



# Year Three Evaluation:



## Arkansas Act 1220 of 2003 to Combat Childhood Obesity

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

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# Introduction

*Obesity is widely recognized* as one of the most pressing health threats to families and children across the country. The rates of obesity among adults and children have increased at an alarming rate over the past four decades. Today, data suggest that 64 percent of U.S. adults and more than 33 percent of children and adolescents fall into the top two weight categories as defined by the Centers for Disease Control and Prevention. Those categories are defined as “obese” and “overweight” for adults, and as “overweight” and “at risk of overweight” for children.<sup>1,2</sup> The epidemic is even more pronounced in Arkansas—obesity rates among children and adults in Arkansas have grown steadily over the last decade, and the state regularly exceeds the national average for obesity rates. Recent statistics based on actual measurements reveal that 38 percent of Arkansas public school children are “overweight” or “at risk of being overweight.”<sup>3</sup>

The health implications associated with obesity are serious. Among adults, obesity is linked to cardiovascular disease, hypertension, type 2 diabetes, osteoporosis and some cancers. Even more alarming, children are being diagnosed with health problems previously considered to be “adult” conditions. Obese children are at greater risk than their normal-weight peers for type 2 diabetes, hypertension, high cholesterol and orthopedic problems.<sup>4</sup>

With the creation and passage of Act 1220 of 2003, Arkansas became a national leader in attempting to address and combat childhood obesity through a comprehensive school-based intervention. The Act mandated a number of immediate statewide policy changes and also established mechanisms to help create future changes at both the state and local levels. Act 1220 calls for school personnel, state health officials and legislators to work together to implement policies to promote better nutrition and more physical activity in public schools statewide. The ultimate objective of the Act is to improve health outcomes for Arkansas families and children.

This report summarizes the most recent findings from a three-year evaluation of efforts to implement Act 1220. Researchers at the Fay W. Boozman College of Public Health at the University of Arkansas for Medical Sciences have conducted the evaluation with support from the Robert Wood Johnson Foundation.





# Act 1220: Background

## What Is Act 1220 and How Did It Come to Be?

In 2003, Arkansas legislators passed Act 1220, a comprehensive and coordinated approach to combat childhood obesity that involves public schools and communities across the state. Components of the law include:

- ▶ Creation of a state Child Health Advisory Committee (CHAC) to develop physical activity and nutrition standards for public schools;
- ▶ Annual body mass index (BMI) screenings for every public school student, with results sent to parents in a confidential report;
- ▶ Creation of a Nutrition and Physical Activity Advisory Committee in every school district to implement the new standards and develop applicable local policies;
- ▶ Public reporting by school districts of the expenditures and revenue from district vending contracts to the public; and
- ▶ Prohibition of student access to food and beverage vending machines in all Arkansas elementary schools.

The idea for developing a state law to combat childhood obesity originated in 2002 with support from several key legislators, officials at the Arkansas Department of Health (now known as the Arkansas Department of Health and Human Services, Division of Health) and the Arkansas Department of Education (ADE). Arkansas Governor Mike Huckabee signed Act 1220 into law in April of 2003.

This report provides data from the third annual evaluation of Act 1220. Previous evaluation reports and more information about the Act are available online at: [www.uams.edu/coph/reports](http://www.uams.edu/coph/reports). See *Establishing a Baseline to Evaluate Act 1220 of 2003, An Act of the Arkansas General Assembly to Combat Childhood Obesity (2004)* and *Year Two Evaluation: Arkansas Act 1220 of 2003 to Combat Childhood Obesity (2005)*.

## Background of the BMI Initiative

One of the most innovative and controversial elements of Act 1220 was the requirement that schools measure and confidentially report BMI data for every child. The purpose of the BMI initiative is to inform parents of their children's weight status, educate them about the related health risks and increase parents' awareness of the problem of childhood obesity. The BMI data also provide a reliable measure of the baseline incidence of obesity in Arkansas children, as well as a way to measure the impact of policy changes

on the rates of obesity and overweight among children.

The BMI screenings soon became the most controversial piece of the law, largely because the press and parents misunderstood how BMI would be measured, and because the law originally called for BMIs to be included on report cards. Legislators responded quickly and changed the wording of the law in the fall of 2003 to specify that schools would send parents a confidential child health report.

The health report parents receive summarizes their child's BMI data. If the BMI screening determines that the child is likely to be "overweight" or "at risk of overweight," the letter recommends that families contact their pediatricians or other health care providers to confirm the assessment and discuss options for dealing with their child's weight concerns. It also suggests tips for healthy eating and ways to increase physical activity. Similarly tailored recommendations are offered to parents of "underweight" and "normal-weight" children.



# Act 1220 in Year Three: Broader Context for Implementation

## **Adjusting to a Changing Environment**

During the third year of implementation of Act 1220, new regulations, recommendations and initiatives affecting school nutrition policies were introduced by state and federal authorities. Through a coordinated effort, the Arkansas State Board of Education, the CHAC and other key stakeholders worked with schools to help them understand and satisfy the new state and federal requirements set forth.

Additionally, third-year activities involved a shift in focus for the CHAC—as they moved away from making more recommendations and concentrated on helping schools implement Act 1220 regulations. The CHAC also considered new guidelines for reporting vending contracts and facilitated hiring of community health promotion specialists.

Significant improvements to the BMI data collection system also were achieved during the third year. New collection methods, including the use of Web-based technologies and electronic record keeping, helped to advance the data analysis and reporting of BMI results to parents.

## **Coordinating Federal and State Laws**

During the 2005–2006 school year, and in accordance with Act 1220, the Arkansas State Board of Education approved “Rules Governing the Nutrition and Physical Activity Standards in Arkansas Public Schools,” based on recommendations submitted by the CHAC. At the same time, schools also were considering how to meet the requirements set forth by the Child Nutrition Act, the National School Lunch Act and the No Child Left Behind Act. Each of these included requirements for school policies on child nutrition that had to be implemented and coordinated with mandates outlined in Act 1220.

The Child Nutrition and WIC Reauthorization Act of 2004 requires each school receiving federal funds for school meal programs to develop a wellness policy by the beginning of school year 2006–2007. Given that the National School Lunch program is an important source of federal funding for schools, it was important for schools to meet these requirements. Coordinating these similar but not identical requirements with the mandates of Act 1220 became a formidable challenge for schools.

## **Consolidating and Streamlining Efforts**

The ADE met the challenge of negotiating multiple federal and state requirements on nutrition with a creative plan. To make it easier for schools to satisfy the requirements without duplicated effort and documentation, the ADE consolidated the regulations associated with the federal and state laws into a single checklist.



The checklist would make it possible for schools and districts to satisfy simultaneously the requirements of the various laws.

For example, the checklist suggested that the Wellness Committee required by the Child Nutrition Act and the Nutrition and Physical Activity Advisory Committee required by Act 1220 could be combined into a single committee. That committee would be charged with helping the school and district: (1) complete the School Health Index, as mandated by state regulations; and (2) use the data from the School Health Index and the BMI assessments to identify areas of deficiency, develop a wellness policy and plan interventions aimed at improving child health and creating a healthy school environment, as required by the Child Nutrition Act.

The ADE also proposed a strategy that would help schools simultaneously satisfy regulations set forth by the No Child Left Behind Act and Act 1220. In response to the No Child Left Behind Act, the ADE developed the Arkansas Consolidated School Improvement Plan (ACSIP) model. The model requires each public school and district in Arkansas to develop a school improvement plan that serves as an application for all federal programs administered under the No Child Left Behind Act. The ADE checklist required that schools include a wellness policy as part of that improvement plan, which would simultaneously satisfy the requirements set forth in the Child Nutrition Act and Act 1220.

The federal funding that is contingent on the ADE's approval of the wellness policy and the school improvement plan gives schools and districts an extra incentive to comply with Act 1220 regulations. By October 1, 2006, every public school district in Arkansas had submitted their wellness policy to the ADE.

### **Other Significant Efforts to Address Childhood Obesity in 2005–2006**

In addition to the various state and federal efforts to improve school nutrition policies, the William J. Clinton Foundation and the American Heart Association announced a joint initiative to address the childhood obesity epidemic—the Alliance for a Healthier Generation. Arkansas Governor Mike Huckabee was appointed co-chair of the initiative, which kicked off its Healthy Schools Program in February 2006 with funding from the Robert Wood Johnson Foundation.

The initiative sets national standards for nutrition, physical activity, health education and staff wellness. It also offers participating schools hands-on support to help them implement programs and rewards participating schools for meeting Healthy School standards. The pilot program consists of 230 schools in 13 states, including five Arkansas schools, and the Alliance anticipates expanding in future years to work with even more schools throughout the country.

In May 2006, the Alliance released school beverage guidelines in collaboration with the American Beverage Association and other industry leaders. In July, they



released standards addressing foods offered through food service programs and competitive sales, physical activity, physical education, health education and staff wellness programs. The CHAC immediately undertook a comparison of the Alliance standards with Act 1220 regulations, which affect all schools in Arkansas.

While both Alliance and Act 1220 guidelines aim to reduce children’s consumption of foods of minimal nutritional value, the Act 1220 regulations were more stringent in terms of access to competitive foods and beverages. Act 1220 prohibits access to all such foods in elementary schools and prohibits competitive food and beverage sales until 30 minutes after the last lunch period in secondary schools. The Alliance guidelines only restrict food and beverage options that may be available to students and impose no time restrictions. Though only a small number of Arkansas schools are directly involved in the Alliance’s pilot project, the roles of former President Clinton and Governor Huckabee in the Alliance and their close ties to Arkansas have generated a great deal of discussion for the Alliance’s standards in the state.

The issue of vending access has been and will likely continue to be a source of concern for many schools and vendors. For example, according to Act 1220, Arkansas schools are not required to comply with its standards until their contracts end or are renegotiated. Many Arkansas schools have multi-year vending contracts and would prefer not to renegotiate until these contracts expire.

In contrast, vendors participating in the Alliance beverage industry agreement volunteered to renegotiate school contracts not in compliance with the Alliance standards. The Alliance guidelines are voluntary, although the industry promised that its vendors would comply and seemed to imply that this compliance would be immediate. Another concern is that schools are faced with losing their contracts altogether as vendors opt to move their machines to non-school sites with no restrictions. Several informants interviewed as part of the Year Three Act 1220 Evaluation speculated that policy-makers would be pressured by various constituencies to



relieve the pressure on schools and vendors around the vending issue by formally adopting the Alliance guidelines concerning machine contents and overriding the ADE regulation restricting sales to the afternoon hours.



## CHAC: Year Three Brings Progress and a Shift in Focus

Moving into the third year of implementation, the CHAC accepted feedback from educators who advised that it was “not the time for more recommendations.”

According to officials, the committee needed to give schools time to concentrate on meeting the new requirements and evaluate the implementation from the school district’s perspective before pursuing another round of recommendations. Thus, in 2005–2006, the committee shifted its focus to other elements in the state’s battle against childhood obesity, including:

### **(1) Providing support to schools as they worked to implement Act 1220 regulations.**

Some committee members considered their most important role to be developing systems to help schools implement the nutrition and physical activity standards required by Act 1220. After considering a number of models, the committee recommended the CDC’s Coordinated School Health Program (CSHP) model to help promote the standards at the local school level. The committee developed a position statement noting that its functions are linked to at least five of the CSHP’s eight components.

CHAC members acknowledged that promoting a broader, more comprehensive model, along with endorsing the absorption of the existing Nutrition and Physical Activity Advisory Committees into the Wellness Committee, introduced the potential for a shift away from a specific focus on nutrition and physical activity and toward general wellness. The broader focus could allow school officials and wellness committees to focus on less controversial health concerns, such as mental health and behavior or dental needs. However, as one CHAC member remarked, “There is always that risk, but it is a risk well worth it, if we can get buy-in from educators regarding child health.”

## A Coordinated School Health Program Model

The CDC’s Coordinated School Health Program (CSHP) model consists of eight interactive components that require the involvement of families, health care workers, the media and community-based organizations. The CSHP model recognizes that schools provide a critical setting for addressing the serious health problems faced by young people today, and that improving students’ health and capacity to learn necessitates a

comprehensive, multi-component approach. The eight components of a CSHP include:

1. Family and community involvement\*
2. Health education\*
3. Physical education\*
4. Health services
5. Nutrition services\*

6. Counseling, psychological and social services
7. Healthy school environment\*
8. Health promotion for staff

*\* Components that are consistent with CHAC committee functions*

More information on the CDC’s CSHP model is available online at: [www.cdc.gov/HealthyYouth/CSHP](http://www.cdc.gov/HealthyYouth/CSHP)



**(2) Developing templates for the public reporting of revenues and expenditures from competitive food and beverage contracts.**

Schools are required by Act 1220 to disclose the amount and source of funds received and expenditures made from vending contracts in their annual report to the community. However, the Act does not require a specific reporting format, nor does it mandate that reports be submitted to or compiled by the ADE. Committee members suggested that in future years the CHAC may consider issuing new recommendations to guide the public reporting of school vending revenues and expenditures.

**(3) Ensuring that the community health promotion specialists were hired.**

Act 1220 created key state-level positions for community health promotion personnel to develop, implement, support and evaluate nutrition and physical activity programs in Arkansas schools. The community health promotion specialists are an invaluable resource to schools and wellness committees, providing training and support for the School Health Index, BMI measurements and a myriad of other nutrition and physical activity resources. The committee helped to facilitate the hiring of seven specialists and helped to ensure that they were housed together as a team.

**The BMI Assessments: New Developments**

The BMI screening tool became more efficient in the third year. In 2005–2006, the Arkansas Center for Health Improvement (ACHI) pilot tested a new Web-based BMI data entry program. The program required only that schools have a standard desktop computer with Internet access. Sixteen pilot schools entered BMI data for more than 130,000 students. Many schools set up computers near their measuring stations, which eliminated paper records because data were directly entered into the system. After ACHI processed the data, schools were able to access and print their child health reports, mailing labels and summary reports via the Web-based system. In September 2006, the ADE Commissioner announced that the fourth year’s BMI measurements will be reported electronically through the Web-based system for all Arkansas schools. ACHI also tested the use of hand-held devices to record BMI data. These developments will likely make BMI data collection more efficient and accurate in the coming years.





# The Impact of Act 1220 in Year Three

## Highlights of Key Findings

Act 1220 has resulted in a number of significant changes in school environments across the state. Policies regarding physical activity, the nutritional quality of food and beverages offered, vending access, fundraising and school-related activities all have been affected. As part of this evaluation, data has been collected from parents, students and educators regarding vending purchasing patterns, eating habits and physical activity patterns at home, BMI assessments and personal beliefs regarding weight and health.

In the following section, we present key findings from administrators at the district and school level, parents, students and key stakeholders interviewed during the third-year evaluation.

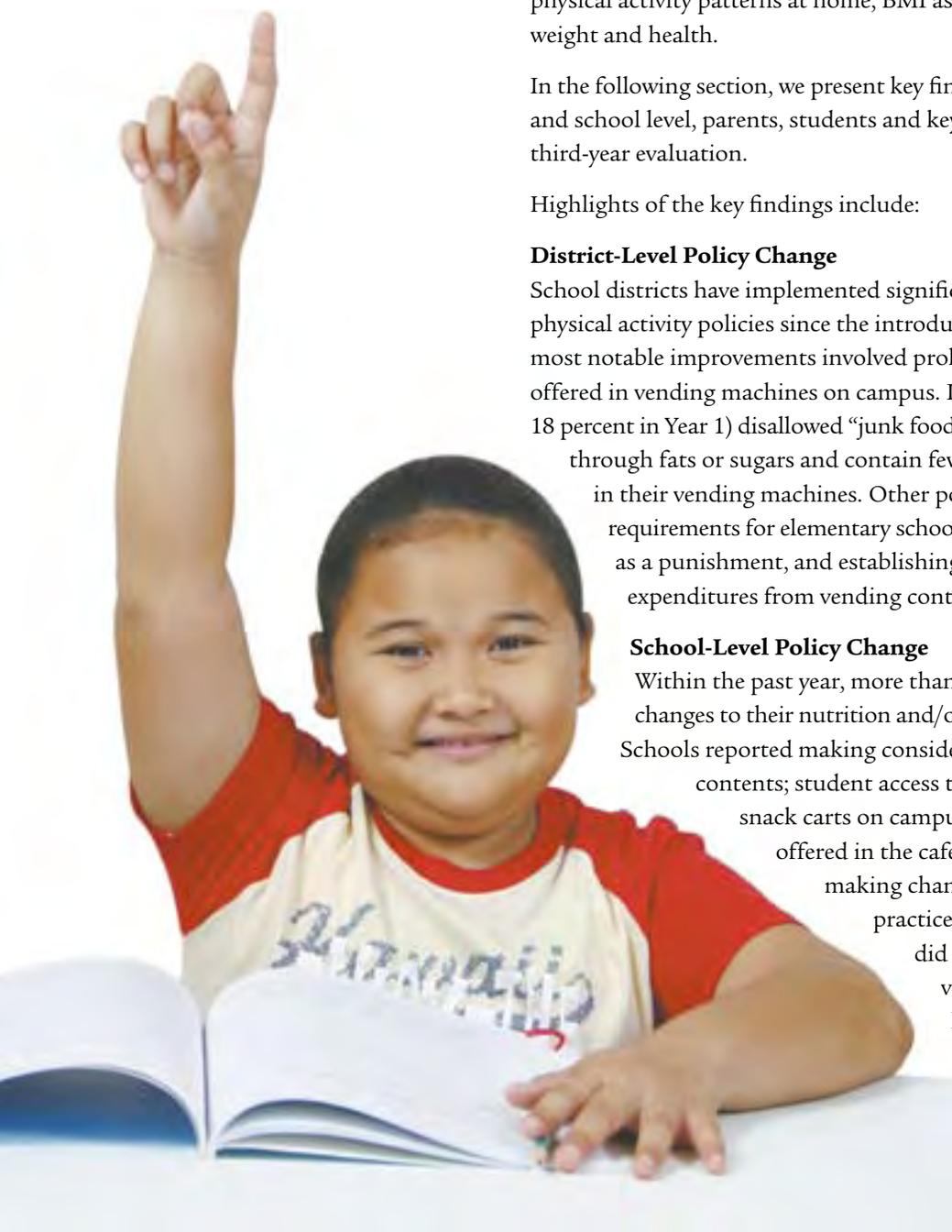
Highlights of the key findings include:

### District-Level Policy Change

School districts have implemented significant changes to their nutrition and physical activity policies since the introduction of Act 1220 in 2003. One of the most notable improvements involved prohibiting less healthy foods from being offered in vending machines on campus. In Year 3, 53 percent of districts (up from 18 percent in Year 1) disallowed “junk foods”—those which provide calories primarily through fats or sugars and contain few vitamins or minerals—from being sold in their vending machines. Other policy changes involved changing recess requirements for elementary schools, prohibiting the use of physical activity as a punishment, and establishing practices for reporting revenues and expenditures from vending contracts.

### School-Level Policy Change

Within the past year, more than half of the reporting schools made changes to their nutrition and/or physical education policies or practices. Schools reported making considerable changes to vending machine contents; student access to vending machines, snack bars and snack carts on campus; and to food and beverage options offered in the cafeteria and at school events—as well as making changes to fundraising and physical activity practices. It is important to note that schools did not experience a substantial decline in vending revenues as a result of offering healthier options.





### **BMI Assessments**

In Year 3, we found that both parents and schools continued to be more accepting of the BMI measurement and reporting process. More superintendents and principals reported having no contact from parents regarding the measurements, and schools indicated that they had fewer problems managing the overall process. There also were fewer concerns about maintaining confidentiality of the reports. Lastly, we found no evidence of increased teasing, unhealthy diet behaviors or excessive concern about weight among students as a result of the BMI assessments over the past three years.

### **Parental Knowledge, Attitudes and Beliefs**

Parents reported an increased awareness of the association between childhood obesity and health problems such as diabetes, hypertension, asthma and high cholesterol, and more parents also reported believing that overweight children were likely to become overweight adults. In addition, the majority of parents continue to believe that vending machines should not be located in middle and high schools. There also has been a significant increase in the percentage of parents who believe that vending machines should offer only healthy items. Despite these changes, data indicated no significant changes in family nutrition behaviors or physical activity patterns at home.

### **Students' Vending Machine Purchases**

Over the past three years, students have reported considerable changes in their vending machine purchase patterns. Data show that student access to vending machines at school has decreased and that students have made fewer food and beverage purchases from those machines. While there has been no reduction in students' overall consumption of soft drinks, which is one to two soft drinks per day, students have reported purchasing more healthy drinks, such as water and other unsweetened beverages.

### **Interviews with Key Informants**

In addition to analyzing district, school, parent and student data, we also interviewed superintendents, principals, nurses, health promotion specialists and committee members as part of the evaluation. Informants provided valuable insight to the many changes taking place within the school environment during 2005–2006. They provided significant details, including fewer concerns about the BMI assessment process, less anticipation of revenue loss due to vending machine content changes and overwhelming support for continued improvements to nutrition standards.

Following this summary of key findings, the complete 2005–2006 data set is presented and compared with data collected during the previous two years.



## Key Findings at the District Level

### School Districts Implement New Policies

School districts examined their policies related to nutrition and physical activity and made a number of significant changes within the past two years, which are highlighted in Table 1:

*In 2005–2006, 50 percent of school districts prohibited junk foods from being offered in school stores and/or snack bars—an increase from 13 percent in 2003–2004.*

**Table 1. Summary of school district policies**

District Policies	2004	2005	2006
Requiring 30 or more minutes of recess for elementary school students	30%	32%	42%
Prohibiting the use of physical activity as a punishment			
In physical education classes	25%	28%	39%
In other classes	32%	31%	44%
Prohibiting “junk foods” (foods that provide calories primarily through fats or sugars and contain few vitamins or minerals) from being offered in:			
Student parties	2%	5%	21%
After-school programs	16%	15%	30%
School stores and/or snack bars	13%	18%	50%
Vending machines	18%	27%	53%
Concession stands	2%	7%	12%

### Reporting of Vending Revenues and Expenditures

Although some superintendents were unclear about the requirement for public reporting of revenues and expenditures from vending contracts, a majority of superintendents (84 percent) reported that this information was provided to the public within the most recent school year. Of districts that complied with reporting regulations, a majority (77 percent) indicated that they included the information in verbal reports made at school board meetings that were accessible to the public. Others indicated having reported the information via published annual reports (30 percent), an article in the local newspaper (18 percent), the school Web site (10 percent), and/or the school newsletter (5 percent).

## Key Findings at the School Level

### Schools Implement New Policies

Schools also continued to make changes during Year 3. More than half (53 percent) of reporting schools indicated that they had made changes to their nutrition and/or physical education policies or practices in the past year. Of schools that reported changes, 21 percent said they had removed the sources of competitive foods (vending machines, snack bars, school stores, a la carte lines), 18 percent said they had added healthier options to the vending machines and 14 percent had restricted the sale of particular food items. Interestingly, only 13 percent indicated they made changes



because of Act 1220 mandates, but the changes reported were in alignment with Act 1220 regulations.

**No Changes in Vending Revenue**

Survey responses suggest that there has not been a substantial decline in vending revenues for most schools as a result of offering healthier vending options. Changing vending contents has not affected the number of schools reporting small profits from vending sales. In 2003–2004, 81 percent of schools indicated that they received \$5,000 or less in vending revenue; in 2005–2006, the number of schools reporting \$5,000 or less in vending revenues remained at 81 percent. Further, an analysis comparing the shift in revenues for individual schools across the three years revealed that the majority of schools (75 to 80 percent) reported vending revenues that were at or above the previous year’s revenues, while only 20 to 25 percent of the schools reported a substantial decline. These findings should be interpreted with some caution, given that revenues are reported in categories, not in specific dollar amounts.

School reliance on vending revenues also has not changed significantly over the past year. In Year 3, 55 percent (a small decrease from 58 percent in Year 2) reported that vending revenues were important to their overall school budget, while 45 percent (a small increase from 42 percent in Year 2), indicated that those revenues were not important.

*Survey responses suggest that there has not been a substantial decline in vending revenues for most schools as a result of offering healthier vending options.*

**Student Access to Vending Machines on Campus**

Although 80 percent of the schools responding in Year 3 have vending machines on campus, the proportion of schools with such machines has dropped a small but significant amount (from 85 percent in Year 1). Among schools with vending machines on campus, student access to those machines also has changed since Year 1. For example, the percentage of students with access to vending machines after school declined from 61 percent in 2003–2004 to 31 percent in 2005–2006.

**Table 2. Summary of vending machine accessibility**

Student Vending Access at Schools with Vending Machines	2004	2005	2006
No student access	N/A	43%	50%
Student access before the school day began	28%	30%	19%
Student access in the morning before the school lunch period	10%	10%	9%
Student access during snack times	13%	13%	8%
Student access during lunch period	42%	40%	20%*
Student access in the afternoon after lunch	16%	18%	27%
Student access after school	61%	36%	31%

*\*The percentage of students with access to vending machines during the lunch period is significantly reduced from Year 1, but still high, given that new regulations restrict access to competitive foods to 30 minutes after the last lunch period.*



## Changes to Vending Machine Contents

In Year 3, the contents of food vending machines changed significantly, as shown in Table 3.

*Vending machines in Arkansas schools now offer better access to healthier foods and beverages and fewer “junk foods” and sugary sodas than they did in Year 1.*

**Table 3. Availability of food types in school vending machines**

Food Types in Vending Machines	2004	2005	2006
“Less healthy foods” (foods that provide calories primarily through fats or sugars and contain few vitamins or minerals)			
Chocolate candy	42%	47%	28%
Other candy items	45%	49%	29%
Cookies	47%	52%	36%
Crackers	44%	49%	35%
Cakes and pastries	32%	40%	23%
Chips	46%	49%	31%
Healthier food options			
Low-fat, lower sugar cookies	11%	20%	22%
Fruits and vegetables	6%	10%	13%
Low-fat crackers	12%	17%	21%
Low-fat, low-sugar cakes and pastries	8%	10%	14%
Low-fat chips	22%	40%	33%

These findings are promising and demonstrate that vending machines in Arkansas schools now offer better access to healthier foods (those with reduced amounts of fat and sugar) and fewer less healthy foods than they did in 2004, when this initiative was just beginning.

Table 4 presents similar evidence of positive changes in the contents of beverage machines.

**Table 4. Summary of school vending machine beverage contents**

Types of Vending Machine Beverages	2004	2005	2006
Less healthy beverage options			
Sodas and other sweet beverages	49%	48%	40%
Fruit-flavored drinks	46%	59%	41%
Healthier beverage options			
Skim milk	15%	23%	26%
Vegetable juice	9%	10%	11%
100% Fruit juice	33%	36%	38%
Water	49%	53%	49%



### Location of Vending Machines on Campus

The placement of vending machines on school campuses has changed since Act 1220 was introduced. Beverage machines are now most often located in the teacher or staff lounge (78 percent) and less often in areas that are accessible to students. For example, 10 percent of schools reported having beverage machines in the cafeteria (down slightly from 13 percent in Year 1), 24 percent have beverage machines in the gymnasium (down from 30 percent in Year 1) and 4 percent have beverage machines located near snack bars or in school stores (down from 9 percent in Year 1).

Similarly, among schools that have machines that dispense food items, those food vending machines are most often located in teacher and staff lounges (72 percent). Interestingly, food vending machines are now less likely to be located in school stores or near snack bars (6 percent in Year 3, compared with 14 percent in Year 1), but the frequency of food vending machine placement in other campus locations, such as in cafeterias, gymnasiums and hallways, has not changed appreciably since Year 1.

*The number of schools with a snack bar or cart on campus has declined from 22 percent in Year 1 to 9 percent in Year 3.*

### Snack Bar and Snack Cart Access

Snack bars and snack carts have become less common on school campuses since 2003–2004. When snack bars and carts are present in schools, they most often are located in the cafeteria, as reported by 39 percent of schools in 2005–2006.

**Table 5. Summary of non-machine locations of foods and beverages**

Alternative Locations of Foods and Beverages	2004	2005	2006
Schools with a snack bar or cart on campus	22%	24%	9%
Schools with a school store on campus	33%	N/A	28%
School stores offering foods or beverages for sale to students	28%	39%	10%

### Cafeteria Food and Beverage Options

An important finding of the third-year evaluation is that school cafeterias are now more likely to offer low-fat and skim-milk beverages and less likely to offer whole-milk beverages. Further, more than a third (37 percent) of schools indicated that they are modifying menus and food preparation methods in the cafeteria to reduce fat content or provide more fruits and vegetables on the menu.





*School cafeterias are now more likely to offer low-fat and skim-milk beverages and less likely to offer whole-milk beverages than they were in Year 1.*

**Table 6. Summary of types of beverages offered in school cafeteria**

Cafeteria Beverages	2004	2005	2006
Low-fat or skim-milk beverages			
White milk, low-fat	92%	94%	94%
Chocolate milk, low-fat	69%	76%	80%
White milk, skim	26%	32%	40%
Chocolate milk, skim	9%	13%	18%
Whole-milk beverages			
White milk, whole	78%	74%	57%
Chocolate milk, whole	36%	30%	23%

### Changes in Fund-raising Choices

Over the past two years, we have seen a noticeable shift away from offering foods as fund-raising items. This is in part due to changes in school rules. A majority of schools now indicate that school policies prohibit the sale of food items for fundraising by student groups (56 percent, up from 38 percent in Year 1), faculty groups (89 percent, up from 79 percent in Year 1) and parent groups (59 percent, up from 52 percent in Year 1).

### Healthy Food Options at School Activities and Events

As summarized in Table 7, an increasing number of schools have implemented policies on the types of foods that may be served at school sporting events, assemblies and other school events. In addition, an increasing number of schools now have specific policies requiring that healthy options be offered by concession stands at school events and after-school programs, during school parties and meetings attended by families and at staff meetings. More than half (60 percent) of schools reported having a policy that prohibited the use of food or food coupons as rewards, an impressive increase from 7 percent in Year 1. It is not clear, however, whether these schools had existing policies before the statewide prohibition of the use of foods and beverages as rewards for academic, classroom, or sports activities took effect. Overall, these numbers reflect a significant shift in policies and an increase in healthy food options available at school activities and events since Year 1.

**Table 7. Summary of food policies at school-sponsored events**

Event-related Policies	2004	2005	2006
Student parties	5%	8%	38%
After-school programs	11%	15%	37%
Staff meetings	3%	5%	8%
Family meetings	4%	5%	14%
Concession stands	2%	4%	11%



## Physical Activity Practices

Third-year data show that schools were less likely to change policies and practices related to physical activity than those related to food and beverages. For example, there were no significant changes in the average length of a physical education class or the proportion of schools that have certified physical education teachers teaching those classes. There was however, a significant increase in the proportion of schools that require a newly hired physical education teacher to be state-certified in physical education—92 percent, up from 87 percent in 2003–2004.

School districts also appear to be trying to promote the physical education and physical activity programs that are offered within their schools.

*Eleven percent of schools now require healthy options to be offered within concession stands at school events—up from 2 percent in 2003–2004.*

**Table 8. Summary of school district physical activity practices**

Physical Activity Practices	2004	2005	2006
Superintendents report providing families with information on PE programs	51%	54%	69%
Superintendents report meeting with parent organizations to discuss PE programs	33%	30%	42%
Superintendents report offering physical activity programs to families	13%	19%	25%
Superintendents report making indoor facilities available to the community for physical activity after school hours	N/A	78%	86%
School districts reporting outdoor physical activity facilities are made available to the community	N/A	87%	94%





## Key BMI Assessment Findings

### School Experience with BMI Assessment

During the past year, 92 percent of schools responding to our survey indicated that they had completed the required BMI assessments—down only slightly from 93 percent in Year 2. The percentage of schools reporting problems with the BMI assessments also did not change significantly—26 percent of responding schools experienced difficulties in Years 2 and 3. As shown in Table 9, the pattern of reported difficulties was also the same as observed last year.

**Table 9. Types of BMI assessment concerns, reported as percent of total number of schools**

Specific Concerns Expressed by Schools Reporting Problems with BMI Assessment:*	2005	2006
Negative feedback from parents	6%	6%
Student or parental refusal	3%	5%
Time	4%	4%
Logistics	3%	4%
Concerns about accuracy	3%	3%

\* These categories represent only the most common concerns expressed by schools and are not mutually exclusive.

*There was a significant increase in the number of superintendents and principals who reported that no parents had contacted them about the BMI measurements in Year 3.*

### Parental Comments about BMI Measurement

Parental comments concerning BMI measurements appear to have attenuated somewhat in Year 3. There was a significant increase in the number of superintendents (54 percent) and principals (65 percent) who reported that no parents had contacted them about the BMI measurements in 2005–2006—up from 34 percent and 52 percent, respectively, in the previous year. The majority of parental contacts received by superintendents and principals continue to be negative in Year 3—67 percent of contacts reported by superintendents and 72 percent of contacts reported by principals. However, the proportion of negative contacts is reduced from Year 2, when 71 percent of contacts reported by superintendents and 71 percent of contacts reported by principals were negative. Overall, both superintendents and principals reported that complaints about the BMI assessments dramatically decreased in Year 3, and the procedure has become more accepted.



## Parental Assessment of the BMI Reporting Process

Year 3 data indicate that parents are generally familiar with the BMI assessment. The majority of parents continue to report that they are comfortable receiving child health reports from the school and understand the confidentiality clause and reporting process. Of parents who reported receiving a child health report, nearly all had read at least part of the report, and most found it to be helpful.

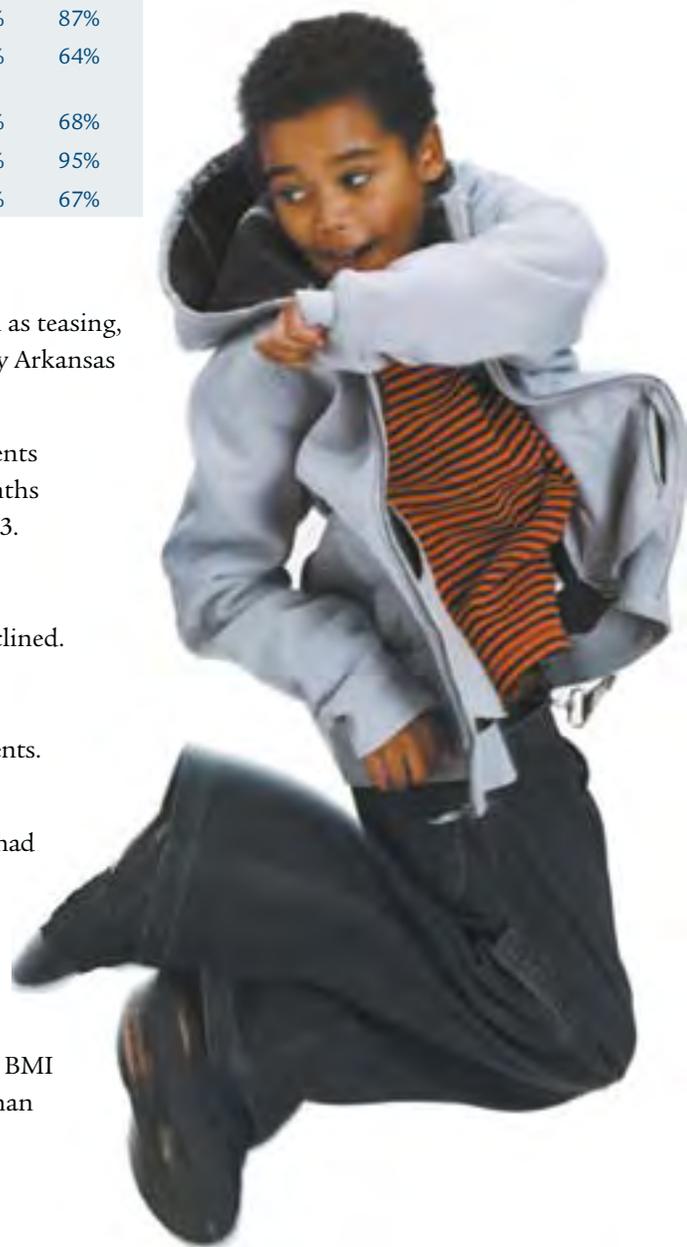
**Table 10. Parental knowledge and attitudes toward BMI assessment**

Knowledge and Attitudes	2004	2005	2006
Aware of school BMI measurements	75%	83%	87%
Not at all concerned about classmates finding out BMI measurements	N/A	63%	64%
Comfortable getting BMI report from school	70%	67%	68%
Read some or all of BMI report	N/A	95%	95%
Found report helpful	N/A	67%	67%

## Consequences of the BMI Assessment

None of the feared negative consequences of BMI measurements, such as teasing, misuse of diet pills or excessive concern about weight, were reported by Arkansas parents or students. In fact, data indicate that:

- Parents have not put their children on diets. The percentage of parents reporting that they put their child on a diet within the past six months has actually decreased from 9 percent in Year 1 to 6 percent in Year 3.
- Student concern about weight has not increased.
- Reported embarrassment caused by the BMI measurements has declined.
- Student comfort with the BMI report from school has increased.
- Students have not increased their use of diet pills or herbal supplements.
- Students have not gone on diets at a greater rate than before the BMI measurements. In fact, the percentage of students reporting that they had started a diet dropped slightly, from 29 percent in Year 1 to 26 percent in Year 3.
- Students have not skipped meals with any greater frequency.
- Teasing has not increased. Students report that they have not been teased because of their weight at a greater rate than before the BMI measurements. In fact, fewer teens reported weight-based teasing than in previous years.





*Year 3 data indicate that none of the feared negative consequences of BMI measurement have occurred among students in Arkansas.*

**Table 11. Parent and student reports of adverse consequences of BMI measurements**

Consequences of BMI Measurements	2004	2005	2006
Parent reports of adverse consequences			
Put child on diet	9%	6%	6%
Took child to weight loss clinic	<1%	1%	<1%
Gave child diet pills	<1%	<1%	1%
Student reports of adverse consequences			
Concerned about weight	23%	29%	25%
Embarrassed by measurements	N/A	12%	7%
Not at all comfortable with BMI report	29%	22%	15%
Teasing because of weight	12%	9%	6%
Teasing for other reasons	21%	20%	19%
Gone on a diet	29%	23%	26%
For weight loss	N/A	60%	41%
To improve health	N/A	14%	22%
Took diet pills	6%	5%	2%
Increased physical activity*	59%	63%	62%

\* An excessive increase in physical activity to reduce body weight.

### Reporting BMI Data

In terms of reporting, the majority of school districts (70 percent) continued to mail child health reports to parents. Another 15 percent (up from 6 percent in Year 2) distributed the reports during parent/teacher conferences, 10 percent continued to send the reports home with the child, and 4 percent (up from 2 percent in Year 2) asked parents to pick up the reports at the school office or from the school nurse. These reports suggest that schools are finding ways to maintain the confidentiality of the BMI information if they choose not to mail the letters to parents.



## Other Key Findings from Parents

### Parental Knowledge, Attitudes and Beliefs

Third-year data show that parents are now more aware of the health problems associated with childhood obesity. In 2005–2006, parents were more likely to associate health problems, including hypertension, diabetes and high cholesterol, with childhood obesity than they were in previous years. More parents also reported believing that overweight children were likely to become overweight adults.

**Table 12. Parental knowledge/beliefs about childhood obesity**

Knowledge/Belief	2004	2005	2006
Awareness of health problems associated with childhood obesity	94%	95%	95%
High blood pressure	22%	24%	26%
Diabetes	66%	73%	79%
Asthma	7%	12%	11%
High cholesterol	5%	5%	6%
Belief that overweight children are more likely to become overweight adults	94%	96%	97%

*Although parental awareness of the health problems associated with childhood obesity has increased since 2003–2004, parents have not reported significant changes in family nutrition or physical activity patterns at home.*

### Changes in Nutrition and Physical Activity Patterns at Home

Although parents reported a heightened awareness of the health risks associated with childhood obesity, they did not report significant changes in family nutrition patterns. Over the past three years, there have been no significant changes in parents’ reporting of efforts to change family diets or limit intake of chips and sodas, modification of recipes during meal preparation, eating out (either in fast food or other restaurants), or eating meals while watching television.

Parents were slightly more likely to report attempts to limit the amount of time their children spend watching television or playing video games. Of parents who reported limiting viewing time, a large percentage indicated that they were doing so in order to increase their child’s level of physical activity. However, these changes were not statistically significant, and there were no other indications that parents were trying to increase the amount of exercise they or their families engage in.



**Table 13. Nutrition and physical activity changes at home**

Behaviors	2004	2005	2006
Percent of parents limiting TV and video game time	73%	71%	75%
Percent of parents reducing TV time to increase physical activity	N/A	33%	37%
Percent of parents trying to change family diet to healthier eating pattern	63%	65%	64%
Percent of parents trying to limit family intake of chips, sodas, sweets	77%	80%	79%
Average number of times per week parent modified recipes to make them healthier	2.3	N/A	2.5
Average number of times family ate in fast food restaurant last month	5.9	N/A	6.4
Average number of times per week family eats evening meal in front of TV	2.7	N/A	3.0
Average number of times per week family eats evening meal together	4.9	N/A	5.0

*Since the introduction of Act 1220, the majority of parents continue to believe that vending machines should not be located in middle and high schools, and there has been a significant increase in the percentage of parents who believe that vending machines should offer only healthy items.*

### Parent Opinions Concerning Vending Machines in Schools

The majority of parents continue to believe that middle and high schools should not have vending machines on campus. The percentage of parents expressing this view rose slightly from 58 percent in 2003–2004 to 61 percent in 2005–2006. Some parents have also changed their opinion about the contents of vending machines—in 2005–2006, parents were significantly more likely to report that vending machines in schools should offer only healthy options for purchase.

**Table 14. Parental beliefs about school vending machines**

Beliefs	2004	2005	2006
Believe middle and high schools should not have vending machines	58%	61%	61%
Vending machines should offer only healthy items	51%	53%	61%
Vending machines should offer healthy and less healthy options so students can decide	43%	38%	35%

### Key Findings from Students

#### Students' Vending Machine Access and Purchases

In Year 3, students reported significant changes in their school environments and vending purchases. They were less likely to report having food and beverage vending machines available to them at school, and there was also a notable decline in reported purchases from both food and beverage vending machines.



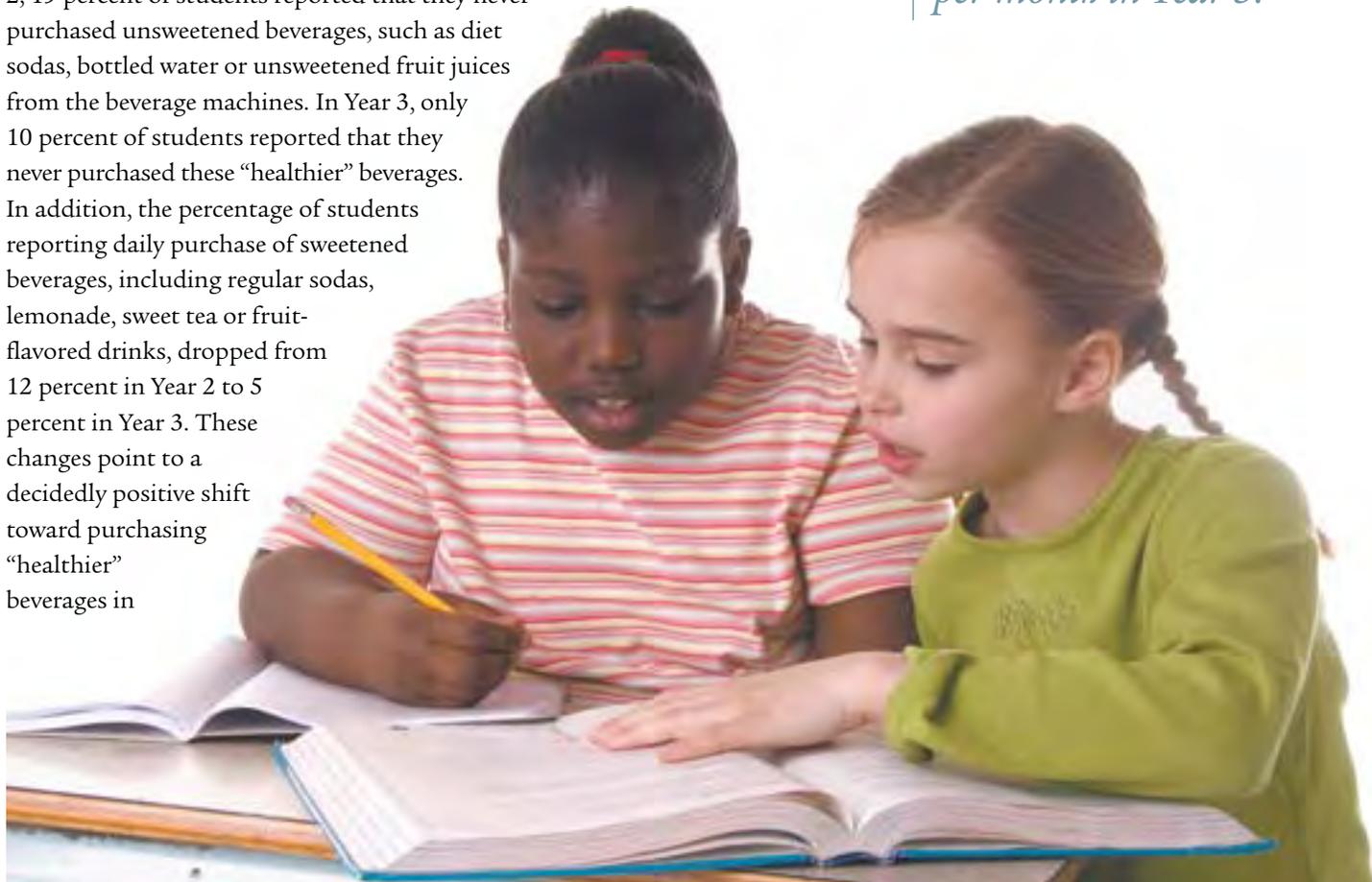
**Table 15. Student reports of vending machine access and purchase patterns**

Access or Purchase Pattern	2004	2005	2006
Vending machine available at school			
Food machine	64%	58%	39%
Beverage machine	97%	94%	84%
Student purchases from food machines			
Average number of purchases in month	10.3	N/A	2.9
Student made no purchases in past month	28%	33%	59%
Student purchased every day in past month	8%	5%	4%
Student purchases from beverage machines			
Average number of purchases in month	11.6	N/A	5.4
Student made no purchases in past month	22%	29%	37%
Student purchased every day in past month	18%	11%	7%

*The average number of student purchases from food vending machines declined from 10 per month in Year 1 to three per month in Year 3. Average student beverage-vending purchases declined from 12 per month in Year 1 to five per month in Year 3.*

### Students' Food and Beverage Choices

Year 3 data indicate some important changes in students' beverage choices. In Year 2, 19 percent of students reported that they never purchased unsweetened beverages, such as diet sodas, bottled water or unsweetened fruit juices from the beverage machines. In Year 3, only 10 percent of students reported that they never purchased these "healthier" beverages. In addition, the percentage of students reporting daily purchase of sweetened beverages, including regular sodas, lemonade, sweet tea or fruit-flavored drinks, dropped from 12 percent in Year 2 to 5 percent in Year 3. These changes point to a decidedly positive shift toward purchasing "healthier" beverages in





*Data indicate that students are purchasing healthier beverages rather than sugary sodas, but show no significant changes in fruit, vegetable or milk consumption.*

schools. On average, students reported consuming one to two soft drinks per day—that data remained constant across all three years. Also, students did not report significant changes in the number of servings of fruits, vegetables or milk they consumed.

### **Students' Physical Activity Patterns**

Students did not report significant changes regarding time spent in moderate or strenuous physical activity. However, in Year 3, they were much less likely to report participating in a physical education class three or more days per week. In 2003–2004, 84 percent of students reported participating in physical education class three or more days per week. In 2005–2006 that number declined to 61 percent. On average, students also reported participating in fewer physical education classes each week—1.4 days per week in Year 3, which was down from 3.4 days per week in Year 1. Given that physical education requirements vary among elementary, middle and high school students, continued monitoring and analysis of participation in physical education classes will be conducted to explain the decrease reported by students in Year 3.

### **Key Findings from Informant Interviews**

As part of the third-year evaluation, interviews were conducted with key informants. During 2005–2006, evaluators conducted personal telephone interviews with 16 principals, 17 superintendents, 20 public school nurses, 20 Nutrition and Physical Activity Advisory Committee chairpersons, five community health nurses and four community health promotion specialists to provide insight into how the schools perceive Act 1220 and how they are integrating its components. Additionally, we hoped to better understand stakeholders' needs, concerns and solutions to challenges regarding the implementation of Act 1220 and the subsequent changes taking place in the school environment. Several themes emerged from these interviews, including:

#### **(1) Fewer Concerns Expressed About BMI Screenings**

Although some concerns remain, a number of superintendents, principals and school nurses indicated that BMI measurements have become more routine in the schools and generate fewer challenges than in previous years. Principals indicated that parents' negative reactions had dissipated, except for a few vocal opponents. While this finding may seem to contradict third-year data revealing that the most common problem associated with BMI assessments was negative parental feedback, informants agreed that the percentage of parents who contacted them to complain about BMI measurements dramatically decreased from the previous year and that the procedure has become more accepted.



Few, if any, continuing barriers to BMI screenings were reported in the interviews, and several principals and superintendents noted that they felt more prepared to deal with challenges now than in the past. As noted by one informant, “...the BMI issues are a moot point now, with schools settling in and integrating that activity in their annual set of health screening interactions.” However, school nurses continue to express concern about the additional burden that is placed on them by the requirement.

### **(2) No Loss of Revenue**

Most principals and several superintendents indicated that they anticipated no loss of revenue due to the mandated changes to vending machine contents, noting that student purchasing patterns were more influenced by the location and access times than the specific vending contents. This represents a significant change from the key informant interviews in the previous year, when many superintendents, principals and Nutrition and Physical Activity Advisory Committee members expressed concern about loss of vending revenue. While some of this year’s informants anticipated large reductions in revenue if vending machines were banned totally, most indicated that vending revenue was insignificant compared to the overall budget. Additionally, some superintendents expressed concern about schools and districts being bound by multi-year vending contracts and not being able to make desired changes.



### **(3) Support for Improved Nutrition Standards**

Informants overwhelmingly endorsed continuing efforts to improve nutrition within the schools. Superintendents, principals, school nurses and others all noted the importance of making healthy foods available in school. Several informants expressed significant concerns about the costs associated with improving food options in schools. For instance, some were concerned with the cost of upgrading or adding equipment in school cafeterias—such as ovens to replace fryers and refrigerators to store fresh foods—and with changing food-preparation techniques. Others noted that already cramped school kitchens would not be able to accommodate new equipment.



#### **(4) Concern that Act 1220 Continues to be an Unfunded Mandate**

Superintendents were particularly vocal about their concern that Act 1220 is an unfunded mandate that was forced on schools by the legislature. Common concerns included: time taken away from academic instruction by BMI measurement and physical activity requirements; the cost involved in implementing physical education and physical activity mandates; and anticipated loss of revenue because of vending changes. Most superintendents, however, supported moving forward with implementation of the Act and advocated for the allocation of additional state revenues in order to do so successfully.

#### **(5) Concerns About Physical Education Requirements**

While most informants acknowledged the important role schools play in supporting and encouraging regular physical activity, there was substantial apprehension about the burden of complying with new physical education requirements. Concerns about the time taken away from academic instruction and the cost of hiring additional personnel to meet the adult-to-student ratio requirements were voiced frequently. Many informants felt that physical activity should be integrated into the regular curriculum for children of all ages, but they were not able to offer solutions for accomplishing that proposal.

#### **(6) Need for Increased Parental Education and Involvement**

A sentiment repeated throughout the interviews was the importance of parental involvement and the need for increased education of parents to achieve the goals of Act 1220. Many informants expressed concern that the efforts of schools would be virtually ineffective without support from families, both for school initiatives and within the home. Frequently, informants commented that parental education and support were critical to their efforts. As one superintendent noted, “Hopefully, they’ll do their part at the house and we’ll do our part at the school, and we can prevent some obesity.”

Most informants also recognized that schools making the most significant changes were those with strong, empowered local wellness committees and those who found local champions for nutrition and health issues. There was nearly universal recognition of the need for grassroots community involvement and opportunities for students, families, physicians and other community leaders to participate and help promote healthier nutrition and physical activity choices in schools and homes.





**(7) A Need for Role Models Among School Personnel, Students and Parents**

Most informants recognized the importance of parents, teachers and staff as role models for positive health behaviors. Several recommended staff wellness policies and programs to reinforce the message within the schools. Wellness Committee members, in particular, expressed concerns that: (1) staff lounges continue to have vending machines that do not meet the standards set for students; (2) teachers and parents bring unhealthy foods into the schools; and (3) parents sometimes disregard the rules concerning foods in the classrooms and include unhealthy items in student lunches. Informants did not support additional regulations; rather, they would like to see school personnel, student leaders and parents step up voluntarily as healthy role models. One superintendent noted: “It’s about leadership and ... supporting those [regulations]—not just being compliant.”

**(8) Concern Over Enforcement and Compliance**

A number of informants expressed the need for additional monitoring and enforcement. Some stressed the need to enforce current regulations and not to develop additional nutrition requirements. Most informants acknowledged that there are schools and districts not in compliance with requirements to measure BMI, report vending revenues or change vending contents. There was particular concern about the inconsistency with which districts publicly report their vending revenues and expenditures.

**(9) A Need to Continue to Support Act 1220**

Many informants were concerned that opponents could jeopardize the progress made so far in creating healthier school environments by advocating for a repeal or dilution of the Act in the 2007 Regular Legislative Session. A number of informants were confident that in due time, each component of the legislation, particularly the local advisory committees, would ultimately be effective in reducing childhood obesity in Arkansas. Most informants were against the imposition of additional regulations or changes at this time, recommending instead that schools be given a chance to adapt to the new regulations and consider the school-specific policies recommended by local wellness committees.



### **(10) Solutions to Overcoming Barriers and Promoting Positive Change**

When asked to identify strategies for overcoming barriers and promoting healthy changes in school environments, informants shared many promising ideas. Those mentioned most frequently included:

- Identifying and promoting model programs in schools;
- Creating more opportunities for wellness committees to share ideas, programs and successes;
- Greater utilization of the community health promotion specialists;
- Greater utilization of the resources available within the ADE;
- Creative scheduling, including creating more class periods so that 30 minutes of physical activity can be integrated into the school day;
- Media campaigns to promote healthy living;
- Requiring more physical education credits;
- Wellness programs for students, families and school personnel; and
- Regulating lunches brought from home.

One of the more surprising comments was the recommendation from several superintendents that consideration be given to lengthening the school day to accommodate the components of Act 1220—even though this is an expensive option for schools. In addition, a number of informants recommended that legislators consider additional funding to support the changes necessary in school cafeterias, the hiring of additional physical education staff, and the expenses associated with BMI measurement and reporting.

Overall, the observations and insights shared by key stakeholders during these third-year evaluation interviews were overwhelmingly supportive of Act 1220. Superintendents, principals, school nurses and others support the changes fostered by the Act that are helping to create healthier school environments. The informants we interviewed are invested in implementing new policies and want to help make Act 1220 a success. They believe it is critical to reducing the rate of childhood obesity in Arkansas.

# Conclusion

*As a result of Act 1220*, as well as the federal mandates set forth in the Child Nutrition and WIC Reauthorization Act of 2004, the National School Lunch Act and the No Child Left Behind Act, school personnel, state health officials and legislators are collaborating to make important changes to public schools throughout Arkansas. In many cases, these changes make it easier for students to make healthy choices at school. Such efforts also communicate an important message to parents and students—that schools are committed to improving the health of students and families.

Three years after the passage of Act 1220, there have been some noteworthy changes. For instance, there has been a continued acceptance of the BMI measurement and reporting process by schools, parents and students. In 2005–2006, school administrators reported feeling more comfortable and experiencing fewer problems with both measurement and the overall process. Parents and students also expressed fewer concerns about BMI confidentiality and reports. Although there continue to be concerns about possible unintended consequences for students, we found no evidence that BMI measurement and reporting caused increased teasing, unhealthy diet behaviors or excessive concern about weight.

The most striking evidence of behavior change among students was in data showing changes in vending machine purchasing patterns over the past three years. In 2005–2006, students reported that access to vending machines in schools had been restricted and that they made fewer food and beverage purchases from those machines. This may be in part due to regulations that now restrict access to vending machines until 30 minutes after the last lunch period. While more students reported they were purchasing healthier vending options, such as water and other unsweetened beverages, there was no reduction in students' overall consumption of soft drinks. It is important to note that, despite the decline in school vending machine purchases, third-year data did not show a substantial reduction in reported revenues for most schools.

Since the introduction of Act 1220, parental awareness of the health risks associated with childhood obesity has increased. Just as important, parents' ability to accurately identify the weight status of their children also has increased.<sup>5</sup> Evidence of significant changes in family and student behaviors related to physical activity





and nutrition is, however, still limited. Although we have heard many stories of families making significant lifestyle changes, there is little evidence to show that families are increasing their physical activity levels, changing their diets or modifying their food-preparation methods. Further analyses are in process to determine whether some subgroups of our state’s population are making more changes than others.

In addition to supporting this evaluation project, the Robert Wood Johnson Foundation also funded a separate effort through the Arkansas Center for Health Improvement (ACHI) to analyze BMI data collected from Arkansas public school students. Findings from ACHI suggest that, three years after the passage of Act 1220, Arkansas has succeeded in halting the progression of the obesity epidemic among public school children. Specifically, the percentage of students classified as

“overweight” decreased slightly from 20.9 percent during 2003–2004 to 20.4 percent in 2005–2006. Data also show that the percentage of students “at risk of being overweight” declined slightly over the same period from 17.2 percent to 17.1 percent.<sup>3</sup>



Although we have observed significant progress in Arkansas, additional efforts are needed to address and prevent childhood obesity statewide. As schools progress with policy implementation and adapt to the changes mandated by Act 1220 and federal legislation, further assessment is needed to determine how to best support, refine and measure the impact of efforts

in Arkansas. Continued evaluation also would help to inform other states that are considering taking a similarly comprehensive approach to combating childhood obesity.

Over the next few years, we may learn that a school-based intervention alone is not enough to effect broad-scale changes in eating behaviors and physical activity levels among Arkansas’ students and families. If this is the case, continued analysis would help inform future decisions regarding possible programming to advance the involvement of communities and families. We look forward to monitoring, evaluating and reporting on Act 1220 initiatives in the coming years, with the ultimate goal of improving health outcomes for all Arkansans, especially our youth.



# Appendix I

## Research Methods

The University of Arkansas for Medical Sciences' College of Public Health (COPH) secured funding in February 2004 from the Robert Wood Johnson Foundation (RWJF) to support efforts to evaluate the implementation of Act 1220 of 2003. An initial one-year award was followed by a two-year renewal, effective February 2005. The initial year of evaluation was considered a baseline interval and culminated in the publication of a summary report covering the initial year. The current report is the summary of the third year of evaluation.

With the help of RWJF funding, a team of COPH investigators, led by Drs. Jim Raczynski and Martha Phillips, developed a plan to evaluate the implementation and assess the impact of Act 1220. Annual evaluations will describe policies and procedures affected by the Act, identify changes taking place within the school environments and assess how those changes are perceived by school administrators and staff, as well as by parents and students.

Annual evaluations include data collection and analysis of changes to the school environments—such as new vending policies and cafeteria menus—and changes in the nutrition and physical activity patterns of Arkansas students and families. The evaluations will also assess the annual BMI (body mass index) screening and reporting process, which is mandated by Act 1220 and conducted by the Arkansas Center for Health Improvement.

The evaluation plan is based on a conceptual model that supposes existing environments will change with the implementation of state and local policies, which will, in turn, change the knowledge, attitudes, beliefs and behaviors of families and students. Those behavioral changes should, ultimately, affect the BMI status of Arkansas students, although we do not expect to see significant changes in weight status in the three years of the evaluation.

The information presented in this report has been gathered over the past year (2006) through a series of activities, including:

- ▶ Key informant interviews of 89 individuals who were either involved in or represented groups involved in the third year of the implementation of Act 1220. These individuals were identified through a review of public records, referrals from other interviewees and information gathered from previous evaluations. Interview participants were randomly selected from five geographical regions across Arkansas: Central, North, Northwest, South, and Southwest. Selected participants represent of the following groups: the state Child Health Advisory Committee, the Arkansas Department of Education, the Arkansas Center for Health Improvement, community health nurses, community health promotion specialists, district nutrition and physical activity advisory



committees, and school principals, superintendents and nurses. Details concerning these interviews included:

- Interviews were completed by telephone, audio-taped for accuracy and transcribed to protect informant confidentiality. Discussions were framed by semi-structured interview guides.
  - Interviews were conducted with 16 principals and 17 superintendents. Each of these school leaders was randomly selected using a stratified selection procedure to ensure representation from each of the aforementioned geographic regions and school levels (primary, middle, and high school). Telephone interviews were conducted using the same methods explained above. Interviews of principals and superintendents focused particularly on their experiences with and reactions to key components of the Act (e.g., vending machine changes and BMI measurements) and whether implementation progressed in the third year of Act 1220.
- Surveys were mailed to all principals (1,060 total) and school district superintendents (252 total) in the state, accompanied by a stamped, self-addressed envelope for use in returning the survey to the evaluation team. A total of 842 principals and 196 superintendents returned surveys. The return rate was 79 percent for principals and 78 percent for superintendents. Those who failed to respond were sent a second survey and return envelope. Those who failed to respond to the second request received a third survey mailing. Of those who failed to return any one of the three mailed surveys, 50 principals and superintendents were randomly selected and faxed the survey. All conclusions regarding changes were based on adjusted multivariate models.
- Telephone interviews were conducted with families whose children attended Arkansas public schools at the time. A total of 477 schools were selected, using a multi-stage stratified random selection procedure that ensured the inclusion of schools located in all areas of the state, of various enrollment sizes and serving students at all grade levels.<sup>6</sup> Households within the attendance zones for those schools were contacted by phone. A parent was interviewed if he/she had a child attending the selected school and agreed to complete the interview. If the student in the household was age 14 or older, and if both the parent and adolescent consented, the adolescent was interviewed as well. In all, a total of 2,358 parents and 361 adolescents were interviewed in this manner. Data from these parents and adolescents were weighted such that the results presented in this report can be considered representative of the state overall. All conclusions regarding changes were based on adjusted multivariate models.



# Appendix II

## Resources

### Arkansas Links

#### **Arkansas Government Act 1220 of 2003**

<http://www.arkleg.state.ar.us/ftproot/acts/2003/public/act1220.pdf>

#### **Arkansas Child Health Advisory Committee**

[http://www.healthyearkansas.com/advisory\\_committee/advisory.html](http://www.healthyearkansas.com/advisory_committee/advisory.html)

#### **Arkansas Department of Education**

<http://arkansased.org>

#### **Arkansas State Board of Education**

<http://arkansased.org/sbe/sbe.html>

#### **Healthy Arkansas Initiative**

<http://www.arkansas.gov/ha>

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

<http://www.uams.edu/coph>

#### **Arkansas Center for Health Improvement**

<http://www.achi.net>

#### **Arkansas Physician's Guide to Weight Management in Children and Adolescents**

[http://www.achi.net/BMI\\_Info/Docs/Clinician\\_Guide\\_to\\_Weight\\_Problems.pdf](http://www.achi.net/BMI_Info/Docs/Clinician_Guide_to_Weight_Problems.pdf)

#### **Management of Pediatric Overweight**

[http://www.afmc.org/HTML/programs/quality\\_improve/phys\\_office/obesity.aspx](http://www.afmc.org/HTML/programs/quality_improve/phys_office/obesity.aspx)



## **National Links**

### **Robert Wood Johnson Foundation Child Obesity Research**

*<http://www.rwjf.org/research/researchlist.jsp?ia=138>*

### **American Obesity Association**

*<http://www.obesity.org>*

### **The Weight-Control Information Network, National Institutes of Health (NIH)**

*<http://win.niddk.nih.gov/index.htm>*

### **School Health Index**

*<http://www.cdc.gov/HealthyYouth/SHI>*

### **CDC School Health Policies and Program Study**

*<http://www.cdc.gov/nccdphp/dash/shpps>*

### **American Dietary Guidelines**

*<http://www.nal.usda.gov/fnic/dga>*

### **National Association of State Boards of Education, School Health Policies**

*[http://www.nasbe.org/HealthySchools/States/State\\_Policy.asp](http://www.nasbe.org/HealthySchools/States/State_Policy.asp)*

### **Center for Science in the Public Interest**

*<http://www.cspinet.org>*

### **National Heart, Blood, and Lung Institute**

*<http://www.nhlbi.nih.gov/index.htm>*

### **American Diabetes Association**

*<http://www.diabetes.org/home.jsp>*

### **American Dietetic Association**

*<http://www.eatright.org/cps/rde/xchg/ada/hs.xsl/index.html>*



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# COPH Evaluation Research Team

James M. Raczynski, PhD

Martha Phillips, PhD, MPH, MBA

Zoran Bursac, PhD, MPH

Ronald Arlo Kahn, MD

LeaVonne Pulley, PhD, CHES

Delia West, PhD

Rebekah L. Craig

Shannon E. Elliott

Victoria L. Evans, MPH

Heath Gauss, MS

Brooke E. E. Montgomery

Amanda G. Philyaw

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

4301 W. Markham Street

UAMS Slot 820

Little Rock AR 72211

(501) 526-6700

[www.UAMS.edu/COPH](http://www.UAMS.edu/COPH)



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COLLEGE OF  
PUBLIC HEALTH**

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UNIVERSITY OF ARKANSAS  
FOR MEDICAL SCIENCES

**University of Arkansas for Medical Sciences**

4301 W. Markham Street #820

Little Rock, AR 72205-7199

(501) 526-6700

*[www.UAMS.edu/COPH](http://www.UAMS.edu/COPH)*