

Review of Kentucky-based Nutrition Programs and Research



Research Memorandum No. 513

Legislative Research Commission
Frankfort, Kentucky

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The Commission functions as Kentucky's Commission on Interstate Cooperation in carrying out the program of the Council of State Governments as it relates to Kentucky.

Review of Kentucky-based Nutrition Programs and Research

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Foreword

The 2012 General Assembly directed the Legislative Research Commission to conduct a review of available studies and programs that focused on the nutritional habits of Kentucky citizens. The review also was to include long-term or short-term pilot projects that intended to reduce health risks of participating individuals.

Legislative Research Commission staff would like to acknowledge the assistance of persons with Kentucky state agencies, in particular, the Cabinet for Health and Family Services, Department of Agriculture, Department of Education, and Personnel Cabinet; educators with Kentucky universities and colleges; medical and health professionals; health interest groups; and representatives of agricultural-related associations and charitable organizations.

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Contents

Summary	vii
Chapter 1: Obesity and Nutrition in Kentucky	1
Obesity Rates	1
Access to Healthy Food and Consumption of Fruits and Vegetables.....	1
Food Insecurity Rates	3
Obesity-related Diseases.....	3
Chapter 2 Nutrition and Health Programs	5
Federal Programs That Provide Funding to States.	5
United States Department of Agriculture	6
National School Lunch Program.....	6
Women, Infants, and Children Program	7
Supplemental Nutrition Assistance Program.....	7
The Centers for Disease Control and Prevention’s Role in Health	8
ACHIEVE.....	8
State-level Programs	9
Kentucky Department of Agriculture	9
Child Nutrition Commodity Program	9
Commodity Supplemental Food Program	9
Emergency Food Assistance Program	10
Senior Farmers’ Market Nutrition Program.....	10
Farm to School.....	10
Department of Education and Department for Public Health.....	10
Partnership for a Fit Kentucky	11
University of Kentucky.....	12
Expanded Food and Nutrition Education Program.....	12
Supplemental Nutrition Assistance Program Education.....	13
Plate It Up Kentucky Proud	13
Taking Control of Your Diabetes	13
Weight – The Reality Series	13
Second Sunday.....	13
Get Moving Kentucky!	14
LEAP for Health	14
Small Steps to Health and Wealth	14
Building a Healthy Wealthy Future for Youth	14
Local and Regional Programs.....	14
Healthy Communities Program.....	14
YMCA Programs	15
Growing Healthy Kids in Kentucky	15
Associations and Coalitions.....	15
Foundation for a Healthy Kentucky.....	15
Kentucky Association of Food Banks.....	16
Kentucky Action for Healthy Kids	16

Chapter 3: Nutritional Habits and Health Outcomes.....	17
Obesity and Disease.....	17
Nutrition and Obesity.....	18
Chapter 4: Kentucky Pilot Projects Intended To Reduce the Health	
Risks of Participants	21
Past Pilot Projects	21
Projects Designed for School-age Participants.....	21
Coordinated School Health Program	21
IntoFitness 4 Life.....	21
USDA School Nutrition Pilot Project.....	22
Cholesterol Health Education Concerning Kids.....	22
Media-Smart Youth	22
YMCA TAKE 10!.....	22
Projects Promoting Healthier Lifestyle Choices.....	22
The Heart Disease and Stroke Prevention Program.....	22
Shape Up KSU.....	23
Humana Vitality.....	23
Strong Women Exercise Program.....	23
Medical Nutrition Therapy Program.....	24
Screening and Illness Prevention Projects	24
Women’s Heart Disease Risk Assessment	24
Faith Moves Mountains	24
YMCA Diabetes Prevention Program	24
Enabling Quality Improvement for Diabetes Management.....	24
The Need To Establish a Healthy Nutrition Pilot Project.....	25
Strategic Implementation.....	25
Reliable Funding.....	25
Robust Analysis and Reporting Results.....	26
Chapter 5: Regulatory and Policy Change Suggestions	27
Questionnaire Results	27
School Nutrition Policy Comments	29
Existing School Nutrition Standards.....	29
State Nutrition Requirements.....	30
Other School Food Programs.....	30
Public Assistance Comments.....	30
Other Suggestions	31
Nutrition Content Labeling.....	31
Taxes on Sugary Drinks.....	31
Food Policy Councils.....	31
Works Cited	33
Appendix House Bill 550 Nutrition Study Questionnaire.....	37

List of Tables

1.1	Obesity-related Disease Rates, Kentucky and United States, 2009	3
1.2	Obesity-related Cancer Rates, Kentucky and United States	4
5.1	Suggested Statutory or Regulatory Policy Change Categories	28

Summary

The 2012 General Assembly, with the passage of House Bill 550, directed Legislative Research Commission (LRC) staff to conduct a review of available studies and programs that focus on the nutritional habits of Kentucky citizens and the health outcomes of those habits. In addition, the General Assembly further directed staff to include in the review any long-term or short-term pilot projects that intend to reduce health risks of participating individuals.

As a part of the review, LRC staff developed a questionnaire that was sent to state agencies, including the Cabinet for Health and Family Services, local health departments, Department of Agriculture, Education and Workforce Development Cabinet, and Personnel Cabinet; colleges and universities; health interest groups; agricultural interest groups; agricultural commodity associations; medical and health associations; and charitable organizations. The questionnaire asked for information on

- current or past programs in Kentucky that address the health and nutrition of the state's residents,
- current or past studies that address the health and nutrition of Kentucky residents, and
- current or past pilot projects in Kentucky that intend to reduce the health risks of participants.

The questionnaire also sought respondents' opinions on

- a need to establish a healthy nutrition pilot project that would reduce the health risks of participants, and
- statutory or regulatory policy changes they would like to see related to improving the health and nutrition of Kentucky citizens.

Chapter 1 discusses obesity and nutrition in Kentucky and notes that the state's populace does not fare well on numerous nutrition, obesity, and obesity-related disease rankings. Obesity among Kentucky adults has risen since the mid-1990s to a current rate of about 30 percent of adults. Obesity rates vary by county. Even though numerous studies have demonstrated the positive effects of fiber-rich diets including fruits, vegetables, and whole grains, compared to other states, Kentucky adults consume those types of foods at low rates. Food insecurity, or the difficulty in acquiring enough food, exists across the state. Kentucky's population as a whole ranks poorly in measures of obesity-related diseases, particularly diabetes.

Chapter 2 presents information about programs that address nutrition and health. Kentucky has perhaps hundreds of programs aimed at nutrition and health. Some are stand-alone programs. Some offer nutrition and health advice as a component of programs. An overarching finding is the federal linkage to state nutrition programs. Many initiatives are made possible because of two federal sources of funding: the United States Department of Agriculture (USDA) and the US Centers for Disease Control and Prevention. An array of agencies and organizations are working on nutrition and health, and nearly all rely on some outside funding. A program's existence often depends on the availability of funding, which often flows from the federal government.

Associations and coalitions depend on a variety of funding sources, including federal, state, private donations, and grants. The USDA's supplemental food and nutrition programs are

administered in the state by the Cabinet for Health and Family Services, which also oversees the school nutrition programs. One of the large-scale public programs—Women, Infants, and Children—has nutrition education as a key component. The Kentucky Department of Agriculture administers a handful of USDA food programs that offer an assortment of nutrition education and information. The University of Kentucky School of Environmental Sciences has a nutrition education network with an infrastructure formed by county extension offices throughout the state and at local or district health department offices. A number of public/private partnerships concentrate on such issues as obesity prevention. There also are numerous local and regional programs, as well as associations and coalitions that attempt to improve the health and quality of life of Kentuckians.

Chapter 3 describes the results of analyses of relevant and available studies and programs that focus on the nutritional habits of Kentucky citizens and the health outcomes of those habits. The first group of studies and programs examines the co-occurrence of obesity and disease in Kentucky. The second group of studies and programs examines the relationship between nutrition and obesity. In one study, overweight and obese adults in the state were more likely than those of normal weight to have diabetes, asthma, arthritis, high blood pressure, high cholesterol, and fair or poor health status. In terms of nutrition and obesity, Kentucky studies suggest there is a relationship between the quality of nutrition and the risk of obesity. Studies have shown a relationship among nutrition behavior counseling, nutrition, and obesity. One study also suggested that Kentucky's increase in obesity and related diseases may be due to a disconnect between perceptions of health and one's actual health.

Chapter 4 discusses two questions asked of questionnaire respondents: knowledge of past pilot projects in Kentucky that intended to reduce health risks of participants, and perceptions of the need to establish a healthy nutrition pilot project that would reduce participants' health risks. The questionnaire drew a low response in terms of functioning pilot projects. Some projects were designed for school-age participants. Other projects have promoted healthier lifestyle choices. Respondents described screening and illness prevention projects. Other projects concentrate on diabetes prevention.

The overwhelming majority of respondents answered affirmatively about the need to establish a healthy nutrition pilot project that would reduce the health risks of participants. Many respondents noted that poor nutrition contributed to Kentucky's high rates of both adult and childhood obesity and increased occurrences of diabetes, asthma, heart disease, and other chronic diseases relative to other states. However, many of the responses included specific recommendations for prospective healthy nutrition pilot projects that reflect the lessons learned from the multitude of nutrition pilot projects that have already been implemented.

The results of the questionnaire mirror a growing concern nationwide regarding the eating habits of students in schools and the idea of making nutritious foods available to students in school cafeterias, as discussed in Chapter 5. In addition, respondents wanted to see nutrition education offered in school settings. Another component mentioned, although not a part of this study, would be to offer greater physical education opportunities in schools. Respondents saw a need to revise some of the nutrition requirements in two prominent federal supplemental food and nutrition programs: the Supplemental Nutrition Assistance Program and the Women, Infants, and

Children Program. Respondents and others suggested requiring food nutrition labeling on restaurant menus, taxing sugary drinks, and establishing statewide food policy councils.

Chapter 1

Obesity and Nutrition in Kentucky

This chapter discusses obesity rates and nutrition habits of Kentucky residents. Overall, the state's population ranks poorly on numerous nutrition, obesity, and obesity-related disease ratings. Obesity rates are high in the state, consumption of fiber-rich diets is low, food insecurity exists, and obesity-related disease rates are high.

Obesity Rates

Obesity rates have increased dramatically across the United States over the last two decades, and rates have been persistently higher in Kentucky than in many states. The United States Centers for Disease Control and Prevention (CDC) reported that in Kentucky the rates of adult obesity have risen from less than 17 percent of adults in 1995 to about 30 percent in 2011, the 10th highest among all states. The national median percentage of obese adults was 27.8 in 2011 (Behavioral).

The increase in obesity rates in Kentucky has occurred across age, racial, and ethnic backgrounds; socioeconomic status; and geographical location, but there is variation within these groups. Adults are more likely to be obese than children. In 2011, 16.5 percent of high school students in Kentucky were obese (US. Centers. Youth). African-American adults had an obesity rate of 43.2 percent, compared to 30 percent for whites and 33.1 percent for Latinos. Among college graduates, 21.5 percent were obese, compared to nearly 33 percent of adults who did not graduate high school. Adults earning \$50,000 or more were less likely to be obese, 24.6 percent, compared to 33 percent of adults who earn less than \$15,000 per year (Trust).

Obesity rates also vary by county. The counties in Kentucky with the highest percentage of obese adults are Breathitt and Lincoln at 40 percent. Campbell County, at 28 percent, had the lowest percentage of obese adults (County).

Access to Healthy Food and Consumption of Fruits and Vegetables

Numerous studies have demonstrated positive health effects of fiber-rich diets that include fruits, vegetables, and whole grains. The recommended daily consumption of proteins, fruits, vegetables, and whole grains varies by age, sex, physical activity level, and total daily calories consumed. However, dietary guidelines for 2010 concluded that for both adults and children, the consumption of vegetables, fruits, whole grains, fluid milk and milk products, and oils is low enough to be a public health concern. In some population groups, the consumption of saturated fats, total cholesterol, refined grains, solid fats, added sugars, sodium, and total cholesterol is high enough to be a public health concern. Additionally, Americans generally consume more total calories than they burn through physical activity (US. Dept. of Ag. and Dept. of Health and Human Services.).

National data on food consumption indicate that adults and children who are overweight or obese tend to consume fewer fruits and green leafy vegetables and more meat and saturated fats than underweight or healthy-weight individuals. Data on the consumption of all food groups by state are not available because most studies are conducted on national samples rather than state samples. Available data for Kentucky are discussed below.

Compared to other states in 2009, the CDC reported that Kentucky adults had the 45th highest consumption of fruits and 12th highest consumption of vegetables in the country. Only 24 percent of Kentucky adults consumed fruits two or more times daily compared to the national median of 32 percent. However, Kentucky adults consumed more vegetables per day compared to the national median: 29 percent compared to 26 percent (US. Centers. State-Specific).

The CDC surveys middle school and high school students about youth risk behaviors. In 2011, the data indicated that 19 percent of Kentucky high school students indicated that they did not consume fruit in the previous 7 days, compared to 12 percent nationally. Among high school students, 43 percent indicated that they did not eat at least one vegetable per day in the previous 7 days, compared to 38 percent nationally. Among these youth, 16 percent indicated that they consumed three or more nondiet soft drinks per day, compared to 11 percent nationally (US. Centers. Youth).

Access to fast food restaurants and lack of access to fruits and vegetables is generally associated with a high prevalence of being overweight or obese, and premature death. In 2010, Kentucky was one of the top 10 states in the percentage of dining-out dollars the average resident spent annually in fast food restaurants, 56 percent compared to the highest in Mississippi, 62 percent (Health). In 2009, the proportion all of restaurants in Kentucky that were fast food restaurants was 54 percent (County).

In a statewide survey, 21 percent of Kentuckians said that it was not easy to get affordable fresh fruits and vegetables where they live. The survey found that 30 percent of eastern Kentucky residents and 33 percent of people living in poverty had difficulty accessing affordable fresh fruits and vegetables (Foundation).

One measure of access to fruits and vegetables is living close to grocery stores because they tend to offer more fruits and vegetables than convenience stores. Living close to a grocery store is defined as living less than 1 mile from a grocery store in metropolitan counties and as less than 10 miles in non-metropolitan counties. Compared to its border states in 2009, Kentucky had a relatively low percentage of people with limited access to grocery stores, 7 percent compared to 4 percent in Illinois and 12 percent in West Virginia. Edmonson County had the highest percentage of residents who did not live close to a grocery store (County).

The ability to use debit, credit, Supplemental Nutrition Assistance Benefits (SNAP), or Women, Infants, and Children (WIC) vouchers at farmers markets has been suggested as one way to increase access fresh fruits and vegetables. As of July 2011, 30 of the 151 registered farmers' markets in Kentucky reported offering electronic benefit transfers, and 40 markets were authorized to accept WIC vouchers (Courtney).

Food Insecurity Rates

Food insecurity is the difficulty in acquiring enough food. The United States Department of Agriculture (USDA) measures food insecurity in two levels: low and very low. With low food security, household members may, at times, be unable to acquire enough because of insufficient money and other resources. While their diets may lack quality or variety, they generally consume enough food. With very low food security, eating patterns may be disrupted and food intake is reduced because of the inability to afford enough food (Definitions).

Paradoxically, food insecurity is associated with obesity among adults (Pan). One possible explanation is that food is available in varying quantities throughout the month. When food is available, it is generally low in quality and consumed in large quantities. In Kentucky, the 2012 data indicate that 17.3 percent of the population is food insecure compared to 16.1 percent in the United States. The range of food insecurity across counties in Kentucky is wide. Magoffin County had a rate of food insecurity of more than 30 percent while Boone, Bullitt, Oldham, Owen, Shelby, Spencer, and Woodford Counties had rates less than 14 percent (Feeding).

Obesity-related Diseases

The CDC also indicated that obesity is related to a number of chronic health conditions. The table below shows how Kentucky compares to the median rate of all states on several health conditions shown to be related to obesity. The prevalence of cardiovascular disease is measured by whether respondents had ever been told they had heart attacks, angina or coronary heart disease, or a stroke. Diabetes prevalence is measured by whether respondents had been told by a doctor that they had diabetes. Respondents also indicated whether they had their blood cholesterol and blood pressure checked and had been told they were high.

Table 1.1
Obesity-related Disease Rates
Kentucky and United States
2009

Disease or Condition	Kentucky Percent	United States Median Percent
Heart attack	6.0	4.1
Coronary heart disease	5.8	4.1
Stroke	3.5	2.6
Diabetes	10.0	8.7
High blood cholesterol	41.6	37.4
High blood pressure	36.4	28.7

Source: US. Centers. Behavioral.

The CDC also indicated that obesity has been shown to be related to increased risk of the cancer types indicated in the table below. Kentucky's rates are higher than in the US overall with the exception of breast cancer after menopause and gallbladder cancer.

Table 1.2
Obesity-related Cancer Rates
Kentucky and United States
(Age-adjusted Rate per 100,000 Population)

Obesity-related Cancers	Kentucky	United States
Colon and rectum	52.8	42.3
Esophagus	5.0	4.8
Breast (after menopause)	120.2	122.8
Female reproductive system	49.2	48.6
Gallbladder	0.9	1.1
Kidney	19.9	15.7
Pancreas	11.8	11.7
Thyroid	14.0	13.0

Source: US. Centers. National.

Among the obesity-related diseases, the rate of diabetes stands out as having increased substantially over time. Between 1995 and 2010, the percentage of adults with diabetes increased from 3.5 percent to 10 percent, compared to an increase in the United States from 4.3 percent to 8.7 percent. At this rate of increase, the number of individuals with diabetes in Kentucky is projected to exceed 405,000 by 2015 and 1 million by 2050 (Wood).

While the increase in diabetes has occurred across demographic groups, the prevalence of diabetes in Kentucky varies by income, age, race, and geographic location. Lower-income individuals are more likely to have diabetes than higher-income individuals. The probability of having diabetes increases with age, although onset appears to be occurring at younger ages. African Americans are more likely to have diabetes than Anglo-Americans. The southern and eastern counties in Kentucky have higher rates of diabetes than the northern and western counties (Wood).

In addition to the health costs to individuals overall, the costs of diabetes to Kentucky are estimated at \$2 billion annually (Friedell).

Chapter 2

Nutrition and Health Programs

This chapter presents information on programs in the state that address nutrition and health, as drawn from questionnaire results and other research. The programs discussed are merely a snapshot of the many health and nutrition programs available throughout Kentucky. Additional programs exist at the federal, state, and local levels. Not represented in this chapter is the large number of organizations that have implemented internal health and wellness programs. There is awareness of health issues and a consensus to improve nutrition and health education for Kentuckians. Agencies at the federal, state, and local levels are working together to use funding specifically earmarked for programs aimed at improving health and nutrition.

The questionnaire asked respondents to list any programs in Kentucky that address the health and nutrition of the state's residents. Approximately 48 agencies or organizations responded with a broad range of federal, state, and local programs. The respondents included an array of entities, including state and local government; universities; and associations that represent government, health, agriculture, nonprofit, and educational institutions.

Many initiatives rely on two federal funding sources: the United States Department of Agriculture and the Centers for Disease Control and Prevention. Often, these sources of funding are sent to state agencies such as the Department of Agriculture, Department for Public Health, and Department of Education. While following the funding guidelines and often the parameters of national nutrition or health education programs, state agencies distribute food products, create and distribute educational materials, and enable others at the local level to increase nutritional awareness and overall health of many Kentuckians.

An array of agencies and organizations work together to provide nutrition programs and nearly all rely on some outside source of funding. Most state agency programs depend on federal funding. States use that funding to support local and regional agencies or organizations. Associations and coalitions depend on a variety of sources of funding including federal, state, private donations, and grants.

Federal Programs That Provide Funding to States

The federal government allocates funding to states to administer health and nutrition programs. Two of those federal agencies, the United States Department of Agriculture and Centers for Disease Control and Prevention, will be discussed in this section.

United States Department of Agriculture

The USDA's Food and Nutrition Service (FNS) partners with state and local agencies to distribute food products, funding, and resources to feed those in need. The FNS hosts a myriad of programs:

Supplemental Nutrition Assistance Program

School Meals

- National School Lunch Program
- Fresh Fruit and Vegetable Program
- School Breakfast Program
- Special Milk Program
- Team Nutrition

Women, Infants, and Children

- Farmers' Market Nutrition Program
- Senior Farmers' Market Nutrition Program

Summer Food Service Program

Child and Adult Care Food Program

Food Assistance for Disaster Relief

Food Distribution

- Schools/Child Nutrition Commodity Programs
- Food Distribution Program on Indian Reservations
- Commodity Supplemental Food Program
- The Emergency Food Assistance Program

National School Lunch Program

Established within the United States Department of Agriculture, under the National School Lunch Act, the National School Lunch Program (NSLP) is a federally assisted meal program operating in more than 100,000 public and nonprofit private schools and residential child care institutions. In 2011, it provided nutritionally balanced, low-cost or free lunches to more than 31 million children each school day at a cost of \$11.1 billion. In 1998, Congress expanded the school lunch program to include reimbursement for snacks served to children in afterschool educational and enrichment programs to include children through age 18.

The FNS administers the program at the federal level. At the state level, the NSLP is usually administered by state education agencies, which operate the program through agreements with school food authorities. School districts and independent schools that choose to take part in the lunch program get cash subsidies and USDA foods for each meal served. In return, the schools must serve lunches that meet federal requirements, and they must offer free or reduced-price lunches to eligible children. During fiscal year 2013, in addition to cash reimbursements, schools receive USDA foods called "entitlement" or commodity foods, at a value of 22.75 cents for each meal served. Schools also receive "bonus" commodities as they are available through USDA's price support and surplus removal programs. Team Nutrition USDA provides technical training and assistance to help school food service staffs prepare healthy meals, as well as nutrition education to help children understand the link between diet and health.

Schools also receive fresh produce through a partnership between USDA and the Department of Defense. USDA has worked to connect schools with local small farmers who are able to provide fresh produce to students.

Women, Infants, and Children Program

The Women, Infants, and Children program provides federal grants to states to provide free supplemental nutritious foods, health care referrals, and nutrition education for low-income pregnant, breastfeeding, and nonbreastfeeding postpartum women, and to infants and children up to age 5 who are found to be at nutritional risk.

The FNS, which administers the program at the federal level, provides funding to WIC state agencies, typically state health departments. The funding covers administrative costs and expenses and is available in all 50 states, 34 Indian tribal organizations, the District of Columbia, and US territories.

Eligible participants must also meet income guidelines, must meet state residency requirements, and must be determined to be a “nutrition risk” by a health professional. In 2010, the number of US women, infants, and children receiving WIC benefits each month reached approximately 9.17 million. In 2011, Congress appropriated \$6.734 billion for the program. (US. Dept. of Ag. Food).

Supplemental Nutrition Assistance Program

The Supplemental Nutrition Assistance Program, formerly known as the Food Stamp Program, has been in existence for almost 40 years. Although SNAP is the federal name for the program, state programs may opt for a different name.

The program seeks to improve nutrition among low-income people. In 2011, the program served nearly 45 million people, which equates to approximately one in seven Americans. In 2011, on average, SNAP provided \$134 per person each month to 44.7 million individuals in 21.1 million households throughout the US. To be eligible, SNAP households must meet federal income guidelines and have assets of less than \$2,000. Households with elderly (age 60 and older) and disabled members are exempt from the gross income limit and must have assets less than \$3,250.

SNAP benefits are used at supermarkets, grocery stores, convenience and specialty stores, and farmers’ markets. Benefits can be exchanged only at authorized food retailers. Nationwide, there were about 230,000 authorized retailers in 2011. Benefits are 100 percent federally funded, although administrative costs are shared between states and the federal government. The FNS provides general policy guidance, while states or counties carry out the day-to-day program administration. States are responsible for household certification and issuance of benefits, while FNS is responsible for the authorization and oversight of food retailers (US. Dept. of Ag. Supplemental).

The Centers for Disease Control and Prevention's Role in Health

By partnering with others throughout the nation and world, the CDC works to

- monitor health,
- detect and investigate health problems,
- conduct research to enhance prevention,
- develop and advocate sound public health policies,
- implement prevention strategies,
- promote healthy behaviors,
- foster safe and healthful environments, and
- provide leadership and training.

The CDC administers the Coordinated School Health (CSH) Program. The CDC awards 22 states, including Kentucky, and one tribal government funding through the CSH program to promote physical activity, nutrition, and tobacco-use prevention.

ACHIEVE

Action Communities for Health, Innovation, and Environmental Change (ACHIEVE) communities are funded by the CDC's Healthy Communities Program to develop and implement strategies focused on preventing chronic diseases. This is implemented by community and national partnerships.

In each ACHIEVE community, local leaders work with all community sectors and state and local public health professionals to develop and implement strategies that help prevent or manage health risk factors for heart disease, stroke, diabetes, cancer, obesity, and arthritis. CDC provides funds to selected national organizations that provide technical support and funds to selected communities. In 2012, a mentoring component was added, which pairs successful ACHIEVE communities with other newly funded communities.

Funded organizations work to build healthy communities and to eliminate health disparities by developing and disseminating tools, models, activities, and strategies for collaborating with a broad range of partners. Specific activities are directed toward reducing tobacco use and exposure; promoting physical activity and healthy eating; and improving access to consistent, high-quality preventive health services.

There are 10 ACHIEVE communities in Kentucky: Ashland, Covington, Frankfort, Greater Louisville, Hopkinsville, Jefferson County-Louisville, Lexington, Manchester, Owenton, and Richmond (US. Centers. ACHIEVE).

State-level Programs

Kentucky Department of Agriculture

The Kentucky Department of Agriculture (KDA) Division of Food Distribution receives funding from a variety of USDA programs such as the National School Lunch Program. This funding assists the division to administer four food programs: Child Nutrition Commodity Program, Commodity Supplemental Food Program, Emergency Food Assistance Program, and Senior Farmers' Market Nutrition Program. The division distributes USDA commodities to eligible recipient agencies.

Child Nutrition Commodity Program. This program targets public and private nonprofit schools as well as residential child care institutions that provide meals to students. The Division of Food Distribution distributes commodities to more than 1,600 schools and institutions. While providing nutritious, USDA-purchased foods, the program also supports agricultural producers by providing cash reimbursements for meals served in Kentucky's schools.

USDA commodities are valued at more than \$16 million a year for 245 school systems in Kentucky. The USDA program allocation is based on a formula that includes the number of children in the school system and a set cost per child per meal. In Kentucky, approximately 400,000 students are served fresh fruits and vegetables each day. Also, the Department of Defense allocates more than \$1.6 million to the program to buy fresh produce for Kentucky schoolchildren. However, this funding fluctuates, and the Division of Food Distribution is often unsure of the amount of funding it will receive. To be eligible for USDA and Department of Defense funding, a school or residential child care institution must:

- exist as an education unit of primary or secondary schools, and operate under public or nonprofit private ownership;
- be in compliance with Civil Rights requirements;
- be federally tax exempt;
- operate as a school that does not participate in the National School Lunch Program, but operate a nonprofit school food service program under agreement with the Kentucky Department of Education's School and Community Nutrition program; and
- operate as a 24-hour child care institution, if eligibility is met.

Commodity Supplemental Food Program. The Division of Food Distribution administers the Commodity Supplemental Food Program. The program supplements the diets of participants by providing monthly packages of nutritious foods and provides nutritional education and information about healthy eating habits and lifestyles. This program targets women, infants, and children and serves approximately 15,000 participants with more than \$3.5 million in food at 101 locations throughout the state. To be eligible for this program, Kentucky residents must meet federal household income guidelines. Participants must also be in one of the following categories:

- pregnant women, postpartum mothers, and infants up to the month of the child's first birthday;
- children through the month of the 6th birthday; or
- senior citizens over the age of 60.

Emergency Food Assistance Program. The Division of Food Distribution administers the Emergency Food Assistance Program, which is a federal program that helps supplement the diets of low-income Americans by providing healthy foods at no cost. Commodity foods are made available to local agencies for distribution to needy households to be used when preparing meals for home consumption, or to organizations that prepare and provide meals for the needy. More than \$1.7 million worth of food is made available to five food banks that contract with food pantries to distribute food to eligible households or to organizations that prepare and provide meals to the needy. Eligibility is based on the total household monthly income and is compared to a federally established income eligibility scale. This is the same scale that is used to determine eligibility for SNAP. (Commonwealth. Dept. of Ag. Supplemental).

Senior Farmers' Market Nutrition Program. The goal of this program is to help Kentucky farmers gain market access while allowing eligible seniors better access to fresh fruits and vegetables and improving nutritional habits of low-income families. KDA serves as the lead agency for the program and provides low-income seniors \$28 in checks to purchase fresh, unprocessed, locally grown fruits, vegetables, and herbs at state-approved farmers' markets each growing season. Funding for the program comes from federal and state resources. Because of budget restrictions, only 70 counties receive program funding.

Eligible participants must be 60 or older and meet the income criterion, which is less than or equal to 130 percent of the poverty level (Commonwealth. Dept. of Ag. Senior).

The University of Kentucky Cooperative Extension Service also conducts food preparation demonstrations at local farmers' markets to help participants learn how they can incorporate fresh produce into their daily meals.

Farm to School. This program educates Kentucky's youth about the importance of nutrition. The program connects K-12 schools to local farms with the objective of serving healthy meals in school cafeterias, thus improving student nutrition, providing exposure to agriculture, providing health and nutrition education, and supporting local and regional farmers.

The Kentucky Farm to School program is a collaborative effort of the USDA, KDA, the University of Kentucky Extension and Nutrition Education Program, the Kentucky Department of Education, the United States Department of Defense, and the Kentucky Department for Public Health. According to KDA, all schools are able to request and receive local produce if prices are comparable to out-of-state produce. There are 1,243 schools representing 174 school districts with Farm to School programs (Branscum).

Department of Education and Department for Public Health

The Kentucky Department of Education (KDE) and Kentucky Department for Public Health (KDPH) developed a partnership to coordinate school health policy and program efforts. This model works to assess the school environment, adopt a school health or wellness council, and develop an action plan. The partnership is funded through the CDC's Coordinated School Health grant and allows the partnership to provide schools, districts, local health departments, and community partners with professional development, technical assistance, data, and resources in

these three priority areas: youth risk behavior; HIV prevention; and coordinated school health programs focusing on physical activity, nutrition, and tobacco.

The grant program includes eight components:

- Health education
- Physical education
- Nutrition services
- Health services
- Counseling and social psychological services
- Healthy and safe school environment
- Family and community involvement
- Health promotion for staff (US. Centers. School).

The partnership works to implement these long-range goals:

- Goal I: To increase the number of schools, districts and communities that promote and support healthy behaviors and choices in school-age youth through CSH programs.
- Goal II: To increase the capacity of schools, districts, and communities to reduce health disparities among school-age youth at disproportionate risk for chronic diseases, HIV, sexually transmitted infections, and unintended pregnancy. (Commonwealth. Cabinet for Health and Family Services. Dept. for Public Health).

Partnership for a Fit Kentucky. The Partnership for a Fit Kentucky (PFK) is a public/private partnership that supports the Department for Public Health's Obesity Prevention Program. The focus of the program is to promote nutrition and physically active communities as well as to build healthy nutrition and physical environments in the following venues: early childhood, schools, family and communities, worksites, and health care. The program receives a wide range of support from partners such as local health departments, cooperative extension, American Heart Association, Kentucky Department of Education, Kentucky Chambers of Commerce, Foundation for a Healthy Kentucky, and Kentucky Department of Agriculture. The program also consists of an ad hoc advisory team that works to assess and select obesity prevention policies for Kentucky.

The PFK proposes the following eight policies that target the reduction of obesity throughout Kentucky:

- Increasing physical activity and physical education in schools
- Establishing a body mass index surveillance system for youth
- Supporting breastfeeding in the workplace
- Requiring standards for nutrition and physical activity in licensed child care centers
- Establishing complete streets policies, a program designed to ensure that all roadways accommodate users of any age
- Requiring menu labeling at fast food and chain restaurants
- Requiring healthy food in state agencies
- Providing worksite wellness tax credits to businesses.

In 2004, PFK held nine regional obesity forums where more than 1,300 participants provided input on community efforts to combat obesity. Participants also provided strategies to prevent and control obesity such as increasing fruit and vegetable consumption, increasing breastfeeding initiation and duration, increasing physical activity, reducing television viewing time, increasing parental involvement, and addressing other dietary concerns. Each community developed its top five priorities. The PFK used the results of the forums to develop The Kentucky Nutrition and Physical Activity State Action Plan 2005. The top five priorities were to

- provide mandatory K-12 physical education;
- increase healthy choices/develop legislative policies on vending machines;
- improve worksite wellness policies;
- provide more safe, walkable communities and bike paths; and
- provide more low-cost or free physical activity opportunities.

Support for this project was provided by the Kentucky Department for Public Health and the Council of State Governments' SCORE initiative, which is funded by the Robert Wood Johnson Foundation.

University of Kentucky

Kentucky has a comprehensive nutrition education network, with a strong infrastructure formed by county extension offices and local or district public health departments. The University of Kentucky Family and Consumer Sciences (FCS) extension works closely with partners, including Kentucky Extension Homemakers Association, Kentucky Department for Public Health, Partnership for a Fit Kentucky, Foundation for a Healthy Kentucky, Community Farm Alliance, Kentucky School Nutrition Association, and Kentucky departments of Agriculture and Education. FCS works to improve the quality of life for individuals and families in Kentucky. Educational programs currently focus on these initiatives:

- Making beneficial lifestyle choices
- Nurturing families
- Embracing life as one ages
- Securing financial stability
- Promoting healthy homes and communities
- Accessing nutritious food
- Empowering community leaders

Each program year, extension agents and paraprofessionals report the impact of their programs. During 2010-2011, FCS extension agents contacted more than 1.9 million Kentucky families. FCS extension used the following food, nutrition, and health programs to educate Kentucky families.

Expanded Food and Nutrition Education Program. This program provides education to limited-resource families with young children to enable them to plan nutritious meals on a limited budget, acquire safe food-handling practices, improve food preparation skills, and change behavior necessary to have a healthy lifestyle. This program is funded through a grant to the UK Cooperative Extension Service from the USDA's National Institute of Food and Agriculture.

Supplemental Nutrition Assistance Program Education (SNAP-Ed). The federal program operated by UK provides education to those eligible for SNAP benefits to enable them to plan nutritious meals on a limited budget, acquire safe food-handling practices, improve food preparation skills, and change behavior in order to have a healthy lifestyle. The audience of SNAP-Ed is broader than that of the Expanded Food Nutrition Education Program because it includes limited-resource individuals and families without young children. SNAP-Ed is funded through a grant from the USDA Food and Nutrition Service to the Kentucky Cabinet for Health and Family Services. The cabinet subcontracts administration of part of the SNAP-Ed funds to the UK Cooperative Extension Service.

Plate It Up Kentucky Proud. This program is a partnership project of the UK Cooperative Extension Service, KDA, and the UK School of Human Environmental Sciences. This project provides healthy recipes using Kentucky Proud products. Since 2010, approximately 107 recipes have been tested and 37 of those have been developed and published as recipe cards. In that time, 121 extension agents have given out 617,100 recipe cards at health fairs, nutrition displays, farmers' market or grocery demonstrations, and cooking schools. The recipes have also been marketed to a variety of outlets including magazines, education programs, agency websites, and Facebook (Branscum).

Taking Control of Your Diabetes. This program offered by the UK Cooperative Extension Service is an educational undertaking that reinforces diabetes management. Poorly controlled diabetes often results in a number of health complications, including heart disease, stroke, high blood pressure, kidney disease, and blindness. The curriculum is designed to help improve the quality of life for those living with the disease and contains four units: understanding diabetes, the ABCs of diabetes, nutrition for diabetes, and getting routine care. Several lessons address the American Association of Diabetes Educators self-care behaviors such as physical activity, healthy eating, monitoring of blood glucose, and providing opportunities for participants to modify lifestyle risks.

Weight – The Reality Series. The program is a UK Cooperative Extension Service 10-week behavioral weight management program for adults. The program uses behavior modification techniques and fosters changes in social and environmental factors to support normal eating and activity levels. Participants are active in designing an approach that they believe has the potential to work best for them. They participate in self-monitoring, facilitated group discussions, development of a social support network, and advocacy for healthier community environments. Program evaluation data indicate that nearly 4,000 participants completed the program during 2007 and 2008. One-third of participants (approximately 1,300 people) lost 5 percent or more of initial body weight during the program.

The UK Cooperative Extension Service also promotes physical activity or personal improvement programs.

Second Sunday. Initiated in October 2008, the Second Sunday program stresses physical activity on the particular day of the month. Initially, 70 counties closed roadways for 4 hours and invited Kentuckians to participate in physical activity. Second Sunday was proclaimed in 2009 by the Governor and the General Assembly as a day for Kentuckians to take to the “roads for

physical activity.” The event has grown to include 101 Kentucky counties and more than 21,000 citizens using 80 miles of state roadways. The goal is to sustain efforts to increase physical activity and to work with local communities to improve physical activity while promoting innovative uses of existing community infrastructure.

Get Moving Kentucky! Get Moving is an 8-week physical activity program promoted by UK Cooperative Extension Service. The program provides a structure to track physical activity and includes educational materials about the benefits of physical activity, particularly as it relates to chronic disease.

LEAP for Health. The UK extension service also promotes the Literacy, Eating and Activity for Preschoolers/Primary for Health program. The curriculum is a series of 22 lessons using storybooks to teach children ages 3-8 about staying healthy; being physically active; and eating more fruits, vegetables, low-fat dairy, and whole grains.

Small Steps to Health and Wealth. This program encourages behavior changes to improve health and personal finances. The program provides detailed descriptions of 25 steps, such as quitting smoking and reducing debt, that individuals can take to simultaneously improve their health and increase their wealth.

Building a Healthy Wealthy Future for Youth. This is the youth component of the Small Steps to Health and Wealth program and is designed to help youth understand the relationship between personal behaviors and health and financial success. The youth program is designed for students in grades 6 through 8.

Local and Regional Programs

Healthy Communities Program

The CDC’s Healthy Communities Program links local communities, via local health departments and community leaders, to national networks with a focus on preventing chronic disease. Programs at schools, work sites, health care sites, and other community settings work to reduce health risk factors that contribute to chronic diseases.

Since 2003, the Healthy Communities Program (formerly known as the Steps Program) has provided communities with funding, tools, strategies, and training for creating environmental changes to improve health. In addition to funding, the program assists in training state health departments through a 5-year National Center for Chronic Disease Prevention and Health Promotion cooperative agreement. The health departments, in turn, provide technical assistance and training on developing and implementing environmental changes to communities to focus on

- improving physical activity and nutrition;
- reducing tobacco use and exposure;
- improving and increasing access to quality care;
- eliminating racial, ethnic, and socioeconomic health disparities;
- reducing complications from and incidence of chronic diseases; and
- building capacity for communities to perform this work.

In Kentucky, supports for healthy behaviors include community gardens; complete streets, which are rights-of-way enabling safe access for all users; physical activity in schools; joint use agreements, which are agreements between government entities to share public property or facilities; and nutrition. There are coalitions in approximately 56 communities in Kentucky, including Ashland, Clay County, Bourbon County, Northern Kentucky, Rockcastle County, and Marshall County.

YMCA Programs

The Kentucky YMCA has partnered with schools and foundations to implement the Y-5210 program that promotes children eating five fruits or vegetables per day, spending less than 2 hours watching television or using computers or video games, performing an hour of physical activity daily, and drinking no sugar-sweetened beverages. The program is delivered to more than 8,000 children per day in Jefferson, Hardin, and Hopkins Counties. The YMCA also provides child care to approximately 20,000 children in Kentucky. One goal of the YMCA is to provide infrastructure in support of the sale of fresh fruits and vegetables and to provide training and support in relation to the promotion of this program.

The YMCA also convenes community partnerships at the local, state, and national levels to address critical issues in the communities. The Kentucky YMCA has partnerships with schools, community organizations, and government and has programs in 72 counties. The YMCA has partnered with state agencies and other entities to develop healthier lifestyles.

Growing Healthy Kids in Kentucky

Growing Healthy Kids in Kentucky is an annual conference that began as Lieutenant Governor Stephen L. Henry's Task Force on Nutrition and Fitness for Kentucky Children. School food service directors, dietitians and nutritionists, health advocates, registered nurses, physicians, and government officials attend the conference. The conference offers training and tools for use in communities to improve nutrition and physical activity for children and youth.

Associations and Coalitions

Foundation for a Healthy Kentucky

The Foundation for a Healthy Kentucky is a nonprofit, philanthropic organization working to address the unmet health care needs of Kentuckians. Its approach centers on developing and influencing health policy. The foundation awards grants, supports research, holds educational forums, and engages communities to improve the health and quality of life.

The foundation has two set priorities: to make public policy more responsive to the health and health care needs of Kentuckians and to improve the health of Kentucky's children by promoting the development and expansion of comprehensive community-based initiatives, including school-based programs.

The foundation's Coordinated School Health (CSH) initiative addresses health education and prevention. During a 3-year grant initiative from 2004-2006, the foundation funded 29 school districts to implement CSH components while requiring schools to collect student health data to measure the impact of increased health programming in schools. The aim is to move elements of CSH into the mainstream of school curriculum and management practices. Data are still being collected. The foundation provides technical assistance for implementing CSH to interested Kentucky school districts through an annual Coordinated School Health Institute.

Kentucky Association of Food Banks

The Kentucky Association of Food Banks provides food and services to increase the capacity of Kentucky's Feeding America food banks to end hunger. The association serves the state's 120 counties.

During the 2012 growing season, the Kentucky Association of Food Banks distributed more than 900,000 pounds of produce and served approximately 1.4 million meals. The two main programs that the Kentucky Association of Food Banks works with are the Farms to Food Banks program and the Kentucky Beef Counts program.

The Farms to Food Banks program provides fresh produce to Kentuckians in need while reducing losses for farmers. It purchases Kentucky-grown surplus and distributes it at no cost to struggling Kentuckians through the food bank network.

The Kentucky Beef Counts program was established and endorsed by the Kentucky Beef Council to provide a consistent supply of beef to people facing hunger. Participating farmers donate proceeds from the sale of beef animals to the Beef Counts program. Fifteen livestock markets across the state forward proceeds from donated beef animals to the program.

Kentucky Action for Healthy Kids

Kentucky Action for Healthy Kids is a state team of the national Action for Healthy Kids, a nonprofit and volunteer network fighting childhood obesity and undernourishment. The mission is to enhance the nutrition and physical activity opportunities in Kentucky's schools to promote student health and learning.

Kentucky Action for Healthy Kids helps school districts and schools, especially those without the resources, facilities, and expertise to

- improve the quality of food in schools,
- enhance nutrition education,
- improve physical education, and
- increase opportunities for kids to be active.

Chapter 3

Nutritional Habits and Health Outcomes

This chapter describes the results of analyses of relevant and available studies and programs that focus on the nutritional habits of Kentucky citizens and the health outcomes of those habits. The first group of studies and programs examines the co-occurrence of obesity and disease in Kentucky. The second group of studies and programs examines the relationship between nutrition and obesity.

Obesity and Disease

The co-occurrence of obesity and disease in Kentucky is consistent with national trends. One study reported that overweight and obese adults in Kentucky were more likely than those of normal weight to have diabetes, asthma, arthritis, high blood pressure, high cholesterol, and fair or poor health status. The results were strongest for obese adults. The study found that obese adults were nine times more likely than healthy weight adults to have diabetes, four times more likely to have arthritis, six times more likely to have high blood pressure, and four times more likely higher to have a fair or poor health status. The results for Kentucky were consistent with the national rates (Jenkins).

Two studies focused on specific geographical locations in Kentucky. The Appalachian counties of Kentucky were identified as belonging to a distinct regional pattern of high diabetes and obesity prevalence. A study of Clay County found a higher incidence of risk factors for cardiovascular disease and diabetes, hypertension, cigarette smoking, obesity, and physical inactivity compared to the United States overall (Abascal).

A study of manufacturing company employees in Kentucky found that obesity was associated with a higher prevalence of hypertension, high cholesterol, high blood sugar, and all risk factors for cardiovascular disease. Men had relatively more risk factors such as elevated blood pressure than women (Brehm. Prevalence).

One study found an increased risk of colon cancer among Kentuckians with a body mass index (BMI) greater than or equal to 30, particularly for women and those over age 30 (Nock).

Additionally, Kentucky was identified as one of three states, along with Tennessee and South Carolina, where smoking, being overweight and obese, and having a chronic disease explained the greatest proportion of lost total years of quality of life and lost years of life expectancy compared to all other states (Jia).

Two studies examine the relationship between obesity and mortality. A study of autopsies of Kentucky adults between the ages of 19 and 85 found a significant correlation between death attributed to heart disease and having a BMI greater than or equal to 30 (Huber).

In addition to disease, one study indicated that Kentucky patients who had experienced blunt trauma who were morbidly obese (BMI greater than or equal to 40) had significantly higher risk of mortality than normal weight patients (Christmas).

Nutrition and Obesity

Although studies regarding Kentucky are few, they suggest that there is a relationship between the quality of nutrition and the risk of obesity. A study of weight status and dietary behaviors of middle school students showed that healthy-weight students consumed more fruits, vegetables, breakfast, and milk than overweight students (Roseman). Another controlled study of obese adults showed that a behavioral intervention with a low-calorie meal plan enabled obese individuals to lose more weight than those not on a low-calorie meal plan over a 24-week period (Anderson).

A study in elementary schools in eight rural US communities in California, Mississippi, Kentucky, and South Carolina found that after adjusting for age, sex, race/ethnicity, physical activity, and state of residence, whole-grain intake was inversely associated with BMI score. Children who consumed more than one and one-half servings of whole grains were 40 percent less likely to be obese than children who consume less than one serving per day (Choumenkovitch). However, analysis of data from the same study showed that obese children were twice as likely to eat two or more servings of vegetables per day, less likely to consume whole milk, more likely to be diagnosed by a physician as obese, and less likely to talk to their parents about fruits and vegetables (Tovar).

Studies also showed a relationship between nutrition behavior counseling, nutrition, and obesity. An analysis of data from the medical records of adult patients before and after a nutrition counseling session with a registered dietitian showed significant improvements in blood sugar levels and BMI compared with a group that did not receive counseling (Gaetke). A study of obese women found that participation in a 16-week behavioral weight-loss program significantly improved diet quality and reduced the consumption of high-calorie and high-fat foods (Webber).

One study of adults in eight manufacturing companies in Kentucky showed that environmental changes such as walking paths, cafeteria and vending changes, and educational materials did not significantly reduce obesity or other biomeasures (Brehm. "Environmental").

One study of obese children from a Lexington elementary school examined the impact of an after-school program that met twice a week for 90-minute sessions of physical activities, nutrition information, and small-group sessions with pediatric psychiatry residents focusing on good choices and proper motivations in life. The results from the first year of the program indicated a slowing in the average rate of weight gain by the targeted population, but the results were not significant (Perman).

In part, Kentucky's increase in obesity and related diseases may be due to a disconnection between perceptions of health and actual health. A study in Appalachian Kentucky showed that while 75 percent of the study population was overweight or obese, less than half reported engaging in physical exercise and only 25 percent reported eating at most one serving of fruits or

vegetables in the past week; yet more than 60 percent perceived their health status as good, very good, or excellent (Ely). A study stated that obese parents attending an inner city clinic in Louisville were unable to recognize obesity in their young children, although most children were able to identify themselves as obese (Valdes).

Health care professionals also may be reluctant to address obesity with their patients. A study of patient medical charts from two community clinics in Louisville showed that despite the higher percentage of obesity in the study population than nationally, patients were given less information on weight loss (Kuppersmith). A study of health professionals working with the WIC program found that the counselors felt that the mothers they counseled did not believe their overweight children were overweight and that the mothers may have been offended when talking about weight (Chamberlin).

Chapter 4

Kentucky Pilot Projects Intended To Reduce the Health Risks of Participants

This chapter discusses two questions asked of questionnaire respondents: knowledge of past pilot projects in Kentucky that intended to reduce health risks of participants and perceptions of the need to establish a healthy nutrition pilot project that would reduce participants' health risks. The questionnaire drew a low response in terms of functioning pilot projects. Nevertheless, respondents did mention a variety of projects from educational, community-based, and other health care delivery sources. Some projects were designed for school-age participants, while others were aimed at promoting healthier lifestyle choices, dealing with screening and illness prevention projects, and promoting diabetes prevention.

Past Pilot Projects

The questionnaire asked respondents to list any past pilot projects in Kentucky that intended to reduce the health risks of participants. The projects could include assessments of total cholesterol, high-density lipoproteins, low-density lipoproteins, triglycerides, fasting blood glucose, blood pressure, heart rate, waist measurement, and weight.

Only about half of the respondents provided information relating to past pilot projects in Kentucky, which was the lowest response rate for any of the questions. Respondents provided information on a multitude of different pilot programs, but only a few of the programs were mentioned by multiple respondents.

Projects Designed for School-age Participants

Coordinated School Health Program. The Coordinated School Health initiative at the Kentucky Department of Education and the Kentucky Department for Public Health is funded by a grant from the Centers for Disease Control and Prevention Division of Adolescent and School Health. The goal of CSH is to improve health and educational outcomes of young people. The CSH program is designed to coordinate policies, programs, and activities to increase the capacity of schools, districts, and communities to promote and support healthy behaviors and choices in school-age youth. Daviess County School District was mentioned as a model for implementation of Coordinated School Health programs in school districts.

IntoFitness 4 Life. IntoFitness 4 Life is a wellness program at Shannon Johnson Elementary in the Madison County School District that promotes improved nutrition and increased physical activity for all students. The program provides healthier snack alternatives for classroom parties and allows students to explore new and healthier food choices from the school garden. The program also replaces food rewards for achievement with extra activities, including extra time on the school's tumble track. An educational component of the program teaches students and their

families to analyze nutrition labels so that they can make better choices at the grocery store. The program seeks to instill healthy habits and attitudes in students that will continue throughout their lives and be passed onto other family members (Todd).

USDA School Nutrition Pilot Project. Kentucky is in the demonstration phase of a USDA pilot program to use Medicaid data to determine eligibility for school meal assistance. Kentucky is in the top 10 states in need of free or reduced-price school meals, with 56 percent of children in Kentucky's public school system qualifying for assistance. Although the pilot project will likely raise the participation rate in the free and reduced-priced school meal program by more accurately identifying qualifying children, the principal goal of the project is to increase efficiency in administering the program. By using Medicaid information to establish assistance eligibility, school districts will be able to reduce their paperwork and greatly expedite the process of offering free or reduced-price meals to students (Hatton).

Cholesterol Health Education Concerning Kids. The Cholesterol Health Education Concerning Kids project was conducted to increase knowledge and identify barriers related to pediatric cholesterol screening in the school health units. The project coincided with the release of new universal cholesterol screening guidelines for children ages 9 to 11 (Morehead).

Media-Smart Youth. Media-Smart Youth: Eat, Think, and Be Active! is an after-school education program sponsored by the National Institutes of Health for children ages 11 to 13 that is designed to help teach them how the media can affect their nutritional and physical activity habits. The UK Cooperative Extension Service Nutrition Education Program piloted this program, focusing on the suitability of the program's implementation and its anticipated ability to improve health habits of youth (National Institutes).

YMCA TAKE 10! The YMCA of Central Kentucky provides this integrated, classroom-based physical activity program for kindergarten through 5th grade that targets curbing childhood obesity in a variety of ways, including offering safe and age-appropriate 10-minute physical activities that require no special training or equipment. These activities help children meet recommended daily physical activity requirements and develop healthy behaviors. These in-class activities are meant to complement physical education and after-school activities.

Projects Promoting Healthier Lifestyle Choices

The Heart Disease and Stroke Prevention Program. The Heart Disease and Stroke Prevention Program, also known as the Cardiovascular Health Program, receives federal funding from the CDC to prevent and control heart disease and stroke, which are the state's leading causes of death and major causes of disability. The program's goal is to work with state and local agencies to help reduce the rates of death and disability due to heart disease and stroke by promoting smoking cessation, increased physical activity, healthy eating, and other forms of primary and secondary prevention. Prevention efforts also include working with communities, schools, and worksites to raise awareness of the signs and symptoms of heart attack and stroke, educating persons on prevention and the treatment of the risk factors that cause heart disease and stroke, emphasizing the importance of calling 911, and promoting the use and placement of automated

external defibrillators. The program also implements prevention guidelines to improve quality of care and eliminate health disparities in hospitals and community health centers.

As part of the program, a care collaborative project to screen for blood pressure, blood sugar, cholesterol, and smoking is being conducted in numerous health departments, including Louisville, Magoffin County, Pike County, Montgomery County, Barren River, Buffalo Trace, Cumberland Valley, Gateway Green River, Lake Cumberland, Lincoln Trail, Northern Kentucky, and the Purchase District (Commonwealth Cabinet, Division).

Shape Up KSU. The Student Health Awareness & Prevention Evaluation Program at Kentucky State University (KSU) offers comprehensive awareness through undergraduate student screening and counseling for risk of obesity-related metabolic syndrome, which includes insulin resistance, lipid imbalance, and hypertension. The condition is usually a precursor for both cardiovascular diseases and type 2 diabetes.

Students who are found to be at risk receive free professional self-management advice from community partners in a culturally sensitive setting. Students receive counseling and assistance on making and tracking the necessary behavioral changes in their diets, physical activity, and clinical markers. Approximately 800 students have completed the screenings and follow-up services, which KSU plans to continue offering.

Body composition measurements of students and families are used to provide information on how to manage conditions. Additionally, the information is being used to develop a curriculum that combines nutrition with exercise. Nearly 1,500 students have completed the program and are being assessed. The university reports an improvement of more than 20 percent in knowledge of nutritional concepts relating to managing the condition as a result of the program (Topè).

Humana Vitality. Humana Vitality is a voluntary wellness program available to Kentucky Employee Health Plan members that offers incentives designed to encourage healthier lifestyle choices. The program was designed to reduce employee health care costs, increase productivity, reduce work days lost due to illness and injury, reduce workers' compensation and disability claims, improve employee morale, and increase employee retention.

Plan members can register, take a health assessment, and undergo a blood screening and measurements of body mass index, blood pressure, blood glucose, waist circumference, and total cholesterol. Participants are then provided with a personalized plan with recommended goals and related activities, including reaching or maintaining a healthy weight, exercising regularly, and receiving annual preventive care screenings. Humana offers virtual money for meeting plan goals that can be used to purchase movie tickets, hotel stays, sports equipment, and apparel, among other things (Commonwealth Personnel).

Strong Women Exercise Program. The Strong Women exercise program offers free classes for women age 40 and older to improve bone health, balance, flexibility, and strength. Classes are offered at local health departments, including Adair and Mason Counties (Harlow).

Medical Nutrition Therapy Program. The Medical Nutrition Therapy Program is provided through public health departments to any person in need of the service, regardless of income or insurance coverage. A registered dietitian, licensed dietitian, or certified nutritionist provides a participant with a nutritional plan that goes beyond basic nutrition counseling to include a current assessment of nutritional status and an individualized diet and activity plan that takes into consideration an individual's personal preferences, the influence of medications, current health and family health history, appropriate types of physical activity, and any eating problems. The program is provided in 104 counties.

In addition to individual counseling, the program also provides group nutrition education, including presentations to high school classes about eating disorders, grocery store tours to view healthy food choices, food demonstrations and cooking classes, or weight loss support groups (Commonwealth. Cabinet. Nutrition).

Screening and Illness Prevention Projects

Women's Heart Disease Risk Assessment. The Norton Cardiovascular Associates Office offers heart disease risk screenings, which include a total lipid profile, cholesterol screening, glucose, blood pressure, body fat analysis, and ankle-brachial index. Results from the screenings are presented by a nurse, who also provides education on heart disease risk factors, reduction of modifiable risk factors with lifestyle changes, and signs and symptoms of heart disease (Norton).

Faith Moves Mountains. Faith Moves Mountains was a community-based intervention and participatory research study hosted by Behavioral Science Department at the University of Kentucky that was implemented in partnership with 50 faith-based institutions in rural southeastern Kentucky. The purpose was to evaluate the effectiveness of a set of culturally appropriate interventions aimed at smoking cessation and increasing cancer screening among Appalachian participants (Univ. of Kentucky. Markey).

YMCA Diabetes Prevention Program. The YMCA of Central Kentucky is one of 46 Ys in 23 states participating in the YMCA's Diabetes Prevention Program, which is part of the National Diabetes Prevention Program led by the CDC. Research funded by the National Institutes of Health and the CDC shows that losing a moderate amount of weight and increasing physical activity lowers the risk of developing type 2 diabetes by 58 percent in people with prediabetes.

The YMCA's Diabetes Prevention Program consists of 1-hour classroom sessions with a trained lifestyle coach who helps participants learn about healthy eating, physical activity, and other lifestyle changes. Participants continue to meet monthly for up to a year after the conclusion of the sessions for added support in reaching their ultimate goals of reducing body weight by 7 percent and participating in 150 minutes of physical activity per week. Through lifestyle changes and modest weight reduction, a person with prediabetes can prevent or delay the onset of type 2 diabetes.

Enabling Quality Improvement for Diabetes Management. The Enabling Quality Improvement for Diabetes Management program is administered by the Kentucky Ambulatory Network, which is a primary care practice-based research network that emphasizes the

prevention and management of common health problems in Kentucky. The purpose of the program was to develop and test a systems-based approach to quality improvement of the care delivered to diabetic patients in primary care practices.

The program worked with providers to develop changes in their practice routines to streamline work and improve outcomes. Twelve practices served as a pilot group over the course of 8 months. Each participant group was asked to set attainable goals, assess their readiness for change, establish detailed plans for streamlining diabetes management, implement their plans, assess their progress, and adjust their approaches if needed. Data were collected at each practice to measure process improvements and clinical outcome improvements, based on standardized medical record reviews and feedback from physicians and staff. Providers received monetary compensation and continuing medical education credit (Univ. of Kentucky. Medical).

The Need To Establish a Healthy Nutrition Pilot Project

The questionnaire asked respondents if they believed there is a need to establish a healthy nutrition pilot project that would reduce the health risks of participants.

The overwhelming majority of respondents answered affirmatively. Many respondents noted that poor nutrition contributed to Kentucky's high rates of both adult and childhood obesity and increased occurrences of diabetes, asthma, heart disease, and other chronic diseases relative to other states. Many of the responses included specific recommendations for any prospective healthy nutrition pilot projects that reflect the lessons learned from the multitude of nutrition pilot projects that have already been implemented in the Commonwealth. Each of the most prevalent recommendations for future health nutrition pilot projects is discussed below.

Strategic Implementation

Numerous respondents expressed concern that many of the past nutrition-related pilot projects had failed in some aspect of implementation that could have allowed a successful program to be accessed by a broader audience. For a pilot project to give rise to a permanent statewide or regional program that positively impacts nutritional decisions, it must be implemented in a way that is scalable and sustainable. Pilot projects should seek to address specific shortcomings of current policy and have clearly articulated goals by which the success of the pilot project can be measured. The scope of the pilot project, either limited by geography, number of participants, or both, must be carefully chosen to ensure the project could be successfully expanded.

Reliable Funding

Closely related to the subject of project sustainability was the importance of the idea that reliable funding for pilot projects is available. Additionally, for successful pilot projects to have meaningful impact, money must be made available to expand the project into long-term or permanent programs.

Robust Analysis and Reporting of Results

Several respondents stated that information was limited on the impact and effectiveness of ongoing and past nutrition pilot projects. Results regarding the effectiveness of any new pilot project must be diligently analyzed and reported so that the lessons learned from the project can be disseminated to stakeholders across the state. Successful pilot projects should serve as models for future programs, while less successful projects or aspects of projects should be reconsidered or discontinued in future programs. It is difficult to judge which projects or aspects of projects should be expanded without proper reporting and publication of results of the projects that have already been tried.

Chapter 5

Regulatory and Policy Change Suggestions

This chapter discusses some of the prevalent issues noted in responses to the questionnaire question that asked what statutory or regulatory policy changes people would like to see related to improving the health and nutrition of Kentucky citizens. Overall, respondents offered a number of statutory policy change suggestions. Predominant response categories discussed in the chapter include school-related nutrition, nutrition as a facet of public assistance programs, nutrition content labeling on restaurant menus, taxing sugary drinks, and creating food policy councils.

Questionnaire Results

Because the question was open-ended, staff created a scoring system to quantify the responses. Staff reviewed the responses and subsequently created a list of response categories and noted each time the response was made. The scoring system resulted in the categories listed in Table 5.1 below. For the most part, respondents to the question about recommendations for statutory or regulatory policy changes seemed to believe more should be done in schools to offer nutritious foods to students, to educate them on proper nutrition, or to restrict or limit certain foods. Suggestions also were made in other broad categories as well, including requiring nutritional advice to be given those receiving public assistance such as the Supplemental Nutrition Assistance Program and WIC, requiring food nutrition labeling on restaurant menus, taxing sugary drinks and beverages, and establishing statewide food policy councils. In all, staff received 88 separate statutory or policy suggestions.

Table 5.1
Suggested Statutory or Regulatory Policy Change Categories

Response Category	Instances Mentioned
Daycare centers – physical and nutrition standards, instruction	4
Education – citizen education on nutrition, exercise	1
– nutrition education for health professionals	1
Exercise availability, gym discounts	1
“Food deserts” – mitigation efforts to deal with food accessibility	2
Food policy council	3
Health insurance coverage – obesity diagnosis, treatment	1
Health insurance rewards for non-smoking, nutrition, and exercise	1
Local foods distribution, collaborations	2
Medical – bolster doctor availability	1
Medical – nurse practitioner barriers, strengthen role of dietitians	2
Nutrition content labeling at restaurants	6
Personal medical – obesity diagnosis, accessibility, diabetes programs, doctor accessibility, limitations on coverage	2
Procurement – school food service, governments, ease of	1
Public assistance – SNAP, WIC nutrition instruction, requirements, electronic benefits transfer card flexibility	8
Public programs, state – funding increase	1
Safe streets – sidewalks	4
Schools – BMI data collections	2
– food preparation instruction	1
– gardens, farm-to-school programs	2
– health councils	2
– health education	1
– life skills instruction	1
– limitations on certain foods, beverages	4
– nutrition instruction	5
– nutrition standards for after-school sites	1
– nutritious food availability	8
– physical education opportunities, instruction	8
Smoking – smoke-free locations, cigarette tax increase	4
State agencies – healthy food choices	1
Tax – sugary drinks	4
Workplace breastfeeding	1
Workplace wellness – tax credits	2
Total	88

School Nutrition Policy Comments

According to the Legislative Research Commission's *2011 Report of the Task Force on Childhood Obesity*, Kentucky is one of 20 states with stricter school nutrition standards than those issued by the United States Department of Agriculture. Regardless of how the state ranks, respondents noted that there is still work to be done in the area of school nutrition. Respondents offered nutrition-related suggestions for schools and day care centers. For example, respondents suggested policies that expand the availability of fruits, vegetables, and water in schools; making healthy food options available at all school-related concessions and intramural sports; and a ban on food rewards in public schools. One respondent suggested that the public school curriculum should include teaching of proper nutrition and offering physical activity for all grade levels.

Respondents also offered suggestions on other school-related issues, primarily physical education opportunities, BMI data collection, establishment of school health councils, and life skills instruction.

The questionnaire responses seemed to mirror a growing concern nationwide regarding the eating habits of students in schools and the idea of making nutritious foods available in school cafeterias. In addition, some respondents wanted to see nutrition education offered in school settings. The school nutrition policy suggestions also were in line with recommendations presented by the 2011 Task Force on Childhood Obesity.

Existing School Nutrition Standards

Specific school nutrition standards are in place. School districts must adhere to school nutrition standards established at the federal and the state levels.

At the federal level, the Healthy, Hunger-Free Kids Act aims to improve nutrition and focuses on reducing childhood obesity. The federal law gives the USDA the authority to set nutrition standards for foods sold in schools during the school day, provides additional funding to schools that meet updated nutritional standards for federally subsidized lunches, helps communities establish local farm-to-school networks and create school gardens, and ensures that more local foods are used in school settings. It also builds on USDA's work to improve the nutritional quality of commodity foods that schools receive from the agency and use in breakfast and lunch programs; expands access to drinking water in schools, particularly during meal times; sets basic standards for school wellness policies, including goals for nutrition promotion, nutrition education, and physical activity; and promotes nutrition and wellness in child care settings.

The Kentucky Department of Education Division of School and Community Nutrition provides technical assistance, training, and reimbursement to 1,032 sponsors of the National School Lunch and National School Breakfast Programs, the School Breakfast Program, Special Milk Program, Child and Adult Care Food Program, and the Summer Food Service Program for Children. The NSLP provides lunches to approximately 480,000 students every day in public, private, and parochial schools and residential child care institutions in the state (Commonwealth Dept. of Ed. School).

State Nutrition Requirements

Kentucky law also addresses school nutrition, particularly school food programs (KRS 158.850-158.856). The statutes require each school district to appoint a food service director who is responsible for the management and oversight of the district's food service program. School food service directors are to assess school nutrition in each district, including food and beverage nutritional value; they must also issue a written report to parents, the local school board, and school-based decision making councils that includes the nutritional values of listed items and recommendations for improvement. The Kentucky Board of Education must develop an assessment tool for each school district to evaluate its physical activity environment. The evaluation must be completed annually and released to the public at the same time as the nutrition report.

In addition, state law requires nutritional standards for competitive food sales in schools. A "competitive food" is defined as "any food or beverage item sold in competition with the National School Breakfast and National School Lunch programs," but does not include any food or beverage sold à la carte in the cafeteria (KRS 158.854).

Other School Food Programs

In addition to the National School Lunch and School Breakfast Programs in the state, the Kentucky Department of Education oversees the Child and Adult Care Food Program, which provides nutritious meals to participants enrolled in child care centers, day care homes, and adult care centers; the Family Day Care Home Program, a component of the Child and Adult Care Food Program; and the Summer Food Service Program, which provides meals when school is not in session; and the Fresh Fruit and Vegetable Program, a program providing free fresh fruits and vegetables to students in participating elementary schools during the school day.

Public Assistance Comments

Questionnaire respondents also saw a need to revise some of the nutrition requirements in two federal public assistance programs administered by states: SNAP and WIC. In part, some respondents suggested making nutrition and nutrition education a more significant component of SNAP. Respondents suggested placing greater flexibility to allow SNAP and WIC recipients to buy fruits and vegetables; organizing SNAP similar to WIC with health screenings, nutrition education, and restrictions on low-nutrient foods; and establishing incentives for grocers to provide fresh fruits and vegetables.

The WIC program seemingly puts greater emphasis on proper nutrition than does SNAP. According to the USDA, which administers both WIC and SNAP at the federal level, nutrition education is the program benefit that sets WIC apart from the other Food and Nutrition Service nutrition assistance programs. SNAP does have an optional nutrition component, SNAP Nutrition Education, or SNAP-Ed for short.

Other Suggestions

Nutrition Content Labeling

Nutrition content labeling on restaurant menus may come to fruition on a wide-scale basis. The Patient Protection and Affordable Care Act of 2010 requires restaurants and similar retail food establishments with 20 or more locations to list calorie content information.

According to the federal Food and Drug Administration, other nutrient information, including total calories, fat, saturated fat, cholesterol, sodium, total carbohydrates, sugars, fiber, and total protein, would have to be made available in writing on request. The law also affects some vending machine operators.

Taxes on Sugary Drinks

Some respondents also suggested taxing sugary drinks. According to the National Conference of State Legislatures, some states have considered fiscal options to encourage healthy lifestyles, including enacting or increasing taxes on foods and beverages that have minimal nutritional value to discourage their consumption or raise revenue. Legislation to impose a tax or fee or remove a tax exemption for soft drinks or sugary beverages was considered, but not enacted, in 2011 in California, Hawaii, Illinois, Mississippi, Oregon, Rhode Island, Texas, Utah, West Virginia, and Vermont (Natl. Conference).

Food Policy Councils

Some respondents suggested creating a statewide food policy council. Food policy councils address concerns such as hunger, nutrition, access, community development, and urban agriculture opportunities, as well as grower-related issues including direct marketing opportunities.

One respondent indicated that organizations, governments, and universities are attempting to research and address health concerns of Kentuckians, but the efforts are occurring in isolation. A statewide food policy council could work collaboratively through multiple sectors of the food system to propose solutions that support farmers, enhance local economies, and reduce diet-related health conditions such as diabetes and heart disease.

Another respondent listed some potential goals of a statewide food policy council that included helping communities complete food assessments; establishing priorities and a strategic plan for strengthening food systems; identifying opportunities to fill gaps in areas such as food distribution and processing; increasing food security for communities; expanding food production and demand to increase access to foods and to support food entrepreneurs; and coordinating development of funding proposals to strengthen food systems.

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Appendix

House Bill 550 Nutrition Study Questionnaire

Your Name:

Agency/Affiliation:

Position/Title:

Contact phone/email:

1. List any current or past programs that you are aware of in Kentucky that address the health and nutrition of the state's residents. This may include programs offered by your agency/organization or others. For each program, please include the name of the program, the agency or organization responsible for the program, and the lead contact for the program.

2. Please list any current or past studies you are aware of that address the health and nutrition of Kentucky residents. For each, please list the title, agency/university conducting the study, and the lead author of the study.

3. Please list any current or past pilot projects in Kentucky that intend to reduce the health risks of participants. Please include the agency/organization conducting the pilot project and a contact person for the project.

Assessments may include

total cholesterol

HDL

LDL

triglycerides

fasting blood glucose

blood pressure

heart rate

waist measurement

weight

4. In your opinion, is there a need to establish a healthy nutrition pilot project that would reduce the health risks of participants? Why or why not?

5. What statutory or regulatory policy changes would you like to see related to improving the health and nutrition of Kentucky citizens?

