KENTUCKY

State Health Improvement Plan 2017 - 2022

Kentucky Public Health

Prevent. Promote. Protect.

Acknowledgements

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Executive Summary

In an effort to overcome the health problems that ail the commonwealth, the Kentucky Department for Public Health performed a State Health Assessment. This report evaluated available data on target areas of concern in our state, and was presented at "Planning with Partners to Improve Kentucky's Health," a symposium of numerous stakeholders across multiple disciplines, on March 22, 2017. During this symposium, the stakeholders identified focus areas that need attention to improve health outcomes in Kentuckians. Using the State Health Assessment data, the group chose the following focus areas for Kentucky to target over the next five years:

- Substance Use Disorder
- Smoking
- Obesity
- Adverse Childhood Experiences
- Integration to Health Access

Also of primary concern were the *fabric issues*, or topics that are deeply intertwined with each of the aforementioned focus areas. The fabric issues include:

- Data Collection and Analysis
- Health in All Policies
- Economic and Community Engagement/Development
- Environmental Health
- Mental Health

Workgroups composed of health leaders from across the state and multiple areas of healthcare have met to evaluate the five focus areas in greater depth and contributed to the production of this document. Goals, with strategies and measurable outcomes, are presented here to guide the work of all interested Kentuckians over the next five years. Working as a team of citizens, we can begin to reverse the years of poor health outcomes and focus on a better atmosphere for our future.

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Mission and Vision Statements

Mission Statement
To improve the health and safety of people in Kentucky through Prevention, Promotion and Protection.

Mission Statement
To deliver quality services that enhance the health, safety, and wellbeing of all people in the Commonwealth of Kentucky.

Vision Statement
To become a recognized national leader in state-level health and human services through continuous quality improvement and accountability by:

- Improving health and human services delivery through quality customer service
- Promoting individual self-sufficiency and community sustainability for the betterment of vulnerable populations
- Fostering higher health awareness through education and public information that engages all individuals and communities
- Enhancing use of technology to increase service efficiency and effectiveness
- Educating, empowering, and deploying a highly skilled diverse workforce
- Enhancing business practices to maximize resources.

Kentucky at a Glance

Kentucky, known as the "Bluegrass State" for the deep hue of its pasturelands, is most notable for its rich coalfields, fast racehorses, fine bourbon, and superior collegiate basketball. The state, because of its fertile lands and streams, was a game territory for Native Americans prior to being settled by Europeans in the early 1700s. Kentucky history and culture is richly adorned with the pioneer spirit, which may be traced back to the great Daniel Boone.

Kentucky is home to the nation's greatest length of contiguous navigable waterways, the nation's largest cave system, and two of the largest man-made lakes east of the Mississippi. Kentucky is the nation's leader in bourbon production and the state is also a leading producer of cattle, burley tobacco, coal, automobile parts, and satellites.

Kentucky is proud of its heritage as a pioneer in health care. In 1925, Frontier Nursing Service (now University) was established in Hyden, Kentucky as the national birthplace of midwifery and family nursing training. In 1974, the first Women, Infants and Children (WIC) clinic in the country was opened in Pineville. Moreover, Kentucky is home to Dr. Joseph N. McCormack, Kentucky Public Health Commissioner from 1878 to 1919 and one of the founding fathers and early presidents of the Association of State and Territorial Health Officers (ASTHO).

Demographics

- Population: 4,339,376 (26th among all states)
- Less diversity by race/ethnicity than other state:
  - White – 87.8%
  - Black – 7.8%
  - Hispanic or Latino – 3.1%
  - Asian, Hawaiian, Pacific Islander – 1.2%
- The current population in Kentucky has grown 7.4% in the last 10 years. The white population has increased by 6% while the black population has increased 14% in the last 10 years.[1]
- In the 2010 census, 58% of Kentucky's population lived in cities, up from 55.8% noted in the 2000 census.[2]

[1] 2010 Census Results, Kentucky. United States Census Bureau.
[2] Decennial Census, United States Census Bureau.

Economics

- Fifth poorest state in the nation (median household income):[1]
    - Kentucky percentage living below the poverty level – 18.5%
    - US percentage living below the poverty level – 14.3%
- 25% of children in Kentucky live in poverty.[2]
- The average household income in Kentucky is $42,387 (2015).[1]
- Kentucky's unemployment rate is 5.1%, compared to the national average of 4.4%.[3]
- 96 of Kentucky's 120 counties experienced an increase in their unemployment rate (2017).

[1] US Census Bureau, "American FactFinder Results". *Factfinder2.census.gov.* Retrieved 28 July 2017.
[2] US Census Bureau, 2007-2011 American Community Survey.
[3] US Bureau of Labor Statistics. Local Area Unemployment Statistics.

Housing

- 11 per 10,000 households (4,538 people) in Kentucky are homeless family households – either sleeping outside, sleeping in emergency shelters or staying in transitional housing programs.[1]
- Nationally, 17.7 families per 10,000 households are homeless.[1]

[1] National Alliance to End Homelessness. Homelessness Research Institute. The State of Homelessness in America 2016.

Aging

- In 2010, there were 829,193 persons aged 60 and older in the commonwealth, comprising 18.8% of the total population. This is projected to increase to 25.6% by 2030. [1]
- Kentucky ranks 50th in health outcomes for seniors.[2]

[1] Kentucky Institute for Aging. The State of Aging 2015 Report of the Institute of Aging.
[2] United Health Foundation. *America's Health Rankings Senior Report 2017.*

Disability

- As of 2012, 16.9% of Kentuckians living at home qualify as disabled.[1]
- The largest percentage of Kentuckians with disabilities have a cognitive disability among both employed and unemployed individuals.[2]
- Kentucky ranks fourth in the nation for persons ages 65 and over with a disability.[3]

[1] Kraus, Lewis. (2017). 2016 Disability Statistics Annual report. Durham, NH: University of New Hampshire.
[2] Cornell University. Disability Statistics – 2015 Disability Status Report Kentucky.
[3] Kentucky Institute for Aging. The State of Aging 2015 Report of the Institute of Aging.

Educational Achievement

- In 2016, only 9.3% of Kentuckians had achieved an advanced college degree.
- Only 22% of Kentuckians have a bachelor's degree.
- At least 23% of Kentuckians have had some college credits.
- 13.5% of all Kentuckians have not graduated from high school.[1]
- In 2013, the Kentucky legislature amended KRS 159.010, to raise the compulsory school attendance age to 18. Rolling implementation has been ongoing and will be in effect in all districts in 2017. It is expected that this legislation will increase the state's high school graduation rate.

[1] US Census Bureau. *Factfinder.census.gov.* 2012-2016 American Community Survey 5-Year Estimates.

Access to Healthcare

- Kentucky's uninsured rate is 7.3%, while the national average of uninsured persons per state is 10.8%.[1]
- Approximately, 30% of Kentuckians are covered by Medicaid.
- There were an estimated 120.6 primary care physicians for every 100,000 Kentuckians in 2017.[2]

[1] US Census Bureau. *Health Insurance Coverage in the United States: 2016.*
[2] American Association of Medical Colleges. *2015 State Physician Workforce Data Book.*

Maternal and Child Health

- From 2006 to 2016, the infant mortality rate in Kentucky declined from 7.8 to 6.3 per 1,000 live births.[1, 2] The national rate was 5.9 in 2015.[2]
- In 2015, the infant mortality rate among black infants (10.8 per 1,000 live births) was nearly twice the infant mortality rate of white infants (6.6 per 1,000 live births).[3]
- Neonatal abstinence syndrome (NAS) has increased from 179 cases in 2006 to 1,092 in 2015, a more than six-fold increase.[2]
- The percent of Kentucky women who smoked during pregnancy has declined from 26.1% to 19.5% (2000 to 2015).[4, 5] However, this is more than double the 2014 US rate of 8.4%.
- Kentucky ranks 43rd in the nation for obesity among high school students in 2015.[4]

[1] Kentucky Office of Vital Statistics, Death Certificate and Birth Certificate Files, 2006 – 2016. *(Note: 2016 numbers are preliminary and may change).*

[2] Centers for Disease Control and Prevention. National Center for Health Statistics. Infant Mortality Rates by State.

[3] Kentucky Injury Prevention Research Center, 2017. Data source: Kentucky Inpatient Hospitalization Claims Files. Cabinet of Health and Family Services. Office of Health Policy.

[4] Infant Mortality. Annie E. Casey Foundation. KIDS COUNT data center. Infant mortality by race.

[5] Trust for America's Health. *The State of Obesity: Better Policies for a Healthier America.* Released August 2017.

Access to Food and Food Insecurity

- 15.8% of Kentucky households, or 399,590 individuals report food insecurity – defined by the US Department of Agriculture as a measure of lack of access, at times, to enough food for an active, healthy life for all household members.[1,2]
- 20.0% of Kentucky children are food insecure (202,050 children).[2]
- 11 Kentucky counties have childhood food insecurity rates of 30% or higher.[1]

[1] Economic Research Service/USDA. *Household Food Security in the United States in 2016, ERR-237.*

[2] Feeding America. *2017 Map the Meal Gap: Highlights of Findings for Overall and Child Food Insecurity.* Retrieved on Nov 2018 http://map.feedingamerica.org/county/2015/child/kentucky.

Successes with Improving Health

This plan focuses on improving the health of Kentucky and thus areas for improvement, but we would be remiss if the report did not mention a few of our many successes. More details are provided in the section, "Focus Areas for Improving Health of Kentuckians." For example:

- The legislature authorized harm reduction syringe exchange programs with local approval by boards of health and local government to curb the spread of associated infectious diseases.
- As of May 2017, over 50% of Kentucky students attend tobacco free school districts.
- Kentucky has 52 communities with adopted pedestrian and bicycle plans, 63 communities working on Safe Routes to Schools and 17 communities designated as Trail Towns.
- As of August 2017, 90 elementary schools in 28 districts have begun teaching about drug, alcohol and tobacco to their students.
- Kentucky has significantly increased the number of preventive screenings (i.e., dental visits, cervical cancer, breast cancer, colorectal cancer) performed among Medicaid enrollees.

Challenges with Health Behaviors and Health Outcomes

Despite ongoing efforts, Kentucky's health rankings have changed little over the last 16 years according to America's Health Rankings (Figure 1). The state has ranked 40th or below in America's Health Rankings for 25 of the last 26 years; in 2017, Kentucky hovered at 42nd for overall health ranking. In the area of health outcomes, Kentucky ranks high in cancer deaths, high for preventable hospitalizations, and high in cases of acute hepatitis C infection (Table 1). Changing the deeply ingrained health culture to one that emphasizes preventive care has been a challenge; however, progress has been steadily achieved.

The 2016 Kentucky Behavioral Risk Factor Surveillance System (KyBRFS) demonstrates the following:

- 24.5% of adults are current smokers, which ranks 49th overall. The national average is 17.5%.
- 19.5% of mothers smoked during their pregnancy, a decline from 26.1% in 2000. In 2014, the national average was 8.4%.
- 29.8% of adults report physical inactivity, which is 6.7% greater than the national average.
- Kentuckians report having experienced 4.6 days of poor mental health in the last 30 days, which is 0.8 days (i.e., < 15 hours/30 days) greater than the national average.

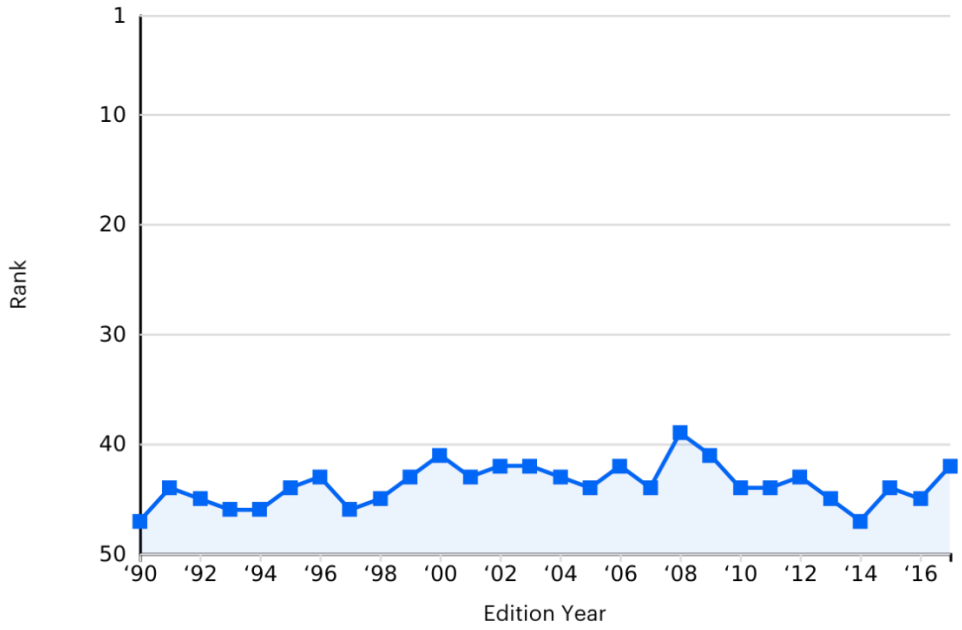

Figure 1. Kentucky's Overall National Health Ranking reported from America's Health Rankings (1990-2017).

While most of Kentucky's average health outcome rates are far below the national average, data from KyBRFS shows that Kentuckians with lower educational achievement (less than high school completion vs. college graduate) and with lower annual income (less than $25,000 annual household income vs. $50,000 or more) suffer from:

- Up to three times higher rates of diabetes
- Double the rate of coronary artery disease
- Over four times higher rates of poor health habits (i.e., smoking)
- Triple the number of reported poor mental health days

These numbers are troubling considering that Kentucky is home to five of the 13 counties in the nation with the lowest median annual household incomes.[1] Approximately 25% of Kentucky children live in households with income below the national poverty level and 12% live in extreme poverty meaning that they live in a household with income 50% of the poverty level.[2]

As is true in many states, Kentucky has been affected by the opioid epidemic. The Centers for Disease Control and Prevention (CDC) ranks Kentucky third overall in the number of opioid overdose deaths as of 2015. In a recent report, the CDC named 220 counties in the United States that are at-risk for a rapid HIV outbreak related to the injected drugs. Kentucky, primarily in the eastern portions, is home to 54 of those 220 counties.

[1] United States census. Small Area Income and Poverty Estimates (SAIPE) Program, SAIPE State and County Estimates for 2015.
[2] 2017 KIDS COUNT Data Book, The Annie E. Casey Foundation.

Ranking	Measure	Values from 2017 Report
Substance Use Disorder		
9th	Drug Dependence or Abuse – Youth	4.1% of children aged 12-17
49th	Drug Deaths	25.5 deaths per 100,000
Smoking		
49th	Smoking – Adults	24.5%
47th	Tobacco Use – Youth	9.6% of children aged 12-17
46th	Tobacco Use – Pregnant Women	19% of live births
50th	Cancer Deaths	233.6 per 100,000
Obesity		
44th	Obesity – Adults	34.2%
38th	Overweight or Obese – Youth	33.5% of children aged 10-17
46th	Persons Diagnosed with Diabetes	13.1%
46th	Physical Inactivity – Adults	29.8%
44th	Breastfed	18.5% of infants exclusively for 6 months
Adverse Childhood Experiences		
42nd	ACE Scores $\geq$ 2	26.9% of children aged 1-17
38th	Children in Poverty	20.7%
38th	Infant Mortality	6.9 deaths per 1,000 live births
38th	Low Birthweight	8.7% of live births
46th	Have a Protective Home Environment	31.4% of children aged 0-5*
44th	Have a Protective Home Environment	16.3% of children aged 6-17*
44th	Teen Births	32.4 per 1,000 women aged 15-19
8th	Homeless Family Households	3.0 per 10,000 households
16th	Unintended Pregnancies	47.0% of pregnancies*
45th	Food Insecurity	17.3% of households
Integration of Health Access		
40th	Primary Care Physicians	120.6 per 100,000
50th	Preventable Hospitalizations	76.8 discharges per 1,000 Medicare enrollees
47th	Premature Deaths	10,042 years lost per 100,000
9th	Lack of Health Insurance	5.6% of total population
25th	Dentists	54.6 per 100,000

Table 1. Examples of Kentucky Rankings from America's Health Rankings Report (2017)
**America's Health Rankings 2016 – most recent data available*

Connecting to the Community

On March 22, 2017, the Kentucky Department for Public Health (DPH) convened a meeting of stakeholders inclusive of public health advocates and a varied group of citizens. The attendees included representatives from local health departments, colleges and universities, professional organizations, faith-based organizations, mental health community, legislators, civic groups, managed care organizations, non-profit organizations, and hospital organizations. The goal of this meeting was to present the 2017 State Health Assessment Update (SHA) and to develop goals for this State Health Improvement Plan (SHIP).

This meeting was facilitated by Angela Carman, DrPH, Associate Dean for Practice and Workforce Development with the University of Kentucky College of Public Health, and included an overview of Public Health 3.0, which sought to engage multiple sectors and community partners to generate collective impact and improve social determinants of health. Dr. Carmen presented a review of the Community Health Improvement Plans (CHIPs) that Kentucky local health departments have adopted to help assure alignment between state and local goals. The most recognized strategic initiative in the CHIPs was substance use disorder followed closely by obesity. DPH then provided a presentation on Adverse Childhood Experiences and the data supporting the SHA.

All stakeholders divided into smaller workgroups to review the data and collectively determine what critical areas Kentucky should focus our resources on in order to improve health outcomes. Each workgroup presented to the assembly. After a dynamic discussion, the larger assembly identified five priorities through collective impact:

- Substance Use Disorder
- Smoking
- Obesity
- Adverse Childhood Experiences
- Integration to Health Access

Additionally, the group identified five underlying topics that were interwoven throughout each of the five priority focus areas. Although these *fabric issues* emerged as secondary priorities, each could stand alone as a priority because of their inter-connectedness with each of the broader focus areas. Workgroups related their own goals and strategies back to these fabric issues:

- Data Collection and Analysis
- Health in All Policies
- Economic and Community Engagement/Development
- Environmental Health
- Mental Health

Before dismissing, workgroups outlined their strategy for developing these focus areas to provide goals and measureable strategies that Kentucky can achieve in the next five years. For the next three months, these stakeholders would participate in routine in-person and telephone conferences to prepare goals, strategies, and measurements that support the five focus areas. The Kentucky SHIP Committee used the information from these sessions to produce this document.

The workgroups anticipated that they would continue to regularly meet and update one another on the status of the goals, strategies, and measures. Over the next five years, they plan to convene and refine Kentucky's work plan for improved health.

The workgroups presented a thorough understanding of each of their focus areas, and developed significantly more content than could be presented in the SHIP. The information on these individual focus topics were of such importance, the SHIP Committee has recommended that each workgroup produce a supporting document for each of their focus areas that will separately support the work being done in the commonwealth currently, analyze more data to support that work, and discuss initiatives needed to improve our health outcomes.

A summary of the "Planning with Partners to Improve Kentucky's Health" meeting can be found by visiting: http://chfs.ky.gov/NR/rdonlyres/A6742868-0B36-4341-B2AE-1D0E99CB0A29/0/DPHPlanningwithPartners.pdf.

State Health Assessment

In 2013, DPH completed a comprehensive state health assessment (SHA). More than 1,300 Kentuckians responded to an electronic survey, which served to identify Kentucky's priority health issues. The top ten health issues perceived were access to care, obesity, drug and alcohol, cancer (all kinds), tobacco use, mental health, diabetes, maternal and child health, heart disease and stroke, and physical activity.

In 2017, DPH released a SHA Update. This data stands in support of the 2013 assessment in many areas. However, several emerging health issues have been identified and require further analysis. One such example is rising rates of hepatitis C infection. The 2017 State Health Assessment Update may be found at http://chfs.ky.gov/NR/rdonlyres/490FEA8C- 0C46-47F8-8CE5-CDAF970E1190/0/The2017KentuckyStateHealthAssessmentUpdate31517.pdf.

Health Equity as a Framework

Social determinants of health (SDOH) are defined in Healthy People 2020 (HP2020) as "…the conditions in which people are born, live, work, and age that affect their health." [1]

SDOH include socioeconomic status, educational achievement, locality, employment, access to care, and other factors as shown in Figure 2. Health literature has effectively demonstrated the association between SDOH and adverse health outcomes. Achieving health equity will require addressing these SDOH through population-based and targeted methods focused on the areas with the greatest need. Targeting disparities and inequities among the SDOH provides an opportunity to greatly improve the commonwealth's overall health.

Health equity is defined as "…the attainment of the highest level of health for all people." [1] To accomplish this, we must strive to eliminate the inequities, which are unfair, or unjust differences in health outcomes between populations based on race, ethnicity, gender, income, locality, or other social conditions. These inequities are often rooted in social injustices, both conscious and unintentional, which render individuals and populations vulnerable to adverse health outcomes.

Economic Stability	Neighborhood and Physical Environment	Education	Food	Community and Social Context	Health Care System
Employment	Housing	Literacy	Hunger	Social Integration	Health Coverage
Income	Transportation	Language	Access to Healthy Options	Support Systems	Provider Availability
Expenses	Safety	Early Childhood Education		Community Engagement	Provider Linguistic and Cultural Competency
Debt	Parks	Vocational Training		Discrimination	
Medical Bills	Playgrounds				Quality of Care
Support	Walkability	Higher Education			

Health Outcomes

Mortality • Morbidity • Life Expectancy • Health Care Expenditures • Health Status • Functional Limitations

Figure 2. Social determinants of health. Adapted from the Kaiser Family Publication regarding the SDOH, found by visiting: http://www.kff.org/disparities-policy/issue-brief/beyond-health-care-the-role-of-social-determinants- in-promoting-health-and-health-equity/

Introduction

Traditional approaches to improving health outcomes have focused on providing everyone with the same resources and healthcare services. Emerging evidence and trends have shown that not all populations benefit from this "one size fits all" approach. Population-based strategies that account for the unique differences within populations and communities are more effective for improving public health.[1] Using an equity framework to address the SHIP focus areas is a tool that will help ensure that all Kentuckians have an opportunity to live long, healthy, and productive lives regardless of income, education, gender, or race/ethnicity. The Kentucky Department for Public Health and stakeholders have recognized the relationship between equity and health outcomes and are committed to reducing social inequities in each of the five focus areas.

Many opportunities exist in Kentucky to promote health equity. Socioeconomic factors, such as extensive poverty and poor educational achievement, along with other social indicators, such as access to care and food insecurity, provide opportunities to create a culture of health in all communities across the commonwealth.

Achieving health equity for the diverse communities across the state is possible. KyBRFS and other data sources have identified existing disparities among diverse populations defined by race and ethnicity, gender, and geography. Policy and practices at the institutional and organizational levels also impact inequities and must be included in efforts to improve health and health outcomes.

Public health has historically addressed health disparities by focusing on the risk factors for disease and conditions using the medical model as the context. Using a **Framework of Health Equity** (Figure 3) shifts the focus to social factors such as schools, neighborhoods, workplaces, gender, and class. The **Framework of Health Equity** provides a structure to focus on social and ecological factors as major contributors that impact our health and health outcomes. This **Framework of Health Equity** will serve as the lens through which each priority focus area is examined.

Substance Use Disorder

Like much of the nation, Kentucky is affected by the opioid epidemic. In 2016, over 1,400 Kentucky deaths were reported due to overdose and more than 70,000 survived an overdose event. Despite education and awareness efforts, increase in harm reduction strategies and many other efforts, these numbers continue to increase.

SDOH such as low socioeconomic status, unemployment, no social cohesion, and hopelessness have been linked to the development and propagation of substance abuse. In addition, research also observes that geographic location, poverty, and educational attainment are associated with this pervasive disorder. These inequities must be addressed if we are to truly impact the opioid and substance use disorder epidemic in the state.

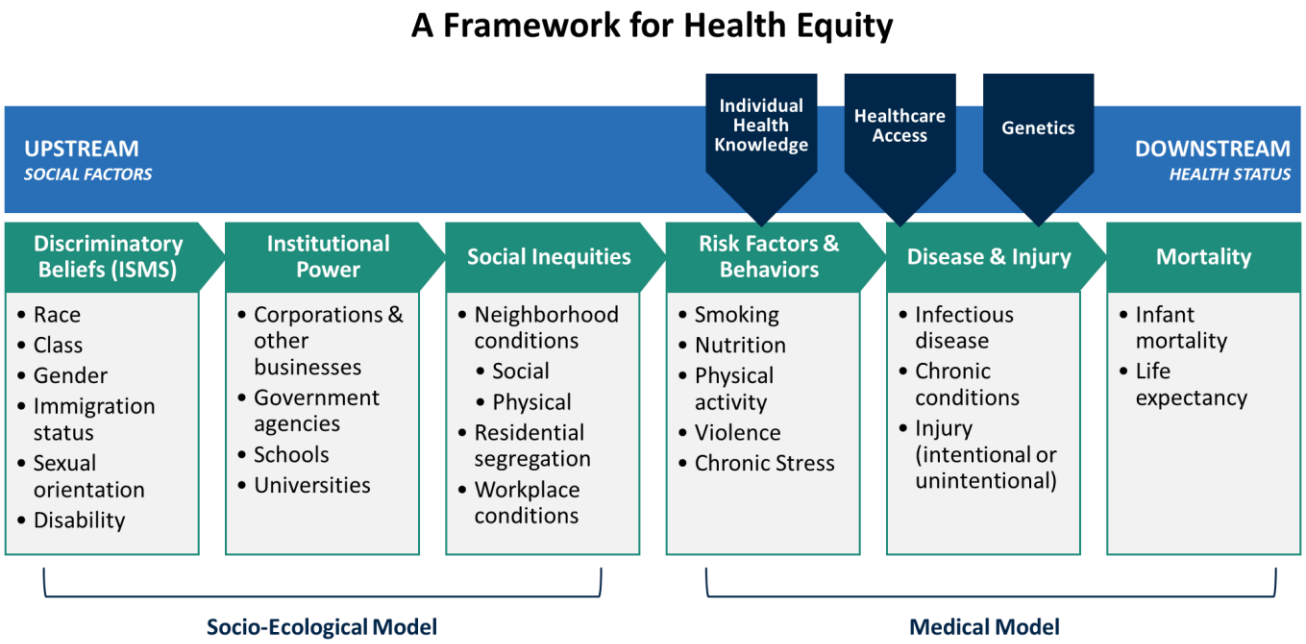

Figure 3. Framework for Health Equity adapted by ACPHD from the Bay Area Regional Health Inequities Initiative (Summer 2008).

Smoking

Disparities also exist in tobacco use among racial ethnic groups in Kentucky. Although black residents initiate smoking later and smoke fewer cigarettes than their white counterparts, they are more likely to die from smoking related diseases.[2,3,4] Persons in Appalachia when compared to non-Appalachian residents are also disproportionately impacted having higher mortality rates from lung cancer and other smoking related diseases.[4,5] Addressing these inequities through evidence-based interventions will help reduce the morbidity and mortality from tobacco use and exposure in these disparate populations. Children in Kentucky who experience adverse childhood experiences (ACEs) are more likely to use tobacco as adults[3]. Prevention and cessation strategies must account for the unique challenges, assets, and intersections of identities within Kentucky populations disproportionately impacted by tobacco.

Socioeconomic status is highly associated with smoking prevalence. Low-income adults and adults with low educational attainment are more likely to be current smokers, and less likely to have successful quit attempts[6]. In Kentucky, the prevalence of cigarette smoking among adults with an annual household income below $25,000 is 42.2%, compared to 19% for those with an income of $50,000 or more. The smoking rate among adults with less than a high school education is 45%, compared to 10.5% among college graduates.[3]

Significant disparities in smoking prevalence also exist between lesbian, gay, bisexual and transgender (LGBT) individuals and their heterosexual counterparts. In Kentucky, the smoking prevalence among the LGBT population in 2014 was 43.7%, compared to 25.8% among heterosexual individuals.[7]

Obesity

Although obesity impacts the entire commonwealth, it disproportionately affects some populations more than others. Residents in eastern Kentucky, persons with intellectual and developmental disabilities (IDD), and racial and ethnic minorities experience an increased burden. Inequities related to food insecurity, food deserts, lack of walkable communities, mobility status and safety are all social indicators widening the disparity gap among certain geographical areas and populations within the state. Many of our communities in eastern Kentucky as well as Black and Hispanic populations throughout the state have limited access to care, limited income, and other barriers that place them at greatest risk for poor health outcomes related to obesity. Policies, institutional and structural barriers, and social norms that impact these communities need to be addressed if a cultural shift is to occur providing a more equitable and healthy place for disadvantaged individuals to live.

Obesity prevention efforts in Kentucky's communities include a multi-sector approach identified in the CDC, Health Impact in Five Years (HI-5). There are two interventions under Hi-5: 1) Interventions Changing the Context and 2) Interventions Addressing the Social Determinants of Health.

Adverse Childhood Experiences

Adverse childhood experiences (ACEs) are stressful or traumatic experiences occurring before age 18 that disrupt the safe and nurturing environments that children need to thrive. Social, economic, and cultural factors can widen the disparity gap in populations affected by ACEs. Research has shown an association between ACEs and health-related risk behaviors such as substance use disorder, tobacco and alcohol use, pregnancy and paternity before age 20, and eating disorders. Additionally, health outcomes such as cardiovascular disease, obesity, cancer, and even premature death have been tied to ACEs.[8] Current research is examining the impact of ACEs in youth that are in the juvenile justice, education, and foster care systems. Current findings suggest a disproportionate impact based on race, gender, and socioeconomic status. Though ACEs are a relatively new focus in the public health field, there are many opportunities to prevent and mitigate ACEs to reduce morbidity and mortality within the commonwealth and build resiliency.

Integration to Health Access

SDOH and equity are pressing issues related to health access. Our Kentucky team's working definition of integration to health access is "to ensure all Kentuckians have access to integrated medical, dental, behavioral, and social services to improve and maintain their health through the development of coordinated, multi-disciplinary systems of care." Resources such as transportation, the ratio of health care professionals, and the number of health care facilities have to be considered on both micro and macro levels. To accomplish the goal of access to integrated healthcare, a multidisciplinary approach is required. The population must know how to obtain the

care they need—where to go, the type of insurance plan and benefits available to them, and how to use their insurance. Additionally, we cannot dismiss the importance of building community trust with healthcare providers as well as health systems. Establishing those relationships among the people who live and work in a community is critical to improving access and enabling everyone to be a key agent of change, improving not only their health, but the health of their community. The identification of community leaders to work with both traditional and non-traditional health care delivery systems can help to create innovative and targeted solutions.

Summary

For each focus area above, we examined the underlying SDOH, which may be found in the preceding subsections and are summarized in Figure 4 below.

Substance Abuse	Smoking	Obesity	Adverse Childhood Experiences	Integration to Health Access
Income	Education	Income	Social Support	Transportation
Education	Access to Care	Education	Income	Income
Access to Care	Income	Cultural Factors	Housing	Access to Care
	Race/Ethnicity	Access to Healthy Food	Race/Ethnicity	Education
	Healthy Food	Gender		
	Built Environment	Race/Ethnicity		
		Built Environment		

Figure 4. Social determinants of health as defined in the five focus areas of the SHIP.

[1] U.S. Department of Health and Human Services. "The Secretary's Advisory Committee on National Health Promotion and Disease Prevention Objectives for 2020. Phase I report: Recommendations for the framework and format of Healthy People 2020. Section IV. Advisory Committee findings and recommendations." (2008). https://www.healthypeople.gov/sites/default/files/PhaseI_0.pdf Accessed August 17, 2017.
[2] Kentucky Youth Risk Behavioral Survey (YRBS). Kentucky High School Survey, 2014.
[3] Kentucky Behavioral Risk Factor Surveillance System (KyBRFS), 2015
[4] Kentucky Cabinet for Health and Family Services and Kentucky Personnel Cabinet. The 2017 Diabetes Report. Frankfort, KY: KY Cabinet for Health and Family Services, Department for Medicaid Services, Department for Public Health, Office of Health Policy, and KY Personnel Cabinet, Department of Employee Insurance, 2017.
[5] Age-Adjusted Cancer Mortality Rates by County in Kentucky, 2010 - 2014. Based on data released June 2016. Kentucky Cancer Registry: Cancer Rates Info. Retrieved Jul 21, 2017, from http://cancer-rates.info/ky/
[6] Gilman, S. E., Abrams, D. B., & Buka, S. L. (2003). Socioeconomic status over the life course and stages of cigarette use: initiation, regular use, and cessation. Journal of Epidemiology & Community Health, 57(10), 802-808.
[7] Kentucky Behavioral Risk Factor Surveillance System (KyBRFS), 2014
[8] The Adverse Childhood Experiences (ACE) Study; Centers for Disease Control and Prevention. Retrieved Nov. 4, 2016.

Fabric Issues

During the March 2017 "Planning with Partners to Improve Kentucky's Health" symposium, stakeholders identified five focus areas for improving the health of Kentuckians. These five domains were included in the State Health Improvement Plan (SHIP). In addition, five *fabric issues* were also identified for attention. These issues consistently recurred during the conversation and were woven directly into each of the focus areas such that, in order to accomplish the five focus area goals, investigation of the fabric issues must also be undertaken.

Access to Data Collection and Analysis

Rapid advances in technology and the increasing need to validate programs has led to exponential growth in data collection, storage, and interpretation in relation to healthcare applications. The value of representative and accurate data and the ability to perform meaningful analysis is vital to inform policy and regulation. Realizing the importance of this issue, the Cabinet for Health and Family Services (CHFS) is undertaking the merger of numerous databases to improve policy and program planning and to determine outcomes accurately.

Using technology to post dashboards of data, such as the dashboards planned for this SHIP, will allow governmental staff, policy partners, and the public to access the data with greater ease. Annual data review and analysis related to the five focus areas of the SHIP will help identify trends and gaps in data and achievement and will help inform partners through multiple communication methods. Many of the desired measures in each focus area currently do not have an established baseline, which emphasizes the need for focused data gathering, sharing, and monitoring.

The CDC has amassed a comprehensive database of adult obesity rates, physical activity, and nutritional habits of adults using the information from the annual KyBRFS telephone survey. The Youth Risk Behavior Survey (YRBS) collected by the Kentucky Department of Education (KDE) samples middle and high school students on similar data points. These data sources are critical to decision making in the state, but do not provide the level of granularity that is necessary to fuel change.

Data sources related to the opioid crisis in Kentucky have advanced rapidly, which reflects the severity of Kentucky's opioid crisis. The Kentucky Injury Prevention and Research Center (KIPRC) has worked with the Justice Cabinet Office of Drug Policy to analyze data surrounding the state's opioid crisis. The Kentucky All Schedule Prescription Electronic Reporting (KASPER) tracks all controlled substances prescribed in Kentucky and can analyze morphine milligram equivalent dose (MME), prescribing by medical specialty and geographic area. The Kentucky Neonatal Abstinence Syndrome Registry can be cross-referenced with the Childhood Fatality Review to determine locations in need of more resources to prevent infant death. Yet, more information is needed to develop predictive modeling of at-risk areas to shape policy and target interventions.

The CDC also has a robust database for tobacco use in Kentucky gathered via KyBRFS and YRBS. The Kentucky Tobacco Quitline has a data collection component to evaluate use and successful quit attempts, but more information from the public is not tracked.

Health in All Policies

In order to change our culture to one focused on health, it is critical that we emphasize that health is the foundation of all activities, policies, and regulations. Health is interwoven in all activities of a person's life—work, play, eating, and sleeping. Some examples of health-focused policy include smoke-free workplaces, opportunities for physical activity and the environment to safely move, childcare with comprehensive staff training, healthy nutritional options, and the knowledge to appropriately access quality health care.

Economic Development and Community Engagement

Kentucky's SHA demonstrated a correlation between lower income levels and increased prevalence of chronic disease and poor health habits. Communities with a lower economic status are unable to focus resources on programs aimed to improve health outcomes; rather these communities apply their limited resources to more immediate obstacles. This creates a vicious cycle in which preventable problems multiply.

Environmental Health

Science continues to link our health and wellbeing to the surroundings where we live, work, and play. A healthy society cannot be expected to prevail if it does not have clean air, good water quality, lack of environmental contaminants, or if its surroundings are unsafe or improper for physical activity. It is necessary that we evaluate our state's environment and ensure that it is conducive to developing and maintaining a healthy population.

Mental Health

Mental health is a foundational area for all five of the focus areas. Tobacco use and substance abuse disorder incidence is greater in those with mental health disorders. Obesity is often a symptom of underlying depression and results in poor self-esteem. Moreover, obesity may be the side effect of mental health treatment medication. As noted in the Adverse Childhood Experiences focus area discussion, stresses occurring during childhood have profound and lasting negative mental health effects. Sadly, many with health coverage do not know how to use such benefits to seek mental health care. Mental health and its associated sequelae must be at the forefront of our approaches to remodeling healthcare and healthcare access in the commonwealth.

Areas of Focus
to Improve Health Outcomes

Substance Use Disorder

Kentucky has been heavily afflicted by the opioid crisis, which is affecting much of our country. Along with Pennsylvania, Ohio, Tennessee, and West Virginia, Kentucky was one of the first states in which this indiscriminate disease reached epidemic proportions. No part of the commonwealth is unaffected, but northern and eastern Kentucky, especially rural communities, have been most plagued.

The progression from prescribed opioids to illegal street opioids (e.g., heroin) has been seen throughout Kentucky. As evidence to this end, Kentucky has seen rather steep increases in heroin overdoses in the last five years.[1] The addition of fentanyl and carfentanil to the illegal drug market further increased overdose deaths.

In 2016, Kentucky had over 1,400-overdose deaths.[2] One of the goals of HP2020 is reduction of drug-induced deaths. Addressing this epidemic is a top priority across all levels of Kentucky's infrastructure. While great strides have been made, much remains to be accomplished.

The Substance Use Disorder (SUD) Workgroup developed a three-pronged approach to assess goals and strategies necessary to ending this crisis. Three subgroups of team members from across the state were developed to focus attention on this three-pronged approach. These include:

Prevention
Harm Reduction
Treatment

Many of our measures do not have a baseline as these areas have not been addressed in the past. There is an emphasis in monitoring these areas as an opportunity for data collection and establishing baselines for future goals.

Data

The Kentucky opioid data are staggering and the cost to human life and wellbeing is severe.

- Second highest overall poisoning emergency department (ED) visit rate (majority were drug-related) in 2014[1]
- Fifth highest drug overdose fatality rate in 2016[2]
- Third highest neonatal abstinence syndrome (NAS) rate in 2013[3]
- Over half of the opioid overdose ED visits were billed to Medicaid (57%), 16% were billed to commercial insurance, and 11% were billed to Medicare[1]

Successes

The opioid crisis has infiltrated our population indiscriminately. All economic and social strata are afflicted. The magnitude of this crisis has led to new alliances and partnerships. Our legislature has passed innovative and strong legislation to help reverse this problem.[4]

- Kentucky now has laws to eliminate the proliferation of "pill-mills" that allowed excessive prescribing of opioids in non-quality medical settings.
- The legislature authorized harm reduction syringe exchange programs with local approval by boards of health and local government to curb the spread of associated infectious diseases and offer those with SUD to be closer to the network of care and offer treatment options.
- New statutes were written that increased funding for the availability of intense outpatient and inpatient treatment for SUD.
- The number of SUD inpatient facilities for pregnant and parenting women with children has increased fourfold.
- Commonly known as a "Good Samaritan Law," the legislature enacted a statute that protects people from prosecution when they report a drug overdose. Calling 911 during an overdose can mean the difference between life and death, but some witnesses had avoided calling due to fear of arrest.
- Kentucky Medicaid approved payment for peer support specialists to work with patients to give assistance to those with SUD.
- Increasing numbers of physicians have obtained a license to prescribe buprenorphine to offer medication assisted therapy (MAT).
- The number of Kentucky methadone clinics has doubled.
- The Justice Cabinet is offering extended release naloxone to inmates prior to release and planning case management to get them into MAT and mental health care after release.
- Data collection techniques are continuing to strive for real-time information to guide future initiatives.

Challenges

Harm reduction strategies are becoming more accepted and employed throughout the commonwealth. As a result, we are experiencing improvement is some outcomes associated with intravenous drug abuse. However, these programs are not universally accepted. Gaining buy-in remains a challenge.

Funding, from both public and private entities, has increased to help fight this epidemic. Kentucky Medicaid has increased funding for addiction treatment, but more is needed. Naloxone distribution has been very successful in Kentucky. However, the program needs more funds to meet the state's needs.

The progression from prescribed opioids to illegal street drugs is a growing problem now that physicians have begun diminishing the prescribing of opioids over the last five years. A growing partnership with law enforcement agents is necessary to both raise awareness and end the sale of these deadly drugs in Kentucky.

Opportunities

The Commonwealth of Kentucky will continue to work toward enhancing the availability of prevention, harm reduction, and treatment for all citizens.

- Governor Bevin has launched the "Don't Let Them Die" campaign, which will allow multiple organizations to receive high visibility as they develop new and innovative means to reach the SUD population as well as their families/friends.
- Governor Bevin and the General Assembly have dedicated $32 million in this biennium to address the opioid epidemic.
- FindHelpNowKY.org, a patient treatment locator website, was launched in January 2018 to work in conjunction with the Naloxone Locator website.
- KASPER (Kentucky All Schedule Prescription Electronic Reporting) is ready to link non-fatal overdose hospital data to a patient's record of controlled substance prescriptions.
- Kentucky received funding from the 21st Century Cures Act to fund the Kentucky Opioid Response Effort (KORE), a multi-cabinet effort to focus on the SUD population of:
    - Pregnant and parenting women
    - Recently incarcerated individuals re-entering society
    - Adolescents
    - Those in a non-fatal overdose setting

[1] KIPRC. Age-Adjusted Drug Overdose Mortality Rate, 2010-2015. http://www.mc.uky.edu/kiprc/injury-topics/drug-overdose.html
[2] Drug overdose deaths in the US, 1999–2016. NCHS Data Brief. www.cdc.gov/drugoverdose/data/statedeaths
[3] Ko JY, Patrick SW, Tong VT, Patel R, Lind JN, Barfield WD. Incidence of Neonatal Abstinence Syndrome — 28 States, 1999–2013. MMWR Morb Mortal Wkly Rep 2016;65:799–802. DOI: http://dx.doi.org/10.15585/mmwr.mm6531a2
[4] https://odcp.ky.gov/Pages/default.aspx

Goals, Strategies, and Measures

[PREVENTION] GOAL 1: Promote early childhood education in kindergarten through fourth grade on personal development.	
Strategy 1.1: Pilot programs in multiple counties to institute personal development in young children that stress the importance of physical activity, diet, and responsible decisions on avoidance of tobacco and drugs. ***Justification:*** *Prevention begins with strong personal development in children. Many children do not receive such guidance in their home setting (see Adverse Childhood Experiences section). These programs will work to increase resilience in our children.*	**Measure 1.1.1:** Decrease age at onset of any substance use **Baseline:** 12.6 years of age (2016) **Target:** 13 years (2022) **Data Source:** DPH; KDE, YRBS

[PREVENTION] GOAL 2: Decrease non-medical use of pain relievers in Kentucky.	
Strategy 2.1: Promote techniques for private citizens to eliminate unused drugs from their medicine cabinets through in-home destruction programs and expanded take-back programs in police, fire departments, and pharmacies. ***Justification:*** *Easy availability of medications in the home is known to present opportunities that some use to initiate their SUD journey. Removing this easy access can curb the initiation of drug use.*	**Measure 2.1.1:** Increase number of community sponsored drug take-back and in-home medication destruction programs **Baseline:** Unknown (2016) **Target:** Establish baseline and double the number of programs (2022) **Data Source:** Local Kentucky Agency for Substance Abuse Policy (KY-ASAP), Justice Cabinet, Office of Drug Control Policy

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Strategy 2.2: Enhance education of healthcare professionals on appropriate opioid prescribing. Engage professional boards (medicine, dentistry, nursing) to collaborate in development of in-person and on-line educational opportunities consistent with their specialty organizations. Include techniques to educate the public on realistic expectations of adequate pain control vs pain-free. ***Justification:*** *Thoughtful opioid dispensation has been a focus of national professional organizations as well as the CDC. A statewide effort would strengthen our collective knowledge in those that serve our citizens.*	**Measure 2.2.1:** Increase number of professional organizations that hold conferences (individual and collaborative) with focus on substance use disorder **Baseline:** Unknown (2016) **Target:** Establish baseline and initiate at least one statewide conference on opioid prescribing with collaboration among health professional boards (2022) **Data Source:** DPH; Department for Behavioral Health, Developmental and Intellectual Disabilities (BHDID)

[PREVENTION] GOAL 3: Enhance the use of non-opioid pain reduction therapies before prescribing opioids.	
Strategy 3.1: Eliminate barriers to the use of non-opioid therapies for pain management. ***Justification:*** *Research supports the use of alternative therapies (e.g., acupuncture, massage therapy, physical therapy, and meditation) as useful treatment for chronic pain. However, cumbersome authorization of these treatments hinders their use.*	**Measure 3.1.1:** Increase number of insurance carriers that encourage the use of non- opioid therapies for chronic pain management **Baseline:** Unknown (2016) **Target:** Establish baseline and increase by 5% (2022) **Data Source:** Claims data from Department of Insurance, Kentucky Employee Health Plan and Department for Medicaid Services (DMS)

[HARM REDUCTION] GOAL 4: Improve experience of patients reporting to Emergency Departments with non-fatal overdose.	
Strategy 4.1: Revise statute that requires physicians that order Human Immunodeficiency Virus (HIV) testing to be responsible for test result notification (KRS 214.181). ***Justification:*** *The culture of Emergency Department (ED) management has changed since this law was written. The intent to assure patient protection with notification for the ordering physician is not practical as ED professionals work in many settings, making this notification impractical. Granting hospitals the authority to notify patients of HIV test results will avail the patient more opportunity to receive needed testing when presenting to the ED with a non-fatal overdose.*	**Measure 4.1.1:** Increase number of HIV and hepatitis C tests ordered on patients with the diagnosis of non-fatal overdose **Baseline:** Unknown (2016) **Target:** Establish baseline and increase by 5% (2022) **Data Source:** Kentucky Health Information Exchange

[HARM REDUCTION] GOAL 5: Increase the distribution and use of naloxone across Kentucky.	
Strategy 5.1: Coordinate the distribution and data collection of naloxone through one central position in DPH using funding sources from all levels of state government. Develop technology to promote voluntary reporting of naloxone distribution to patients with SUD, their families and friends, first responders, pharmacists, emergency management, local health departments, hospitals, and EDs. Collect outcome data whenever naloxone is used in the field. ***Justification:*** *The rapid use of naloxone can reduce overdose deaths. Expanding the availability of naloxone to the non-using and using populations promotes reversal of overdose and potential opportunities for receiving SUD treatment.*	**Measure 5.1.1:** Increase naloxone distribution to patients with SUD **Baseline:** Unknown (2016) **Target:** Establish baseline and increase by 5% (2022) **Measure 5.1.2:** Reduce number of overdose deaths **Baseline:** 1,354 (2016) **Target:** 1,284 (2022) – 5% reduction **Measure 5.1.3:** Reduce number of ED visits for non-fatal overdose **Baseline:** 13,190 (2016) **Target:** 12,530 (2022) – 5% reduction

	Measure 5.1.4: Increase number of Mobile Harm Reduction Unit deployments per 6 months **Baseline:** 17 (2017) **Target:** 30 (2022) **Data Source:** DPH, Mobile Harm Reduction Program and Kentucky Injury Prevention and Research Center (KIPRC); Kentucky Harm Reduction Coalition; DPH, Office of Vital Statistics

[TREATMENT] GOAL 6: Increase the availability of evidence-based treatment for SUD for all Kentuckians.	
Strategy 6.1: Encourage the expansion of Medicaid coverage to include methadone therapy as a covered service. ***Justification:*** *Methadone is an evidence-supported therapy for treatment of substance use disorder. Increasing access to methadone therapy may decrease the number of overdose deaths, decrease intravenous drug use and its sequelae, and allow persons with SUD to become functioning members of society.*	**Measure 6.1.1:** Increase number of patients served in methadone clinics **Baseline:** Unknown (2016) **Target:** Establish baseline and increase by 5% (2022) **Measure 6.1.2:** Increase number of treatment visits in methadone clinics **Baseline:** Unknown (2016) **Target:** Establish baseline and increase by 5% (2022) **Measure 6.1.3:** Increase number of methadone clinics **Baseline:** Unknown (2016) **Target:** Establish baseline and increase by 5% (2022)
Strategy 6.2: Encourage the use of paraprofessional providers in the treatment of substance use disorders (i.e., paramedicine technicians, peer support specialists, and community health workers). ***Justification:*** *Utilization of peer networks has been shown to increase entry into treatment.*	**Measure 6.2.1:** Increase number of insurance carriers that cover paraprofessional services **Baseline:** Unknown (2016) **Target:** Establish baseline and increase by 5% (2022) **Measure 6.2.2:** Increase number of paraprofessional services provided

	Baseline: Unknown (2016) **Target** Establish baseline and increase by 5% (2022) **Data Source:** DMS; BHDID
Strategy 6.3: Improve quality and access to evidence-based medication assisted therapy (MAT). ***Justification:*** *Targeting resources to evidence-based MAT will enable patients with SUD the greatest hope for long-term recovery.*	**Measure 6.3.1:** Reduce number of "cash only" MAT clinics **Baseline:** Unknown (2016) **Target:** Eliminate "cash only" MAT clinics (2022) **Measure 6.3.2:** Increase percentage of MAT clinics that are physician-owned **Baseline:** Unknown (2016) **Target**: 100% (2022) **Data Source:** BHDID

Smoking

According to the CDC, tobacco use is the number one cause of preventable death in the United States.[1] Tobacco use is associated with several adverse health outcomes including various cancers, diabetes, cardiovascular disease, chronic obstructive pulmonary disease, and other health conditions.[2]

Despite reductions in tobacco use nationwide and within the commonwealth, Kentucky continues to have high usage rates. Moreover, Kentucky leads the country in lung cancer related deaths, which are directly related to smoking prevalence. Reduction of tobacco use is an important strategy for improving the health of Kentuckians.

Data

In 2016, about 24.5% of Kentucky adults reported that they were current smokers – higher than the US median of 17% (KyBRFS). According to the 2017 YRBS, the smoking rate among high school students was 14.3% compared to 10.8% nationally in 2016. Among middle school students in Kentucky, 2.7% reported they were currently smoking in 2017.

Successes

Although tobacco use has been a longstanding health issue in Kentucky, efforts to decrease this have not been static. As of April 2018, 27 Kentucky communities, cities, and towns have implemented comprehensive smoke-free ordinances, and 32.8% of Kentucky workers are protected by 100% smoke-free workplace ordinances.[3] DPH, local health departments (LHDs), and the American Lung Association have partnered to assist public housing authorities with implementing smoke-free policies by 2018. Kentucky has maintained low rates of tobacco retailers selling tobacco products to minors through vigorous training of retailers.

Other accomplishments in Kentucky's tobacco prevention and control efforts include:

- A significant decrease in the youth smoking rate since 2009 due to a cigarette tax increase to $0.60 per pack, and changes in federal policy related to cigarette flavorings and marketing.
- Passage of Kentucky legislation in April 2018 increasing the state cigarette tax by $0.50, for a total of $1.60 per pack of cigarettes.

- The passage of Kentucky legislation in March 2017 requiring barrier-free coverage of FDA-approved tobacco cessation products and services by all insurance carriers.
- As of May 2017, over 50% of Kentucky students are in 100% tobacco free school districts.[4]

Challenges

Kentucky has long been among the top five states in the prevalence of current cigarette smoking among adults.[5] As a result, Kentucky ranks very high in the prevalence of smoking- related diseases such as cancer and cardiovascular/lung disease. Recent momentum in Kentucky communities passing smoke-free policies has slowed due to a 2014 Kentucky Supreme Court decision overruling the authority of LHD Boards of Health to enact smoke-free regulations, though fiscal courts and city councils may still pass smoke-free ordinances.

Recently, the increased use of electronic cigarettes has presented unique challenges regarding smoke-free policies, cessation efforts, and youth smoking rates. Electronic cigarettes have been associated with several burn injuries in the commonwealth related to explosions of their battery systems. The health impact of electronic cigarettes is not fully known at this time; aerosol analyses have found variable levels of hazardous components, such as formaldehyde, heavy metals, and ultrafine particles.

Opportunities

Discussions during the "Planning with Partners to Improve Kentucky's Health" symposium and the subsequent Tobacco Workgroup meetings exposed many resources and opportunities to improve the status of tobacco use in the commonwealth. The many stakeholders included state and local affiliates of national organizations, statewide cancer control organizations, local health coalitions, academic institutions, LHDs, non-profits, and individual champions. These partners continue to prioritize tobacco as a focus of their work, and leverage resources across sectors to reduce the burden of tobacco use. Their efforts include educational webinars, conferences, trainings, legislative advocacy, providing technical assistance to businesses and communities desiring to go smoke-free, and educating students about tobacco among other activities.

Kentucky also provides tobacco cessation services through the Kentucky Quitline. Stakeholders continue to seek external funding to supplement existing efforts to address tobacco prevention and cessation at multiple levels. Local health coalitions across the state coordinate grassroots activities to educate communities about the toll of tobacco and lead efforts to implement municipal smoke-free ordinances. LHDs provide tobacco education within schools, lead cessation classes for adults, and serve as leaders within their communities to maintain progress and push for further advancements in tobacco prevention and cessation.

Opportunities to decrease the prevalence and impact of tobacco use in Kentucky include leveraging the components of KRS 304.17A-168, legislation passed in March 2017 by the Kentucky General Assembly requiring barrier-free coverage of FDA-approved tobacco cessation products and services by educating health systems, managed care organizations, health professionals, and other stakeholders on the implications of this legislation.

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[1] Smoking and Tobacco Use: Fast Facts. Office on Smoking and Health, National Center for Chronic Disease Prevention and Health Promotion, Centers for Disease Control and Prevention. Mar 2017. https://www.cdc.gov/tobacco/data_statistics/fact_sheets/fast_facts/index.htm

[2] Smoking and Tobacco Use. Health Effects. Office on Smoking and Health, National Center for Chronic Disease Prevention and Health Promotion. Accessed Feb 2017. http://www.cdc.gov/chronicdisease/

[3] 26 Kentucky Communities with Comprehensive Smoke-free Ordinances. Kentucky Center for Smoke-free Policy, University of Kentucky College of Nursing. Jul 2017. http://www.uky.edu/breathe/tobacco-policy/smoke-free-communities/ordinance-database

[4] Kentucky's 100% Tobacco Free School Districts. Kentucky Tobacco Prevention and Cessation Program. Kentucky Department for Public Health. Created May 2017. Accessed July 20, 2017. http://www.tobaccofreeschoolsky.org/uploads/3/4/4/0/34403834/may_2017.pdf

[5] American Lung Association, 2011. Trends in tobacco use. Washington, DC: American Lung Association. http://www.lung.org/assets/documents/research/tobacco-trend-report.pdf

Goals, Strategies, and Measures

GOAL 1: Reduce youth smoking.	
Strategy 1.1: Limit access to tobacco products and reduce perceived social acceptability of tobacco use by youth. ***Justification:*** *Limiting youth access to tobacco products and reducing the perceived social acceptability of tobacco use are evidence-based strategies for preventing initiation of tobacco use among youth and increasing cessation rates among adults.*	**Measure 1.1.1:** Increase cigarette excise tax amount **Baseline:** $0.60 per pack (2017) **Target:** $1.60 per pack (2020) **Data Source:** KRS 131.140 **Measure 1.1.2:** Increase percentage of Kentucky school districts with a 100% Tobacco Free School policy prohibiting tobacco use, including e-cigarettes, on all school district property and during student-related school trips **Baseline:** 39% (2017) **Target:** 100% -- Pass statewide law (2019) **Data Source:** DPH, Tobacco Prevention and Cessation Program **Measure 1.1.3:** Increase legal minimum age to purchase tobacco products **Baseline:** 18 years old (2017) **Target:** 21 years old – Pass statewide law (2020) **Data Source:** KRS 438.311 **Measure 1.1.4:** Increase percentage of school districts implementing high-quality tobacco prevention education **Baseline:** 50.9% (2017) **Target:** 60% (2020) **Data Source:** KDE School Health Profiles **Measure 1.1.5:** Maintain number of annual national tobacco prevention and cessation mass media campaigns targeting youth in Kentucky **Baseline:** 2 (2017) **Target:** 2 (2020)

	Data Source: DPH, Tobacco Prevention and Cessation Program **Measure 1.1.6:** Maintain number of statewide youth surveys on tobacco use – YRBS and Kentucky Incentive for Prevention (KIP) surveys of middle and high school tobacco use, including information on gender, ethnicity/race, and sexual orientation **Baseline:** 2 (2017) **Target:** 2 (2020) **Data Source:** KDE, YRBS; Resources for Education, Adaptation, Change & Health (REACH), KIP

GOAL 2: Reduce adult smoking.	
Strategy 2.1: Limit access to tobacco products and decrease perceived social acceptability of smoking while increasing access to smoking cessation options. ***Justification:*** *Reducing access and perceived acceptability of smoking encourages adults to quit smoking, and increasing evidence-based cessation options increases the likelihood adult smokers will successfully remain smoke-free.*	**Measure 2.1.1:** Maintain number of annual tobacco prevention and cessation mass media campaigns targeting adults in Kentucky **Baseline:** 1 (2017) **Target:** 1 (2020) **Data Source:** DPH, Tobacco Prevention and Cessation Program media materials purchase records **Measure 2.1.2:** Increase cigarette excise tax amount **Baseline:** $0.60 per pack (2017) **Target:** $1.60 per pack (2020) **Data Source:** KRS 131.140 **Measure 2.1.3:** Maintain number of statewide adult surveys on tobacco use – KyBRFS survey of adult tobacco use, including information on gender, ethnicity/race, and sexual orientation **Baseline:** 1 (2017) **Target:** 1 (2020) **Data Source:** KyBRFS

	Measure 2.1.4: Increase number of mental health hospitals and substance use recovery centers offering tobacco cessation **Baseline:** Unknown (2017) **Target:** Establish baseline and increase by 5% (2020) **Data Source:** DPH; BHDID

GOAL 3: Reduce exposure to secondhand smoke.	
Strategy 3.1: Increase the number of communities and cities with comprehensive smoke-free policies that include new and emerging products such as e-cigarettes and heat-not-burn products. Collaborate with the Kentucky Housing and Urban Development Office, providing information on smoke-free best practices, and facilitating cessation among public housing residents. Promote media messages of the health consequences of secondhand smoke exposure via news interviews, newspaper op-eds, and mass media messaging to include social media. ***Justification:*** *Secondhand smoke causes a variety of severe health consequences among those exposed, including increased risk of lung cancer.*	**Measure 3.1.1:** Increase the percentage of communities covered by comprehensive smoke-free policies **Baseline:** 32.7% (2017) **Target:** 50% (2020) **Data Source:** DPH and Kentucky Center for Smoke-Free Policy **Measure 3.1.2:** Increase the percentage of public housing authorities with smoke-free policies **Baseline:** 4% (2017) **Target:** 100% – Meet federal requirements (2018) **Data Source:** Kentucky Housing and Urban Development Office **Measure 3.1.3:** Increase the percentage of homes that voluntarily do not allow smoking **Baseline:** 73.4% (2017) **Target:** 80.74% (2020) **Data Source:** KyBRFS

GOAL 4: Increase the number of Kentucky adults who successfully quit smoking.	
Strategy 4.1: Maintain access to Quit Now Kentucky Quitline service to provide counseling and nicotine replacement therapy (NRT) to smokers who want to quit smoking. ***Justification:*** *Quitting smoking reduces risk from the health consequences of tobacco use, reduces secondhand smoke exposure, and increases worker productivity. Quitlines are an evidence-based strategy.*	**Measure 4.1.1:** Increase the number of public-private partnerships to fund Quit Now Kentucky and NRT for uninsured Kentuckians who access the Quitline **Baseline:** 1 (2017) **Target:** 3 (2020) **Data Source:** DPH **Measure 4.1.2:** Increase the number of healthcare professionals who receive education on the increased health insurance coverage of tobacco cessation benefits through webinars, handouts, and media campaigns **Baseline:** 22,000 (2017) **Target:** 37,000 (2018) **Data Source:** DPH Quitline vendor records of referring physicians

GOAL 5: Reduce lung cancer mortality among Kentucky residents.	
Strategy 5.1: Increase the number and quality of lung cancer screenings of at-risk Kentucky adults. Promote the National Cancer Institute's Population-Based Research Optimizing Screening through Personalized Regiments (PROSPR) and other evidence-based screening protocols. ***Justification:*** *Increasing the number and quality of lung cancer screenings will enable those diagnosed to receive care earlier and reduce lung cancer mortality.*	**Measure 5.1.1:** Increase the number of lung cancer screenings of at-risk Kentucky adults **Baseline:** Unknown (2017) **Target:** Establish baseline and increase (2019) **Data Source:** American College of Radiology Lung Cancer Screening Registry, Medicare beneficiary data registry, and Kentucky Lung Cancer Education Awareness Detection Survivorship Collaboration (LEADS) **Measure 5.1.2:** Increase the percentage of lung cancer screenings

	Baseline: Unknown (2017) **Target:** Establish baseline and increase (2019) **Data Source:** American College of Radiology Lung Cancer Screening Registry, Medicare beneficiary data registry, and Kentucky LEADS

GOAL 6: Increase the quality of care received by Kentucky residents diagnosed with Chronic Obstructive Pulmonary Disease (COPD).	
Strategy 6.1: Educate health care professionals to high standards of care while providing additional opportunities for residents with COPD to increase their ability to self- advocate. ***Justification:*** *Increasing the quality of care of COPD will increase quality of life and life expectancy for those with COPD.*	**Measure 6.1.1:** Increase the use of evidence-based guidance care for persons at risk for or with COPD **Baseline:** Unknown (2017) **Target:** Establish baseline and determine by COPD Advisory Board (2019) **Data Source:** DPH, Kentucky COPD Advisory Board **Measure 6.1.2:** Increase the number of COPD quality measures promoted within health systems **Baseline:** 0 (2017) **Target:** to be determined by COPD Advisory Board (2020) **Data Source:** Health Effectiveness Data and Information Set, Physician Quality Reporting System, Kentuckiana Health Collaborative

Obesity

Kentucky continues to rank among the most overweight states in the nation. In 2016, 34.2% of adults in Kentucky were obese. [1] The percentage of high school students who qualify as overweight or obese increased from 35.5% in 2015 to an alarming 36.3% in 2017.[2] Although all regions of Kentucky fare more poorly than the nation as a whole, rates of chronic disease remain highest across eastern Kentucky where obesity rates are also highest.[3]

Obesity greatly increases the risk of developing life-threatening chronic diseases and expensive health conditions such as diabetes, stroke, arthritis, sleep apnea, asthma, heart attack, and certain cancers. Kentucky's health care costs attributable to obesity will be $6 billion in 2018, or $1,836 a year per adult according to United Health Foundation, American Public Health Association, and Partnership for Prevention.[4]

The factors contributing to obesity are complex; however, unhealthy diet behavior and physical inactivity are among the leading causes. Most recent data reflects that 46.9% of adults in Kentucky eat fruits less than one time per day, and 32.5% report no leisure time activity.[1] Among high school students, only 48.3% report eating fruit or drinking 100% fruit juice two or more times per day.[2] Additionally, 22% of students report they did not participate in at least 60 minutes of physical activity on at least one day during the week – an improvement from the 23.9% in 2015.[2]

Successes

Healthy habits established in early childhood build the foundation for lifelong health. In Kentucky, obesity prevention starts at birth as Kentucky birthing facilities are encouraged to achieve the Baby-Friendly Hospital designation. The Baby-Friendly Hospital Initiative recognizes hospitals that provide mothers with the information, confidence, and skills necessary to successfully breastfeed their babies. Literature shows a connection between breastfeeding and lower rates of childhood obesity.[5] Hospitals with this designation have demonstrated that they provide education and counseling on breastfeeding techniques per the United Nations International Children's Emergency Fund and the World Health Organization guidelines. Kentucky currently has four Baby-Friendly Hospitals recognized for their optimal level of support for breastfeeding initiation.

In 2014, the prevalence of obesity in children ages 2 to 4 years old participating in the Kentucky WIC program decreased 5%, which is a larger decrease than in any other state.[6] Success in early care and education can partially be attributed to training child care centers and implementing classroom changes that promote 5-2-1-0 healthy behaviors for all children (Daily consumption of 5 or more servings of fruits and vegetables, 2 hours or less of screen time, 1 hour or more of physical activity and 0 sugary drinks).

In the fall 2016, the Kentucky Board of Education adopted the Alliance for a Healthier Generation's Healthy Schools Program assessment tool for school districts to utilize in evaluation of their practices and policy implementation around physical activity, nutrition, and worksite wellness. From this information, KDE is able to report state aggregate data on the initiatives schools are implementing to prevent obesity in the school setting.

Kentucky addresses issues of community access to healthy foods by working with farmers' markets and Fresh Stop Markets ("pop-up" fresh food markets set up in fresh food insecure neighborhoods) to accept federal nutrition assistance benefits. Of Kentucky's 174 farmers' markets, 55 accept SNAP (Supplemental Nutrition Assistance Program-formerly known as Food Stamps), 90 accept WIC, and 88 accept Senior Farmers' Market Nutrition Program (SFMNP) benefits.[7] In addition to nutrition initiatives, local communities have established coalitions that address walkability by supporting policies and programs to increase physical activity and inclusion of active transportation. Kentucky has multiple communities with "Complete Streets" policies, 56 have adopted bicycle and pedestrian plans, 63 communities are working on funded Safe Routes, and 17 have developed Trail Towns.[8]

Challenges

In Kentucky, most communities lack access to safe and adequate spaces for physical activity and affordable nutritious foods. These challenges directly affect the health behaviors that lead to a higher prevalence of obesity and associated chronic diseases. Initiatives that address access to healthy foods and opportunities for physical activity on a policy and environmental level are most effective in promoting positive health behavior change.[9]

Opportunities

There are established statewide networks consisting of leaders from various government agencies, public health organizations, non-profits, businesses, advocacy groups, and community groups addressing Kentucky's obesity concerns. These groups actively work to share information, network opportunities, and connect with experts who support policy, systems, and environmental changes that promote healthy eating and active lifestyles. Areas of focus include birthing facilities, early care and education centers, schools, worksites, and community access (farmers' markets and pedestrian planning).

The below groups are actively working together on these initiatives:

- Partnership for a Fit Kentucky (chaired by DPH)
- Kentucky Association for Health and Physical Education Recreation and Dance
- Local Food Advisory Network
- Foundation for a Healthy Kentucky
- Early Care and Education Advisory Council
- Kentucky Breastfeeding Coordinators

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[1] Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Division of Population Health. BRFSS Prevalence & Trends Data [online]. 2016. [accessed Apr 12, 2018] https://www.cdc.gov/brfss/brfssprevalence/.

[2] Centers Disease Control and Prevention, 2017 YRBS https://www.cdc.gov/healthyyouth/data/yrbs/results.htm.

[3] Unbridled Health A Plan for Coordinated Chronic Disease Prevention and Health Promotion http://chfs.ky.gov/NR/rdonlyres/EDC31B0E-D81E-4BB0-87CD-C3CCCC837F9/0/UnbridledHealthPlanNovember2013.pdf.

[4] United Health Foundation, American Public Health Association and Partnership for Prevention. (2008). The Future Costs of Obesity: National and State Estimates of the Impact of Obesity on Direct Health Care Expenses. Based on Research by Kenneth E. Thorpe.

[5] Breastfeeding and childhood obesity--a systematic review. (Institute for Social Pediatrics and Adolescent Medicine, 2004, 1247-1256). Full Article: http://www.nature.com/articles/0802758

[6] Pan L, Freedman DS, Sharma AJ, et al. Trends in Obesity Among Participants Aged 2–4 Years in the Special Supplemental Nutrition Program for Women, Infants, and Children — United States, 2000–2014. MMWR Morb Mortal Wkly Rep 2016;65:1256–1260. DOI: http://dx.doi.org/10.15585/mmwr.mm6545a2

[7] Kentucky Department of Agriculture records as of June 2017.

[8] Kentucky Transportation Cabinet Walk/Bike Program records as of June 2017.

[9] Robert Wood John Foundation Commission to Building A Healthier America. (2014). Time to act: Investing in the health of our children and communities: Recommendations from the Robert Wood John Foundation Commission to Building A Healthier America. Retrieved from http://www.rwjf.org/content/dam/farm/reports/reports/2014/rwjf409002

Goals Strategies, and Measures

GOAL 1: Increase access to breastfeeding in birthing facilities and increase breastfeeding rates among Kentucky women.	
Strategy 1.1: Develop a comprehensive plan to increase a culture of breastfeeding among new mothers in Kentucky to reach toward the HP2020 goal of babies that are breastfed. ***Justification:*** *Evidence-based hospital practices play a critical role in assisting mothers to initiate and establish breastfeeding. Studies have demonstrated a strong association between hospital staff training and increased breastfeeding initiation as well as significant increases when hospitals adopt the 10 standards specified by Baby-Friendly USA.*	**Measure 1.1.1:** Increase number of Baby-Friendly Hospitals **Baseline:** 4 (2017) **Target:** 8 (2022) **Data Source:** Baby-Friendly USA **Measure 1.1.2:** Improve CDC Maternity Practices in Infant Nutrition and Care (mPINC) score **Baseline:** 73 (2015) **Target:** 80 (2022) **Data Source:** CDC mPINC Report **Measure 1.1.3:** Increase rate of infants "ever breastfed" **Baseline:** 66.9% (2016) **Target:** 81.1% – consistent with HP2020 goal (2022) **Data Source:** CDC Breastfeeding Report Card **Measure 1.1.4:** Increase rate of infants breastfeeding at 6 months of age **Baseline:** 35.3% (2016) **Target:** 51.8% – consistent with HP2020 goal (2022) **Data Source:** CDC Breastfeeding Report Card **Measure 1.1.5:** Increase rate of infants exclusively breastfeeding at 6 months of age **Baseline:** 19% (2016) **Target:** 22.3% – consistent with HP2020 goal (2022) **Data Source:** CDC Breastfeeding Report Card **Measure 1.1.6:** Increase number of Breastfeeding Peer Support programs

	Baseline: 28 (2017) **Target:** 34 (2022) **Data Source:** DPH, Division of Maternal Child Health, WIC Breastfeeding Program
GOAL 2: Increase the availability of healthier food and beverage choices in communities.	
Strategy 2.1: Promote development of stronger farmers' markets that accept federally sponsored food benefits for those in need. ***Justification:*** *The CDC's recommended evidence-based strategies for obesity prevention create greater access to quality and affordable fruits and vegetables, an important step to increase consumption of healthier foods.*	**Measure 2.1.1:** Increase number of farmers' markets that accept SNAP benefits **Baseline:** 55 (2017) **Target:** 80 (2022) **Data Source:** Kentucky Department of Agriculture (KDA) **Measure 2.1.2:** Increase number of farmers' markets that accept WIC benefits **Baseline:** 90 (2017) **Target:** 100 (2022) **Data Source:** DPH, WIC Farmers' Market Nutrition Program **Measure 2.1.3:** Increase number of farmers' markets that accept SFMNP benefits **Baseline:** 88 (2017) **Target:** 100 (2022) **Data Source:** KDA **Measure 2.1.4:** Increase number of Fresh Stop Markets in fresh food insecure neighborhoods **Baseline:** 14 (2017) **Target:** 20 (2022) **Data Source:** New Roots non-profit program records **Measure 2.1.5:** Increase number of participating farmers'

	markets, Fresh Stop Markets, and retailers in Kentucky Double Dollars Program **Baseline:** 21 (2016) **Target:** 30 (2022) **Data Source:** Community Farm Alliance, Kentucky Double Dollars Report **Measure 2.1.6:** Reduce percentage of food insecure individuals **Baseline:** 15.8% (2017) **Target:** 14% (2022) **Data Source:** Map the Meal Gap Report, Feeding America

GOAL 3: Implement policies to address access to and consumption of healthier foods.	
Strategy 3.1: Work to develop more robust policies for supervision of local decision-making as it relates to food consumption. ***Justification:*** *Promoting healthy lifestyle behaviors including increased fruit and vegetable consumption and wellness increases a healthy culture.*	**Measure 3.1.1:** Increase number of local food policy councils **Baseline:** 2 (2016) **Target:** 6 (2022) **Data Source:** CDC State Indicator Report of Fruits and Vegetables **Measure 3.1.2:** Increase number of school districts procuring locally grown produce for their menus for students and staff **Baseline:** 77 (2017) **Target:** 85 (2022) **Data Source:** KDA **Measure 3.1.3:** Increase percentage of schools implementing all of the components of the state's required local school wellness policy **Baseline:** 45.9% (2017) **Target:** 50% (2022) **Data Source:** KDE, Healthy Schools Program State Aggregate Data

GOAL 4: Increase opportunities for physical activity at all ages.

Strategy 4.1: Work with Kentucky's multiple statewide coalitions to increase the number of policies that make physical activity an easier choice and assure physical environments to support those policies. For example, the Alliance for a Healthier Generation's Healthy Schools Program uses evidence-based programs to create and sustain healthy environments where students, especially those in greatest need, can learn more and flourish.

Justification: *Local policies and the physical environment influence daily choices that affect health and weight status. The CDC's recommended Strategies for Obesity Prevention include increasing opportunities for physical activity. Furthermore, evidence shows that physical activity improves both health outcomes and educational achievement.*

Measure 4.1.1: Decrease percentage of adults who engage in no leisure-time physical activity
Baseline: 32.5% (2015)
Target: 30 (2022)
Data Source: KyBRFS

Measure 4.1.2: Increase percentage of adults who achieve at least 150 minutes a week of moderate-intensity aerobic physical activity or 75 minutes a week of vigorous-intensity aerobic activity (or an equivalent combination)
Baseline: 45.2% (2015)
Target: 47% (2022)
Data Source: KyBRFS

Measure 4.1.3: Increase percentage of students in grades 9-12 who achieve one hour or more of moderate- and/or vigorous-intensity physical activity daily
Baseline: 20.2% (2015)
Target: 25% (2022)
Data Source: YRBS

Measure 4.1.4: Increase percentage of middle school students who are physically active for at least 60 minutes each day of the week
Baseline: 28.7% (2015)
Target: 35% (2022)
Data Source: YRBS

Measure 4.1.5: Increase percentage of elementary schools reporting students are provided at least 20 minutes of recess during each school day
Baseline: 71.1% (2015)

	Target: 75% (2022) **Data Source:** Healthy Schools Program State Aggregate Data **Measure 4.1.6:** Increase percentage of schools enrolled in Alliance for a Healthier Generation's Healthy Schools Program **Baseline:** 25.1% (2015) **Target:** 30% (2022) **Data Source:** Healthy Schools Program State Aggregate Data

GOAL 5: Implement policies to increase opportunities for physical activity.	
Strategy 5.1: Work with local school councils to implement shared-use agreements of some of their facilities (e.g., playgrounds and school tracks). ***Justification:*** *A "shared use" policy can be a formal agreement between two entities, typically a school and another agency such as a city government or a YMCA, to share school facilities during non-school hours or they can be informal, in that a school allows community members to use facilities for exercise without a formal contract with another agency.*	**Measure 5.1.1:** Increase percentage of schools reporting shared-use agreements **Baseline:** 74% (2017) **Target:** 80% (2022) **Data Source:** Kentucky Youth Advocates database
Strategy 5.2: Work with local coalitions and city or county governments to develop and adopt local bicycle/pedestrian master plans. ***Justification:*** *Bicycle/pedestrian plans are the first step to changing community design and building walkable communities (e.g., sidewalks, crosswalks, lighting, bike lanes). Pedestrian plans are an evidence-based strategy to improving the safety and attractiveness of places, promoting active transportation and recreation.*	**Measure 5.2.1:** Increase number of adopted bicycle/pedestrian plans **Baseline:** 52 (2016) **Target:** 65 (2022) **Data Source:** Kentucky Transportation Cabinet Walk Bike Program records

Adverse Childhood Experiences

Adverse childhood experiences (ACEs) are stressful or traumatic events occurring before the age of 18 that disrupt the safe and nurturing environments that children need to thrive. These experiences can have negative and lasting effects on health and wellbeing. Adult outcomes associated with ACEs include, but are not limited to, heart disease, diabetes, obesity, cancer, intimate partner violence, depression, poor anger control, smoking, substance abuse, multiple sex partners, unintended pregnancy, and early death.[1] HP2020 recognizes the association between a history of ACEs exposure and the relationship to violence and injury; however, no current goals and objectives specifically related to ACEs have been identified.

Child Maltreatment:

Physical abuse
Verbal abuse
Sexual abuse
Neglect

Household Dysfunction:

Drinking in the household
Substance use in the household
Domestic violence
Mental illness in the household
Incarceration of family member

A person's ACE score is a measure of cumulative exposure to particular adverse childhood experiences. Exposure to any single ACE condition counts as one point. If a person experienced none of these conditions in childhood, their ACE score is zero.[2] It is important to note that the ACE score does not capture the frequency or severity of any given ACE in a person's life, only the number of categories of ACEs experienced by the individual.

Successes

Research has shown that children thrive best in families who are equipped to handle inevitable turmoil, which is universal. Supportive relationships with caring adults is necessary for appropriate childhood development.[3] In Kentucky, several programs (e.g., Kentucky Strengthening Families, Health Access Nurturing Development Services (HANDS) home visitation program, Kentucky Youth Thrive, the University of Kentucky Young Parents Program (YPP) and

Building Resilient Children and Families (BOUNCE) in Louisville) are ongoing in both urban and rural settings, and support families to develop skills to enhance protective factors and build resilience. These skills reduce the impact of adversity, build resiliency, and therefore improve the wellbeing of children and families. These skills include:

- Self-respect and other personal values and attitudes
- Social skills
- Helpful and optimistic thinking
- Skills for getting things accomplished

Kentucky school districts are also pursuing resilience-building strategies, which will provide students with improved mental and physical health outcomes as they grow into adults. These programs include ACEs training for teachers and staff, trauma informed care as well as the Teen Outreach Program, the Sources of Strength Program, and The Leader in Me Program, which are all designed to facilitate and encourage student success. As of August 2017, 90 elementary schools in 28 districts have begun teaching about drug, alcohol, and tobacco to elementary students.

Challenges

In 2015, Kentucky introduced an ACEs module for the telephone survey, KyBRFS, collecting state data regarding health-related risk behaviors, chronic health conditions, and use of preventive services. This allowed the department to establish a baseline measurement for comparisons of ACEs and their impact on health and health outcomes. The 2015 KyBRFS results are consistent with the findings from the original ACEs Study conducted by Kaiser Permanente and the CDC and other ACEs studies. Survey results show 59% of Kentucky residents have experienced at least one ACE. In Kentucky, 64% of the individuals who experienced at least one ACE have experienced two or more ACEs. Data from the 2015 KyBRFS also indicates that many people experienced more than one type of ACE event. Of those who experience at least one ACE, 36% experienced divorce in the household, 27% experienced a drinking problem in the household, and 26% experienced verbal abuse.[4]

A review of chronic conditions and health risk behaviors in relation to ACEs shows an increase in certain behaviors/chronic conditions for those experiencing four or more ACEs compared to those experiencing no ACEs.Kentuckians experiencing five or more ACEs (compared to those with no ACEs) are:

- Almost five times as likely to have depression
- Over four times as likely to have poor mental health
- Almost four times as likely to be a current smoker
- Almost two and a half times more likely to have asthma

The data gleaned from the 2015 KyBRFS and other sources, including the YRBS, and the KIP survey, support addressing ACEs in the health care setting as well as in communities. A better understanding of the adverse events experienced by an individual during childhood could provide insight into their physical and mental health status as an adult.

Opportunities

ACEs can be severe, frequent, and unrelenting. They can severely impact the body's stress response systems and may result in the disruption of typical brain development and chemistry. This type of stress is called *toxic stress*. Fortunately, research suggests that there are things we can do to buffer toxic stress, preventing or reversing its effects. Healthy environments need to be created in which children subjected to toxic stress can find relief, feel safe, experience adult support, and learn resiliency skills.[5] Programs and school curricula need to include resilience-building techniques to help children respond to ACE stressors. Resilience provides children and youth the ability to recover and rebuild from difficult situations.[6]

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[1] Child Trends; Research Brief; Adverse Childhood Experiences; Year 2014.
[2] The Adverse Childhood Experiences (ACE) Study; Centers for Disease Control and Prevention. Retrieved Nov. 4, 2016
[3] Adverse Childhood Experiences; Substance Abuse and Mental Health Services Administration, Rockville, MD; Retrieved Nov. 4, 2016.
[4] Data Brief: Common ACEs in Kentucky Department for Public Health Division of Maternal & Child Health December 2016.
[5] Franke HA. Toxic Stress: Effects, Prevention and Treatment. Acra S, ed. Children. 2014;1(3):390-402. doi:10.3390/children1030390.
[6] Christina D. Bethell, Paul Newacheck, Eva Hawes and Neal Halfon. Adverse Childhood Experiences: Assessing The Impact On Health and School Engagement and The Mitigating Role of Resilience Health Affairs, 33, no.12 (2014):2106-2115.

Goals, Strategies, and Measures

GOAL 1: Improve Kentucky's awareness of ACEs.	
Strategy 1.1: Provide ACEs awareness activities across the state including the impact of ACEs on an individual's health, the importance of strengthening families, and building resiliency in children and teens. Develop and implement a collaborative promotional plan that includes messaging through multiple platforms (social media, earned media, paid media, out of home media, presentations, lobby days, storytelling, and other outlets). ***Justification:*** *Kentuckians need to understand ACEs and their impact on individuals and communities in order to improve resiliency.*	**Measure 1.1.1:** Increase number of residents reached through promotional materials and ACEs awareness messaging **Baseline:** Unknown (2017) **Target:** Establish baseline and reach 500,000 (2022) **Data Source:** DPH media tracking **Measure 1.1.2:** Increase number of legislators reached through promotional materials and ACEs awareness messaging **Baseline:** Unknown (2017) **Target:** Establish baseline and reach 50% (2022) **Data Source:** DPH media tracking

GOAL 2: Increase availability of resiliency training strategies to develop knowledge and skills to address ACEs.	
Strategy 2.1: Identify existing evidence-based and evidence-informed curriculum that support family, build resiliency skills in children, teens, and adults, and potentially reduce ACEs. Develop a repository of curriculums and programs supporting protective factors and building resiliency skills. ***Justification:*** *Although there are ongoing efforts to address ACEs and increase resilience, there is a lack of uniformity, evidence-based programming, and standardization in Kentucky's approaches.*	**Measure 2.1.1:** Creation of repository **Baseline:** 0 (2017) **Target:** 1 (2022) **Data Source:** Repository posted to DPH website
Strategy 2.2: Facilitate training and technical assistance to communities, agencies, and other partners desiring to address ACEs,	**Measure 2.2.1:** Increase percentage of counties that have participated in at least one resiliency training and/or technical

family support, and resiliency education in their community. ***Justification:*** *Trainings and technical assistance will ensure that communities are adequately prepared to support families by sharing evidence-based strategies, building resiliency skills for children, teens, and adults, and potentially reducing the impact of ACEs.*	assistance **Baseline:** Unknown (2017) **Target:** Establish baseline and increase to 85% (2022) **Data Source:** DPH **Measure 2.2.2:** Increase percentage of counties that have at least one resiliency program in place **Baseline:** Unknown (2017) **Target:** Establish baseline and increase to 85% (2022) **Data Source:** DPH

GOAL 3: Increase capacity and collaboration with state and local partners to address ACEs in Kentucky.	
Strategy 3.1: Identify partners in divisions or agencies within CHFS, Administrative Office of the Courts, KDE, and other agencies or institutions that integrate principles of ACEs reduction, strengthening families and building resilience in their programs. Establish the "Partnership for a Resilient Kentucky" (PaRK) taskforce, dedicated to addressing ACEs and promoting healthy families with strong resilience skills. ***Justification:*** *A collaborative effort between state and local agencies and local communities to address the origins of ACEs and to promote programs that build families and resilience will be effective to reduce ACEs in Kentucky and improve health outcomes for Kentucky citizens.*	**Measure 3.1.1:** Increase number of partners involved in PaRK **Baseline:** 0 (2017) **Target:** 10 (2019) **Data Source:** DPH program records **Measure 3.1.2:** Increase number of annual meetings for collaboration among PaRK partners **Baseline:** 0 (2017) **Target:** 2 per year (2019) **Data Source:** DPH records **Measure 3.1.3:** Increase number of identified funding opportunities (e.g., federal and state funding streams, private funds, foundations) **Baseline:** Unknown (2017) **Target:** Establish baseline and increase by 5% (2022) **Data Source:** DPH records

Integration to Health Access

The definition of integration to health access determined by the statewide collaborative workgroup for the purpose of this SHIP is "to ensure all Kentuckians have access to integrated medical, dental, behavioral, mental and social services to improve and maintain their health through the development of coordinated, multi-disciplinary systems of care." The Integration to Health Access Workgroup was formed to define what health access means for Kentucky and establish a vision and plan for the transformation and improvement of population health outcomes in communities across the commonwealth.

This preventative strategy enables integration of innovative clinical care services and community-based health services via the "three buckets of prevention" as framed in Public Health 3.0:

1. *Improve the use of clinical preventive services.*
2. *Provide innovative clinical prevention outside of clinical settings.*
3. *Implement community-wide preventive interventions*.

An overarching vision is to have multi-sector collaboration among community partners to maximize impact and leverage all community resources to improve access to preventive services, meet essential human needs, reduce health disparities, and improve local social determinants of health. Focus on policy and system changes by using regulatory and statutory updates is essential for maximizing impact and for sustainability.

Data

Kentucky demonstrates strengths and weaknesses regarding health access:

- The prevalence of Kentuckians without healthcare coverage is below the national median (7.3% vs. 10.8%).[1]
- Lack of health care coverage significantly decreased with increasing annual household income level. The highest percentage was among adults with an annual household income between $25,000-$49,999 at 11.4%.[1]
- Adults with less than high school education reported a significantly higher prevalence of no healthcare coverage than those with a college degree (11% vs 3.1%).[1]
- Kentucky has 120.6 active primary care physicians per 100,000 vs the US average of 149.7

per 100,000.[2]

- The ratio of mental health providers in Kentucky is 194.6 per 100,000 vs the US average of 218.0 per 100,000.[2]
- Kentucky has 54.6 dentists per 100,000 vs the US average of 60.8 per 100,000.[2]
- Kentucky spends $79.00 per person on public health funding vs the US average of $86.00 per person.[2]

Successes

Beginning in 2014, Kentucky has prioritized increased access to health care. The Medicaid expansion allowed Kentucky citizens who earned up to 138% of the poverty level to become eligible for coverage. As a result, the percentage of uninsured in the commonwealth has dropped dramatically. Data collected by CHFS shows that the new Medicaid beneficiaries are taking advantage of preventive screenings, with the following increases from 2013 to 2014 as follows:

- 30% increase in breast cancer screenings
- 3% increase in cervical cancer screenings
- 16% increase in colorectal cancer screening
- 37% increase in adult dental visits[3]

Challenges

Given the volatility of healthcare policy at the national level, future insurance coverage remains uncertain. We will continue to monitor the national situation and seek to increase access for Kentuckians.

Cost is always a factor in health care and health care access. Tremendous resources are required to provide programs that improve the health of those who may not have health care coverage. At the time of publish, there are still 7% of Kentuckians who do not have health insurance.[4] Programs such as the Department for Medicaid Services 1115 Waiver: Kentucky HEALTH (Helping to Engage and Achieve Long Term Health) are offering premium assistance to help pay for job-based coverage. Recently, there has been a national shift from acute care to highlighting preventive medicine. This is a paradigm shift for both the nation and Kentucky. This change can create confusion for the consumer in regards to health literacy. There are knowledge gaps in what is covered with insurance, how to find a medical home, and how to navigate within the health care system. Such concerns are outlined with known barriers to accessing health services listed in HP2020 (unmet health needs, inability to get preventive services, financial burdens, and preventable hospitalizations).[5] These all are symptoms of a deeper issue: *Can Kentuckians be healthy with the resources presently available?* A multi-disciplinary approach is required if success is to be found.

Opportunities

In June 2017, stakeholders developed a comprehensive plan to address the oral health of Kentuckians, including access to oral care. Programs and partners from across the state are participating in this process. Again, this provides an opportunity to examine what is occurring in Kentucky and develop strategies to combat the issues.

DPH continues to examine innovative ways address health and health delivery. Local health departments are using Public Health 3.0 as a holistic guide to lead Kentucky communities on a path to better health. The Kentucky Community Health Worker Advisory Workgroup and the Kentucky Association of Community Health Workers are working to promote access to Community Health Workers within health systems and outside the clinical setting. Statewide alliances and coalitions such as the Kentucky Diabetes Network, Alliance for a Better Community, Kentuckiana Health Collaborative are all working to promote public awareness, education, and the use of evidence-based practices.

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[1] Kentucky Department for Public Health (KDPH). *State Health Assessment Report, 2017 Update*. Frankfort, Kentucky: Cabinet for Health and Family Services, Kentucky.
[2] United Health Foundation. American Health Rankings. Retrieved January 30, 2018 from https://assests.americashealthrankings.org/app/uploads/ahrannual17_complete-121817.pdf
[3] https://www.healthinsurance.org/kentucky-medicaid/ Retrieved August 3, 2017.
[4] University of Wisconsin Population Health Institute. *County Health Rankings.* Retrieved August 4, 2017 from *http://www.countyhealthrankings.org/sites/default/files/state/downloads/CHR2017_KY.pdf* Key Findings 2017.
[5] Access and Disparities in Access to Health Care [Internet]. Rockville (MD): Agency for Healthcare Research and Quality; May 2016. Retrieved December 18, 2017.
from: http://www.ahrq.gov/research/findings/nhqrdr/nhqdr15/access.html

Goals, Strategies, and Measures

GOAL 1: Improve health literacy by simplifying and standardizing health insurance.	
Strategy 1.1A: Coordinate with state agencies (including Kentucky Department for Insurance, DPH, DMS, etc.) to reduce health insurance complexity by making health plans simpler and more understandable for consumers to make informed decisions. **Strategy 1.1B:** Promote continued development of clearer language used to explain health plans for Medicaid enrollees, where possible, by the end of fiscal year 2018. **Strategy 1.1C:** Encourage assessment and coordination among state agencies, private insurance companies, providers and health coalitions, to provide outreach and enrollment assistance. By 2018, LHDs will provide input to assist Medicaid enrollees with a plan to identify where assistance is needed. **Strategy 1.1D:** Support education of Medicaid enrollees about how commercial health coverage works so they can maximize the benefits of their plans. DPH and LHDs will participate in the development of information to educate consumers on health coverage. ***Justification (Strategies 1.1A-1.1D):*** *Kentucky's Medicaid 1115 Waiver includes a goal to increase insurance literacy and improve health literacy in terms of medical consumer knowledge. By becoming better informed, the enrollee is able to make better personal and plan choices.*	**Measure 1.1.1:** Increase number of Medicaid enrollees who understand their health plan **Baseline:** Unknown (2017) **Target:** Establish baseline and increase by 5% (2022) **Data Source:** Medicaid enrollment

GOAL 2: Expand access to health care services within and outside clinical settings using innovative delivery models.	
Strategy 2.1: Encourage higher educational institutions to create health care workforce development strategies that respond to emerging needs in the field (e.g., dental hygienists, community health workers). DPH and other stakeholder will collaborate in the development of strategies and implementation of strategies in each of the eight Medicaid regions. ***Justification:*** *There is a national shortage of health care professionals. Without an adequate workforce (e.g., physicians, nurses, dentists, physician assistants), health access will remain difficult. Additionally, as society becomes more technologically advanced, new ways of providing care should be considered to increase health access.*	**Measure 2.1.1:** Increase number of higher education institutions that have a health care workforce development strategy **Baseline:** Unknown (2017) **Target:** 8 – one in each Medicaid region (2019) **Data Source:** Kentucky Center for Education and Workforce Statistics **Measure 2.1.2:** Increase number of higher education institutions that have implemented a health care workforce development strategy **Baseline:** Unknown (2017) **Target:** 8 – one in each Medicaid region (2019) **Data Source:** Kentucky Center for Education and Workforce Statistics **Measure 2.1.3:** Increase number of students enrolled in a health care professional careers **Baseline:** 33% Certificate, 42% Associate's, 20% Bachelor's, 22% Master's (2010) **Target:** Increase by 10% (2022) **Data Source:** Kentucky Center for Education and Workforce Statistics **Measure 2.1.4:** Increase number of organizations (and county coverage) that utilize Community Health Workers within and outside of clinical settings **Baseline:** 14 organizations covering 36 counties (2017) **Target:** 30 organizations covering 60 counties (2022) **Data Source:** DPH, Kentucky Community Health Worker Advisory Group

Strategy 2.2: Develop and establish training on virtual health services for health service providers (e.g., hospitals, federally qualified health centers, community health centers, and private physician offices) and consumers. Currently, a team from DMS, DPH, the University of Kentucky (UK), and the University of Louisville (UofL) is developing the telehealth strategic plan. ***Justification:*** *Implementation of telehealth mechanisms will improve health care access.*	**Measure 2.2.1:** Increase number of health agencies that receive training on virtual health services **Baseline:** Unknown (2017) **Target:** Establish baseline and increase by 5% (2022) **Data Source:** Kentucky Telehealth Board
Strategy 2.3: Expand the adoption of telemedicine technologies (e.g., remote patient monitoring) to increase access to health care services for people living in rural and other underserved communities. ***Justification:*** *Implementation of telehealth mechanisms will improve health care access.*	**Measure 2.3.1:** Increase number of adopted telemedicine technologies (e.g., remote patient monitoring) **Baseline:** Unknown (2017) **Target:** Establish baseline and increase by 5% (2022) **Data Source:** Kentucky Telehealth Board
Strategy 2.4: Maximize Kentucky Health Information Exchange (KHIE) participation among health care delivery systems. Continue to ensure privacy and security of electronic health information. Support the use of electronic data, measurement and clinical decision support tools, and promote providers using electronic data sources to accurately report health care quality for local and regional use. ***Justification:*** *Implementation of telehealth mechanisms will improve health care access.*	**Measure 2.4.1:** Increase number of health care delivery agencies participating in KHIE **Baseline:** 1,583 (2017) **Target:** 80% of all health care delivery agencies (2020) **Data Source:** KHIE

GOAL 3: Strengthen community cross-sector health coalitions.	
Strategy 3.1: Train LHD directors on Public Health 3.0 to serve as the lead health strategist in their communities and encourage cross-sector health coalitions. ***Justification:*** *LHD directors are the most appropriate convener of cross-sector health coalitions because of their unique knowledge and influence within their local community.*	**Measure 3.1.1:** Increase percentage of LHD directors and who have received training on Public Health 3.0 **Baseline:** Unknown (2017) **Target:** Establish baseline and increase to 75% (2022) **Data Source:** Kentucky Oral Health Coalitions, LHDs, Kentucky Population Health Institute
Strategy 3.2: Identify communities that have established cross-sector health coalitions and promote them as "best practices" among other LHDs. Convene LHD directors and community leaders at a "Health Access Workgroup" to present the work of these coalitions, promote collaboration, and facilitate additional support. ***Justification:*** *Communities could discover innovative practices through sharing, networking, and collaborating with other LHDs who have successfully facilitated multi-sector coalitions.*	**Measure 3.2.1:** Increase percentage of LHDs who establish cross-sector health coalitions that include social support services and oral health **Baseline:** Unknown (2017) **Target:** Establish baseline and increase to 50% (2020) **Data Source:** Kentucky Health Department Association
Strategy 3.3: Educate and promote a "Health in All Policies" (HiAP) approach across Kentucky. DPH will conduct seminars and conferences to educate local and state leaders across all sectors and policy areas on HiAP approach and its implications on health. ***Justification:*** *HiAP will assist with showing how non-traditional partners can improve health using their sphere of influence.*	**Measure 3.3.1:** Increase percentage of LHDs and multisector coalitions who are trained on HiAP **Baseline:** Unknown (2017) **Target:** Establish baseline and increase to 75% (2020) **Data Source:** DPH Office of Health Equity

Call to Action

Nearly every Kentuckian has a family member, friend, or co-worker who has been affected by poor health outcomes. Kentucky's SHIP can assist in improving these outcomes through a united effort and shared vision to create healthier people and healthier communities. Together we can make healthy living easier and more affordable by looking at creative solutions that address the places where people live, learn, work, play, and receive care. Collaboration ensures that the whole is greater than the sum of its parts.

How do you and your organization fit into this projected picture of health in Kentucky?

You are a key part of the team, and here are some examples of ways you can begin to make a difference.

Schools

- Support all Kentucky school districts to pass and implement a 100% Tobacco Free School policy
- Implement a comprehensive school physical activity program
- Adopt and implement comprehensive wellness policies outlining opportunities for student and staff wellness
- Promote health professional careers
- Implement the Whole School, Whole Community, Whole Child Framework to improve student health and academic success
- Engage local community partners to meet the needs of students and their families

Universities

- Develop programs to educate on public health issues: substance use disorder, healthy lifestyle
- Make the entire campus 100% tobacco free
- Increase the number of students in health professional careers
- Fund and support research and interventions addressing behaviors and environmental factors that lead to or worsen chronic diseases such as cancer, heart disease, diabetes, and mental health

Legislators

- Sponsor or support legislation that insures smoke free initiatives in all Kentucky public spaces
- Assure funding for state and local population health foundational efforts
- Raise awareness of Kentucky's health focus areas by participating in existing programs, or sponsor new programs as needed in each district
- Hold government organizations accountable for cultural competency training and diversifying the workforce

Employers

- Implement comprehensive tobacco free policies
- Implement HiAP mindset
- Adopt comprehensive worksite wellness programs
- Provide healthy food options in vending machines and cafeterias
- Provide health promotion material to staff
- Provide health insurance coverage or give information on how to obtain health insurance
- Educate staff on benefits offered

State Government

- Encourage physical activity and a state of wellness
- Promote Health in All Policies in the organization culture
- Develop a culturally diverse workforce
- Continue to promote and support statewide programs, policies, and best practices addressing chronic and emerging public health issues

Hospitals

- Collaborate to sponsor community educational programs
- Seek or maintain accreditation/certification to ensure quality (e.g., Heart, Stroke, Baby Friendly, Cancer, etc.)
- Utilize and encourage best practices for breastfeeding infants and lactation support

Community Organizations

- Collaborate with local government to fill gaps in services to the local community
- Provide health promotional information to the members and participate in spreading this information in your community
- Work with local health departments for strategic planning in the community
- Attend public hearings and meetings on health related ordinances and activities

Faith-based Organizations

- Encourage parishioners to be informed and participate in their own health care decisions
- Provide health promotional information to parishioners and offer health promotion screenings
- Offer space, if available, for physical activity programs
- Encourage parishioners to be involved in community events

Health Care Professionals

- Provide culturally relevant counseling, information and referrals for preventive screenings
- Refer patients to smoking cessation, physical activity, nutrition, breastfeeding, disease self-management, and behavioral health programs
- Prescribe pain mediation with caution as recommended by the CDC chronic pain management guidelines

Local Health Departments

- Continue support to Local Health Department Accreditation through the Public Health Accreditation Board (PHAB)
- Provide leadership as the public health strategist in your communities
- Promote community health worker and navigation services to clients
- Actively seek community coalitions and individual stakeholders when developing policies
- Implement Health in All Policies mindset
- Utilize evidence-based programming to address community needs

Kentuckians

- Stop using tobacco products or never start
- Support comprehensive tobacco free environmental policies
- Increase daily physical activities
- Understand the science of substance use disorder
- Decrease intake of sugar sweetened beverages
- Access and support local food economy
- Advocate for community health needs including access to safe and clean spaces to be physically active, access to healthier foods, access to health services, and healthier school environments for children and adolescents
- Get involved in local community health actions through coalitions and other organizations

State Health Improvement Plan Contributors

The focus area workgroups, composed of representatives from LHDs, colleges and universities, professional organizations, faith-based organizations, mental health community, legislators, civic groups, managed care organizations, non-profit organizations, and hospital organizations, completed their assigned task to make recommendations to the SHIP Committee toward the goals and strategies in June 2017. After completion of this SHIP document in August, the workgroups will be appraised of their focus workgroup's outcomes status through a SHIP dashboard and conference calls every six months. The workgroups all agreed to contribute their expertise to development of an in-depth supporting document of their focus area to support the recommendations of the SHIP.

DPH has agreed to take the lead on coordinating the completion of the goals/strategies of the SHIP but have support from the vast array of agencies that contributed to this document. Listed below are the individuals and their agencies that helped to develop our plan. We thank them for their time and energy to improve the health of all Kentuckians.

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Acronyms

ACEs	Adverse Childhood Experiences
AHR	America's Health Rankings
ASTHO	Association of State and Territorial Health Officers
BHDID	Kentucky Department for Behavioral Health, Developmental and Intellectual Disabilities
BOUNCE	Building Resilient Children and Families
CDC	Centers for Disease Control and Prevention
CHFS	Cabinet for Health and Family Services
CHIPs	Community Health Improvement Plans
COPD	Chronic Obstructive Pulmonary Disease
DMS	Department for Medicaid Services
DPH	Kentucky Department for Public Health
ED	Emergency Department
FDA	Food and Drug Administration
HANDS	Health Access Nurturing Development Services
HI-5	Health Impact in Five Years
HiAP	Health in All Policies
HIV	Human Immunodeficiency Virus
HP2020	Healthy People 2020
IDD	Intellectual and Developmental Disabilities
KASPER	Kentucky All Schedule Prescription Electronic Reporting
KDE	Kentucky Department of Education
KHIE	Kentucky Health Information Exchange
KIP	Kentucky Incentive for Prevention
KIPRC	Kentucky Injury Prevention and Research Center
KORE	Kentucky Opioid Response Effort
KY-ASAP	Kentucky Agency for Substance Abuse Policy
KyBRFS	Kentucky Behavioral Risk Factor Surveillance System
LEADS	Lung Cancer Education Awareness Detection Survivorship
LGBT	Lesbian, Gay, Bisexual and Transgender
LHDs	Local Health Departments
MAT	Medication Assisted Therapy
MME	Morphine Milligram Equivalent
mPINC	CDC Maternity Practices in Infant Nutrition and Care
NAS	Neonatal Abstinence Syndrome

NRT	Nicotine Replacement Therapy
PaRK	Partnership for a Resilient Kentucky
PROSPR	Population-Based Research Optimizing Screening through Personalized Regiments
REACH	Resources for Education, Adaptation, Change & Health
SDOH	Social Determinants of Health
SFMNP	Senior Farmers' Market Nutrition Program
SHA	State Health Assessment
SHIP	State Health Improvement Plan
SNAP	Supplemental Nutrition Assistance Program
SUD	Substance Use Disorder
UK	University of Kentucky
UNICEF	United Nations International Children's Emergency Fund
UofL	University of Louisville
WHO	World Health Organization
WIC	Women, Infants and Children
YPP	University of Kentucky Young Parents Program
YRBS	Youth Risk Behavior Survey

Kentucky Public Health
Prevent. Promote. Protect.

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