at the time of the Initiated Act. Table 3.4 shows high rates of risky behaviors such as tobacco use, violence, and unsafe sex and low rates of health-promoting behaviors such as exercise and healthy diets that include fruits and vegetables. The only indicator in which Arkansas was ranked better than the median state was binge drinking.

Table 3.4
Risky and Healthy Behaviors in 2001: Arkansas and the United States

Behavior	Arkansas Rank (of 50)	Arkansas Rate (%)	U.S. Rate (%)
Risky			
Binge drinking	7	9.9	14.7
Smoking	40	25.1	23.2
Teen birth	48	70.8 ^a	51.1 ^a
Violent crime	28	425 ^b	524.7 ^b
Healthy			
Diet: eating fruits or vegetables 5(+) times per day	30	20.4	23.2
Exercise: within last 30 days	30	71.9	73.3

SOURCE: United Health Foundation, 2011.

NOTE: Higher ranks (i.e., numbers closer to 1) indicate healthier behavior for all measures.

^aNumber of births per 1,000 women age 15 to 19.

^bOffenses per 100,000 population.

The COPH is working to improve the public health infrastructure for the entire state, training a public health workforce that will serve all geographic and demographic communities. Approximately \$25 million of MSA funds have been invested in this effort. In addition, much of the \$50 million invested by MHI, Delta AHEC, and AAI has been spent on health behavior education for each program's target population.

In the next section, we provide greater detail about each of the six nontobacco program's goals, activities, and spending since the Initiated Act was passed and especially within the last two years.

Other Health Program Evaluations

Medicaid Expansion Program

Program Description. The goal of the DHS Medicaid Expansion Program is to "expand access to health care through targeted Medicaid expansions, thereby improving the health of eligible Arkansans." The MEP includes four efforts:

- *The Pregnant Women's Expansion Program* expands Medicaid coverage and benefits to pregnant women. Implemented November 1, 2001, the program uses MSA funds to increase the income eligibility of pregnant women from 133 percent to 200 percent of the federal poverty level. As of September 30, 2011, 19,165 women had enrolled and received services through the program.
- *The Hospital Benefit Coverage Program* offers expanded inpatient and outpatient hospital reimbursements and benefits to adults ages 19 to 64. Specifically, the program increases the number of benefit days from 20 to 24 and decreases the co-pay on the first day of hospitalization from 22 percent to 10 percent. The program was implemented November 1, 2001, and the number of beneficiaries has trended downward from a high of approximately 23,000 in the first six-month reporting period in 2005 to approximately 15,000 for both fiscal years 2010 and 2011.
- *The ARSeniors Program* expands noninstitutional coverage and benefits to Medicare beneficiaries age 65 and over who are deemed eligible for qualified Medicare beneficiary (QMB) status. Once an individual's income falls to 80 percent of the federal poverty level or lower, he or she becomes eligible for the full array of Medicaid benefits. The program has served more than 7,000 seniors since its inception.
- *ARHealthNetworks* provides a limited benefits package to adults ages 19 to 64. Implemented in January 2007, ARHealthNetworks consists of a federal waiver that provides eligible small employers and sole proprietors with health coverage. As of September 30, 2011, there were 14,995 individuals enrolled in the program, representing 30 percent of the 50,000-person cap set by the Centers for Medicare and Medicaid Services (CMS) for Phase II of this program. More than 90 percent of ARHealthNetworks enrollees pay a low-cost, \$25 per month premium.

Nearly one-third (29.8 percent) of the Tobacco Settlement Program funds support MEP. MEP programs leverage approximately three Federal Medicaid dollars for every MSA dollar spent on health benefits through the Federal Medicaid Assistance Percentage (FMAP). In 2009 the FMAP was at a high of 82 percent but has decreased to 71 percent for fiscal years

2010 and 2011. ARHealthNetworks also leverages federal Medicaid funds (Title XIX and Title XXI) and employer contributions. Overall the ratio of leveraging in fiscal years 2010 and 2011 was approximately 3.5:1.

Program Activities and Goals. In general, the MEPs were straightforward to implement. With the exception of ARHealthNetworks (which required approval from CMS), each expanded the coverage of programs that were already in place and no new processes were developed. The Pregnant Women's Expansion Program and the Hospital Benefit Coverage Program were implemented in November 2001 and the ARSeniors Program was implemented in November 2002. Since initial implementation, activities have included providing ongoing coverage, recruiting new enrollees, and balancing budgets in the face of nation-wide recessions, federal stimulus payments, and the rising costs of health care.

Since the last report, MEP has taken several steps toward meeting its goal of expanding access to Medicaid for eligible Arkansans. Specifically, the DHS used federal stimulus money to modernize and transform its service delivery system in order to improve program access and create a more cost-efficient eligibility process for core public assistance programs (Medicaid, supplemental nutritional assistance, and transitional employment assistance). These transformations include a newly built 100-person central processing center, which opened and was fully functional in the third quarter of fiscal year 2011. DHS also made significant progress in streamlining the application process for core public assistance programs by switching to electronic case records and implementing a web-based enrollment system. The new website, Access Arkansas (<https://access.arkansas.gov>), allows prospective Medicaid beneficiaries to enroll at any location with computer and Internet access. DHS has begun using vans with Internet capabilities to conduct on-site enrollments at community events. These enhancements are expected to increase program access and create greater efficiency in the MEP eligibility-determination and enrollment processes. A newly hired outreach coordination specialist will also work closely with MEP to schedule mobile enrollment opportunities.

Notably, all other MEP outreach activities (with the exception of the outreach activities reported for the ARHealthNetworks Program) are currently suspended pending the development of a strategy to "Bend the Arkansas Medicaid Cost Curve" to operate within future funding projections. Increases in enrollment in MEP initiatives now depend on promotion of the on-line Access Arkansas website.

In 2010, DHS also developed new program goals for each MEP initiative to more accurately reflect postimplementation outcomes. Goals and progress for each program are described below.

Pregnant Women Expansion. The original goal of the Pregnant Women's Expansion Program was to increase program enrollment by 15 percent each year. The program failed to meet this goal in every year since its inception in 2002, possibly due to program saturation; approximately two-thirds of births in Arkansas are paid for by Medicaid. Instead, the following new program goal centered on the specific prenatal services critical to healthy births has been established:

Goal: The percentage of enrolled women receiving at least two prenatal visits will increase.

- At the time of this report, the program was in the process of establishing the baseline data and tracking reports to monitor the type and level of prenatal services provided to women in the regular and expanded coverage programs. Data are not yet available to indicate the success of these new initiatives.

Hospital Benefit Coverage. Although there are no specific enrollment or utilization goals for this program, it is expected to have the impact of reducing uncompensated care, cost sharing, and patient liability for Medicaid beneficiaries receiving hospital care. DHS reports that the number of beneficiaries was on a downward trend from 2002 to 2009 but increased in 2010 and 2011 (Figure 3.2).

DHS is also enhancing the administrative resources assigned to perform data mining, tracking, and analysis of MEP services and benefits. These analyses, once complete, will be useful for determining the degree to which the Hospital Benefit Coverage Program covers otherwise uncompensated care and reduces cost sharing and patient liability from hospital stays; data are not yet available to describe the impact of this program.

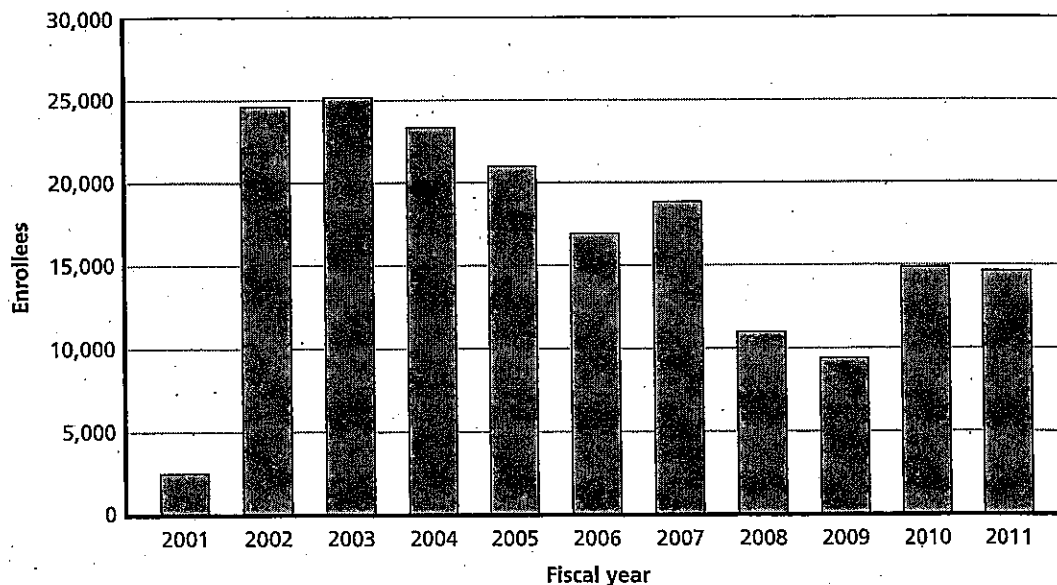
ARSeniors. Currently, the ARSeniors Program has one primary goal.

Goal: Increase enrollment by 15 percent each year.

- Enrollment in ARSeniors has remained relatively flat since 2005 at about 5,000 participants, and the program's enrollment goal has not been met over that time period. Previously, low enrollment rates were attributed to a lack of formal outreach. Since the last report, however, changes in the QMB Program expanded ARSeniors' eligibility and, consequently, were expected to increase program participation. DHS efforts have not yielded an increase in enrollment. Although the new enrollment system (Access Arkansas) is expected to increase enrollment, all other new outreach efforts (such as enrollment campaigns) have been put on hold pending the development of a strategy to reduce Arkansas Medicaid costs.

ARHealthNetworks. Arkansas expanded eligibility for this program in early 2010 to include those who are self-employed. There is one goal for this program.

Figure 3.2
Number of Enrollees in Arkansas's Hospital Benefit Coverage Program, by Fiscal Year



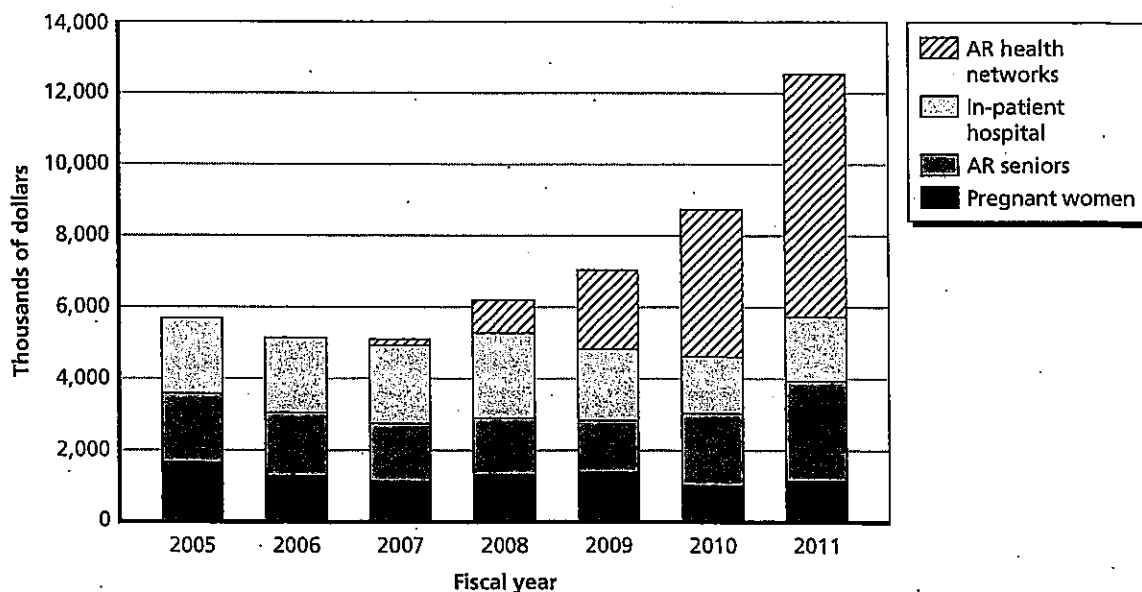
Goal: Increase enrollment by 75 new employers annually and 400 new members per month.

Average new enrollment since the last report was approximately 750 members per month, exceeding (and almost doubling) the targeted enrollment growth. After the first full year of coverage (2007), more than 90 percent of enrollees renewed coverage. Unlike all other MEP programs that have suspended outreach efforts, ARHealthNetworks continues to advertise for new enrollees. Since the last report, contractor NovaSys has continued a statewide mass marketing of the ARHealthNetworks Program expansion. Since expansion of the program at the beginning of fiscal year 2010 combined with the outreach campaign, ARHealthNetworks has experienced significant, steady growth. Participation in ARHealthNetworks increased 37 percent from fiscal year 2010 to fiscal year 2011.

Expenditures. Total spending for all four MEP programs, including the federal match, has increased from \$19.8 million in fiscal year 2005 to \$50.8 million in fiscal year 2011. During that period, administrative expenses accounted for only 2 percent to 6 percent of total spending; the remainder was spent on benefits programs.

From fiscal year 2005 to fiscal year 2011, total combined spending (i.e., MSA funds plus the federal match) on the three original programs remained nearly flat, with all of the MEP spending growth resulting from the addition of the ARHealthNetworks Program. Specifically, spending decreased 30 percent for the Pregnant Women's Expansion Program and 15 percent for the Hospital Benefit Coverage Program but increased 44 percent for the ARSeniors Program over the seven years, despite nearly flat enrollment. In contrast, the ARHealthNetworks Program has grown dramatically from its inception in fiscal year 2007. Total spending on ARHealthNetworks reached \$18 million in fiscal year 2010 (including \$4.1 million in MSA funds) and \$28 million in fiscal year 2011 (including \$6.8 million in MSA funds), exceeding the amount spent for the other three programs in 2011. Figure 3.3 shows how the MSA portion

Figure 3.3
MEP Spending from MSA Funds by Program, by Fiscal Year



of the funds changed over time for each program. Because of the large federal match, this additional annual spending of approximately \$7 million in MSA funds for ARHealthNetworks has increased total annual spending of MEP by more than \$30 million.

We also examined the average spending for individuals served by three of the expansion programs for fiscal year 2008 through fiscal year 2011. In calculating the unit costs, we used the total unduplicated recipient count for the fiscal year divided by spending for the program during that fiscal year. The spending numbers used for the calculation do not include the federal matching dollars, only the amount of MSA dollars spent. After nearly identical cost per enrollee in the Pregnant Women's Expansion Program in 2008 and 2009, per-person costs dipped by about \$100 in 2010 then rose by about \$150 in 2011 (Table 3.5). Unit costs for the ARSeniors Program rose in 2010 and 2011 due to a decrease in enrollment and rising costs. For ARHealthNetworks, unit costs have risen each year. This information is difficult to interpret without knowing more about which benefits are being utilized by program enrollees, as well as the specific services covered by the program.

Summary. MSA dollars continue to fund the four expansion programs called for in the Initiated Act. The next steps identified by each MEP program are as follows: The Pregnant Women's Expansion Program will assess enrollees' use of essential prenatal care services. The Hospital Benefit Coverage Program will assess progress toward coverage of otherwise uncompensated care, reductions in cost sharing, and patient liability from hospital stays. The ARSeniors Program will work to expand enrollment once strategies are in place to reduce Medicaid costs. Finally, the ARHealthNetworks Program will increase outreach to sole proprietors. Future evaluations could investigate what types of benefits are being used, as well as the extent to which benefits are being used by program enrollees. Since the last report, MEP has taken several steps to improve access to Medicaid services, such as automating the enrollment process through the new Access Arkansas website. New statewide enrollment strategies have the potential to increase the reach of the programs, but rising costs of care, state budget shortfalls, and a reduction in the FMAP may ultimately limit the number of people who can be served.

Arkansas Biosciences Institute

Program Description. The Initiated Act established the Arkansas Biosciences Institute (ABI) and directed it to foster the conduct of research through its five member institutions: the University of Arkansas for Medical Sciences (UAMS); University of Arkansas-Division of Agriculture (UA-Ag); University of Arkansas, Fayetteville (UAF); Arkansas State University (ASU); and Arkansas Children's Hospital Research Institute (ACHRI). The act also directed ABI to focus on five categories of research: (1) *agricultural research* with medical implications; (2) *bioengineering research* that expands genetic knowledge and new potential applications in the agricultural-medical fields; (3) *tobacco-related research* that identifies and applies behav-

Table 3.5
MEP Unit Costs by Program, by Fiscal Year

Program	2008	2009	2010	2011
Pregnant Women's Expansion Program	\$456	\$458	\$345	\$492
ARSeniors	\$262	\$243	\$345	\$492
ARHealthNetworks	\$241	\$268	\$296	\$357

ioral, diagnostic, and therapeutic research to address the high level of tobacco-related illnesses in the state of Arkansas; (4) *nutritional and other research* that is aimed at preventing or treating cancer, congenital or hereditary conditions, and other related conditions; and (5) *other areas of developing research* that are related or complementary to primary ABI-supported programs. ABI is governed by a board of directors that meets quarterly to provide program coordination and direction. It receives 22.8 percent of the Tobacco Settlement Program funds.

Program Activities and Goals. ABI has leveraged tobacco funding to work in two main activity areas: (1) *research* and collaboration among the member institutions in each of the five areas specified by the act and (2) *dissemination* of research results to the public and the health care community so that the findings may be applied to the planning, implementation, and evaluation of other programs in Arkansas.

Research. ABI has one goal related to research, for which we report progress over the last two years.

Goal: Increase funding on an annual basis to conduct research through the five member institutions.

- ABI continues to fund research in each of its five target domains. Total research funding was down from a high of \$64.6 million in 2009 to \$62 million in 2010 and \$52.2 million in 2011 (Table 3.6). External funding of ABI research reached a peak of \$56 million in 2009, yielding a ratio of external funding to ABI funding of 7:1. The ratio declined to 4:1 in 2010 and 2011.
- The portion of total funding used for collaborative projects was 25 percent in both 2010 and 2011, which, although substantial, represents a decrease from a high of 32 percent in 2009. ABI sponsored five events that brought together ABI researchers in specific research areas to encourage collaboration.
- Starting in 2009, RAND began to track the number of positions created by extramural research funding. In 2010 and 2011 an average of 263 jobs were created as a result of extramural funding, down from 336 in 2009 when extramural funding reached its peak (Table 3.7).

Dissemination of Research Results. ABI has one broad goal related to dissemination of its research.

Goal: Increase dissemination of research findings, policy relevant information, and technical assistance to relevant government and community organizations.

- Since its inception, ABI has tracked the number and type of service and promotional activities, including publications, lectures and seminars, media contacts, and press

Table 3.6
ABI and Extramural Research Funding, by Fiscal Year

Funding	2007	2008	2009	2010	2011
ABI funding	\$7,235,324	\$7,487,731	\$8,282,749	\$12,145,546	\$9,430,678
Extramural funding	\$32,729,801	34,045,957	56,324,317	49,906,059	42,805,491
Total funding ^a	\$39,965,125	\$41,533,688	\$64,607,066	\$62,051,605	\$52,236,169

^a Total funding is the sum of ABI funding and related extramural funding from other sources.

Table 3.7
Jobs Created by ABI and Extramural Funding,
by Fiscal Year

Funding	2009	2010	2011
ABI-funded FTE employment	57	97	85
Extramurally funded FTE employment	336	271	255
Total	393	368	340

NOTE: FTE, full-time equivalent.

releases. Each activity grew substantially in 2010. There were 478 research publications (14 percent increase over 2009); 257 lectures (48 percent increase over 2009); 75 media contacts (42 percent increase over 2009); and 65 press releases (113 percent increase over 2009). Counts are not yet available for fiscal year 2011.

- To further assess ABI's success in disseminating its research results and increasing public knowledge of its activities, in 2007 ABI started tracking the number of Arkansas counties represented by high school, college, or graduate students working in ABI labs. The number of counties averaged 27 from 2007 to 2009 and was up to 38 of 75 counties in Arkansas in 2010. Counts are not yet available for fiscal year 2011.
- In 2007 ABI also began reporting to RAND the number of entrepreneurial activities, including patent filings and awards, as an intermediate outcome indicator in this activity area. In 2010, ABI filed for 8 patents and received 3, the same as for 2009. This compares to 11 filings and 2 patents in 2007 and 10 filings and 1 patent in 2008.

Expenditures. ABI received \$13.5 million of Tobacco Settlement Program funds and spent \$12.7 million in fiscal year 2010 and received \$10.8 million and spent \$10.4 million in 2011. The difference between the total spent and ABI research funding of \$12.1 million in 2010 and \$9.4 million in 2011 (Table 3.6) is spending for administration, dissemination, student programs at ASU, and similar expenses. ASU receives the largest share of funds (29 percent), followed closely by UAMS (27 percent). UAF and UA-Ag both receive 15 percent, and ACHRI receives 13 percent of the funds. All institutions except ACHRI spent all the funds they received. ACHRI is allowed to commit unspent funds to upcoming research projects.

Summary. ABI has two primary goals. The first goal is to increase research funding on an annual basis to its five member institutions. Although ABI expected extramural funding to increase in 2010 due to stimulus funding, this did not occur. Instead, extramural funding decreased 11 percent in 2010 and another 14 percent in 2011. The federal American Recovery and Reinvestment Act of 2009 included substantial funding for National Institutes of Health (NIH) challenge grants, which is likely to have contributed to the increase of funding in that year. Total available federal funding from the National Science Foundation (NSF) and NIH declined in 2010 and 2011, which is likely to have contributed to Arkansas's decline in those years. Despite this decline, the extramural funding of \$43 million to \$50 million is still higher than in all years prior to 2009 and has funded 255 to 271 jobs in the past two years.

ABI's second goal is to increase dissemination of research findings, policy-relevant information, and technical assistance to relevant government and community organizations. ABI has consistently increased its dissemination activities to the benefit of the research community, local communities, and the state, and has received nine patents since 2007. We recommend

that ABI monitor the increased use of new technologies to disseminate research findings (i.e., social media) and develop strategies for expanding the use and measuring the success of these dissemination techniques.

Fay W. Boozman College of Public Health

Program Description. The Fay W. Boozman College of Public Health (COPH) was established in 2001 as part of the UAMS. The school was accredited in 2007 by the Council of Education on Public Health and now offers 21 educational programs. COPH has enrolled 807 students since its inception and it has more than 260 graduates. In the fall of 2011, 227 students were enrolled, a slight increase over the two prior years. The COPH receives 5.2 percent of the Tobacco Settlement Program funds, which amounted to \$3.1 million in 2010 and \$2.5 million in 2011.

The school's stated mission is "to improve the health and promote the well-being of individuals, families and communities in Arkansas through *education, research and service*." These three program activity areas are described below.

Program Activities and Goals.

Education. The act states that COPH should "provide faculty and course offerings in the core areas of public health, including health policy and management, epidemiology, biostatistics, health economics, maternal and child health, environmental health, and health services research with courses offered both locally and statewide via a variety of distance learning mechanisms." Although COPH does not have a goal related to distance learning, the school is offering distance-learning opportunities through WebCT (i.e., online course delivery) technology and is developing a distance-accessible post-baccalaureate certificate program that will be available by 2013. In the fall 2011/2012 semester, 12 courses were offered via WebCT, weekend format, and/or directed study.

The COPH has five goals related to education, and we report its progress on each.

Goal: Increase the number of Arkansas counties in which students receive public health training.

- Over the last two years, COPH continued to attract students from 36 to 38 (48 percent to 51 percent) of the counties in Arkansas, consistent with the four prior years.

Goal: Maintain a high level of graduates entering the public health field.

- The proportion of graduates who have obtained employment in the public health field is high for those whom COPH has been able to track over the past two years (94 percent to 100 percent). However, this represents only 40 percent to 60 percent of those graduating each semester. The work status for the remaining graduates is not known. From 2002 to 2009, however, the percentage has ranged from 75 percent to 100 percent for those who responded to the exit survey.

Goal: Maintain minority enrollment in the degree programs at or above the minority population of the state.

- COPH continues to maintain total minority enrollment rates above the minority population of the state, reporting 34 percent to 40 percent minority enrollment over the two-

year period. This compares to 2010 census data indicating that the state has a minority population of about 25 percent. Although the proportion of black students enrolled (25 percent to 28 percent) substantially exceeds the proportion of black citizens in Arkansas (15.4 percent), the enrollment of Hispanic students (2 percent) is well below the proportion of Hispanic citizens in the state (6.4 percent). The administration is seeking to increase the Hispanic community's awareness of the program and is developing a strategy to increase enrollment.

Goal: Ensure that by the time they graduate, COPH students report that they have achieved 80 percent or more of the learning objectives associated with their selected degree programs.

- An insufficient number of surveys on this topic have been completed to report reliable results at this time. Further, the COPH is revising the competencies for each of the programs, and survey questions are being revised to reflect these changes. This information will be gathered from the May 2012 graduates.

Goal: Ensure that during their tenure at the COPH, students and faculty provide service and consultation to public health–related agencies and communities throughout Arkansas.

- The number and reach of student preceptorships and integration projects increased during the 2010/2011 school year from the baseline measurement year (2009). Preceptorship projects increased from 17 to 31 and integration projects increased from 19 to 20; the vast majority of these projects have statewide implications. (Student integration projects are those projects that produce a written research or evaluation product suitable for submission for publication or funding.)

Research. The act specifies that the COPH “should obtain federal and philanthropic grants, conduct research and other scholarly activities in support of improving the health and health care of the citizens of Arkansas.” To this end, the COPH tracks new grant and contract funds received, the number and amount of ongoing research projects, nonfaculty full-time equivalent (FTE) positions created by research funding, and faculty principal investigators (PIs) or co-PIs. COPH has one stated goal for this activity area.

Goal: Each year, obtain extramural grant and contract funding for research that is 20 percent greater than that obtained in the 2004–2005 period. (New grant funding in 2004–2005 was \$9.5 million.)

- In 2009–2010, new grants and contracts totaled \$7.1 million, representing a 25 percent decrease over the 2004–2005 period (Table 3.8). There are a number of reasons for the decline in new grants and contracts. First, senior faculty have been near capacity for research since 2009 (80 percent extramurally funded), and overall faculty is at 60 percent. Second, the Department of Epidemiology, which has generally had the highest levels of extramural funding in public health schools, has not been fully functioning due to the illness and death of the department chair. Third, two prominent faculty members were recruited to other schools in 2011. Finally, the grant funding from the CDC has been

Table 3.8
COPH New and Active Grants and
Contracts, by Calendar Year

Year	New Grants and Contracts	Active Grants and Contracts
2004	\$2,991,470	\$9,385,223
2005	6,549,350	20,190,725
2006	2,986,243	28,257,022
2007	22,304,398	44,906,974
2008	8,147,384	32,107,129
2009	6,248,203	34,297,723
2010	4,333,650	32,097,885
2011	2,776,942	34,130,998

reduced, and NIH is beginning to implement lower salary caps. The COPH is working to increase new grants and contracts by filling senior faculty positions and expanding faculty in some areas such as the Department of Environmental and Occupational Health.

Service. The act states that “the COPH should serve as a resource for the General Assembly, the Governor, state agencies and communities. Services should include, but not be limited to the following: consultation and analysis and developing and disseminating programs.” To monitor its progress, the COPH has tracked the number of talks, lectures, community service projects, special projects, faculty presentations, and conferences they have sponsored. Staff has also tracked the state and federal policies or legislation that they have influenced through briefing policymakers and providing expert testimony and research. The COPH has one broad goal relevant to this mandate.

Goal: Provide research findings, policy-relevant information, and technical assistance to relevant government and community organizations.

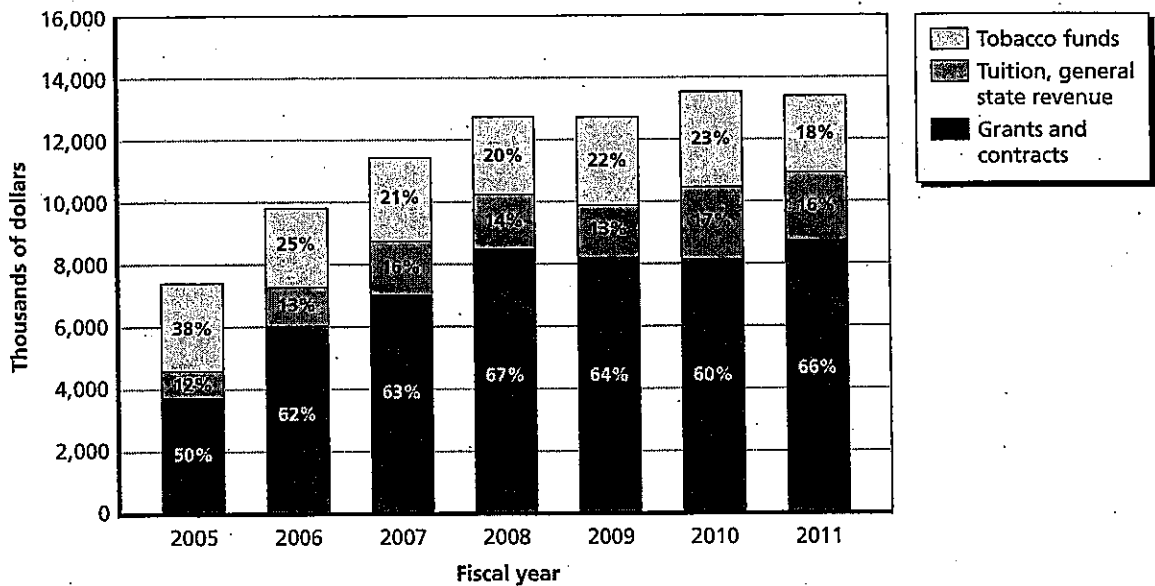
- The COPH faculty continues to serve the community; it gave 160 talks and lectures and participated in 148 community service projects in 2010. This compares favorably with an average of 120 talks and lectures over the prior nine years and 57 community projects in 2009. The number of community projects averaged 15 from 2001 to 2008, after which, COPH changed the way in which it counted these projects. Additionally, faculty and staff provided input on seven pieces of state legislation over the course of 2010. At the national level, the chair of the Department of Health Policy and Management worked with the White House on health care reform legislation. In 2011, COPH provided input on three bills aimed at improving the dental health of Arkansans and one to create an Adult Center for Sickle Cell Anemia at UAMS.

Expenditures. Over the seven-year period from 2005 to 2011, COPH received and spent \$2.3 to \$3.0 million of MSA funds each year. During this period, its two other sources of funding, grants/contracts and tuition/general state revenue, grew such that the proportion of

MSA funding has shrunk from 38 percent of total funding in 2005 to 18 percent in 2011. Additionally, grants and contracts have grown from 50 percent of total funding in 2005 to 65 percent in 2011 (Figure 3.4).

Summary. In keeping with the mandate set forth in the act, COPH is providing course offerings in the core areas. Although it has been particularly challenging to fill faculty positions in the biostatistics and epidemiology programs, a new chair for the Department of Epidemiology was hired in January 2011 and is currently recruiting additional faculty to the department. COPH has consistently enrolled a diverse student body, though the administration needs to continue to try to increase the portion of Hispanic students enrolled. Students are providing services to communities and to the state during their tenure, and faculty members are contributing to state and national debate and policy. Distance learning programs continue to be developed, which should contribute to COPH's ability to recruit students from throughout the state. Post graduation, nearly all former students reporting their status have secured jobs in public health over the last two years, though the administration has not been able to track about half of the graduates. It is important that COPH improve its follow-up with all recent graduates in order to accurately gauge its success in this area. COPH has also been successful in increasing its grant, contract, tuition, and other state funding so as to be less reliant on MSA funds. Though COPH fell considerably short of its goal for new research funding in the last period, revenue from all contracts and grants was at an all-time high of \$8.7 million in fiscal year 2011, with active grants and contracts of \$34 million at year end. The administration is addressing the shortfall by hiring research-oriented faculty members.

Figure 3.4
COPH Spending from MSA Funds and Other Funds, by Fiscal Year



Minority Health Initiative

Program Description. The mission of the Arkansas Minority Health Initiative (MHI) is to ensure that all minority Arkansans have health care access that is equal to the care provided to other citizens of the state and to seek ways to provide education, address issues, and prevent diseases and health conditions that are prevalent among minority populations. Its legislative mandate is to gather and analyze information regarding disparities in health and health care access, publish evidence-based findings, define state goals and objectives, and develop pilot projects for decreasing disparities. In addition, MHI is mandated to (1) increase awareness of disorders disproportionately critical to minorities, (2) provide screenings or access to screenings, and (3) develop intervention strategies toward decreasing disorders disproportionately critical to minorities. This mandate represents a shift away from service provision to focus more on pilot projects and education. MHI receives 3.6 percent of the Tobacco Settlement Program funds.

MHI's key focus areas are:

- HIV/AIDS Outreach Initiative: education, awareness, screenings, advocacy, and capacity building among grassroots organizations throughout the state related to the disproportionate disparities in HIV/AIDS among minority Arkansans.
- Sickle Cell Outreach Initiative: statewide education, awareness, screenings, advocacy, and capacity building among grassroots organizations throughout the state related to the disproportionate disparities in sickle cell disease among minority Arkansans.
- Health Care Workforce Diversity: establish a collaborative network of stakeholders to address health care equity and health workforce diversity issues; support programs aimed at increasing minority participation at higher levels of public health care and policy.
- Minority Health Navigation System: establish a supported online navigation system and resource guide designed to provide the public with free and easy access to all relevant sources of minority health care.

Program Activities and Goals. To achieve its mission, legislative mandates, goals, and key foci, MHI reports activities in four key areas: outreach, research, public policy, and pilot/demonstration projects. Activities and goals related to these areas are described below.

Outreach. MHI's outreach activities are designed to increase awareness and education among citizens and provide access to screening for disorders disproportionately affecting minorities. Screens are made available to any citizen of the state, regardless of racial/ethnic group. Because the goal is to increase screening, the impact of their work would include an expectation for higher reported incidence of screened diseases. Outreach is accomplished through MHI Official Quarterly Health Fairs, media, community health fairs in partnership with other organizations, and legislative meetings. Additionally, MHI conducts an equipment loan program that provides screening materials and equipment for organizations across the state. MHI has two goals related to outreach.

Goal: Increase the number of minority Arkansans that obtain recommended health screenings (e.g., HIV/AIDS, sickle cell, cholesterol, hypertension/blood pressure, immunizations, vision, glucose, dental checks).

- Outcomes for this activity area are the number of health screenings that are conducted at the various events and programs and through MHI's Sickle Cell Outreach Initiative

Table 3.9
MHI Health Screenings, by Fiscal Year

Year	2005	2006	2007	2008	2009	2010	2011
Total screenings	2,764	8,439	12,867	4,090	806	6,416	4,035

and HIV/AIDS grants. As shown in Table 3.9 the number of health screenings has been volatile over the past seven years, ranging from 806 to 12,867 screens per year. This volatility was particularly evident during the 2008–2009 period, when MHI underwent changes in its leadership. That MHI experienced such a dramatic decrease in its screening numbers during this period suggests that MHI did not have an adequate organizational structure to enable continuity in their activities during the leadership transition. Since the leadership has stabilized, MHI has shown an increase in its screening (in 2010). However, the number of health screenings in 2011 was down by 37 percent from 2010. This decrease was due to a more focused restructuring of the organization under new leadership in which staff underwent significant capacity-building training throughout the fiscal year to better equip its future project management and overall work for the agency.

Goal: Increase education and awareness regarding disparities and equity in health and health care services by partnering with appropriate organizations.

- During fiscal years 2010 and 2011, MHI raised educational awareness with community partners through locally organized health fairs, events, quarterly health fairs, public forums, collaborations, and special projects. MHI reported more than 38,000 citizen encounters in fiscal year 2010 and more than 22,000 citizen encounters in fiscal year 2011. This decrease again was due to the restructuring and training of staff during fiscal year 2011 under new leadership.
- MHI significantly increased its use of paid advertising in 2011 to promote campaigns such as National Sickle Cell Awareness Month in September 2010. This effort served to educate the public about the sickle cell trait and disease in a campaign titled “Faces of Sickle Cell.” HIV/AIDS awareness days such as World AIDS Day, National Latino AIDS Awareness Day, National Black AIDS Awareness Day, and National HIV Testing Day and its new fitness camp for girls, Camp iRock, were also the subject of MHI’s advertising. MHI reports that its targeted advertising is based on information gleaned from focus groups of African Americans and Hispanics about how they receive information. It was found that these groups receive this information primarily through radio and targeted minority television programming. MHI continues to provide education through the Ask the Doctor radio show and a monthly newsletter.
- In recognition of Minority Health Month, MHI provided eight mini-grants of up to \$4,050 for organizations to implement educational awareness programs around its overarching focus of nutrition and physical fitness for minorities in April 2010 and April 2011.
- MHI contributed to a web-based minority health navigation system, which serves as an outreach tool in educating its target population about local health statistics. The website, developed by COPH in partnership with MHI, Arkansas Center for Health Disparities,

the Arkansas Prevention Research Center, and the UAMS Center for Clinical and Translational Research, can be accessed at www.uams.edu/phacs as well as through MHI at <http://www.arminorityhealth.com/resources.html>. This represents a shift from MHI's original plan to establish an online navigation system on its own. Having been encouraged by ATSC and the Arkansas Legislature to find "smart collaborations" among tobacco settlement programs that do not duplicate services for the state, promote coordination of services, and have cost savings potential. This shift represents stronger, coordinated efforts among Arkansas's public health partners. At this time, the website does not contain community level health resources from the many outreach events/communities in which MHI participates each quarter, but it would be straightforward and very useful to add these in the future. MHI continues to assist citizens in finding and obtaining resource services via telephone referral and walk-in requests.

Research. Outcomes measured for the research activities include the number of new publications and presentations that use data collected by or in collaboration with MHI. For example, during this reporting period, MHI submitted a journal article titled "The Relationships between Depression, Stress, and Perceptions of Racism: Marianna Examination Survey of Hypertension (MESH)." Findings include a positive correlation between negative experiences related to race and increased stress and possibly depression. MHI anticipates that these results can lead to further interventions to eliminate racial and ethnic health disparities. It also partnered with COPH to analyze the Arkansas Racial and Ethnic Health Disparity Survey. MHI has one goal related to research.

Goal: Establish a comprehensive system of coordination and collaboration with other agencies and organizations addressing the health of minority populations through data collection and reporting.

- In February 2010, MHI, in collaboration and coordination with the University of Arkansas at Little Rock Institute of Government Survey Research Center and UAMS Fay W. Boozman COPH, released the results of a 2009 research survey titled "Arkansas Racial and Ethnic Health Disparity Study (AREHDS) II: A Minority Health Update." This report was a follow-up to MHI's 2004 AREHDS I. The 2009 research represented the first statewide telephone survey addressing minority health issues in Arkansas. It also contained the largest voice from the Hispanic community in Arkansas on their beliefs and perceptions of the health care system. The AREHDS II continued the efforts of MHI to increase awareness for health disparities in general and to inform the development of intervention strategies to decrease hypertension, strokes, and other disorders that disproportionately impact minorities, as directed by the 2001 Initiated Act. Since its release, this MHI report has been cited many times by local, state, and national public health advocates and partners.
- Results of the 2009 survey subsequently were utilized to inform MHI's successful policy initiatives in the 2011 legislative session.

Public Policy. MHI's public policy activities support its goal in this area to make specific recommendations relating to policy issues.

Goal: Influence public policy that supports an equitable health care system for all Arkansans.

- MHI facilitates the Arkansas Minority Health Consortium, which it uses to drive state-wide minority health policy priorities. Activities by member groups in the consortium are measured by the number of meetings held and attended, as well as other policy activities such as contacts with policymakers and changes to policies related to minority health issues. Evidence of policy change during the 2010–2011 period includes the creation of bills that highlighted the disparities in longevity and mortality among higher- and lower-risk counties and that promoted HIV and sickle cell screening and care and treatment statewide, among others. MHI priority bills that were passed included:
 - *Act 1123*: Amend the Membership of the Arkansas HIV/AIDS Minority Taskforce
 - *Act 1162*: Create Cultural Competency Interim Study
 - *Act 909*: Improve Access to Treatment for Sickle Cell Anemia in Arkansas
 - *Act 1149*: Extend the Operations of the Arkansas Legislative Taskforce on Sickle Cell Disease
 - *Act 790*: Health Equity: Focus State Agency Attention on Mortality Disparities among “Red” [high risk] Counties
 - *Act 798*: Health Equity: Request Collaborative Initiatives and to Report on Collaborative Initiatives in “Red” Counties
 - *HB2100*: Create a Routine HIV Screening Program Interim Study
 Other key activities included:
 - Implemented events and website postings related to health care reform
 - Developed (in partnership) a minority health directory to provide access to and increase knowledge of Arkansas’s grassroots partners in minority health
 - Developed and publicized an annual minority health magazine (*Bridge*) that includes reports of MHI’s health and policy activities

Pilot/Demonstration Projects. MHI’s pilot and demonstration projects are established to test new strategies, materials, hypotheses, and theories related to the health of the state’s minorities. They are also the service provision arm of MHI’s work. These pilot projects are designed to utilize evidence-based data, programs, and materials to determine which strategies are appropriate for use by and dissemination among minority populations to reduce and, ultimately, eliminate health disparities in Arkansas.

Consistent with its priorities, MHI funded 13 projects (pilot projects and those classified as HIV/AIDS and Sickle Cell Outreach Initiative grants) during this reporting period and discontinued one grant due to the discovery of fraud in 2011. An example of a pilot project implemented in June 2011 is MHI’s partnership with the Arkansas Children’s Hospital (ACH); the Girls Scouts of Arkansas, Oklahoma, and Texas; the Arkansas Coalition for Obesity Prevention; and the Arkansas Center for Health Improvement to pilot the state’s first residential fitness camp, Camp iRock. The week-long camp was free to 40 middle school-aged girls. ACH provided initial health screenings and behavioral assessments to camp participants. MHI is providing 3-, 6-, and 9-month follow-up sessions with screenings and nutritional classes for camp participants and their parents. A monthly newsletter was developed to keep the girls informed of upcoming events and to keep them motivated between meetings. MHI is also involving the parents of the girls in follow-up events to support their daughters and provide education on healthy living. MHI’s role in this pilot project is consistent with its focus on providing education about health issues that disproportionately impact minorities (e.g., obesity) and its overarching focus on nutrition and physical fitness in combating many chronic diseases

that disproportionately plague minority communities. Preliminary results indicated that of the 40 girls who participated in the June 2011 inaugural Camp iRock pilot project, 65 percent returned for follow-up meetings. Of those returning for the January 2012 follow-up meeting, all but one had a decrease in body mass index (BMI) and that individual had maintained her BMI. Overall, there was an average percent BMI drop of 0.56, with a range of 0–2.2.

MHI provided a summary of the pilots funded and the activities that comprised each project. MHI administration reported that they are analyzing the results and that they have learned valuable information that will lead to improvements in the upcoming programming year.

Expenditures. MHI has made important strides in using its allocated resources to the benefit of its target population. After several years of not fully using its resources, at the end of this biennium, MHI had successfully spent all but \$5,000 of the funds it had received to carry out its mandate. Overall, MHI increased its spending by 13 percent in fiscal year 2010 over the prior year and by an additional 29 percent in fiscal year 2011 (Table 3.10). During the past five years, MHI has spent, on average, about half of its funding on two line items within its budget: (1) professional fees and (2) screening, monitoring, treatment, and outreach. In fiscal year 2011, professional fees were at a five-year high and constituted 31 percent of total spending. The biggest expenditure for professional fees is a combined contract for MHI's medical director and nurse, which constituted 57 percent of the 2010 total (\$256,318) and 42 percent of the 2011 total (\$274,585). Other professional fees are paid to the Department of Health for the STAR Health Project (\$100,000 each year) and various marketing, communications, HIV, and policy consultants. Spending for screening, monitoring, treatment, and outreach was also at a five-year high of \$791,856, representing 38 percent of total spending. Spending on screening, monitoring, treatment, and outreach was up 77 percent over fiscal year 2010. In particular, spending on advertising was seven times greater than in the prior year. We learned from MHI that approximately \$100,000 of the \$791,856 screening, monitoring, treatment, and outreach budget was not for current programming but instead represents an adjustment

Table 3.10
MSA Funds Spent by MHI, by Fiscal Year

Item	2007	2008	2009	2010	2011
Regular salaries	\$142,416	\$128,180	\$172,296	\$172,551	\$152,513
Personal service matching	48,089	50,255	56,922	53,570	59,909
Maintenance and general operation					
Operating expenses	340,900	309,036	337,588	474,917	414,083
Conference and travel	5,098	2,721	2,300	9,968	15,823
Professional fees	577,185	410,993	314,148	446,270	648,366
Capacity outlay	14,838			7,769	
Data processing	0				
Screening, monitoring, treating and outreach	260,927	303,995	539,193	448,460	791,856
Total	\$1,389,453	\$1,205,180	\$1,422,447	\$1,613,506	\$2,082,549

to prior-year financial statements. Significant turnover of MHI's financial personnel may have been related to the need for the accounting adjustments. Further investigation of this issue is outside the scope of our evaluation.

MHI provided new funding in 2011 for the mini-grants (approximately \$32,000) and the fitness camp (\$74,000).

Unit costs for several of MHI's various initiatives were calculated by dividing the cost for the activity by the number of participants. Trends are not discernible because most programs are only in effect for one or two years. Screening at health fairs continues to be a fairly low-cost endeavor—about \$6 per participant in 2010 and 2011. Interventions and grants have a wide range of unit costs, with a low of \$14 per participant for the Jones Center for Families and a high of \$921 per participant for the Jubilee Christian Center. The cost per camper at the fitness camp was high (\$1,900) due to the relatively small number of participants and large, fixed up-front costs, but MHI expects this to decline when larger numbers of campers are enrolled in future years. Management also hopes to obtain sponsorship funding for the camp next year and beyond. However, without more complete follow-up outcome data and more precise information about future costs, it is not possible to determine whether the camp will be a cost-effective program in the future.

Summary. Since its inception, MHI has experienced many challenges as an organization. These include numerous changes in its leadership and in its fiscal management department. Further, MHI was plagued by underspending on its programming and activities, as well as by very high unit costs. These challenges prompted course corrections as late as 2010. These corrections included efforts to stabilize its leadership, revamp and improve its strategies for screening outreach, and better use of funding while controlling unit costs. Although the number of screenings rebounded somewhat, it remains to be seen whether these efforts will pay off over the coming years.

In the policy arena, MHI continues to play a leading role in tracking and supporting legislation that is relevant to the health of minorities. It also disseminated information to those potentially affected by reforms stemming from the federal Affordable Care Act. Additionally, MHI showed increased capacity to manage and bring accountability to its pilot/demonstration projects, resulting in the discovery of fraud by a grantee and the discontinuation of that program. Management is also using experts to evaluate the work of the pilot projects and plans to use that information to guide future projects. Finally, MHI has been successfully collaborating with the tobacco-funded programs (AAI, Delta AHEC, COPH) as well as a range of other organizations.

Delta Area Health Education Center

Program Description. The Delta Area Health Education Center (Delta AHEC) is a seven-county, health education outreach initiative of the UAMS, serving Chicot, Crittenden, Desha, Lee, Monroe, Phillips, and St. Francis counties. This program was designed to increase access to health care by recruiting and retaining health care professionals and to provide health care through community-based health care and education. The program is headquartered in Helena with offices in Lake Village (Delta AHEC South) and West Memphis (Delta AHEC North). Delta AHEC's mission is to improve the health of the people living in the Delta region by educating citizens and retaining health care professionals.

Delta AHEC receives 3.5 percent of the Tobacco Settlement Program funds, totaling \$2.1 million in fiscal year 2010 and \$1.6 million in fiscal year 2011.

Program Activities and Goals. Delta AHEC devotes approximately 90 percent of its total funding to the provision of services and the remainder to education of health care professionals.

Activities to Recruit and Educate Health Care Professionals. Delta AHEC provides education services for health care professionals that support their professional growth while encouraging them to come to or stay in the Delta region. Health care education programs include continuing education for medical professionals (including nurses, nurse practitioners, physicians, pharmacists, social workers, pharmacy technicians, and health educators); educational programs for local health workers to attain higher degrees (e.g., RN to BSN, BSNs to MNSc, and MNSc preparing for administration roles); programs to support UAMS College of Medicine students/residents, CPR for professionals, and the Care Learning Program; and access to the medical library. Indicators for this activity area include attendance at programs and use of the library. Totals for this activity area are reported in Table 3.11.

Table 3.11 presents the total for all recruitment and education activities. Further exploration of the components contributing to these numbers is discussed below.

- Activities to recruit health students and professionals have increased each year since 2005, including a 184 percent increase in participation between 2010 and 2011. Much of this growth was in the area of health professional recruitment programs for K–12 grade and college students, with growth from 1,519 students in the 2008–2009 biennium to 10,271 in 2010–2011, which contributed greatly to the overall increase represented in Table 3.11.
- Since the start of the program, the overall number of educational activities and programs has increased. Recently, however, Delta AHEC saw a decrease in attendance at education programs targeting health professionals (down 17.5 percent). Health professionals made up 4,677 served in 2010 and 2011 (31 percent of the total for the current biennium), which is down from 5,675 in 2008 and 2009 (nearly 79 percent of the total for the last biennium). Despite the recent drop in the number of health professionals participating in these programs, of note is Delta AHEC’s work to be responsive to the change in the way this target population accesses information and continuing education. For example, in 2010, Delta AHEC began the Care Learning for Health Professionals Program. This program allows hospital employees to access web-based modules on topics critical to their work in the hospital setting (e.g., hand hygiene, blood-borne pathogens abuse, and neglect). Other education-focused programs for which Delta AHEC reported large increases during this reporting period are continuing education programs for health care professionals and programs that introduce youth to health care–related careers.
- Delta AHEC, in partnership with the UAMS Family Medicine Residency Program, finalized plans to send first-year family medicine residents to Helena for one-month obstetrician/gynecology rotations, starting in January 2012. Twenty-one residents have completed this rotation.

Table 3.11
Participation in Delta AHEC Activities to Recruit and Educate
Health Care Professionals, by Fiscal Year

	2005	2006	2007	2008	2009	2010	2011
Total	1,881	2,243	2,424	3,084	4,110	5,254	9,694

Programs and Services to Communities and Clients Throughout the Delta Region. These programs and services contribute to Delta AHEC's foci to increase participation in culturally sensitive health promotion and education programs, improve health behaviors related to chronic health problems, and improve health behaviors related to physical activity and nutrition. The programs range from exercise activities at fitness centers and health education for all ages, to education and services to improve health behaviors related to chronic health problems. Delta AHEC has collected attendance/participation numbers supplemented by program-specific outcomes that reflect the objective of their services to demonstrate its impact in the region (see Table 3.12 for the total for this area of programming). Delta AHEC has one broad goal for its service activities.

Goal: Increase participation in services to communities and clients throughout the Delta region.

- Delta AHEC's total enrollment and attendance at its programs and services in the community have grown significantly since the initiative's inception (Table 3.12). This growth has been especially rapid in the last year, for which Delta AHEC reported 188,295 encounters in 2011 for programs listed in Table 3.12 (up from 125,785 in 2010). Further, attendance and enrollment nearly doubled during this biennium compared with the last biennium. For example, the prescription assistance program, which helps uninsured and low-income patients obtain prescription medications at low or no cost, assisted 3,599 Arkansans during this reporting period, an increase of 38 percent over the last biennium. Delta AHEC reported that the program saved clients \$1.3 million in fiscal year 2010 and \$1.8 million in fiscal year 2011. These savings represent an average of \$861 per participant each year, an increase of nearly 19 percent more in savings than in the last reporting period.
- The fitness center in Helena provides inside and outside walking trails, exercise equipment, exercise classes, and personal training to more than 2,600 members.
- Other community programs reporting strong growth include: Health Education for Children, community health screenings, and the Kids for Health Program, which enables six Delta AHEC outreach health facilitators to reach K–6 grade students (23,375 encounters in 2011). Notably, Delta AHEC began its Veteran's Community Based Outpatient Clinic in 2010, which reported 3,770 patient encounters during this period (780 total patient enrollment).
- Also of note are the services and partnerships Delta AHEC has formed with and for the local military, including:
 - The Innovative Readiness Training Mission was held in collaboration with the Delta Regional Authority for two weeks in June 2011. Medical, optometric, dental, and veterinarian care and health screening and education were provided to 5,852 participants in Wynne, Marianna, Helena, Eudora, and McGehee. More than \$1.5 million in ser-

Table 3.12
Participation in Delta AHEC Programs and Services

	2005	2006	2007	2008	2009	2010	2011
Total	27,228	34,505	48,557	67,664	101,403	125,785	188,295

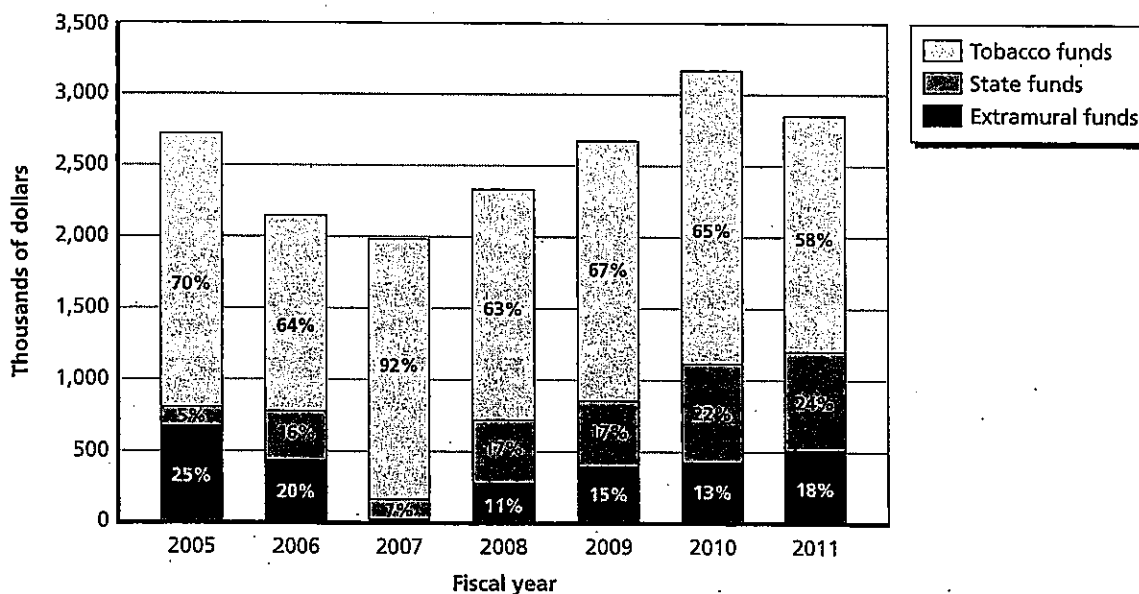
vices was provided by the military. Additionally, this event added more than \$365,000 to the local economy.

- The Helena Outpatient Veterans Clinic–Delta AHEC, Arkansas Department of Veterans Affairs, and Memphis Veterans Affairs Medical Center joined together to hold the Keeping the Promise outreach fair in support of veterans living in the Arkansas Delta and surrounding areas. The event, held at the UAMS/Delta AHEC, provided veterans with education about local clinics, veterans’ benefits, and updates to Veterans Affairs health care, as well as health screenings and information on employment. Twenty-seven agencies participated in the event, which attracted 100 attendees.

Expenditures. Delta AHEC spent \$1.9 million of MSA funds in fiscal year 2010 and \$1.8 million in fiscal year 2011. It continues to leverage its MSA funding to attract extramural funding from grants, donations, and fees for service, although MSA funds still make up more than half the budget. The total budget increased to its highest levels in the last two years, with funding of \$3.2 million in fiscal year 2010 and \$2.9 million in fiscal year 2011. Further, in fiscal year 2011, state and extramural funding increased such that funding from MSA dollars reached its lowest level to date at 58 percent of the total budget. Most of the increase in extramural funding was due to fees from the Memphis VA Medical Center for services provided in the new outpatient clinic. The contributions of the various funding sources over time are illustrated in Figure 3.5.

Summary. In summary, Delta AHEC’s education activities have grown since its inception. Total enrollment and attendance in its community programs and services have also grown significantly. Delta AHEC management has worked to increase extramural funding since 2007, when funding nearly disappeared, reaching approximately a half million dollars in fiscal year 2011.

Figure 3.5
Sources of Total Delta AHEC Funding, by Fiscal Year



Over the past five years, Delta AHEC has made efforts to be responsive to the needs of its professionals and citizens in the community at large. For example, programming at its primary facility in Helena has grown and changed in response to the staff's understanding of the communities' needs. Additionally, Delta AHEC has identified needs among the area's veterans and placed special emphasis on being responsive in creative and practical ways.

Delta AHEC has adapted to the evolving requirements and trends in continuing education by offering access to web-based training modules. Though enrollment rates did not exceed the high enrollment seen in past years, Delta AHEC's approach to improving access to health information and training is notable.

Delta AHEC staff has remarked for years on the difficulty of recruiting health professionals to the region. However, their determination in this area is paying off as is evidenced by their success at establishing Helena as a mandatory obstetrician/gynecologist rotation for family medicine residents. Although its education programs aimed at health professionals had lower enrollment during this reporting period, Delta AHEC saw a substantial increase in overall attendance at its education programs. This increase was powered by the fact that Delta AHEC repositioned itself, focusing on younger potential recruits into the health profession (school-aged students). As a result, Delta AHEC saw substantial growth in attendance at its programs targeting K-12 and college-age students, exposing them to health careers.

Arkansas Aging Initiative

Program Description. The Arkansas Aging Initiative (AAI) is a program of the Donald W. Reynolds Institute on Aging at the UAMS, consisting of a network of eight centers of aging (COA). Its mission is "to improve health outcomes of older Arkansans through interdisciplinary clinical care and innovative education programs." AAI partners with the UAMS area health education centers (AHECs), local and regional hospitals, area agencies on aging, local colleges and universities, and local communities to target the needs of aging Arkansans. Specifically, AAI focuses on delivering quality health care to older persons, conducting research on aging and age-related diseases, providing educational programs on aging for health care professionals and the public, and influencing public policy on aging issues, with an emphasis on the needs of rural older adults. AAI receives 3.5 percent of the Tobacco Settlement Program funds, totaling \$2.1 million in fiscal year 2010 and \$1.7 million in fiscal year 2011. Although it has six identified activity areas, AAI estimates that 90 percent of its spending is on educational activities. The activity areas and associated goals are described below.

Program Activities and Goals.

Clinical Services. AAI supports the provision of clinical services at its eight senior health clinics (SHCs), with the goal that older Arkansans will receive evidence- and/or consensus-based health care by an interdisciplinary team of geriatric providers. AAI has established SHCs in partnership with local and regional hospitals, which contribute 99.95 percent of the funding. Although tobacco funds account for only a small share of SHC funding, these clinical service locations leverage the infrastructure of the COAs, which are supported to a large degree by MSA funds. The SHCs are located within 60 miles of an estimated 90 percent of senior Arkansans, thus placing specialized geriatric care within driving distance of the vast majority of AAI's target population. AAI has one goal related to clinical services.

Goal: Older Arkansans will receive evidence- and/or consensus-based health care by an interdisciplinary team of geriatric providers.

- Process indicators used to assess AAI's progress toward this goal measure the number of patients seen in the SHCs (i.e., the number of clinical encounters) and number of full professional staff serving Arkansas's geriatric community (i.e., FTEs for professional staff). AAI has aimed to increase the FTEs, thus improving the availability of physicians (MDs) and advanced practice nurses (APNs) who specialize in geriatrics. To measure its progress, AAI began to track the number of FTE positions for APNs and MDs in the SHCs. As shown in Table 3.13, access to geriatric care, as measured by FTE counts, increased in both 2010 and 2011 over the initial measures taken in 2009 (FTEs increased by 24 percent for MDs and by 49 percent for APNs between 2009 and 2011). Encounters for 2010 increased over reported rates for 2009; however, clinical encounters for 2011 were down 7 percent from AAI's 2010 high. RAND has noted in past reports that not all MD time reported in this measure is devoted to the clinics and that some of the MDs' time is spent visiting patients in other locations (e.g., hospitals, nursing homes, and during house calls). RAND continues to encourage AAI to monitor the number of FTEs that are dedicated to the clinics in order to obtain a clear indication of the clinics' capacity to serve patients.
- During this reporting period, AAI also supported elders receiving evidence-based health care through its Partners in Caregiving Program by working with 17 nursing homes throughout the state. This program brings evidence-based practice to change the culture of nursing homes by supporting improvements in the relationships between staff, residents, and families. AAI began to track the number of evidence-based standards of care implemented in COAs with nursing home practices in 2010. It reports that six of its eight COAs have implemented at least one standard of care for nursing home practice. Additionally, AAI supports the SHCs with materials to educate caregivers on implementing evidence-based care according to national guidelines. Based on this metric, seven of AAI's eight SHCs supported 16 areas of care.

Education. AAI's educational resources and services across the state are delivered through its COAs, which provide geographical access to geriatric education for 100 percent of senior Arkansans. AAI also provides educational services to health care professionals, paraprofessionals, health care students, and members of the community, many of whom are caregivers for their older relatives. AAI has one goal related to its education activities.

Goal: AAI will be a primary provider of quality education related to care of the elderly for the state of Arkansas.

Table 3.13
Clinical Service Encounters and Full-Time Equivalentents for MDs and APNs in the AAI SHCs, by Fiscal Year

	2005	2006	2007	2008	2009	2010	2011
Clinical encounters	36,528	33,252	34,374	42,345	42,222	43,684	40,820
FTE MDs					11.25	12.9	14.9
FTE APNs					4.8	7.5	9.4

NOTE: FTE data were not collected in 2005–2008.

Table 3.14 shows the educational encounters for different target groups since fiscal year 2005, which is the first year for which there are complete data. Though AAI reported a dip in encounters during 2010, it reached a larger number of health care professionals, health and social service students, and paraprofessionals in fiscal year 2011. Educational activities among community members are also strong, though not quite as high as in 2009.

Promotion. The program has one goal directed toward promotion.

Goal: AAI will employ marketing strategies to build program awareness within the community and among health care professionals, students, and paraprofessionals.

- AAI developed a marketing strategy and produced an organizational brochure, a 4-minute video, and summary documents describing AAI and its work. Additionally, AAI created materials targeting professionals and the community through the production of 28 articles for professional groups and 800 publications for the general public for the 2010–2011 reporting period. During fiscal year 2008–2009, AAI produced 20 articles or presentations for professional groups and 571 publications for the general public.

Policy. During the 2010–2011 reporting period, AAI leadership was recognized for its role in improving the lives of older Arkansans through resolutions from the House and Senate. The program has one goal directed toward policy.

Goal: AAI will inform aging policies at the local, state, and/or national levels.

- AAI reported aging policy–related activities at each of their targeted levels.
- Local activities to inform aging policies led to three committee proposals requesting legislative appropriations for COA. AAI reported hosting forums to inform residents of the implications for health care reform on older Arkansans.
- The state legislature recognized AAI for its work by awarding it general improvement funds that were used to establish a state-of-the-art education facility that included telemedicine and telehealth in the Texarkana COA. This permits communication and education over distance for health professionals and seniors in southwestern Arkansas and well as connections to a broader network of UAMS specialists.
- Nationally, AAI began replication of its initiative in Oklahoma in January 2012 following a yearlong planning grant. Oklahoma's AAI, which is fully funded by the Donald W. Reynolds Foundation, will develop five regions over the next four years. AAI also con-

Table 3.14
AAI Educational Encounters, by Fiscal Year

Target Group	2005	2006	2007	2008	2009	2010	2011
Community members	38,936	37,636	33,716	50,599	60,066	45,905	59,154
Health care professionals	5,307	3,962	4,074	4,384	4,084	5,444	7,202
Health and social service students	572	1,183	1,529	1,187	1,299	895	1,661
Paraprofessionals	3,175	2,094	5,061	4,208	5,169	2,249	6,017
Total	47,990	44,885	44,380	60,378	70,618	54,493	74,034

tributed to a CMS challenge grant proposal led by New York University, which will allow replication at three sites with an expectation of spread to the entire state of New York.

Sustainability. The program has one goal directed toward sustainability.

Goal: AAI will have permanent funding sufficient to continue its programs in the future.

- In fiscal year 2010, AAI reported \$1.87 million in leveraged funds, meeting their five-year goal for revenue from resources other than tobacco funds of \$1.7 million annually. The two-year total for 2010–2011 was reported to be \$2.15 million.

Research and Evaluation. The program has one goal directed toward research and evaluation.

Goal: AAI will evaluate selected health, education, and cost outcomes for older adults who are provided services.

- AAI reported capacity-building practices such as providing support for the development of surveys and measures to monitor program impacts on participants' knowledge of program material. Additional details of AAI's efforts to meet its evaluation goals were reported in their quarterly reports.
- During 2010 and 2011, AAI conducted several evaluations of its programs including a report written by AAI in partnership with the UAMS and Arkansas Department of Health, titled *Chronic Disease Self-Management Program (CDSMP) and A Matter of Balance (AMOB) Evaluation Results 2011*. This report provided evaluation of the CDSMP and AMOB programs. CDSMP aims to teach participants skills to manage their chronic disease conditions, adopt healthy behaviors, improve communications with their physicians, and enhance their quality of life. AMOB focuses on fall prevention. AAI's report summarized an evaluation focused on program fidelity (e.g., how closely the programs followed the evidence-based curricula and presentation methods), leader effectiveness, and program content, as well as a survey of the participants who did not complete the classes to understand the barriers to participation. The results of the evaluation indicate that the programs were implemented with fidelity to the evidence-based model. However, the report did not address whether there was a decrease in falls or whether participants were able to manage their illness in a way that led to improvements in their quality of life.

Expenditures. AAI spent all the MSA dollars it received in fiscal years 2010 and 2011 totaling \$2.1 million and \$1.7 million, respectively. As in past years, approximately 70 percent was spent on salaries and 30 percent on operating expenses.

Summary. Over the years RAND has reported the strength and consistency of AAI's leadership and structure. AAI's reach, as indicated by its clinical encounters data, has remained relatively steady over the past few reporting years after showing substantial growth in 2008. Educational encounters also grew steadily until a dip in 2010, followed by a rebound in 2011. AAI demonstrated similar successes among its educational activities, reaching more health care professionals, health and social service students, and paraprofessionals than in years past. AAI has also worked to sustain and grow its financial base and leverage its tobacco funding. Additionally, AAI showed growth and success in its clinical activities, increasing FTEs among its health professionals at the SHCs. Similarly, the indicators show that in this report-

ing period, AAI continued to meet its goals to influence policy, promote its services through various publications, sustain the organization by raising funds, and engage in evaluation and research. AAI's reputation locally, in the region, and nationally is evidenced by the replication project in Oklahoma and its partnership with NYU.

Health Outcomes

In the program reviews in the previous section, we examined the challenges and accomplishments of the programs as reported in their quarterly reports, as measured against their goals. Most goals are expressed in terms of process, that is, things that the programs do. In this section, we examine whether Arkansas is healthier after ten years of programming than it was before.

In the first section of this chapter, we examined the overall health of Arkansans at the beginning of the decade, as well as some indicators for performance on major health building blocks. In this section, we determine whether Arkansas has gained ground on these measures and discuss the connection with the various funded programs. In many cases, the programs are just too small to have had any measureable impact on the problems. However, because these indicators reflect the programs' long-term goals, it is important to observe the state's progress.

The Initiated Act provided a long-term goal for each funded program. Table 3.15 lists the long-term goals of the six programs from Section 18 of the Initiated Act.

These six programs spent almost half a billion dollars in ten years on activities in pursuit of these goals. Although this seems like a very large amount of money, it is a small fraction of total health-related spending in Arkansas. Approximately 100 times the amount of MSA funds dedicated to these six programs was spent by Medicaid alone in Arkansas for health care in the past ten years. The total cost of health care for conditions directly caused by smoking is 20 times the amount of MSA funds spent by these six programs. If we think of these other spending measures as representing the magnitude of the challenge faced by the funded programs, it would not be surprising if the six programs did not move Arkansans' health far from baseline.

Table 3.15
Long-Term Goals as Defined in Section 18 in the Initiated Act

Program	Long-Term Goal
MEP	Demonstrate improved health and reduced long-term health costs of Medicaid-eligible persons participating in the expanded programs.
ABI	The Institute's research results should translate into commercial, alternate technological, and other applications wherever appropriate in order that the research results may be applied to the planning, implementation, and evaluation of any health-related programs in the state. The Institute is also to obtain federal and philanthropic grant funding.
COPH	Elevate the overall ranking of the health status of Arkansas.
MHI	Reduce death/disability due to tobacco-related illnesses of Arkansans.
AAI	Improve health status and decrease death rates of elderly Arkansans, as well as obtaining federal and philanthropic grant funding.
Delta AHEC	Increase the access to a primary care provider in underserved communities.

With that context, in the next section we examine the extent to which health measures and rankings have changed in the past decade. When possible, we explain the change in Arkansas's ranking among states rather than simply noting the change in Arkansas. This has the advantage of accounting for national and regional factors that affect local outcomes but are beyond the control of the funded programs. An improvement in ranking for one measure provides evidence that there are factors within the state that are more positive than those in other states, possibly including the influence of one or more of the funded programs. If we are unable to examine the change in state ranking for a specific measure, we instead compare Arkansas's change in performance to the change in the regional or national average of the measure. Benchmarking against regional or national change has a similar benefit to examining the change in ranking.

Overall Health Status

Table 3.16 shows that Arkansas has remained in virtually the same place on the main ranking of health status. Arkansas moved up one place from its ranking of 45 of 50 states in 2001. However, on another measure that is often used as a proxy for overall population health, infant mortality, Arkansas rose five places from 40 to 35 among the states. The state's ranking in geographic disparity of health improved by ten places to be above the median for states, which suggests that some of the racial and ethnic disparities have been mitigated (Chandra, 2009). This suggests that Arkansas has made some progress in the College of Public Health's

Table 3.16
Arkansas Health Ranking Among U.S. States

Health Status Measure	Rank in 2011	Change from 2001
All Health Outcomes	44	-1
Premature death	45	0
Specific Conditions		
High blood pressure	45	0
Low birth weight	44	0

SOURCE: United Health Foundation, 2011.

KEY:

Ranking changed by fewer than five places.

long-term goal to elevate the health status of all Arkansans, but there is much room for further improvement.

Arkansas's progress on measures of specific health conditions is mixed. The state improved five places or more on rankings of individuals who report high cholesterol and obesity and in the rate of preterm births. The state retained the same poor ranking of those who report high blood pressure and the rate of low-birth-weight babies. On the other hand, the state's ranking of those reporting diabetes declined by six places to 33 among 50 states.

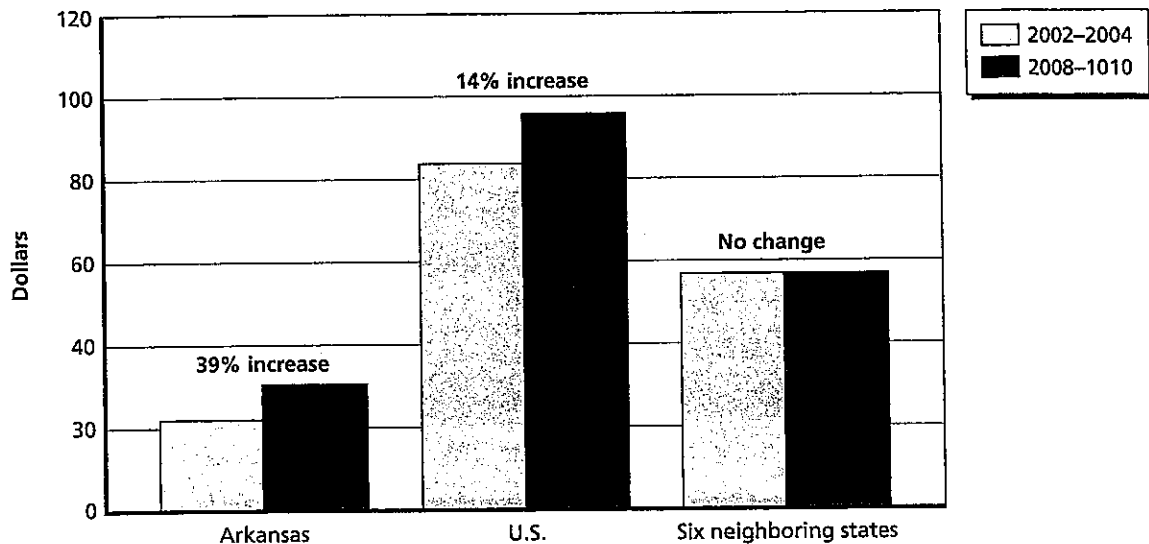
Overall, this suggests modest progress on most of the health measures that the MSA-funded programs, in one way or another, intended to improve.

Economic Conditions

In the very long term, improvements in health will lead to an improvement of economic conditions in the state. Healthier people are better able to obtain higher levels of education and training and are more productive in their jobs. However, these pathways to economic improvement are likely to take longer than ten years.

One program is positioned to have a more immediate impact on the economic well-being of the state. More than \$100 million was invested in ABI over ten years, with the intention of creating knowledge and providing access to technologies that would lead to economic growth in biosciences-related sectors of the economy. Furthermore, its successful efforts to attract additional research funds from out-of-state sources is likely to have a direct effect on the generation of new economic activity in the form of research jobs.

Figure 3.6
Funding from the National Science Foundation and National Institutes of Health (dollars per capita)



SOURCE: http://www.researchamerica.org/state_funding
NOTE: 2002 is the first year of available funding data.

RAND TR1261-3.6

To examine potential impacts of ABI on Arkansas's economic prosperity, we first examine the extent to which the state is attracting more federal biosciences research funding than in the past. Figure 3.6 shows that Arkansas has increased per capita funding from NSF and NIH by 39 percent from the beginning of the decade to the end of the decade. This is more than twice the national increase in funding. Neighboring states remained virtually constant in their funding. It is also clear that Arkansas remains at a lower level than both the United States and its neighboring states, suggesting room for additional improvement.

Another measure of the change in economic prosperity is the growth in jobs in sectors related to ABI's core activities of scientific research. Figure 3.7 presents the number of private sector employees (per million residents) in two industries related to ABI's mission: scientific research (North American Industry Classification System [NAICS] 5417) and other professional and technical services (NAICS 5419). Arkansas's employment in these sectors was growing prior to the recent recession and did not decline by as much as that of neighboring states following the recession. Although this has reduced the gap slightly between Arkansas and neighboring states in employment in this sector, the United States as a whole managed to expand this sector during the decade. As of 2009, Arkansas remains far below its neighbors and the United States in the percent of its population employed in firms that provide scientific research, professional services, and technical services.

Finally, we examine indicators of how the Arkansas economy as a whole performed over the past decade. The Arkansas unemployment rate has mirrored that of the United States as a whole and has remained in the middle of the pack with respect to its six neighbors. As shown in Figure 3.8, earnings in Arkansas have grown slightly faster than in either the United States

Figure 3.7
Number of Employees in Scientific Research and in Other Professional and Technical Services
(per million residents)

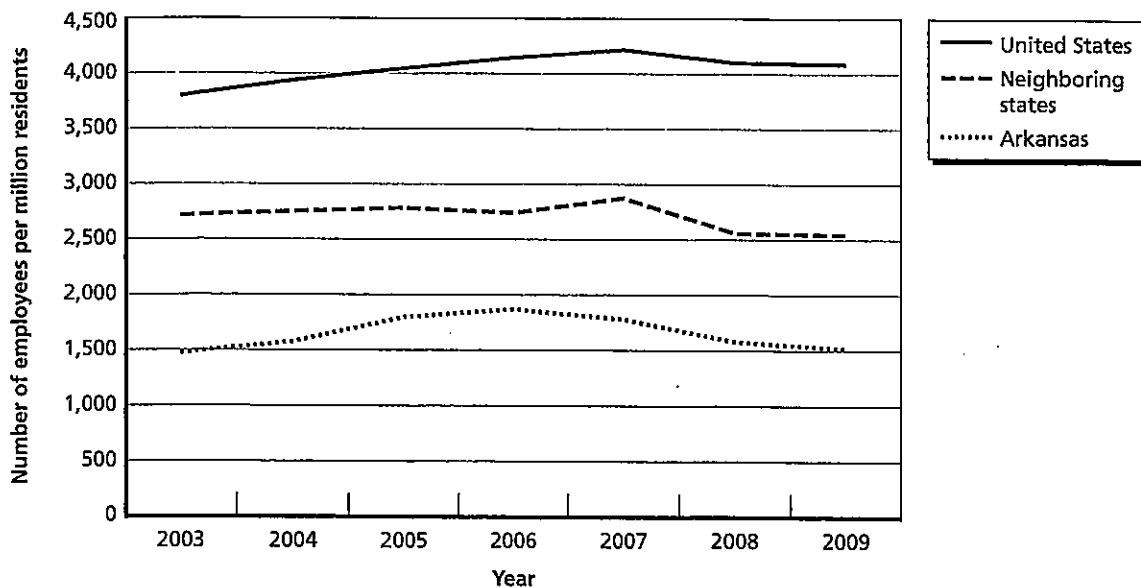
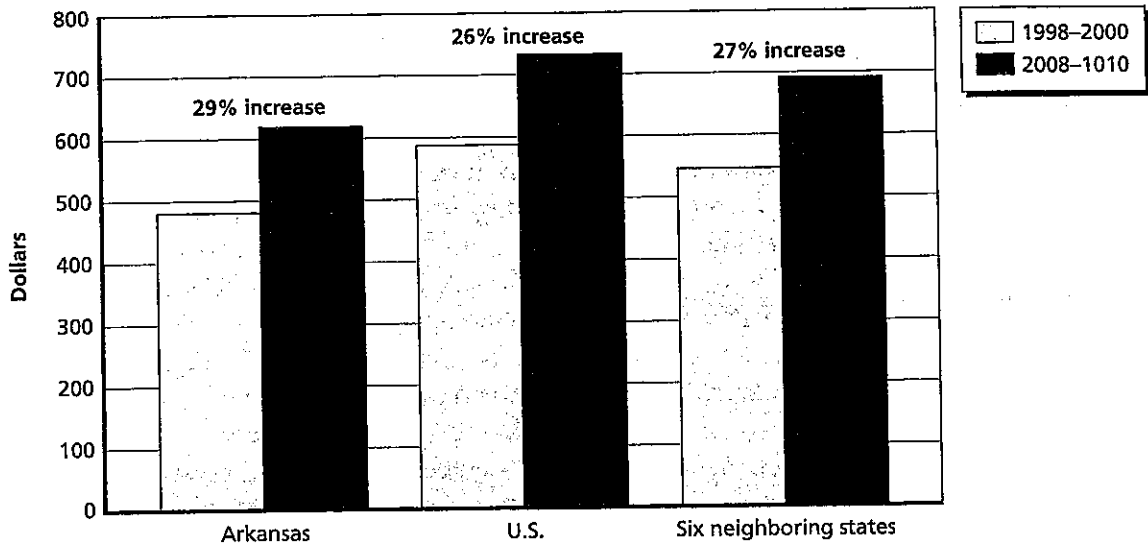


Figure 3.8
Average State Median Weekly Earnings



SOURCE: U.S. Department of Labor, Bureau of Labor Statistics, 2011.
RAND TR1261-3.8

or the six neighboring states; however, Arkansas remains behind both by this measure. In spite of slightly higher growth, Arkansas's median earnings slipped from 46 to 49 of the 50 states.

Access to Health Care

Several programs were poised to improve access to health care systems. However, MEP is the program with the most direct impact on this health building block. With major expansions in several areas, it has the most funding by far for this task. We examine three measures of health care access that align with three of the MEP expansions.

First, we examine whether expectant mothers in Arkansas are more likely to have early and adequate prenatal exams than in the past. Arkansas's rank went down by one place to 41 among the states (Table 3.17). The expansion of Medicaid to fund services for pregnant women was not adequate to raise Arkansas's place among the states.

Table 3.17
Change in Arkansas Health Care Access Ranking Among U.S. States

Health Care Access Measure	Current Rank	Change	Years Ranked
Adequate prenatal exams	41	-1	2001 and 2010
Avoidable hospitalizations for Medicare beneficiaries	45	-1	2003 and 2009

SOURCES: Prenatal: United Health Foundation; Avoidable Hospitalizations: The Commonwealth Fund Commission on a High Performance Health System, 2009; The Commonwealth Fund Commission on a High Performance Health System, 2007; Working age: US CDC, 2012.

The second measure is avoidable hospitalizations for seniors. MEP’s program to expand Medicaid to all elderly below 80 percent of FPL was intended to provide primary care services to the most disadvantaged elderly, thereby helping them avoid hospitalization for conditions better served through preventive and outpatient care. In addition, AAI clinical and educational programs are aimed at providing better access to primary care for the elderly. In spite of these efforts, the ranking of Arkansas by the rate of avoidable hospitalizations for Medicare beneficiaries, the vast majority of whom are elderly, slipped by one place to 45 by 2009.

The final measure of access directly related to MEP expansions is the percentage of the working-age population with health care coverage of any kind. The ARHealthNetworks Medicaid expansion to subsidize employer-based basic health insurance for employees of small businesses is aimed at decreasing the number of working-age adults without health care coverage. In spite of this effort, Arkansas fell by six places during the last decade to 49 of 50 states.

We also examine four more general measures of access, on which many of the programs might have an impact, by comparing Arkansas’s progress to that of the U.S. average. Table 3.18 shows that the change in two of the measures was not distinguishable from that in the rest of the United States. However, for the two measures for which Arkansas surpassed the rest of United States in 2000 (flu shots for the elderly and HIV/AIDS tests), the change in Arkansas was worse than in the rest of the United States (*p*-value < 0.05).

The success of the programs at addressing issues of access can also be tracked by examining changes in disparities that have affected underserved populations within Arkansas over the decade. Table 3.19 shows that the changes in both the access measures and the percent overweight have been approximately the same for African-Americans and whites. However, there is an exception in that increases in one of the access measures—the percentage of African-Americans tested for HIV/AIDS—has improved much more than for whites. With respect to region, disparities have either changed for the better or stayed approximately the same. The percentage of elderly who receive flu shots has increased in the Delta region by more than in the rest of the state. The percentage of adults in the Delta region who have had a check-up has risen faster and now exceeds that in the rest of the state. The percentage of adults who are overweight has

Table 3.18
Change in Arkansas Health Care Access Compared to U.S. Average

Health Care Access Measure	2010 Arkansas Percentage	Arkansas Change from 2000	U.S. Change from 2000
Adults prevented from seeing doctor due to cost	16.1	-3.1	-4.1
Adults (age 65+) received flu shot in past year	13.1	0.9	-0.1

SOURCE: RAND tabulations of BRFSS, multiple years.

KEY:

No statistically significant difference in Arkansas and U.S. changes.

Table 3.19
Change in Disparities Within Arkansas by Race and Region

Health Care Measure	Race			Region		
	2010 African-American (%)	Ten-Year Change in African-American (%)	Ten-Year Change in White (%)	2009–2010 Delta Region (%)	Seven-Year Change in Delta Region (%)	Seven-Year Change in Non-Delta Region (%)
Adults prevented from seeing doctor due to cost	25.7	+7.0	+2.8	17.7	+6.3	+2.8
Adults received routine check-up in past two years	85.1	+7.1	+8.1			
Adults received HIV/AIDS test				34.4	+20.6	+19.8
Adults (age 65+) received flu shot in past year	6.3	+2.1	+0.9			
Adults overweight or obese	78.5	+6.0	+7.2			

SOURCE: RAND tabulations of BRFSS, multiple years.

NOTES: Race percentages are for 2010 and the difference between 2000 and 2010 (except for the flu shot question for which the percentages are for 2009 and the difference between 1999 and 2009). African-American and white are the only two race categories with sufficient sample sizes for reliable statistics. Region percentages are for 2009–2010 and the difference between 2000 and 2005 and 2009 and 2010. Multiple years are required in order to have a sufficient sample size for the Delta region. The Delta region includes Chicot, Crittenden, Desha, Lee, Monroe, Phillips, and St. Francis counties.

risen less quickly than in the rest of the state, with the result that the rest of the state now has an equally high rate of 63 percent. These statistics echo the finding in geographic disparities in overall health outcomes presented above, which suggests improvement.

Healthy Behavior

The next building block of health that we examine is healthy behavior. Virtually all of the programs are aimed at promoting healthy behaviors to some extent. However, the targeted state needs programs (COPH, AAI, MHI, and Delta AHEC) all directly work to educate portions of the community to increase knowledge and skills that help Arkansans replace risky behaviors with healthy behaviors.

Table 3.20 provides information on the change in Arkansas's ranking on a variety of healthy and risky behaviors. Of the rankings we examine, two stayed relatively constant and four deteriorated by five places or more. Fruits and vegetables contain vitamins, minerals, and fiber that are protective against many diseases (US CDC, 2012). Similarly, regular physical exercise is crucial for combating a wide variety of diseases, from heart disease and diabetes to some cancers and depression (Mayo Clinic, 2011). Therefore, the deterioration of these rankings is not consistent with the goals of the funded programs. Furthermore, as a leading indicator of health outcomes, these results suggest that the prospects for future improvement in the state health ranking are not good.

Table 3.20
Arkansas Health Behavior Ranking Among U.S. States

Behavior	Rank in 2011	Change in Rank from 2001
Risky		
Binge drinking	6	-1
Teen birth rate	47	-1
Healthy		

Summary

The improved rankings presented in Table 3.16 suggest that Arkansas has made more progress in overall health outcomes relative to other states. However, Arkansas's overall progress in health outcomes may be tenuous because its citizens are lagging behind in the preventive health behaviors described in Table 3.20 that could contribute to an increase in future rates of disability and disease.

Key Findings and Recommendations

This final report describes the context, activities, and changes in outcomes that have occurred over the past decade associated with the seven health-related programs funded by Arkansas's share of the multistate MSA through the Arkansas Tobacco Settlement Act. In this final chapter, we summarize our key findings and provide recommendations for the programs going forward.

Tobacco Prevention and Cessation Program

Arkansas is a regional leader in tobacco control, which includes not only the MSA-funded activities of TPCP but also its tobacco taxation and smoke-free air efforts. These efforts, especially the dedication of almost one-third of its MSA funds to tobacco prevention and cessation, have been recognized by the CDC and by tobacco control advocacy groups. During this time, there has been a large decrease in smoking in Arkansas. Smoking has decreased by almost one-third from levels at the beginning of the decade. In addition, heart attacks, strokes, and other tobacco-related diseases have decreased over this period.

Arkansas has made this tremendous progress in reduction of smoking and smoking-related diseases through innovative practices such as extending the Quitline to youth and funding statewide, evidence-based tobacco education campaigns. Arkansas has led its neighboring states in increasing taxes on cigarettes and smokeless tobacco products. It has instituted far-reaching clean air regulations and has played a nation-leading role in banning smoking in cars with children.

However, there is no guarantee that the downward trends in tobacco use and tobacco-related diseases will continue. Diversion of MSA funds away from prevention and cessation activities during the past two years is associated with reduced Quitline activity. New nicotine-delivery systems are being marketed to youth that could provide a gateway to smoking for a new generation unless steps are taken to discourage their use.

Arkansas has set goals for reduction in tobacco use and is in a position to reach those goals through a combination of increased tobacco taxes, extended clean air regulations, and a return to its earlier exemplary efforts in prevention and cessation. The state has been a regional leader in these three areas of tobacco control policy and programming. However, smoking and other tobacco use continues to be responsible for the deaths of thousands of Arkansans each year and for hundreds of millions of dollars in avoidable health care costs.

If Arkansas intends to raise its ranking among all states in tobacco-related health outcomes and in the reduction of associated health care costs, it will need to follow the lead

of national exemplars in comprehensive tobacco control. Arkansas's cigarette tax remains well below the national average. There are loopholes in its indoor clean air policies that harm employees of bars and restaurants and send the message that secondhand smoke is acceptable in some circumstances. Most relevant to this evaluation, the state has backed down from the initial requirements of the Initiated Act by diverting a substantial portion of tobacco prevention and cessation funds to other uses. Arkansas is likely to remain among the states with the highest smoking rates and highest health care costs unless it improves its efforts in the three areas of tobacco control: tobacco taxation, clean air regulation, and evidence-based programming in order to target the prevention and cessation of tobacco use.

Other Health Programs

In 2001, Arkansas trailed the nation in many health measures, ranking 45 of 50 states on a composite score of all health outcomes (United Health Foundation, 2011). The Initiated Act dedicated more than two-thirds of Arkansas's share of the MSA funds to six nontobacco programs, each with specific goals for improving the health of Arkansans. In the past decade, almost half a billion dollars has been dedicated to these efforts. Although this is certainly an enormous amount of resources, it is a small fraction of what the Arkansas government spends on health care or the health care expenses resulting from tobacco-related disease. Specifically, the Initiated Act's annual contribution to these six programs is approximately equal to 1 percent of annual Medicaid expenditures in Arkansas (Kaiser, 2012) or equal to approximately 4 percent of the annual increased health care costs directly resulting from tobacco use in Arkansas.

In spite of this imbalance between resources and challenges, Arkansas chose to use its share of the MSA funds to work on long-term solutions to the state's health problems. Approximately 30 percent of the funding was dedicated to paying for the immediate needs of some of the state's most disadvantaged people through four expansions to the state's Medicaid program. Another large portion, almost one quarter of the funds, was dedicated to biosciences research, which not only aimed to develop health technologies and products that would benefit residents but also aimed to improve the state's economy by attracting outside research funds and associated new enterprises. The remaining fifth of the funds was dedicated to improving the state's public health workforce and infrastructure through the creation of the College of Public Health and to providing health education and other health resources to the elderly, minorities, and residents of the economically disadvantaged Delta region.

We found that the *Medicaid Expansion Program* has dramatically increased enrollment and spending since the inception of its subsidized private insurance program for low-income employees of small business (ARHealthNetworks) in 2007. Spending and enrollment on the other three expansions, which target full health care for pregnant women and low-income elderly and decreased hospital costs for very short and very long hospital stays, has remained relatively flat throughout the decade. Medicaid has recently implemented a new web-based enrollment system and is working with the state's AHECS on mobile outreach. Other outreach efforts for these three programs that were scaled up in recent years have now been suspended, although we have demonstrated in previous reports that the programs are not fully meeting the needs of their target populations. We find that Arkansas's state ranking in measures related to these efforts—adequate prenatal care, avoidable hospitalizations for Medicare beneficiaries,

and health care coverage for the working-age population—have not improved over the decade. Overall, MEP has spent less than 50 percent of its allocated share of MSA funds over the past five years (prior to fiscal year 2011) on the intended expansion programs. MEP's efforts to balance the increasing cost of health care with fluctuations in program enrollment should be monitored in order to determine whether MEP actually does spend the resources dedicated to it by the Initiated Act for increasing medical care to the intended segments of the state's disadvantaged population.

The *Arkansas Biosciences Institute* has successfully leveraged its MSA funding to bring additional research funding into the state and to produce research that has resulted in a large number of publications in highly rated scholarly journals. It has also been faithful to its missions of training students from throughout Arkansas in bioscience research methods and of advising policymakers and the public in areas of its expertise. Through the decade, Arkansas has increased its level of federal research funding in sciences and health by a much faster rate than its neighbors and the nation as a whole. However, the state remains at less than half the national average in per capita annual federal health and science research funding. Although it is difficult to obtain precise measures of ABI's impact on the state's economy, we find that median weekly earnings for the state as a whole and the percentage of state residents employed in scientific research or other professional and technical services did not change appreciably over the decade. As research technologies mature, the contributions of specific Arkansas research projects should be detectable in years to come.

The *Fay W. Boozman College of Public Health* was created with MSA funds to fill a gap in the offerings of the UAMS. It receives approximately 5 percent of the annual MSA allocation, which it dedicates to training a diverse public health workforce for the state and to conducting community-based participatory research. Over the decade, it gained accreditation and continued to expand its research and teaching capacity. It dramatically increased its other sources of funding, in part, by fully spending and successfully leveraging its MSA funds. At the end of its first decade, COPH is tied with Rutgers and the University of Maryland for 30th place in the *US News and World Report* ranking of graduate schools of public health (US News, 2012). Although all signs are that COPH has been very successful in fulfilling its mission, the long-term goal specified for COPH in the Initiated Act of elevating "the overall ranking of the health status of Arkansas" remains out of reach.

The *Minority Health Initiative* was created with the short-term goal of prioritizing the list of health problems and planned interventions for the minority population and of increasing the number of Arkansans screened and treated for tobacco-related illnesses. Through several changes in management and other course corrections during the decade, MHI settled on a strategy of performing health screenings through various outreach programs and funding pilot programs directed at improving minority health. It also monitors and advocates for health policy changes that will help minorities and contributes to relevant research efforts. MHI wrestled with financial management issues, including keeping unit costs of screening and testing efforts in a reasonable range; it is finally managing to fully use its resources for the intended purposes. However, MHI has yet to return to the levels of health screening activity that it provided in previous years. There has been no improvement in four of five measures in the racial disparity of health that we examined. However, Arkansas's racial disparities in HIV/AIDS testing improved over the decade, which is consistent with one of MHI's main goals.

Over the decade, *Delta AHEC* became a full-service health education center for the people of Arkansas's Delta region. Designed to increase health care access and to provide

health education to the population and to health professionals, it consistently used its resources and annually increased the number of encounters with citizens and professionals. Following a trend of successful fund raising, in 2011 Delta AHEC received 42 percent of its funding from non-MSA sources—its highest level of non-MSA funding to date. Although Delta AHEC continues to struggle to bring health professionals to the region, it now focuses on encouraging local school-age children to consider health careers as a new strategy to grow its local trained workforce. There has been significant improvement in geographical health disparities, which is a testament to Delta AHEC's impact on the health of the region.

The *Arkansas Aging Initiative* benefited from strong and consistent leadership to leverage high-quality health care for the state's elderly and to help educate health care professionals of all types in elder care. AAI successfully influenced public policy and collaborated with researchers throughout the state to improve the health status of elders. It now has a national presence among elder health leaders and the AAI model is being replicated elsewhere in the country. Despite these successes, Arkansas's ranking of avoidable hospitalizations for Medicare beneficiaries did not appreciably improve during the decade.

Overall, Arkansas's ranking among states in smoking rates, other health-related behaviors, health care access, and health outcomes remains among the lowest in the nation. This does not represent a failure of the programs funded by the Initiated Act. In several cases, programs did not use all of their resources in the intended fashion. However, in all cases, the programs fulfilled their missions and met the start-up and short-term goals set by the act and, in most cases, fulfilled the additional goals set by the ATSC. The funded programs helped Arkansas make gains in its chosen areas. Full use of MSA resources by the programs can be expected to lead to larger gains in the future.

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