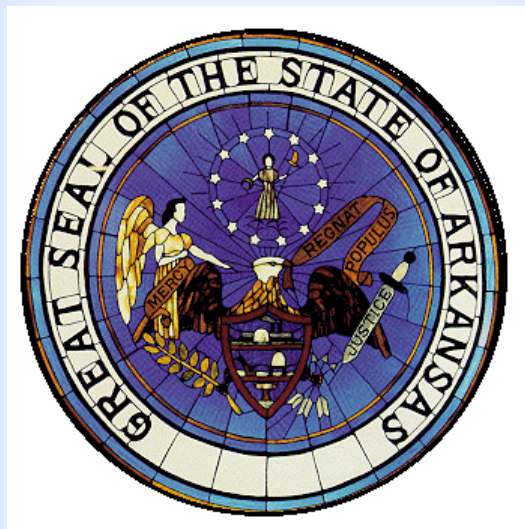


# Arkansas County-Specific Prevalence of Cigarette Smoking and Smokeless Tobacco Use

2001-2005



**Arkansas Department of Health and Human Services  
Division of Health**

**Tobacco Prevention & Cessation Branch**

## **INTRODUCTION**

Tobacco use is the single most preventable cause of death and disease in the United States. Two of the U.S. Healthy People 2010 objectives for adults are to reduce the prevalence of cigarette smoking to 12.0% and the use of smokeless tobacco to 0.4%<sup>1</sup>. In 2005, cigarette smoking prevalence ranged nationally from a low of 11.5% (UT) to a high of 28.7 (KY), with a median of 20.6%. Arkansas 2005 adult smoking prevalence was ranked 8<sup>th</sup> in the nation at 23.5%<sup>2</sup>. Between 2001 and 2005, the prevalence of current smoking in Arkansas dropped two percentage points from 25.5% ( $\pm 1.8\%$ ) to 23.5 ( $\pm 1.5\%$ ), respectively; a significant decline of 8%. Incomplete data in 2006 shows that the rate is not expected to change from the 2005 estimates. On the other hand, smokeless tobacco use persisted to be a challenge in Arkansas, especially among males. In 2004, current smokeless tobacco use rate among male adults was 12.9% ( $\pm 2.0\%$ ), indicating no change since 2001 (12.9%  $\pm 2.3\%$ ).

## **BACKGROUND**

Funding local coalitions and community partners to reduce tobacco use is one of nine “best practices” recommended by the Centers for Disease Control and Prevention (CDC), as determined by evidence-based analyses of comprehensive state tobacco control programs. Local community programs cover a wide range of prevention activities including engaging youth in developing and implementing tobacco control interventions; developing partnerships with local organizations; conducting educational programs for young people, parents, enforcement officials, community and business leaders, health care providers, school personnel, and others; and promoting governmental and voluntary policies to promote clean indoor air, restrict access to tobacco products, and achieve other policy objectives.

Another major component of the CDC’s best practices is the implementation of a surveillance and evaluation system. Surveillance in state tobacco control programs is the ongoing, systematic collection, analysis, interpretation, and dissemination of tobacco use-related data for use in public health action to reduce morbidity and mortality and to improve health<sup>3</sup>, while effective program evaluation is a constant approach to improve and account for public health actions by involving procedures that are useful, feasible, ethical, and accurate<sup>4</sup>. Such system monitors program accountability for Arkansas citizens, state policy makers, and others responsible for fiscal oversight. Program evaluation efforts build upon surveillance systems by linking statewide and local program efforts to progress in achieving intermediate and primary outcome objectives<sup>5</sup>.

## **PURPOSE**

Risk factor prevalence estimates at the county level have been available in Arkansas through the Hometown Health Improvement initiative. Unfortunately, however, these county surveys<sup>6</sup> were conducted for selected counties with the number of counties participating ranging from 2 to 5 counties at any given year between 2001 and 2005. In addition, counties that participated did not conduct surveillance activities on an annual basis. This irregularity in data collection did not make it possible to either spatially display the distribution of tobacco-related indicators (i.e., via a map) in order to visualize how it varies across Arkansas counties, or to monitor county trends

over time. This work is an attempt to exploit state-level surveys in order to estimate county-specific prevalence data over three time-periods.

## **METHODS AND DATA SOURCES**

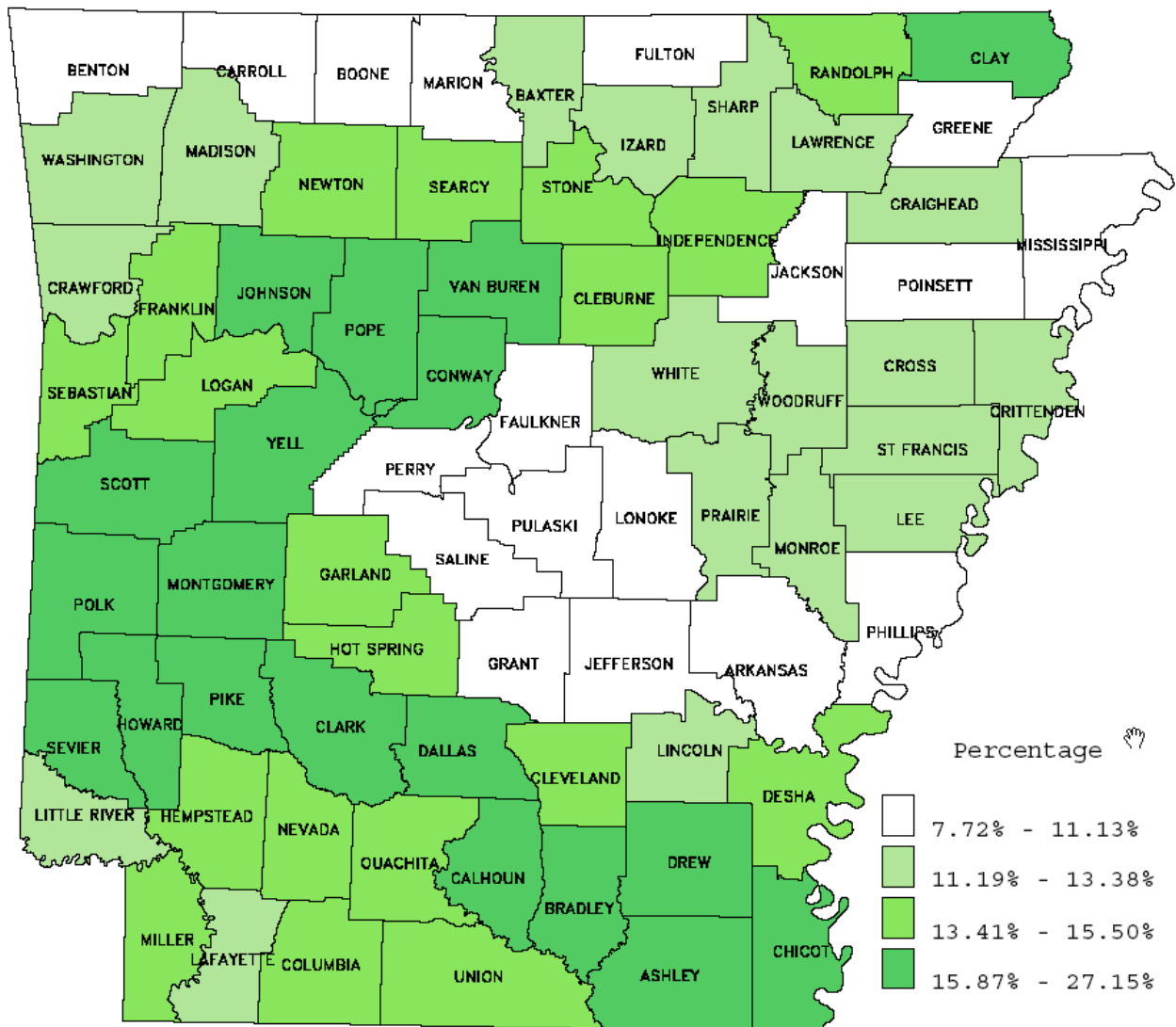
State-level Behavioral Risk Factor Surveillance System (BRFSS) data sets for 2001 through 2005 were aggregated. We utilized a combination of two available methods for small area estimation with the aim of obtaining reliable sample sizes, capable of detecting differences, at the county level. First, starting at 2001, we combined three years data to provide point prevalence estimates, and, using a simple moving average (SMA) approach, we constructed data for three reporting periods: 2001-2003, 2002-2004, and 2003-2005. Second, we added the samples of surrounding counties to the sample of each particular county.

## **DATA ANALYSES**

Prevalence estimates of current cigarette smoking and smokeless tobacco use were calculated and its corresponding maps were generated using SAS® software Version 9.1.



**Figure 2. County-Specific Prevalence of Current Smokeless Tobacco Use Among Male Adults – Arkansas 2002-2004**



**Table 1. Prevalence of Current Cigarette Smoking Among Adults by County of Residence, Arkansas 2001-2005**

State/County	2001-2003		2002-2004		2003-2005	
	Percent	95% CI*	Percent	95% CI	Percent	95% CI
<b>State Total</b>	<b>25.73</b>	<b>±0.97</b>	<b>25.66</b>	<b>±0.94</b>	<b>24.65</b>	<b>±0.90</b>
ARKANSAS	28.09	±3.68	27.32	±3.52	24.71	±3.29
ASHLEY	26.12	±4.49	25.58	±4.57	27.26	±4.56
BAXTER	25.01	±4.41	25.27	±4.35	24.48	±4.02
BENTON	21.88	±2.57	23.14	±2.54	21.98	±2.31
BOONE	29.95	±5.22	29.47	±4.86	25.35	±4.31
BRADLEY	26.40	±4.42	25.44	±4.47	26.96	±4.48
CALHOUN	22.76	±4.04	21.76	±4.04	23.36	±4.12
CARROLL	24.20	±2.98	24.60	±2.86	22.63	±2.69
CHICOT	27.85	±6.30	27.62	±6.36	28.32	±6.13
CLARK	20.49	±3.85	21.66	±3.95	22.37	±3.84
CLAY	33.24	±6.07	33.72	±6.01	34.48	±5.94
CLEBURNE	24.22	±3.13	23.71	±2.91	22.09	±2.78
CLEVELAND	25.41	±3.80	24.77	±3.73	23.42	±3.65
COLUMBIA	24.76	±4.23	22.54	±4.02	23.18	±3.88
CONWAY	26.78	±3.41	26.68	±3.22	25.18	±3.04
CRAIGHEAD	31.24	±3.72	29.92	±3.53	30.15	±3.40
CRAWFORD	23.70	±2.54	24.30	±2.49	23.38	±2.53
CRITTENDEN	31.75	±4.55	32.35	±4.33	29.69	±3.99
CROSS	33.96	±5.07	33.92	±4.74	30.27	±4.30
DALLAS	22.04	±3.89	22.94	±3.96	22.45	±3.79
DESHA	30.58	±5.17	25.71	±4.68	26.16	±4.76
DREW	28.27	±5.12	27.17	±5.09	27.07	±4.87
FAULKNER	23.72	±1.94	23.43	±1.87	22.23	±1.81
FRANKLIN	26.54	±3.23	26.82	±3.37	26.32	±3.40
FULTON	24.18	±4.86	25.48	±4.85	26.47	±4.77
GARLAND	26.38	±3.32	25.95	±3.14	26.22	±2.98
GRANT	22.22	±1.91	22.45	±1.88	21.98	±1.87
GREENE	31.36	±3.98	29.15	±3.74	29.67	±3.80
HEMPSTEAD	28.78	±4.48	26.72	±4.22	27.26	±4.22
HOT SPRING	24.27	±3.06	25.23	±2.99	25.43	±2.86
HOWARD	25.90	±5.07	29.21	±5.30	28.24	±5.22
INDEPENDENCE	26.55	±3.67	25.98	±3.42	25.20	±3.25
IZARD	23.83	±3.87	26.07	±3.94	25.70	±3.73
JACKSON	30.87	±3.35	28.32	±3.04	26.83	±2.93
JEFFERSON	23.98	±2.04	23.93	±2.02	22.39	±1.97
JOHNSON	29.96	±4.17	30.97	±4.33	29.60	±4.14
LAFAYETTE	28.70	±4.84	25.30	±4.45	24.20	±4.25
LAWRENCE	29.10	±3.51	28.42	±3.31	28.59	±3.24
LEE	26.57	±5.21	28.12	±4.96	24.65	±4.51
LINCOLN	28.12	±4.11	24.67	±3.85	24.12	±3.84
LITTLE RIVER	30.59	±5.33	28.02	±4.94	27.39	±4.83
LOGAN	26.59	±3.08	26.96	±3.17	26.10	±3.12
LONOKE	23.17	±1.86	22.83	±1.79	21.85	±1.78
MADISON	23.51	±2.30	24.60	±2.25	23.34	±2.10
MARION	26.84	±4.57	26.75	±4.42	24.28	±4.00
MILLER	29.47	±5.39	26.30	±4.93	26.47	±4.96

State/County	2001-2003		2002-2004		2003-2005	
	Percent	95% CI*	Percent	95% CI	Percent	95% CI
MISSISSIPPI	30.19	±3.94	28.60	±3.73	27.13	±3.46
MONROE	27.54	±4.99	25.83	±4.59	22.59	±4.41
MONTGOMERY	24.91	±3.37	27.11	±3.44	25.68	±3.13
NEVADA	23.48	±4.07	23.16	±3.99	22.28	±3.80
NEWTON	29.37	±3.83	29.82	±3.55	26.67	±3.27
OUACHITA	22.56	±3.63	21.06	±3.58	21.60	±3.48
PERRY	23.29	±1.90	23.31	±1.85	23.08	±1.79
PHILLIPS	29.10	±6.00	25.27	±5.32	23.05	±5.13
PIKE	22.10	±4.66	24.22	±4.88	24.93	±4.83
POINSETT	31.25	±3.69	29.54	±3.44	28.02	±3.22
POLK	24.70	±5.30	27.40	±5.54	25.68	±5.33
POPE	30.38	±3.84	31.50	±3.89	28.51	±3.56
PRAIRIE	30.39	±4.30	27.64	±3.78	25.46	±3.84
PULASKI	22.98	±1.81	23.14	±1.78	22.39	±1.77
RANDOLPH	32.76	±5.20	32.97	±5.04	34.70	±5.04
ST FRANCIS	30.53	±5.50	30.42	±5.02	26.89	±4.62
SALINE	23.28	±1.97	23.35	±1.93	22.93	±1.88
SCOTT	23.88	±3.39	25.47	±3.83	24.55	±3.75
SEARCY	27.99	±3.36	28.17	±3.21	25.04	±2.88
SEBASTIAN	26.04	±3.42	26.64	±3.67	25.54	±3.72
SEVIER	27.18	±6.08	28.47	±6.04	27.06	±5.70
SHARP	28.92	±4.87	29.57	±4.63	28.57	±4.47
STONE	24.99	±3.78	26.01	±3.77	23.06	±3.20
UNION	24.90	±3.93	23.59	±3.90	23.69	±3.76
VAN BUREN	25.62	±3.28	26.19	±3.14	23.94	±2.86
WASHINGTON	22.29	±2.48	23.57	±2.44	22.10	±2.23
WHITE	24.81	±2.91	24.96	±2.73	23.36	±2.62
WOODRUFF	29.32	±4.48	27.46	±3.91	25.18	±3.90
YELL	28.94	±3.37	30.54	±3.49	28.50	±3.17

**Table 2. Prevalence of Current Smokeless Tobacco Use Among Male Adults by County of Residence, Arkansas 2001-2004**

State/County	2001-2003				2002-2004			
	Total		Males		Total		Males	
	Percent	95% CI	Percent	95% CI	Percent	95% CI	Percent	95% CI
<b>State Total</b>	<b>6.23</b>	<b>±0.58</b>	<b>12.26</b>	<b>±1.17</b>	<b>6.27</b>	<b>±0.56</b>	<b>12.30</b>	<b>±1.11</b>
ARKANSAS	5.20	±1.78	9.69	±3.66	5.43	±1.85	10.03	±3.63
ASHLEY	7.06	±3.07	17.21	±7.13	7.27	±2.91	16.05	±6.65
BAXTER	5.91	±2.47	11.83	±4.84	5.86	±2.43	11.60	±4.78
BENTON	5.58	±1.63	11.49	±3.24	5.10	±1.39	10.38	±2.77
BOONE	5.02	±3.58	10.02	±6.90	4.86	±2.66	8.97	±5.15
BRADLEY	8.16	±3.31	19.18	±7.40	8.21	±3.11	18.10	±6.81
CALHOUN	8.49	±3.35	17.83	±7.07	8.13	±3.19	16.40	±6.68
CARROLL	4.90	±1.93	9.96	±3.80	4.21	±1.46	8.34	±2.88
CHICOT	8.17	±3.98	19.51	±9.46	7.72	±3.82	16.89	±8.55
CLARK	9.50	±3.33	18.71	±6.55	8.57	±2.78	17.06	±5.53
CLAY	6.25	±3.15	13.26	±6.52	7.60	±3.97	15.87	±7.90
CLEBURNE	5.40	±1.68	11.17	±3.52	6.48	±1.79	13.84	±3.82
CLEVELAND	6.43	±2.59	13.37	±5.59	7.04	±2.63	14.30	±5.50
COLUMBIA	7.49	±2.69	13.07	±5.27	8.19	±2.77	14.39	±5.42
CONWAY	8.80	±2.50	16.80	±4.71	9.08	±2.40	17.88	±4.61
CRAIGHEAD	6.00	±1.85	11.08	±3.59	6.42	±1.97	11.52	±3.85
CRAWFORD	6.80	±1.66	13.68	±3.25	6.34	±1.56	12.98	±3.10
CRITTENDEN	7.48	±2.67	13.40	±5.35	7.73	±2.49	13.10	±4.78
CROSS	6.99	±2.92	12.50	±5.73	7.46	±2.65	12.46	±4.88
DALLAS	9.89	±3.56	19.09	±6.89	9.01	±3.03	17.75	±5.95
DESHA	6.11	±2.78	14.08	±6.84	6.29	±2.86	13.41	±6.72
DREW	8.96	±3.93	21.96	±9.24	8.51	±3.67	19.36	±8.31
FAULKNER	4.72	±0.99	9.05	±1.95	5.05	±1.01	9.91	±2.00
FRANKLIN	7.91	±2.15	15.52	±4.15	7.02	±1.92	14.04	±3.76
FULTON	5.80	±2.48	11.14	±4.70	5.08	±2.41	10.04	±4.69
GARLAND	6.33	±2.07	13.49	±4.22	6.59	±1.79	14.57	±3.80
GRANT	4.59	±1.11	8.83	±2.23	4.44	±0.99	8.71	±1.99
GREENE	5.27	±1.94	10.33	±3.86	5.71	±2.12	11.13	±4.22
HEMPSTEAD	8.48	±3.01	16.51	±6.28	7.33	±2.69	13.83	±5.58
HOT SPRING	6.32	±1.96	13.35	±4.04	6.31	±1.69	13.80	±3.57
HOWARD	8.34	±3.29	17.34	±7.08	8.67	±3.43	16.50	±6.99
INDEPENDENCE	6.48	±2.03	13.36	±4.17	7.10	±2.01	14.61	±4.12
IZARD	6.54	±2.34	13.44	±4.68	6.04	±2.19	12.65	±4.57
JACKSON	5.00	±1.52	9.56	±3.10	5.30	±1.48	9.91	±3.00
JEFFERSON	4.36	±1.07	8.02	±2.09	4.13	±1.02	7.73	±2.00
JOHNSON	11.71	±3.51	22.89	±6.68	9.50	±2.95	18.82	±5.75
LAFAYETTE	6.70	±2.71	12.47	±5.65	6.40	±2.54	11.64	±5.15
LAWRENCE	5.75	±1.82	11.48	±3.63	5.82	±1.84	11.40	±3.71
LEE	7.23	±3.49	12.59	±6.92	7.06	±3.13	11.19	±5.72
LINCOLN	5.87	±2.32	11.59	±5.03	6.40	±2.46	12.83	±5.17
LITTLE RIVER	7.49	±3.38	16.68	±7.44	6.09	±2.80	12.82	±6.09
LOGAN	8.73	±2.34	16.80	±4.43	7.76	±2.09	15.50	±4.07
LONOKE	4.32	±0.94	8.07	±1.85	4.50	±0.95	8.67	±1.90
MADISON	6.38	±1.50	13.04	±2.96	5.90	±1.32	11.89	±2.60
MARION	2.74	±1.64	5.32	±3.17	4.15	±2.02	7.72	±3.83

State/County	2001-2003				2002-2004			
	Total		Males		Total		Males	
	Percent	95% CI	Percent	95% CI	Percent	95% CI	Percent	95% CI
MILLER	8.30	±3.70	16.50	±7.86	6.91	±3.20	13.63	±6.84
MISSISSIPPI	5.41	±2.10	10.29	±4.28	5.07	±1.88	8.93	±3.87
MONROE	7.52	±3.08	12.52	±5.96	8.13	±3.23	12.76	±5.98
MONTGOMERY	7.81	±2.36	15.60	±4.56	8.33	±2.25	17.30	±4.45
NEVADA	8.00	±2.59	13.72	±5.10	8.60	±2.72	15.19	±5.25
NEWTON	9.65	±3.23	18.75	±6.02	7.85	±2.56	15.27	±4.87
OUACHITA	7.57	±2.42	14.36	±4.86	7.70	±2.41	14.52	±4.80
PERRY	4.53	±0.97	8.83	±1.91	4.96	±0.99	9.97	±1.99
PHILLIPS	7.65	±3.50	13.47	±7.25	6.11	±3.27	9.74	±6.28
PIKE	9.11	±3.38	18.08	±6.97	8.34	±3.11	16.14	±6.31
POINSETT	5.89	±1.99	11.24	±4.03	5.73	±1.79	10.43	±3.60
POLK	12.19	±4.57	25.21	±9.12	13.66	±4.79	27.15	±9.28
POPE	9.97	±2.89	19.28	±5.57	9.91	±2.66	19.11	±5.05
PRAIRIE	5.55	±2.13	10.90	±4.44	6.15	±2.21	11.99	±4.47
PULASKI	4.49	±0.94	8.57	±1.87	4.67	±0.94	9.12	±1.88
RANDOLPH	6.18	±2.66	12.34	±5.32	7.68	±3.15	14.96	±6.03
ST FRANCIS	7.90	±3.46	13.36	±6.83	7.87	±3.07	12.68	±5.60
SALINE	4.64	±1.11	9.10	±2.20	4.41	±0.97	8.92	±1.99
SCOTT	7.84	±2.34	15.27	±4.48	8.13	±2.36	16.45	±4.61
SEARCY	7.01	±2.37	13.34	±4.47	7.07	±2.15	13.71	±4.18
SEBASTIAN	7.70	±2.31	14.62	±4.32	7.39	±2.19	14.59	±4.21
SEVIER	11.44	±4.82	22.94	±9.73	11.97	±4.88	23.66	±9.77
SHARP	6.47	±2.55	13.98	±5.47	5.92	±2.28	12.57	±4.97
STONE	6.47	±2.15	12.99	±4.28	6.86	±2.13	13.74	±4.30
UNION	7.79	±2.69	15.36	±5.52	7.54	±2.58	14.26	±5.20
VAN BUREN	8.03	±2.34	15.57	±4.49	8.75	±2.28	17.21	±4.36
WASHINGTON	5.62	±1.44	11.51	±2.88	5.59	±1.38	11.34	±2.73
WHITE	5.73	±1.60	11.66	±3.30	6.65	±1.68	13.38	±3.40
WOODRUFF	6.18	±2.31	11.20	±4.54	7.29	±2.41	13.33	±4.56
YELL	9.24	±2.45	17.67	±4.59	9.47	±2.35	18.83	±4.51

\*Confidence Intervals

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### Acknowledgment

The Tobacco Prevention and Cessation Branch would like to thank all individuals who contributed to the creation of this report. John Senner, PhD, Senior Research Analyst and Health Statistics Branch Chief, developed the methodology, while Shalini Manjanatha, MS, Medical Economist, wrote the original SAS programming. Li Zhou, MS, Data Manager, expanded and improved the programs to utilize the moving average approach and create the maps.

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