Issue Brief

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Policy Considerations to Address Chronic Disease in Kentucky

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BACKGROUND

It is widely established that lifestyle behaviors play an important role in preventing chronic disease.[1,2,3,4] Kentucky consistently ranks low among other states for lifestyle behaviors, including nutrition, physical activity and exercise, and fruit and vegetable consumption. In 2021, Kentucky was ranked as the least healthy state across all four measures.[5] Kentucky also recently ranked in the bottom eight states for preventable chronic diseases such as cardiovascular disease, chronic kidney disease, and diabetes.[5,6]

As is typical across the United States, there are disparities within Kentucky in the prevalence of chronic disease. In particular, the Appalachian region of Kentucky has higher rates of cardiovascular disease, chronic kidney disease, and diabetes compared to the rest of the state.[7] Rates of these chronic diseases are also higher for Black and multi-racial Kentuckians.[8,9] Disparities in rates of chronic disease are affected by a lack of access to nutritious foods and a lack of infrastructure to support physical activity (such as sidewalks, bike paths, and parks).[10] In rural environments, this can also be affected by having fewer resources in an area, including less availability of public funding.[11] Socioeconomic status and structural racism also contribute to a lack of access to resources due to disparities in education quality, health insurance, culturally appropriate nutrition recommendations, and access to safe and affordable housing and reliable transportation.[12]

Chronic disease places a burden on the healthcare budget for Kentucky. Heart failure is estimated to cost Medicaid $29,271-$51,937 per beneficiary per year, while diabetes is estimated at $3,219-$4,674 per beneficiary per year.[13] With 1.2 million Medicaid beneficiaries in Kentucky, preventative healthcare presents an opportunity for large cost savings.[14] It is estimated that by investing $10 per person per year in chronic disease prevention efforts, Kentucky could save $248 million dollars in five years (a return on investment of 6 to 1).[15] While some factors influencing chronic disease are beyond an individual's control, behavioral factors may be modifiable.[1,2,3,4] This presents an opportunity to improve chronic disease outcomes by addressing behavioral factors through policy interventions.

This brief describes selected policy interventions designed to address chronic disease, including the outcomes of the interventions and their potential impact on the lives of Kentuckians.

SCHOOL-BASED INTERVENTIONS

School-based nutrition and physical activity programs designed to improve health outcomes have been implemented across Kentucky. Children spend an average of 6 hours per day and 180 days per year in school, allowing ample opportunities for intervention.[16] School-based interventions tend to focus on nutrition education, increasing physical activity, improving the healthiness of school meals, and parental and community outreach. For instance, in 2011-2012, several programs were implemented in four Kentucky elementary schools with the purpose of promoting healthy eating habits

and physical activity. An evaluation of these programs found that students significantly increased physical activity and improved nutrition habits.[17]

Table 1 provides a summary of selected school-based interventions that have been implemented in Kentucky, as well as the results of related evaluations. The following programs have been selected because research about outcomes is available. This table is not inclusive of all school-based interventions that have been implemented in Kentucky.

Table 1: Summary of Selected School-Based Interventions in Kentucky

Intervention	Description	Target Population	Implementation Time Period	Results
CHANGE: Creating Healthy, Active and Nurturing Growing-Up Environments	Weekly nutrition curriculum with 5-2-1 messaging* healthier school meals, and community and parent outreach	Elementary school students	2008-2009; 24 months	Increased fruit/vegetable consumption; reduced intake of high glycemic foods[18]
HEROES: Healthy, Energetic, Ready, Outstanding, Enthusiastic Schools	Nutrition curriculum, increased physical activity in schools, healthier school meals, parent, and community involvement	Elementary, middle, and high school students	2011-2012; 18 months	Decreased the percent of children that were overweight;, increased healthy food intake; increased physical activity[19]
Farm-to-Fork	Provides free and nutritious meals made with local produce	College students	2017-2018; 3 semesters	Increased healthy food consumption[20]

*Note: The 5-2-1 messaging promotes at least 5 servings of fruits and vegetables/day, no more than 2 hours of television or other screen time/day, and at least 1 hour of physical activity/day.

There is an opportunity for Kentucky to implement additional evidence-based models such as the United States Department of Agriculture's Team Nutrition Curriculum, the Center for Disease Control and Prevention's Whole School, Whole Community, and Whole Child Model, and the Food and Drug Administration's Health Educator's Nutrition Toolkit. These models have the potential to increase healthy food consumption, promote physical activity, and improve overall health outcomes.

INTERVENTIONS TO ADDRESS RACIAL DISPARITIES

While interventions specifically aimed at reducing racial disparities in chronic disease prevalence and outcomes among Kentuckians have been developed, their effects have not yet been studied. A national-level review of interventions to address higher rates of chronic disease in African-Americans found that nutrition education and increasing access to healthy foods in targeted geographic areas successfully improved health outcomes by reducing BMI, increasing fruit and vegetable consumption, and changing purchasing behavior (increased purchases of nutritious foods and decreased purchases of unhealthy foods).[21]

In West Louisville, an area of Jefferson County with a large Black population, the prevalence of diabetes is about 20% compared to 10-12% in East Louisville, an affluent area of the county.[22] Lack of access to and high prices of healthy food have been identified as barriers to consumption.[23] Multiple organizations are working to increase access to healthy foods in West Louisville. For instance, New Roots provides access to bags of locally grown, organic produce in food deserts across Louisville on a sliding fee scale. The Louisville Community Grocery is working to establish an affordable, cooperative grocery store in the food desert of Louisville. Black Market and Garden Girl Foods have also established sources of healthy food for purchase. Finally, Louisville Grows teaches urban gardening to neighborhoods in low-income areas of Louisville. The results of this work could contribute to decreases in health disparities by providing increased access to nutritious foods.

STORE-BASED INTERVENTIONS

Store-based interventions that address food choice behaviors at their source have been implemented across Kentucky. Store-based interventions can be effective because they address the root cause of food access and initiate a subconscious change for a population by altering the environment.[24]

Table 2 provides a summary of selected store-based interventions implemented in Kentucky, as well as the results of studies of these interventions.

Table 2: Summary of Store-Based Interventions in Kentucky

Intervention	Description	Target Population	Implementation Time Period	Results
Online Grocery Store Pilot	Increased food access through an online store	Rural and urban low-income adults across seven counties in Kentucky, Maryland, and North Carolina	2021; 4 weeks	Increased fruit/vegetable consumption[25]
"Shelf-Wobblers"	Installed "shelf-wobblers" across five gas stations with healthy snacks and drinks	Appalachian residents	2020-2021; 6 months	Increased sales of healthy items (high-protein snacks, low-fat carbohydrate snacks, meal replacement snacks, no-calorie beverages)[26]
Healthy2Go	County store transformation project in which ten stores received training and assistance to increase healthy food availability	Appalachian residents	2013-2014; 18 months	Increased the frequency of healthy food consumption[27]

POLICY OPPORTUNITIES

This research demonstrates the potential of policy and program interventions to address high rates of chronic disease in Kentucky. While Kentucky remains among the worst states for preventable chronic disease, adopting policies that have shown success in other states has the potential to reduce the high rate of chronic disease and improve the quantity and quality of life of Kentuckians.

This section examines the potential impact of four policy interventions that Kentucky could consider implementing to address chronic disease. To implement any of these policies, legislation and funding, or a combination of both, would be required as would monitoring and evaluation to ensure effectiveness.

Veggie Rx

Veggie Rx allows medical professionals to "prescribe" fruits and vegetables to patients to prevent and treat chronic diseases. States such as California, Oregon, Ohio, and Illinois have implemented Veggie Rx with slightly different approaches, though all primarily focus on low-income individuals. Typically, patients are provided weekly vouchers ranging from $10-$50 that can be used at farmers' markets, grocery stores, and mobile markets.[28] Some states also offer transportation assistance to grocery stores or farmers' markets to minimize barriers to access. Evaluations of Veggie Rx have found a significant increase in consumption of fruits and vegetables and a significant decrease in BMI and HbA1C (a measure for type 2 diabetes control).[29] One study of Veggie Rx that was implemented in a low-income area of upstate New York found a significant improvement in BMI among participants.[30]

Soda and Sugar-Sweetened Beverage Tax

The goal of a soda and sugar-sweetened beverage tax is to discourage the purchase and intake of these beverages, which are associated with poor health outcomes. Research has found significant decreases in soda consumption with the implementation of soda taxes. A minimum tax level of 8% has been recommended to observe decreases in soda consumption.[31] One study estimated the tax rates needed to reduce added sugar intake levels to the amount recommended by the American Heart Association (a maximum of 6-9 teaspoons of added sugar consumed per day). The findings led to a recommendation of jointly taxing sugar and high fructose corn syrup at the rate of 24 to 31 cents per pound in all foods. [32]

In 2006, New York City implemented several regulations to decrease soda consumption, including a soda tax, a restriction on the use of Supplemental Nutrition Assistance Program (SNAP) benefits on soda, and a cap on sugary drink portion sizes in food service establishments. These measures were associated with a 35% and 27% decrease in the consumption of one or more sugary drinks per day among New York City adults and public high school students, respectively.[33] A similar intervention was implemented in Berkeley, California, in 2015 with a tax of one cent per ounce on soda or sugar-sweetened beverages. A study conducted one year after implementation showed that sales of the taxed sugar-sweetened beverages decreased, while sales of untaxed healthier beverages increased; the effects were consistent in all areas regardless of income level (including affluent areas).[34]

Blue Zones

Blue Zones are areas of the world with exceptionally long average life expectancies and low rates of chronic disease. A team of researchers studied these zones and identified nine common lifestyle characteristics that may contribute to low rates of morbidity and mortality (see the box to the right).[35] The Blue Zones Project is an organization that partners with local public health groups to provide extensive assistance in establishing these lifestyle characteristics in local communities. The project typically lasts three to five years and has traditionally been funded by either multiple private community sponsors, public funders such as the local health district, or public-private partnerships.[36] The Blue Zones Project is currently in 51 communities in North America, impacting more than 3.4 million people.[37]

Common Lifestyle Characteristics of Blue Zones

- Engaging in regular natural physical movement, such as walking or active jobs
- Eating a large proportion of food from plant sources and decreasing animal food intake
- Moderate alcohol consumption of at most 1-2 drinks per day
- Eating only until 80% full
- Belonging to a faith-based community
- Spending time with loved ones
- Having a close social group
- Having a sense of life purpose
- Managing stress

Current research on the Blue Zones Project demonstrates some success in improving health outcomes. Klamath Falls, a rural community of 20,000 people in Oregon, implemented the Blue Zones Project over three years (2015-2018), with 20 policies to address the built environment (e.g., homes, buildings, streets, and infrastructure), the food system, and tobacco use. Some other initiatives included an online farmers' market that accepted SNAP and reopening a shuttered grocery store.[38] In 2012, Beach Cities, California, implemented the Blue Zones Project with initiatives for mindfulness community groups, biking and walking policies, curated "healthy choices" in grocery stores, and smoking bans. A study showed that trends in cardiac risk factors such as obesity, smoking, diabetes, and hypertension significantly decreased after these initiatives.[39]

Required Nutrition Education in Schools

School meals model healthy eating behaviors for students and potentially translate to better eating habits outside of school. The Kentucky Department of Education (KDE) already has a school and community-based nutrition program that provides free or low-cost meals to low-income students during both the academic year and the summer. These meals follow the federally regulated nutrition guidelines for meal standards.[40]

In addition to providing meals, nutrition education is another approach that is currently improving health outcomes in some Kentucky communities.[17,18,19] While nutrition education has shown positive results, it is not a widespread practice, and schools have minimal incentive to implement such programs due to lack of funding and the effort involved with changing and adding to the current curriculum.

There is an opportunity for KDE to implement additional nutrition initiatives that could positively influence food habits among students. For instance, the United States Department of Agriculture (USDA) has a publicly available nutrition curriculum called "Team Nutrition" that could be included in KDE's school and community nutrition program standards.[41] One study comparing lunch food choices at 2,489 elementary schools showed students at schools participating in Team Nutrition were significantly more likely to have healthier lunches than students at schools that did not participate.[42]

Further, research on the effect of Team Nutrition has found decreases in BMI for overweight and obese students, increases in fruit and vegetable consumption, and decreases in unhealthy snack consumption.[43]

NEXT STEPS

This policy brief presents an opportunity for decision and policymakers to better understand possible strategies to decrease the burden and expense of chronic disease in Kentucky. Any of these policy options could drastically improve the rates of chronic disease and the quality of life of Kentuckians.

There are opportunities for targeted outreach to ensure individuals are aware of and have access to healthy food options and other healthy lifestyle changes. Research is needed to assess patterns of policy changes and program implementation and the subsequent impact on outcomes for individuals in Kentucky. KDE, CHFS, and the Kentucky Department of Medicaid Services can leverage ongoing partnerships with university researchers in Kentucky to study the effects of potential policy changes on individuals and families, and communities across the state.

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