



West Virginia Healthy Lifestyles Act

## Year One Evaluation Report

*Released February, 2009*

Further examination of the CARDIAC screening data resulted in revisions to the information originally presented in Chapter 10 (Screening Outcomes and Figure 15). The corrected information is included in this 02/22/2010 version.

**West Virginia University  
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## Acknowledgements

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# INTRODUCTION

## Overweight and Obesity in West Virginia

Overweight and obesity<sup>a</sup> are major public health problems in the United States. Of particular concern are the health problems associated with obesity in children and adolescents<sup>b</sup>, many of which continue into adulthood. These include, but are not limited to, an increased risk for type 2 diabetes, high blood pressure, high blood cholesterol and poorer quality-of-life<sup>1</sup>, all of which may increase one's risk for premature death during adulthood.

The number of US children, adolescents and adults who are overweight or obese has increased dramatically over the past several decades. For example, data from the National Health and Nutrition Examination Survey (NHANES) illustrate that the rate of obesity approximately **doubled** in adults over the past three decades, increasing from 17% for the period 1976-80 to 32% for the period 2003-04<sup>2,3</sup>. Currently, approximately 66% of adults are considered to be overweight or obese and approximately 7% of women and 3% of men are considered to have extreme obesity. These disturbing trends are in the opposite direction of the Healthy People 2010 goal of no more than 15% obesity among adults 20 years of age and older<sup>4</sup>.

While the number of obese adults has almost doubled, obesity in children and adolescents has nearly **tripled** since 1980. Based on data from NHANES, the rate of obesity in children increased from 6% for the period 1976-80 to 16% for the period 2003-06<sup>5,6</sup>. Currently, an estimated 32% of US children and adolescents are either overweight or obese. For obesity alone, the estimate

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<sup>a</sup> Overweight and obesity are defined by Body Mass Index (BMI). BMI is a measure of body fat that is based on an individual's height and weight.

- Adults with a BMI between 25 and 29.9 are considered overweight, and adults with a BMI greater than or equal to 30 are considered obese.
- Extreme obesity is defined as a Body Mass Index greater than or equal to 40.

<sup>b</sup> In children and adolescents, overweight and obesity are defined by BMI percentiles, which take age and gender into account.

- Children with a BMI greater than or equal to the 85th percentile but less than the 95th are considered overweight.
- Children with a BMI at the 95th percentile or higher are considered obese.

is 17%<sup>3</sup>. Similar to adults, the increasing rates of overweight and obesity in children are in opposition to the Healthy People 2010 goal of 5% overweight and obesity in children aged 6 to 19<sup>4</sup>.

In West Virginia, the rates of overweight and obesity are high. Data from the 2007 Behavioral Risk Factor Surveillance System (BRFSS) indicate the rate of overweight among adults was 38% while the rate of obesity was 30%. Compared to other states, West Virginia's adults ranked as the 13th highest for overweight and the 5th highest for obesity<sup>7</sup>. The economic impact has been substantial, as the annual medical expenditures associated with adult obesity in the state were estimated at 588 million dollars in 2003<sup>8</sup>.

The rates of overweight and obesity are also high in West Virginia's children and adolescents. For high school students, self-reported height and weight data from the 2007 Youth Risk Behavior Survey (YRBS) revealed that 17% of West Virginia students were overweight, an increase from 15% in 2003, and 15% of the students were obese, an increase from 14% also in 2003<sup>9</sup>.

## **West Virginia's Response**

In 2005, West Virginia passed the "Healthy Lifestyles Act" (House Bill 2816) to help address the epidemic of obesity in the state. The law was passed in recognition of the burden that obesity and weight-related health problems, such as type 2 diabetes and heart disease, place on the state's health care infrastructure. The Healthy Lifestyles Act reflects the state's desire to promote healthy eating and regular physical activity through policy change and education. Implementation of the Act's school-based components, which provide policy direction for physical education, health education, fitness assessments, body mass index (BMI) assessments and the availability of vended beverages on campus, began in August 2006.

This report summarizes findings from the first annual evaluation of the West Virginia Healthy Lifestyles Act. The evaluation was begun in 2007 by a team from West Virginia University Health Sciences Center and was supported by the Robert Wood Johnson Foundation. Assistance in the development and conduct of the evaluation was provided by staff from the West Virginia Department of Education's Office of Healthy Schools and the West Virginia Department of Health and Human Resources' Office of Healthy Lifestyles.

## CHAPTER 2

# HISTORY OF THE HEALTHY LIFESTYLES ACT

The rising prevalence of youth and adult overweight and obesity and the associated adverse physical, mental, and economic consequences has prompted great concern in West Virginia. Since the early 1990s, leaders in education, public health, and health care in West Virginia have been working collaboratively to address the obesity crisis. The West Virginia Department of Education's (WVDE) Office of Healthy Schools has been funded by the Centers for Disease Control and Prevention (CDC) as a Coordinated School Health Program state since 1992. This funding, which focuses specifically on physical activity, nutrition and tobacco, has enabled the Office of Healthy Schools to provide training and technical assistance to strengthen school health programs throughout West Virginia. The WVDE Office of Child Nutrition Services holds the distinction of being a national model with regard to quality school nutrition standards and has worked in partnership with the Office of Healthy Schools to support the development of strong local wellness councils in each of the state's 55 school districts. The West Virginia Board of Education (WVBE) has been recognized by the National Association of State Boards of Education as a leader in developing school policy that promotes healthy lifestyles.

In July 2003, the West Virginia Department of Health and Human Resources (WVDHHR), secured a five year cooperative agreement from CDC to support a statewide physical activity and nutrition program to prevent and reduce chronic disease and obesity in West Virginia. In addition to bringing needed funding to the state, this program facilitated strategic planning about obesity among key stakeholders at the state and local levels. The West Virginia State Medical Association provided significant energy, support and leadership to the initiative. In January of 2004, the WVDHHR began conducting public forums that were organized by regions across West Virginia. Following these forums the WVDHHR developed *West Virginia Everyday: A Statewide Plan to Improve Physical Activity and Nutrition*. The purpose of the Plan was to provide

a framework in which local, state and institutional policy makers could work collaboratively to create and support environments that promoted healthy foods and physical activity for West Virginia residents.

## Using Policy to Intervene

All of these efforts coalesced on March 1, 2005 with the introduction of the Healthy Lifestyles Act, a bill initiated by Governor Joe Manchin III. The Act was passed by the West Virginia Legislature on April 9th and signed by Governor Manchin on May 2, 2005. The Act was amended slightly in 2006 by Senate Bill 785. The Act created a gubernatorial appointed Healthy Lifestyles Coalition, directed the WVDHHR to create the Office of Healthy Lifestyles, established a Clinical Advisory Committee comprised of health advocating practitioners to inform the development of Healthy Lifestyles policy and practice guidelines and established mandates for schools related to: (1) the sale of healthy beverages and soft drinks, (2) physical education (PE) time, (3) fitness testing, (4) the collection of body mass index (BMI) measurements, and (5) health education instruction and assessment. **The five school-based requirements are the focus of this evaluation report.**

The limited success of individual behavior change strategies on population levels of childhood obesity has propelled policy and environmental strategies to the forefront of national and state efforts. Although policy and environmental change has long been an important part of health promotion and disease prevention for health issues such as infectious disease and tobacco use, using policy to prevent youth obesity is a relatively recent development. State level legislative action for the prevention of childhood obesity was deemed critical by the Institute of Medicine's (IOM) 2005 report, *Preventing Childhood Obesity: Health in the Balance*<sup>10</sup>. West Virginia was among the early group of states to enact legislation focused on school nutrition and physical education policies to reduce childhood obesity.

## Summary of the Legislation

Implementation of the school-based components of the Healthy Lifestyles Act began in August 2006. The WVBE was charged with promulgating rules and guidance for schools to meet each of the five requirements. The Act reinforced several existing legislative mandates and state policies, such as the requirement for a full course credit in PE for high school students and beverage restrictions in elementary and middle schools. Table 1 provides

a brief description of the Act's mandates and state regulations governing the 2006-08 school years. More detail on the legislation and a description of previous requirements, if any, can be found in the Appendix.

### **Structure of Education in West Virginia**

The WVBE, a nine-member group appointed by the Governor, oversees all public education in the state; the WVBE appoints a Superintendent of Schools (currently Dr. Steven Paine). The state has 55 (county) school districts with a total of 435 elementary, 153 middle or junior highs and 123 high schools as of fall 2007. The largest school district in the state has 65 schools with 28,465 students and the smallest has 3 schools with 954 students. The total public school enrollment in pre-kindergarten through 12th grade was 281,735 during the 2007-08 school year. .

School policy in West Virginia is set by the Legislature and Board of Education. The state constitution gives the WVBE legislative rule-making authority that carries the weight of law. The Board, at the recommendation of the State Superintendent and Department staff, develops policy for all county school systems.

**Table 1** | Overview of the Healthy Lifestyles Act Mandates and State Guidance for Implementation

	Healthy Lifestyles Act Mandates	Department of Education Implementation
Healthy Beverages	<ol style="list-style-type: none"> <li>Soft drinks may not be sold in elementary or middle schools during the school day.</li> <li>Only healthy beverages (defined as water, 100% fruit and vegetable juice, low fat milk, and juice beverages with at least 20% juice).</li> <li>High schools may sell soft drinks (except during breakfast and lunch) when permitted by the county board of education. If high schools sell vended soft drinks, 50% of the beverages offered must be healthy beverages.</li> </ol>	<ol style="list-style-type: none"> <li>Recommended that schools sell only water, low fat milks, and 100% juices.</li> <li>Prohibited the sale of other beverages in elementary and middle schools.</li> <li>Encouraged county boards of education to prohibit the sale of soft drinks.</li> </ol>
Physical Education	<ol style="list-style-type: none"> <li>Elementary school students must participate in PE not less than 30 minutes at least 3 times per week.</li> <li>Middle school students must participate in PE not less than one full period each school day for one semester.</li> <li>High school students must complete one PE course credit and be offered a lifetime physical education class.</li> </ol>	<ol style="list-style-type: none"> <li>Elementary students will receive 90 minutes of PE per week.</li> <li>Middle school students will receive 2700 minutes of PE per year.</li> <li>High school students will receive one full course credit of PE and be offered a course in lifetime physical education.</li> </ol>
Fitness Testing	<ol style="list-style-type: none"> <li>Fitness testing and reporting must be conducted in 4th through 8th grades and the required high school course.</li> </ol>	<ol style="list-style-type: none"> <li>PE teachers are required to administer FITNESSGRAM® to PE students in 4th through 8th grades and the required high school PE course.</li> </ol>
Body Mass Index Measurements	<ol style="list-style-type: none"> <li>BMI data must be collected on a scientifically drawn sample of students.</li> <li>The BMI data must be reported to state agencies to use as an indicator of progress in promoting healthy lifestyles.</li> </ol>	<ol style="list-style-type: none"> <li>The Coronary Artery Risk Detection in Appalachian Communities project (CARDIAC) was charged with collecting BMI data.</li> <li>BMI data were collected with parent permission in kindergarten, 2nd, and 5th grades with individual reports provided to parents and aggregate reports provided to the state.</li> </ol>
Health Education and Instruction and Assessment	<ol style="list-style-type: none"> <li>Schools must teach the importance of healthy eating and physical activity to maintain a healthy weight.</li> <li>Health education assessments must be conducted to measure student health knowledge and program effectiveness.</li> </ol>	<ol style="list-style-type: none"> <li>Testing through the Health Education Assessment Program (HEAP) was required for health students in 6th and 8th grades and the required high school course.</li> <li>Health education courses continued to teach the importance of physical activity and healthy eating.</li> </ol>



## CHAPTER 3

# HIGHLIGHTS OF KEY FINDINGS

This section contains highlights of the key findings from the first annual evaluation of efforts to implement the Healthy Lifestyles Act. These findings summarize data obtained about the impact of the legislation and provide an indication of the current status of policies and practices among those who were surveyed and interviewed. The data supporting these findings are described in greater detail throughout the remaining chapters of this report.

### **General Impressions of the Healthy Lifestyles Act**

School personnel provided their impressions of the Healthy Lifestyles Act requirements and described the general impact of the law on school activities.

- The Act increased awareness among school personnel of students' health status and spurred the creation of new programs and efforts to increase physical activity and promote healthy eating in both students and families. Chapter 6 contains superintendent and principal views on the overall impact of the Act.
- School personnel generally supported mandates of the Healthy Lifestyles Act. As illustrated in Figure 3 (page 22), 60% or more of the principals gave a favorable rating to each mandate, and the strongest support was demonstrated for the physical education time requirement. Chapter 5 provides details from school personnel regarding their impressions of the Act.
- Forty-one percent of schools lacked the resources necessary to implement one or more of the Act's mandates. As shown in Figure 9 (page 38), schools faced particular challenges meeting new requirements regarding physical education time, and assessments of health education and BMI status. Concerns about limited resources for implementing mandates of the Act are discussed further in Chapter 6.

## Key Findings from Schools

School superintendents, principals, physical education teachers, and school nurses were surveyed regarding their perceptions of the Healthy Lifestyles Act, its impact on schools and students and current nutrition and physical activity policies.

- Many county and school-level policies do not reflect current best practices for student physical activity and nutrition. For example, as illustrated in Tables 4 and 5 (pages 42 and 43), 45% of counties do not require recess for elementary students and only 21% of middle and high schools require that healthy foods be sold at concession stands. Chapter 7 provides additional information on current school policies.
- Improved physical education facilities and increased staffing are needed to fully implement the physical education requirements of the Healthy Lifestyles Act. For example, among the 143 elementary schools that were unable to meet the Act's physical education mandates, 80 cited inadequate staffing as the reason for the shortfall, 55 cited inadequate staffing and facilities, and 8 cited inadequate facilities. Concerns voiced by superintendents, principals, and physical education teachers about facilities and staffing are detailed in Chapters 6 and 7.
- Although new vended beverage restrictions created the potential for lost revenues to the schools, many principals reported revenues had remained stable. For example, among the 431 principals who provided information about budget impact, more than 80% indicated there had been little or no change in revenues. See Sale of Healthy Beverages in Chapter 6 for more information from principals.
- Although the Healthy Lifestyles Act requires collection of BMI, health education, and fitness-related data that could inform curricula development or new policies, school personnel and Local Wellness Policy Councils currently underutilize the available data. For example, only 13 of the 55 Local Wellness Policies used Health Education Assessment Project (HEAP) testing results, FITNESSGRAM® scores or BMI data to help evaluate their policy decisions. Additional information about the use of these data sources is provided in Chapters 6 and 11.
- Seventy-four percent of physical education teachers utilized FITNESSGRAM® results in planning their lessons, but written testing results were only provided by 33% of the teachers. Chapter 6 provides

more information about fitness testing, including how results are reported to students and parents.

- Seventy-seven percent of physical education teachers were satisfied with the FITNESSGRAM® program, but some voiced concerns about whether the tests were sufficiently challenging for students. See Fitness Testing in Chapter 6 for further information on physical education teachers' views.
- HEAP assessments have not been fully implemented by schools and there is an inconsistent use of HEAP data in health education planning. For example, 34% of eligible students participated in the HEAP and 43% of county superintendents reported that they had reviewed HEAP data from their schools. Chapter 6 provides information about the implementation of HEAP.
- School administrators and teachers believe BMI assessments are an important activity for schools. For example, 94% of superintendents indicated it was important for schools to conduct the assessments. Information on the perceived importance of BMI assessments can be found in Chapter 5.
- Results from this evaluation show that the state-level proportions of healthy weight, overweight and obese 5th grade students collected by CARDIAC were not significantly different from a cluster sample of students measured for comparison. This finding confirms that even though CARDIAC's BMI assessment program required active consent from parents, the 5th grade CARDIAC results accurately reflected the state's rates of childhood obesity for that age group<sup>c</sup>. More information about CARDIAC's BMI assessments and the study examining its representativeness is provided in Chapter 10.

## **Key Findings from Parents and Students**

Parents and students were interviewed about their knowledge, attitudes, and behaviors related to nutrition and physical activity, and about perceptions of school and health care provider activities. More information on the key findings from parents and students is provided in Chapter 8.

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<sup>c</sup> County- and school-level proportions could not be reliably assessed due to the small numbers of students in some schools and the small number of students participating in some counties.

Interviews revealed that most parents support school policies that are consistent with the Healthy Lifestyles Act.

- Ninety-six percent of parents believe schools play an important role in addressing the childhood obesity epidemic.
- Fifty-six percent of parents believe students need physical education five days per week.
- When asked about vending machine contents, 61% of parents believe that only healthy beverages should be sold in schools, and 52% believe that only healthy snacks should be sold in schools.

Parents and students were interviewed about school-based BMI assessments and the BMI reporting process.

- Fifty-seven percent of parents were very satisfied with the way BMI assessments were conducted at school.
- Comparisons of knowledge, attitudes and behaviors between parents of children who participated in BMI assessments and parents of children who did not participate in BMI assessments revealed no differences. This evaluation will continue to monitor these data over time.
- Fifteen percent of students who participated in the BMI assessments were embarrassed about the process and 17% of participating students were at least somewhat concerned about the privacy of their results.

Parents were interviewed about their child's weight status and about childhood obesity in general.

- Many parents do not correctly perceive their child's weight status and are unaware of the health consequences associated with overweight and obesity. For example, as shown in Figure 12 (page 56), fewer than one-third of parents associated childhood obesity with an increased risk of hypertension, high cholesterol or asthma. As shown in Figure 11 (page 54), 19% of children were classified as obese based on their BMI score, yet less than 1% of parents identified their child as obese.
- Only 26% of parents reported that their child's health care provider had discussed their child's weight status in the past two years.

Family nutrition and physical activity practices at home also were assessed.

- Eighty-six percent of students and 89% of parents eat less than the recommended amounts of fruits and vegetables, while 73% of students and 50% of parents engage in less than the recommended amounts of physical activity.
- Fifty-two percent of parents reported trying to improve the family diet to make it healthier.

### **Key Findings from Health Care Providers**

Health care providers throughout the state were surveyed about routine weight-related practices in their clinical work with children and families and about the impact of the Healthy Lifestyles Act on their practice. Chapter 9 includes additional information about provider impressions and practices.

- Health care providers indicated parents were becoming more aware of their children's weight status and increasing their requests for guidance on child nutrition and exercise. As shown in Figure 14 (page 63), 27% of providers noted an increase in parent concern about overweight and obesity and 17% noted an increase in parent questions about children's diets.
- Only 27% of health care providers reported calculating BMI percentiles when they measured children's height and weight and 41% provided weight counseling to overweight or obese children during every visit.
- Barriers to providing weight counseling to families include limited reimbursement, time, and limited access to referral sources. For example, 79% of providers would provide more weight counseling if the service was reimbursed.



# OVERVIEW OF EVALUATION METHODS AND INFORMANTS

## **Developing the Evaluation**

A team of researchers from the West Virginia University Health Research Center, the West Virginia Prevention Research Center, the WVDE's Office of Healthy Schools and the WVDHHR's Office of Healthy Lifestyles collaborated to design the evaluation of the Healthy Lifestyles Act. The goal was to evaluate the processes, outcomes and impacts of the Act on West Virginia students, parents, school systems and health care providers in order to provide information that would be relevant to various stakeholders across the state – specifically legislators and other policy makers. The evaluation will continue with funding from the Robert Wood Johnson Foundation for at least two school years: 2007-08 and 2008-09. An overview of the funded project is provided in the Appendix.

The evaluation of the Healthy Lifestyles Act was developed over several months, starting in the spring of 2007, and was informed by a series of interviews with state legislators, teachers, school nurses, principals, superintendents, students, parents and health care providers. In addition, staff from the Office of Healthy Schools and the Office of Healthy Lifestyles provided background information about the legislation and the development of the WVBE's regulations that turned the Act into policy, as well as other obesity-related initiatives within the state that might influence the evaluation findings. To provide a comprehensive examination of the implementation of the Act and its consequences, the evaluation was designed to include: (a) the collection of new information from surveys of groups that might be impacted by the legislation (school personnel, health care providers, students, and parents) and (b) an examination of existing information collected by the WVDE. The first year of the evaluation provides point-in-time indicators for

key implementation and impact measures and serves as the foundation for comparison of key measures in future years.

Staff from the Office of Healthy Schools and Office of Healthy Lifestyles assisted in the development of the surveys and interpretation of the findings to facilitate the provision of policy-relevant information to the state and their stakeholder groups. However, to protect the confidentiality of individuals who completed the surveys and interviews and to maintain the independence of the evaluation, Office of Healthy Schools and Office of Healthy Lifestyles staff were not involved in the collection or analysis of survey data.

## Survey Methods and Response Rates<sup>d</sup>

### Surveys of School Personnel

Because the legislation had the potential to impact school personnel at many levels, it was important to obtain information from a variety of sources, including both school administrators who are responsible for creating and enforcing policies and teachers and other staff who work with the students on a day-to-day basis. To obtain this broad view, surveys were conducted with the following groups:

- 1. Superintendents**
- 2. Principals**
- 3. School nurses**
- 4. Physical education teachers**

Some of these groups use computers routinely in their work but others do not. For that reason, surveys of school personnel were conducted both electronically and by standard mail. All school personnel received an initial request to complete the survey, which was followed by two additional requests, if necessary.

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<sup>d</sup> All of the interviews, surveys and data aggregation reported in this evaluation were reviewed by the West Virginia University Institutional Review Board for the Protection of Human Subjects and either approved, determined to be exempt, or acknowledged as "Non Human Subjects Research".



Response rates for the Year 1 surveys of school personnel are shown in Figure 1 and information about each of these survey groups is provided below. The data provided by school personnel are discussed in Chapters 5, 6, and 7.

**1. Superintendents:** All school superintendents (N = 56)<sup>e</sup> were surveyed and responses were received from 53. The majority of superintendents were male (64%) and had a masters degree (77%); 23% had a doctoral degree. Approximately one fourth were newly hired (had less than 1 year of experience), 36% had between one and five years of experience, and the remaining 40% had six or more years experience as a superintendent.

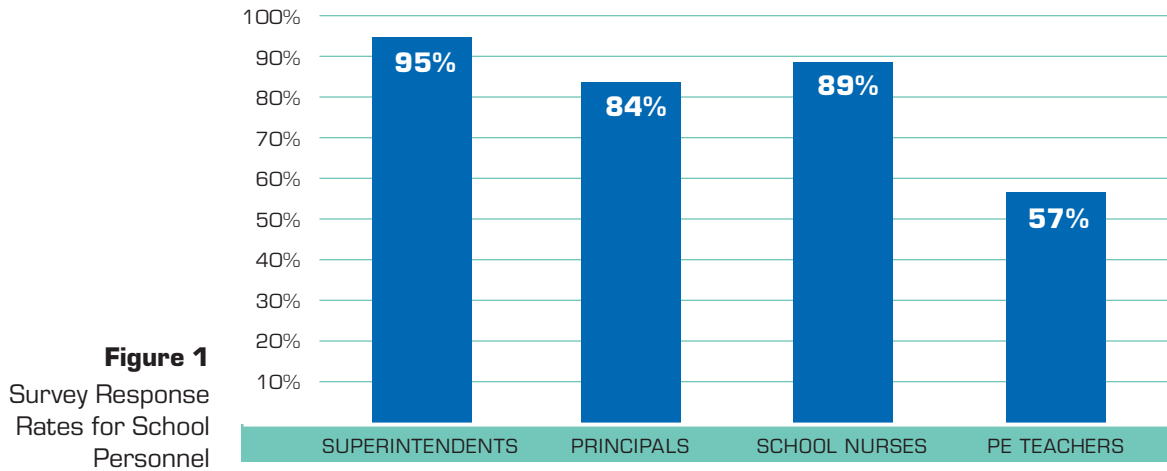
**2. Principals:** All principals of “traditional” public schools (N = 696) were surveyed; specialized schools, such as vocational centers and alternative learning centers, were not included as the regulations may not have been applied to these schools in standard ways. Surveys were received from 586 of the principals, including 391 elementary schools, 108 middle schools and 87 high schools.

Among the principals, 54% were male and 46% were female; 97% had a masters degree and 3% had a doctoral degree. Overall, the principals were very experienced: fewer than 6% were new to their positions (< one year of experience), 36% had between one and five years of experience, 22% had six to ten years of experience, and 36% had more than ten years of experience.

**3. School nurses:** All school nurses (N = 240) were surveyed and responses were received from 214. The majority of nurses had a bachelors degree (67%) or higher (29%), and they had a record of work experience that was very similar to the principals: less than 6% were newly hired, 40% had one to five years experience, 19% had six to ten years experience, and 36% had more than ten years experience.

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<sup>e</sup> Each of WV's 55 counties and the West Virginia Schools for the Deaf and Blind has a superintendent.

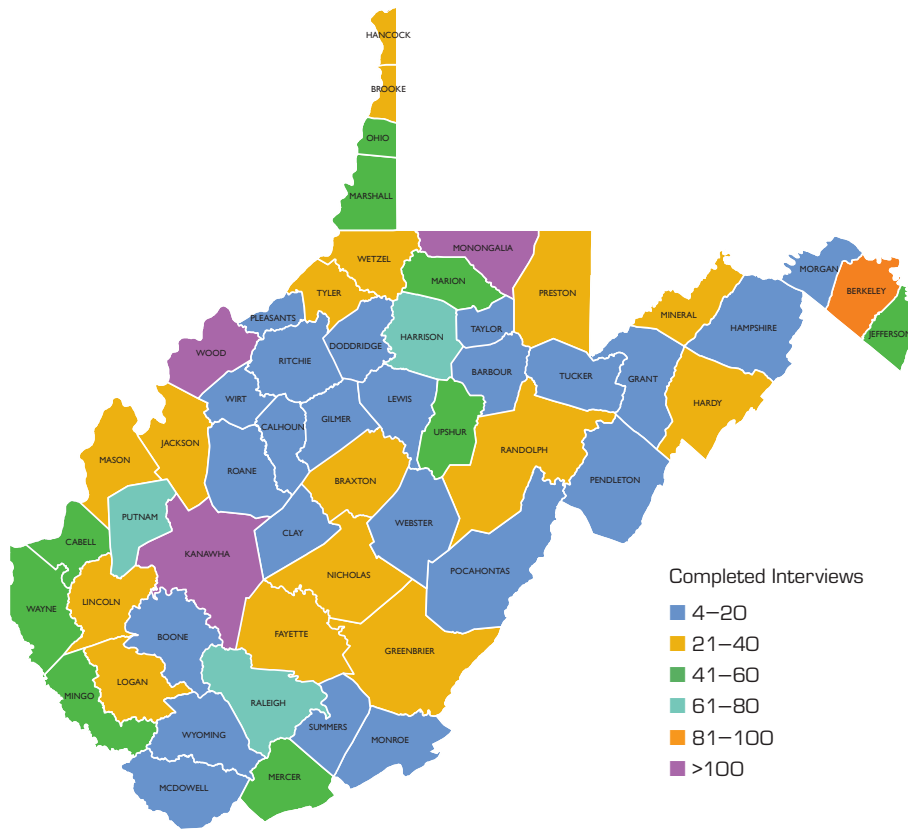


**4. Physical education teachers:** The lead PE teacher from each traditional school was surveyed and responses were returned from 398. Approximately half of the PE teachers were female and half were male. Forty-eight percent had completed a master’s degree. PE specialists made up 82% of the respondents, and the remaining 18% were multi-subject certified teachers. Almost 70% of those surveyed had more than 10 years experience.

**Interviews with Students and Parents**

Parents of students in kindergarten and grades 2, 4, 5, 7, and 9 and students in grades 5, 7, and 9 were contacted by phone and asked to participate in an interview about changes in school policies and student health. In order to ensure a representative sample: (a) interviews were conducted in all 55 counties, (b) an equal number of parents (and students) were interviewed for each of the grades selected, and (c) the number of interviews conducted was proportional to the size of the schools attended by students – in other words, if 50% of the middle school students in the state attended “small” schools, then 50% of the interviews were conducted with students and parents from small middle schools. The number of interviews conducted in each county is depicted in Figure 2 and a more detailed description of the stratified, proportional sampling method is provided in the Appendix.

A total of 1500 parents (250 parents/grade) and 420 students (140 students/grade) were interviewed. Characteristics of the parents and students who participated in the interviews are presented in Table 2; findings from the interviews are presented in Chapter 8.



**Figure 2**  
Parent and Student Evaluation Participants

	Parents	Students
Gender	74% female	48% female
Race	95% White 2% Black 3% Other	96% White 1% Black 2% Other
Ethnicity	3% Latino	4% Latino
Marital Status	90% married	---
Age	Average age = 41 yrs Range = 24 – 73 yrs	Average age = 13 yrs Range = 10 – 16 yrs
Completed high school	49%	---
Graduated from college	46%	---

**Table 2**  
Demographic Characteristics of the Interviewed Parents and Students

### **Surveys with Health Care Providers**

Health care provider surveys were received from 147 doctors and nurse practitioners who provided general or specialty care to children and adolescents within West Virginia on a regular basis; 23 provider surveys were not included in the analyses because they reported seeing few children. Fifty-one percent of these providers were women and 70% had been in practice for 6 or more years; the primary areas of practice were family practice (47%) and pediatrics (43%). A random sample of more than 600 health care providers was contacted electronically or by mail using state listings of providers. Two reminders were sent to individuals who did not return surveys. Surveys were received from approximately 22% of the providers. The data collected from the surveys are discussed in Chapter 9.

### **Post-Survey Interviews**

Following completion of the surveys with superintendents and principals, purposeful sampling was used to identify individuals representing a wide range of views related to key indicators such as impressions of Healthy Lifestyles Act mandates and impact on school activities. Semi-structured interviews were completed with 8 principals (3 elementary, 1 middle, 4 high schools) and 5 superintendents, distributed across the state, to provide additional context for the survey responses and enhance interpretation of survey results.

## **Incorporation of Existing State Data in the Evaluation**

### **Existing State Level Data**

In addition to the survey data collected from school personnel, families and health care providers, existing data maintained by the WVDE were reviewed and incorporated into this evaluation. These data include: (1) PE plans, (2) health education assessments, (3) fitness evaluations and (4) Local Wellness Policies.

### **Physical Education Plans**

Each year, every elementary and middle school principal is required to report their school's status in implementing the PE time requirements of the Healthy Lifestyles Act. Using WVEIS, principals indicate whether their school meets the PE time requirement (yes or no) and the minutes of PE offered. Principals of schools that do not meet the time requirements must report the number of

minutes short, indicate the reason for the shortfall (options include inadequate staff and facilities, inadequate staff, or inadequate facilities), and identify an alternate plan to make up the difference.

Alternate plan options for elementary schools include:

- 1) action/movement based instructional strategies,
- 2) recess time added to physical education instructional time,
- 3) track before and after school activities, and
- 4) student participation in exercise/physical activity labs (upper elementary grades).

Alternate plan options for middle schools include:

- 1) action/movement based instructional strategies,
- 2) student participation in exercise/physical activity labs,
- 3) equivalent physical education days,
- 4) intramurals coordinated with the physical education class, and
- 5) formally supervised before/after school activities.

WVDE data from the PE Plans for 2006-07 and 2007-08 are provided in Chapter 6.

#### **Health Education Assessment Project (HEAP)**

Each year students in grades 6, 8, and the high school health education class complete a 40 item (multiple choice) health education assessment via an online system developed by SmartTrack™. The HEAP is comprised of questions taken from the State Collaborative on Assessment and Student Standards Health Education Assessment Project. The assessment for all grade levels includes questions in the health education content areas of nutrition, physical activity (PA), growth and development, alcohol and other drugs and tobacco. Injury prevention questions are included for grade 6 and mental health questions are included for grade 8 and the high school assessments. HEAP data are analyzed by Office of Healthy Schools staff and reports are sent to county superintendents. HEAP data are presented in Chapter 6.

### **FITNESSGRAM®**

FITNESSGRAM® is a health-related fitness evaluation package that determines students' fitness levels based on what is considered to be optimal for good health. As part of each school's year-end report, principals enter into WVEIS the number of students (by grade level) in and out of the Healthy Fitness Zone for each FITNESSGRAM® component (aerobic capacity, body composition, muscular strength and endurance, flexibility). FITNESSGRAM® data are presented in Chapter 6.

### **Local Wellness Policies (LWPs)**

The Child Nutrition and WIC Reauthorization Act of 2004 (CNRA; Public Law 108-265) mandated the creation of Local Wellness Policies for each local educational district that participated in the National School Lunch program. The local educational districts, which in West Virginia are county school systems, were required to establish a LWP by the 2006-07 school year. The LWPs were mandated to include, at a minimum, the following components:

1. Goals for nutrition education, physical activity and other school-based activities designed to promote student wellness
2. Nutrition guidelines for all foods available on campus during the school day
3. Guidelines for reimbursable school meals
4. A plan for measuring implementation of the LWP and designation of one or more persons with responsibility for ensuring that each school fulfills the LWP
5. Community involvement, including parents, students, and representatives of the school food authority, the school board, school administrators, and the public in the development of the school wellness policy.

LWPs from each county were submitted to the Office of Child Nutrition within the WVDE. These LWPs were reviewed and rated by the evaluation team according to a standard set of criteria reflecting required components and best practices. A description of the criteria used to review the policies and the results of the review are provided in Chapter 11.

# GENERAL IMPRESSIONS OF THE LEGISLATION

School personnel were asked about their general impressions of the school-based components of the Healthy Lifestyles Act, and superintendents were also asked to rate the reactions of their communities. In addition, parents' views about PE time and healthy beverages were solicited because these mandates represented significant changes in school policies. This chapter discusses these impressions.

## **PE Requirements**

The PE requirement of the Act was viewed very positively by educators and community members. Eighty-five percent of principals and almost 70% of school nurses rated the requirement favorably. Physical education teachers also approved of the increased time allotted to PE in school schedules and noted that the Act "provided the opportunity to expose students to a wider variety of activities" and allowed students to have "more time out of desks and moving." One PE teacher reflected the sentiments of many when she wrote, "More physical education minutes = better conditioned students, leading to healthier lives."

Consistent with the favorable reviews by school personnel, 68% of superintendents reported their communities had reacted positively to the requirement and none reported a negative reaction.

Although reaction to the PE requirements was very positive overall, PE teachers and parents indicated that even more PE time was needed. Seventy-one percent of PE teachers indicated the time requirements were too low and 56% of the parents said students should have PE 5 days per week. Parents were in favor of daily PE for students in elementary, middle, and high schools.

Figures 3 and 4 illustrate the principal and superintendent ratings across all mandates.

**Eighty-five percent of principals rated the PE mandate favorably and PE teachers and parents indicated that even more PE time was needed.**

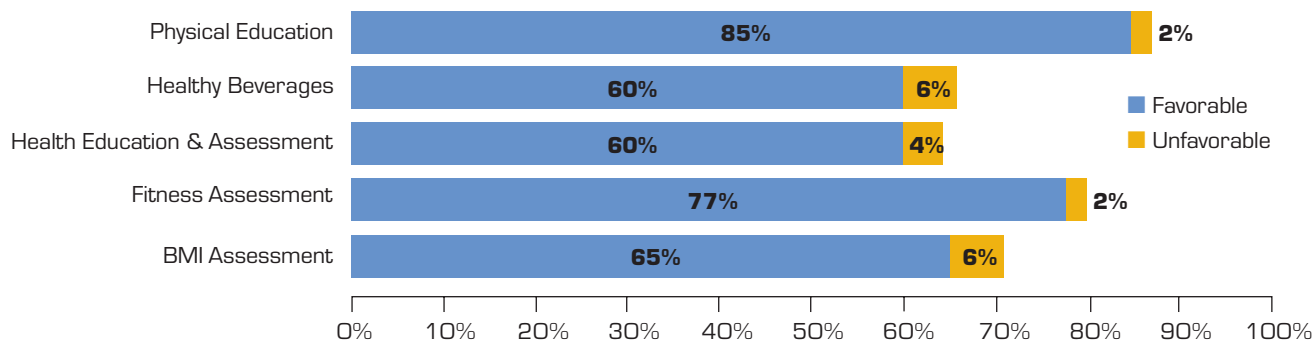
**Sale of Healthy Beverages**

Reaction to the Healthy Beverage requirement was mixed. Although 60% of principals gave the requirement a favorable rating, approximately one third were neutral and 6% rated it unfavorably. High school principals were significantly more likely than elementary and middle school principals to rate this provision negatively ( $p < .001$ ).

School nurses were very supportive of the beverage requirement with 87% rating it as excellent or good, but superintendents indicated their communities were split, with approximately one third positive, one third negative, and one third having no reaction.

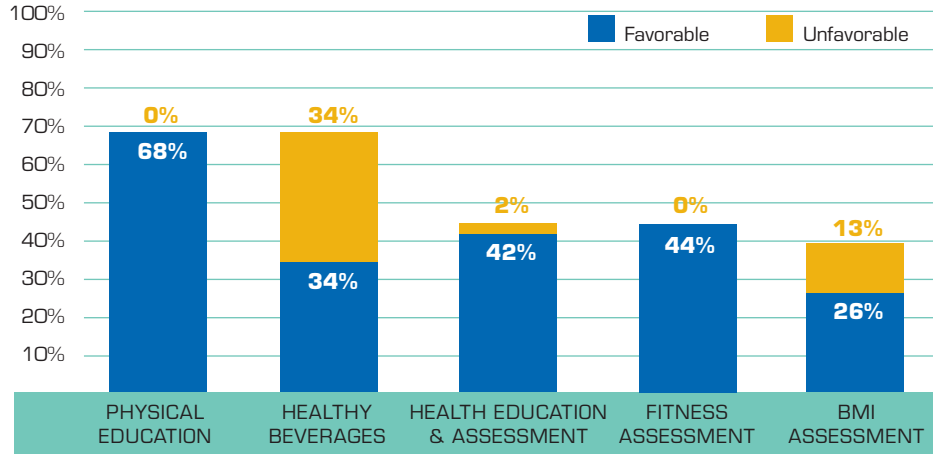
Among parents, there was clear opposition to soft drink vending machines in elementary and middle schools (96% and 85% against, respectively), but a slim majority (53%) believed the machines should be available in high schools.

**Figure 3**  
Principal Perceptions of Healthy Lifestyles Act Mandates



The percentages shown in Figure 3 do not include neutral responses.





**Figure 4**  
Superintendent Reports\* of Community Reaction to the Healthy Lifestyles Act Mandates

\*Report totals do not equal 100 because neutral responses are not displayed

### Health Education and Assessment

The requirement for Health Education Assessment also created a somewhat mixed reaction within schools and communities. It was viewed favorably by 60% of the principals overall, but there were significant differences between school levels: the requirement was supported by 56% of elementary principals, 65% of middle school principals and 75% of high school principals ( $p < .02$ ). Superintendents reported that their communities generally had no reaction (57%) to the requirement or were positive (42%).

### Fitness Testing

The requirement for student Fitness Testing was viewed positively by most school personnel. The majority of principals (77%) gave this a favorable rating and very few (2%) rated it negatively. Physical Education teachers were also supportive with almost 100% indicating it was important to assess student fitness. In addition, superintendents indicated their communities were either positive towards the requirement (44%) or neutral (56%).

### BMI Assessments

The majority of school administrators had a favorable impression of the BMI measurement requirements in the Healthy Lifestyles Act. Sixty-five percent of principals viewed these requirements favorably, and only 6% gave an unfavorable rating. Ninety-four percent of county superintendents reported

that it was moderately or extremely important to assess body composition in the schools and 87% reported their communities had either no reaction or a positive reaction to the implementation of the BMI assessment requirement. Among school staff, 90% of physical education teachers and nurses agreed that it was important for the schools to perform body composition assessments.

# IMPLEMENTATION OF THE LEGISLATION

The implementation of the Healthy Lifestyles Act mandates also was a focus for the evaluation. This section describes the extent to which school administrators and instructional personnel were able to execute the mandates in their schools and the outcomes associated with implementation.

## **Physical Education Requirements**

Data collected by the WVDE indicated the majority of elementary schools met the PE time requirement in both the 2006-07 (70%) and 2007-08 (67%) school years. Among the 143 elementary schools that did not meet the Act's physical education requirement in 2006-07, 80 reported inadequate staffing, 55 reported inadequate staff and facilities, and 8 reported inadequate facilities. Staffing and facility concerns were similar for 2007-08 school year. The vast majority of elementary schools that submitted pre-approved plans opted to count recess as PE instructional time.

The majority of middle schools also met the PE time requirements in both years (79% in 2006-07, 85% in 2007-08). The most commonly reported reasons for not meeting these requirements were inadequate staff and facilities (8 schools) and inadequate facilities (7 schools). Using intramurals and exercise / physical activity labs to count as PE time were the most common pre-approved plans at the middle school level.

Superintendents reported that most schools in their counties had adequate facilities (86%) and staff (68%) to meet the PE requirements. School principals' views about the adequacy of time in the school schedule to meet the Content Standards and Objectives for PE were mixed. While 84% reported the schedule time was adequate, there were significant differences among school levels. Specifically, 81% of elementary, 84% of middle and 97% of high school principals reported the time to be adequate ( $p < .001$ ). Principals were very

vocal about identifying barriers faced by schools in implementing the Healthy Lifestyles Act, with space, time, and limited staff emerging as substantial challenges in elementary schools. One elementary principal observed:

*“Additional time is needed in our school day and schedule to support PE 3 times a week. PE should also be provided by a PE teacher. The main barrier is the lack of facility space in which to conduct PE. We have to use our cafeteria/multipurpose room and schedule around lunch periods, breakfast etc. ...space is an issue.”*

Middle school principals identified similar concerns. High school principals reported fewer concerns, however, one commented that “graduation credit requirements are such that elective physical education offerings could not be scheduled by students if they were available.”

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**Superintendents, principals, and PE teachers identified the need for more staff and improved facilities to fully meet the mandates of the Act.**

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Physical education teachers echoed principals’ concerns about challenges and noted that additional improvements in implementation were needed. A number of PE teachers commented on the reasons for their schools’ shortcomings. These included not having enough PE teachers to provide the classes, limited facilities and using recess to supplement PE time. Teachers also were concerned that the increased PE time requirements resulted in some schools “doubling up” on class size, which made it difficult to deliver quality PE. Some teachers simply stated that the policy was not being followed.

*“Because of salary issues and facilities, I see some students once a week for 35 minutes. My understanding is recess can be counted toward this requirement. This, in my opinion, doesn’t fulfill this requirement since not all students partake in movement during recess.”*

*“I have had ‘doubled’ classes due to limited time blocks in the schedule... but doubling students in the limited space is not safe nor does it allow for the amount of movement requested in the intent of the law.”*

*“Classroom teachers allow students to stand around at recess. They (the students) are not active enough. Counting PE/fitness at recess is like telling a student to work on reading or math at recess.”*

Other PE teachers commented on the need for the legislation to address more PE time in middle and high schools:

*“High school students need PE every year to stay in good physical condition. The lifetime clause is too vague and doesn’t have any requirement to add personnel or provide facilities to teach the lifetime PE.”*

*“The law does not provide for more PE from middle school and up. Classes should be daily all year every year. Physical activity should become a habit.”*

Parents of schoolchildren were asked questions about what schedule changes they might support in order to allow more time for physical education and activity. Although parents were strongly supportive of providing PE five days per week, there was no clear indication about how to accomplish the increased time within the established school schedule. Parents were the most supportive of extending the school day (in favor = 48%, opposed = 52%); they were against schools offering fewer art or music classes (in favor = 29%, opposed = 71%) or having less time in traditional classes such as math, science, and language (in favor = 10%, opposed = 90%) to provide more time for PE.

## **Sale of Healthy Beverages**

An often voiced concern about limiting student access to vended beverages is the potential loss of revenues for the schools. Because the school year was still in progress when the evaluation was conducted, definitive data on school revenues were not available. However, superintendents indicated there had been extensive, and at times “heated” discussions associated with the healthy beverage issue. In addition, a number of principals indicated they had experienced (or expected to experience) complaints and reduced funding, which had compromised their programming.

*“The sale of soft drinks brought in general fund money to use for discretionary purchases by the school office to off-set curriculum materials not provided by the central office. ...Teachers still bring soft drinks from home to consume at lunch so the only loser is the school.”*

*“It (Healthy Lifestyles Act) eliminated a major source of general fund income...Parents still send soft drinks and junk food in children’s lunch boxes.”*

*“We cannot pay our copier bills and have to go without many extra staff development opportunities.”*

*“The budget will be greatly reduced. The needs of the students and staff will not be adequately served. Every county funds differently, however all schools must participate in fund raising to supplement revenue... The school is a community center and the community has many expectations and it requires extra revenue to fulfill those expectations.”*

In contrast, the majority of principals reported stable or increased revenues when they switched to healthy beverages such as milk and water. Some principals anticipated an initial loss but no long term impact. Among the 431 principals who provided information about budget impact, more than 80% indicated there had been little or no change in revenues.

*“We haven’t sold pop in our county for the last 3 years – just juice and water. Financially, there hasn’t been an impact.”*

*“Vending machines being removed didn’t really hurt anything”*

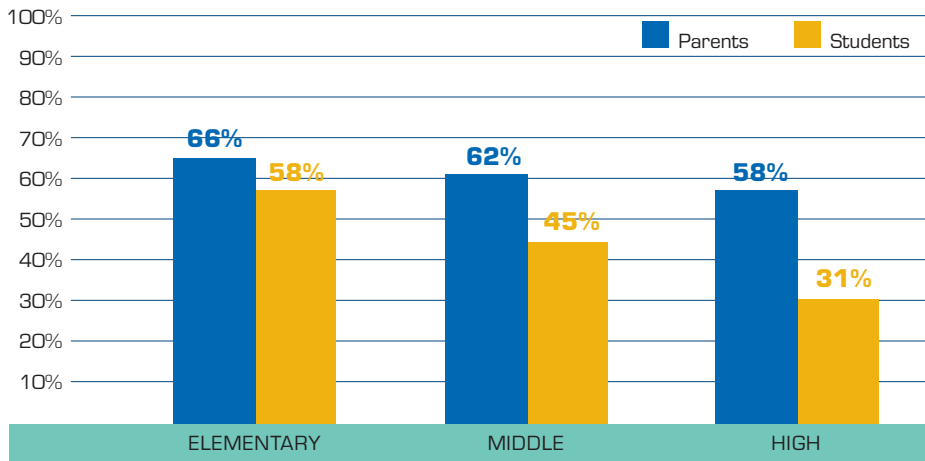
*“Little or no impact (on budget). Students come to school with varying amounts of disposable cash and will spend it on healthy snacks, water etc. if that is what is available.”*

*“The students have accepted buying water, low fat snacks, and diet beverage items. This has had very little impact on our school budget. The students realize that we are trying to provide healthy items for them to eat and drink.”*

*“It (Healthy Lifestyles Act) will reduce our funding for a time until we develop other activities to provide funding.”*

Parents and students were also asked for their opinions on these issues. Regarding the type of beverages that should be sold, 61% of parents believed that only healthy beverages should be offered to students in school vending machines while 34% indicated that both healthy and less healthy beverages should be offered, giving students the choice in what they purchased. A majority of students (54%), on the other hand, believed that both healthy and less healthy beverages should be available to them. The grade-level

**By the end of the 2007-08 school year, 25 county school boards had voluntarily prohibited the sale of soft drinks during the school day.**



**Figure 5**  
Proportion of Parents and Students Who Prefer to have Only Healthy Beverages in School Vending Machines

preferences of parent and students are illustrated in Figure 5. Of note, by the end of the 2007-08 school year, 25 county school boards had voluntarily prohibited the sale of soft drinks during the school day.

## Health Education and Assessment

### Health Education Instruction

School principals’ views were mixed regarding the adequacy of time in the schedule to meet the Content Standards and Objectives for Health Education. Overall, 79% of principals reported the time to be adequate but there were significant differences among school levels, with 72% of elementary, 89% of middle, and 97% of high school principals reporting the time to be adequate ( $p < .001$ ). Numerous principals at all school levels identified lack of time and insufficient staff as barriers to teaching health education. One elementary principal commented:

*“Scheduling has been major issue – finding time in the day to provide health instruction without extending the school day. Teachers complain there are*

*too many other requirements (NCLB<sup>f</sup> concern especially) that are being placed on them: they cannot do health issues justice.”*

Despite these concerns, an overwhelming majority (95%) of students reported learning about the importance of healthy eating and physical activity in maintaining a healthy weight.

Superintendents indicated that physical education (47%) and nutrition education (13%) were two of the top three health education areas needing the most improvement; the third area identified was alcohol and other drugs (28%).

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**95% of students reported learning about the importance of healthy eating and physical activity in maintaining a healthy weight, however student health education scores in these areas were deficient.**

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#### **Health Education Assessment Project (HEAP)**

According to data maintained by the WVDE, school level implementation of HEAP testing across the previous two school years was deficient, as indicated by the number of schools that completed HEAP testing (see Table 3). Also deficient were student scores on the nutrition and physical activity sections of the assessment (score of 80% was deemed proficient).

Questions regarding completing the mandated health education assessments and uses of the HEAP data were asked of school administrators. Principals noted challenges in completing the HEAP requirement including “limited technology access.”

A majority of superintendents (61%) indicated that data were provided to principals for use at the school level. Uses of HEAP data at the county level included evaluating county progress (22%) and setting county goals (20%), although 26% of superintendents reported that HEAP data were not received

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<sup>f</sup> The No Child Left Behind Act of 2001 (NCLB) required each state to develop and implement measures to determine whether its schools are making adequate yearly progress on annual tests and related academic indicators.



	2006-07	2007-08
Schools implementing HEAP (# implemented/# eligible)	74% (255/346)	85% (291/341)
Students tested by HEAP (# tested/# eligible)	25% (16,508/66,743)	34% (22,388/65,616)
Overall HEAP nutrition score	66%	64%
Overall HEAP physical activity score	76%	75%

**Table 3**  
Overview of HEAP Testing Results

or reviewed at the county level. School nurses were also asked about HEAP in order to determine whether they utilized the data when planning for health education services. Fifty percent of the nurses were familiar with HEAP, but fewer than 20% reported using the data in their practices at least occasionally.

### Fitness Testing

As indicated earlier, the FITNESSGRAM® assessment program categorizes each student’s performance as either in the “healthy fitness zone” or “needs improvement” on all measured components of health-related fitness. The components of fitness measured include (1) aerobic capacity, (2) body composition, (3) muscular strength and endurance and (4) flexibility. Seventy-seven percent of the PE teachers surveyed were satisfied with FITNESSGRAM® as a means to assess student fitness. FITNESSGRAM® data were well-utilized by PE teachers as 74% reported using the assessment results to modify the PE curriculum.

The vast majority (88%) of PE teachers who assessed fitness this year provided the results of the testing to students. These results were primarily communicated to students verbally (78%), but some teachers also provided results in writing (33%); less than 10% mailed results to parents. Forty-six percent of students reported discussing the fitness assessment results with their parents.

Although there was general satisfaction with the FITNESSGRAM® assessment program, many teachers expressed concerns about using it to determine

student fitness. For example, concerns were identified with the time required to complete the assessments – PE teachers reported spending an average of 19 instructional days on this task. Others expressed concerns about what they perceived as deficiencies in the specific tasks selected to assess fitness and mentioned the need for more efficient methods to record and report results.

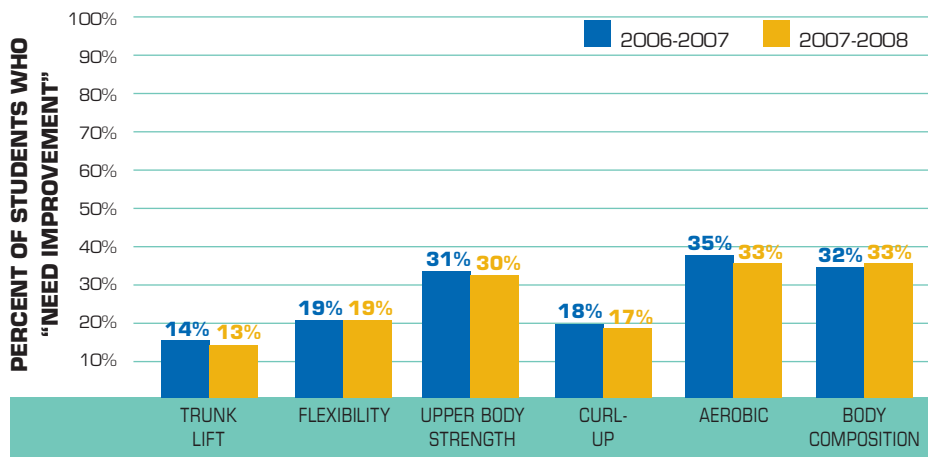
*“The tests are too easy for the students. It’s not hard for the students to be in the healthy fitness zones even if they are obese.”*

*“FITNESSGRAM® has too many ways to show if a student can pass an exercise. Results can vary from school to school depending on which test a student participates in.”*

*“We test over 350 students. A better way to communicate results to parents would be helpful.”*

**State FITNESSGRAM® Testing**

Results of the testing completed during the 2006-07 and 2007-08 school years are shown in Figure 6. As can be seen, results for each component were similar across both testing periods. Those fitness components with the greatest need for improvement included: (1) aerobic fitness, (2) body composition, and (3) upper body strength.



**Figure 6**  
A Comparison of FITNESSGRAM® Results for the 2006-07 and 2007-08 School Years.

## **BMI Assessments**

School based BMI assessment serves many functions. At a population level, these assessments help to track childhood obesity trends and monitor the outcomes associated with interventions, as was prescribed in the Healthy Lifestyles Act. At an individual level, these assessments provide the opportunity to identify at-risk students and educate families so appropriate action can be taken. Although school-based BMI assessments have been recommended by the Institute of Medicine<sup>10</sup>, the practice remains controversial due to concerns about possible adverse effects on students. To reduce the risk of harm to students, the CDC has publicized guidelines for the collection of BMI in schools<sup>11</sup>, including establishing safeguards to protect student privacy and conducting regular evaluations of the consequences associated with BMI assessment. The current report provides the initial data needed to fulfill the evaluation recommended by the CDC.

BMI assessments in West Virginia schools occurred by a variety of means, but they were primarily conducted through CARDIAC screenings and FITNESSGRAM® assessments. During the 2007-08 school year, 47% of students surveyed (grades 5, 7, and 9) reported having their BMI assessed.

### **Evaluations by School Personnel**

School personnel were asked for their perceptions of the implementation of the school-based BMI assessments. Principals rated the overall experience with BMI assessment, whether conducted through FITNESSGRAM® assessments or CARDIAC screenings, as generally positive with 75% or more reporting the experience was good or excellent. Most principals (more than 70%) had not been contacted by parents to discuss BMI screenings. Those principals who were contacted reported, on average, fewer than two parent contacts in relation to the CARDIAC BMI assessments and fewer than three parent contacts for other BMI assessments that occurred in school. Less than 3% of the contact by parents was described as negative in tone. Similarly, only 21% of superintendents had been contacted by parents about the BMI assessment, however, among those who were contacted, 27% considered the contacts to be negative. The majority of principals (88%) reported there were no problems associated with the CARDIAC screenings; 5% noted scheduling difficulties and 4% reported inadequate staffing.

Seventy-five percent of PE teachers conducted BMI assessments (or other body composition assessments) with students, and 91% of the teachers provided

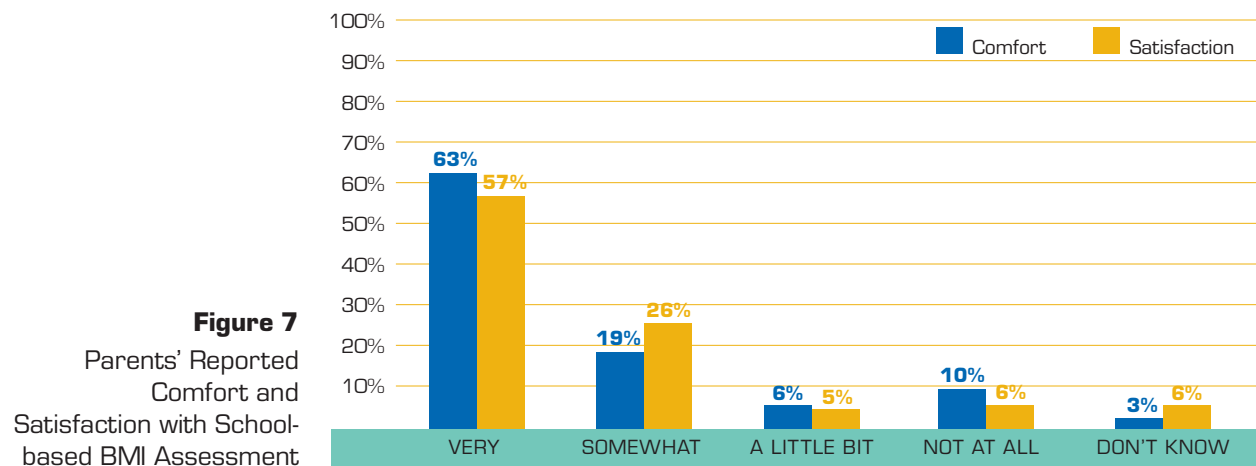
verbal or written reports to students and/or parents. The majority of PE teachers (83%) indicated it was not difficult to keep the measurement process private. School nurses reported similar experiences with privacy when they assisted with the CARDIAC and FITNESSGRAM® assessments. Almost 15% of the PE teachers voiced some concern about the assessment of BMI; the concerns were related to the time required to complete the measurements, the need for additional equipment and personnel and their desire for a standardized reporting form to communicate the results to parents.

### Three-quarters of the parents indicated the BMI report was somewhat or very helpful.

#### Impact of BMI Assessment on Students

##### Parent Reported Concerns

Although almost half of the students in grades 5, 7, and 9 reported having their BMI assessed at school, only 25% of the parents of children in those grades were aware of the assessment; an additional 40% of parents were unsure about whether this had occurred.



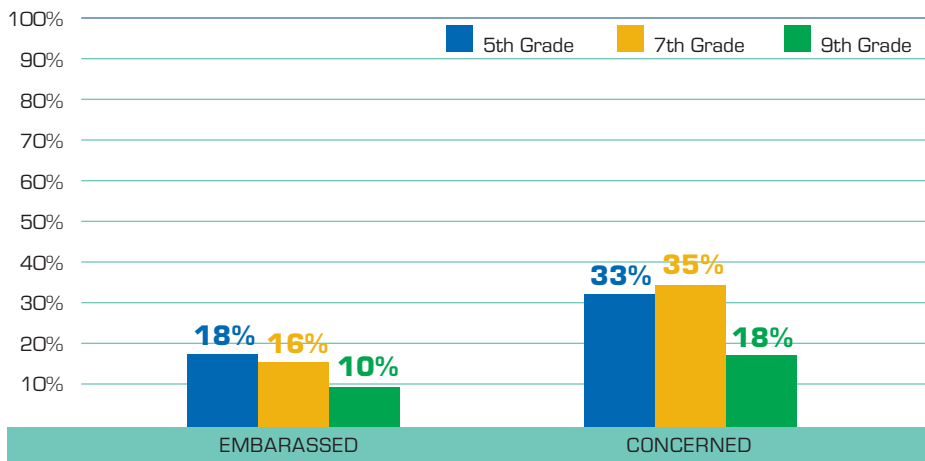
More than half of the parents whose children had been assessed were very satisfied with the BMI assessment process and not at all concerned about the privacy of those measurements (see Figure 7). Three-quarters of the parents who reported receiving a BMI report found it to be somewhat or very helpful

and 56% of those parents reported discussing the results with their children. Twenty-nine percent of parents noted that their child was concerned about his or her weight, but only four parents said the concern was precipitated by BMI measurement at school; none of those parents had children in grades where BMI was assessed by CARDIAC (grades kindergarten, 2nd, or 5th).

**Student reported concerns**

Overall, 15% of students reported being embarrassed by having their BMI measured, and this was reported significantly more often by girls than boys (17% vs. 12%;  $p < .05$ ). In addition, 29% of students reported they were slightly, somewhat, or very concerned that others would find out about their BMI measurement. Students’ embarrassment and privacy concerns are illustrated in Figure 8.

Twenty-five percent of the students reported that their parents received a BMI report, and almost two-thirds of those students indicated that their parents had discussed the report with them.



**Figure 8**  
Student Reports of Embarrassment and Privacy Concerns by Grade Level

**Impact on Health Behaviors**

Students were asked whether they had made any changes in the school year to improve their health, and if so, what the motivation was for doing so. “To improve my health” was the most frequently reported reason for changes; no students indicated that the BMI report was the basis for making changes. More than 50% of parents reported trying to change to a healthier diet, but only one parent (< 1%) attributed that change to receiving a BMI report.

### **Comparing Assessed and Not-Assessed Students and Parents**

Within the students and parents interviewed, there were students who participated in the BMI assessments and those who did not. This allowed for a comparison of students (and their parents) to examine the impact of BMI assessment on knowledge, behaviors, and attitudes. Kindergarten, 2nd, and 5th grade students (and their parents) who participated in the BMI assessment were compared to students (and parents) in those same grades who did not participate.

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**An overwhelming majority of parents believe overweight and obese children will become overweight adults.**

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There were no differences (all  $p$ s > .05) in parents' knowledge about the adverse health consequences of childhood overweight and obesity between those whose children participated or did not participate in BMI assessment. Both groups believed it was somewhat or very likely that overweight or obese children would develop one or more health problems because of their weight (96% of participating and 97% of non-participating parents, respectively) and similar numbers of parents agreed that it was somewhat or very likely that overweight or obese children will become overweight adults (95% of participating and 98% of non-participating).

There were also no significant differences in parents' descriptions of weight for those students who participated in the BMI assessment and those who did not. Similarly, parents of students who participated reported the same levels of concern about their child's weight as parents of students who did not participate, and there was no difference in parent reports of their child's concern about their own weight (all  $p$ s > .05). However, parents of children who did not participate in the BMI assessment were more likely to endorse feeling uncomfortable about receiving a BMI report from the school ( $p$  < .001). Of note, students participated in CARDIAC BMI assessments during the 2007-08 school year only when parents provided written permission. This process allowed parents who were uncomfortable to opt-out of the assessment.

No differences were observed in weight-related teasing based on students' participation in the BMI assessment, and parents of participating children

were no more concerned about the privacy of the BMI measurement than those of non-participating children ( $ps > .05$ ). Finally, there were no differences between these two groups in parent behaviors related to trying to improve the family diet, trying to increase their child's exercise level or trying to help the child lose weight by having the child skip meals or snacks, take diet pills or supplements or go to a weight loss program (all  $ps > .05$ ).

### **Resource Concerns**

The Healthy Lifestyles Act was considered an “unfunded mandate” because the bill did not provide any additional funding to schools to help support the implementation of the new requirements. Schools experienced varying degrees of difficulty as they worked to implement the Act's mandates, and in some instances the difficulties varied by school level. Only 59% of school principals indicated they had the necessary resources to implement all of the Act's requirements.

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**Approximately one fourth of the principals indicated they did not have the necessary resources to implement the PE, BMI and Health Education mandates of the Healthy Lifestyles Act.**

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As illustrated in Figure 9, approximately one fourth of the principals indicated they did not have the necessary resources to implement the PE, BMI, and Health Education requirements. Principals reported less difficulty implementing the Healthy Beverage and Fitness Testing requirements with their existing resources.

Lacking resources to implement the Healthy Beverage requirement was reported more often by principals of high schools than elementary or middle schools, while principals in elementary schools reported the greatest difficulty implementing the requirements for PE time and Health Education Assessment (all  $ps < .05$ ). Principals, particularly those in elementary and middle schools, indicated they needed more PE staff and dedicated PE space to appropriately meet the PE time requirements.

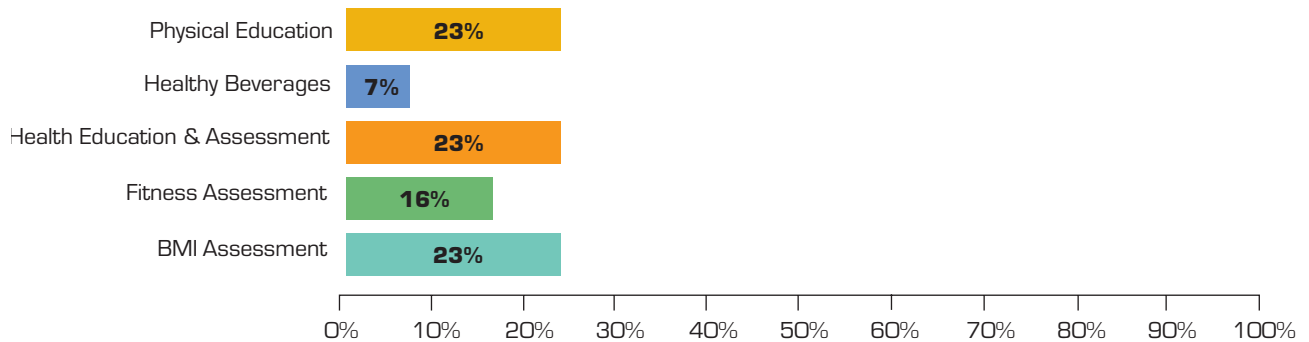
*“Since we don’t have a gym, we have to bus students to a local YMCA for PE. We do the best we can with the facility we have, but it limits us in what we can provide for PE and other action based programs.”*

*“Classroom teachers are held responsible for the additional 30 minutes per week of required PE time. The PE teacher is not allotted the time in his schedule to do this. He is a traveling resource teacher in our county.”*

*“Classroom teachers are teaching an additional PE class in some grades. Although we have a full time PE teacher, the cafeteria is used as the PE classroom and to serve lunch. We lose 2.5 hours per day to serve lunch. If we had additional space for PE we could serve more students by the PE teacher.”*

Regarding BMI measurement, principals indicated equipment and staff time were the primary resources they needed. For the Health Education Assessment, staff time, personnel and training were needed.

**Figure 9**  
Schools Lacking Resources Needed to Implement New Requirements



### Overall Impact

Superintendents and principals were asked to provide their thoughts on the overall impact of the Healthy Lifestyles Act, and principals were also asked about the impact on school schedules.

Although a few superintendents indicated the new law had little impact and others voiced concern about the difficulties they experienced trying to balance



academics and health, many more described an increased awareness of the importance of student health and other positive changes within the schools:

*“HB 2816 has shown me that our county needs to implement more policies to address physical activity and good nutritional habits for students and families.”*

*“The act has made us more aware of providing a healthy environment for our students at school.”*

Several superintendents provided “success stories” related to the bill, including descriptions of innovative programs for students, staff, and community members.

*“We have gotten a grant to provide a walking trail around two of our schools for students and adults to enjoy.”*

*“This legislation has empowered concerned educators and administrators to implement higher standards regarding nutrition and physical activity in schools... Resources were provided (by county) and schools selected one environmental change to address obesity, poor nutrition, or physical activity, and one area of health education to address with their students.”*

*“We are currently piloting a lifestyles physical education class in our high school where at-risk students with poor BMI and blood pressure have been identified. The class is using noncompetitive activities for exercise. This class has been taught to two groups of students with a high success rate, affecting about 44 students.”*

*“This school year we implemented a campus-wide wellness committee to address issues with nutrition and physical activity... As a result we have made several changes to the school menus to promote healthier eating and we have encouraged staff to make sure that students have at least one hour per day of physical activity.”*

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**Superintendents and principals believe the Healthy Lifestyles Act has raised awareness about health and the importance of healthy eating and physical activity.**

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Principal reports mirrored those of the superintendents. Some principals indicated the Act had not impacted them and others described the challenges of complying with the Act's mandates. However, many more described an increased awareness of health issues and closer scrutiny of the current nutrition and physical activity offerings in the school.

*"We have become more aware of the impact of obesity in children and how it affects academics as well as overall health."*

*"We are much more conscious of the foods we serve the children and the activity levels expected for a healthy lifestyle."*

*"I look for more ways to increase health awareness among staff and students."*

*"I am paying more attention to my health and trying to model healthy habits."*

*"Students are more aware of what they eat and how to take care of their bodies, so I have been pleased to answer more questions from students."*

Principals also described how the Act spurred the creation of new programs and activities for students.

*"We initiated intramural sports for soccer, basketball and volleyball to motivate students for healthier activities."*

*"We secured grant monies for a walking track at our school."*

*"We purchased pedometers for students to use outside when walking around the field. At our awards ceremony we recognize classrooms and individual students through our mileage club program."*

Changes to school schedules and staffing as a result of the Healthy Lifestyles Act were also described by principals. Although the overwhelming majority of principals (94% or more per subject) indicated the Act had not impacted their school schedules for science, social studies, language, art, or music, 16% indicated they had increased schedule time for health and 12% indicated they had increased time for recess. Eight percent of principals also indicated the Act had resulted in an increased student to teacher ratio in PE classes, a finding that was also reflected in PE teacher comments. With regard to the impact of the Act on overall staffing, 6% of principals reported an increase in staff, 2% reported a decrease and 92% reported no change.

## CHAPTER 7

# KEY FINDINGS FROM SCHOOLS

In addition to the specific findings regarding Impressions (Chapter 5) and Implementation (Chapter 6) of the Healthy Lifestyles Act, school personnel provided data on the general environment in West Virginia schools, activities they undertake in support of physical activity and nutrition for students and families, and challenges they face. Those findings from superintendents, principals, physical education teachers and school nurses are described in this chapter.

### **Superintendents and Principals: School Environments and Policies**

Beyond the changes brought about by the Healthy Lifestyles Act, nutrition and physical activity/physical education (PA/PE) programs and policies are evolving at the school and county level. This evolution has been enhanced by the formation of local wellness committees and the creation of wellness policies (Chapter 11), and in some instances has been spurred on by local champions – individuals or groups whose mission has been to create a healthier environment for West Virginia’s students and families. This section outlines information on the broader school environment by providing details on current nutrition and PA/PE policies (Tables 4 and 5), beverage availability (Table 6), and programs for families (Table 7).

### **Nutrition**

#### **Food as a Reward**

As noted in Table 4, 19% of superintendents reported that the use of food or food coupons as rewards was prohibited in their counties. An additional 50% of counties did not prohibit this practice, but did recommend against it, while 31% of the counties had no relevant policy. At the school level, 38% of principals reported prohibiting the use of food or food coupons, 37% allowed

it, and 25% allowed but discouraged the practice (see Table 5). The IOM<sup>10</sup> noted that the use of foods and beverages as a reward encourages poor eating habits and indicated the practice should not be allowed in schools.

**Vending and Junk Food**

Thirty-nine percent of all principals reported having vending machines on campus that were available to students. Vending machines were available in 97% of high schools, 78% of middle schools, and only 15% of elementary schools. As can be seen in Table 6, the availability of beverages differed by school level, with elementary schools making vended beverages available the least often, and high schools the most often.

**During the 2007-08 school year, sixty percent of counties banned junk food in vending machines but few counties banned junk food in other settings such as concessions and parties.**

**Table 4**  
County-level Nutrition and Physical Activity Policies for Schools

Require recess for elementary students require > 20 minutes of recess	55%
Prohibit food or food coupons to be used as a reward	22%
Prohibit junk food for:	19%
parties	38%
after school programs	38%
school store	51%
vending	60%
concession	4%
staff meetings	2%
meetings attended by families	2%
Have a fundraising policy that includes nutrition guidelines	30%

According to superintendents, fewer than one-half of the counties (49%) have exclusive contracts with soft drink bottling companies. Principals reported using the revenues generated by vending to support a variety of programs, including: academic (70%), extracurricular fine arts (36%), physical education/physical activity (35%), art or music instruction (29%), extracurricular sports (18%) and food service (3%). Principals estimated that

healthier items (such as fruit or vegetable juice and low-fat crackers) made up slightly less than half (48%) of all items available in vending machines. The availability of foods and beverages that compete with the school meal program is a concern because these foods are often of lower nutritional quality than the foods provided within the meal program.

Table 4 illustrates that most counties ban “junk food” in vending machines and about half ban junk food in school stores. However, in other settings where food is served or sold to students, staff, and parents, (for example, parties, staff meetings, concessions) less than half of West Virginia counties either ban or recommend against the availability of junk food.

**School Breakfast and Lunch Programs**

Principals reported that 72% and 48% of students in their schools participated in the lunch and breakfast programs, respectively. Figure 10 illustrates the percentage of students at each school level who participate in school lunch and breakfast programs. Eighty-one percent of schools offered foods modified to be healthier (for example, using low fat cheese in pizzas). However, very few offered any specialized meal programs, such as breakfast after 1st period or grab-n-go meals (72% offered no specific specialized meal programs).

Forty-four percent of principals reported students in their schools were able to get additional servings at meals; additional servings were more frequently reported in high schools (64%), as compared to middle schools (51%), and elementary schools (38%). Students had an average of 23 minutes to eat lunch after being seated, although the least amount of time reported was 2 minutes and the most was 41 minutes.

Prohibit the use of physical activity to punish students for misbehavior in PE	95%
Prohibit removing recess to punish students for misbehavior (elementary)	24%
Having serving size guidelines for vended foods	86%
Prohibit sale of food for fundraisers	18%
Have nutrition policy for foods served at school parties	64%
Have policy requiring the sale of healthy foods at concessions (middle/high)	21%
Prohibit food or food coupons to be used as a reward	38%
Prohibit advertising by food and beverage companies	45%

**Table 5**  
School-level Nutrition and Physical Activity Policies

## Physical Activity and Physical Education

### Recess Requirements

Recess has been recognized as an important social and physical activity opportunity for children by many groups, including the CDC<sup>12</sup> and the US Department of Education<sup>13</sup>. As can be seen in Table 4, 55% of counties reported having a policy that required recess for elementary students. Of the remainder, 34% recommended recess, and 11% did not require or recommend that elementary students be provided with recess. In counties with policies requiring recess, 24% required 10-19 minutes per day, more than one-half (52%) required 20-29 minutes per day, and 24% required 30 or more minutes per day. As indicated in Table 5, only 24% of elementary principals reported policies that prohibited removing recess to punish students for misbehavior.

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**More than half of West Virginia's counties  
require recess for elementary students.**

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### Wellness Programs for Students and Staff

As an indication of their commitment to student health, 51% of principals noted that their schools had a wellness council or committee in addition to the county wellness council. Wellness was also identified as a priority for school staff. The majority of superintendents believed it was very important to provide wellness programs to staff (66%), and none indicated it was not important. Fifty-one percent of counties have a staff wellness policy, and 64% reported utilizing the Public Employees Insurance Agency's "Pathways to Wellness" program.

Beverage	Always available			Only at non-meal times			Only at non-school times			Never		
	E	M	H	E	M	H	E	M	H	E	M	H
Water	50	75	89	12	19	11	2	2	0	37	4	0
Low-fat milk	34	40	40	13	19	19	2	2	6	51	39	35
Soda	0	0	4	6	9	40	13	43	37	81	47	19
100% juice	23	34	51	26	38	28	4	15	15	47	13	6
<100% juice	6	11	15	10	21	30	6	19	19	79	49	36
Sport drinks	0	0	2	8	9	34	8	38	32	85	53	32
Teas, flavored water, energy drinks	0	0	6	6	8	17	8	23	21	87	70	57

**Table 6**  
Superintendent Reports of Vended Beverage Availability (Percent) in Elementary (E), Middle (M), and High Schools (H)

**Fundraising and Advertising**

Most counties (70%) have a policy guiding fundraisers, but only 43% of those policies include nutrition guidelines. According to principals, the most commonly sold fundraiser foods are: (1) cakes, candy, cookies, ice cream or donuts (62%), (2) fruit, nuts or popcorn (36%), and (3) meals (32%). Eighty-seven percent of principals reported that fundraiser foods were not allowed to be sold during the school day.

Forty-five percent of principals reported having school policies that prohibited commercial advertising on school grounds by food or beverage companies.

**Programs for Families**

Principals and superintendents commented on the need for schools and families to work together to reduce childhood obesity. They noted some parent frustration at changes in school polices and the need for parents to support the new regulations and encourage healthy eating and physical activity in the home environment.

*“Parents need to share the responsibility – schools can not do it all.”*

*“We need to educate the parents – it will make our job easier!”*

*“(The Healthy Lifestyles Act) made it easy to talk to parents about changes that need to be made.”*

Although several administrators commented on the importance of educating parents, many counties and schools lack nutrition and physical education programs for parents.

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**Principals and superintendents commented on the need for schools and families to work together to reduce childhood obesity.**

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#### **Nutrition Programs**

As indicated in Table 7, an overwhelming majority of superintendents and principals reported that their counties and schools provided families with information regarding school nutrition programs. This is in keeping with state regulations requiring schools to publish breakfast and lunch menus. Offering nutrition programs for families, meeting with parent organizations, and making school facilities available for nutrition events and programs occurred less often at the county and school level.

#### **Physical Activity and Physical Education Programs**

The majority of superintendents reported that their counties provided information to parents on the PE programs at schools. However, as indicated in Table 7, less than 40% were engaged in other efforts to promote PA/PE, such as meeting with parent organizations or offering PE activities to families. School principals reported similar activities regarding physical activity/physical education, although fewer schools than counties offered programs for families. In addition, 93% of principals reported that their school facilities were available to community groups outside of school hours, which is in keeping with current best practice recommendations<sup>10</sup>.

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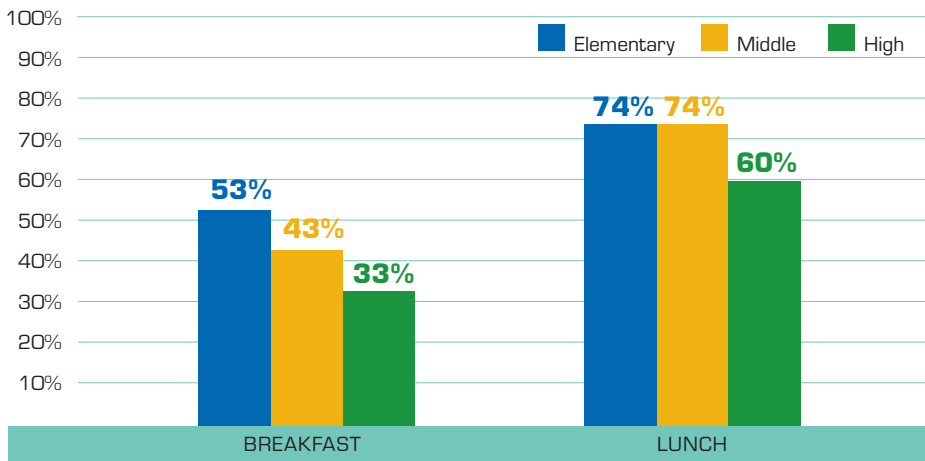
**Ninety-three percent of principals reported that their school facilities were available to community groups outside of school hours, which is in keeping with current best practice recommendations.**

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Activities	County-Level	School-Level
<b>Nutrition</b>		
Provided information to families on school nutrition programs	94%	70%
Met with a parents' organization to discuss nutrition programs	47%	41%
Offered nutrition education or nutrition programs to families	66%	44%
Made school facilities available for community nutrition events	49%	18%
<b>Physical Education</b>		
Provided information to families on school physical education programs	53%	70%
Met with a parents' organization to discuss PE programs	28%	41%
Invited family members to tour PE facilities	38%	44%
Offered physical education activity programs to families	32%	18%

**Table 7**  
Percent of County and School-Level Activities to Promote Nutrition and Physical Education/Physical Activity



**Figure 10**  
Percent of Students Participating in School Breakfast & Lunch Programs

### Physical Education Teachers

Although PE teachers had a lower response rate to the evaluation surveys than other school personnel, they provided many more written comments. Overall, PE teachers provided more than 1900 comments, of which approximately 1100 were prompted by survey items (for example, “if you answered yes, please describe”), and more than 800 were spontaneous. Together, these comments provided significant insight into the PE environments in West Virginia schools.

### **Need for more Physical Education and Physical Activity**

As indicated in Chapter 5, PE teachers strongly believed there was not enough time allotted in school schedules for student PE classes. Ninety-eight percent of PE teachers reported classes were 30 minutes or more in length, and on average, teachers reported that students spent 62% of their class time in moderate to vigorous physical activity (MVPA). Acknowledging the importance of physical activity for students beyond PE class, 81% of teachers felt there should be more time in the school day for structured physical activity.

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**Eighty-one percent of PE teachers believed there should be more time for structured physical activity during the school day.**

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### **Facilities**

Forty-one percent of PE teachers rated their indoor PE facilities as fair or poor and 44% rated their school's outdoor facilities as fair or poor. Sixty-four percent reported having a gym for PE, although numerous comments indicated that the gym was not exclusively used for PE classes and almost one third of the teachers reported using a multi-purpose room. PE teachers voiced numerous concerns about limited facilities and space for PE, noting that the space used for PE commonly served as a cafeteria or auditorium at other times during the school day; some reported holding PE classes in hallways or regular classrooms:

*"There is a dedicated gym but it includes the stage and is used for a multipurpose room. Also entrance to lunch room and kindergarten rooms is through the gym."*

As noted earlier, the required increase in PE minutes resulted in some schools doubling up on class size, which raised safety concerns for some teachers.

### **PE Equipment and Supplies**

Seventy percent of teachers reported having a dedicated budget for PE supplies and equipment. Budget allocations ranged from \$0-\$500 for the majority (72%) of respondents. Although 65% of the teachers rated their school's PE equipment as good or excellent, 57% believed the budget was not sufficient to meet current equipment needs, and 32% had written grants to provide additional funding for supplies.

*“Immediately after the passage of the bill I wrote a grant for pedometers, used them in PE classes, and took my fifth graders on a rails-to-trails walk using these pedometers, and I invited parents, Governor Manchin, and our legislators to join us.”*

### **Supportive Environments**

PE teachers were asked to rate the degree to which physical activity was incorporated into non-PE subjects during the school day and to rate the support for physical activity among other teachers. Although only 6% of PE teachers felt that physical activity was well integrated into the academic subjects, 93% felt that non-PE teachers strongly encouraged student physical activity in their schools.

Many PE teachers commented on the importance of a supportive home environment to improve student fitness. PE teachers echoed principal and superintendent comments regarding the need for parental involvement and education.

*“I think parents and local/state officials need to be more aware of the crisis our state’s youth are facing for their future health. With the support of parents to encourage their children to be physically active and to serve their children healthy meals, we should see an improvement in the children’s health.”*

*“We have to get the students and the parents to realize how important staying and being healthy is. When we accomplish this, I believe the outlook will be better.”*

*“Until our society changes, the students in whole won’t change. If parents don’t encourage their children to exercise or even play the kids won’t see it as important, regardless of how much we preach or beg.”*

*“To change student fitness, parents need to make it a priority at home. A “lifestyle change” must be supported more than one full period of PE each school day of one semester.”*

### **Dance Dance Revolution (DDR)**

DDR is a physically interactive video game that incorporates rhythm and dance. Over the past several years, a number of PE teachers purchased DDR video game consoles, games, and dance pads for use in their classrooms. In addition, the Games for Health<sup>14</sup> program, launched by West Virginia

University and the Public Employees Insurance Agency, provided funding for equipment and training to place DDR in schools throughout the state.

An overwhelming majority (92%) of PE teachers believe DDR is an appropriate component of a PE curriculum. Fifty-four percent of the PE teachers used DDR in class during the 2007-08 school year, and three fourths of those teachers used it several times per month or more. On average, teachers reported that 91 students used DDR in PE class and 24 students used DDR outside of PE during a typical week. Teachers reported having an average of 3 DDR pads.

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**An overwhelming majority of PE teachers believe DDR is an appropriate component of a PE curriculum.**

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Over half of the PE teachers believed DDR was moderately or very helpful in increasing the physical activity of students at school, and a much higher percentage (91%) believed DDR was an effective way to engage sedentary students in physical activity. A number of comments indicated that DDR was “loved” by the students and PE teachers. Teachers reported that using DDR in stations was a helpful way to optimize student access to the limited equipment.

*“The students really love DDR and I have been trying to work it in as much as possible both in PE classes and at lunch time. I also wrote a grant to try to promote DDR more and to add more dance pads to the two we have now.”*

*“We use our DDRs as stations and open them up to grades 3-5 from 7:30-8:00 every morning. About 50 students are able to run through a turn during this time.”*

*“I especially like it when you have those (students) who are weak in some areas but can excel at using DDR.”*

*“Electronic exercise such as DDR and Wii are the future for the non-traditional athlete and the non athlete to enjoy and participate in MVPA as a lifetime wellness activity. To not teach ‘electronic exercise’ would be like not teaching reading, writing, math, and computer skills to children.”*

Although teachers indicated strong support for the use of physically interactive video games in PE programs, many voiced concerns about the time required for DDR set up, the cost of games and pads, equipment problems, and student inactivity caused by watching others play.

*“I use it as a fitness station and as an option for free choice days. Although students not on the pads may follow along, I have found they tend to just stand and watch, reducing the amount of time they are actually active.”*

*“DDR is great I just feel the cost is outrageous. I have used all my budget for the last 2 years just to purchase it.”*

*“The DDR mats, TVs and Play Stations are stored near the gym. They cannot be left out. It takes approximately 20 minutes to set up the gym for DDR stations...This is the reason I use DDR three times a year for all classes in a row.”*

## School Nurses

School nurses represent an important resource for students and parents with questions about nutrition, physical activity, and weight. In addition to providing direct care services, school nurses participate in health assessments, teach about health topics, and serve on school and county wellness committees. However, in West Virginia school nurses are typically assigned to provide health services to multiple schools, which limits the time they have available for many of these activities.

### Addressing questions from students and parents

Approximately 85% of school nurses reported receiving questions from students about nutrition and diet, and about half reported questions about exercise and ways to lose weight. The reports of contact by parents about these topics were very similar – 86% of the nurses were contacted by parents about students’ diets, 45% were asked about exercise and 51% were asked about weight loss. Most nurses reported receiving between 1 and 10 questions on each of these topics from students, and an additional 1 to 10 questions from parents during the past school year. A smaller number of nurses also reported addressing questions about eating disorders from students (24%) and parents (30%).

### **Interactions with the broader health care system**

School nurses often serve as liaisons between the school and health care providers in the community, acting as the point of contact for physicians with orders related to student health and referring students for needed services. During the 2007-08 school year, 97% of nurses reported receiving orders for specialized student diets and 47% said they had made referrals for students with weight problems; although most nurses had referred less than 10 students, a small number of nurses (8%) had referred more than 10 students with weight problems to health care providers. In addition, 21% of nurses served on community health coalitions.

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**Forty-seven percent of nurses had made referrals for students with weight problems.**

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### **Support for school health programs and activities**

School nurses assist with many health programs in schools. Seventy-three percent of nurses reported assisting with the CARDIAC screenings, 21% assisted with FITNESSGRAM® measurements and 24% helped PE teachers measure students' BMIs. Nurse comments indicated additional areas where they have provided support:

*"I have attempted to assist in increasing 'activity' time in academic areas outside of PE class."*

*"I am more involved in any dietary decisions made in our building. I have also been involved in addressing parents in regard to the choices made for parties and events held in our building."*

*"Frequent requests to review appropriate snacks served at school parties."*

*"Most of the students I see are for conditions relating to lack of fitness and poor nutrition. These are also the students who perform poorly at school."*

### **Nursing Impact on the Schools**

Forty-seven percent of nurses reported serving on school wellness committees and 36% serve on wellness committees for the county. Most nurses (79%) felt they were influential in helping to shape health policies within the school.

# KEY FINDINGS FROM FAMILIES

## Parents' Views

Surveys of 250 parents in each of six grades (K, 2nd, 4th, 5th, 7th, and 9th) were conducted by telephone, resulting in the completion of 1500 total parent interviews. Fifty-two percent of the parents reported information for their sons and 48% reported information about their daughters. Information about the demographic characteristics of the sample is detailed in Chapter 4.

### Parent Views of Child Weight

Parents were asked to provide the child's height and weight and to describe their child's weight status. The height and weight values provided by the parents were used with the child's age and gender to calculate BMI percentiles. As illustrated in Figure 11, parent descriptions significantly underestimated the number of children who were overweight and obese when compared to BMI ( $p < .001$ ). For example, although 19% of children were classified as obese based on their BMI score, less than 1% of the parents identified their child as obese. Sixty-seven percent of parents reported they were not at all concerned about their child's weight.

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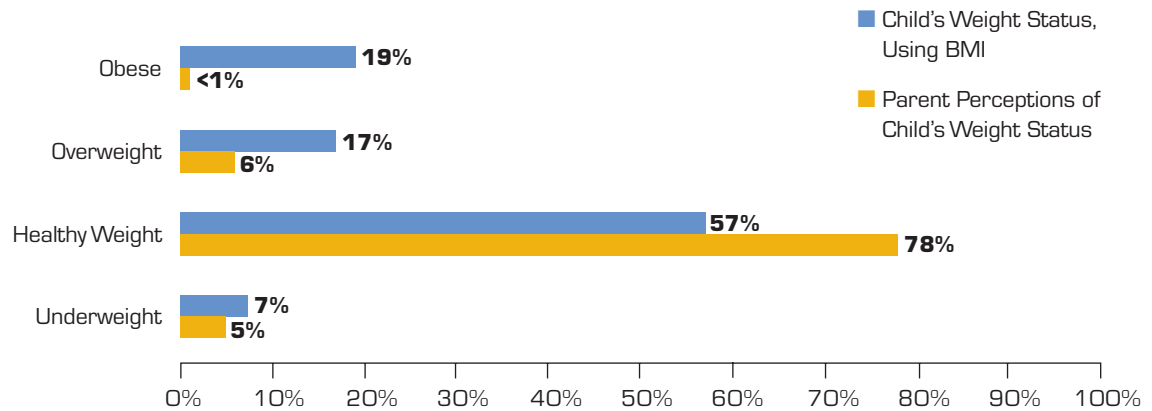
**Nineteen percent of children were classified as obese based on their BMI score, yet less than 1 % of the parents identified their child as obese.**

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### Parent Interactions with Health Care Providers

Only 26% of parents reported their child's health care provider had discussed their child's weight during the past 2 years. Of those, 60% reported being told

**Figure 11**  
Child's BMI-Based Weight Status Compared to Parent Perceptions



the child's weight was normal, 12% were told the child was underweight, 24% were told the child was at-risk for overweight or overweight and less than 1% were told their child was obese. Virtually all parents (99%) indicated they would want to be told if the doctor's assessment indicated their child was overweight or obese.

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**Only 26% of parents reported their child's health care provider had discussed their child's weight during the past 2 years.**

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**Parent Impressions of Child's Weight Concerns**

Twenty-three percent of parents indicated their child was concerned about his or her weight, and the number of concerned children was significantly different across grades ( $p < .001$ ). Weight concern increased steadily from kindergarten (4%) through 7th grade (34%), before declining in the 9th grade (29%). According to parents, girls were more likely than boys to be concerned about weight because of teasing (41% vs 29%,  $p < .05$ ), and boys were more likely to be concerned than girls because of feedback from their health care provider (10% vs 3%,  $p < .01$ ).



**Parent Knowledge about Obesity and Health**

Parent knowledge of the health consequences of obesity in childhood was mixed. Most parents were able to identify the link between childhood obesity and diabetes (76%) and between obesity and heart disease (54%). However, relatively few identified the relationship between childhood obesity and high cholesterol (22%), high blood pressure (32%), and asthma or other respiratory problems (21%). Eighty percent of parents believed it was very likely that overweight or obese children would become overweight adults. Figure 12 illustrates parent knowledge of these relationships.

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**More than half of parents reported  
trying to improve their  
family's diet to make it healthier.**

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**Parent Reports of Family Nutrition**

During the interview, parents described their typical intake of fruits and vegetables and indicated how often they ate at fast food restaurants. Based on these reports, 89% of parents ate less than the recommended amounts of fruits and vegetables<sup>15</sup>. Parents ate at fast food restaurants an average of 7 times per month.

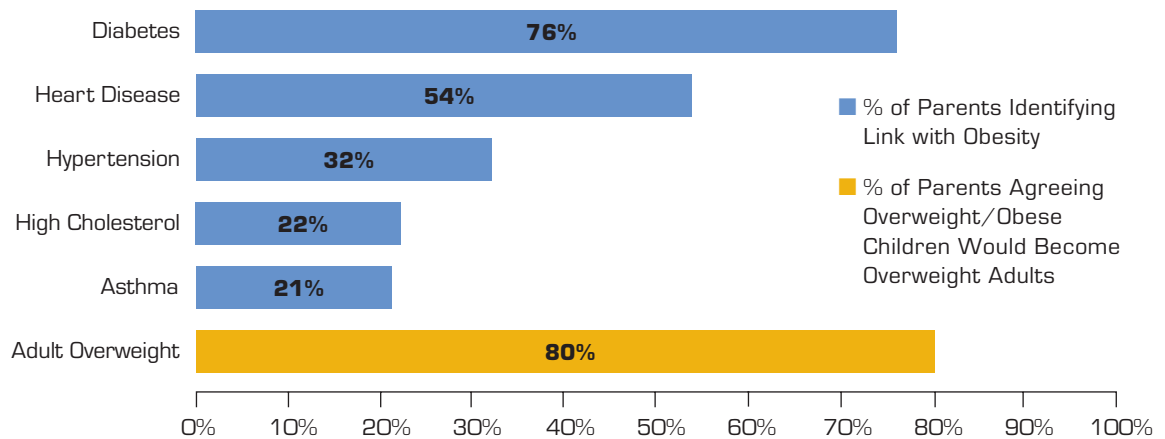
Parents also reported the foods and beverages their children consumed on the previous day. Based on these reports, 86% of children ate less than the recommended amounts of fruits and vegetables<sup>15</sup>; children also consumed less than 1 can of soda and almost 2 servings of milk.

More than half of parents (52%) reported trying to improve their family's diet to make it healthier. The most commonly reported dietary changes were increasing fruits and vegetables (36%), decreasing sodas or switching to diet sodas (24%), and reducing fat intake (21%). The least commonly reported changes were counting calories (7%), decreasing portion size (6%), and using nutrition labels to guide food choices (3%).

**Parent Reports of Physical Activity and Exercise**

Parents also were asked about their recent levels and types of physical activity. Fifty percent of the parents reported completing at least 30 minutes of moderate to vigorous physical activity on 5 or more days per week. In

**Figure 12**  
Parent Knowledge of Health Risks Associated with Childhood Obesity



addition, parents reported on leisure time physical activities such as gardening or walking, and indicated they had conducted these activities an average of 16 days over the previous month.

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**Ninety-six percent of parents believe schools play an important role in addressing the childhood obesity epidemic.**

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**Parent Reports of Child Physical and Sedentary Activities**

Parents were asked about the amount of time their child spent in both physical and sedentary activities. A majority of parents (63%) reported their child had been physically active for at least 30 minutes on each of the past 7 days, and 45% of parents reported their child had been active for at least 60 minutes on each of the past 7 days.

Regarding sedentary activities such as watching TV and playing video games, parents indicated that 72% of children spent 1 – 2 hours each day watching TV or playing video games; 21% spent more than 2 hours each day, and 8% spent less than an hour per day. Seventy-three percent of parents reported limiting screen time for their children, although this decreased as children become older. For example, 81% of kindergarten parents vs. 53% of 9th grade parents reported limiting screen time. The American Academy of Pediatrics

recommends limiting children's screen time to no more than one to two hours of quality programming per day<sup>16</sup>.

### **Parent Views on the School's Role in Childhood Obesity**

The overwhelming majority of parents (96%) believed that the school's role was important in addressing childhood overweight and obesity, and 43% of parents characterized that role as very important. In addition, as described in Chapter 6, a majority of all parents indicated they were comfortable receiving a BMI report from school, and those parents whose children had been measured indicated they were satisfied with the reports they received.

## **Students' Views**

Telephone interviews were conducted with a total of 420 public school students from grades 5, 7, and 9. Questions regarding nutrition, physical activity/inactivity, and BMI measurement were asked. Parents of these students provided permission for their children to be interviewed also completed interviews.

While the vast majority of students (95%) reported that they had learned about the importance of healthy eating and being physically active in order to maintain a healthy weight, this did not appear to translate into practice for many students.

### **Nutrition**

Students believed that a person should consume about 4 servings of fruits and vegetables each day for good health, and, on average, they reported consuming 4 servings of fruits and vegetables during the previous day. Based on these reports, 86% of the students ate less than the recommended amounts of fruits and vegetables, which was in excellent agreement with parent reports of children's fruit and vegetable consumption. In addition, students reported drinking an average of 1 can of soda and slightly more than one glass of milk on the previous day. Over the past month, students reported eating at a fast food restaurant an average of 5 times, which was 2 fewer times than the average reported by parents.

As a whole, the students consumed an average of one soft drink and one snack from school vending machines in the past week. However, only 32% of students purchased soft drinks and 33% purchased snacks from school vending machines in the past month. Among those students who purchased

from vending, the average consumption of soft drinks and snacks was about 3 per week. More than half of the students felt that both healthy and unhealthy drinks (54%) and snacks (62%) should be offered in school vending machines so they could make their own decisions on what to purchase. The proportion of students who felt this way increased significantly with increasing grade level ( $p < .001$ )

### **Physical Activity/Inactivity**

The CDC Physical Activity Guidelines recommend that children and adolescents participate in 60 minutes or more of physical activity each day<sup>17</sup>. Based on interviews, 27% of students reported being physically active for a total of at least 60 minutes per day in the past 7 days. Thirty-two percent of boys and 23% of girls reported meeting this guideline, which was a significant difference ( $p < .05$ ). When asked about sports team participation, approximately 72% reported playing on at least one sports team in the past 12 months. In relation to screen time, students reported spending an average of about 2 hours per day watching television or videos, playing video games and/or using a computer for fun.

### **Student Weight Perceptions**

More than half of the students (52%) reported that they were slightly, somewhat, or very concerned about their body weight, and this concern was more common in girls (57%) than boys (48%). Approximately 9% of students reported that others teased, joked, or made fun of their weight.

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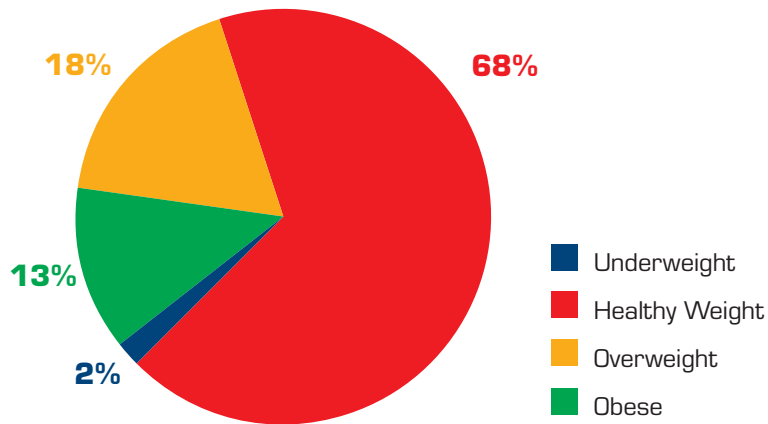
**More than half of the students interviewed reported being concerned about their body weight.**

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Students described their weight as follows: 6% underweight, 73% healthy weight, 11% at risk for overweight, 8% overweight and less than 1% obese. Students reported their height and weight, and these values were used to calculate BMI percentiles. The students' weight categories, based on the BMI percentiles are provided in Figure 13. As shown, significantly fewer students identified themselves as overweight and obese than was indicated by their BMI percentiles ( $p < .001$ ).

**Figure 13**

The Percent of Students in each Weight Category Based on Self-Reported Height and Weight





# KEY FINDINGS FROM HEALTH CARE PROVIDERS

One concern that has been voiced about widespread BMI screening for students is that doctors and other providers will be overwhelmed by families who seek treatment after receiving a report that their children are overweight. An additional concern is that the providers may not have the necessary resources to treat these children or access to appropriate referrals, such as dietitians; this concern is particularly salient in West Virginia as approximately 85% of counties are wholly or partially identified as Medically Underserved Areas by the US Health Resources and Services Administration<sup>18</sup>.

Questions about available resources and requests for weight-related services were addressed in the surveys completed by health care providers across the state. Other questions asked about perceived changes in child and adolescent health, changes in parent awareness of overweight and obesity and provider practices for weight measurement and counseling.

## **Trends**

Health care providers compared the 2007-08 school year to the previous one and indicated whether there had been any change in the weight-related questions and concerns voiced by the children and parents seen in their practices. Although most providers said there had been no change in parents, among those providers who noted a change (15% to 45%, depending on the question), the vast majority indicated the concerns or questions had increased. Figure 14 illustrates the significant changes in parents identified by providers.

*“There is a better understanding by the patients of the importance of healthy choices of food and exercise. They understand that obese teens become obese adults.”*

Providers also reported significant increases in children's awareness of weight/BMI and concerns about being overweight (both  $ps < .001$ ).

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**Many health care providers noted that parents were increasingly aware of childhood overweight and obesity and were more likely to request guidance on nutrition and physical activity.**

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### **CARDIAC Health Reports**

The majority of health care providers (54%) indicated that parents had not contacted them to discuss the CARDIAC health reports. Among those providers who had been contacted about CARDIAC reports, 29% reported being contacted by 1 to 5 parents, 8% reported contact by 6 to 10 parents, and 9% said they had been contacted by 11 or more parents. The primary focus of parent concerns (from most to least common) was: (1) cholesterol, (2) BMI, (3) blood pressure, and (4) possible insulin resistance.

### **Impact**

In general, the Healthy Lifestyles Act has not had a substantial impact on the practices of health care providers in the state. Fewer than half of the providers surveyed reported being familiar with the Act, and only 16% indicated that it had influenced their practice. Comments made in response to the survey question about impact indicated concern about the level of knowledge regarding childhood obesity and one provider's attempt to support the new mandates.

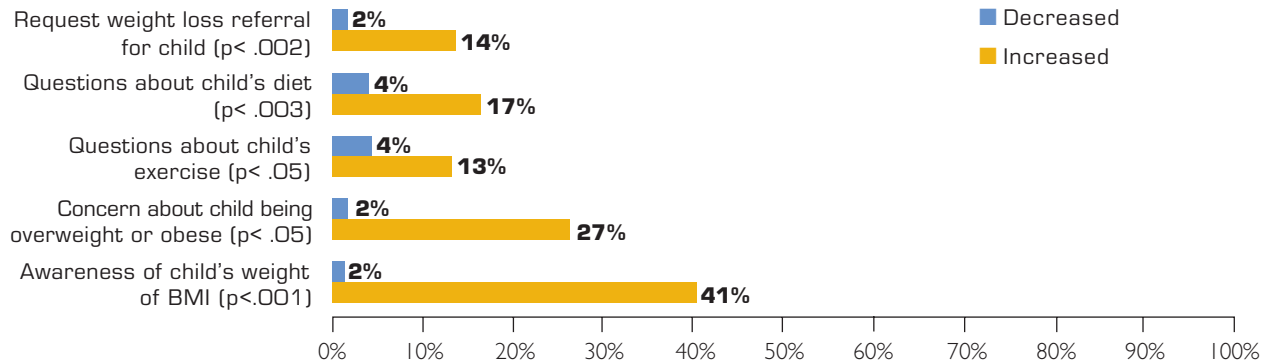
*"No impact yet, there continues to be a lack of education regarding healthy lifestyles and the impact obesity has on outcomes and quality of life."*

*"We have begun to incorporate more concrete guidelines for parents to use in helping their children with healthy diets and activity levels into the well child visits to augment these (school-based) efforts."*



**Fewer than half of the providers surveyed reported being familiar with the Act, and only 16% indicated that it had influenced their practice.**

**Figure 14**  
Health Care Provider Reports of Parental Changes Over the Past Year



**Assessment of Child Weight**

When describing their standard practices, most providers (55%) indicated they measured children’s height and weight at every visit, although one third indicated they measured this only when the need arises. Plotting height and weight on growth charts occurred most often during well-child or sports physical visits (65%) and less often as a routine part of every visit (27%). About one fourth of providers reported calculating BMI percentiles for children whenever height and weight were measured, while one third indicated they rarely or never did this. These findings are in contrast to the Expert Committee recommendations for universal assessment of obesity risk and calculation of BMI at every well child visit<sup>19</sup>.

**Although virtually all providers believe parents should be told their child’s weight status, one third of providers rarely or never calculate children’s BMI percentiles.**

The most commonly cited methods for assessing children's weight status were growth charts (86%), clinical impressions (69%) and BMI (61%). About half of the providers reported using BMI percentiles and a very small number used methods such as skin fold thickness, impedance or waist-to-hip ratio.

Providers estimated the percentage of their child and adolescent patients that fell into each of the weight categories as follows: 6% underweight, 45% healthy weight, 31% overweight and 18% obese.

## Treating Child Overweight and Obesity

Health care provider counseling for overweight and obese children is viewed as an important supplement to the broader public health approach to reducing obesity<sup>19</sup>. West Virginia's providers reported varying approaches to providing this counseling, including: counseling at every visit (41%), counseling at least annually (38%), counseling only when the child/parents appear receptive or request guidance (12%) and counseling only when the child's weight has caused other health problems (9%). Virtually all providers (99%) believed parents should be informed about their child's weight status and that parents should be told if the child is obese. In addition, 93% of providers believed elementary school children should be informed about their weight status, 98% believed middle school children should be informed and 99% believed high school children should be informed.

Weight counseling can be time-intensive as current guidelines recommend educating families about diet and portion size, moderate to vigorous physical activity and limiting television and other sedentary behaviors<sup>19</sup>. Although most providers felt they had the necessary training and skills to counsel families about weight (89%), fewer reported having the time to do so (55%). Limited access to dietitians (37%) and lack of reimbursement for weight counseling (79%) were additional barriers for many providers.

Further examination of the CARDIAC screening data resulted in revisions to the information originally presented in Chapter 10 (Screening Outcomes and Figure 15). The corrected information is included in this 02/22/2010 version.

## CHAPTER 10

# BMI ASSESSMENTS BY CARDIAC

### **CARDIAC Program History**

The Coronary Artery Risk Detection In Appalachian Communities (CARDIAC) Project has been charged with fulfilling the Healthy Lifestyles Act mandate for BMI assessment of students within West Virginia schools. The CARDIAC Project began in 1998 as a school-based public health initiative with an education, health awareness, and health screening component. Over the past 10 years, the project has expanded and has screened more than 73,000 kindergarten, 2nd grade, and 5th grade children throughout the state.

### **Screening and Reporting Procedures**

On screening day, kindergarten and 2nd grade students with parental consent have their height and weight measured. Fifth graders with parental consent have their blood pressure measured, are screened for possible insulin resistance, and have blood drawn for a fasting lipid profile panel in addition to the height and weight measurements. Parents are able to participate in the school screening or may take a voucher to a participating community lab for a free fasting lipid profile. All participating students and parents receive a report of their results, including BMI (parents) or BMI percentile (children). School nurses and principals receive an aggregate report of their school and county results; aggregate results are also posted on the CARDIAC web site ([www.cardiacwv.org](http://www.cardiacwv.org)).

### **Screening Outcomes**

Kindergarten students in 47 counties, 2nd grade students in 45 counties, and 5th grade students in all 55 counties were eligible to participate in CARDIAC during the 2007-08 school year. During this year, a total of 8689 kindergarten, 7885 second, and 7708 fifth graders who were screened had completed BMI

data. Figure 15 illustrates the percentage of children in each grade who were overweight and obese. According to CARDIAC, a comparison of children who were screened in 2006-07 to children screened in 2007-08, revealed no significant differences in overweight or obesity for kindergarten, 2nd, or 5th grade students.

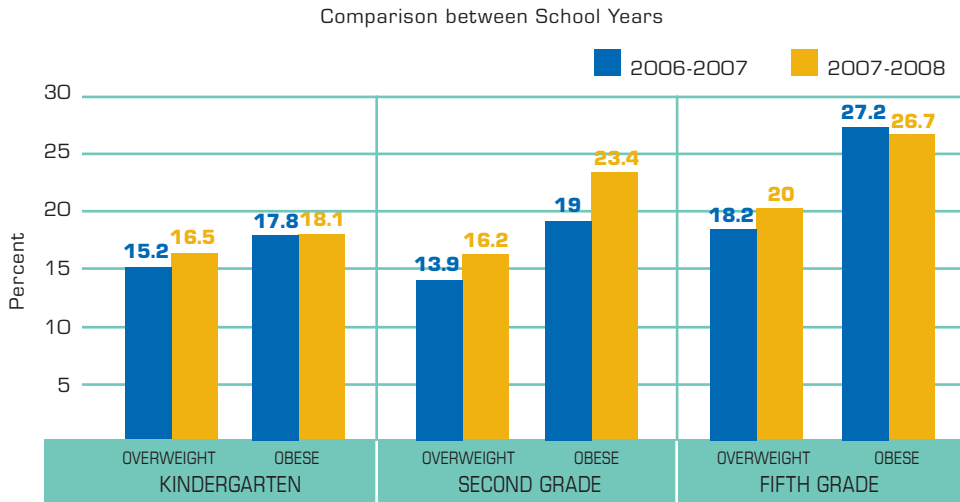
### Health Implications of BMI Screening

The comprehensive nature of the CARDIAC 5th grade screening provides an opportunity to examine the association between children's BMI assessment and other cardiovascular risk factors. An examination of the 5th grade screening data recently demonstrated that the BMI percentile is an accurate proxy for a cluster of cardiovascular risk factors<sup>20,21</sup>. For instance, children with BMI percentiles **at or above** the 95th percentile are at greater risk for having abnormal cholesterol and other lipid values. These findings provide evidence for the use of school-based BMI assessments as markers for additional cardiovascular risk.

### Changes to Screening During the 2008-09 School Year

For the 2008-09 school year, Governor Manchin's Kids First initiative calls for all kindergartners to have BMI assessed by health care providers as part of the comprehensive wellness exam required to enroll in school. These wellness exams, which also include hearing, speech, and language exams, will replace CARDIAC BMI screenings for kindergarten students.

Changes have also occurred in the CARDIAC BMI screenings for 2nd graders, as each school superintendent was given the option of: (1) providing universal BMI screenings for 2nd grade students, or (2) continuing to require written parental permission for screening. Approximately half of the superintendents chose to utilize universal screenings and the remainder chose to continue requiring written parental permission. All 5th grade students, who have blood drawn and other screening assessments in addition to BMI, will continue to participate only with parental permission.



**Figure 15**  
CARDIAC Screening Results Comparing the 2006-07 and 2007-08 School Years.

### Assessment of the Representativeness of the CARDIAC BMI Data

The BMI data provided by CARDIAC were collected from a subset of the students who were eligible to be measured in kindergarten, 2nd, and 5th grade because measurements were taken only for those students whose parents provided written permission. The proportion of students with parental permission ranged from 35% in kindergarten to almost 40% in 2nd and 5th grades. Because the BMI measurements were not universal (that is, conducted on all students) or based on a scientifically drawn sample, questions arose regarding whether the BMI data could be considered representative of the state.

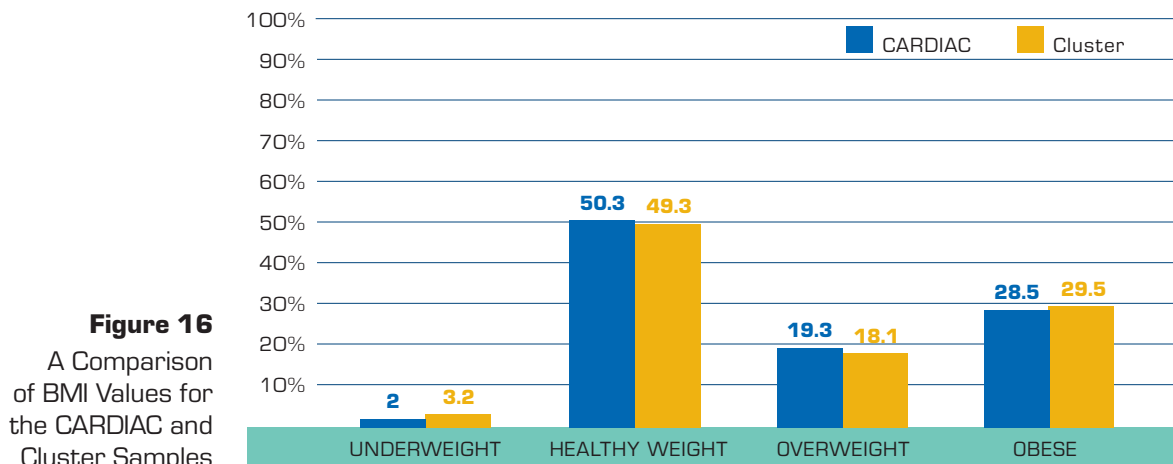
Consequently, the representativeness of the CARDIAC assessment of BMI was examined using a cluster sample of 1640 5th grade students from 34 public schools across 16 counties. Height and weight for all 5th grade students in these schools were assessed by physical education teachers who followed the CARDIAC measurement protocols. BMI was then calculated from measured height and body weight. In order to examine the reliability of these assessments, 7% of the students (n = 114) were randomly selected to have height and weight assessed a second time. There was a very strong relationship between the first and second measurements ( $r = .98, p < .001$ ), suggesting the measurements were reliable.

When BMI data from the 1640 5th grade students in the cluster sample were compared to BMI data collected from 7046 5th grade students in

the CARDIAC sample, results were generally similar for healthy weight, overweight, and obese students, but a significant difference was noted for underweight students ( $p < .01$ ). Figure 16 illustrates the proportions of students in each weight category for the samples. The representativeness of the CARDIAC-collected BMI data at the school and county level could not be reliably determined due to limited school enrollment and/or limited participation in the CARDIAC screening, which created sample sizes that were too small for statistical analysis.

**CARDIAC's BMI results for 5th grade students accurately reflect the state's overweight and obesity rates for students at that grade level.**

Overall, the CARDIAC collected BMI values for 5th graders are representative of the 5th grade population in the **state**, particularly for the healthy weight, overweight, and obese students. However, given the small number (or percent) of students measured in some locations, caution is warranted when interpreting the proportions of students in each of the weight categories at the school and county levels.



**Figure 16**  
A Comparison of BMI Values for the CARDIAC and Cluster Samples

\*Underweight comparison is significant,  $p < .01$

# OTHER ACTS, POLICIES, AND REGULATIONS

This chapter briefly discusses the impact of the Child Nutrition and WIC Reauthorization Act of 2004 and the Institute of Medicine's *Nutrition Standards for Foods in Schools* on West Virginia's childhood obesity initiatives.

## West Virginia's Local Wellness Policies (LWPs)

As described in Chapter 4, the Child Nutrition and WIC Reauthorization Act of 2004 (CNRA) required each county to develop and implement a LWP by the fall of 2006. These policies were submitted to the WVDE Office of Child Nutrition and provided to the evaluation team for review.

### Scoring

The evaluation team developed a 55-item assessment tool that incorporated the federal CNRA requirements, Healthy Lifestyles Act mandates, and best practices to evaluate the policies. Each county policy was independently reviewed by 3 evaluators and discrepancies were resolved by consensus. Policies were reviewed and scored for the presence or absence of each criterion item.

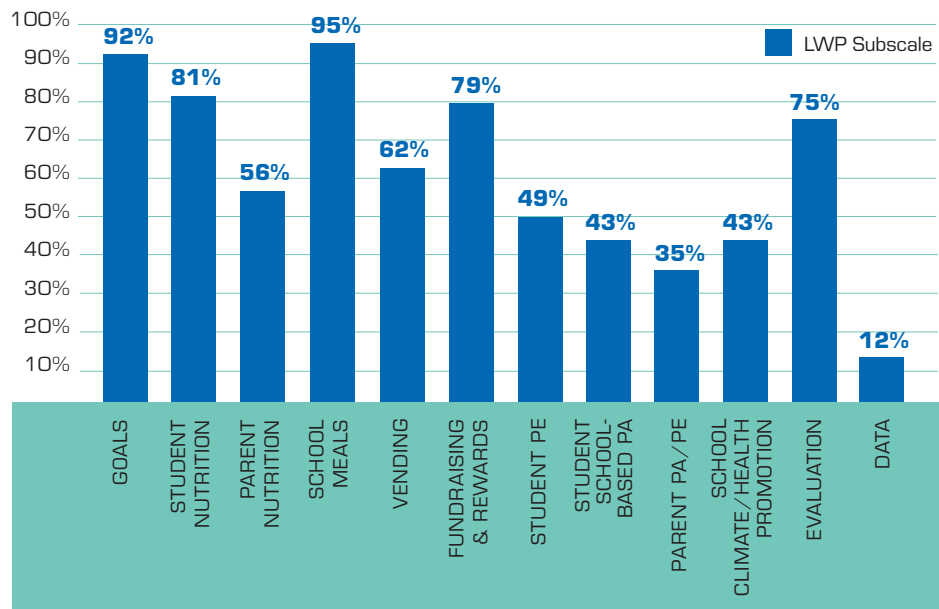
The 55 items were distributed across 12 general content areas (scales):

- Child Nutrition Reauthorization Act (CNRA) goals
- Student nutrition
- Parent and community nutrition
- School meals (following USDA guidelines)
- Vending
- Fundraising and rewards
- Physical education for students
- School based physical activity for students
- Physical activity and physical education for parents and communities
- School climate and health promotion
- Evaluation plans
- Assessment data

A total score that reflected the percent of items addressed by the policy was calculated by summing the item scores and dividing by 55. Scale scores were also calculated by summing the item scores for each content area and dividing by the number of items in the area.

**Evaluation findings**

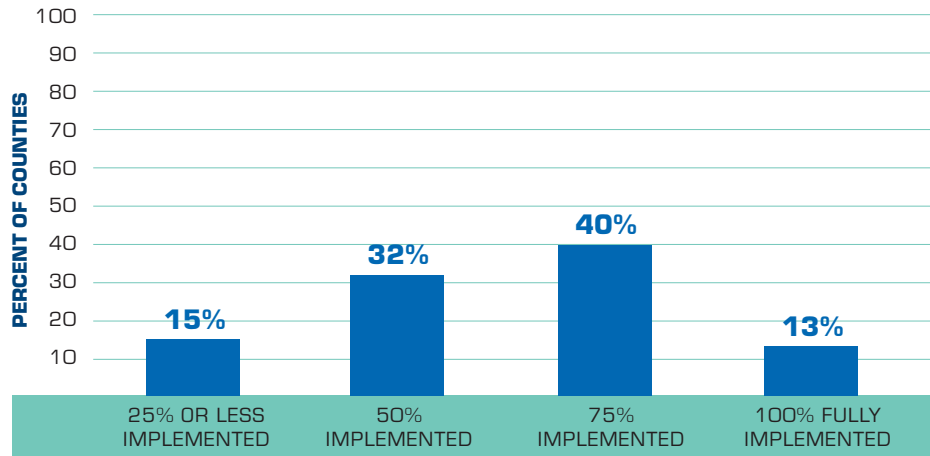
The average total score across all counties was 59%, with individual county scores ranging from 24% to 87%. As can be seen in Figure 17, policies received the highest scores for school meals (95%) and CNRA goals (92%) and the lowest scores for offering physical education/physical activity programs for parents or community members (35%) and using assessment data (12%). In general, nutrition items were included most consistently in the policies and items related to the use of assessment data to determine student progress or policy implementation were included least consistently. For example, while 53 of the 55 policies had nutrition guidelines for both competitive foods and foods sold through on-campus fundraising, only 13 policies addressed the use of existing HEAP, FITNESSGRAM® or BMI assessments.



**Figure 17**  
Local Wellness Policy Average Scores by Scale

School superintendents rated the quality of their wellness policies and provided information about county progress in policy implementation. Using a 1 to 4 scale (poor to excellent), the lowest ratings were achieved for policy





**Figure 18**  
Superintendent Ratings  
of Local Wellness Policy  
Implementation

components related to educating parents about physical activity and nutrition (averages 2.1 and 2.2, respectively) and the highest ratings were received for components related to student PE and nutrition guidelines (average scores of 3 and 3.1, respectively). Figure 18 illustrates superintendent ratings of county progress in policy implementation.

### West Virginia's New Child Nutrition Standards

Since the passage of the Healthy Lifestyles Act in 2005, a variety of guidelines and recommendations regarding school nutrition have been promulgated. Most notable have been the recommendations of the IOM<sup>22</sup>, which led to the revised West Virginia Standards for School Nutrition (Policy 4321.1) implemented during the 2008-2009 academic year.

In 2007, the IOM published "Nutrition Standards for Foods in Schools: Leading the Way Toward Healthier Youth" which reviewed nutritional standards in schools with a specific focus on competitive foods<sup>22</sup>. Included in the report's key findings were recommendations that federally reimbursable school meals should be the main source of nutrition at school, and that competitive foods should be limited. In those instances where competitive foods were available, they should be consistent with the 2005 Dietary Guidelines for Americans<sup>15</sup> and consist of fruits, vegetables, whole grains, and low-fat or nonfat dairy products.

The WVBE enacted policy consistent with the IOM recommendations for the 2008-2009 academic year. In doing so, West Virginia was among the first states in the nation to incorporate the IOM recommendations.

## CHAPTER 12

# YEAR 2: PLANS AND EVALUATION QUESTIONS

The evaluation of efforts to implement the Healthy Lifestyles Act is funded through the 2008-09 school year and will continue beyond Year 2 if additional funding is secured. In addition to collecting data from school personnel, health care providers, parents and students, the evaluation will be broadened to include health education teachers. In Year 2 evaluation plans also include:

- assessing changes in the efforts to implement the Healthy Lifestyles Act and in the impact of the Act between Years 1 and 2
- evaluating the impact of the new West Virginia Standards for School Nutrition
- reviewing and evaluating revised Local Wellness Policies
- assessing the impact of changes in CARDIAC screening procedures on parent knowledge, attitudes, behaviors and satisfaction with BMI assessment

In addition to these activities, the West Virginia evaluation team will continue to work with teams from five other states – Arkansas, Delaware, Mississippi, New York and Texas – that also are funded by the Robert Wood Johnson Foundation to evaluate their statewide childhood obesity policies. These collaborative efforts to assess and report on comprehensive policy initiatives that aim to reduce childhood obesity will help inform local, state and national policy-makers and advocates who are working to improve health outcomes for children.

# RECOMMENDATIONS AND CONCLUSIONS

While state-level policy makers are the primary audience for these recommendations, individuals schools, local wellness councils, county school boards, and health care providers also may consider implementing or developing similar policies in their respective settings to help support a healthier environment for children.

1. Increase physical activity for all students, with an emphasis on moderate to vigorous physical activity. According to the Institute of Medicine<sup>10</sup>, students should achieve at least half of their recommended 60 minutes of daily moderate to vigorous physical activity while at school.
2. Expand opportunities for students and parents to learn about and participate in programs related to healthy eating, regular physical activity and obesity prevention.
3. Promote the use of available data and evidence-based decision-making for curriculum planning and policy development that will lead to greater use of best practices.
4. Identify strategies to promote practices by health care providers that include:
  - routine calculation of children’s BMI percentiles
  - educating families and encouraging healthy lifestyle behaviors
  - regular and ongoing weight counseling for families and children
  - these recommendations are consistent with those provided by the American Academy of Pediatrics<sup>23</sup> and an expert committee that was convened by the American Medical Association and the Centers for Disease Control and Prevention in 2005<sup>19</sup>.

5. Identify and address the barriers that are preventing the full implementation of the Health Education Assessment Project and create strategies to increase utilization of HEAP data as part of the curriculum planning process.

## **Conclusions**

This initial evaluation of efforts to implement the Healthy Lifestyles Act suggests that there is an increased awareness of student health status among school personnel, overall support for the school-based mandates, and concern about insufficient resources that are impeding progress. More time is needed to assess the full impact of the new policies on students, parents and schools across the state, and given the challenges schools face in implementing the Act's mandates, other measures likely will be needed to reverse West Virginia's childhood obesity epidemic. The new policies mandated by the Healthy Lifestyles Act and the evaluation of efforts to implement the new legislation serve as an important starting point. The continued evolution of both the policies and the evaluation will be necessary to achieve the goal of a healthier West Virginia.

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## Appendix A: Summary of the Healthy Lifestyles Act Legislation and Changes in the School Environment

HEALTHY BEVERAGES AND SOFT DRINKS	
Healthy Lifestyles Act Requirements	WVBE Regulations
<p><b>§18-2-6a. Sale of healthy beverages and soft drinks in schools.</b></p> <p>(a) In order to generate funding for necessary programs and supplies, county boards may permit the sale of healthy beverages and soft drinks in county schools except during breakfast and lunch periods as follows:</p> <p>(1) During a school day, soft drinks may not be sold in areas accessible to students in an elementary school, middle school or junior high school through vending machines on the premises, in school stores or in school canteens or through fund raisers by students, teachers, groups or by any other means. In elementary, middle school or junior high school, only healthy beverages may be sold in vending machines on the premises, in school canteens or through fundraisers by students, teachers, groups or by any other means...</p> <p>(2) Those high schools which permit the sale of soft drinks through vending machines also shall offer for sale healthy beverages. Of the total beverages offered for sale, at least fifty percent shall be healthy beverages. Vending machines containing healthy beverages shall be in the same location or substantially similar location as vending machines containing soft drinks.</p>	<p>The WVBE revised Policy 4321.1 Nutrition Standards for Schools to provide more clarity to the regulation and to recommend that schools sell and/or offer only healthy beverages (water, low fat milks and 100% juices). Because the legislation gave the deciding authority to county boards of education, the state board has worked to encourage county boards to make the healthy choice and has provided recognition to all that do.</p> <p><b>Changes:</b> the sale of soft drinks was prohibited in elementary and middle schools.</p>
PHYSICAL EDUCATION	
Healthy Lifestyles Act Requirements	WVBE Regulations
<p><b>§18-2-7a. Legislative findings; required physical education; program in physical fitness...</b></p> <p>(b) The State Department of Education shall establish the requirement that each child enrolled in the public schools of this state actively participates in physical education classes during the school year to the level of his or her ability as follows:</p> <ul style="list-style-type: none"> <li>• Elementary Grades - not less than 30 minutes not less than three times per week;</li> <li>• Middle Grades - not less than one full period of physical education each school day for one semester;</li> <li>• High School Grades - one full physical education course credit for graduation and one lifetime physical education offering.</li> <li>• Provided, that schools which do not currently have the number of certified physical education teachers or required physical setting may develop alternate programs...(to) be submitted to the State Department of Education and the Healthy Lifestyle Council for approval...school year commencing 2006.</li> </ul>	<p>The WVBE revised Policy 2510 Quality Education Programs to reflect the new Physical Education time requirements:</p> <ul style="list-style-type: none"> <li>• <b>Elementary School Grades</b> – 90 minutes of PE per week</li> <li>• <b>Middle School Grades</b> – 2700 minutes of PE per year</li> <li>• <b>High School Grades</b> – one full course credit of PE for graduation</li> </ul> <p><b>Changes:</b> Specific time requirements were added to the physical education requirement for elementary and middle schools. High schools were required to offer a lifetime physical activity elective.</p>

Appendix A: Summary of the Healthy Lifestyles Act Legislation and Changes in the School Environment (continued)

FITNESS TESTING	
Healthy Lifestyles Act Requirements	WVBE Regulations
<p><b>§18-2-7a. Legislative findings; required physical education; program in physical fitness...</b></p> <p>(d) The State Board shall prescribe a program within the existing health and physical education program which incorporates fitness testing, reporting, recognition, fitness events and incentive programs which requires the participation in grades four through eight and the required high school course.</p>	<p>WVBE revised Policy 2520.6 Physical Education Content Standards and Objectives to require the administration of FITNESSGRAM ® in grades 4-8 and all high school physical education courses.</p> <p>Aggregate class results of the FITNESSGRAM ® are collected from schools via the West Virginia Education Information System.</p> <p><b>Changes:</b> FITNESSGRAM ® replaced the Presidential Physical Fitness Test (PPFT).</p>
BMI	
Healthy Lifestyles Act Requirements	WVBE Regulations
<p><b>§18-2-7a. Legislative findings; required physical education; program in physical fitness...</b></p> <p>(e) The state board shall promulgate a rule... that includes at least the following provisions to provide for the collection, reporting and use of body mass index data in the public schools:</p> <p>(1) The data shall be collected using the appropriate methodology for assessing the body mass index from student height and weight data;</p> <p>(2) The data shall be collected on a scientifically drawn sample of students;</p> <p>(3) The data shall be collected and reported in a manner that protects student confidentiality;</p> <p>(4) The data shall be reported to the Department of Education; and</p> <p>(5) All body mass index data shall be reported in aggregate to the Governor, the State Board of Education, the Healthy Lifestyles Coalition and the Legislative Oversight Commission on Health and Human Resources Accountability for use as an indicator of progress toward promoting healthy lifestyles among school-aged children.</p>	<p>WVBE determined that the BMI data be collected through the CARDIAC project for grades 2 and 5 and the Kids First Initiative for Kindergarten (beginning in 2008-09).</p> <p><b>Changes:</b> BMI data was required to be collected and reported in aggregate.</p>
HEALTH EDUCATION	
Healthy Lifestyles Act Requirements	WVBE Regulations
<p><b>§18-2-9 Required courses of instruction; violation and penalty.</b></p> <p>(b) The State Board shall cause to be taught in all of the public schools of this state...the importance of healthy eating and physical activity to maintaining healthy weight. ...The State Board shall prescribe a standardized health education assessment to be administered within health education classes to measure student health knowledge and program effectiveness.</p>	<p>WVBE revised Policy 2520.5 Health Education Content Standards and Objectives to require the administration of the Health Education Assessment Project (HEAP) in grades 6, 8, and high school.</p> <p><b>Change:</b> Statewide health education assessment was required.</p>



## Appendix B. Overview of the Project

A multi-agency West Virginia team applied for and received two years of funding from the Robert Wood Johnson Foundation to evaluate the Healthy Lifestyles Act and build infrastructure to sustain child obesity prevention initiatives beyond the funding period. The **goals** of the Healthy Lifestyles Act Evaluation Project are to (1) assess the impact of the Act and (2) use evaluation findings to inform future policy on childhood obesity. The project objectives are:

- Annual reports summarizing qualitative and quantitative evaluation data to inform future policy and practice of childhood obesity prevention in West Virginia
- *Policy and practice recommendations* for other states engaged in similar initiatives
- Increased research, policy and practice linkages to address childhood obesity
- A comprehensive relational data base that integrates data collected by the project and existing West Virginia data
- Increased *capacity to leverage additional funding* to address childhood obesity and related risks in WV.

The West Virginia Prevention Research Center at WVU is the organizational lead on the project. Dr. Geri Dino, PRC Director and Dr. William Neal, Director of the Coronary Artery Risk Detection in Appalachian Communities (CARDIAC) Project are the Project Directors. The project structure includes 4 components: (1) Administration (Dr. Geri Dino, leader), (2) BMI Implementation (Dr. William Neal and Dr. Lesley Cottrell, leaders), (3) Data Management (Dr. George Kelley, leader), and (4) Evaluation (Dr. Carole Harris and Dr. Drew Bradlyn, leaders). Additionally, leaders from the WVDE Office of Healthy Schools (Melanie Purkey and Don Chapman, director and assistant director, respectively) and WVDHHR Office of Healthy Lifestyles (Keri Kennedy and Kristy Blower, director and assistant director, respectively) are key collaborators.

These leaders believed that achieving project goals would be enhanced by engaging additional key stakeholders in the West Virginia school and public health infrastructure. The leaders convened a state-wide *Policy Advisory Board (PAB)* to serve as a means to enhance utilization of project findings and recommendations across WV. Board members represent key stakeholders organizations that are committed to working together to reduce WV's childhood obesity epidemic (see Table 1). The Board met in Fall, 2008. Members decided to create four

project-related committees to strategically organize the Board's project support. The work of these Committees will begin after the evaluation data are available for dissemination.

- **Communication/Dissemination** – This committee will offer guidance on project-related dissemination and bidirectional communication efforts including target/stakeholder identification, channels, message content, delivery format, and timing.
- **Policy and Practice Translation** – This committee will work with the project team to review project data, provide perspectives on the meaning of that data for various stakeholders/constituencies, and offer guidance on translating findings into state-wide policy and practice recommendations.
- **Community Engagement** – The primary function of this Committee will be to help the project team identify and implement ways to engage community leaders and organizations with the project and its findings and related recommendations.
- **Project-related Quality Assurance** – This committee will work with the project team to ensure effective communication between the Board and the Project Leaders.

**Table 1** Policy Advisory Board Members

<b>Evaluation of West Virginia House Bill 2816 Project Policy Advisory Board</b>	
<p><b>Linda Anderson</b> <i>Marshall University School Health Technical Assistance</i></p>	<p><b>Judy Hale</b> <i>American Federation of Teachers WV</i></p>
<p><b>Joy Buck, PhD, RN</b> <i>WVU School of Nursing Robert C. Byrd Health Sciences Center / Eastern Division</i></p>	<p><b>Hilda Heady</b> <i>West Virginia University</i></p>
<p><b>Carl E. Callison</b> <i>Mountain State Blue Cross / Blue Shield</i></p>	<p><b>Sharon L. Lansdale</b> <i>Center Rural Health Development, Inc.</i></p>
<p><b>Sally Cann</b> <i>WV School Board Association</i></p>	<p><b>Gayle C. Manchin</b> <i>First Lady of West Virginia</i></p>
<p><b>Sharon L. Carte</b> <i>WV Children's Health Insurance Program (CHIP)</i></p>	<p><b>Dr. Shelda A. Martin</b> <i>Public Employees Insurance Agency</i></p>
<p><b>Sonia Chambers</b> <i>WV Healthcare Authority</i></p>	<p><b>Helen Matheny</b> <i>WV Medical Foundation</i></p>
<p><b>Martha Dean</b> <i>WV Association of School Administrators</i></p>	<p><b>Marsha K. Morris</b> <i>WV Bureau for Medical Services</i></p>
<p><b>Charles Delauder</b> <i>West Virginia Education Association</i></p>	<p><b>Don Perdue</b> <i>WV House of Delegates</i></p>
<p><b>Barbara Fish</b> <i>WV Board of Education</i></p>	<p><b>Renate Pore</b> <i>WV Healthy Kids &amp; Families Coalition</i></p>
<p><b>Senator Dan Foster</b> <i>Charleston Area Medical Center</i></p>	<p><b>Sally Richardson</b> <i>WVU Institute for Health Policy Research</i></p>
<p><b>Paul Gilmer</b> <i>WV District Amateur Athletic Union (AAU)</i></p>	<p><b>Steve Roberts</b> <i>WV Chamber of Commerce</i></p>
<p><b>John P. Giroir</b> <i>YMCA of the Kanawha Valley</i></p>	<p><b>Ron Stollings, MD, FACP</b> <i>WV State Senate</i></p>
	<p><b>Lenore Zedosky</b> <i>Former Executive Director of the WV Office of Healthy Schools</i></p>

## Appendix C. Detail on sampling and methods

### Interviews with Parents and Students

Telephone interviews were conducted with families whose children were enrolled in West Virginia public schools at the time of the interviews. Parents whose children were in kindergarten and 2nd, 4th, 5th, 7th and 9th grades were the target sample. Families with students attending any of the 696 traditional public schools in the state were eligible to be contacted. A multistage, stratified random selection procedure was used to ensure the inclusion of schools, families, and children located in all counties of the state and schools of large, medium, and small enrollment sizes with students in the targeted grades. School size was determined by tertiles, as outlined in Table 2. The number of interviews conducted was proportional to the actual number of students in schools at each size; that is, if 50% of the middle school students across the state attended “small” schools, then 50% of the middle school interviews were conducted with families of children attending “small” schools.

This sample was constructed to be representative of the state overall. A parent was interviewed if he or she had a child enrolled in a targeted grade at a West Virginia public school and agreed to complete the interview. If the student in the household was in grade 5 or above, and if both parent and the student agreed, the student was interviewed as well. Using this method, 1500 parents were surveyed (250 in each of the six grades) and 420 students were surveyed (140 in each of 5th, 7th, and 9th grades). Once the student quota was achieved at each grade level, parents completed an additional series of questions to provide proxy information on their child’s nutrition and physical activity.

School size	
<b>Elementary Schools</b>	Enrollment
-small	≤212
-medium	213-347
-large	≥348
<b>Middle Schools</b>	
-small	≤336
-medium	337-543
-large	≥544
<b>High Schools</b>	
-small	≤496
-medium	497-815
-large	≥816

**Table 2**  
School Size Determinations

## Appendix D. Presentations and Publications

Disseminating information about the evaluation of the Healthy Lifestyles Act and its findings are an important step in helping to build the evidence base for intervening to reduce childhood obesity. The following papers and presentations have been accepted at national meetings.

Accepted for presentation at the Active Living Research Annual Meeting in San Diego, CA, Feb. 2009:

Harris, C.V., Bradlyn, A.S., Abildso, L., O'Hara Tompkins, N., Coffman, J., Kennedy, K., Blower, K., Purkey, M., & Chapman, D.E. "School Leader Evaluations of Statewide BMI Screening Program".

Bradlyn, A., Harris, C.V., Abildso, L., Coffman, J., Chapman, D., O'Hara Tompkins, N., Purkey, M., & Moore, L. "Physical Education Teachers' Perceptions of the Impact of the WV Healthy Lifestyles Act (HB2816) on Educational Practices and Childhood Obesity".

Moore, L.C., Harris, C.V., Bradlyn, A.S., Kennedy, K., Blower, K., Chapman, D, O' Hara Tomplins, N., Purkey, M., Abildso, L., & Coffman, J. "PE Teachers' Perceptions of Dance Dance Revolution (DDR) as a Component of Physical Education".

Accepted for presentation to the 20th National Conference on Chronic Disease Prevention and Control. Washington, DC, Feb. 2009:

Harris, C.V., Bradlyn, A.S., O'Hara Tompkins, N., Purkey, M., Chapman, D., Kennedy, K., & Blower, K. "School-based Components of Childhood Obesity Legislation (WV Healthy Lifestyles Act: HB2816): Evaluation and Dissemination Methodology".

Moore, L.C., Harris, C.V., Bradlyn, A.S., Purkey, M., Chapman, D., Abildso, L., Coffman, J., O'Hara Tompkins, N., Kennedy, K., & Blower, K. "WV School Programs to Promote Healthy Eating Among Students".

Blake, K., Harris, C.V., Bradlyn, A.S., Abildso, L., Coffman, J., Purkey, M., Chapman, D., Kennedy, K., Blower, K., & O'Hara Tompkins, N. "Availability of Healthy and Unhealthy Beverages in Vending Machines in West Virginia Schools".

Accepted for presentation to the Annual Meeting of the American College of Preventive Medicine. Los Angeles, CA, Feb, 2009:

Frost, S., Harris, C.V., Bradlyn, A.S., O'Hara Tompkins, N., Moore, L., Chapman, D., Purkey, M., Abildso, L., Coffman, J., Blower, K., & Kennedy, K. "State Legislation to Increase Physical Education in Schools: Barriers to Implementation".

Frost, S., Harris, C.V., Bradlyn, A.S., O'Hara Tompkins, N., Chapman, D., Purkey, M., Abildso, L., Coffman, J., Blower, K., & Kennedy, K. "Availability of School Based Physical Activity: A Summary of Findings from WV State Principals and Parents".

Accepted for presentation to the Society for Behavioral Medicine's 30th Annual Meeting & Scientific Sessions. Montreal, Canada, April, 2009.

Bradlyn, A.S., Harris, C.V., Moore, L., O'Hara Tompkins, N., Purkey, M., Chapman, D., Abildso, L., Coffman, J., Kennedy, K., & Blower, K. "Impact of WV Legislation to Improve Physical Activity and Education".

Harris, C.V., Bradlyn, A.S., O'Hara Tompkins, N., Abildso, L., Coffman, J., Purkey, M., Chapman, D., Kennedy, K., Blower, K., & Moore, L. "A Statewide Examination of Best Practice Policies Targeting Childhood Obesity".



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