

# West Virginia Everyday...



A statewide plan to improve  
physical activity and nutrition



WEST VIRGINIA DEPARTMENT OF HEALTH AND HUMAN RESOURCES

For more information on the West Virginia Healthy Lifestyles Collaborative Network:  
A Public-Private Collaborative Planning Compact, please contact:

**West Virginia Bureau for Public Health**

350 Capitol Street • Room 206 • Charleston, WV 25301-3715

Phone: (304) 558-0644 Fax: (304) 558-1553



# West Virginia Everyday...

*A statewide plan to improve physical activity and nutrition*

## *Preface*

West Virginia is a great state, full of friendly, hard-working people who care about each other and cherish the natural beauty within the state's borders. *Everyday*, citizens collectively take pride in West Virginia's heritage and have a steadfast commitment to build a better state for today's citizens and for the future generations to come.

The West Virginia statewide plan to improve nutrition and physical activity is truly an *Everyday* plan, built to stay the course, everyday.

It is about *Everyday* people...

Improving their nutritional lifestyles and eating healthy, everyday.

Participating in appropriate and meaningful levels of physical activity, everyday.

It is about *Everyday* work...

That leverages statewide resources and demonstrates true collaborative synergy, everyday.

That monitors outcomes and sustains the agility to quickly improve, everyday.

It is about *Everyday* planning...

That captures emerging ways that improve nutrition and increase physical activity, everyday.

That spreads successes and generates opportunities through stronger partnerships, everyday.

It is about *Everyday* change...

In positive performance benchmarks that gauge our progress, everyday.

In, *most importantly*, the resulting better health of West Virginians, everyday.

# West Virginia

# Everyday...

*A statewide plan to improve physical activity and nutrition*

## Table of Contents

Executive Summary .....	3
Plan and Partnership Development .....	4
Plan Integration, Implementation, and Resources .....	8
West Virginia Health Lifestyle Coalition .....	11
Vision and Mission .....	15
Objectives and Strategies .....	17
Intermediate Objectives.....	19
IO-1: Breastfeeding Promotion .....	21
IO-2: Early Childhood—Day Care and Schools.....	27
IO-3: Childhood and Adolescence—School Sites.....	33
IO-4: Higher Education .....	41
IO-5: Worksites.....	45
IO-6: Active Community Environments .....	51
IO-7: Older Adults.....	57
2005 Update on the Burden of Obesity in West Virginia .....	60
Priority Population Strategies and Previous Interventions .....	94
Evaluation and Surveillance.....	100
Process Evaluation .....	101
Outcome Evaluation .....	101
<i>Appendices</i>	
End Notes .....	104
Crosswalk of Long-Term Objectives to Goals.....	106

# Executive Summary

*The purpose of this state plan is to emphasize and endorse those intervention strategies that are evidenced based, as listed in the Centers for Disease Control and Prevention (CDC) Guide to Community Preventive Services, and other strategies recommended by the CDC. The plan provides West Virginia with a range of opportunities in schools, worksites, communities, and for old and young alike. West Virginia's greatest asset is its people. Working together to address the burden of chronic disease and obesity is the first step to combating this problem in West Virginia.*

In the report entitled, “the Surgeon General’s Call to Action to Prevent and Decrease Overweight and Obesity,” attention was called to the alarming increase in the prevalence of obesity. The “Call to Action” established the major causes of the epidemic as unhealthy eating and sedentary lifestyles. These behaviors and the consequent obesity and overweight rates have been associated with an increased risk of heart disease, diabetes, some cancers, arthritis and other chronic diseases, resulting in unnecessary disability and loss in the quality of life.

The “Call to Action” outlined strategies to reverse the trend, calling for the creation of opportunities for healthier eating and physical activity in the communities, environments and institutions people come into contact with everyday. According to

Surgeon General David Satcher, “People tend to think of overweight and obesity as strictly a personal matter, but there is much that communities can and should do to address these problems.” Those strategies, reviewed for proven scientific effectiveness, and endorsed by the Surgeon General and the Centers for Disease Control and Prevention, are incorporated within this plan.

The West Virginia Healthy Lifestyles Collaborative Network: A Public-Private Collaborative Planning Compact (Compact) was formed in the past year to bring together organizations with an interest in improving West Virginians’ eating habits and increasing their physical activity. Members of the Compact will work together in communicating strategies and coordinating programs to address the obesity epidemic.

# *Plan and Partnership Development*

*The West Virginia Office of Healthy Lifestyles (OHL), along with key stakeholders representing a diverse group of individuals and organizations from around the state, developed this plan over the course of a three year period. Various planning techniques were employed and work groups were formed to assist in the development of the objectives and action steps that are contained in the subsequent chapters.*

In December 2002, West Virginians came together at the 2002 Summit on Obesity, sponsored by the West Virginia Bureau for Public Health, the Prevention Research Center, the State Health Education Council and the State Medical Association. The summit was held in response to a growing awareness among health professionals that obesity was a major public health problem critical to improving chronic disease outcomes in the state. The summit attracted more than 80 stakeholder organizations and resulted in an

acknowledgement that a comprehensive, coordinated planning process was needed. By July 2003, the West Virginia Bureau for Public Health had secured a five-year cooperative agreement from the Centers for Disease Control and Prevention (CDC) to support a state physical activity and nutrition program to prevent and reduce chronic disease and obesity in West Virginia. One of the major activities associated with this cooperative agreement was the formation of a strategic plan to address the problem of obesity in the state.



*Stakeholders from the Department of Education, Tobacco Prevention, the Physical Activity and Nutrition Program and others were invited to participate in roundtable discussions in the autumn of 2003. The primary objective during this event was to gather information regarding existing programs and interventions currently in place that addressed physical activity, nutrition, and tobacco and obesity prevention. An inventory tool completed by workgroups at the roundtable resulted in statewide gaps being identified in surveillance and evaluation, communication systems and coordinated efforts, and grassroots coordination. A steering committee was formed to continue the process of writing a state plan. Participants at this event also determined that plan should be organized according to the setting in which the strategies/interventions could be implemented. This document is structured in adherence with their recommendation.*

Following this roundtable discussion, the West Virginia Office of Healthy Lifestyles (OHL) began meeting with smaller groups of regional stakeholders to begin outlining and drafting the goals and objectives for the state plan. In January of 2004, OHL began conducting public forums, organized by regions, across West Virginia. Seven public forums were conducted, a project lasting almost one year. Representation at these forums included city government officials, local health departments, school board members, PTA representatives, medical professionals, parks and recreation officials from county and city governments, senior citizen groups, extension agents, civic groups, worksite representatives, health educators, physical education teachers, dietitians, local health associations, rails-to-trails representatives, garden clubs, city planners and interested citizens. The intent of these forums was to gather information from community members on what resources they needed in order to bring about change in their communities. Once all the comments were collected, community members were then asked to begin thinking about strategies that would bring the necessary resources to local communities.

Using the input obtained at the above mentioned events, stakeholders were once again convened. It was in August 2005, that OHL, in collaboration with the West Virginia State Medical Foundation, created the West Virginia Healthy Lifestyles Collaborative Network: A Public-Private Collaborative Planning Compact. Membership of the Compact is extremely diverse and represents both public and private sectors.

These past and present events involved stakeholders representing a variety of agencies/organizations. Some of the agencies/organizations that were represented were: West Virginia Department of Health and Human Resources, Bureau for Public Health; West Virginia Department of Education; West Virginia State Medical Association; West Virginia Development Office; West Virginia Action for Healthy Kids, West Virginia University; Marshall University; A Vision Shared; Wellness Council of West Virginia, Blue Cross/Blue Shield; leaders from community organizations; and health care professionals (e.g., physicians, registered dietitians, nurses).

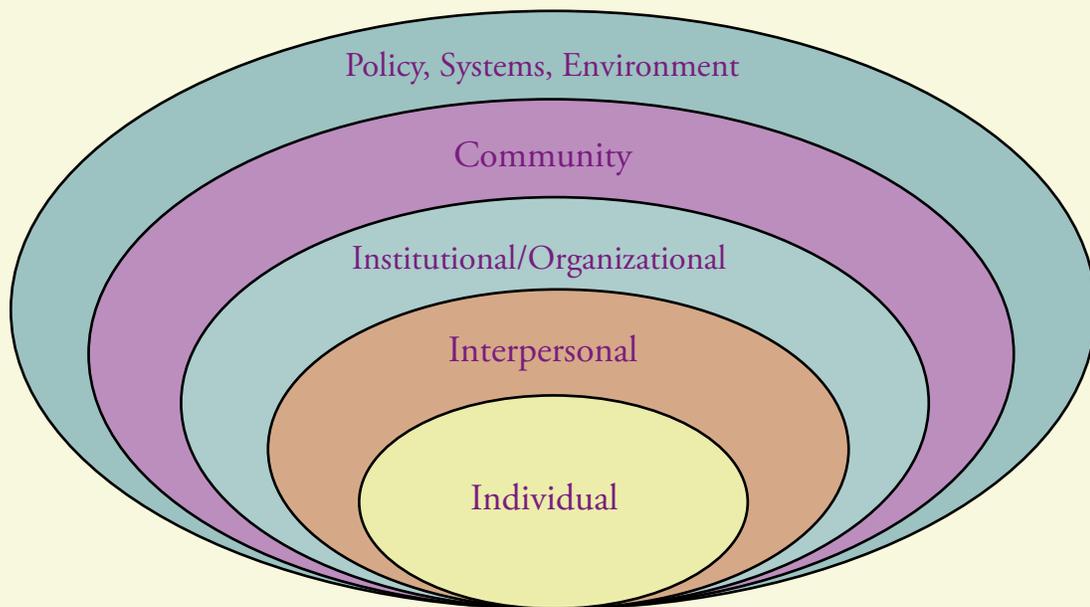
*The goals, objectives, and strategies contained in this document are the compilation of all information provided at a variety of events. Each event contained representation from key stakeholders in both the private and public sectors. All comments were gathered, reviewed by program staff, and incorporated into the final plan. West Virginia Everyday... is designed to align with McElroy's Social-Ecological Model, in that the goals, objectives and strategies presented in this document ultimately result in policy and environmental changes that support increased physical activity and improved nutrition opportunities.*



## *Using the Plan*

The purpose of the West Virginia Office of Healthy Lifestyles (OHL) Plan, known as West Virginia Everyday..., is to provide a framework in which local, state and institutional policy makers can work collaboratively to create and support environments that make it easier for West Virginia residents to choose healthy foods and to be physically active. It is intended to present ideas that can be used by all West Virginians to help make healthier choices and sustainable lifestyle changes, everyday.

# *Social-Ecological Model*



*Source: McElroy KR, Bibeau D, Steckler A, Glanz K.  
An ecological perspective on health promotion programs.  
Health Education Quarterly 15: 351-377, 1988.*

The social-ecological model shows how each broad sphere of influence in our lives affects others. This model focuses on health behavior choices of each person, but also how situations within each sphere can influence health behaviors. The following factors influence behaviors at each level:

**Individual:** awareness, attitude, knowledge, beliefs, values, preferences

**Interpersonal:** family, friends, peers, social identity

**Institutional/Organizational:** rules, policies, procedures, environments

**Community:** social networks, norms, standards, practices

**Policy, Systems, Environment:** local, state, federal policies, regulation, laws

West Virginia Everyday... contains goals, objectives, and strategies that embrace the social ecological model described above.

# *Plan Integration, Implementation, and Resources*

*West Virginia Everyday... is intended to serve as a springboard for action. It is not meant to detail all of the steps necessary for its full implementation, and rather than relying on individual agencies/organizations/programs to implement the plan, a more comprehensive collaborative approach is to be taken. Therefore, the West Virginia Healthy Lifestyles Collaborative Network: Public-Private Collaborative Planning Compact will be the vehicle used to implement this plan. The Compact will systematically monitor the work that is being done by a variety of partners and stakeholders.*

The premise behind the formation of the West Virginia Healthy Lifestyles Collaborative Planning Compact was to bring together representatives from as many of the existing and new “Healthy Lifestyles” programs and initiatives as possible. The diagram on page 10 illustrates this premise, using a funnel concept to depict how the Compact is designed to work. There are many diverse programs and initiatives currently active at various levels throughout the state of West Virginia addressing increased physical activity and healthy eating. The intent of the Compact is to identify these programs and initiatives and

involve them based on their mission. The middle of the funnel reflects the key components of the work of the Compact: developing a shared vision, undertaking common activities, and increasing communication among all stakeholders (internal and external).

An outcome that is hoped for from these activities is the potential synergy that will be greater than the “sum of all parts.” That is, in using this approach natural collaborations and synergies would be present, as well as new found synergistic opportunities in a variety of combinations.

Also, as more entities/efforts are identified and brought through common collaborative work, a gap analysis can be performed to see where needs exist and where duplication of effort is taking place.

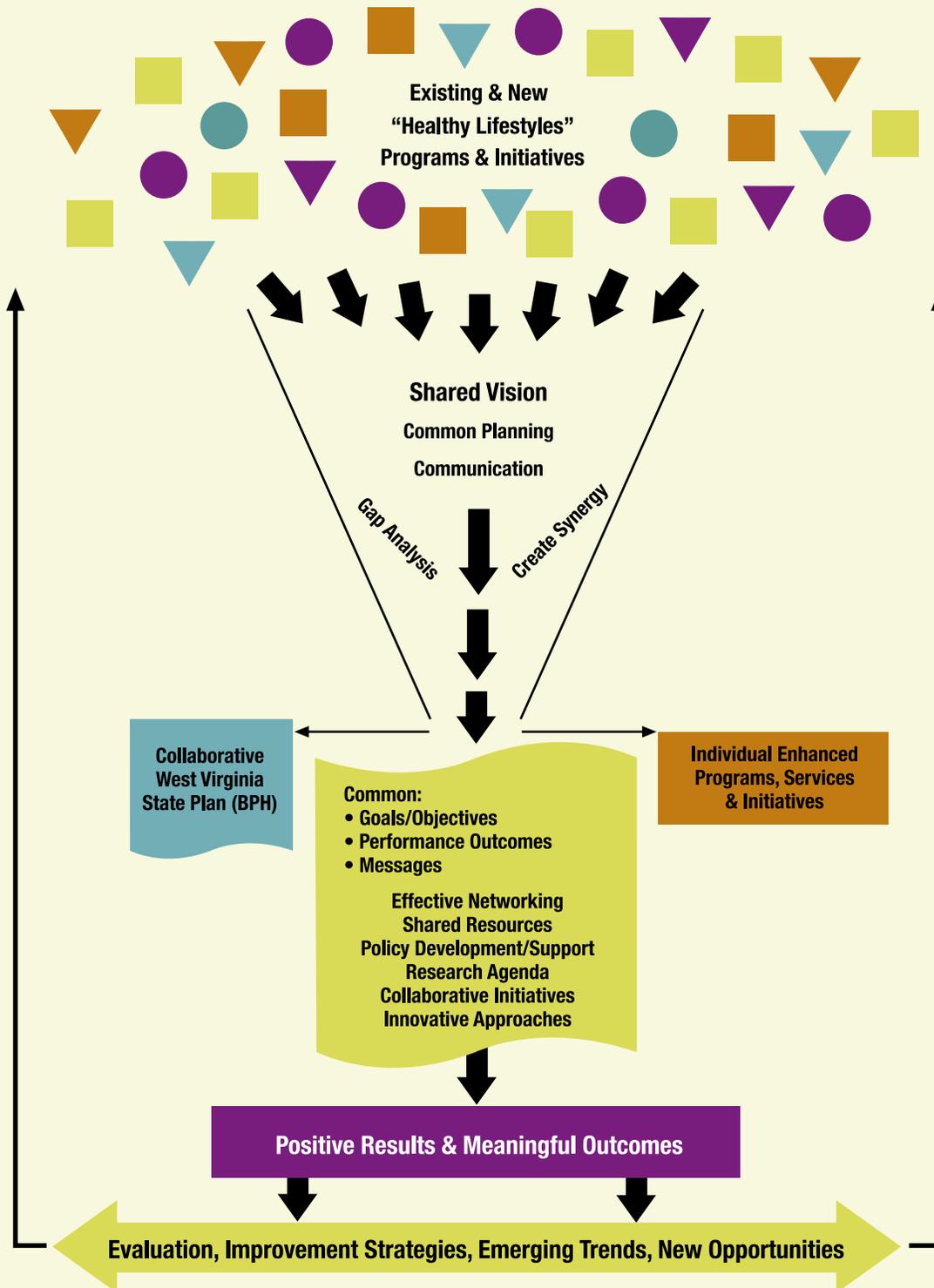
As shown outside the bottom of the funnel, several distinct outcomes can be expected. On the left, the box shows a collaborative West Virginia State Plan that will continue to help foster some of the synergy discovered in Compact work. On the right, expectation is that many of the existing programs be enhanced based on Compact work. Some of this will be solely internal while other work will be reflected in collaborative activities.

As shown in the middle of the diagram, common messages would be disseminated by those involved in “Healthy Lifestyles” efforts in West Virginia. Internally, those programs and initiatives involved in Compact work would benefit from effective networking, shared resources, shared policy development and support, common research agendas, collaborative initiatives, and innovative approaches. As a result of Compact work, the key outcome would be positive results and meaningful outcomes for all involved including the citizens of West Virginia. As a follow-up to the work, evaluations would be conducted, improvement strategies would be identified, emerging trends would be followed and new opportunities would be identified for the “Healthy Lifestyles” programs and initiatives.

Full implementation of this plan will require a true collaboration among all partners. Therefore, the Compact will be the vehicle to implement this plan. In seeking active participation, suggested classification attributes were identified to assist in profiling organizations based on different levels of potential involvement in the effort. This would include both planning work and on-going support of the effort. By definition, some entities are more engaged in these aspects of healthy lifestyles work as part of their mission. Yet, there can be others who incorporate this type work as one or more strategies within their overall scope of work (e.g., operations, mission, programs, and services).

Sharing of limited resources will be a critical success factor to the success of the Compact. At its best, the Compact is a way to collectively tap and leverage West Virginia’s greatest expertise and resources in the areas of healthy lifestyles programs and research. The Compact is certainly not an attempt for a state agency to control all of the funding that is dedicated to advancing healthy lifestyles programs. Each collaborative effort should decide the best approach to handling their fiscal responsibility. However, it is important to chart the Compact’s successes. Therefore, as a major convener of the Compact the West Virginia Office of Healthy Lifestyles and Compact Facilitator, The Center for Entrepreneurial Studies and Development, Inc., will catalog all funds that are generated through this collaborative work.

# Building a Healthy Lifestyles Collaborative Planning Compact



# West Virginia Healthy Lifestyles Coalition

*The West Virginia Legislature passed House Bill 2816 on April 9, 2005.*

*This act called for the creation of the Office of Healthy Lifestyles, defined membership criteria and established a Clinical Advisory Committee.*

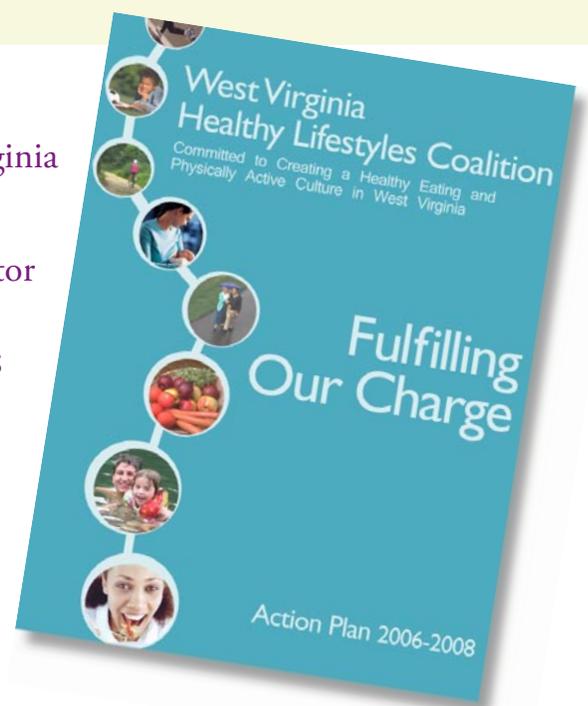
*This advisory body was incorporated into the law to assure that a unified approach was used and that the latest research was incorporated to assure consistency in program development.*

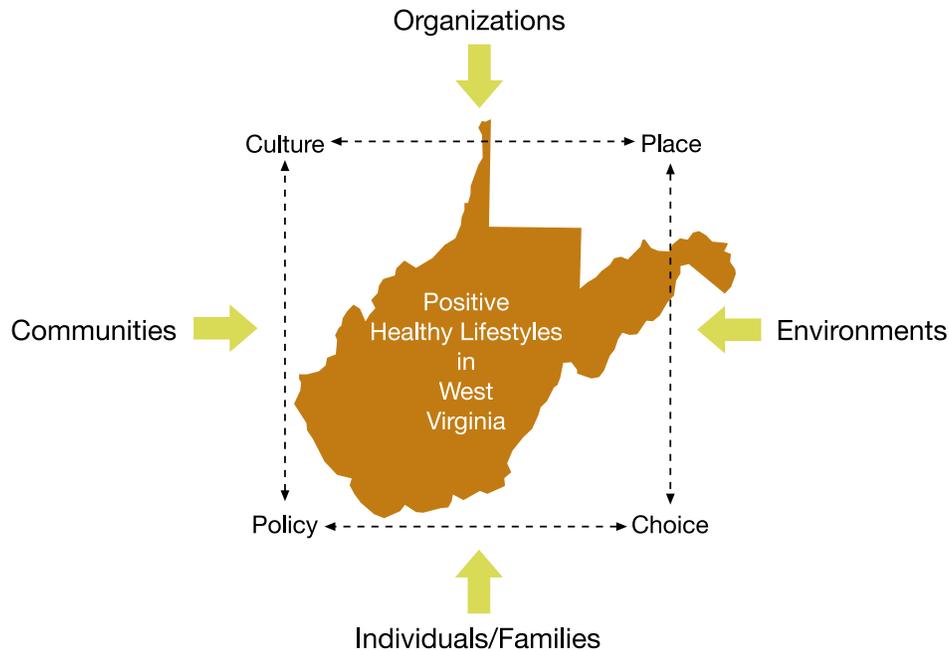
As delineated in HB 2816, the mission of the West Virginia Healthy Lifestyles Coalition (Coalition) is to:

- assure consistency of the public health and private sector approach to dealing with programs that address the problems that affect overweight and obese individuals;
- provide a forum for discussion of the issues that affect healthy lifestyles; and
- identify best practices that can be replicated.

Once members were named, West Virginia Healthy Lifestyles Coalition began meeting in fall of 2005. This fourteen member group, chaired by First Lady Gayle Manchin, worked diligently with existing groups and initial drafts of West Virginia Everyday... to forge its own strategic action plan called *Fulfilling Our Charge*. This plan works hand in hand

with West Virginia Everyday... and strongly fosters a collaborative environment in which meaningful working relationships can advance the goals established. Copies of the Coalition Strategic Action Plan, *Fulfilling the Charge*, are available upon request.





The Coalition will focus on being action-oriented and serve as an influential ‘change agent’ that works with both public and private partners to drive sustainable, long-term cultural change in West Virginia with respect to everyday healthful eating and physical activity. The Coalition maps its vision for systematic change using the schematic above which fully fits the overall approach being taken in West Virginia Everyday...

To increase the number of West Virginians living a healthy lifestyle, there must be focus on changes in four areas: Organizations, Individuals/Families, Communities and Environments. The organizations to be targeted range from education to business and from churches to government agencies. It is the intent of the Coalition to have an impact on individuals and families by bringing change to their local communities. The environmental changes envisioned will affect the state’s infrastructure by physically enhancing access and opportunities with respect to healthy

activities. Examples of such include improving bike/walking trails and adding more farmer’s markets, ball fields, fitness centers, etc.

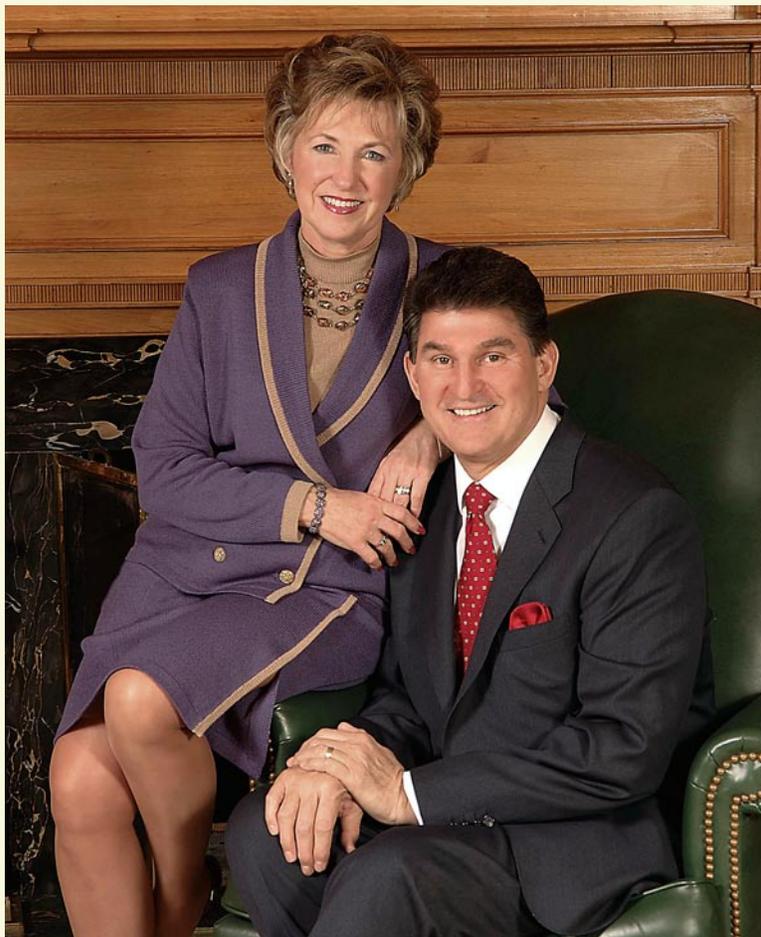
Within this framework, strategies to impact change will be categorized in four areas: Culture, Place, Policy and Choice. These strategy categories will guide actions (i.e., how to affect culture; how to have an impact on places; through public policy change; by expanding healthy eating choices and physical activity; by educating West Virginians about their choices).

Further, the now established Clinical Advisory Committee (CAC), an expert consulting body to the Coalition, is directly tied to the work of the Office of Healthy Lifestyles and therefore, the implementation of West Virginia Everyday... From the Governor’s Office to West Virginia’s Legislature, a strong commitment from state government has been communicated in words and deeds (HB 2816). This code also brings focus to education and business in ways that will open doors for the kinds of changes envisioned in this plan.

# *Building a Healthy Lifestyles Coalition*

*The issue of health is critical to West Virginia when it comes to ensuring quality lives and a prosperous state. Both of us are personally committed to doing what it takes to make certain every citizen is aware of the importance of daily exercise and healthy eating. Further, we are fully dedicated to changing our state's culture with respect to good nutrition and physical activity and agree to serve as role models in what we say and do.*

*Governor & First Lady Manchin*





# *Everyday Focus*

*An effective plan is centered on a common vision to guide direction and a mission to delineate its purpose. It also focuses on key goals based on performance benchmarks or long-term objectives that target primary areas for improvement. West Virginia Everyday... was designed to offer major goals and then a set of immediate objectives to assist in accomplishing the goals. Various strategies (actions) are presented, that when implemented, will help reach the objective. Priority strategies are ones that hold the greatest promise for lasting change and have the strongest focus on addressing long-term performance benchmarks.*

## *Vision:*

*West Virginians physically active and eating healthy, everyday.*

West Virginia Everyday... and the anticipated collaborative efforts share a common vision that speaks to the central themes of increased physical activity and good nutrition.

## *Mission:*

*West Virginia will increase the proportion of its people who are at a healthy weight by creating, improving, and communicating opportunities for residents to engage in healthy eating and physical activity behavior.*

The mission sums up what West Virginia Everyday... aims to accomplish through OHL's work and the expected collaborative efforts across the state.

*This plan is not a static document. Indicators and targets should be revised by the health community in West Virginia as targets are met, deemed unrealistic, or as new surveillance systems come on line. Further, the plan will be reviewed annually by the Bureau for Public Health's Office of Healthy Lifestyles and updated as appropriate.*

### *Overarching Goals*

Although any number of priority goals could be developed based on the assessments and researched “burden” of obesity in West Virginia, the following six focused goals have been deemed of highest value to pursue within the life of West Virginia Everyday...

#### *Increasing Physical Activity*

1. Increase the percentage of West Virginians who are regularly physically active.

#### *Promoting Healthy Eating*

2. Increase the percentage of West Virginians who consume at least five servings of fruits and vegetables per day as part of a balanced diet.

#### *Boosting Infant Breastfeeding*

3. Increase the number of infants who are fed mother's breast milk for six months or more.

#### *Advancing Healthy Weight*

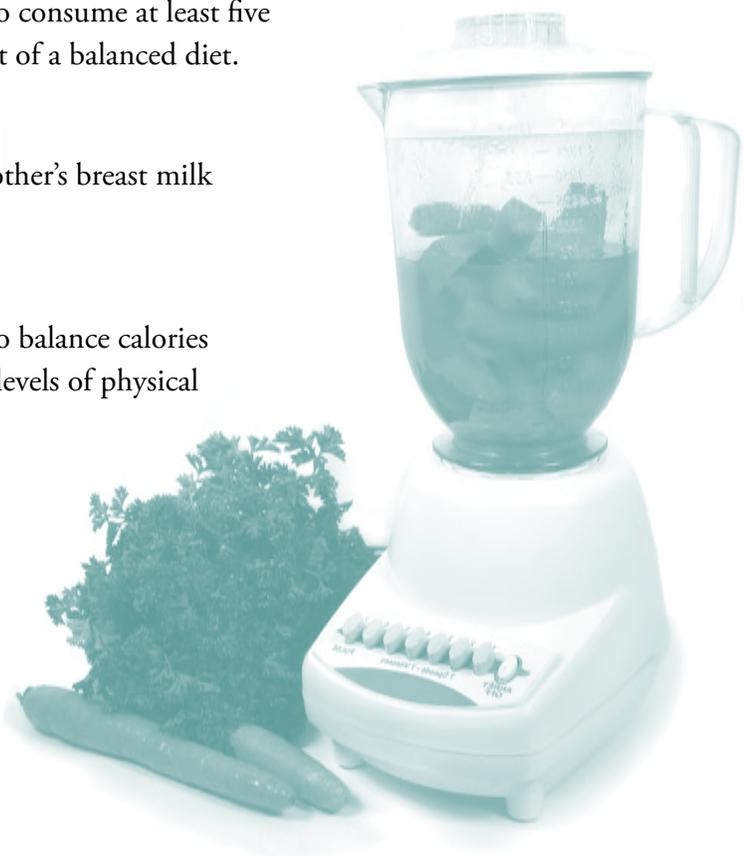
4. Increase the percentage of West Virginians who balance calories received from a healthy diet with appropriate levels of physical activity to reduce or maintain weight.

#### *Expanding Access to Healthy Foods*

5. Increase access to healthy food opportunities.

#### *Building Systems Capacity*

6. Improve the local and state capacity for collaboration, assessment and surveillance; facilitate the selection of common indicators and a communication plan.



# Objectives and Strategies

*West Virginia Everyday... includes objectives and strategies to address the problem of obesity at all stages of life and in various ecologic areas of impact. Objectives provide a basis for assessment, planning, and evaluating progress toward the goals. Long-term objectives link back to goals and reflect anticipated changes in health status by 2015. These links are demonstrated in Appendix C. Long-term objectives are a restatement of the Healthy People 2010 objectives, but combine similar objectives and do not track those objectives where surveillance is not currently possible on a state level. In the two objectives related to physical activity, the target has been revised upwards from the target set in 1999, since it has been met or nearly met. Some long-term objectives are specific to reducing obesity rates in adults and children. Other long-term objectives address increasing physical activity, improving nutrition, and increasing breastfeeding incidence and duration.*

## Long-term Objectives:

1. Reduce to 20% the proportion of adults who are obese as defined by having a body mass index (BMI) of 30 or greater. *Current status:* 27.7% (WV BRFSS 2003)
2. Reduce the proportion of children and adolescents who are overweight (>95th percentile BMI for age) by 5% from baseline. *Current status:* 13.2% ages 2 -4 (WV PedNSS 2003), 23% of 5th graders (CARDIAC 1998), 13.7% grades 9-12 (YRBSS 2003)
3. Increase to 35% the proportion of adults, and to 25% the proportion of adolescents, who consume at least five servings of fruits and vegetables per day. *Current status:* 18.7% adults (WV BRFSS 2003), 20.6% adolescents (YRBSS 2003)
4. Increase to 50% the proportion of adults with 30+ minutes of moderate physical activity five or more days per week, or vigorous physical activity for 20+ minutes three or more days per week. *Current status:* 42.7%, (WV BRFSS 2003)
5. Increase to 35% the proportion of adolescents who engaged in moderate physical activity for at least 30 minutes on five of the last seven days. *Current status:* 27.4%, (YRBSS 2003)
6. Increase the proportion of mothers who breastfeed their babies in-hospital to 75% and increase the proportion of mothers who breastfeed their babies at 6 months to 50%. *Current status:* in-hospital: 61.2%, at 6 months: 25.7% (Ross Mother's Survey 2002)
7. Increase the proportion of adolescents engaging in fewer than 3 hours daily of TV viewing or other sedentary leisure screen time activities to 70%. *Current status:* 66.1%, (YRBSS 2003)
8. Decrease food insecurity among West Virginia households by 5% from baseline. Baseline: 9% (USDA 1998). *Current status:* 8.8% (USDA 2004)
9. Create and maintain a state-level communication, assessment and surveillance structure for local and state collaboration.



## *Intermediate Objectives (IO)*

*The Intermediate Objectives in West Virginia Everyday... reflect changes in behavior, environment or policy to be achieved by 2010.*

*In this plan, intermediate objectives are grouped by stage of life (e.g., youth, seniors) and associated channels (e.g., school, workplace) for the target population.*

*Strategies are listed under each intermediate objective and refer to process changes. The strategies are envisioned to be effective catalysts in achieving the objectives ranging from the broad to the specific and reflect the efforts of many allied groups to improve West Virginia's collective health.*

*When it comes to nutrition, the best first food for babies is breast milk. Breast milk is the most complete form of nutrition for infants.*



## IO-1: Breastfeeding Promotion

New parents want to give their babies the very best. When it comes to nutrition, the best first food for babies is breast milk. Breast milk is the most complete form of nutrition for infants. A mother's milk has the ideal amount of fat, sugar, calories, protein and vitamins that is needed for a baby's growth and development. Breast milk is perfectly suited to nourish infants and protect them from illness, as it has specific antibodies that help protect a baby from infectious diseases. Infants that are breastfed have lower rates of hospital admissions, ear infections, lower respiratory infections (such as pneumonia and bronchiolitis), meningitis, urinary tract infections, diarrhea, rashes, and other medical problems than bottle-fed babies. Babies that are breastfed may be less likely to die from sudden infant death syndrome (SIDS) according to studies. Breastfed babies may have less gas and discomfort due to easy digestibility. Benefits from breastfeeding can last throughout life. Individuals who are breastfed are less likely to have allergies, insulin-dependent diabetes, and certain chronic intestinal diseases. Studies show that breastfeeding can enhance

brain development as well, children that breastfeed may score higher on tests of cognitive ability than children who were formula fed. Also, recent studies have linked breastfeeding with a child's reduced risk of obesity later in life, providing further evidence to promote breastfeeding.

Mothers benefit from breastfeeding as well. Breastfeeding causes the uterus to contract, therefore reducing bleeding after delivery and shrinking the uterus to its pre-pregnancy size sooner. Breastfeeding burns more calories so mothers can return to their pre-pregnancy weight more quickly. Research has also indicated that breastfeeding may lower the risk of premenopausal breast cancer and ovarian cancer as well as increasing bone strength.

While the benefits of breastfeeding are clear, there are several reasons why many women still choose to use formula. Lack of family and community support, and lack of public acceptance and accommodation are some of the reasons women may choose formula feeding versus breastfeeding.

## IO-1: Breastfeeding Promotion

### Profiles in Health Lifestyles – Part I

## *Everyday...*

**Ed and Patsy Cooper** were your typical young married couple in West Virginia – both raised in small communities in the Kanawha Valley, good students in school, met at West Virginia University (WVU) where he was majoring in business administration, she in elementary education. Their wedding took place one month (in June, of course) after college graduation, and they settled near their parents in a small town in a rented apartment. Ed went to work for a bank and Patsy got a job teaching third grade. After three years of saving (and Ed was a firm believer in saving money and investing as he is a banker after all), they bought a three bedroom house in the South Hills section of Charleston. They thought three bedrooms were just the right size for the two children (a boy and a girl, naturally) they planned to have.

Alas, things were not quite going as planned as the years passed and Patsy did not get pregnant. When Patsy turned 30, she really started to worry and they sought the advice of a fertility expert. He recommended various drugs and other methods (some of which Ed and Patsy were even embarrassed to discuss with each other), but still no baby came.

Finally, when Ed and Patsy turned 35 years of age and had resigned themselves to just being a couple for the rest of their lives, Patsy found herself pregnant at last – with twins! Ed was shocked but ecstatic at the news. Being an older Mom-to-be and a schoolteacher besides, Patsy read all the baby books she could find and contacted the Bureau for Public Health, the Office of Nutrition Services, and the Office of Healthy Lifestyles to get all the information she could get on the subject of pregnancy and babies. She deduced from all the literature that breastfeeding was the way to go. She knew breast milk is perfectly suited to nourish infants and protect them from illness and breastfed babies are less likely to die from SIDS (Sudden Infant Death Syndrome). Studies have shown that children who are breastfed are less likely to have

Studies have shown that children who are breastfed are less likely to have allergies, diabetes, chronic intestinal diseases, a reduced risk of obesity later in life.

allergies, diabetes, chronic intestinal diseases, a reduced risk of obesity later in life, and even score higher on cognitive ability tests than children who are formula-fed. She knew it would be a challenge to breastfeed twins but she was determined to do it! – and Ed supported her all the way. Patsy took very good care of herself, eating healthy, exercising, and resting properly as she read that multiple births were prone to be premature. She wanted her babies to have the best chance for a normal birth. Finally, one week before her due date (and not a minute too soon for Patsy as she felt like she weighed a ton), she went into labor, and with Ed by her side, delivered a healthy 7 pound boy and a 6 ½ pound girl to be named Paul and Pauline respectively. The nurses and a certified lactation counselor brought the babies to Patsy's hospital room and instructed her on how to feed Paul, while Ed held Pauline, and then vice versa. They showed her how to work a breast pump if needed and gave her a list of names to call for assistance when she returned home.

As soon as the Coopers came home with their little bundles of joy, they quickly realized they needed to get the babies on the same feeding schedule or Patsy would be doing nothing but feeding all day and night. After a couple of sleepless nights (and days, pretty much), Patsy tried to contact a breastfeeding support group but found there were none available in her town. After several weeks and a lot of stress, Ed and Patsy had the twins on the same/regular schedule. Besides not having bottles to prepare and clean and seeing her babies content and healthy, Patsy noticed another great advantage to breastfeeding – she was shrinking back to her pre-pregnancy weight. Patsy started a local breastfeeding support group and helped other new moms with breastfeeding (she was the expert for twins) and became an advocate for breastfeeding-friendly policies in worksites including Ed's bank and her own school.

**Objective A: Increase the number and distribution of support mechanisms and information avenues available to mothers and families about breastfeeding in the local community.**

*Priority Strategies:*

1. Promote policies that do not restrict breastfeeding in public places.
2. Identify and promote national, statewide, and local breastfeeding help lines; publicize in West Virginia print and audio media.
3. Identify and disseminate information on existing breastfeeding support groups and resources such as La Leche League and local lactation consultants.
4. Promote multifaceted media campaigns, such as the Loving Support Campaign, that are supportive of breastfeeding to community organizations, faith-based organizations, and other community settings.

*Other Strategies to Consider:*

1. Establish and promote peer-counseling breastfeeding programs in communities.

**Objective B: Increase the number of public schools with formal policies encouraging the teaching of breastfeeding in parenting classes and accommodating breastfeeding needs for students with children.**

*Priority Strategies:*

1. Establish and promote culturally sensitive breastfeeding classes and recommend the inclusion of breastfeeding in prenatal classes and parent programs in high schools.
2. Assist school boards and superintendents in schools with daycare and other parenting facilities with planning processes to adopt breastfeeding support policies.

**Objective C: Increase the number of health care providers and facilities with current breastfeeding information and guidelines supportive of breastfeeding practices.**

*Priority Strategies:*

1. Identify and promote an instructor's guide on breastfeeding for physicians, nurses, and midwives that can be used for classes, during counseling and as handouts to patients.
2. Promote in hospital maternity-care practices supportive of breastfeeding in line with the Baby Friendly Hospital Initiative.
3. Increase the number of International Board Certified Lactation Consultants (IBLC) or Certified Breastfeeding Counselors (CBC) and provide financial support for training.
4. Survey the delivery nurseries in this state as to best breastfeeding practices.

*Other Strategies to Consider:*

1. Collaborate with nursing, nutrition, and medical schools to incorporate a breastfeeding component in mandatory curricula.
2. Provide and support medical staff that treats pregnant women and new mothers with appropriate breastfeeding education and consistent messages on a regular basis.

**Objective D: Increase the number of worksites with employee policies supportive of breastfeeding.**

*Priority Strategies:*

1. Provide businesses with sample policies and information on the business benefits of having employees breastfeed their babies.
2. Advocate for mandating breastfeeding-friendly policies in worksites, such as allowing for breaks, providing private rooms, and flexible work schedules.

*Early child care is often the first contact for the child as an individual with his community, establishing the child's perception of physical activity as fun and desirable and the consumption of nutritious foods as the behavior norm is essential.*

## IO-2: Early Childhood – Day Care and Schools

The formation of good eating habits and a desire to be physically active, when instilled at an early age, may have an impact on an individual's behavior throughout childhood and adolescence. In addition to the primary influence that parents have in these developmental years, day care providers and providers of early childhood education can play a role in reinforcing the child's exposure to healthy food options and active play environments. Staff and teacher awareness of the benefits that good nutrition and physical activity have on the over-all health of a child is critical to this effort. Adult recognition of the value of administrative policies leads to enforcement and advocacy for improvements to these environments.

Because early child care is often the first contact for the child as an individual with his community, establishing the child's perception of physical activity as fun and desirable and the consumption of nutritious foods as the behavior norm is essential. The long-term effects of early childhood physical activity and nutrition exposures may continue to be evident on behaviors measured in adolescence. Long-term objectives for this sub-population are therefore those of the older child and adolescent population.





## IO-2: Early Childhood – Day Care and Schools

### Profiles in Health Lifestyles – Part II

## *Everyday...*

**Little Paul and Pauline** thrived throughout their infancy as Patsy breastfed them until they were one year of age and carefully introduced them to healthy foods along the way, as recommended by their pediatrician, including fruits, vegetables, a little meat and eggs, grain products, dairy products, and plenty of water. She made certain that she and Ed presented a good example to their little darlings in their own eating habits and had everyone eat at the table for meals as soon as the twins could sit up in their high chairs. As Patsy did go back to work when the babies were six months old, she explained to her mother and mother-in-law, who alternated babysitting duties, what food she wanted them to have – bottled breast milk and healthy foods Patsy provided. Once, Patsy found a French Fry in Paul's car-seat and cookie crumbs in Pauline's and she had to have Ed ask his mother not to take the twins to fast-food restaurants or feed them less healthy foods. It was not a "Hallmark" moment in family relations as we all know grandparents like to spoil the grandchildren! When the twins turned two years of age, the Coopers decided it might be best to place the twins in day care as they seemed to be developing their own language and a great dependency on each other – definitely, time for other social interaction.

Ed and Patsy visited several day care centers before they found one that served all healthy meals and snacks, had a good balance between academics and play, and plenty of physical activity throughout the day with nap times as appropriate for the age level. The Coopers had done their homework again by gathering information from the Office of Maternal, Child, and Family Health, the Office of Epidemiology and Health Promotion, their pediatrician, the West Virginia Department of Education, and other organizations concerned with child nutrition, health, and physical development. The parents were very pleased with their choice and after a couple of months in the day care environment, they and their relatives could actually understand the words their toddlers were saying!

**Objective A: Increase the number of early child care and early education providers and parents with educational resources and programs to encourage good nutrition and physical activity practices.**

*Priority Strategies:*

1. Host workshops for health care professionals, parents, and child care providers defining the scope of the problem of overweight in children.
2. Identify and promote existing resources and programs available for early childhood overweight prevention.
3. Encourage the implementation of evidence-based programs promoting physical activity and proper nutrition.

*Other Strategies to Consider:*

1. Encourage child care professionals to attend continuing education on effective programs for nutrition and physical activity.
2. Provide and promote instruction on developmentally and culturally appropriate physical activity and nutrition.
3. Encourage the implementation of evidence-based programs promoting physical activity and proper nutrition.
4. Educate child care professionals on physical activity and nutrition guidelines and sample policies.





**Objective B: Increase the number of early childcare environments having policies that encourage healthy eating and active lifestyles as the norm.**

*Priority Strategies:*

1. Work with agencies to strengthen physical activity and nutrition policies for young children that are enrolled in regulated programs.
2. Encourage adherence to the Dietary Guidelines for Americans focusing on variety, moderation, and balance when planning snacks and meals.
3. Limit television viewing and video and computer games while promoting family activities such as active games, sports, or recreational activities.
4. Incorporate age-appropriate instruction in nutrition and activity that will help children develop the knowledge, attitudes, skills and behaviors to adopt, maintain and enjoy a healthy lifestyle.

*Other Strategies to Consider:*

1. Encourage parents and caregivers to act as nutrition and physical activity role models for young children.
2. Encourage public health agencies, childcare providers, recreation programs, and other community partners to work collaboratively toward the prevention of early childhood overweight.

*Children and adolescents spend the majority of their time in schools; therefore it is critical that schools incorporate healthful eating and physical activity as part of a total learning environment.*

### IO-3: Childhood and Adolescence – School Sites

Children are influenced by parents, family, peers, and their perceptions of community and societal norms. Nowhere do these interconnecting levels of influence come together but in schools, making schools the ideal and essential organization in influencing a child's positive behavior toward good nutrition and physical activity. Children and adolescents spend the majority of their time in schools; therefore it is critical that schools incorporate healthful eating and physical activity as part of a total learning environment. The school community of classmates and adults also functions as a worksite, for the children involved in the work of learning, and also for the adults employed in teaching and providing for the children in their care.

Further, it is the local school, in many rural West Virginia communities, that functions as a center for community activities unrelated specifically to education. Local events and meetings are frequently located at schools and parents are involved not only as parents but as members of the community. It is essential that the school environment, which includes the classroom, cafeteria and school grounds, not only positively affect a child's decision-making skills, but also lend power to the messages conveyed to the community on many levels regarding physical activity and healthy eating choices. Because of the multiplicity of influences schools have on our society, the long-term objectives for children and adolescents are located in this section. However, many of the strategies and action steps implemented in schools will have secondary effects on all levels of the social-ecological model.



## IO-3: Childhood and Adolescence – School Sites

### Profiles in Health Lifestyles – Part III

## *Everyday...*

Pauline and Paul prospered into healthy and active school-age children. Their parents placed them in a soccer league which the twins loved as they were fast runners and liked to chase a ball. However, Ed and Patsy made certain their children's physical development was enhanced by individual activities including bike riding, walking and running even though they had to drive to a local park 15 minutes away from their home. Also, the Coopers were very careful what television shows the twins watched and limited their viewing time as well as time spent in front of their home computer. Elementary school was a bit more of a nutritional challenge as Patsy believed the school lunch was heavy on food high in sugar and fat and lean on fruits and vegetables. At least the school did not sell soft drinks on the premises, just fruit juices and low-fat milk, but Patsy had to ask the twins' teachers more than once to please stop rewarding children with candy and soda pop. The school's PTA agreed with Ed and Patsy's suggestion that parents provide free or low-cost healthy snacks at the school to the students and teachers at school functions. The Coopers were satisfied that the school did provide 30 minutes of physical activity a day for students and Paul and Pauline seemed to really enjoy their health instruction, especially the "5 A Day" message. They always helped their mother select the most colorful vegetables and fruits on grocery store day.

Alas, middle and high school proved more challenging on the healthy front. Kids could buy sugary snack foods and soft drinks, physical education dropped to only one time per week in middle school and one semester in high school. Fundraisers always seemed to be candy and cookies, butter popcorn, or pizza kits. As the twins entered puberty, Patsy noticed that both Paul and Pauline seemed to be putting on a few extra pounds and all they wanted to do with their friends was watch TV, play video games, and go to the movies. Ed tried to assure Patsy that it was just a phase they were going through and they just wanted to fit in with their friends. Paul had told him that kids were calling him a "nerd" for wanting to eat healthy stuff.

It is essential that the school environment, which includes the classroom, cafeteria, and school grounds, not only positively affect a child's decision-making skills, but also lend power to the messages conveyed to the community on many levels regarding physical activity and healthy eating choices.

He felt that they were going to have to accept that Paul and Pauline were not always going to eat healthy food all the time and be active, but they raised them right and he is confident the twins will make the right choices in the end. Somewhat assured, Patsy continued to always have healthy food in the Cooper household, the four of them ate home-cooked meals together as much as possible, and they took family walks at least three times a week. Their home was always open to the twins' friends along with healthy snacks, a basketball hoop for shooting, a game room with ping pong and pool tables (and no where to be found a television or video games), and a picnic area in the backyard. Paul and Pauline's friends did seem to like to come there and Patsy noticed they always seemed to eat the healthy snacks even if it wasn't pop and cookies.

Armed with facts and statistics from the Bureau for Public Health and other health-based organizations, Ed, Patsy, and other parents went to the State Board of Education to request they review their policies concerning the sale of soft drinks and sugary snacks in middle and high schools, and examine expanding physical education offerings in West Virginia.

They asked that school breakfast and lunch offerings consist of single portion sizes as defined by the USDA Food Guide Pyramid and more fruits and vegetables including salad bars. The School Board members listened intently and appointed a committee to study the situation and make recommendations. Eventually, the School Board banned the sale of soft drinks and unhealthy snacks in schools at all times, upped the physical education requirements, and put a salad bar in every secondary school.

Of course, as Paul and Pauline approached high school graduation, Ed and Patsy knew they could not control everything they did, but they were proud that the twins were lean, healthy and physically active (Paul a soccer star, Pauline a swimming champion) and seemed to, at least most of the time, make healthy choices. They were confident that their children would carry their healthy lifestyle into college.

**Objective A: Increase the number of school staff and administration, parent organizations and community leaders aware of the contribution of proper nutrition and physical activity to the maintenance of lifelong healthy weight and encourage positive role modeling among the same.**

*Priority Strategies:*

1. Include information on 5 A Day and nutrition in school communications, such as monthly meal calendars, newsletters, back-to-school nights, and health fairs.
2. Encourage schools to incorporate a behavior-focused nutrition and physical activity education curriculum.
3. Compile and distribute a list of regional contacts including dietitians and nutrition educators to provide and support nutrition instruction.
4. Provide schools and communities with resources and training designed to increase opportunities and environments for physical activity.
5. Distribute information to groups (e.g., PTA and PTO groups, student councils) regarding intramural programs and physical activity opportunities.
6. Increase vegetable and fruit availability in cafeterias through the adoption of 5 A Day in cafeteria and catering policies.

*Other Strategies to Consider:*

1. Incorporate the 5 A Day message into existing food and nutrition-assistance programs conducted by statewide agencies (e.g., School Breakfast program, School Lunch Program).
2. Work with existing school health services to establish links with professionals who can provide nutrition counseling and/or related services for families.
3. Develop and implement policies for schools to open their facilities including gymnasiums, ball fields, walking routes and school gardens for family use.
4. Increase the number of schools participating in TV Turnoff Week.
5. Provide schools with tools and promotional resources that support TV Turnoff Week.
6. Increase the number of youth who are involved in after-school activities in the school setting.
7. Increase vegetable and fruit availability in cafeterias through the adoption of 5 A Day in cafeteria and catering policies.
8. Train district and school food service staff on meal planning, food production, and monitoring to ensure that meals meet the Dietary Guidelines for Americans.

**Objective B: Increase the number of schools with policies and/or environmental changes geared towards improving nutrition (more fruits & vegetables, less sugar-sweetened beverages, more low-fat and fat-free milk) in school vending machines, a la carte and school meal programs and fundraising events.**

*Priority Strategies:*

1. Encourage schools to develop and implement “party” guidelines for snacks and refreshments served at school parties, celebrations and meetings.
2. Provide an adequate amount of time for students to eat school meals.
3. Develop and implement guidelines for healthful snacks and foods provided in vending machines, school stores, and other venues within the school’s control.
4. Call for an independent study to examine the prevalence of food and beverage sales in schools, their financial impact and implications for student health.
5. Require that all schools annually report to local boards of education information pertaining to snack food and beverage sales to students during the school day, including sales and revenues.
6. Require portion-size limits on all foods and beverages sold in vending machines, school stores or other outlets operating during the school day on school premises, except for foods in school meals that are governed by USDA regulation.
7. Require that nutrition education designed to help students adopt healthy eating behaviors be taught a minimum of 30 minutes per week at each grade level from pre-kindergarten to grade eight as part of the health education curriculum.
8. Establish a pilot program to improve students’ food choices by offering free snacks of fruits and vegetables in selected schools.

*Other Strategies to Consider:*

1. Work with schools to develop and implement guidelines to address the use of food as a discipline or reward for students.
2. Encourage nonfood fundraisers such as flowers and gift-wrap.
3. Encourage adherence to single-portion sizes as defined by the USDA Food Guide Pyramid in foods offered in the school setting and outside the cafeteria.
4. Plan health-promotion activities for students, parents, and staff that encourage the consumption of fruits, vegetables, and low-fat dairy products, such as cooking demonstrations, school gardens and nutrition guest speakers.

**Objective C: Increase the proportion of schools that offer age-appropriate and culturally sensitive instruction in physical education (PE) classes that help students develop the knowledge, attitudes, skills and behaviors to adopt, maintain and enjoy a physically active lifestyle.**

*Priority Strategies:*

1. Offer professional development for new and existing PE teachers focused on methods to increase time spent being physically active for all students during PE class.
2. Require that physical education be taught in every West Virginia elementary school by a certified physical education specialist a minimum of 30 minutes, five days per week.
3. Call for an independent study to examine the cost to expand physical education offerings in West Virginia schools.
4. Encourage lifestyle activity in physical education classes to ensure that students meet district standards.

*Other Strategies to Consider:*

1. Assure safe and adequate equipment, facilities, and resources for the full implementation of physical education classes in a pre-kindergarten through 12th grade curriculum.
2. Integrate health-related physical fitness assessment into the curriculum as an evaluation tool.
3. Educate students about health benefits of physical activity by integrating it into other subject areas and curricula.
4. Encourage PE teachers to devote the majority of physical education class time to moderate or vigorous physical activity.
5. Discourage the use of physical activity as punishment.





**Objective D: Increase the number of schools that provide opportunities for physical activity that help students develop the knowledge, attitudes, skills and behaviors to adopt, maintain, and enjoy a physically active lifestyle by 2010.**

*Priority Strategies:*

1. Support the establishment of a state trails coordinator and the development of a relationship between West Virginia trails and the school environment to increase the number of safe walking areas to and around schools.
2. Require middle and high schools to make available to all students at least 15 minutes of physical activity daily, in addition to physical education classes and competitive athletics.
3. Require, in addition to physical education classes, elementary schools to provide at least 30 minutes of physical activity accumulated over each school day including at least one 15-minute recess daily.

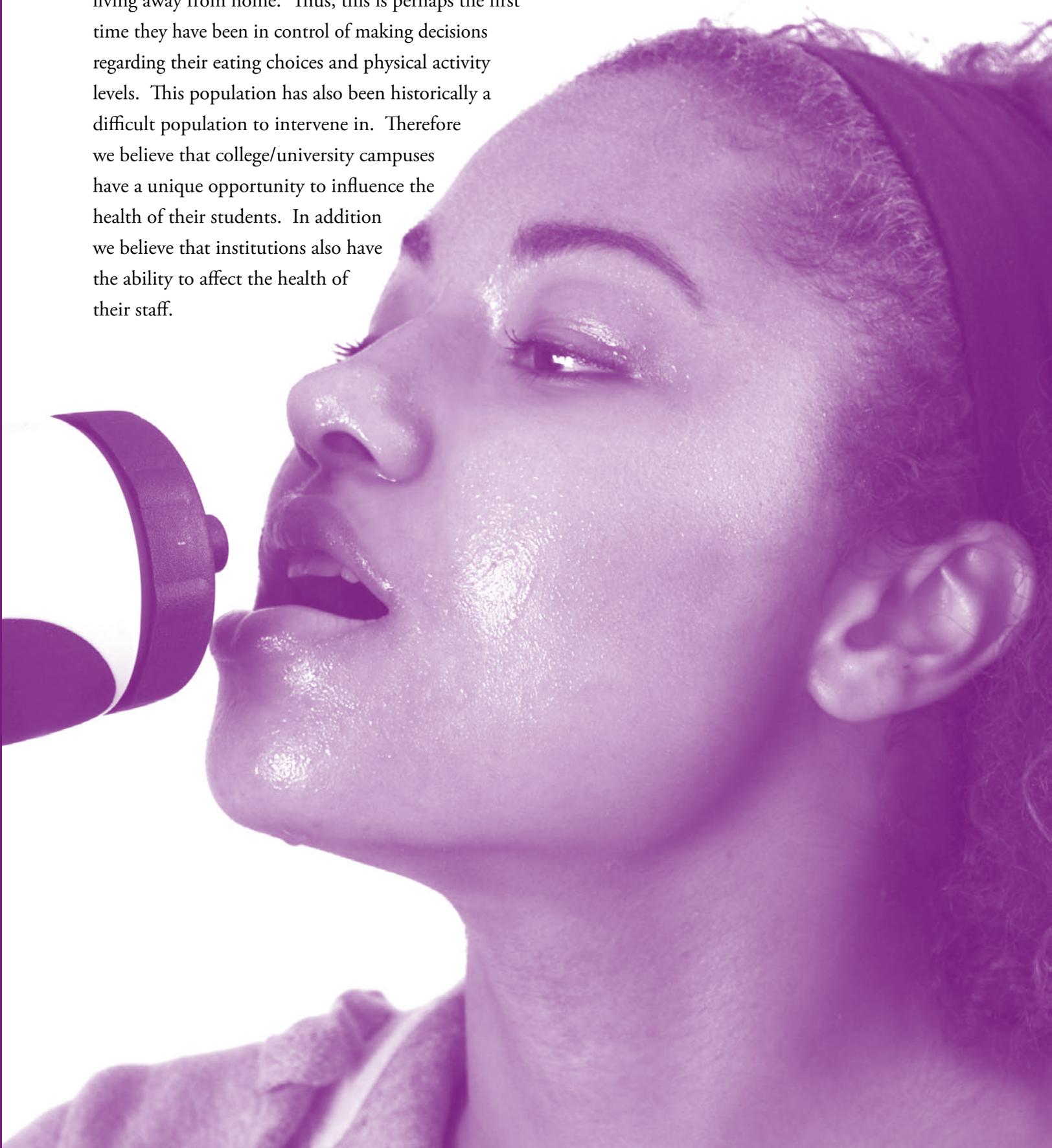
*Other Strategies to Consider:*

1. Encourage fun, pleasant, and safe after-school programs that include physical activity.
2. Provide and encourage participation in school athletics, intramural programs and physical activity clubs.
3. Promote walking or bicycling to and from school using such programs as Walking School Bus and Bike Train.

*College and university  
campuses have a unique  
opportunity to influence  
the health of their students.*

## IO-4: Higher Education

For the majority of students enrolled in West Virginia colleges and universities this is their first experience of living away from home. Thus, this is perhaps the first time they have been in control of making decisions regarding their eating choices and physical activity levels. This population has also been historically a difficult population to intervene in. Therefore we believe that college/university campuses have a unique opportunity to influence the health of their students. In addition we believe that institutions also have the ability to affect the health of their staff.



## IO-4: Higher Education

### Profiles in Health Lifestyles – Part IV

## *Everyday...*

Paul and Pauline hit the Marshall University campus running – no more Mom and Dad telling them what to do, what to eat, when to go to bed, or when to get up. They found the dorm cafeteria food all right with plenty of healthy choices, but breakfast was sure difficult to make when Pauline woke up 15 minutes before the first class of the day, and Paul certainly found ordering pizza with his friends in the evening instead of going to the cafeteria really convenient. Studying late into the night was a prime time for snacking – chips, cookies, cakes, and soda pop (beer? Don't ask!). At least they were getting plenty of physical activity dashing to class, and the new Physical Fitness Center was certainly dandy if they could just get there more often. Getting on a regular exercise schedule was so difficult when Paul and Pauline could never seem to get enough sleep. At Thanksgiving break, both Patsy and Ed noticed a weight gain in the twins but thought it best not to comment at this time. However, by Christmas break, Pauline and Paul came home with even a few more extra pounds, a car full of laundry and a rather nasty cold.

Mama Patsy promptly doctored their colds, fed them great home-cooked meals, did laundry for two days, insisted they get plenty of rest over the holidays and gently suggested they might want to review their lifestyle choices the last four months. Did they really feel good? Did they have the energy level they had before and were they getting as much done as they should? Even though their grades were average, could they have been better if they felt better? Through coughing and sneezing, Paul and Pauline decided maybe they had better get back on the healthy track.

Their second semester, they actually found a health club on campus which brought in nutrition experts to meetings, organized intramural activities between dorms (Paul loved the soccer, Pauline the frisbee tournaments), and took groups to work out together at the new Physical Fitness Center. Brother and sister made an effort to get more rest, eat three balanced meals a day, and both agreed they did feel a lot better. Besides, they found other students who believed in a healthy lifestyle just like them – and nobody called them “nerds” there. Needless to say, when Paul and Pauline returned home after the end of the semester, Patsy and Ed were pleased to note that the twins were their lean, healthy and glowing selves again.

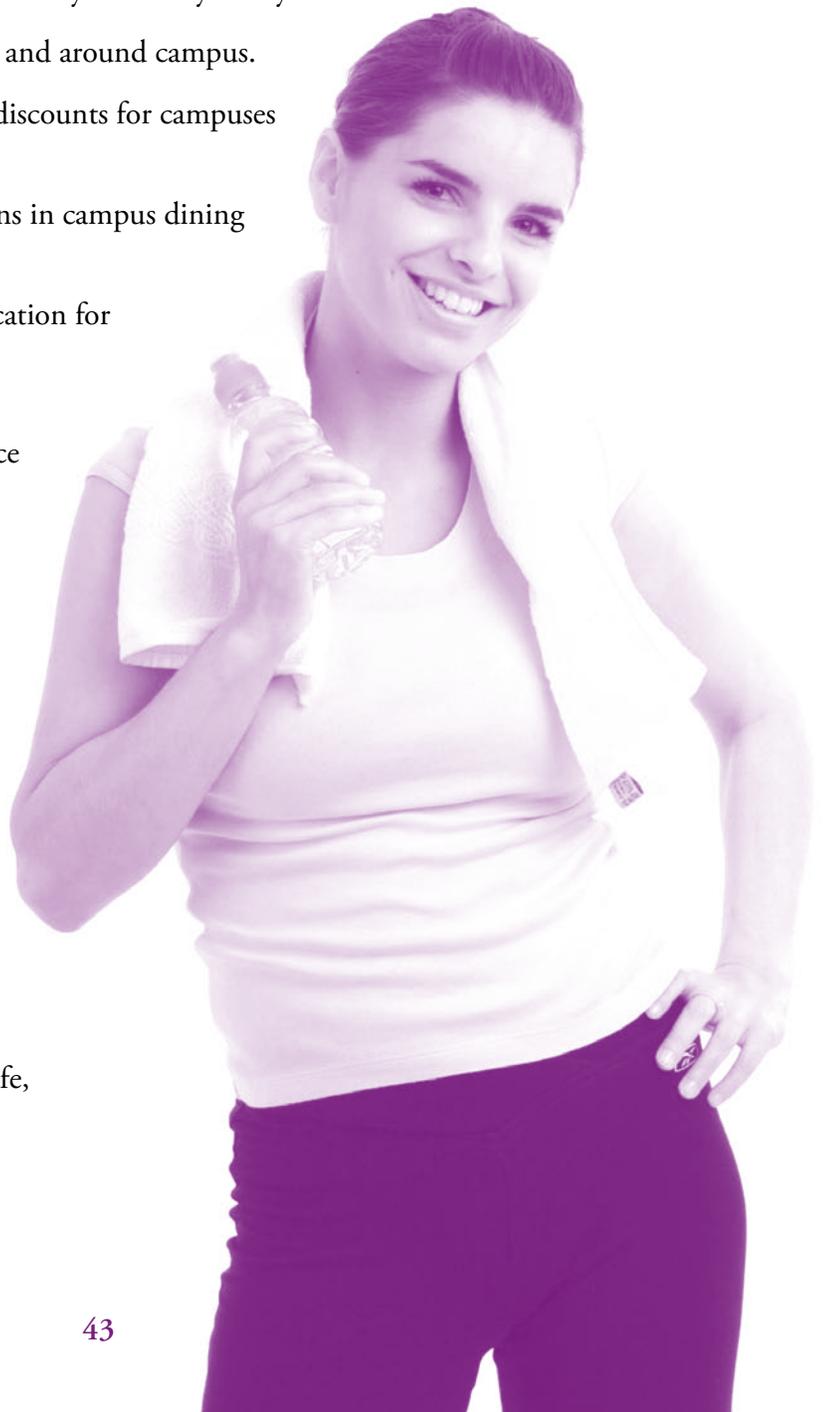
**Objective A: Increase the number of post-secondary institutions providing information and opportunities for physical activity and healthful eating that helps students and staff develop the knowledge, attitudes, skills, and behaviors to adopt, maintain and enjoy a physically active lifestyle by 2010.**

*Priority Strategies:*

1. Provide information to students and staff on the benefits of increasing personal fitness levels and incorporating physical activity into daily lifestyle.
2. Promote walking and bicycling to, from, and around campus.
3. Work with local fitness clubs to provide discounts for campuses without on-site facilities.
4. Offer and/or increase healthy food options in campus dining halls, vending machines, and snack bars.
5. Provide point-of-purchase nutrition education for vending, a la carte, dining halls and campus food vendors.
6. Provide healthful meal-planning assistance in residence-hall dining facilities.

*Other Strategies to Consider:*

1. Provide nutrition counseling and expertise on campus.
2. Organize intramural and other physical activity clubs.
3. Provide physical activity opportunities for evenings and weekends.
4. Incorporate nutrition messages, such as 5 A Day, in dining halls, recreation centers, student centers, libraries, etc.
5. Provide bicycle racks and/or lockers in safe, convenient and accessible locations.



*Rising health care costs give employers a vested interest in the health of their employees and their families.*

## IO-5: Worksites

While children spend a great deal of time in schools, adults spend the majority of their hours in the workplace. Worksites, to most West Virginians, are a place not only of employment, but a part of the social fabric of the community. Co-workers are also neighbors, church members and relatives. Worksites provide an avenue of adult interaction in which individuals are exposed to their peer's attitudes and behaviors and also an environment in which employers have an

interest. Over the past two decades, the rising cost of employee health care has been a major challenge to American employers. These rising health care costs give employers a vested interest in the health of their employees and their families. Efforts to promote healthier lifestyles through the workplace can address both employer's concerns over the business's health care costs and the overall public health concern to improve population health.

*Worksites, to most West Virginians, are a place not only of employment, but a part of the social fabric of the community. Co-workers are also neighbors, church members and relatives.*



## IO-5: Worksites

### Profiles in Health Lifestyles – Part V

## *Everyday...*

The twins graduated from Marshall University with honors in Journalism, Paul in Advertising and Pauline in Print Journalism. Paul was employed by a small private advertising firm in Charleston and Pauline secured a job with a local newspaper. Both young adults continued their healthy lifestyle – joining the local gym, walking at lunchtime, and eating healthy snacks and meals (frequently at Mom’s house). However, Paul notices that his place of employment didn’t offer its employees much in the way of health education and opportunities. Pauline told Paul about the very active Wellness Council at her job which scheduled monthly activities such as cooking demonstrations, weight management programs, started physical activity breaks twice a day with exercising or walking, and even placed pictures and played music in the stairwells to encourage stair usage. Also, Pauline’s health insurance seemed a lot better than Paul’s as hers covered preventive wellness screenings and paid for weight management/maintenance and tobacco cessation programs which his did not. As Paul’s firm was a small company, he knew his bosses might resist providing more health-related benefits but he was determined to convince them that it would be more cost-effective to promote a healthy living for their employees.

The supervisors listened and asked Paul to chair a wellness council for their company. Their first order of business was to get discounted memberships for their employees at a local health club near their office, promote the upcoming “TV Turnoff Week,” and establish a breastfeeding room for two of their female employees so they wouldn’t have to pump in the restroom. His company was well on its way to promoting a healthy environment for its employees and Pauline was proud of Paul for stepping forward and taking a stand for a healthy lifestyle.

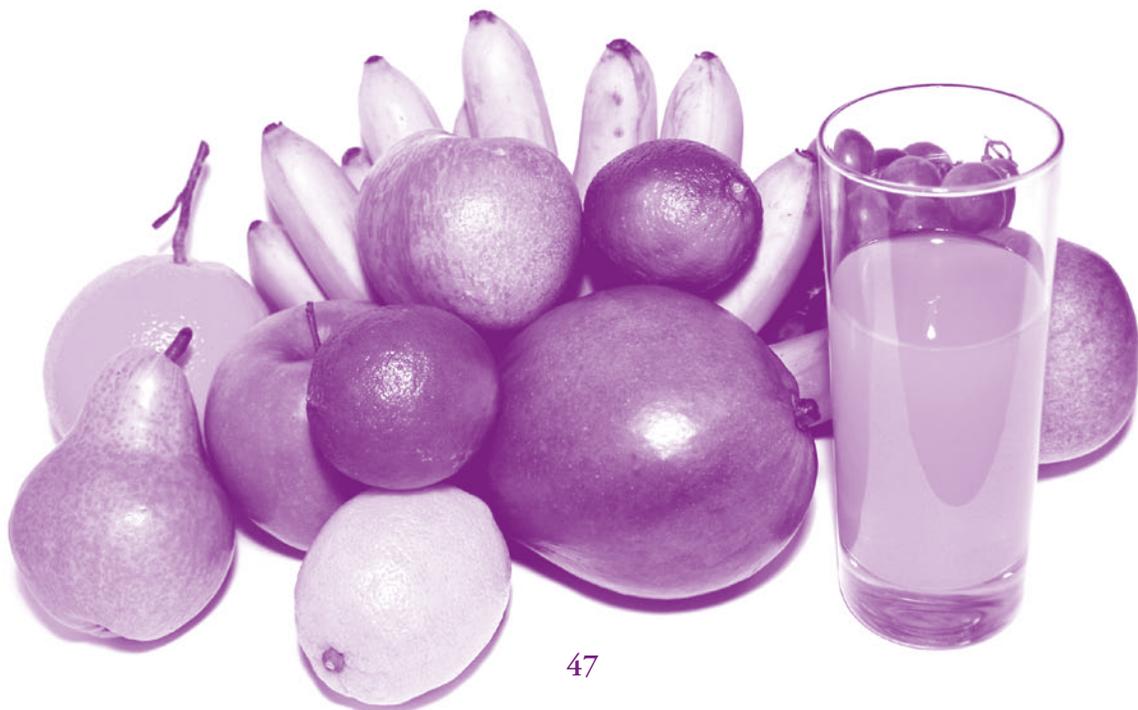
**Objective A: Increase the number of worksites that provide and promote social support interventions and/or health education activities by 2010.**

*Priority Strategies:*

1. Establish a wellness council within the worksite.
2. Create an operational manual that details the worksite's wellness activities.
3. Encourage insurance payers to provide incentives for participation in nutrition, physical activity and/or weight management/maintenance activities.
4. Start employee activity clubs (e.g., walking, bicycling).
5. Provide healthy cooking demonstrations with taste tests.

*Other Strategies to Consider:*

1. Provide confidential health-risk appraisals.
2. Conduct preventive wellness screenings for blood pressure, body composition, blood cholesterol and diabetes.
3. Offer regular health education presentations on various physical activity, nutrition and wellness-related topics.
4. Offer on-site weight management/maintenance programs at a convenient time for employees.
5. Provide health education information through newsletters, publications, websites, email, libraries and other company communications.



**Objective B: Increase the number of worksites that promote opportunities for increased physical activity by 2010.**

*Priority Strategies:*

1. Post motivational signs at elevators and escalators to encourage stair usage.
2. Provide worksite with tools and promotional resources that support TV Turnoff Week.
3. Host “walk-and-talk” meetings.
4. Explore discounted memberships at local health clubs and recreation centers.
5. Support physical activity breaks, such as stretching or walking, during the workday.
6. Implement incentive-based programs to encourage physical activity.
7. Support recreation leagues and other physical activity events (on-site or in the community).
8. Offer flexible work hours to allow for physical activity during the day.
9. Offer on-site fitness opportunities, such as group classes or personal training.

**Objective C: Increase the number of worksites that promote opportunities for healthful eating.**

*Priority Strategies:*

1. Offer healthful food alternatives at meetings, company functions and health education events.
2. Promote the adoption of 5 A Day in catering/cafeteria policies.
3. Post motivational signs about 5 A Day, nutrition and healthful eating in the cafeteria.
4. Offer appealing, low-cost, healthful food options, such as fruits and vegetables, juices, and low-fat dairy products, in vending machines, snack bars, break rooms, and/or cafeterias.
5. Provide protected time and dedicated space away from the work area for breaks and mealtimes.
6. Make refrigerators available for employees’ food storage.

**Objective D: Increase the number of worksites that alter worksite environments and/or policies to encourage health and wellness.**

*Priority Strategies:*

1. Increase the number of employers with policies that support improved nutrition and physical activity for their employees.
2. Provide clean, safe, and aesthetically appealing stairwells and promote their use.
3. Provide bicycle racks in safe, convenient, and accessible locations.
4. Establish workplace programs and policies that promote breastfeeding.
5. Promote the Governor's Healthy Worksite Designation Program.



*Physical infrastructure and political will in a community that has an important impact on the individual's available choices and perceptions of the norm.*

## IO-6: Active Community Environments

Communities are the places we call home, the places where global issues become personal issues. While parts of the socio-ecologic model stand within communities, by their narrower definition, it is the larger social fabric, physical infrastructure and political will in a community that has an important impact on the individual's available choices and perceptions of the norm. Many residents of this state have been afflicted with persistent poverty, but West Virginia communities are rich with civic organizations, a spirit of volunteerism, and citizens that take pride in their home-town identities.

Economic development opportunities benefit communities and residents when they focus on active community designs, pedestrian and bike-friendly neighborhoods, and attracting retailers that will stock and promote nutritious foods. This vision requires a demand from residents for these amenities. It is here that awareness of policies advantageous to the public's health and quality of life, reducing the prevalence and severity of obesity and chronic disease, begin. In our communities, we live, work, play and plan for the future. Volunteerism and citizens that take pride in their home-town identities are import in this process.



## IO-6: Active Community Environments

### Profiles in Health Lifestyles – Part VI

## *Everyday...*

Paul and Pauline continued in their careers, promoting “healthy worksites,” and realizing with each passing year, their parents, now older adults but still very healthy, were pretty smart. Paul married a woman, Pam, he met at the health club and Pauline did likewise about six months later, having met her mate, Pete (a runner), when she was covering the Charleston Distance Run for the newspaper. The couples found houses within one block of each other, and they were within a mile of Ed and Patsy. All very convenient family-wise but Paul, Pam, Pauline, and Pete all believed their community could better promote active living. Some of their ideas for the neighborhood included providing safe sidewalks where there were none, bike lanes in some areas, and slowing motor vehicles down through their neighborhoods where walking and biking are encouraged. Also, they felt one small park for the whole area was not enough for their part of town which was composed of many young families with children as well as older people who might walk around a track instead of up and down the hilly streets.

The four went to the City Council with their proposals. Their council representative was very interested and asked them to form a committee to research their ideas and funding that might be available for such projects. With the aid of the Office of Healthy Lifestyles, West Virginia Walkable Community Coalition and others, they had a final draft of a plan and grant opportunities ready for the City Council in four months time. With the grant monies they finally received, much needed sidewalks were supplied on some streets and a bike path was started in the existing park to eventually meet with a bike path to be built in a new park planned five miles away. City Council did lower the speed limits in some areas of this neighborhood and other parts of the city and put speed bumps as needed to slow traffic. Paul, Pam, Pauline, and Pete also requested that the vending machines at the parks only contain water, low-fat milk, 100% fruit juice and healthy snacks which were approved unanimously. Definitely, a good start was made for establishing their neighborhood as health-friendly.

Pam and Paul started a family of their own with twin girls and you guessed it! – Pauline and Pete followed with twin boys (and you thought twins skipped a generation). Grandma Patsy stepped right in instructing her daughter and daughter-in-law on breastfeeding twins thus giving the babies the best possible start to a healthy life.

**Objective A: Increase the capacity of communities to implement and sustain consistent, comprehensive obesity prevention and control strategies in West Virginia communities.**

*Priority Strategies:*

1. Form and provide support for community coalitions to support the development of increased opportunities to engage in leisure time physical activity and to encourage healthy eating.
2. Develop a structured community assessment tool with which communities can assess barriers to and promoters of physical activity and good nutrition in their own communities.
3. Increase knowledge and skills related to breastfeeding, healthy eating, and physical activity among community members.
4. Increase the number of communities that implement a nutrition and physical activity plan for the prevention and control of obesity and other chronic diseases.
5. Raise awareness of community policy makers for the need to develop social and environmental policy that would help communities and families be more physically active and consume healthier food choices.
6. Increase the number of interventions for nutrition and physical activity that are implemented and evaluated in communities.
7. Educate community members on the need to implement programs recommended by the Guide to Community Services.

**Objective B: Increase changes in built environments (healthy community design) to foster smart growth communities.**

*Priority Strategies:*

1. Increase the number of West Virginia Communities that assess and plan for healthy community designs and/or re-designs in both urban and rural areas.
2. Develop community assessment tool to assess and enhance the local healthy community design.
3. Utilize walkability and bikeability audits to assess issues that impede safe walking and biking.
4. Partner with local policy makers, community leaders, and city planners to develop a plan to address walkability and bikeability audit outcomes.
5. Encourage communities to adopt policies to promote active living by design when preparing or updating master plans, transportation plans, open-space plans, and other long-range planning documents.
6. Encourage communities to adopt policies that require developers to provide safe sidewalks, bike lanes, bike parking, shoulders, and off-street trails.

7. Implement community-traffic calming programs to slow motor vehicles in residential, commercial, or other zones where walking and biking are to be encouraged (e.g., medians, raised crosswalks, landscaping, and roundabouts).
8. Implement safe routes to school programs (e.g., walking, school bus, bike, and trains).
9. Revitalize downtown and town centers as pedestrian and bicycle-friendly areas (e.g., pedestrian malls).

**Objective C: Increase the number of community opportunities (e.g., events, programs, facilities) for families to be physically active together.**

*Priority Strategies:*

1. Identify and promote existing West Virginia programs, facilities, and initiatives designed to increase physical activity to community members and decision makers.
2. Develop neighborhood parks, open space, playgrounds, and recreation facilities in new subdivisions and in existing, underserved residential areas.
3. Locate park and recreations facilities where they are easily accessible to residents and employees by walking or biking.
4. Develop a system of trails that integrates access to parks, open space, and recreation facilities.
5. Work with school administrators and community groups to develop guidelines for utilizing school facilities for hosting meetings, events, etc.

**Objective D: Increase the number of community opportunities that provide knowledge and access to healthy food choices.**

*Priority Strategies:*

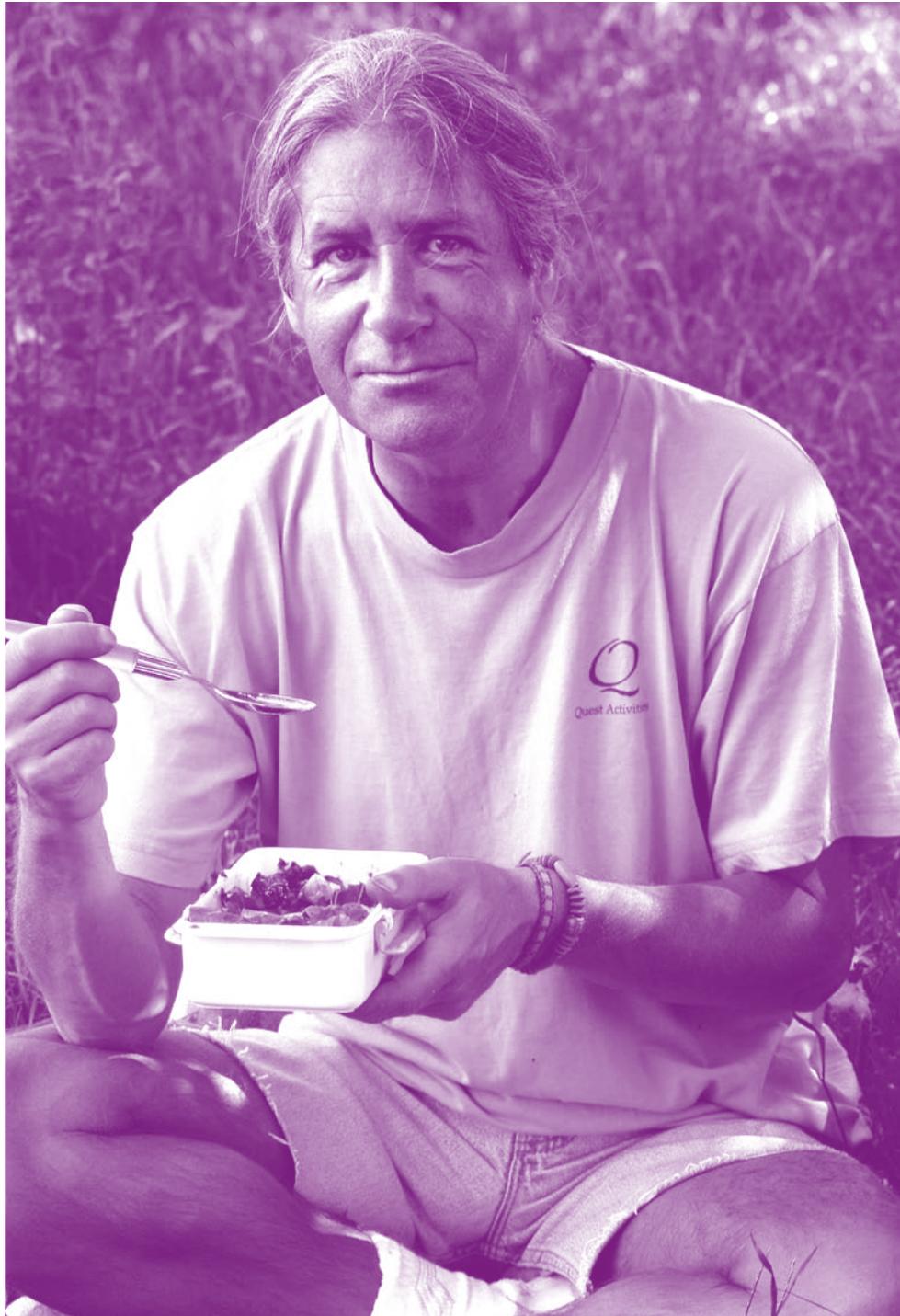
1. Promote the availability of water, low-fat milk and 100% fruit juice and healthy snacks in vending machines in parks, recreation facilities and government buildings.
2. Identify and promote existing West Virginia programs, facilities and initiatives designed to increase access to healthy food choices to community members and decision makers.
3. Work with communities to designate space designed to increase access to healthy food choices (e.g., community gardens, farmers' markets).
4. Encourage community organizations serving youth to establish policies to improve nutrition choices (more fruits & vegetables, less fat, less sugar-sweetened beverages, more low-fat and fat-free milk) at meetings and facilities.
5. Provide healthy eating/cooking classes for community members.



*Of all West Virginia adults,  
older adults are the population  
frequently diagnosed and treated  
for chronic diseases that are closely  
associated with excess body weight.*

## IO-7: Older Adults

While older adults have the second-lowest prevalence of obesity of all West Virginia adults, older adults are the population frequently diagnosed and treated for chronic diseases that are closely associated with excess body weight, such as diabetes, cardiovascular diseases and arthritis. There is ample evidence that individuals with these illnesses or at risk of developing these diseases can benefit from increased physical activity and good nutrition.



## IO-7: Older Adults

### Profiles in Health Lifestyles – Part VII

## *Everyday...*

Ed and Patsy retired and grew old gracefully, continuing to eat healthy, walking everyday, swimming at the local Recreation Center, and enjoying their children and grandchildren. However, they noticed that many of their friends weren't doing as well – some had developed health problems associated with obesity such as diabetes, cardiovascular disease, and arthritis and were not getting the physical activity and good nutrition they needed. They contacted the Bureau of Senior Services and the Office of Healthy Lifestyles to see how they might aid their friends. Through their local church, Ed and Patsy helped start a program for seniors in their area which offered nutrition education classes, implemented a walking program for the elderly where they could easily walk together through the neighborhood, and arranged transportation for those wanting to attend exercise classes at the local Recreation Center including water and low-impact aerobics, Tai Chi, and weight-bearing activities. After six months, the church bought a van for transportation purposes which lightened the load for private automobile volunteers. Ed and Patsy also volunteered to take meals to homebound seniors and were delighted that the meals were incorporating the Food Guide Pyramid of five servings of fruit and vegetables, fat-free dairy products, and whole-grain products into the proper serving sizes. The couple enjoyed talking with the seniors they delivered meals to and were proud that they were a part of such a great program to help the elderly get the nutrition they needed to be healthier. And Paul and Pauline were very proud of their parents who always strived and succeeded in being great role models for a healthy and active life. They would definitely pass on this tradition to their own children.

**Objective A: Increase the number of opportunities for older adults to engage in daily, moderate, physical activity that follows current recommendations.**

*Priority Strategies:*

1. Facilitate partnerships between schools and older adult groups that encourage opportunities for physical activity.
2. Increase awareness of low- or no-cost resources for physical activity, such as swimming pools, local shopping malls, and community trail systems.
3. Encourage regular physical activity that includes balance and strength training to prevent falls.
4. Provide transportation to and from physical activity locations for individuals who do not have access to other modes of transportation.

*Other Strategies to Consider:*

1. Implement walking programs through malls, faith-based organizations, senior centers, recreation centers, neighborhoods and other community locations.
2. Advocate for low-cost, age-appropriate, physical activity programs, such as water aerobics, Tai Chi, walking, low-impact aerobics and other weight-bearing activities in recreation centers, YMCAs, senior centers, and other facilities that serve older adults.

**Objective B: Increase the number of opportunities to develop, support and advocate for older adult health through better nutrition.**

*Priority Strategies:*

1. Start community gardens at assisted-living facilities, nursing homes and senior centers.
2. Offer nutrition education classes based on assessment of interest and need, including cooking demonstrations whenever possible.
3. Incorporate 5 A Day, Food Guide Pyramid, and Dietary Guidelines for Americans messages into existing food and nutrition-assistance programs conducted by statewide agencies (e.g., Food Stamps, food banks, etc.).

*Other Strategies to Consider:*

1. Encourage consumption of three servings of reduced-fat or fat-free dairy products each day.
2. Encourage consumption of at least five servings of fruits and vegetables each day.

# 2005 Update on the Burden of Obesity in West Virginia

*In 2002, the State of West Virginia published a document entitled “Obesity: Facts, Figures, Guidelines” which discussed various studies into genetic and environmental causes of obesity, chronic conditions and diseases associated with obesity, and treatments for obesity and presented then-current data on the costs associated with, and the prevalence of, obesity in West Virginia. Between three to four years of surveillance data, primarily from the Behavioral Risk Factor Surveillance System (BRFSS), has accumulated since that time.*

*Additional data on adolescents and very young children is presented here. This report reflects on trends, current prevalence and reported behaviors of the West Virginia population, contrasts West Virginia data with the United States, and includes more recent cost and mortality estimates for obesity.*

## **U.S. Adults**

The prevalence of overweight and obesity in the United States has increased steadily over the past decade, to the point that it is now considered an epidemic. The Behavioral Risk Factor Surveillance System (BRFSS) is an annual random-sample telephone survey in which adults nationwide are asked to self-report their height and weight, among many other health conditions and risk behaviors. In this update, all national estimates from BRFSS are presented in terms of median prevalence. The U.S. median prevalence represents the point at which half of the states have higher estimates than the median and half have a lower estimate.

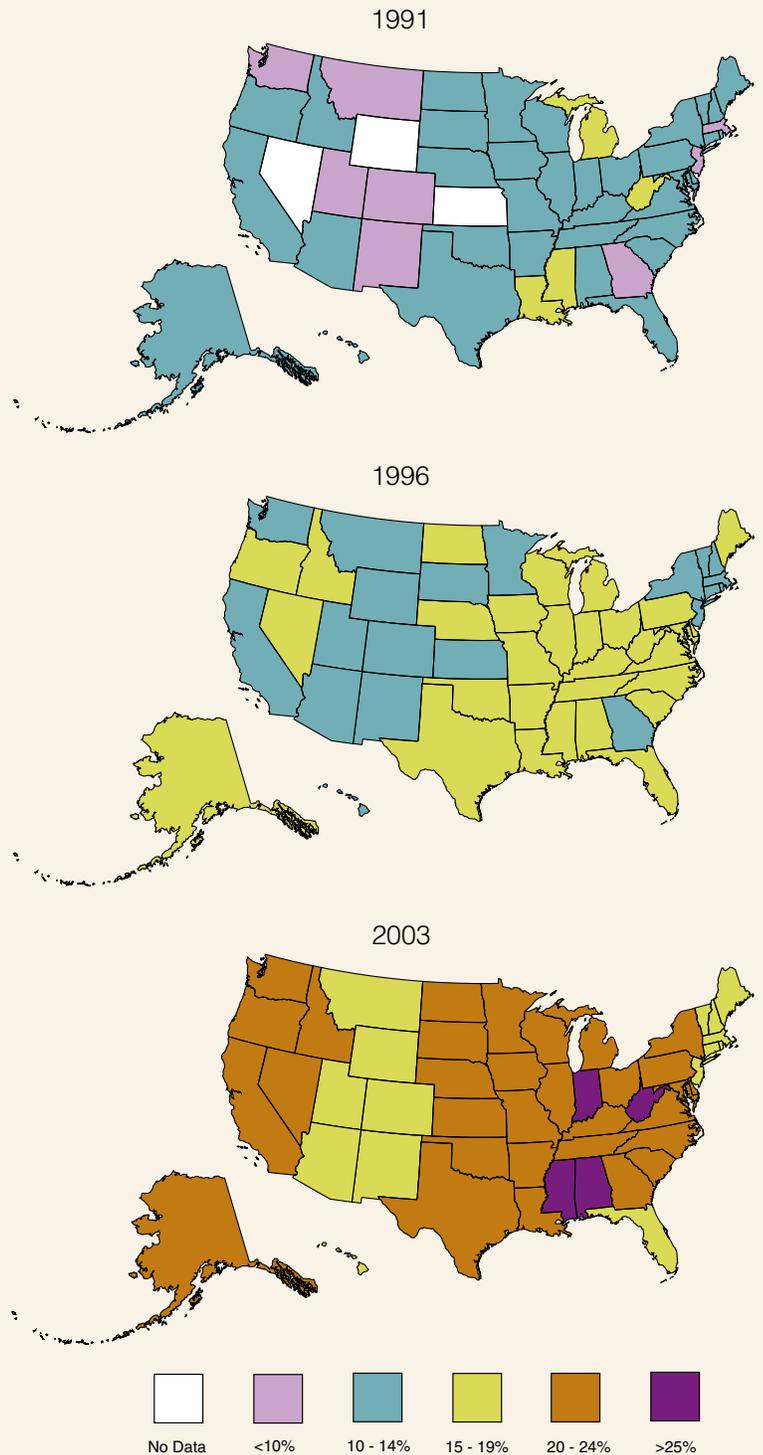
In 1991, BRFSS data for adults nationwide revealed the median prevalence of obese adults was at 12.6%, and the median prevalence of overweight, but not obese adults stood at 33.6%. By 2003, the median percent of obese adults had increased to 22.8%, with an additional 36.7% of adults who were considered overweight.

Figure 1.

## Obesity Trends\* Among U.S. Adults BRFSS, 1991, 1996, 2003

(\*BMI  $\geq 30$ , or about 30 lbs overweight for 5' 4" person)

Figure 1 shows the United States by state prevalence of obesity (excluding overweight persons) at given intervals in the past to illustrate this trend. West Virginia was one of four states reporting obesity prevalence in the highest range illustrated on the 1991 map (15% to 19%), but by 1996, West Virginia had been joined by 29 other states reporting obesity prevalence in that range. By 2003, with new, higher ranges added to the map, West Virginia continued to be ranked as one of four states with the highest obesity prevalence in the nation. (1) In addition to BRFSS, which is limited to self-reported height and weight, data from the National Health and Nutrition Examination Survey (NHANES), which measures participants' height and weight, corroborates this trend of increasing prevalence of obesity. According to NHANES, 23.3% of adults nationwide between 20 to 74 years old were obese in the survey run between 1988 and 1994. The next round of the NHANES survey, run between 1999 and 2002, found 31.1% of adults nationwide were obese. (2)



Source: Behavioral Risk Surveillance System, Centers for Disease Control  
<http://www.cdc.gov/nccdphp/dnpa/obesity/trend/maps>

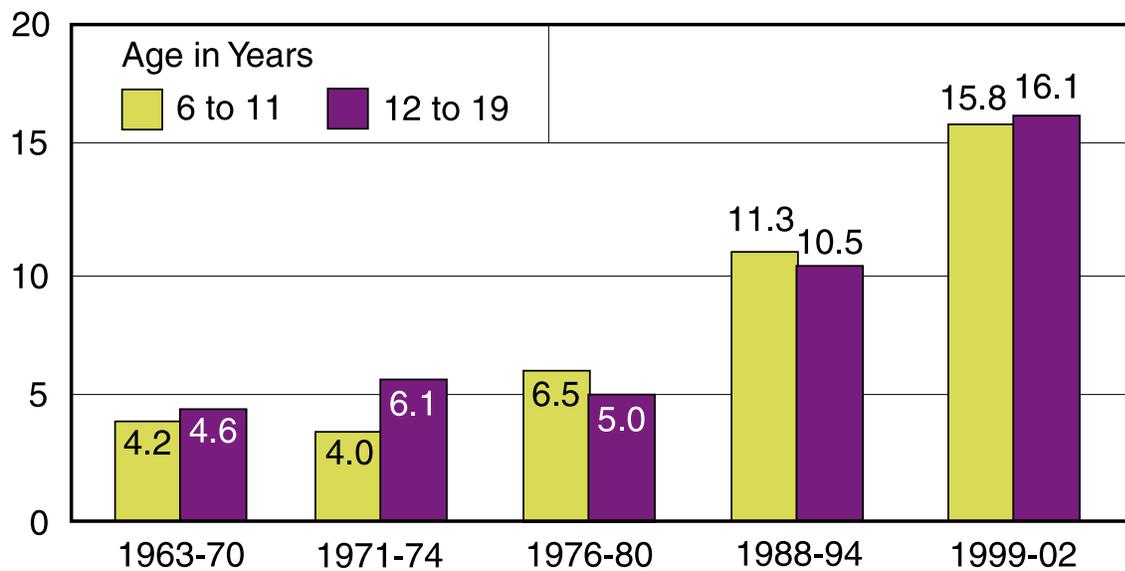
### U.S. Children and Adolescents

Children and adolescents with BMI values at or above the 95th percentile of sex-specific BMI growth charts are classified as 'overweight'. Children between the 85th and 94th percentile are classified as 'at risk of overweight'. The 95th percentile corresponds to the equivalent adult category of obese, or a BMI of 30 or above. According to NHANES, the prevalence of overweight among children 6 to 11 years of age more than doubled (from 6.5% to 15.8%) between the 1976-1980 and 1999-2002 surveys. During the same time, the prevalence of overweight tripled (from 5.0% to 16.1%) among adolescents aged 12 to 19 years. (Figure 2) (3)

Figure 2.

### Prevalence of Overweight among United States Children and Adolescents ages 6-19 years – NHANES

Percentage



Note: Excludes pregnant women starting with 1971-74.  
Pregnancy status not available for 1963-65 and 1966-70.  
Data for 1963-65 are for children 6-11 years of age, data for 1966-70 are for adolescents 12-17 years of age, not 12-19 years of age. (Source: CDC/NCHS, NHES and NHANES.)



## Overweight and Obesity in West Virginia

### Adult Overweight

The prevalence of overweight adults in West Virginia (excluding obese adults) has remained similar to the national median for many years. **Figure 3** shows the actual annual prevalence for overweight in West Virginia since 1990, compared to the U.S. median prevalence.

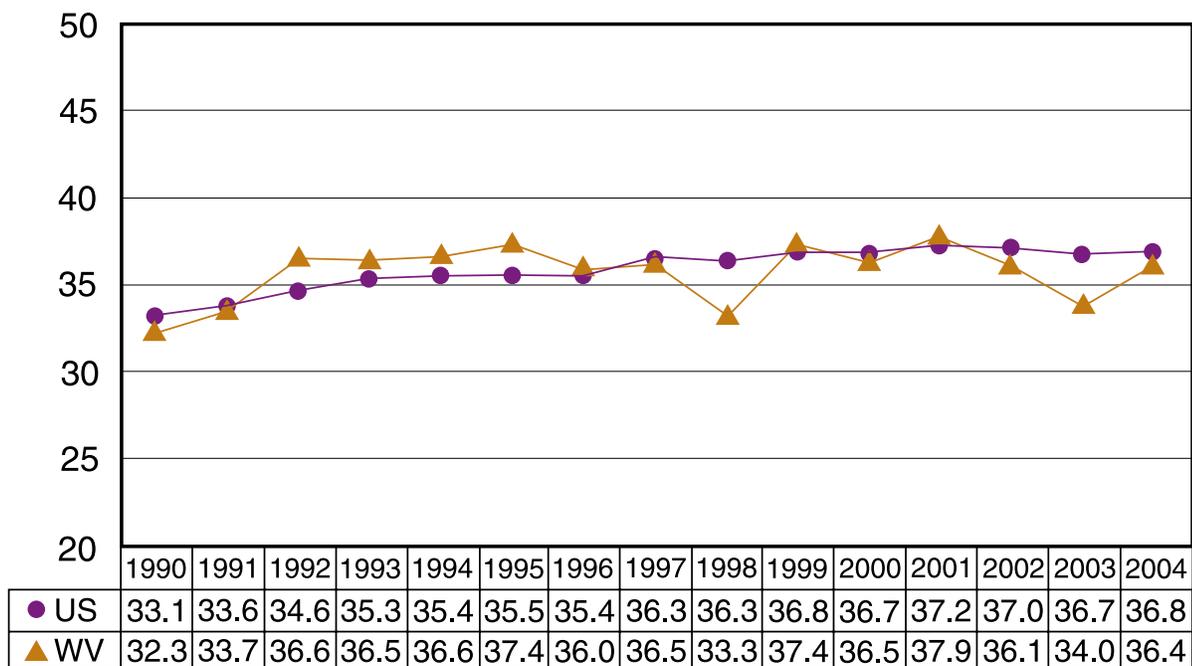
Figure 3.

### Prevalence of Adult

### Overweight (BMI 25.0-29.9) by Year

### West Virginia and United States\*, BRFSS, 1990-2004

Percentage



Note: \*U.S. figures represent median prevalence. Source: CDC, BRFSS, <http://www.cdc.gov/brfss>

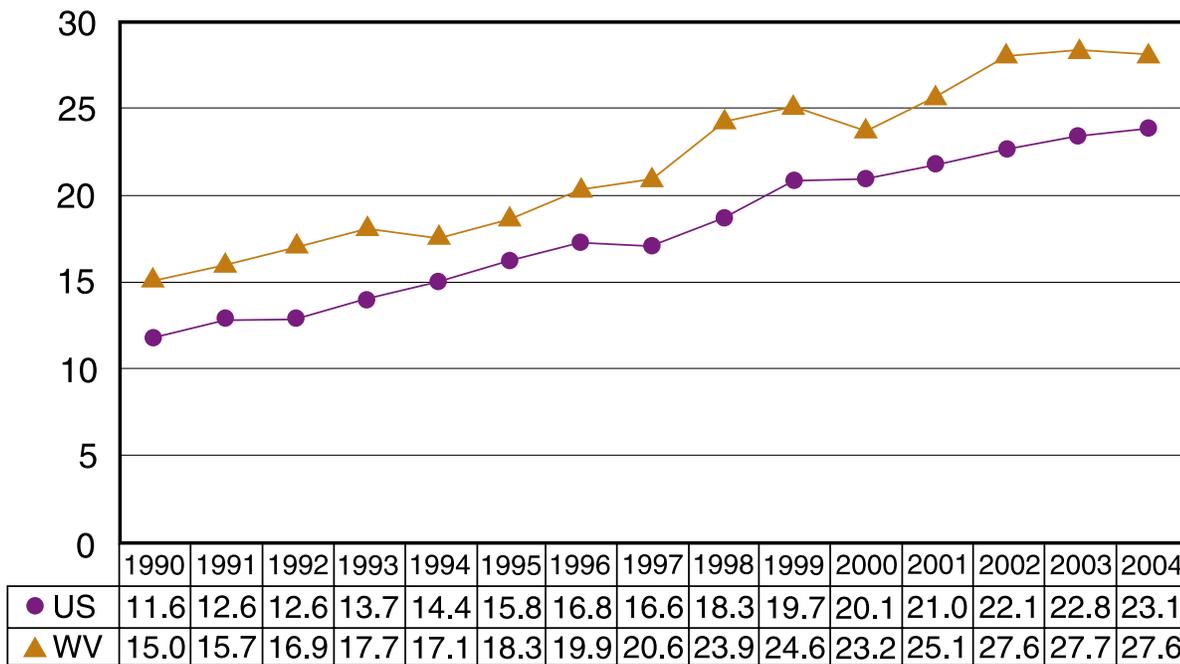
## Adult Obesity

In the last decade, West Virginia has ranked no lower than 6th among states contributing data to BRFSS for prevalence of obesity, and in 8 out of 10 of those years, was ranked third or higher. **Figure 4** illustrates the persistent nature of this trend using actual annual prevalence figures for West Virginia, and median prevalence figures for the United States. The prevalence of obesity in West Virginia has remained relatively stable since 2002. Because BRFSS is based on only a sample of the population, this apparent stability may be due to variation in sampling, or it may indicate the beginning of a true trend.

Figure 4.

### Prevalence of Adult Obesity (BMI 30+) by Year West Virginia and United States\*, BRFSS, 1990-2004

Percentage



Note: \*U.S. figures represent median prevalence. Source: CDC, BRFSS, <http://www.cdc.gov/brfss>

## Adult Body Mass Index Categories

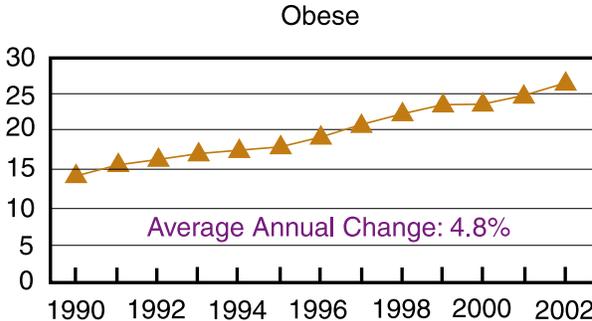
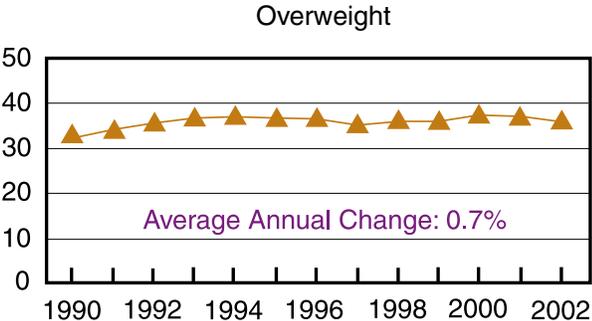
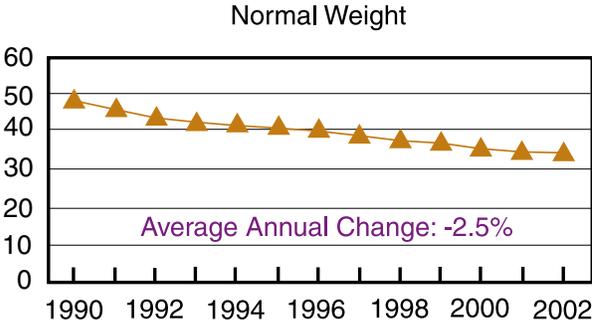
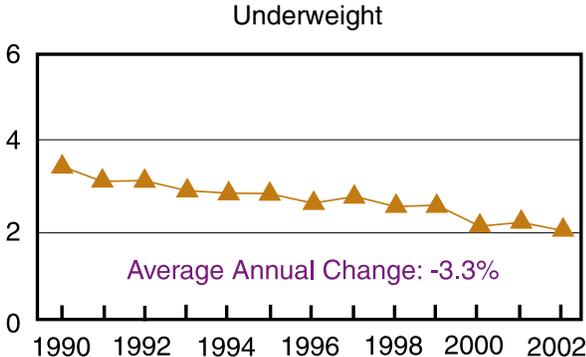
The National Heart, Lung, and Blood Institute and the World Health Organization have adopted identical case definitions of numeric BMI ranges to describe the categories of underweight, normal weight, overweight and obese, although the terminology used by each organization varies. The obese category is further divided into three classes. Table 1 illustrates these BMI ranges.

<b>Table 1. Weight Classification by Body Mass Index (BMI)</b>		
<b>NLHBI Terminology</b>	<b>BMI Range</b>	<b>WHO Classification</b>
Underweight	<18.5	Underweight
Normal	18.5 – 24.9	Normal
Overweight	25.0 – 29.9	Preobese
Obesity Class I	30.0 – 34.9	Obesity Class I
Obesity Class II	35.0 – 39.9	Obesity Class II
Obesity Class III	>39.9	Obesity Class III

Using a three year moving average to eliminate yearly spikes in prevalence, the graphs in **Figure 5** illustrate that the biggest changes have occurred in the prevalence of underweight, with an average annual decrease of 3.3%, and in obesity, with an average annual increase of 4.8%. The prevalence of normal weight has an average annual decrease of 2.5%, and the prevalence of overweight has changed very little, increasing by less than 1% per year.

Figure 5.

Percent of Adults in Each BMI Category WV BRFSS, 1990-2002  
(3-Year Moving Averages)

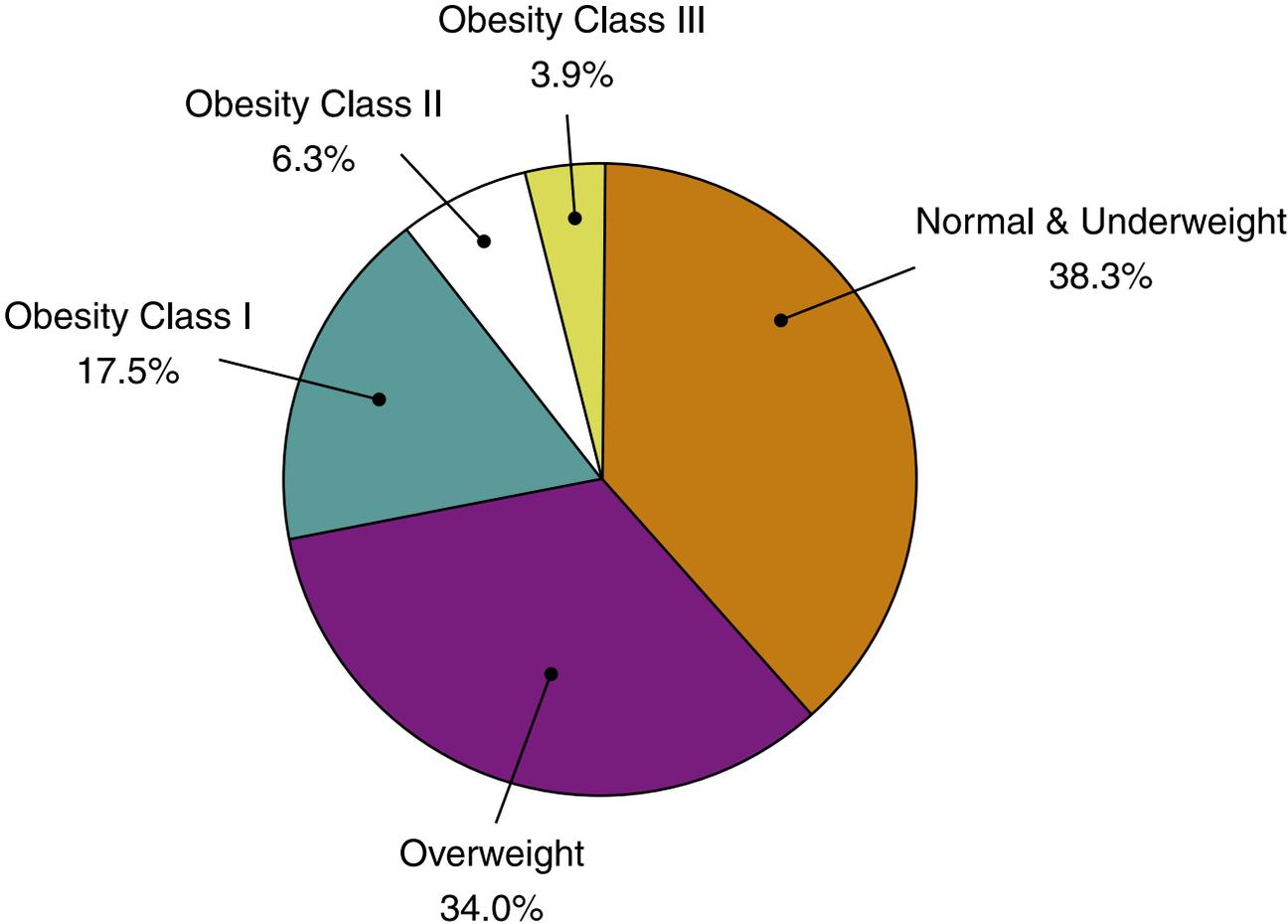


Source: WV BRFSS, WV DHHR BPH Health Statistics Center, 2005  
(Unpublished data)

Figure 6 shows more clearly the proportion of West Virginia adults that fall into each weight category, as reported in the 2003 BRFSS. Roughly one-third were in the normal weight range, but almost two-thirds were either overweight or obese. A 1999 study published in the Journal of the American Medical Association found that as the severity of obesity increased, the prevalence of comorbidities, particularly high blood pressure and type 2 diabetes, increased (4). In 2005, new mortality estimates based on a nationally representative NHANES III survey found that 111,909 excess deaths nationally can be associated with obesity, and the majority (82,066) occurred in individuals with a BMI of 35 or greater. (5)

Figure 6.

Percent of Total, Adults by BMI Category  
WV BRFSS, 2003



Source: WV BRFSS, WV DHHR BPH Health Statistic Center, 2005  
(Unpublished data)

## West Virginia Adolescents

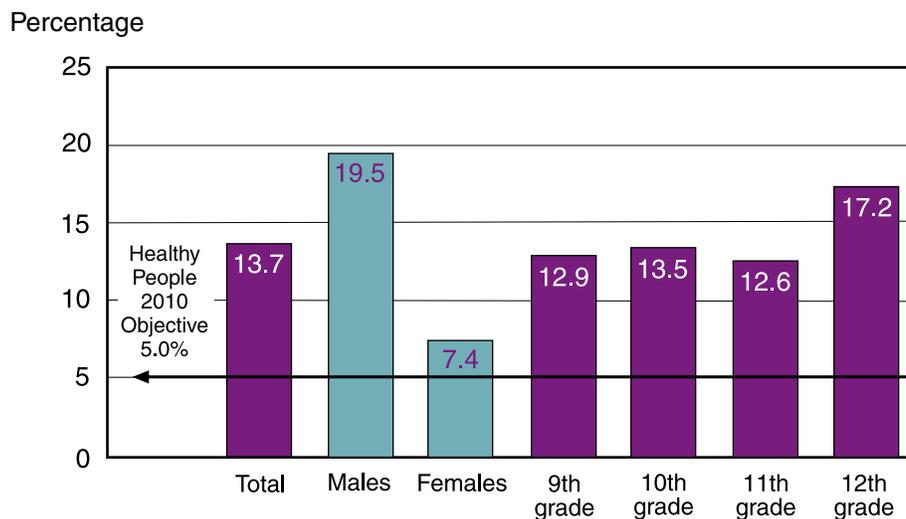
In West Virginia, data on adolescent overweight in grades 9-12 are provided by the Youth Risk Behavior Surveillance System (YRBSS). High-school students are asked to self-report their height and weight, (along with other health risk and behavior information), and the data are applied to age and sex-specific growth charts. YRBSS respondents are also asked about their perceptions of whether they are overweight, and what actions they take to address their weight.

In 2000, the CDC conducted a study to validate whether self-reporting of height and weight is reliable. They concluded that the values were substantially reliable, but also that the YRBSS probably slightly underestimates the prevalence of overweight in adolescents. (6)

According to the YRBSS, 13.7% of West Virginia adolescents in grades 9-12 were classified as overweight in 2003, based on their self-reported height and weight (Figure 7). Males were more likely to be classified as being overweight than females at all grade levels. The proportion of those who were overweight was highest in the 12th grade, but the lack of female respondents in 12th grade may partially explain the higher prevalence. Earlier grades had more balanced reporting. In 1999, the last year for which both sexes' data are available for West Virginia, the 12th grade overall prevalence was 11.4%, with males at 13.3% and females at 9.5%. This pattern of reported overweight is not dissimilar to the United States pattern. In 2003, the overall national overweight prevalence was estimated at 12.1%, with males at 15.7%, and females at 8.3%. (7)

Figure 7.

### Prevalence of Overweight (BMI $\geq$ 95th percentile) West Virginia Adolescents in Grade 9–12 by Gender and Grade, YRBSS, 2003



Source: CDC, YRBSS, <http://apps.nccd.cdc.gov/yrbss>

While 13.7% of West Virginia adolescents were overweight in 2003 based on their self-reported height and weight, 34.9% described themselves as overweight, and 51% were trying to lose weight via a variety of means, some healthy and some not. According to the 2003 YRBSS, in order to lose weight or to keep from gaining weight, an estimated 17.3% of West Virginia adolescents went without eating for 24 hours or more; 11.7% took diet pills, powders, or liquids without a doctor's advice; and 6.3% of students vomited or took laxatives. A student is counted more than once if they engaged in more than one unhealthy weight control behavior. However, healthier approaches to weight control are more frequently practiced by our youth than unhealthy measures. In 2003, in order to lose weight or keep from gaining weight, an estimated 62.2% of students exercised, and 46.9% of students ate less food, fewer calories, or foods low in fat. Girls were significantly more likely to practice all of these weight control measures, whether healthy or potentially harmful, than were boys. (8)

### *Overweight in West Virginia Children*

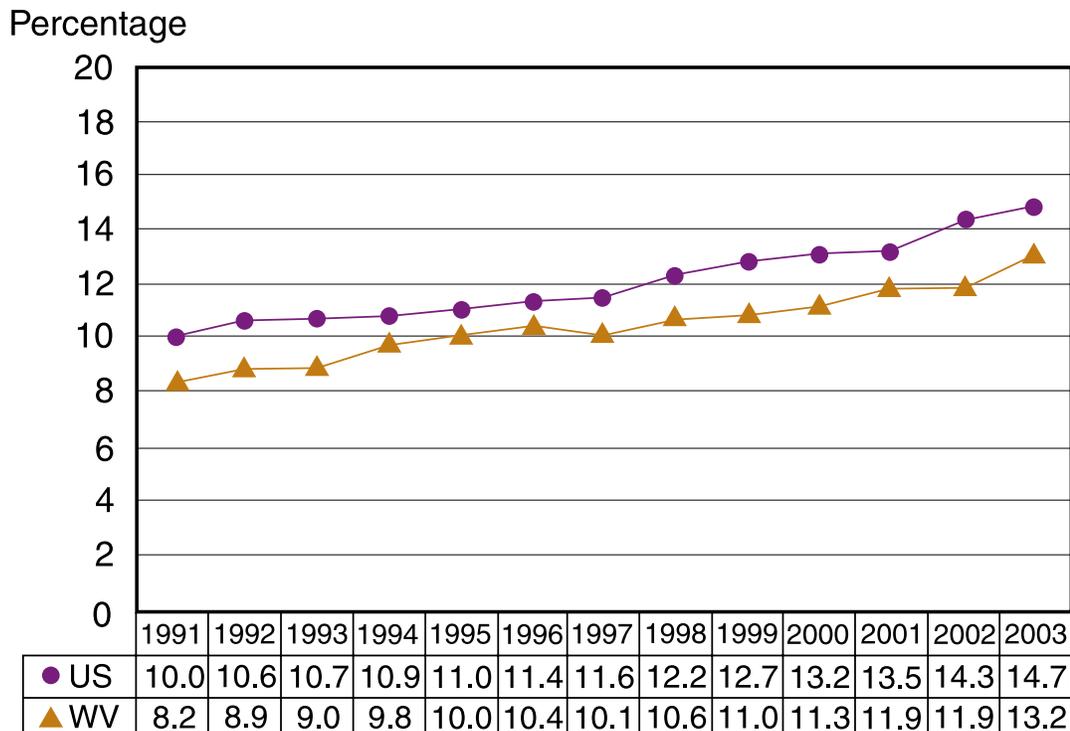
There are currently no population-based data on overweight and obesity for children in West Virginia. The largest study to date in West Virginia is from the West Virginia CARDIAC Project. The CARDIAC Project examined the impact of childhood overweight on other modifiable cardiovascular disease risk factors. Between 1999 and 2002, 183 West Virginia elementary schools participated, and a total of 5,887 5th graders were screened for height, weight, lipids, and blood pressure. Overall, 25.7% of children were found to be overweight (at or above the 95th percentile for age) and an additional 18% were found to be at risk for overweight (between the 85th percentile and the 95th percentile). This study found that overweight in a child has positive predictive value for cardiovascular risk factors – the risk of having abnormal lipids or high blood pressure was higher in overweight children than in non-overweight children. (9).

## Overweight in West Virginia Preschoolers

There is no universal BMI screening for infants and preschoolers in West Virginia. However, in 2003, about half (10, 11) of these youngest West Virginians participated in the WIC Program, which does measure height and weight, and counsels parents on child nutrition and growth. The WIC Program only serves low-income families. West Virginia WIC data are contributed to a CDC surveillance database, the Pediatric Nutrition Surveillance System (PedNSS). West Virginia PedNSS data for 2003 revealed an overweight prevalence of 13.2% among low-income children between 2 and 5 years of age, and an additional 14.5% of children who were at risk of overweight (11). BMI-for-age is not used in the United States before 2 years of age to screen for growth. The national prevalence for overweight in WIC children is higher than the West Virginia prevalence. While lagging behind the national rate, the prevalence in West Virginia continues to rise (Figure 8).

Figure 8.

Prevalence of Overweight (BMI  $\geq$  95th percentile) Children Age 2 to 5 Enrolled in WIC, by Year, West Virginia and United States, PedNSS, 1991–2003



Source: CDC, Pediatric Nutrition Surveillance Summary Table 12-D, 2003

## *Obesity and Comorbid Conditions*

Overweight and obesity are known risk factors for heart disease, hypertension, high blood cholesterol, diabetes, arthritis, breathing problems, and certain cancers. Other conditions that have been linked to obesity include pregnancy complications, female reproductive system disorders, gallbladder disease, and psychological disorders. The etiology of obesity and the link to comorbid conditions has been exhaustively researched in the literature and will not be reiterated here. However, recent BRFSS data reflecting morbidity connected with obesity continues to illustrate the relationship, noted below.

Statistical significance in BRFSS is measured with 95% confidence intervals. While the percent estimate usually provides a good approximation of the underlying truth, there are a range of values that may be consistent with the data. A 95% confidence interval can be considered to be a range of values that has a 95% chance of including the true proportion. When 95% confidence intervals for various classes do not overlap, they indicate statistical significance between classes. Health conditions related to obesity are reported for each BMI range, in **Figures 9 through 12**. When statistical significance exists, it will be noted in the text.

*Overweight and obesity are known risk factors for heart disease, hypertension, high blood cholesterol, diabetes, arthritis, breathing problems, and certain cancers.*

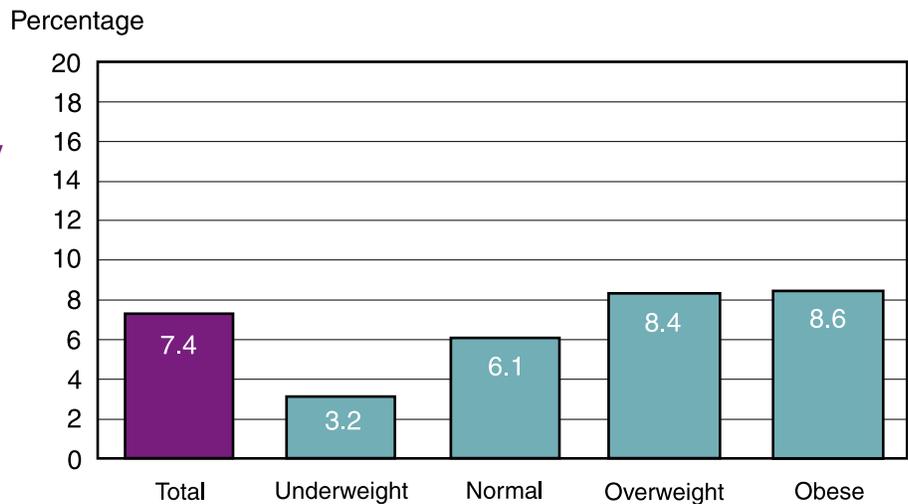
## Cardiovascular Disease

Cardiovascular disease is the leading cause of death in West Virginia. Approximately one-third of deaths in West Virginia are attributable to cardiovascular disease, which claimed 6,208 lives in 2003. (12) Excess body weight is a serious challenge to cardiovascular health. A total of 7.4% of adult West Virginians reported in 2003 BRFSS that they had been told by a medical professional that they have had a heart attack. **Figure 9** shows the estimated percentage of West Virginians reporting a history of heart attack in each BMI category, according to the 2003 BRFSS.

Figure 9.

Prevalence of Reported Heart Attack, by BMI Category  
West Virginia Adults,  
WV BRFSS, 2003

Source:  
WV BRFSS, WV DHHR BPH Health Statistics  
Center, 2005 (Unpublished data)



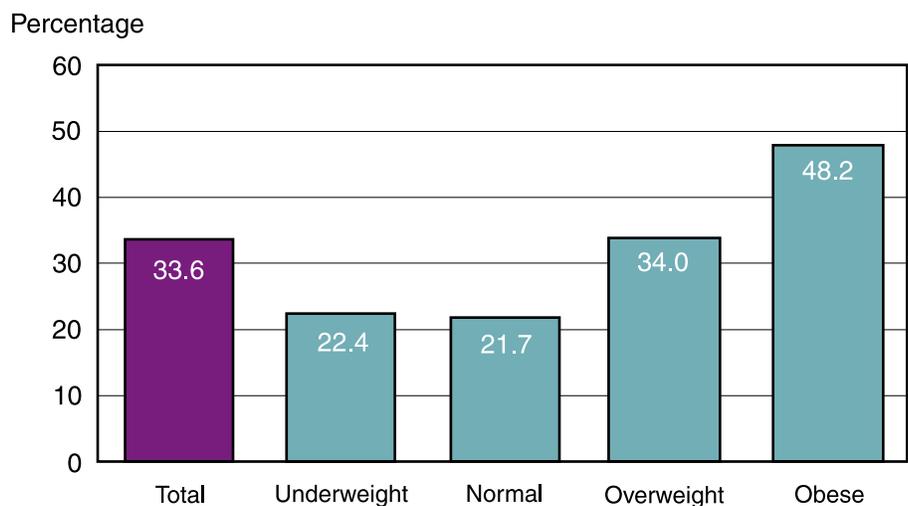
## Hypertension

Excess body weight contributes to high blood pressure, a risk factor for cardiovascular disease. High blood pressure increases the heart's work load, causing it to weaken over time. According to the 2003 West Virginia BRFSS, 33.6% of West Virginia adults have ever been told by a health professional that they had high blood pressure. Obese adults had a statistically significant higher prevalence (48.2%) of reported high blood pressure than non-obese adults (**Figure 10**).

Figure 10.

Prevalence of Reported High Blood Pressure, by BMI Category  
West Virginia Adults,  
WV BRFSS, 2003

Source:  
WV BRFSS, WV DHHR BPH Health Statistics  
Center, 2005 (Unpublished data)



## High Cholesterol

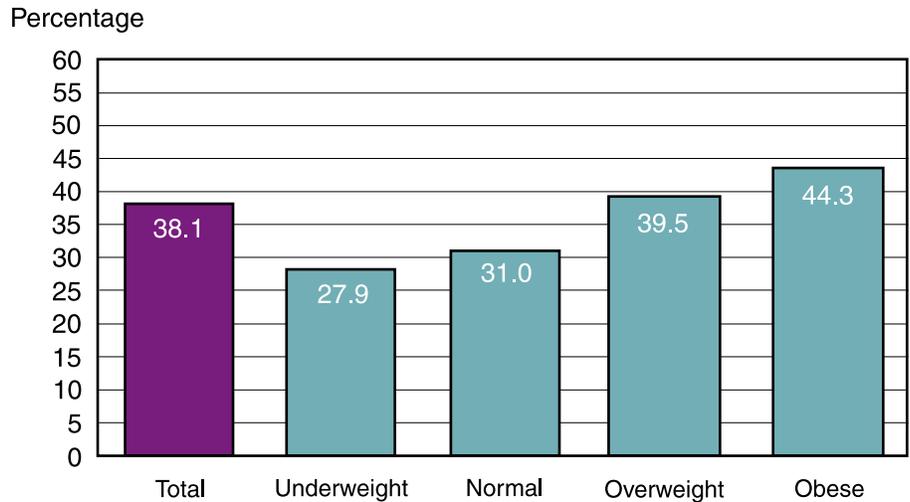
High blood cholesterol is also a factor in developing cardiovascular disease, as excess cholesterol forms plaque on artery walls, leading to restricted blood flow, angina, or a possible heart attack. In 2003, individuals with a BMI in the obese range were significantly more likely than individuals in the underweight or normal BMI range to report that they had ever been told by a health professional that they had high cholesterol (Figure 11).

Figure 11.

### Prevalence of Reported High Cholesterol, by BMI Category

West Virginia Adults, WV BRFSS, 2003

Source:  
WV BRFSS, WV DHHR BPH Health Statistics Center, 2005 (Unpublished data)



## Diabetes

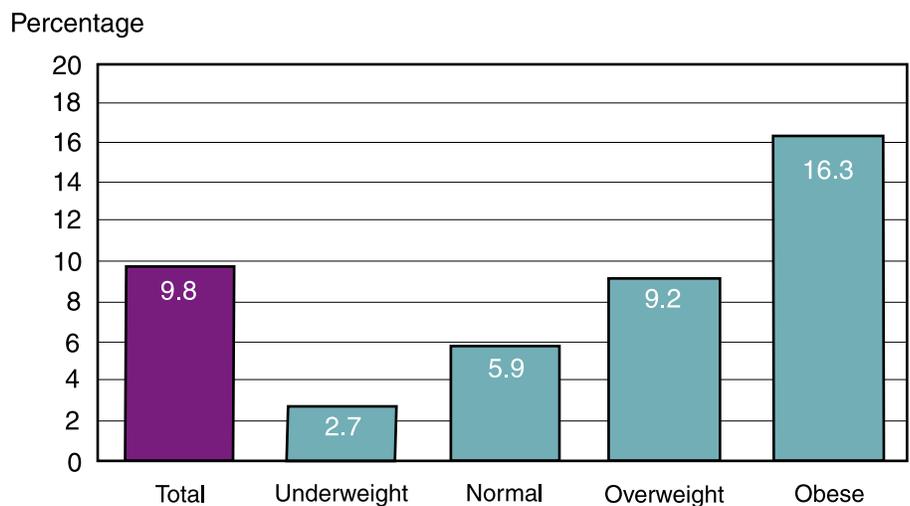
The association between excess weight and diabetes is clearly shown in Figure 12. Although the exact cause of the disease is unknown, diabetes is associated with older age, obesity, family history, impaired glucose metabolism, physical inactivity and race/ethnicity. Figure 12 shows 2003 data from BRFSS for the percentage of West Virginians who have ever been told by a health professional that they had diabetes, by BMI category. Obese adults were significantly more likely to report diabetes than all other BMI categories.

Figure 12.

### Prevalence of Reported Diabetes, by BMI Category

West Virginia Adults, WV BRFSS, 2003

Source:  
WV BRFSS, WV DHHR BPH Health Statistics Center, 2005 (Unpublished data)



*\$140 million dollars (7.3%) of Medicare expenditures in West Virginia are related to obesity and \$187 million dollars (11.4%) of Medicaid expenditures in West Virginia are attributable to obesity.*

### *Costs Associated with Overweight and Obesity*

In a 2004 study (13), annual U.S. obesity-attributable medical expenditures are estimated at \$75 billion in 2003 dollars. State-level estimates of the medical costs attributable to obesity were also calculated in this study, using the model developed for the national estimate. State-level BMI data, health insurance data and socio-economic characteristics used in the model were obtained from the BRFSS.

For West Virginia, this study estimated that 6.4% of medical expenditures in West Virginia are attributable to obesity, or \$588 million dollars per year in 2003 dollars. Within this context, \$140 million dollars (7.3%) of Medicare expenditures in West Virginia are related to obesity and \$187 million dollars (11.4%) of Medicaid expenditures in West Virginia are attributable to obesity. Indirect costs are not included in this estimate.

Another study published in 2005 found that health care expenditures among White women aged 35 to 44 years increased with BMI. The mean per capita annual health care expenditure was \$2127 among women with a normal BMI (18.5 to 24.9), \$2358 among overweight women (BMI 25.0 to 29.9), and \$2873 among those with a BMI of 30 to 34.9 (Obesity I) Rising costs were also associated with older age, but not among Blacks or those younger than 35 years of age (14).

## Modifiable Risk Factors

### Adult Physical Activity

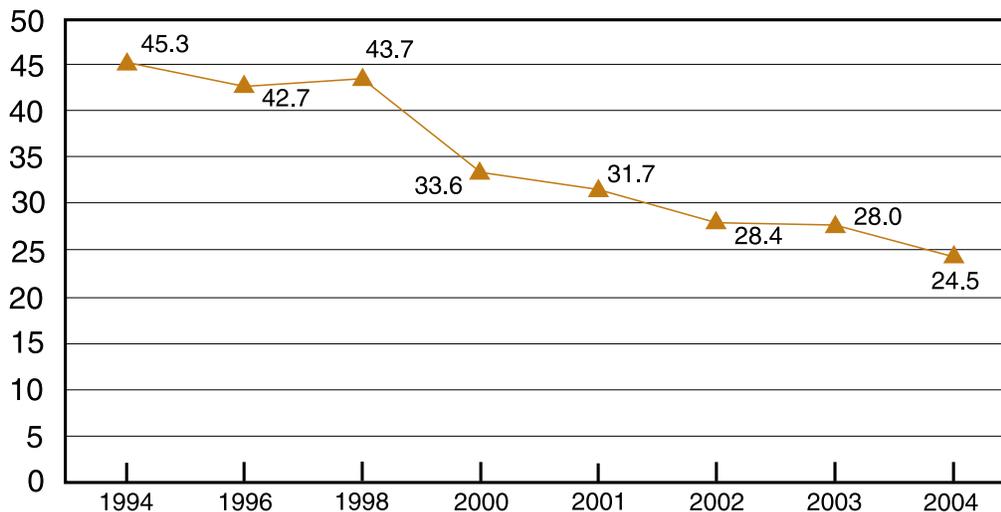
Physical activity plays an important role in preventing excess body weight and the development of associated conditions. Physical activity helps reduce the risk of developing heart disease, type II diabetes, high blood pressure, promotes psychological well-being and helps build and maintain healthy bones, muscles, and joints. The percentage of West Virginians who participate in no leisure-time physical activity has been declining over time (Figure 13).

Physical activity levels are categorized by intensity and duration. In the BRFSS, to be considered as exertion, the activity must last at least ten minutes at a time. BRFSS defines moderate-intensity activities as brisk walking, bicycling, vacuuming, gardening, or anything causing small increases in breathing or heart rate, whereas vigorous-intensity activities are described as running, aerobics, heavy yard work, or anything causing large increases in breathing or heart rate. The CDC and the American College of Sports Medicine recommend engaging in moderate physical activity for at least 30 minutes per day, at least 5 days per week. National targets set in Healthy People 2010 for vigorous activity recommend least 20 minutes per day, at least 3 days per week. (15)

Figure 13.

### Prevalence of No Leisure-Time Physical Activity by Year West Virginia Adults, BRFSS, 1994–2004

Percentage



Notes: Prevalence figures for no leisure-time physical activities in the past month. Data missing for 1995, 1997 and 1999. Source: CDC BRFSS <http://www.cdc.gov/brfss>

### *Adult Physical Activity (continued)*

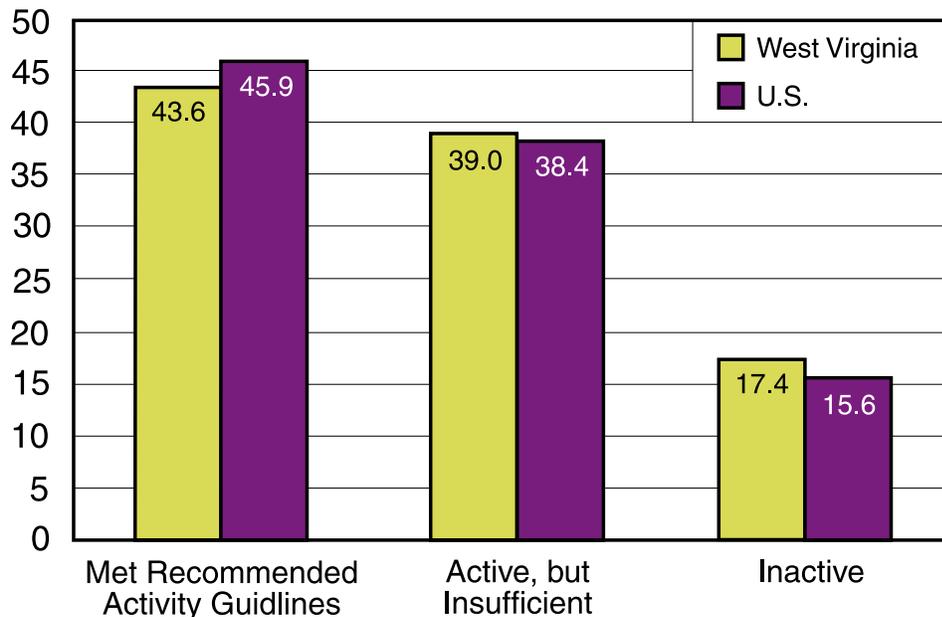
As shown in **Figure 14**, 43.6% of West Virginia adults met the guidelines. 39% participated in more than 10 minutes per week of moderate or vigorous activity, but still less than the recommended level. More than 17% had insufficient amounts of physical activity, defined as less than 10 minutes total per week of moderate or vigorous-intensity physical activity.

In the 2000 BRFSS, among West Virginia adults who indicated they had participated in some leisure time physical activity, the most frequent activity was walking, at 53.2%, followed by gardening at 6.9%, weight lifting at 5.3% and running, at 4.6% (16).

Figure 14.

### Percent of Adults by Physical Activity Level West Virginia and United States\*, BRFSS, 2003

Percentage



Source:  
CDC/DNPA, <http://www.cdc.gov/nccdphp/physical/stats>  
(\*U.S. figures represent median prevalence.)

## Adolescent Physical Activity

The Youth Risk Behavior Survey (YRBSS) asks 9th – 12th grade students to report on the duration and intensity of physical activity. In 2003, 66.3% of West Virginia students engaged in vigorous physical activity; 27.4% engaged in moderate physical activity, and 30.1% did neither. Percentages exceed 100% because a student may participate in both vigorous and moderate exercise. Vigorous activity is defined as engaging in physical activities for at least 20 minutes that made the student sweat or breathe hard on three or more of the past seven days. Moderate activity is defined as engaging in physical activities for at least 30 minutes that did not make the student sweat or breathe hard on five or more of the past seven days. **Figures 15 and 16** show the exercise intensity by gender, and contrast West Virginia students with U.S. students. While West Virginia adolescents regardless of gender report a slightly higher prevalence of exercise than their national peers, the differences are not statistically significant. However, males (both nationally and in West Virginia) are significantly more likely than females to engage in the recommended amounts of both vigorous and moderate physical activity.

Figure 15.

### Prevalence of Vigorous Intensity Exercise by Gender West Virginia and United States\*, Adolescents in Grades 9–12, YRBSS 2003

Note:

\*U.S. figures represent median prevalence

Source: CDC YRBSS, <http://apps.nccd.cdc.gov/yrbss>

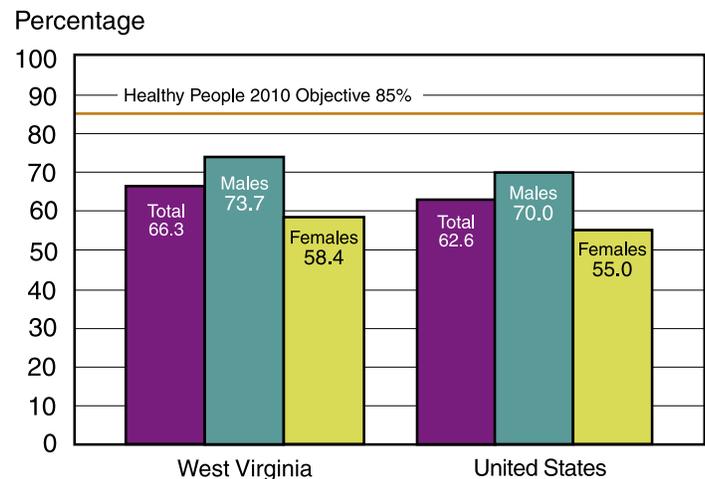


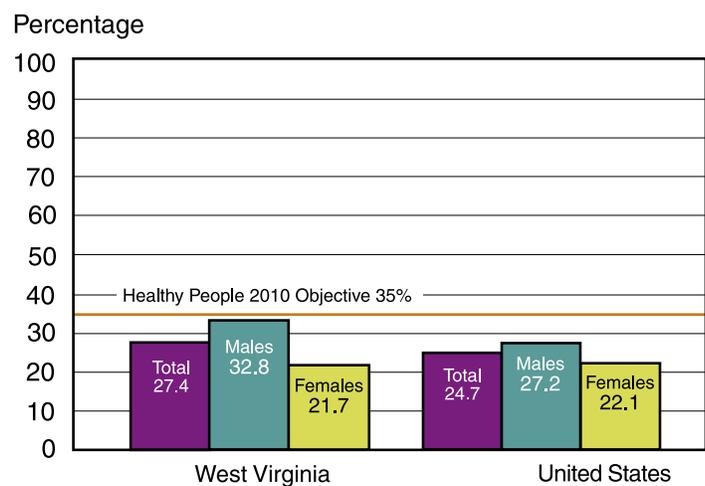
Figure 16.

### Prevalence of Moderate Intensity Exercise by Gender West Virginia and United States\*, Adolescents in Grades 9–12, YRBSS 2003

Note:

\*U.S. figures represent median prevalence

Source: CDC YRBSS, <http://apps.nccd.cdc.gov/yrbss>



U.S. Healthy People 2010, Objective 22.7 calls for increasing the proportion of adolescents who engage in vigorous physical activity that promotes cardiorespiratory fitness 3 or more days per week for 20 or more minutes per occasion to 85%. U.S. Healthy People 2010, Objective 22.6 calls for increasing the proportion of adolescents who engage in moderate physical activity for at least 30 minutes on 5 or more of the previous 7 days to 35%.

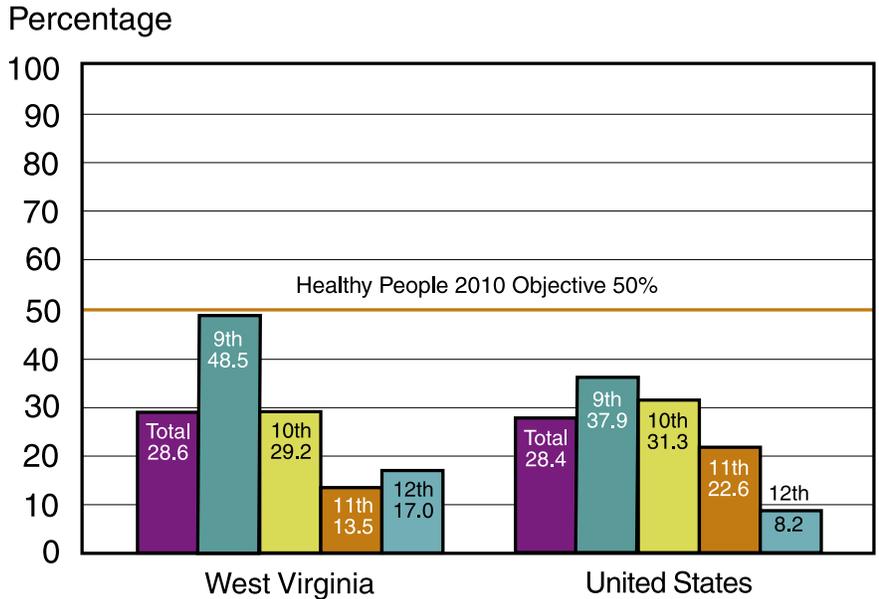
Other physical activity targets set in U.S. Healthy People 2010 for adolescents include Objective 22.9, which seeks to increase the proportion of adolescents who participate in daily school physical education to 50%. According to the 2003 YRBSS, 28.6% of students in West Virginia attended physical education class daily, with the highest percentage (48.5%) being among 9th grade students. Of students enrolled in physical education classes, 81.4% exercised or played sports more than 20 minutes during an average class, as opposed to 80.3% nationally. Approximately 53% reported they played on one or more sports teams in the last 12 months, compared with 57.6% nationally.



Figure 17.

### Prevalence of Daily Physical Education Class by Grade

West Virginia and United States\*, Adolescents in Grades 9–12, YRBSS 2003



Note:

\*U.S. figures represent median prevalence

Source: CDC YRBSS, <http://apps.nccd.cdc.gov/yrbss>

### *Adolescent Television Time*

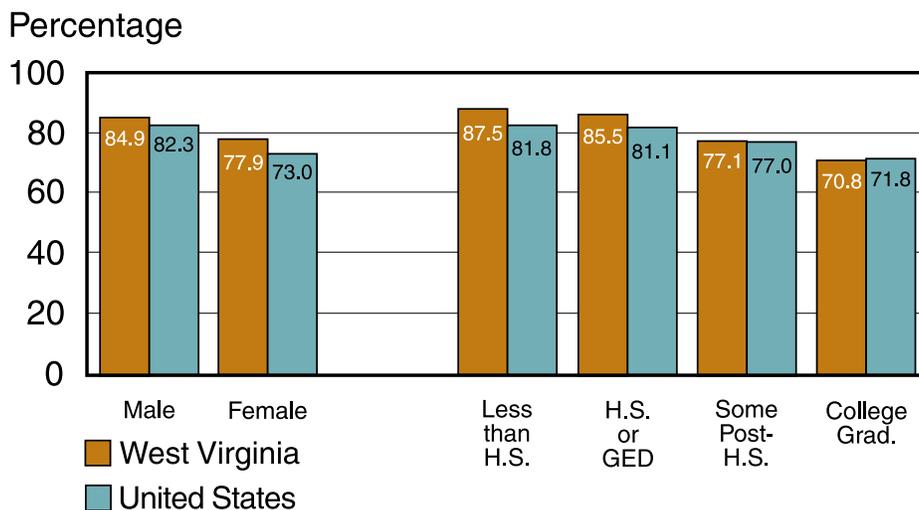
Television time has become an important measure of sedentary behavior. U.S. Healthy People 2010 objectives include increasing the proportion of children watching television less than two hours per day to 75%. YRBSS is an indirect measure of progress towards this goal, as students are assessed on the proportion watching three or more hours per day. In 2003, 66.1% of West Virginia students reported watching TV less than three hours a day, compared with 61.8% of students nationally. While prevalence appears to be lower in West Virginia, the difference is not statistically significant.

## Adult Nutrition

The West Virginia Healthy People 2010 objectives for nutrition include increasing to 35% the proportion of people aged 18 and older who consume at least five fruits or vegetables per day. The baseline for this objective was established in 1998 at 18.7% of adults meeting the nutrition recommendation. BRFSS trend data reveal that while there have been slight fluctuations of the prevalence, the figure has continued relatively stable through the years. 2003 BRFSS prevalence for adults consuming 5 or more fruits or vegetables daily (18.7%) is unchanged from baseline. The national median prevalence also remains relatively unchanged. With 50 states or territories reporting in 1994, the median prevalence was at 22.0% and in 2002, with 54 states reporting, at 22.7%. There is a significant difference in fruit and vegetable consumption between males and females. In 2003, 84.9% of males missed the recommended consumption level, compared with 77.9% of females. There is a significant difference between adults aged 18-24 and those aged 65+, but minimal, with the youngest age group less likely to consume the targeted amount of fruits and vegetables. There is also a significant difference between educational levels, with the lowest educational level less likely than college graduates to consume five or more fruits and vegetables per day (Figure 18).

Figure 18.

### Prevalence of Adults Consuming Less than Five Fruits or Vegetables Daily West Virginia and United States\*, BRFSS 2003



Note:

\*U.S. figures represent median prevalence

Source: CDC BRFSS, <http://www.cdc.gov/bfrss>  
and WV BRFSS, WV DHHR BPH Health Statistics Center,  
2005 (Unpublished data)

## Adolescent Nutrition

Nutrition is assessed in YRBSS by a series of questions measuring fruit and vegetable intake, milk, and fruit juice. While there are federal Healthy People 2010 objectives specifically relating to nutrients consumed by adolescents, progress cannot be measured by available data sources on a State basis. However, the State of West Virginia set a Healthy People 2010 objective of increasing the proportion of adolescents consuming at least five fruits or vegetables per day by 5% from baseline (20.4%, 1999 YRBS).

**Table 2** compares current dietary intake by gender and between adolescents in West Virginia and nationwide. Similar to adult behavior, current consumption of fruits and vegetables is relatively unchanged from baseline. There are no significant differences in fruit and vegetable consumption or in fruit juice consumption between genders, or between West Virginia adolescents and their U.S. peers. However, males are significantly more likely than females to drink at least three glasses of milk daily. There are no significant differences between milk consumption by males in West Virginia and males nationally.

<b>Table 2. Adolescent Nutrition, 2003 YRBSS</b>			
<b>Demographics</b>	<b>Ate 5+ Fruits and Vegetables Daily</b>	<b>Drank 100% Fruit Juice 1+ times in last seven days</b>	<b>Drank 3+ Glasses of Milk Daily</b>
West Virginia Males	20.7%	78.5%	26.3%
West Virginia Females	20.6%	79.8%	10.4%
U.S. Males	23.6%	82.1%	22.7%
U.S. Females	20.3%	81.6%	11.2%

### *Infant Nutrition*

Many studies on the association between breastfeeding and a reduction in the risk for overweight in childhood have contradictory results. However, a recent literature review of eleven studies found that eight showed a positive relationship between breastfeeding and a lower risk of overweight in children, although the exact mechanism by which this protection occurs is not entirely clear (17). In 2004, a very large longitudinal study of low-income 4-year-old children demonstrated that prolonged breastfeeding is associated with a reduced risk of overweight among non-Hispanic white children (18).

Breastfeeding behavior is measured by initiation (mothers who choose to breastfeed in the early post-partum period, such as within the first week to first month following delivery) and duration (mothers who continue to breastfeed for at least six months). Many mothers choose to initiate breastfeeding, but for multiple reasons do not continue to breastfeed.

*A recent literature review of eleven studies found that eight showed a positive relationship between breastfeeding and a lower risk of overweight in children.*

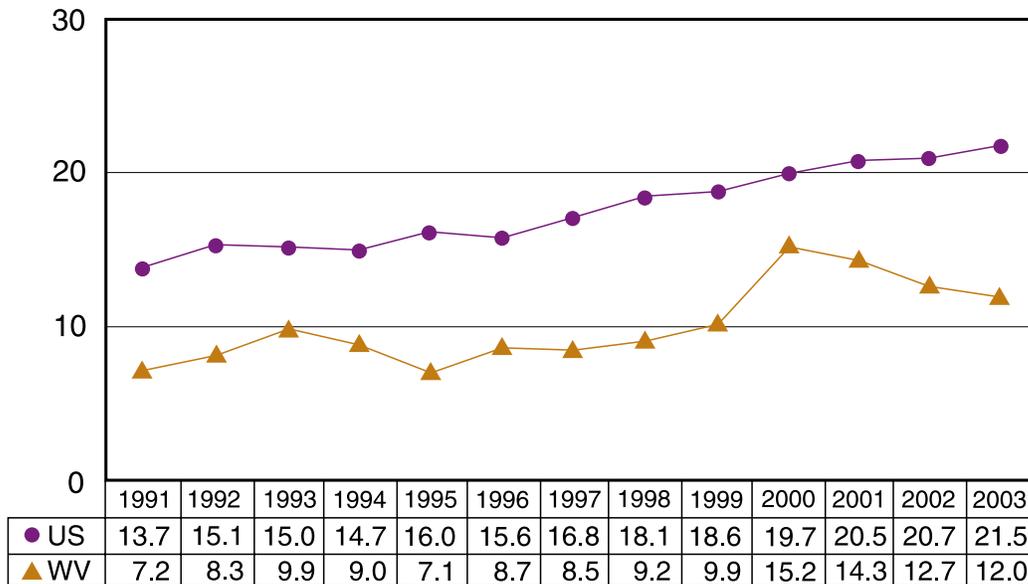


In 2003, 42.1% of WIC children in West Virginia were breastfed in the early postpartum period, (initiation) contrasted with 53.2% of WIC children nationally. **Figure 19** shows the prevalence of WIC children that were breastfed at least 6 months (duration) in West Virginia, from 1991 (7.2%) to 2003 (12%). The data source for breastfeeding information in West Virginia is the Pediatric Nutrition Surveillance System (PedNSS), which tracks children enrolled in the WIC program. While the breastfeeding data in PedNSS are limited to this low-income population, the data are valuable in that each child is weighed and measured, and mothers are interviewed face-to-face on feeding practices.

Figure 19.

**Prevalence of Breastfeeding Infants at least 6 Months, by Year  
West Virginia and United States, PedNSS, 1991–2003**

Percentage



Note:

Limited to infants up to age 1, enrolled in the WIC Program.

Source: PedNSS table 13-C, WV WIC Program & CDC PedNSS table 13-D

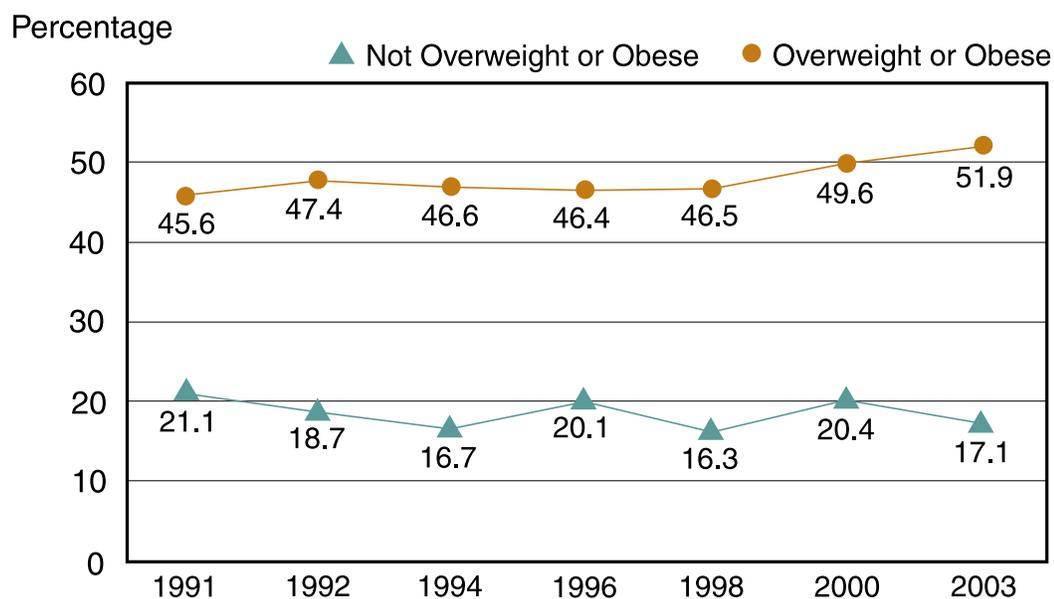
The Ross Mother’s survey (19), a random sample telephone survey of recently post-partum mothers regarding breastfeeding, run by Abbott Laboratories, gives a population-based perspective of breastfeeding duration rates, not limited to a low-income population. According to Ross, in 1992, 13.7% of West Virginia infants were breastfed at least 6 months, compared with 18.9% nationally. By 2002, 25.7% of West Virginia infants were breastfed at least 6 months, compared with 33.2% nationally.

## Weight Control Strategies

The BRFSS asks adults if they are trying to lose weight. While the overall prevalence of attempting to lose weight has remained stable, fewer normal weight individuals are trying to lose weight, and more overweight and obese individuals are trying to lose weight (Figure 20). In 2003, women were significantly more likely to be attempting to lose weight than men, whether they were actually overweight or obese (Figure 21). Adults aged 45 to 54 and 55 to 64 had a significantly higher prevalence of trying to lose weight than those aged 18 to 24. Although not statistically significant, the prevalence of trying to lose weight increased as educational level increased. Respondents were asked whether they had been advised to lose weight by a health professional, and of those trying to lose weight, to identify how they were attempting to do so (Table 3). There was no significant difference between overweight or obese men and overweight or obese women in whether they had been advised by their physician to lose weight, or in the methods they employed to lose weight. However, overweight or obese women were significantly more likely to be attempting to lose weight than their male counterparts.

Figure 20.

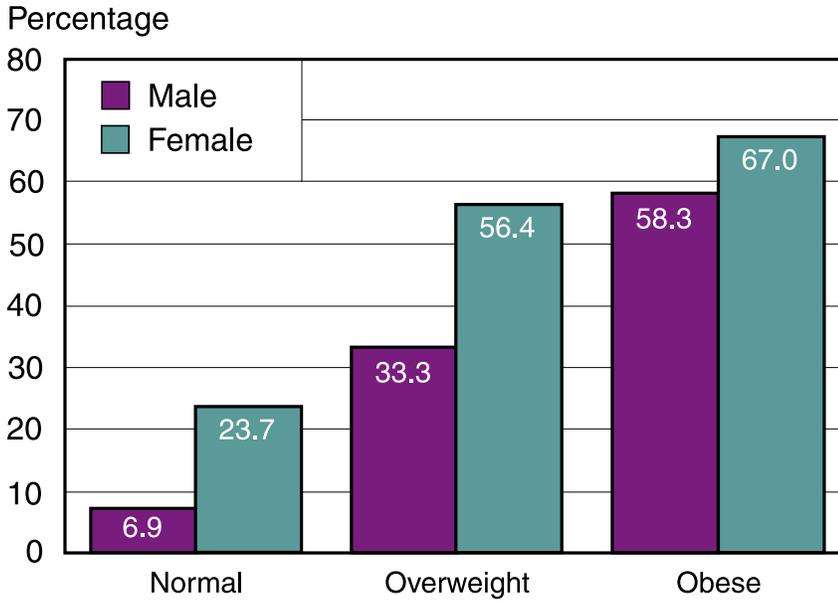
### Obesity & Overweight status among Adults Trying to Lose Weight, by Year, WV BRFSS, 1991–2003



Source:  
 WV BRFSS, WV DHHR BPH Health Statistic Center, 2005 (Unpublished data)  
 (Data not available for 1993, 1995, 1997, 1999 and 2001-02)

Figure 21.

BMI Status and Gender among Adults Trying to Lose Weight, WV BRFSS, 2003



Source:  
WV BRFSS, WV DHHR BPH Health Statistic Center, 2005 (Unpublished data)

Overweight or Obese adults who...	Male %	95% C.I.	Female %	95% C.I.	Total %	95% C.I.
In the past year, have been advised by a doctor or other health professional to lose weight	18.6	(15.7 - 21.5)	23.5	(20.7 - 26.3)	20.8	(18.7 - 22.8)
Are currently trying to lose weight	44.3	(40.7 - 47.9)	61.3	(58.0 - 64.6)	51.9	(49.4 - 54.4)
Are eating fewer calories or less fat to lose weight*	79.4	(74.5 - 84.4)	85.5	(82.6 - 88.5)	82.7	(79.8 - 85.5)
Are using physical activity or exercise to lose weight*	71.3	(66.6 - 75.9)	66.0	(62.0 - 69.9)	68.5	(65.4 - 71.5)

\*Among overweight or obese adults who are trying to lose weight

Source: WV Health Statistics Center, 2005 (Unpublished data)

*West Virginia is different from the United States as a whole on a number of important demographic characteristics that have been linked to the development of chronic diseases. These factors include older age, lower levels of income and education, and rural infrastructure. Not only is West Virginia at the extreme limits of many of these factors, these rankings are long-standing, and must be addressed on a variety of levels for positive change to occur.*

### ***The Population At Risk - Disparities in West Virginia***

With a population of approximately 1.8 million residents, West Virginia is home to 0.6 % of the United States' population. Geographically, West Virginia is a small state of 24,077 square miles of land area, with a population density of 75.1 persons per square mile, compared to the national population density of 79.3 (20). West Virginia has the third highest percentage of population living in a rural area in the United States (21). More than half (53.9%) of our citizens live in rural areas. Additionally, of these rural West Virginians, very few (6.9%) live in small towns or other communities recognized by the U.S. Census Bureau (22). A large proportion of our citizens live in unincorporated areas. West Virginia also has a lower proportion of African-Americans (3.2%), and a higher proportion of non-Hispanic Whites (95.0%) compared with the U.S. population (23).

Forty-two percent of West Virginia residents live in Metropolitan counties, which are located around the borders of the state and one group of south-western counties along an interstate corridor that connects the state's two largest cities. There are many rural areas and residents even in the metropolitan counties. This population distribution creates challenges for obesity prevention programs and health service delivery in rural areas.

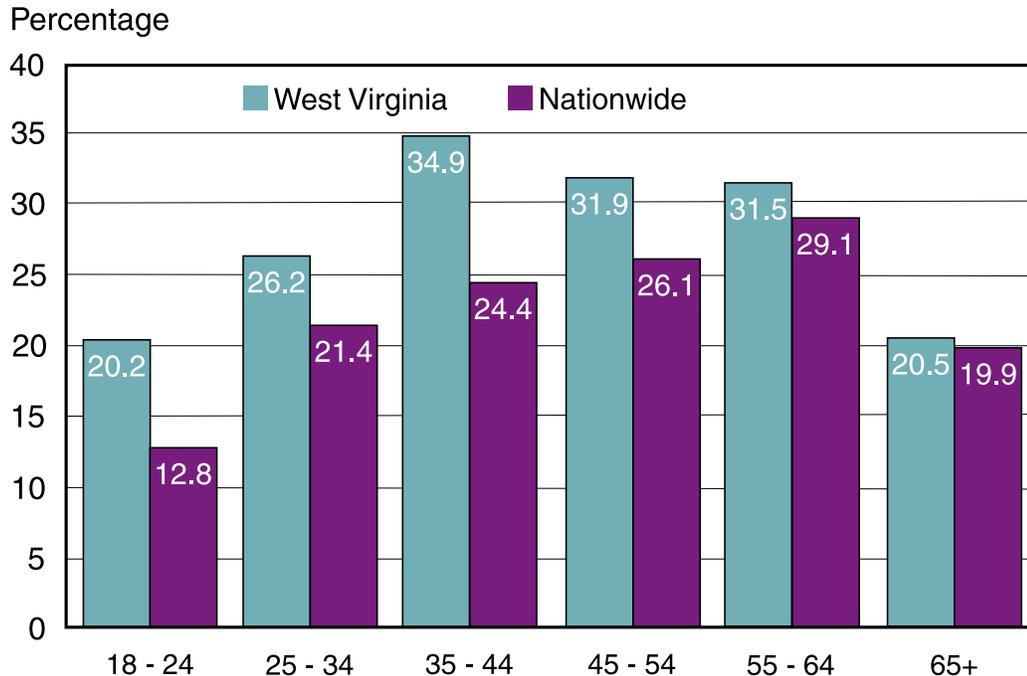
## Age

Relative to national averages, West Virginia's population is older than other states, having the highest median age (38.9 years) in the nation in 2000 (24). According to the US Census Bureau's Population Division, the Interim State Population Projection report released in April, 2005 projects the median age in West Virginia to rise to 41.4 years by 2010. (25)

2003 BRFSS data indicate that the prevalence of obesity is highest in the age groups between 35 and 64 years of age (Figure 22). Using U.S. Census 2000 Summary File 1 (100% data) to estimate the number of West Virginia residents in each age group between 35 and 64 years of age, this level of obesity prevalence represents approximately 240,000 West Virginians. After age 64, obesity prevalence in West Virginia (similar to the U.S. rate) decreases significantly.

Figure 22.

### Prevalence of Adult Obesity (BMI $\geq$ 30) by Age West Virginia and United States\*, BRFSS, 2003



Note:

\*U.S. figures represent median prevalence. Source: WV BRFSS, WV DHHR BPH Health Statistics Center, 2005 (Unpublished data) U.S. data - CDC BRFSS <http://www.cdc.gov/brfss>

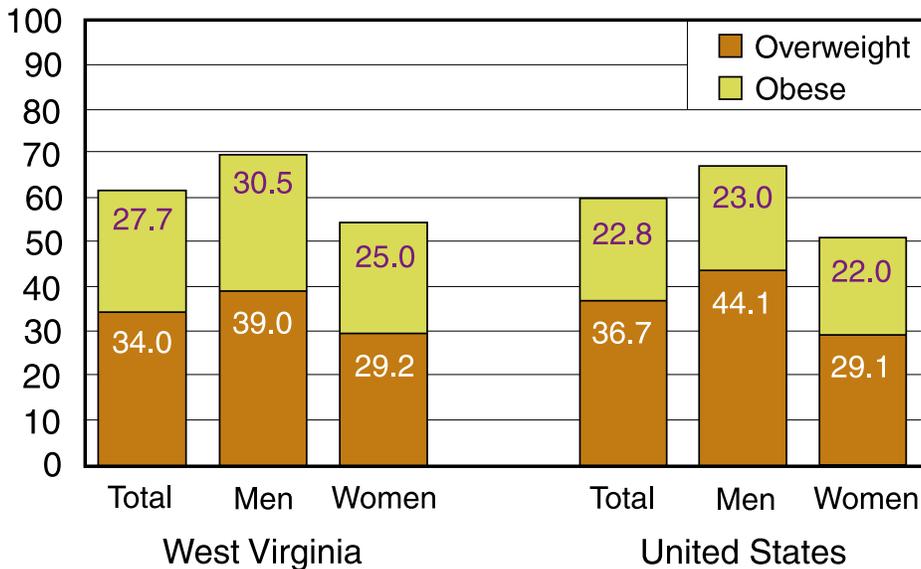
## Gender

Figure 23 shows overweight and obesity in West Virginia and in the U.S. by gender, according to 2003 BRFSS estimates. In West Virginia, men were significantly more likely to be overweight or obese than women. In fact, in West Virginia, about 70% of men report they are overweight or obese, compared with 54% for women. This same pattern is present in the United States population as a whole. Some studies have suggested when weight and height are self-reported, as in the BRFSS survey, it is a reliable measure for overall prevalence within the population, but when subgroups for gender, age and race are considered, results are less reliable (26, 27). The 1999-2002 NHANES, which collects actual height and weight measurements, found the prevalence of obesity is higher for women (34.0%) than men (28.1%) on a national level among adults aged 20 to 74 years (2).

Figure 23.

### Prevalence of Adult Overweight and Obesity by Gender West Virginia and United States\*, BRFSS, 2003

Percentage



Note:

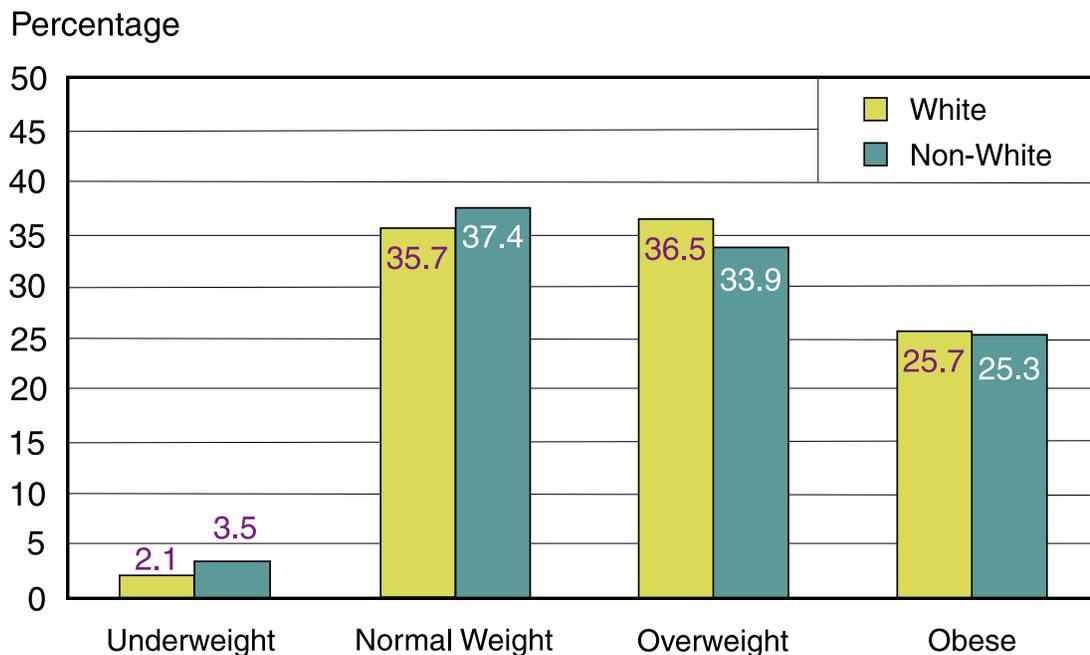
\*U.S. figures represent median prevalence. Source: WV BRFSS, WV DHHR BPH Health Statistics Center, 2005 (Unpublished data)  
U.S. data - CDC BRFSS <http://www.cdc.gov/brfss>

## Race/Ethnicity

In the 2000 Census, 99% of West Virginians described themselves as one race, rather than multiple races. 95% of the population is White, 3.2% is African-American, and all other races combined is 0.9%. Five years of BRFSS data were combined to gather a sufficient sample for the non-White population. **Figure 24** displays the BMI weight categories by race using these combined years. While the prevalence does vary, there are no statistically significant differences between White and non-White groups.

Figure 24.

### Percent of Adults by BMI Categories by Race/Ethnicity in West Virginia WV BRFSS, 1999-2003



Source: WV BRFSS, 1999 to 2003 cumulative, WV DHHR BPH Health Statistics Center, 2005 (Unpublished data)

*Numerous studies have linked obesity to food security problems and limited economic resources.*

### *Socio-Economic Factors*

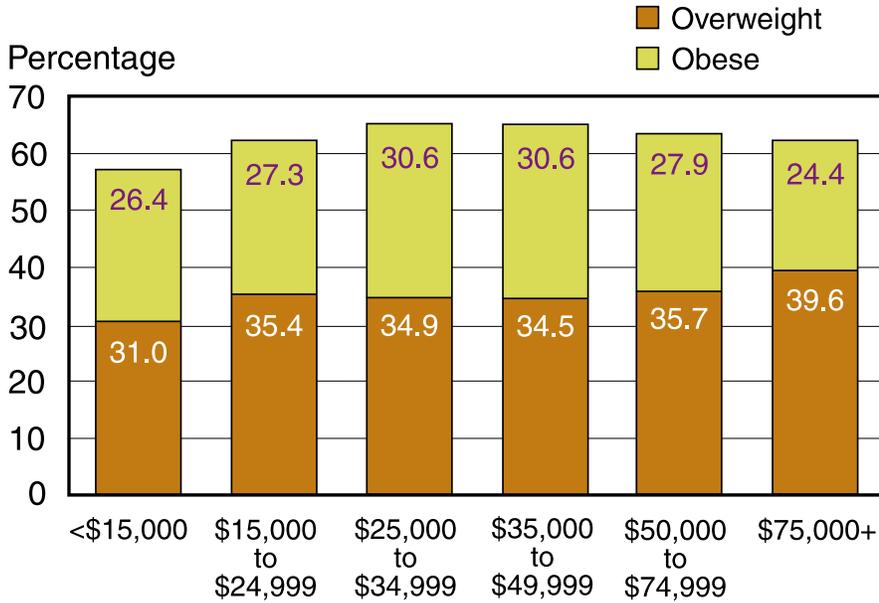
Numerous studies have linked obesity to food security problems and limited economic resources (28, 29, 30). West Virginia has considerably lower levels of median household income than the rest of the nation, having the lowest median household income in the United States in 2002. In that year, West Virginia's median income was at \$30,695 compared with the U.S median income of \$42,409, according to the US Census Bureau's Small Area Income and Poverty Estimates program (SAIPE). Out of 10 available survey years (1989, 1993, 1995 – 2002), the SAIPE ranked West Virginia's median household income as lowest or second lowest in the nation in nine of those years (31).

In West Virginia, the prevalence of obesity is lowest among the wealthiest residents, but there are no significant differences between any of the income categories (**Figure 25**). Nationally, the prevalence of obesity decreases with each income category. In 2003, the national median prevalence of obesity in the lowest income category was 27.1%, and 20.3% were obese in the upper income categories (\$50,000+) (32).

In terms of socioeconomic factors, West Virginia has one of the lowest levels of educational achievement in the U.S. population. According to the 2003 American Community Survey, West Virginia ranked 49th out of 51 in percentage of population over age 25 with a High School Diploma or higher, and ranked last in percentage of population over age 25 with a Bachelor's Degree or higher. (33). **Figure 26** displays prevalence of obesity by educational level in West Virginia in 2003. College graduates in West Virginia have significantly less prevalence of obesity than the two lowest educational levels.

Figure 25.

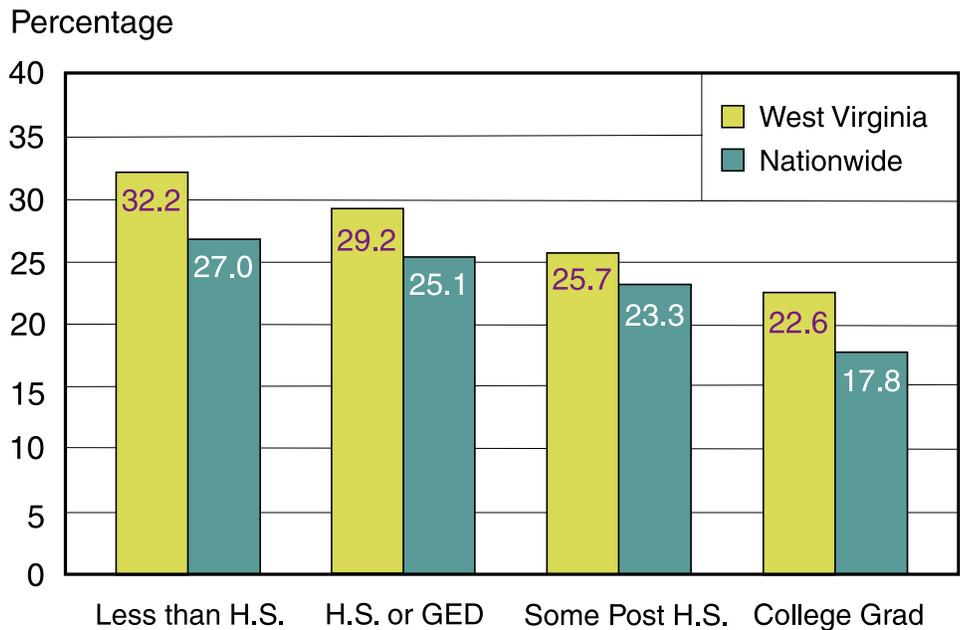
Prevalence of Adult Obesity and Overweight by Household Income  
West Virginia WV BRFSS, 2003



Source: WV BRFSS, WV DHHR BPH Health Statistics Center, 2005 (Unpublished data)

Figure 26.

Prevalence of Adult Obesity by Education  
West Virginia BRFSS, 2003



Note: \*U.S. figures represent median prevalence.

Source: WV BRFSS, WV DHHR BPH Health Statistics Center, 2005 (Unpublished data) - CDC BRFSS <http://www.cdc.gov/brfss>

## Geographic Distribution

Because some of West Virginia's rural counties have insufficient numbers of residents to stand alone for a measure of behavior risks, these counties are grouped for BRFSS analysis according to geography and similarity in economic status.

Figure 27 shows those county groupings, including counties which do stand alone, and compares the average obesity prevalence between 1994 and 1998 against the national prevalence for the mid-year of the five year range. An obvious pattern in the southern part of the state represents significantly higher prevalence of obesity than the U.S. prevalence.

Figure 27.

### West Virginia Behavioral Risk Factor Surveillance System Prevalence of Obesity by County or Region 1994 - 1998

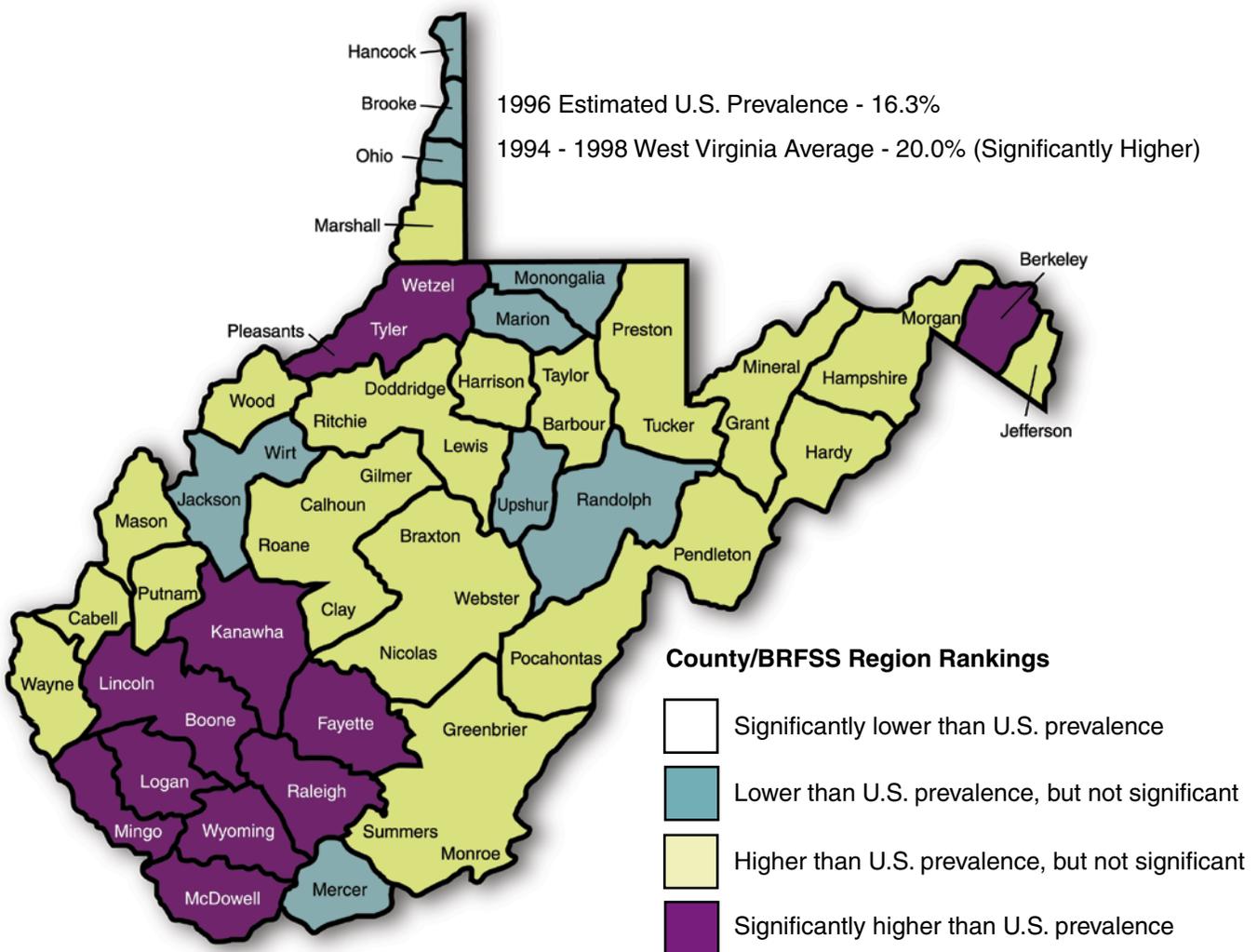
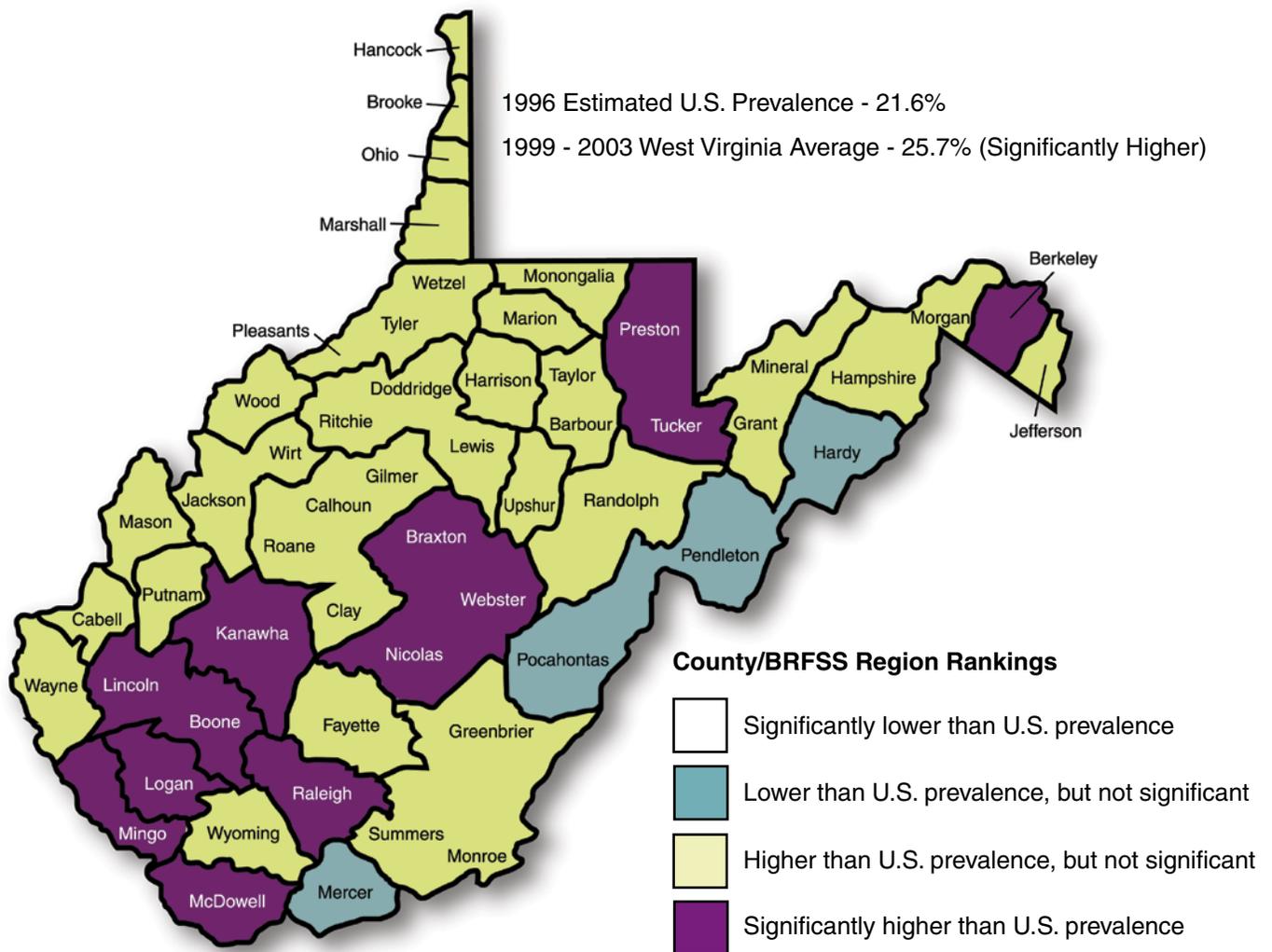


Figure 28 represents the BRFSS obesity statistics averaged between 1999 and 2003. While some counties and county groupings have changed their ranking relative to the U.S. prevalence, the same pattern of significantly higher obesity prevalence continues in the southern part of state. Further, fewer counties or county groupings in the later map reflect obesity prevalence at less than the U.S. prevalence.

Figure 28.

West Virginia Behavioral Risk Factor Surveillance System  
Prevalence of Obesity by County or Region 1999 - 2003



# *Priority Population Strategies and Previous Interventions*

*The results of state and national surveys show that obesity rates far exceed the U.S. Healthy People 2010 objective of 5%. Broad strategies affecting all West Virginians in all spheres of life are needed.*

The specific criteria used to select subgroups for intervention included: current prevalence of obesity and future, projected prevalence of obesity; poor dietary and exercise behaviors, as documented in surveillance; and existing capacity and resources (where partnering will increase the impact of program reach or effect).

Although the problem of poor nutrition and lack of physical activity are found in all subgroups, there are population segments with a higher prevalence of these indicators. For instance, the prevalence of obesity in adults increases with age and is inversely associated with educational attainment. And chronic diseases associated with obesity are more prevalent in older adult age groups, while the highest prevalence of obesity among all subgroups in West Virginia is found among adults. Further, it is adults who ultimately direct the family in food and recreation choices, influence the community in terms of civic, school and faith organizations and can be targeted on an individual level at worksites. As a subgroup, adults illustrate both the problem and are the source of the solution. Therefore, adults are designated as a targeted subgroup.

The rate of increase of overweight in children in the last thirty years is staggering. Children are forming life-long attitudes and behaviors that put them at risk of developing early chronic diseases. Children observe and internalize the societal norm for their family community and respond to positive as well as negative influences. If the trend of childhood overweight is not reversed, chronic disease will take an expensive toll in terms of costs, life expectancy and the quality of life for West Virginians. Therefore, children are designated as a targeted subgroup.

Challenges to reaching these population segments will involve understanding perceptions of the public health risks associated with obesity, identifying barriers, and developing culturally appropriate messages. Overcoming the barriers found in low-income, rural populations, and even urban centers may require changes to ordinances, capital improvement programs, and other planning practices by the state and local governments. Limited local facilities for physical activity, limited local options in healthy food choices, transportation difficulties, and rural isolation demand an inventive and engaged community address these barriers. There are previous interventions that have been piloted in West Virginia have had success in reaching their target populations.

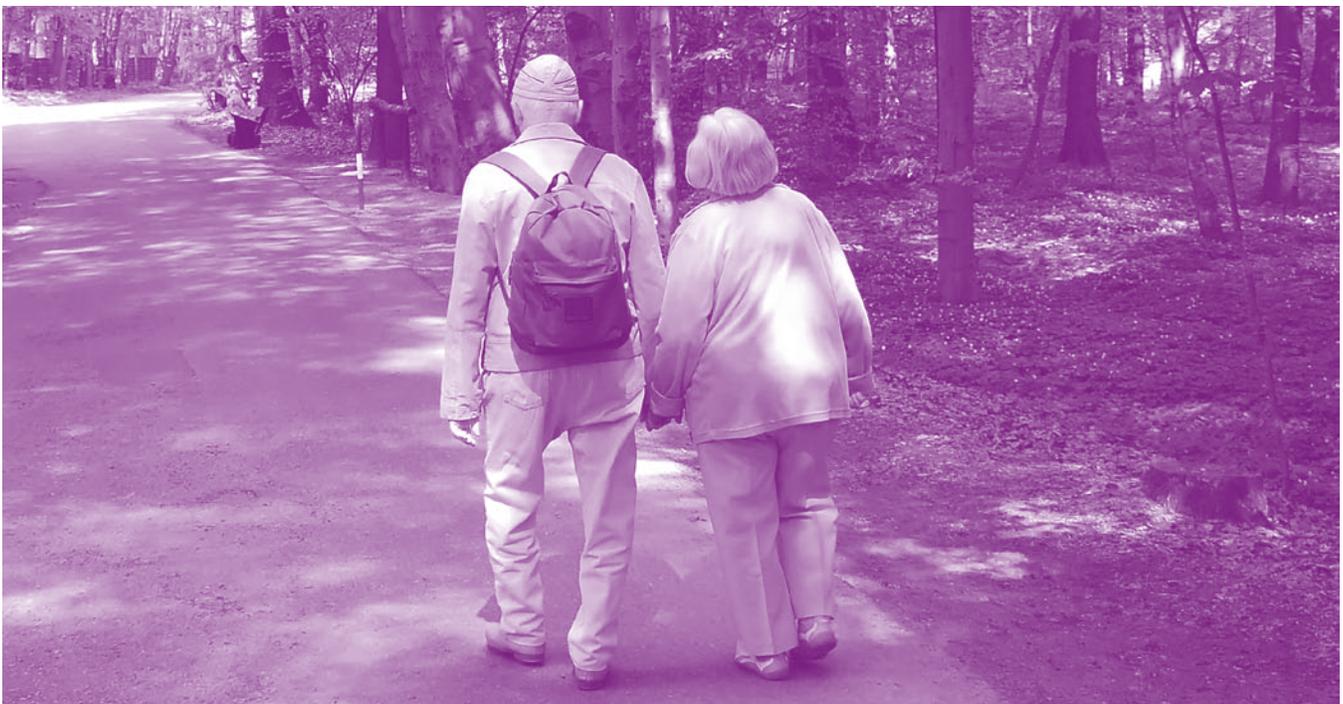


## West Virginia Walks

*The West Virginia Walks Program was developed and implemented by the West Virginia University Department of Community Medicine. The West Virginia Walks Project is an 8-week media-based campaign with social-ecological community events happening at the same time.*

This campaign targets walking 30 minutes a day at least five days per week. The target population for this pilot project was 40-65 year old adults in north-central West Virginia, a group of 12 counties with 193,160 households in the study area. The rural population in these counties ranges from 100% in two counties to 31% in one county, with a mean of 53%. This campaign got 3000 gross rating points for TV ads, 1876 gross rating points for radio ads, 77 earned media TV news stories, and 40 earned media newspaper stories. Walking events were held everyday of the 8-week period including walks with physicians, education events, dog walks, walks with the mayor, walkable community events, etc. and were the events that produced the earned media stories. Physicians also wrote walking prescriptions during this time period.

After the media campaign concluded, taskforces that focus on policy and environmental changes in the community were established. Pre-and post-intervention telephone surveys were conducted to help determine the impact of the overall campaign and social-ecological interventions. The telephone surveys were conducted in three locations: (1) the primary intervention community, Morgantown, WV; (2) throughout north-central West Virginia to measure the impact of media bleed-over with a media campaign; and (3) the comparison community, Huntington, West Virginia. This pilot project has shown a 12% increase in the targeted behavior in the targeted population during the three month follow-up period.



## Main Street

West Virginia Physical Activity and Nutrition (WV PAN) is currently partnering directly with local communities through the West Virginia Development Office's Main Street Program. Main Street is a downtown revitalization program, advocating a return to community self-reliance, local empowerment, and the rebuilding of traditional commercial districts including a pedestrian-friendly environment and emphasizing personal service, local ownership, and a sense of community. Members include citizen activists, mayors, city planners, professional downtown managers, state government officials, Chambers of Commerce, consultants, and many others. Each community forms coalitions to address local problems. It is through this locally controlled and funded community group that policy and environmental changes addressing both physical activity and nutrition are initiated.

Our two pilot communities, Ripley and Mannington, have some impressive outputs in their first year. Together, these two towns have a population in excess of 5,000 people. Ripley Main Street has developed a policy and environment taskforce in their community, with membership including the mayor, local media, local merchants, local teenagers, the Board of Education, and community members. This group has developed a walking club with over 300 members, gotten lighting for a local bridge for walking, pushed for environmental changes to make walking safer downtown, secured funding for sidewalks in the downtown area, taken an inventory of local walking paths and mapped them on a brochure, and run several nutrition programs at local schools. Mannington Main Street has developed a worksite wellness program at a local bank that has put a policy in place for employees to receive paid time off from work for completing nutrition and physical activity programs. They have also screened over 700 students for their Body Mass Index (BMI), and implemented nutrition and physical activity days in schools. They have also started a walking club in town.



## CARDIAC & Healthy Hearts

The West Virginia Coronary Risk Detection in Appalachian Communities (CARDIAC) Project is a chronic disease risk surveillance and intervention initiative designed to combat the unacceptably high prevalence of heart disease and diabetes in West Virginia. Comprehensive in design, CARDIAC has two components: 1) a school-based surveillance and intervention initiative; 2) an individualized approach toward identification and referral for treatment of those with the most severe risk factors for death from premature CVD: familial hypercholesterolemia (FH). In addition, CARDIAC also collects Body Mass Index (BMI) measurements. CARDIAC is the first statewide cardiovascular disease intervention program of its kind in the nation.

In partnership with eLearning for Kids, CARDIAC's leading school-based intervention is web-based with an instructional module called Healthy Hearts. The e-Learning module Healthy Hearts encourages children to participate in physical activity regularly, eat properly, and avoid the use of tobacco products. The instructional module delivered via the Internet is designed to impact children's knowledge, attitudes, and behaviors related to these risk factors associated with cardiovascular health. The interactive curriculum also integrates concepts from other subject areas such as language arts, physical education, math, science, and technology as suggested in the fifth and sixth grade National Content Standards. Healthy Hearts is endorsed by the West Virginia Department of Education Office of Healthy Schools. The program is integrated into fifth and sixth grade curricula in West Virginia schools by classroom teachers, health teachers, media teachers, and others.

## West Virginia Restaurant Survey

While not technically an intervention, the West Virginia Restaurant survey helped measure the extent of need and focus business attention on easy environmental changes. This survey, designed to estimate the prevalence of restaurants in West Virginia which use a "healthy choice" identifier for menu selections, focused on the ten most populous cities in West Virginia. Menus (N = 273) were reviewed for either a heart-healthy logo or terminology (such as low-fat) as identified by the National Restaurant Association. Results revealed nine percent of restaurants offered heart-healthy choices. This survey established that there is much opportunity for the provision of healthy choices on West Virginia restaurant menus.

## West Virginia Eating/Activity Teens Survey (WV EATS)

Developed and administered by the West Virginia University Department of Community Medicine, WV EATS supplements YRBSS data on nutrition with the use of 24-hour Dietary Recalls to track the amounts of fat intake, calcium consumption and daily consumption of fruits and vegetables in high school students. Information on participants from 14 high schools in five West Virginia counties also included BMI, demographics, chronic disease knowledge and levels of physical activity. When compared to national averages, West Virginia teens tended to be heavier and consume fewer servings of fruits, vegetables, and whole grains than those reported in national studies of teens.

# *Evaluation and Surveillance*

*The purpose of program evaluation is to allow agencies operating in the public's interest to describe, understand, and plan their programs; document what has happened in their programs; and improve their programs.*

*Specifically, programs must be able to clearly describe program activities and logically connect program activities with program outcomes. In a collaborative fashion, programs will designate, collect, report out and/or analyze data indicators to measure success. Reports on program evaluation indicators and outcomes will be shared with program staff, sponsors, and stakeholders in a collaborative fashion and at specified intervals, with the ultimate objective of improving program performance. The Centers for Disease Control (CDC) have provided state programs with a "Framework for Program Evaluation in Public Health" which forms the basis for these requirements.*

The evaluation objectives in this plan are incorporated to assure that programs implemented are monitored and that outcomes correlate to the objectives and strategies outlined. An evaluation system will be established and overseen by the West Virginia Physical Activity and Nutrition Program under the West Virginia Bureau for Public Health. This system will monitor both short- and long-term outcomes. Methods and data collected will vary and be determined in part by the interventions selected. While not all activities are of a nature that can be measured or evaluated, every attempt will be made to conduct an assessment when possible.

## Process Evaluation

Process evaluation will include aspects of program management, program reach or participation, and aspects of collaboration between partners. Program management will be evaluated in a collaborative manner in which the program evaluator, program staff, field staff and other contributors share responsibility for recording and gauging progress. Measures of collaboration include the amount of participation and level of effort. Program participation will be measured both quantitatively and qualitatively when possible. Measures to be incorporated in process evaluation will include an assessment of planned versus actual implementation when possible. Pilot interventions will be assessed, at minimum, with a process evaluation in preparation for the possible expansion of activities.

## Outcome Evaluation

To evaluate intermediate and long-term objectives, establishing strong baseline data and maintaining regular surveillance is critical. As information-gathering and assessment can be an expensive undertaking, this activity will be accomplished through existing data systems where possible. In some cases, new tools or special surveys or data collection may be required, but in other cases, simply adding items to already existing monitoring systems may be sufficient. The most vital systems currently functioning in West Virginia are described below (including projected improvements in data gathering):

- YRBSS (Youth Risk Behavior Surveillance System): Administered by the Department of Education to 9th through 12th graders, this system monitors six categories of behaviors among youth contributing to physical inactivity, poor nutrition and other serious health risks. Estimated height and weight are also reported.
- SHPPS (Schools Health Policies and Programs Study): The next round of study (January 2006) will assess multiple school health program components at the elementary, middle/junior, and senior high school levels. The study includes: health education, physical education, health services, mental health and social services, school policy and environment, food service, faculty and staff health promotion, and family and community involvement.
- Student BMI Measurement: While this data system is not yet named, student BMI is now legislatively mandated to be collected in West Virginia. Height and weight will be collected in kindergarten, grades four through eight, and in high school physical education classes. This data system will be invaluable in tracking long-term outcomes for children.

## Outcome Evaluation (continued)

- PedNSS (Pediatric Nutrition Surveillance System): Reports BMI for low-income children aged two through four years and breastfeeding initiation and duration rates. In the near future, this system will also contain TV watching time, fruit and vegetable consumption and other elements to measure physical activity and nutrition behaviors in a low-income population. Ross Mother's Survey will function as a breastfeeding surveillance tool as well.
- BRFSS (Behavioral Risk Factor Surveillance Survey): Many of the long-term objectives are specific to adult health status and behavior, specifically tracked in BRFSS. Data includes estimated height and weight of respondents, degree of physical activity and fruit and vegetable consumption. Demographics assist in tracking specific populations. The BRFSS can also serve as a mechanism to gather specific data unique to West Virginia if needed.
- Wellness Council of West Virginia: While process measures will be available from this source for sponsored worksites, it is vital that a statewide survey assess the degree of support for employee health promotion and provide good baseline data on existing employee wellness programs in West Virginia. Funding for a survey will need to be identified and should be repeated on a regular interval.
- Community Assessment Tools: These tools are currently in the design phase. In partnership with CDC's Epidemic Intelligence Service, the Epi-Aid pilot project (to assess small town environmental and policy status) will produce a set of questionnaires tested for reliability and validity, in the following topic areas: worksites, walkability (community environmental design) school nutrition and physical education and facilities, community restaurants, and grocery stores.

# *Appendices*

A.....End Notes

B.....Objectives Table

# Appendix A

## End Notes

### Data on the Disease Burden

- (1) National Center for Chronic Disease Prevention and Health Promotion, Division of Nutrition and Physical Activity. Overweight and Obesity: Obesity Trends: U.S. Obesity Trends 1985–2003. Online 5 August 2005. <http://www.cdc.gov/nccdphp/dnpa/obesity/trend/maps/index.htm>.
- (2) National Center for Health Statistics. Health, United States, 2004 With Chartbook on Trends in the Health of Americans. Hyattsville, Maryland: 2004. Table 69.
- (3) National Center for Health Statistics. Health, United States, 2004 With Chartbook on Trends in the Health of Americans. Hyattsville, Maryland: 2004. Table 70.
- (4) Aviva Must; Jennifer Spadano; Eugenie H. Coakley; Alison E. Field; Graham Colditz; William H. Dietz. The Disease Burden Associated With Overweight and Obesity. *JAMA* 1999 282: 1523-1529.
- (5) Katherine M. Flegal; Barry I. Graubard; David F. Williamson; Mitchell H. Gail Excess Deaths Associated With Underweight, Overweight, and Obesity. *JAMA* 2005 293: 1861-1867.
- (6) Centers for Disease Control and Prevention. Methodology of the Youth Risk Behavior Surveillance System. *MMWR* 2004;53(No. RR-12):[5].
- (7) CDC. National Center for Chronic Disease Prevention and Health Promotion. Healthy Youth. Online. 3 March 2005. <<http://apps.nccd.cdc.gov/yrbss> >.
- (8) CDC. National Center for Chronic Disease Prevention and Health Promotion. Healthy Youth. Online. 5 August 2005. <<http://apps.nccd.cdc.gov/yrbss> >.
- (9) Murtova, Viktorina, et al, The Relation of Obesity to Cardiovascular Risk Factors among Children: The WV CARDIAC Project. *WV Medical Journal*, 2002; 98(6).
- (10) U.S. Census Bureau, Population Estimates Tables, Online: 19 May 2005. [http://www.census.gov/popest/states/files/SC-EST2004-AGESEX\\_RES.csv](http://www.census.gov/popest/states/files/SC-EST2004-AGESEX_RES.csv).
- (11) 2003 Pediatric Nutrition Surveillance System, West Virginia, Table 12C, WV Bureau for Public Health, Office of Nutrition Services.
- (12) West Virginia Bureau for Public Health. 2003 West Virginia Vital Statistics Annual Report. Table 30. Charleston, WV; West Virginia Bureau for Public Health, Office of Epidemiology and Health Promotion, 2005.
- (13) Finkelstein, Eric A., Fiebelkorn, Ian C., Wang, Guijing. State-Level Estimates of Annual Medical Expenditures Attributable to Obesity. *Obes Res* 2004 12: 18-24.
- (14) Wee, Christina C., Phillips, Russell S., Legedza, Anna T. R., Davis, Roger B., Soukup, Jane R., Colditz, Graham A., Hamel, Mary Beth. Health Care Expenditures Associated With Overweight and Obesity Among US Adults: Importance of Age and Race. *Am J Public Health* 2005 95: 159-165.
- (15) CDC. Physical Activity for Everyone: Recommendations: How active do adults need to be to gain some Benefit? Online: 5 August 2005. <http://www.cdc.gov/nccdphp/dnpa/physical/recommendations/index.htm>.
- (16) West Virginia Bureau for Public Health, Office of Epidemiology and Health Promotion, Health Statistics Center, unpublished data, 2005.

- (17) Dewey, Kathryn G. Is Breastfeeding Protective Against Child Obesity? *J Hum Lact* 2003 19: 9-18.
- (18) Grummer-Strawn, Laurence M., Mei, Zuguo. Does Breastfeeding Protect Against Pediatric Overweight? Analysis of Longitudinal Data From the Centers for Disease Control and Prevention Pediatric Nutrition Surveillance System. *Pediatrics* 2004 113: e81-86 (doi:10.1542/peds.113.2.e81).
- (19) Mothers Survey, Ross Products Division, Abbott Laboratories. 2002 Breastfeeding Trends Report. Online: 5 August 2005. [http://www.ross.com/images/library/BF\\_Trends\\_2002.pdf](http://www.ross.com/images/library/BF_Trends_2002.pdf).
- (20) U.S. Census Bureau, 2000 Census, Summary File 1, Table GCT-PH1-R, Population, Housing Units, Area and Density. Online: 1 March 2005. <http://factfinder.census.gov>.
- (21) U.S. Census Bureau, 2000 Census, Summary File 3, Table P-5, Urban and Rural Universe Total Population. Online: 3 March 2005 <http://factfinder>.
- (22) U.S. Census Bureau, 2000 Census, Summary File 1, Table GCT-P1, Urban, Rural and Metropolitan/ Nonmetropolitan Population:2000, Online: 1 March 2005. <http://factfinder.census.gov>.
- (23) U.S. Census Bureau, 2000 Census, Summary File 1, Table P-3, Race. Online: 5 March 2005. <http://factfinder.census.gov>.
- (24) U.S. Census Bureau, Age: 2000, Census 2000 Brief C2KBR01-12, October 2001.
- (25) U.S. Census Bureau, State Interim Population Projections by Age and Sex: 2004 – 2030, Online 5 August 2005. <http://www.census.gov/population/www/projections/statepyramid.html>.
- (26) Rowland, ML. Self-reported weight and height. *Am J Clin Nutr* 1990 52: 1125-1133.
- (27) Kuzmarski, MF, Kuczumarski RJ, Najjar M. Effects of age on validity of self-reported height, weight, and body mass index: findings from the Third National Health and Nutrition Examination Survey, 1988-1994. *J Am Diet Assoc.* 2001 Jan;101(1):28-34; quiz 35-6.
- (28) Townsend, Marilyn S., Peerson, Janet, Love, Bradley, Achterberg, Cheryl, Murphy, Suzanne P. Food Insecurity Is Positively Related to Overweight in Women. *J. Nutr.* 2001 131: 1738-1745.
- (29) Adams, Elizabeth J., Grummer-Strawn, Laurence, Chavez, Gilberto. Food Insecurity Is Associated with Increased Risk of Obesity in California Women. *J. Nutr.* 2003 133: 1070-1074.
- (30) Drewnowski Adam., Specter SE. Poverty and Obesity: the Role of Energy Density and Energy Costs. *Am J Clin Nutr* 2004;79:6 –16.
- (31) U.S. Census Bureau, 1989-2002 SAIPE, online: 16 March 2005. [http://www.census.gov/gci-bin/saipe/national.cgi?year=\(1989-2002\)](http://www.census.gov/gci-bin/saipe/national.cgi?year=(1989-2002)).
- (32) BRFSS Prevalence Data – Income Grouping, 2003 Nationwide Demographics for Obesity. Online: 9 August 2005. <http://apps.nccd.cdc.gov/brfss/income.asp?cat=DE&yr=2003&qkey=4409&state=US>.
- (33) U.S. Census Bureau, 2003 American Community Survey Summary Tables R-02 and R-13, Online: 16 March 2005. <http://factfinder.census.gov>.

# Appendix B

## Objectives Table

Obj.	Population	Metric	Current Status	Target	Link to Goal
1	Obese Adults	The proportion of adults who are obese (BMI of 30 or greater.)	27.7% (BRFSS)	20%	4
2	Overweight Children & Adolescents	The proportion of children and adolescents who are overweight (>95th percentile BMI for age)	13.2% for children aged 2-4 (PedNSS)	5% reduction from baseline	4
			23% for 5th graders (CARDIAC)		
			13.7% grades 9-12 (YRBSS)		
3	Adults & Adolescents	The proportion of adults and adolescents who consume at least five servings of fruits and vegetables per day	18.7% for Adults (BRFSS)	35%	2, 4
			20.6% of Adolescents (YRBSS)	25%	
4	Adults	The proportion of adults with 30+ minutes of moderate physical activity five or more days per week, or vigorous physical activity for 20+ minutes three or more days per week	42.7% (BRFSS)	50%	1, 4
5	Adolescents	The proportion of adolescents who engage in moderate physical activity for at least 30 minutes on five of the last seven days	27.4% (BRFSS)	35%	1, 4
6	Infants	Increase the proportion of mothers who breastfeed their babies in hospitals to 75% and increase the proportion of mothers who breastfeed their babies at 6 months to 50%	61.2% in hospital (Ross)	75%	3, 5
			25.7% at six months (Ross)	50%	
7	Adolescents	The proportion of adolescents who engage in fewer than three hours of TV viewing or other sedentary leisure screen time activity	61.1% grades 9-12 (YRBSS)	70%	4
8	Low-income West Virginians	The proportion of West Virginia households which are food insecure	8.8% (USDA)	5% reduction from baseline	5
9	Low-income West Virginians	The proportion of West Virginia households which are food insecure	8.8% (USDA)	Scheduled periodic communication and publication	6

## Notes

## Notes