

Evaluating the West Virginia Healthy Lifestyles Act: Methods and Procedures

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Background: The West Virginia Healthy Lifestyles Act contained 5 school-based mandates intended to reduce childhood obesity. These addressed the sale of healthy beverages, physical education time, fitness assessment, health education and assessment, and Body Mass Index measurement. This article describes the processes and methods used to evaluate efforts to implement the legislation. **Methods:** University researchers and state public health and education staff formed the collaborative evaluation team. To assess perceptions and practices, surveys were completed with school personnel (53 superintendents, 586 principals, 398 physical education teachers, 214 nurses) and telephone interviews were conducted with a multistage, stratified sample of 1500 parents and 420 students statewide. Healthcare providers (N = 122) were surveyed regarding current child weight practices and interactions with families. Statewide data reflecting fitness, physical education plans, local wellness policies, and health knowledge were included in the evaluation. **Results:** The evaluation was facilitated by state officials and agencies, resulting in good access to survey groups and high survey response rates for school personnel (57% to 95% response rates); a substantially lower response rate was obtained for healthcare providers (22%). **Conclusions:** Collaborative design and implementation was a key factor in the successful conduct of this obesity policy evaluation.

Keywords: policy, evaluation, public health

Overweight and obesity are major public health problems in the United States. Recently released data from the National Health and Nutrition Examination Survey (NHANES) revealed that almost one-third of American children and adolescents are overweight or obese.¹ The health problems associated with obesity in children and adolescents, including Type 2 diabetes, high blood pressure, high blood cholesterol, and poorer quality-of-life, are substantial.² In 2005, Olshansky and colleagues portended a scenario in which children of the current generation might live shorter and sicker lives than their parents due to obesity-related illnesses.³

In West Virginia, the rates of overweight and obesity are high. Data from the 2007 Behavioral Risk Factor Surveillance System (BRFSS) indicated rates of adult overweight and obesity were 38% and 30%, respectively.⁴ Compared with other states, West Virginia adults ranked

13th highest for overweight and 5th highest for obesity.⁵ The economic impact has been substantial, as the annual medical expenditures associated with adult obesity in West Virginia were estimated at \$588 million dollars in 2003.⁶ The rates of overweight and obesity are also high among 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 students were overweight, an increase from 15% in 2003, and 15% of students were obese, an increase from 14% also in 2003.⁷

Overview of Legislative Initiatives to Address Childhood Obesity

The health risks associated with obesity, coupled with the huge economic burden placed on the US health care system, resulted in state level childhood obesity prevention legislative initiatives starting in 2002.⁸ This legislation has been tracked by various organizations (eg, Netscan's Healthy Policy Tracking Service, National Conference of State Legislatures's Healthy Community Design Legislation Database). An analysis of legislation from 2003 to 2005 revealed that school nutrition standards, vending machines, physical education, and physical activity led the list of most frequently introduced topics.⁹

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The West Virginia Healthy Lifestyles Act

West Virginia was one of 14 “above-average obesity prevalence states” in the south central or south Atlantic regions that enacted childhood obesity prevention legislation within the 2003 to 2005 window studied by Boehmer and colleagues.⁹ As in other states, the rising prevalence of youth and adult overweight and obesity and the associated adverse physical, mental and economic consequences prompted concern among the education, public health, health care, gubernatorial, and legislative sectors of West Virginia and led to the introduction and subsequent enactment of the West Virginia Healthy Lifestyles Act (HB 2816) in 2005 (additional details about the legislation and policy/implementation guidance are provided elsewhere¹⁰). Table 1 summarizes a timeline of significant events leading up to and immediately following enactment of the legislation.

Legislation and Implementation Regulations

The Healthy Lifestyles Act directed the West Virginia Department of Health and Human Resources (WVDHHR) to create the Office of Healthy Lifestyles and established 5 mandates to address childhood obesity through the school environment; no funding for school implementation was included in the legislation. The West Virginia State Board of Education (WVSBE) was charged with promulgating rules and policy regarding the legislation, and the West Virginia Department of Education (WVDE) provided implementation guidance. The Act’s school-based mandates, as implemented during the 2007 to 2008 school year, were as follows:

- **Healthy beverages:** The sale of soft drinks to elementary and middle school students was prohibited during school hours; only healthy beverages (defined as water, 100% fruit and vegetable juice, low fat milk, and juice beverages with at least 20% juice)

were allowed to be sold. In high schools that allowed the sale of soft drinks, at least 50% of the beverages offered must be healthy beverages.

- **Physical education (PE):** Elementary schools were required to provide 90 minutes of PE per week, middle schools to provide 2700 minutes per year, and high schools to provide 1 full course credit for graduation and offer a lifetime physical activity elective. Elementary and middle schools that were unable to meet the mandated minutes were allowed to submit an alternate plan for approval.
- **Fitness testing:** The administration of FITNESS-GRAM[®] was required for 4th–8th grades and the required high school physical education course. Aggregate class results were required to be reported annually.
- **BMI measurements:** BMI measurements were collected using an active consent process by the Coronary Artery Risk Detection in Appalachian Communities (CARDIAC) Project for kindergarten, 2nd, and 5th grade students.
- **Health education and assessment:** Health education was required to include instruction on the importance of healthy eating and physical activity to maintain a healthy weight, and assessment of health knowledge was required to be assessed by the Health Education Assessment Project (HEAP) in grades 6, 8, and high school.

The purpose of this paper is to describe the processes and methods used to evaluate the implementation of the Healthy Lifestyles Act in West Virginia, and to outline some of the lesson learned during the 1st year of this large and complex undertaking. Given the importance of the legislation’s goal for the state and the breadth of individuals and systems potentially impacted, it was paramount for the evaluation to be collaboratively conceived and comprehensively designed. Thus, we followed the Centers for Disease Control and Prevention’s (CDC)

Table 1 Chronology of the Healthy Lifestyles Act

Year	Action
2001	<i>West Virginia Healthy People 2010</i> was published and included 9 childhood obesity-related objectives.
2002	The West Virginia Department of Health and Human Resources (WVDHHR) released its 1st burden of obesity publication: <i>Obesity, Facts, Figures, and Guidelines</i> .
2003	WVDHHR received a 5 year cooperative agreement from the CDC to support a statewide physical activity and nutrition program to prevent and reduce chronic disease and obesity.
2004	The West Virginia Healthy Lifestyle Coalition was convened. This coalition, facilitated by the West Virginia Medical Foundation, was charged with developing a 3-year plan to address the obesity epidemic.
January 2005	<i>Taking Action to Address Obesity in West Virginia: Recommendations of the Healthy Lifestyles Coalition</i> was published.
March to August 2005	The Healthy Lifestyles Act (HB 2816) was introduced, passed and signed into law. Governor Joe Manchin, III initiated the bill.
2007	The evaluation of The Healthy Lifestyles Act (HB 2816) was funded by Robert Wood Johnson Foundation (RWJF)

framework for public health program evaluation.¹¹ The Robert Wood Johnson Foundation provided support for the evaluation.

Methods and Procedures Used for Evaluation

Evaluation Goals

Our primary goal was to develop an evaluation that would capture the processes, outcomes, and impacts of efforts to implement the Healthy Lifestyles Act on West Virginia's students, parents, school systems and health care providers to provide policy-relevant information to state stakeholders. In particular, we wanted to provide feedback to legislators and other health and education policy makers to facilitate the implementation and evolution of West Virginia's childhood obesity policies. Thus, we chose a collaborative, utilization-focused, evaluation model. Our secondary goal was to contribute to the developing knowledge base regarding the effectiveness of policy interventions for childhood obesity. The full realization of these goals was understood to require a long-term evaluation commitment.

Evaluation Team Composition and Roles

The evaluation team was comprised of university-based researchers and staff from the state health and education agencies responsible for overseeing implementation of the legislation. The university-based research team members were responsible for the overall conduct of the evaluation, including (1) drafting the evaluation measures, (2) obtaining state agency input through face-to-face meetings and conference calls, (3) obtaining institutional review board approval, (4) selecting and overseeing the vendor conducting telephone interviews, (5) distributing the surveys, (6) collecting and analyzing data, (7) interpreting data analyses, and (8) writing evaluation reports. State agency staff responsibilities included (1) providing background information about the legislation and development of regulations that turned the Act into policy, (2) informing the team about additional state-based obesity initiatives, (3) participating in the development of surveys and methodology, (4) obtaining state agency leader support for survey distribution and completion, and (5) assisting with interpretation of analytic findings. The development of recommendations was accomplished by the full evaluation team after data analysis, review, and interpretation had been completed. Recommendations were requested by key stakeholder groups to help ensure efficient utilization of limited state resources and maximize program effectiveness.

To protect the anonymity of individuals who completed the surveys and interviews and maintain the independence of the evaluation, state agency staff members were not involved in the collection or analysis of survey and interview data. However, the ongoing involvement

and active participation of state agency staff throughout the evaluation was intended to facilitate access to survey participants, increase survey completion, enhance the relevance of the data collected, promote dissemination of results, and increase the likelihood of data utilization by state government and other stakeholder groups.

Evaluation Development

The evaluation was informed by a series of formative interviews with legislators and other policy makers, school personnel, health care providers, students, and parents to facilitate understanding of the perceived intent and impact of the Healthy Lifestyles Act and to formulate policy-relevant evaluation indices. Evaluation measures and methods were further informed by collaboration with colleagues from the University of Arkansas College of Public Health, who had been conducting annual evaluations of Act 1220, Arkansas' childhood obesity legislation passed in 2003.^{12,13} The Arkansas team, also funded by the Robert Wood Johnson Foundation, shared their measures and methods. Where feasible, these were adopted by the West Virginia team to enable cross-state comparisons of legislative implementation and impact.

To provide a comprehensive examination of the implementation of the Act to policy makers and others with interests in childhood obesity and its prevention, the evaluation included both the collection of new information from surveys and interviews with groups potentially impacted by the legislation, and an examination of existing data collected by or for the state. The 1st year of the evaluation, conducted after the legislation and resulting policies had been at least partially implemented, provided point-in-time indicators for implementation and impact indices as well as a foundation for comparison in future years.

Survey instruments previously created by the Arkansas team were reviewed for content and format; however, we included several participant groups (eg, physical education teachers) for which there were no comparable measures. The development of survey and interview items for each group included the following activities: (1) review of the relevant extant literature and published measures (cf. NHANES, YRBS), (2) review of pertinent state code and regulations, (3) review of formative interviews, (4) team discussions about potential legislative outcomes and other indices of interest to stakeholders, (5) pilot testing, and (6) refinement of the measure.

The evaluation team identified school personnel, families, and health care providers as groups who were intended and/or likely to be impacted by the implementation of the Act's mandates. Questionnaires and methods for data collection were developed separately for each participant group over a 6-month period. In addition to these new, primary data sources, we identified relevant secondary data in records collected and maintained by state agencies for inclusion in the evaluation. Our conceptualization of the evaluation is provided by the logic model illustrated in Figure 1.

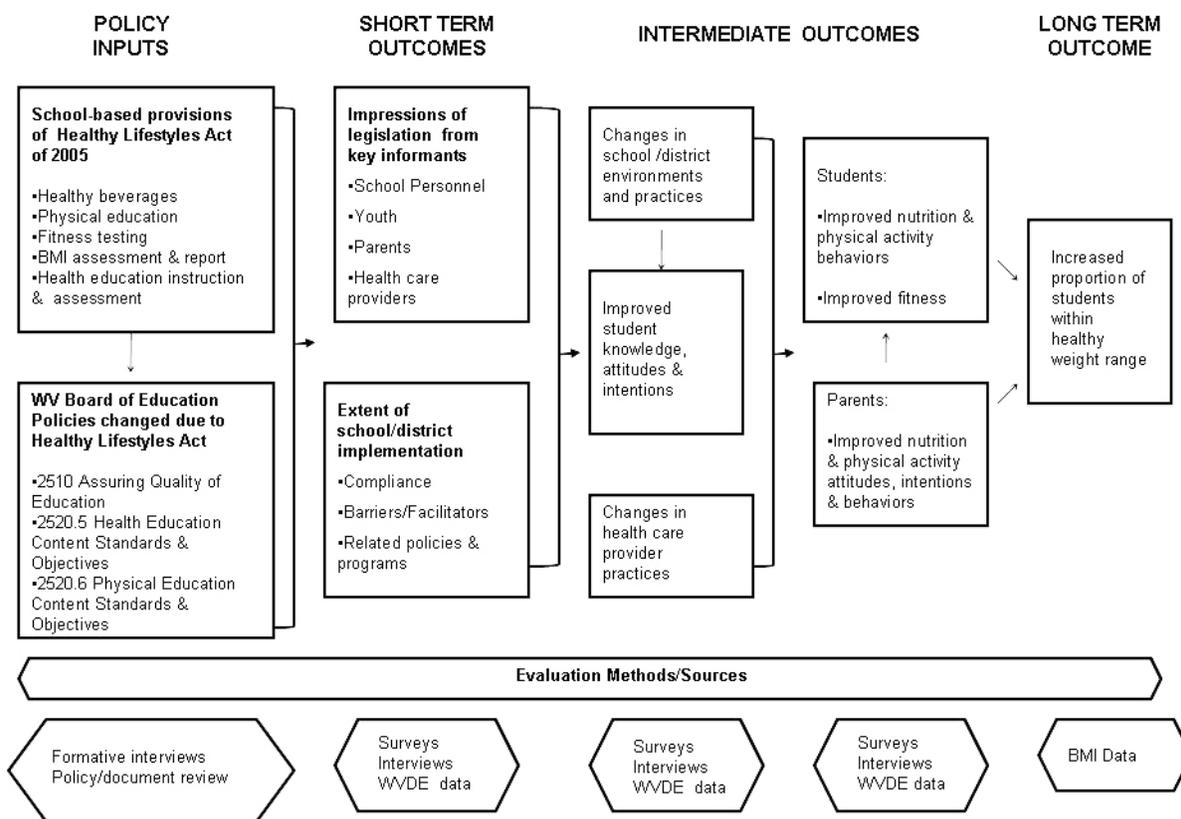


Figure 1 — The West Virginia Healthy Lifestyles Act Evaluation Logic Model.

Participants and Measures

Formative Interviews

We conducted formative interviews with 2 state legislators, 2 superintendents, 4 principals, 5 physical education teachers, 8 school nurses, 11 parents of school-aged children and 10 students to develop a broader understanding of the participants' knowledge of the legislation, school-level implementation of the regulations, and the impact of the legislation on these groups. Interview participants were identified and recruited based on relevant leadership responsibilities (legislators), well-known support for or opposition to the legislation (superintendents, principals), or convenience (school nurses, physical education teachers, health care providers, parents, students). Semistructured interviews lasting 30 to 60 minutes addressed knowledge of the legislation and/or implementation, nutrition and physical activity practices, BMI measurement, and beliefs regarding school practices and student weight.

Evaluative Surveys and Interviews

School Personnel. Because the legislation had the potential to impact school personnel at many levels, we

believed it was important to obtain information from a variety of sources, including both school administrators responsible for communicating and enforcing policies as well as teachers and other staff working directly with students on a day-to-day basis. To obtain this broad perspective, surveys were conducted statewide with (1) all county superintendents, (2) all principals of traditional public schools (specialized schools such as vocational and technical centers were excluded), (3) all school nurses, and (4) the lead physical education teacher at each traditional school.

Parents and Students. The Healthy Lifestyles Act was intended to have a direct effect on student knowledge and nutrition and physical activity behaviors as well as a potential impact on parents through the provision of BMI reports and information transmitted by students. Because BMI assessments were conducted in kindergarten, 2nd, and 5th grades and the physical education and beverage mandates produced the greatest policy change in elementary schools with progressively less impact in middle and high schools, sample composition was structured to emphasize elementary grades. Parents of students in kindergarten and grades 2, 4, 5, 7, and 9 as well as students in grades 5, 7, and 9 were interviewed using 82-item and 47-item questionnaires, respectively.

Table 2 Characteristics of Evaluative Surveys and Interviews

Respondents	# of items	Topic areas assessed	Evaluation method
School personnel			
Superintendents	42	Impact on county finances, staffing and programs County practices for vending, data utilization, LWP implementation Impression of legislation, school-based BMI measurement	Electronic surveys
Principals	89	Impact on school finances, staffing and programs School practices for vending, nutrition, PE, and wellness Impression of legislation, school-based BMI measurement, parent response	Electronic surveys
School nurses	49	Impact on nursing activities, interactions with students and parents Practices for teaching, weight-related referrals, BMI measurement Impressions of legislation, BMI measurement, student knowledge	Electronic and mailed surveys
PE teachers	65	Impact on PE curriculum, teaching activities Practices for fitness assessments, BMI measurement, physically interactive gaming Impressions of legislation, student fitness, school PE facilities	Mailed surveys
Families			
Parents	141	Knowledge of legislation, school regulations, child weight status Attitudes toward BMI measurement, school nutrition and PE practices, intent to change Behaviors regarding student and family nutrition, physical activity, health care	Telephone interview
Students	105	Knowledge of school regulations, weight status, health Attitudes toward BMI measurement, school nutrition and PE practices, weight Behaviors regarding nutrition and physical activity	Telephone interviews
Healthcare providers			
Physicians and nurse practitioners	63	Impact of legislation on practice, student and parent concerns Provider practices for weight measurement, weight counseling, Impression of BMI measurement, child and parent receptivity to weight counseling	Electronic and mailed surveys

Health Care Providers. Although the legislation did not address the role of health care providers directly, there was concern that the mandate to conduct BMI measurement and the provision of health reports to parents could result in increased demand for provider services. Because West Virginia is largely medically underserved,¹⁴ any substantial increase in demand might overwhelm an already stressed health care system. Therefore, pediatricians, family practice physicians, and nurse practitioners were identified, collectively, as a valuable participant group.

Characteristics of the surveys and interviews used for the evaluation are provided in Table 2. All of the interviews, surveys and data aggregation collected for 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.” Copies of the instruments are available from the authors.

Survey Procedures

School Personnel

Electronic surveys were selected as the preferred method for survey distribution based on the recommendations of state education agency team members. Paper and pencil measures were mailed to participant groups who were unlikely to have ready access to computers at school (physical education teachers) and when individuals did not respond to electronic surveys and reminders (superintendents, principals, school nurses). All school personnel received an initial request to complete the questionnaire, followed by a minimum of 2 reminders, if necessary.

Parents and Students

Telephone interviews were conducted with families whose children were enrolled in any of the 696 traditional public schools in the state. A multistage, stratified random selection procedure was used to ensure the inclusion of schools, parents, and students 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 and the number of interviews conducted was proportional to the number of students in schools of 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 parents and students attending “small” schools.

A parent was interviewed if he or she had a child enrolled in a targeted grade and agreed to complete the interview. If the student in the household was in grade 5 or above, and if both parent and student agreed, the student was interviewed as well. Using this method, 1500 parents (250 in each of the 6 grades) and 420 students were interviewed (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.

Health Care Providers

Lists of licensed health care providers were obtained from the state medical association and state osteopathic and nursing boards. All identified pediatricians and pediatric nurse practitioners as well as 25% of licensed family practice physicians and nurses were surveyed, resulting in a statewide sample of approximately 650 health care providers; the number is approximate because e-mail lists maintained by state groups were not released to the evaluation team, making it difficult to determine the degree of overlap among listings. Providers were contacted electronically if an e-mail address was available, or by mail to complete the survey. Two reminders were sent to individuals who did not return surveys.

Secondary Data Sources

In addition to the primary data collection methods described above, a variety of preexisting data collected by and for state agencies was made available to the evaluation team. These secondary data were examined for indications of adherence to policy mandates, characteristic of programs and policies, and student progress. Data sources included:

- Health knowledge assessed annually through HEAP. Items were drawn from the State Collaborative on Assessment and Student Standards Health Education Assessment Project and aligned with the West Vir-

ginia Content Standards and Objectives (CSOs) for Health Education.¹⁵ Questions addressed nutrition, physical activity, growth and development, alcohol and other drugs, and tobacco.

- Fitness assessments conducted annually in physical education classes using FITNESSGRAM®. School-level aggregate data (number and percent of students in the healthy fitness zone) for aerobic capacity, body composition, muscular strength and endurance, and flexibility are reported.
- Local wellness policies required by the Child Nutrition and Women, Infants & Children Reauthorization Act of 2004 for all West Virginia counties due to participation in the National School Lunch Program; policies were collected from all counties by the WVDE.
- Physical education plans provided annually by principals in elementary and middle schools. These plans indicated how many minutes of physical education were delivered to students and the alternate plan used to provide additional physical activity when a school was unable to meet the required minimum.
- BMI assessment was mandated by the Healthy Lifestyles Act to serve as an indicator of progress and the CARDIAC Project was charged with collecting these data. Because the BMI data were obtained from students whose parents provided written consent (<40% of eligible students), it was unclear whether the data were representative of the state. Consequently, the height and weight of all 5th grade students (N = 1640) in a cluster sample of 34 public schools across 16 counties were measured by physical education teachers for use in examining the representativeness of the CARDIAC BMI data. The proportions of students in the underweight, healthy weight, overweight, and obese weight categories in the cluster sample were compared with the proportions obtained by CARDIAC.

Preliminary Process Outcomes

In any policy evaluation, access to and cooperation from the personnel who implement the policy is essential for success. For our purposes, access was assessed by the ease or difficulty with which the contact information for the participant groups was obtained, and cooperation was assessed by response rates. Additional factors known to influence evaluations include the continually changing social and political environments in which policies and evaluations occur and fluctuations in the priorities of evaluation stakeholders; these environmental factors can produce challenges to the completion of the evaluation and necessitate modifications to evaluation designs and timetables.

Participant Access

School Personnel. Traditional contact information (names, addresses, phone numbers) for administrative personnel such as superintendents and principals was maintained by the WVDE and freely given to the evaluation team. Lists of superintendent e-mail addresses were used by many staff within the WVDE and thus were easily obtained, however access to the large e-mail list for principals was managed centrally and access was restricted to minimize demands on principal time. Because the formative interviews and WVDE staff indicated that electronic survey methods were favored by these administrators, we elected to forgo direct access and allow our request for information and survey link to be distributed by the WVDE. The survey link was imbedded within the request and respondents were assured of confidentiality.

Access to school nurses and physical education teachers was hampered by the absence of a central database for these groups. Thus, the evaluation team devoted considerable resources to contacting county board offices and individual schools to identify nurses and lead physical education teachers and their electronic or street addresses.

Families. In West Virginia, telephone numbers for public school students are maintained at the school level and access is determined by county policy; many counties require written authorization from parents for release of this information. Because it was not feasible to obtain permission from parents during the time period allotted for data collection, and active consent had the potential to create a biased sample, telephone numbers of homes where there was a high likelihood of a school-aged child were purchased from a large survey sampling firm.

Health Care Providers. The evaluation team took the following steps to identify contact information for pediatric and family practice providers: lists of physicians and nurse practitioners were requested from state licensing boards, professional medical and nursing organizations, and research groups within the state, and provider e-mail addresses were identified from college websites. These efforts resulted in the purchase of 2 lists of mailing addresses (physicians, nurse practitioners) and an agreement by the state medical association and pediatrics academy to distribute our survey electronically (these groups did not release e-mail lists to outside organizations as a matter of policy).

To obtain the broadest possible distribution to pediatric and family practice providers, surveys were: (a) distributed electronically through the state associations' list serves ($N \approx 550$), (b) mailed to all identified pediatric providers ($N = 272$) and a random 25% sample of family practice providers ($N = 265$) on the purchased lists, and (c) sent electronically to the providers identified via college websites ($N = 246$). The degree of overlap among

these groups was impossible to determine because the state medical association and pediatrics academy lists were not released to the evaluation team. However, discussions with these organizations and licensing boards indicated our surveys had been distributed to an estimated sample of 675 health care providers.

Response Rates

School Personnel. Using the distribution methods outlined above, high response rates were achieved for the majority of school personnel. The response rates and numbers of surveys distributed and received for each of the school personnel groups were as follows: superintendents 95% (53/56), principals 84% (586/696), school nurses 89% (214/240), and physical education teachers 57% (398/696). Of note, the physical education teachers were the only group of informants who did not have the opportunity to complete electronic surveys.

Families. A sample of 27,000 phone numbers was provided for the interviews, and our goal was to obtain 1500 completed interviews with parents (250/grade in grades K, 2, 4, 5, 7, and 9) and 420 completed interviews with students (140/grade in grades 5, 7, and 9). Of the 27,000 numbers, 9009 did not have an eligible child (not in grade targeted, attended private school), 5630 had been disconnected, 549 connected to fax machines or businesses, and 3383 connected to answering machines. A total of 776 numbers belonged to individuals who had an eligible child but declined the interview.

Health Care Providers. Surveys were received from 147 healthcare providers, yielding a response rate of 22% based on the estimated sample size.

Environmental Factors

We were fortunate to conduct the evaluation within a supportive political climate and to have agreement among major stakeholders regarding the mission and goals of both the legislation and the evaluation. However, that did not eliminate the environmental challenges to evaluation conduct and completion.

The collaborative structure of the evaluation team and complexity of the evaluation design necessitated frequent communication between the university researchers and the staff within the 2 state agencies. State agency staff were regularly challenged to juggle the considerable time demands of the evaluation with maintenance of the essential activities required for their regular positions. For the university researchers this necessitated additional coordination efforts and occasional delays in task completion. Because the university and state agencies are located in separate areas of the state (150 miles apart), the time needed for face-to-face meetings was increased substantially by time for travel.

Although the broad political climate was supportive of the evaluation, individual programs and agencies had separate goals that at times competed with those of the evaluation. For example, the high visibility of the evaluation in the state generated substantial interest in the findings among groups who were pursuing funding for obesity-related initiatives. Although their requests for access to the evaluation data were well-intentioned, conflict arose when the evaluation team determined that a premature release of findings would undermine the dissemination plan and potentially compromise the quality of the evaluation. As a result, a policy governing release of the evaluation data was developed midcourse.

Discussion

In this article we have described the development and execution of our evaluation of the impact of state legislation intended to decrease childhood obesity on policies and practices in the schools. The process of implementing this complex evaluation provided exceptional opportunities and challenges for the team, many of which have continued as we conduct the Year 2 evaluation.

In terms of opportunities, the significance of the evaluation to the state was evident early on through the support and engagement of diverse stakeholder groups. State officials, agencies, and organizations from the Governor and First Lady to the Healthy Lifestyles Coalition, the Department of Education, and the state Medical Association, welcomed the evaluation. The importance of the evaluation was also reflected at the local level through the high survey response rates achieved with school personnel. We believe these successes were due to the team's collectively shared mission and goals for the evaluation, and the open and iterative processes employed throughout the collaborative evaluation, which built trust among team members and adhered to the utility, feasibility, propriety, and accuracy standards for program evaluation advocated by the CDC.¹¹

As in any project of this size and scope, a variety of challenges also confronted the evaluation team, and there are limitations to the methods and findings that warrant discussion. The challenges included logistical issues in identifying and contacting survey respondents, such as obtaining up-to-date personnel listings, e-mail or telephone contact information, as well as establishing effective team processes to develop survey instruments and schedule time to review survey data. The time requirements associated with identifying contact information and ensuring true collaboration throughout the evaluation process greatly exceeded the expectations of all involved.

The evaluation team also confronted many of the same challenges that were identified in the National Evaluation & Measurement Meeting on School Nutrition and Physical Activity Policies.¹⁶ For example, after the Healthy Lifestyles Act was passed by the state legisla-

ture, it was interpreted at the state level by the WVBE (policy changes) and WVDE (implementation guidance), interpreted again at the county level by school boards and county administrators, and finally implemented at the school level by those responsible for the Act's various components. Collaboration with state partners was particularly important to recognizing and understanding the various stakeholders and processes involved in changing the school environments.

Finally, there are limitations to the evaluation methodology employed. Because the Act was passed in 2005 and many mandates were at least partially implemented before the evaluation was initiated, it was not possible to collect true baseline data for all areas of the evaluation. While the absence of baseline data is not unusual in policy evaluations, it does place limitations on the conclusions that can be drawn from the data. In addition, although the survey response rates were generally quite high, our difficulty soliciting information from health care providers may limit the generalizability and representativeness of those particular data.

In summary, legislative efforts to address the public health problem of obesity are becoming more common. As these efforts increase, we believe it is important to carefully design the evaluations with end-users in mind, and to clearly articulate the evaluation goals, processes, and methods. The evaluation described herein is consistent with one of the most highly scored recommendations for improving the methodology of environment and policy research related to obesity, diet, and physical activity recently published by an expert panel, which is to conduct "policy change evaluations that assess (1) implementation, (2) enforcement, (3) community acceptance, and (4) impact over time on rates of obesity or obesogenic nutrition behaviors"¹⁷ (page S75). We believe that a collaborative approach to obesity policy evaluation, incorporating evaluation teams comprised of researchers and key stakeholders, facilitates the development of evaluations that meet these guidelines.

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