



# Commonwealth of Kentucky

## State Innovation Model (SIM) Model Design Grant

**Draft Population Health Improvement Plan (PHIP)**

**Initial CMS Submission: May 29, 2015**

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# Introduction

## SIM Overview

On December 16, 2014, the Kentucky Cabinet for Health and Family Services (CHFS) received a \$2M State Innovation Model (SIM) Model Design grant from the Center for Medicare & Medicaid Innovation (CMMI) within the Centers for Medicare & Medicaid Services (CMS). CMMI created the SIM initiative for states that are committed to planning, designing, testing, and supporting the evaluation of new payment and service delivery models in the context of larger health system transformation, with a special focus on population health improvement. The objective of Kentucky's SIM Model Design grant is to engage a diverse group of stakeholders, including but not limited to public and commercial payers, providers, advocacy groups, employers, and consumers to develop a State Health System Innovation Plan. The first component to be developed as part of the State Health System Innovation Plan is a Population Health Improvement Plan (PHIP), which is a plan to improve the health of the state population within the context of the health system delivery and payment transformation plans developed in SIM.

## PHIP Overview

Kentucky ranks poorly when measured against key health indicators at the national level, ranking 47th among all states in 2014 (America's Health Rankings, 2014). Kentuckians have a higher prevalence of smoking, obesity, diabetes, heart disease, and cancers, which contribute to the Commonwealth's lower ranking. For purposes of the SIM Model Design, this PHIP provides an initial assessment of the gaps in access to care and the health status disparities Kentucky seeks to address in the delivery system transformation initiatives designed over the course of the Model Design period, which ends on January 31, 2016. This plan will be continually updated to reflect draft SIM strategies for addressing high priority areas and gaps as they are developed and reach consensus between the Cabinet and its stakeholders.

A central theme of Kentucky's PHIP will be to leverage and build upon interventions and strategies already underway in the Commonwealth, primarily Governor Beshear's kyhealthnow initiative announced in February 2014, which is comprised of statewide goals and strategies designed to significantly advance the health and wellness of Kentucky's citizens. In addition to the three key population health focus areas prescribed by CMS and the Centers for Disease Control and Prevention (CDC) through SIM – tobacco, obesity, and diabetes – kyhealthnow contains four additional focus areas that Kentucky plans to address in this PHIP. These additional population health focus areas are cardiovascular disease, cancer, oral health, and drug overdose/poor mental health days.

For the purposes of the PHIP, the remaining kyhealthnow strategy – to reduce Kentucky's rate of uninsured individuals to less than 5% – will not be included as a goal for SIM as Kentucky has had tremendous success in increasing coverage through kynect, Kentucky's state-run health benefit exchange. Additionally, in May 2013, Governor Beshear announced the expansion of Medicaid to adults with incomes up to 138% of the Federal Poverty Level (FPL) as part of the Affordable Care Act (ACA). As a result of this expansion, more than 300,000 Kentuckians enrolled in the Medicaid expansion by the end of June 2014, which materially exceeded expectations. Today, more than 500,000 Kentuckians have obtained affordable health insurance through both kynect and Medicaid expansion, and this number continues to grow. National data indicates that Kentucky experienced the second largest decrease of any state in its uninsured rate through 2014, dropping from 22.5% uninsured in 2013 to 11.4% uninsured in 2014, a decrease of 11.1 percentage points.

In addition to kyhealthnow, the PHIP will be developed in alignment with the Commonwealth's Coordinated Chronic Disease Prevention and Health Promotion Plan, or *Unbridled Health*, whose mission is to create a healthier Kentucky through a collaborative, coordinated approach to health promotion and chronic disease prevention and

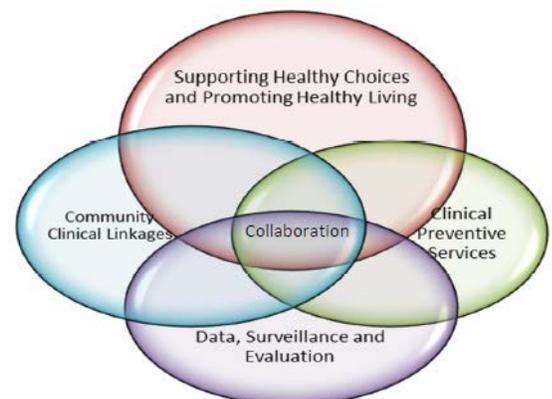


Figure 1. Unbridled Health Framework

management. Unbridled Health, launched in 2012, provides a framework in which organizations and individuals can unite as one powerful force to reduce the significant chronic disease burden in Kentucky. The framework includes policy, systems and environmental changes that support healthy choices; expanded access to health screenings and self-management programs; strong linkages among community networks; and research data that are used as a catalyst for change. Each strategic area in Unbridled Health provides a variety of action items for potential implementation, as well as health outcome indicators which provide both a baseline from which to begin, and a target to gauge our progress as a Commonwealth<sup>1</sup>.

Together kyhealthnow and Unbridled Health provide a solid foundation from which to address population health through SIM. Beginning with this framework, Kentucky plans to expand the PHIP over the course of the Model Design period into a data-driven implementation plan that will propose measurable goals, objectives, and interventions to help improve the health of the entire state population. CHFS plans to work closely with the SIM stakeholders and workgroups outlined in the Stakeholder Engagement section of this plan to develop these strategies, and will leverage the technical assistance that is available from SIM federal partners at CDC for any issues that may arise related to further development of this plan.

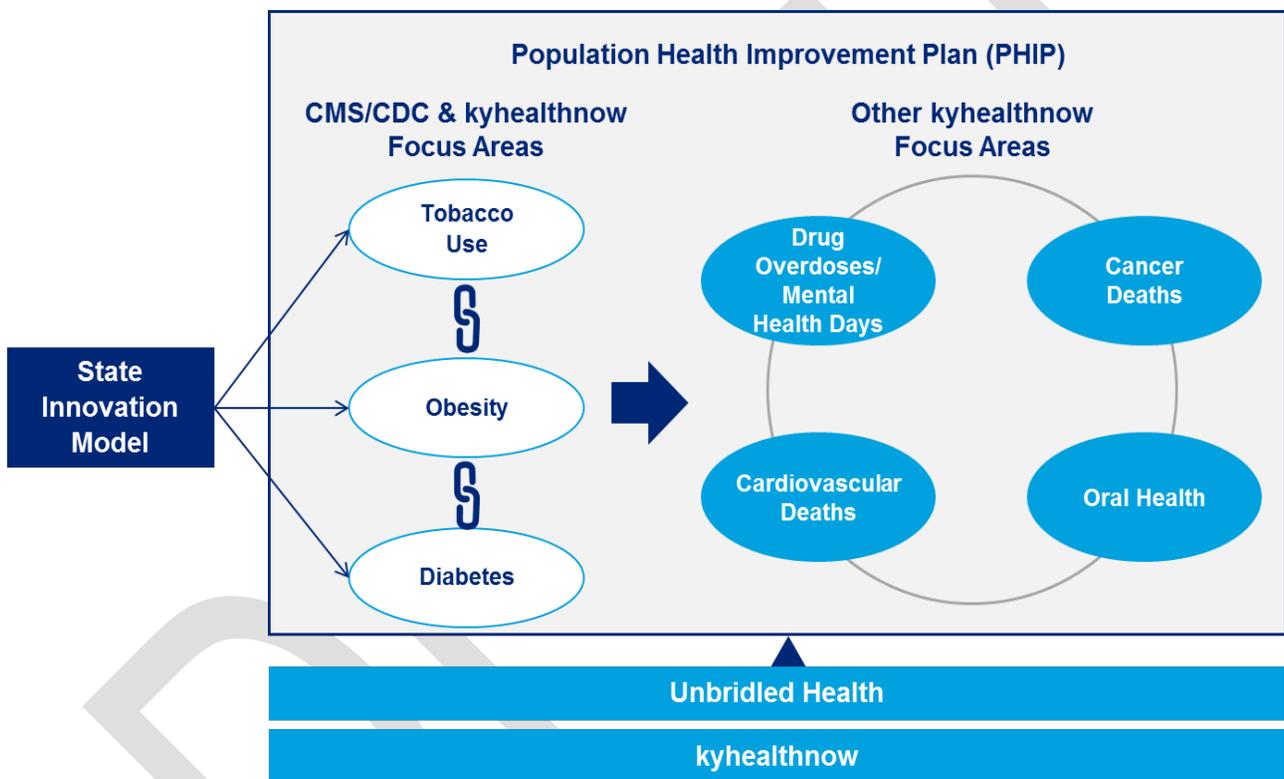


Figure 2. Population Health Improvement Plan (PHIP) Framework.

## Current Health Initiatives

A key goal of Kentucky’s PHIP will be to leverage and build upon interventions and strategies already underway in the Commonwealth. While kyhealthnow will serve as the framework for this plan, there are additional efforts that will be leveraged to drive the Commonwealth towards improved population health in coordination with the PHIP and the SIM Model Design, as detailed herein.

<sup>1</sup> [Unbridled Health](#)

## kyhealthnow

Governor Steve Beshear has made improving the health and wellness of Kentucky's children, families and workforce one of his highest priorities. In February 2014, Governor Beshear announced kyhealthnow<sup>2</sup>, an initiative designed to significantly advance the wellbeing of Kentucky's citizens. This initiative established seven health goals for the Commonwealth along with a number of specific strategies to help achieve these goals through 2019. These strategies will be implemented through executive and legislative actions, public-private partnerships and through the success of enrolling Kentuckians into expanded health care coverage.

Lieutenant Governor Crit Luallen serves as chair of the kyhealthnow oversight team, and DPH Commissioner Dr. Stephanie Mayfield serves as vice chair. The group meets quarterly and reports to the Governor every six months. The kyhealthnow oversight team is composed of leaders from every state Cabinet, along with input and partnerships from various nonprofit and private sector agencies. As outlined throughout the PHIP, the formal kyhealthnow goals are as follows:

1. *Reduce Kentucky's rate of uninsured individuals to less than 5%*
2. *Reduce Kentucky's smoking rate by 10%*
3. *Reduce the rate of obesity among Kentuckians by 10%*
4. *Reduce Kentucky cancer deaths by 10%*
5. *Reduce cardiovascular deaths by 10%*
6. *Reduce the percentage of children with untreated dental decay by 25% and increase adult dental visits by 10%*
7. *Reduce deaths from drug overdose by 25% and reduce by 25% the average number of poor mental health days of Kentuckians.*

A more detailed list of each goal, related strategies, and other resource material can be found at: <http://kyhealthnow.ky.gov>.

## Emergency Department Super-Utilization Initiative

One of the specific initiatives outlined by Governor Steve Beshear at the close of the 2013 Regular Session of the General Assembly was the task of emergency room (ER) improvements. This directive outlined a need for program development with a focus on efficient and effective emergency room management that meets community needs without an ER operating as a de-facto primary care office. In May of 2013, Dr. Stephanie Mayfield, MD, FCAP, Kentucky Department for Public Health Commissioner, in collaboration with Dr. John Langefeld, MD, Kentucky Department for Medicaid Services Chief Medical Officer, formed an initial workgroup to evaluate, recommend, and implement models that efficiently navigate patients, focusing on decreasing emergency room super-utilization. This group identified 16 initial hospital sites that were asked to participate in Phase I of the project.

Realizing that decreasing high emergency room utilization would require long term planning and system changes, Kentucky was awarded participation in a National Governor's Association (NGA) Policy Academy to address ED super-utilization in July 2013. Kentucky's model approach to address emergency department (ED) super-utilization began regionally and expanded statewide in August 2014. The Kentucky Department for Public Health provides assistance to hospital sites through workgroup conference calls, data analysis and specific technical expertise.

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<sup>2</sup> [kyhealthnow](http://kyhealthnow.ky.gov)



**Figure 3. Kyhealthnow**



PHIP Focus Areas

		Tobacco	Obesity	Diabetes	Cardio-vascular Disease	Cancer	Oral Health	Drug Overdose / Poor Mental Health Days
Unbridled Health Strategic Initiatives	<b>Unbridled Health Strategy 1:</b> <i>Promote policy, environmental and system changes that will support healthy choices and healthy living in Kentucky and its communities</i>							
	<b>Key Initiative:</b> Tobacco prevention and control policies	X						
	<b>Key Initiative:</b> Access to healthy foods and nutrition education		X					
	<b>Key Initiative:</b> Comprehensive physical activity policies and environments in schools, child care centers and communities		X					
	<b>Key Initiative:</b> Worksite wellness policies and programs to Kentucky businesses		X					
	<b>Key Initiative:</b> Breastfeeding		X					
	<b>Unbridled Health Strategy 2:</b> <i>Expand access to coordinated, quality, evidence-based clinical screenings, clinical management and chronic disease self-management</i>							
	<b>Key Initiative:</b> Evidence-based clinical screenings for chronic diseases			X	X	X	X	X
	<b>Key Initiative:</b> Evidence-based clinical management practices for chronic diseases			X	X	X		X
	<b>Key Initiative:</b> Provider and individual awareness of and referral to self-management opportunities in the community			X	X	X		
<b>Key Initiative:</b> Reduction in out-of-pocket cost to the consumer for clinical preventive services			X	X	X		X	
<b>Key Initiative:</b> Patient navigation and coordination of care			X	X	X			
<b>Key Initiative:</b> Efforts to improve health literacy/understanding among Kentuckians			X	X	X			

Figure 6. PHIP Alignment with Unbridled Health Strategies and Initiatives.

# Health Needs Assessment

Both kyhealthnow and Unbridled Health present goals, initiatives, and action items targeted at improving Kentucky's health status in specific areas. This section of the PHIP presents current kyhealthnow goals, a current state assessment of Kentucky's health rankings, and health needs in the kyhealthnow focus areas of tobacco, obesity, diabetes, cardiovascular disease, cancer, oral health, and drug overdose/poor mental health days.

## Tobacco

**Kyhealthnow Goal: Reduce Kentucky's smoking rate by 10%.**

Tobacco use accounts for more preventable deaths than any other lifestyle behavior. Tobacco use can cause lung cancer and heart disease, and even non-smokers have increased risk from tobacco smoke exposure. According to the United States Department of Health and Human Services (HHS), cigarette smoking is responsible for more than 480,000 deaths per year in the United States, including an estimated 41,000 deaths resulting from secondhand smoke exposure. This is about one in five deaths annually, or 1,300 deaths every day ([CDC Fast Facts, 2014](#)).

Kentucky has the second highest smoking rate in the nation. Although the number of Kentucky adults who smoke has been in decline over the last twenty years, decreasing by 9 percent from 35.3 percent in 1989 to 26.5 percent of adults in 2013, Kentucky remains ranked 49<sup>th</sup> among states for 2013 ([2013 BRFSS](#)). While the prevalence of current smoking among high school students in Kentucky still ranks sixth in the nation, 17.9% compared to 15.7% nationwide, this rate has declined significantly from its previous ranking of first in the nation at 24.1% in 2011 ([2011-2013 YRBSS](#)).

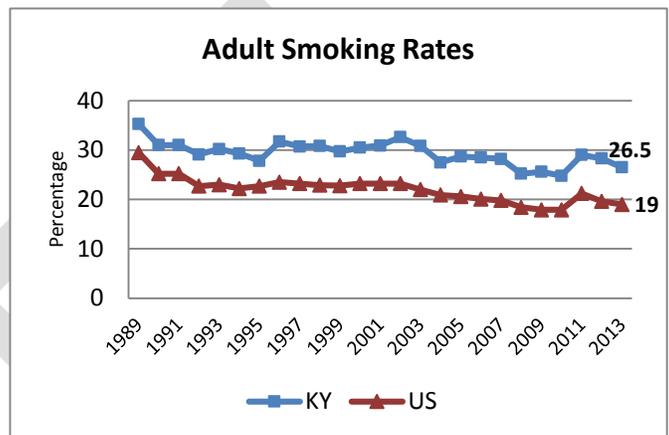


Figure 7. Adult Smoking Rates.

### Smoking Prevalence:

Metric	Kentucky	United States	Data Source
Smoking Rates (2013)	26.5% adults	19.0% adults	BRFSS
	17.9% youth	15.7% youth	YRBSS

Table 1. State and National Smoking Rates (2013)

### Disparate Populations at Risk: ([2013 BRFSS](#))

- Smoking prevalence was higher among men than among women (28.4% vs. 24.6%).
- Smoking prevalence was significantly higher among adults with annual household income of less than \$15,000 (40.9%) compared to adults with higher levels of annual household income.
- About 40.0% of Kentucky adults who have less than a high school education are current smokers; smoking prevalence decreased significantly with increasing levels of educational attainment.
- Prevalence of cigarette smoking is much higher in Eastern Kentucky, as shown in **Figure 8**.

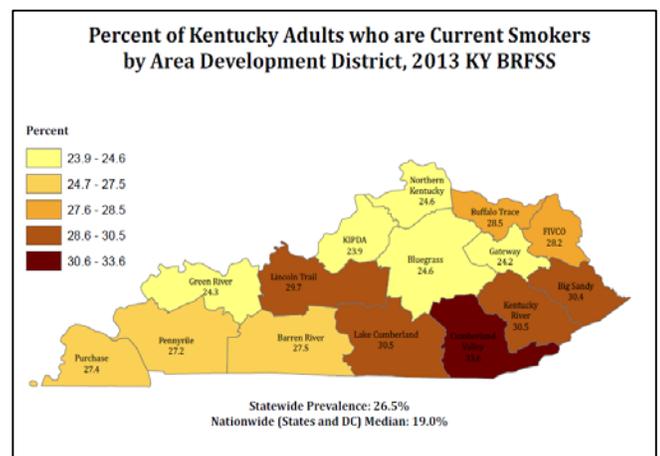


Figure 8. Adults who are Current Smokers

## Economic Impact of Smoking: (Campaign for Tobacco Free Kids, January 2015)

1. Annual health care costs directly caused by smoking total \$1.92 billion.
2. Estimated smoking-caused productivity losses estimated at \$2.79 billion.
3. Portion covered by the state Medicaid program \$589.8 million.

## Obesity

**Kyhealthnow Goal: Reduce the obesity rate among Kentuckians by 10%.**

Obesity is among the most urgent health challenges facing our country today. Excess weight contributes to many of the leading causes of death in the United States, including heart disease, stroke, diabetes, and some types of cancer. Obesity is defined as having a body mass index (BMI) of 30.0 or higher. BMI does not measure body fat directly, but its calculation using both weight and height correlates to direct measures of body fat. Obesity is associated with excess mortality and morbidity in childhood and adulthood.

Kentucky has the fifth highest obesity rate in nation, impacting approximately 1,055,000 adults in the state, according to [2013 BRFSS data](#).

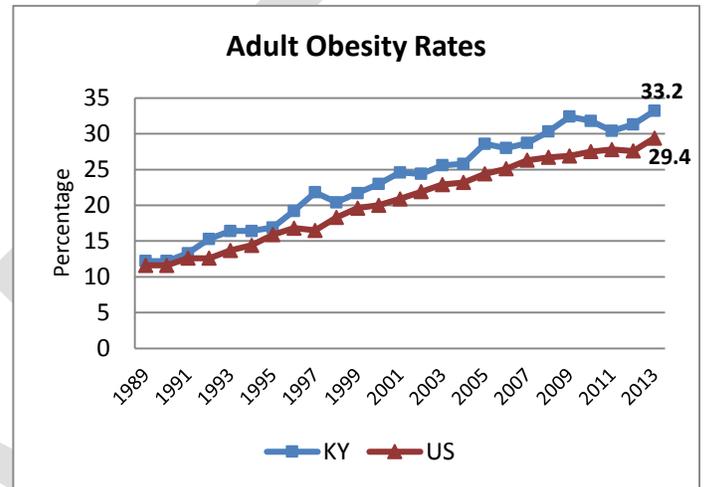


Figure 9. Adult Obesity Rates.

### Obesity Prevalence:

Metric	Kentucky	United States	Data Source
Obesity Rates (2013)	33.2% adults	29.4% adults	BRFSS
	18.0% youth	13.7% youth	YRBSS

Table 2. State and National Obesity Prevalence (2013)

### Disparate Populations at Risk: ([2013 BRFSS](#))

1. Obesity prevalence was significantly higher among black adults (40.9%) than among white adults (32.8%).
2. Prevalence of obesity was significantly higher among adults with less than a high school education (34.2%) compared to adults who graduated with a college degree (25.7%).
3. Prevalence of obesity is much higher in Eastern Kentucky, as shown in **Figure 10**.

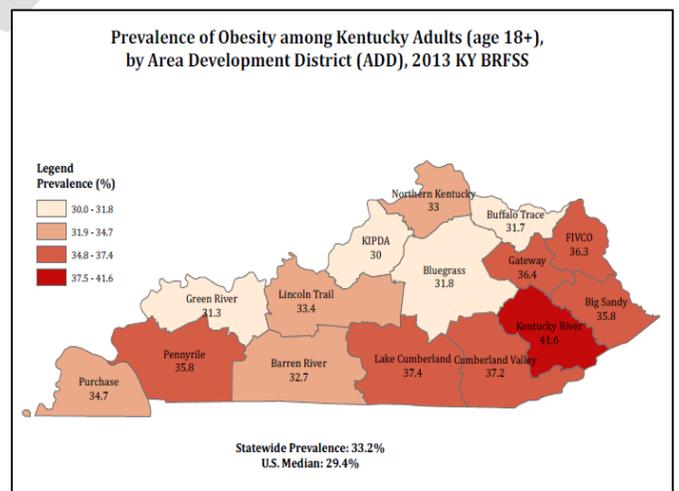


Figure 10. Obesity Prevalence in Kentucky Adults.

### Economic Impact of Obesity:

1. The Partnership for a Fit Kentucky, which is a team of leaders, administrators, advocates, health professionals, and community members in the Commonwealth, project that in 2018 Kentucky will spend \$6 billion in health care costs attributable to obesity ([United Health](#)

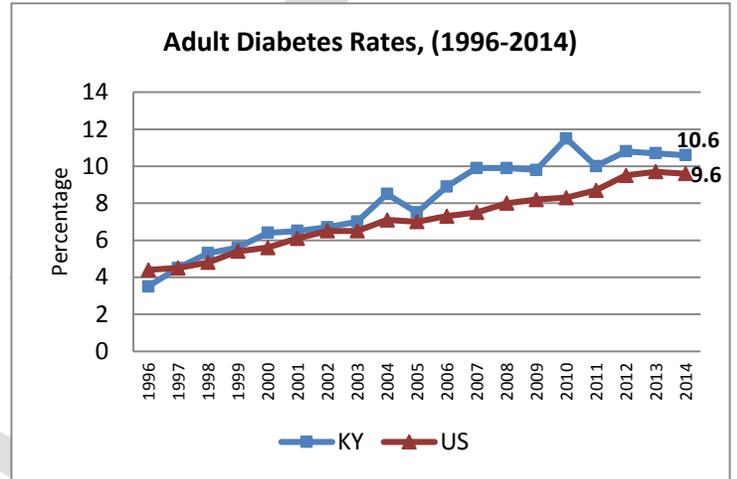
[Foundation, American Public Health Association and Partnership for Prevention. The Future cost of Obesity: National and State Estimates of the Impact of Obesity on Direct Health Care Expenses, 2008\).](#)

- If BMIs were lowered by 5%, Kentucky could save 7.3 percent in health care costs, which would equate to savings of \$9.44 billion by 2030 ([Adult Obesity Rate in Kentucky, Trust for America's Health; September 18, 2012](#)).

## Diabetes

**Kyhealthnow Goal: Reduce the incidence of diabetes among Kentuckians by [TBD<sup>3</sup>].**

According to the CDC, diabetes is one of the leading causes of death and disability in the United States. In 2013, it was the 7th leading cause of death in the United States and Kentucky. Besides leading to premature death, both types 1 and 2 diabetes are associated with long-term complications that threaten quality of life. Diabetes is the leading cause of adult blindness, end-stage kidney disease, and non-traumatic lower-extremity amputations. People with diabetes are two to four times more likely to have coronary heart disease and stroke than people without diabetes. In addition, poorly controlled diabetes can complicate pregnancy resulting in early delivery, preeclampsia, intrauterine growth restriction, birth defects, and/or intrauterine death. Women who develop gestational diabetes have up to a 50 percent chance of developing diabetes later in life.



**Figure 11. Adult Diabetes Rates.**

Diabetes is a very common disease in Kentucky and the nation, with type 2 diabetes being the most common form. Kentucky has the 17th highest rate of diabetes at 10.6% compared to a national rate of 9.7% ([2013 BRFSS](#)).

### Diabetes Prevalence:

Metric	Kentucky	United States	Data Source
Diabetes Rates (2013)	10.6% adults	9.7% adults	BRFSS

**Table 3. State and National Diabetes Rates (2013)**

- Among the 225,681 adults covered by the Kentucky Employees' Health Plan (KEHP) in 2013, 11% (24,722) have been diagnosed with Diabetes based on claims data.
- For State Fiscal Year (SFY) 2013, 18%, or 82,278 adult Medicaid members had a diagnosis of Diabetes on at least one claim. An additional 3,130 Medicaid members and 472 youth covered by KEHP under the age of 20 had a diagnosis of Diabetes on at least one claim. Also, 472 youth aged 19 and younger with Diabetes are covered by KEHP.
- 8.5% of Kentucky adults (289,000 adults) have been diagnosed with prediabetes and are at high risk of progression to Diabetes.

<sup>3</sup> The current goals included with kyhealthnow and therefore the PHIP do not contain a specified reduction goal for diabetes. Over the course of the Model Design process, CHFS will work alongside key stakeholders to develop this target for inclusion in the final PHIP.

## Disparate Populations at Risk: (2013 BRFSS)

1. Diabetes is more common among those with lower incomes and/or lower levels of education. 15% of Kentuckians earning \$15,000 or less per year have diabetes compared to 11% earning between \$25,000 and \$35,000, and 6.8% of those earning \$50,000 or more annually.
2. Those with less than a high school education have a prevalence rate twice as high (14%) as college graduates (7%).
3. Diabetes is more prevalent as people age. 6.9% of adults age 35-44 have diabetes compared to 9% of those aged 45-54, 17.5% of those aged 55-64, and 23.2% of those aged 65 and older.
4. Diabetes is more prevalent in Appalachia as shown in **Figure 12**. In Kentucky's Appalachian counties, the diabetes rate for adults is 13.6% (126,000) while the rate in non-Appalachian counties is 9.5% (233,000).

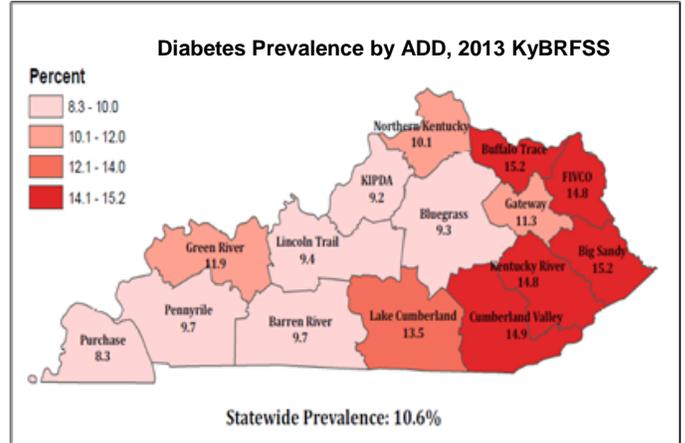


Figure 12. Diabetes Prevalence in Kentucky.

## Economic Impact of Diabetes:

1. The American Diabetes Association (ADA) has estimated that diabetes costs Kentucky \$2.66 billion in direct medical costs and an additional \$1.19 billion in reduced productivity, for a total annual cost to the Commonwealth of \$3.85 billion ([Diabetes Care, Published online before print March 6, 2013, doi: 10.2337/dc12-2625 Diabetes Care March 6, 2013](#)).
2. For Medicaid, diabetes accounts for the highest overall cost across several common chronic diseases at almost \$540 million and the highest cost per person at \$6,500 per member per year ([2015 Diabetes Report](#)).
3. For KEHP, diabetes is the second most costly chronic condition for both active and early retirees, at \$66 million in combined medical and prescription drug costs in 2013 ([2015 Diabetes Report](#)).

## Cardiovascular Disease

### Kyhealthnow Goal: Reduce Cardiovascular Deaths by 10%.

With more than 12,000 deaths per year, Kentucky ranks 48th in the nation in cardiovascular deaths. According to 2013 data available via [CDC WONDER](#), 29% of all deaths were classified as cardiovascular disease (CVD) deaths. Included in the 29.0% of all deaths is deaths by coronary heart disease (13.0% of all deaths), heart attack (6.3% of all deaths), and stroke (4.6% of all deaths). (Note: ICD10 code groupings for coronary heart disease and heart attacks are not mutually exclusive).<sup>4</sup>

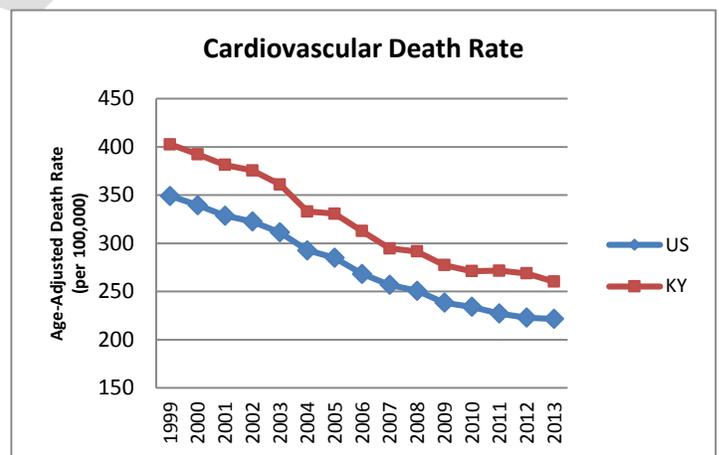


Figure 13. Cardiovascular Deaths Rate.

<sup>4</sup> CDC/National Center for Health Statistics, WONDER Online Database. The graph above demonstrates how the age-adjusted death rates have change historically for both the US and Kentucky. Cardiovascular age-adjusted death rates have decreased for both Kentucky and nation at a similar rate. However, Kentucky has remained at a higher rate than the nation average.

## Cardiovascular Deaths Rates:

Metric	Kentucky	United States	Data Source
<b>Cardiovascular Death Rates (2013)</b>	260.3 per 100,000	221.6 per 100,000	CDC Wonder

**Table 4. State and National Cardiovascular Death Rates**

## Disparate Populations at Risk:

1. Males have higher rates of cardiovascular deaths (314.7 per 100,000) when compared to females (215.7 per 100,000).
2. Prevalence of cardiovascular deaths was higher among black males (345.3 per 100,000) than among white males (314.0 per 100,000). Overall the prevalence of cardiovascular deaths is higher among whites (278.6 per 100,000) versus blacks (260.2 per 100,000).
3. Cardiovascular death rates are more prevalent in Appalachia versus non-Appalachia parts of Kentucky.

Populations at Risk (age-adjusted death rate per 100,000)	
<b>Male</b>	<b>314.7</b>
<b>Female</b>	<b>215.7</b>
<b>White</b>	<b>278.6</b>
Male	314.0
Female	215.2
<b>Black</b>	<b>260.2</b>
Male	345.3
Female	227.2
<b>Appalachia</b>	<b>304.7</b>
<b>Non-Appalachia</b>	<b>243.1</b>

## Economic Impact:

**Table 6** reflects the estimated projected medical expenditures by cardiovascular disease for Kentucky in millions of dollars.

Cardiovascular Disease Costs <sup>5</sup>	
Coronary heart disease	<b>\$1,894</b>
Congestive heart failure	\$378
Hypertension	\$2,206
Stroke	\$1,228
Other Heart Disease	\$1,081
<b>Total Cardiovascular disease</b>	<b>\$6,051</b>

**Table 6. Estimated Cost of Cardiovascular Disease.**

**Table 5. Cardiovascular Deaths Rate by Race & Gender.**

## Cancer

### Kyhealthnow Goal: Reduce Kentucky Cancer Deaths by 10%.

With nearly 9,500 cancer deaths every year, Kentucky ranks 50th in the nation for cancer deaths. Kentucky has the highest rate of new cases and deaths from lung cancer in the nation, as well as the highest rate of new cases of colorectal cancer, according to North American Association of Central Cancer Registries ([NAACCR](#)) data.

<sup>5</sup> Data Source: CDC Chronic Disease Cost Calculator Version 2. The table above represents the estimated 2013 projection of medical costs for CVD expenses. These projections include medical costs only, including nursing home costs, but excluding absenteeism. The costs are reported in 2010 dollars and do not projection inflation. Actual costs may be larger or smaller than those generated through the projection tool. The projections estimate that the 2013 medical cost for all CVD in Kentucky is over six billion dollars with hypertension medical costs being the largest sub-component at over 2.2 billion dollars.

Data from the [Kentucky Cancer Registry](#), the population-based central cancer registry for the Commonwealth, shows that the incidence rate of invasive cancer for the Commonwealth is 520.4 per 100,000 population, with a mortality rate of 204.2 deaths per 100,000 population in the years 2008 to 2012 combined

Single year trend data on cancer mortality shows that over the past decade, cancer mortality in Kentucky has declined at a rate similar to the nation overall, however Kentucky rates remain far higher than the nation.

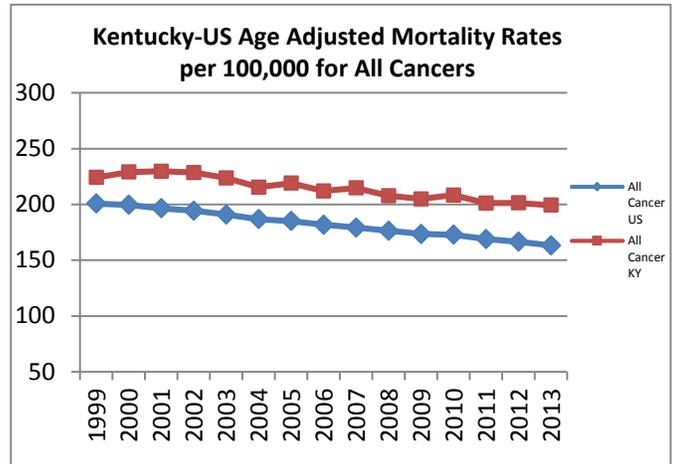


Figure 14. Cancer Mortality Rate

### Disparate Populations at Risk:

Cancer incidence is higher among African Americans, and those in Appalachian counties. **Table 7** below compares the incidence rates for all cancers, Lung and Bronchus, Colon Cancer and Late Stage Colon Cancer.

For invasive cancers of all types combined, the rate is highest among Appalachian residents at 531.6 per 100,000 individuals, followed closely by African Americans with a rate of 527.2/100,000, compared to a statewide rate of 520.4/100,000. For invasive cancers of the lung and bronchus, Appalachian residents have a rate of 111.3 per 100,000 followed by African Americans at 102.8 per 100,000 compared to a statewide rate of 97.5 per 100,000. For invasive colon cancer, African Americans have the highest rate at 58.2 per 100,000 followed by 54.4/100,000 for Appalachian residents compared to an overall rate of 51.4/100,000.

Age-Adjusted Invasive Cancer Incidence Rates in Kentucky  
All Sites, 2008-2012  
By Appalachian Region  
Age-Adjusted to the 2000 U.S. Standard Million Population  
Kentucky Rate: 520.4  
Rate per 100,000  
516.1  
531.6

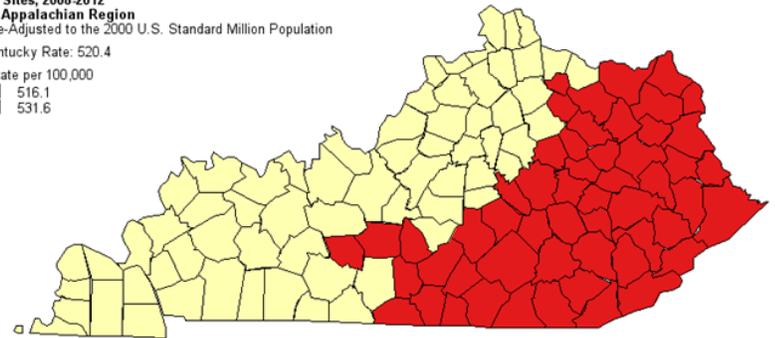


Figure 15. Cancer Incidence Rates in Kentucky (Kentucky Cancer Registry)

Incidence of Invasive Cancers: Kentucky, 2008-2012: Age Adjusted rate per 100,000 population					
Type of Cancer	All Kentucky	African American	White	Appalachia	Non-Appalachia
All Cancers (Invasive)	520.4	527.2	517.2	531.6	516.1
Lung and Bronchus (invasive)	97.5	102.8	97.8	111.3	91.8
Colon Cancer (invasive)	51.4	58.2	51.0	54.4	50.3

Table 7. Incidence of Invasive Cancers ([Kentucky Cancer Registry](#))

### Economic Impact

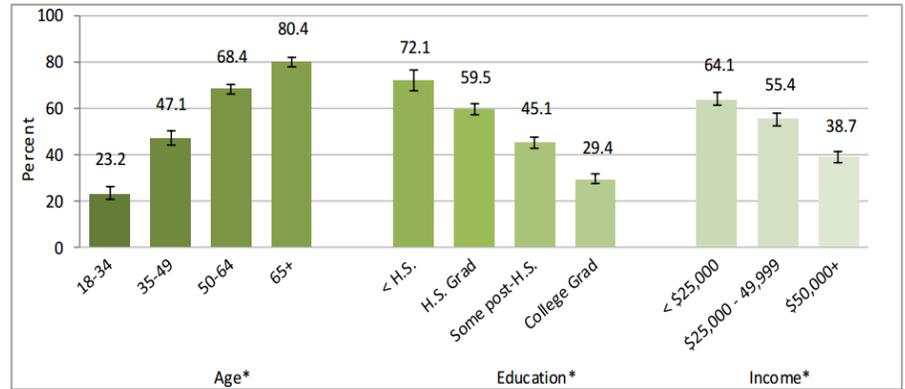
In 2010, cancer care in Kentucky cost approximately \$2,228,000,000. This cost is estimated to increase by 69% by 2020, totaling approximately \$3,775,000,000. ([Kentucky Cancer Consortium Resource Plan- July 2013](#)).

## Oral Health

**Kyhealthnow Goal: Reduce the percentage of children with untreated dental decay by 25% and increase adult dental visits by 10%.**

The prevalence of Kentucky's dental problems has proven and detrimental impacts on schoolchildren, the workforce, and families. In fact, Kentucky ranks 9<sup>th</sup> lowest in annual dental visits, 5<sup>th</sup> highest in the percentage of children with untreated dental decay (34.6%), and 3<sup>rd</sup> highest in the percentage of adults 65+ missing 6 or more teeth (52.1%).

According to [2012 BRFSS data](#), almost 40% of Kentucky adults reported that they did not have a dental visit in the past year; this was higher than the United States estimate of 32.8%.



**Figure 16. Percent of Kentucky Adults who have had one or more teeth removed because of tooth decay or gum disease by Age\*, Education\*, and Income\* (2012)**

### Disparate Populations at Risk:

1. A significantly higher percentage of men (44.8%) compared to women (34.9%) did not have a dental visit in the past year. About 47% of adults aged 65 years or older did not have a dental visit in the past year; this was a significantly higher estimate compared to adults aged 18-64 years.
2. The proportion of adults who did not have a dental visit in the past year decreased significantly with increasing levels of educational attainment; about 64.4% of adults with less than a high school education did not have a dental visit in the past year.
3. The proportion of adults who did not have a dental visit in the past year decreased significantly with increasing levels of annual household income.

## Drug Overdose/Poor Mental Health Days

**Kyhealthnow Goal: Reduce deaths from drug overdose by 25% and reduce by 25% the average number of poor mental health days of Kentuckians.**

According to [National Vital Statistics System data](#), between 2012 and 2014 drug deaths have increased by 30 percent from 18.4 to 24.0 deaths per 100,000 individuals in Kentucky. Kentucky has higher drug death rates for specific drug types. For example, Kentucky had the 7<sup>th</sup> highest rate for overdose deaths involving Rx opioids in 2013, according to the [Centers for Disease Control and Prevention, National Center for Health Statistics, WONDER Online Database](#).

Drug Type	2013 Deaths	Population	Rate per 100,000
Prescription Opioids – Kentucky	438	4,395,295	10.1
Heroin – Kentucky	215	4,395,295	5.1
All Drugs – Kentucky	1,019	4,395,295	23.7
All Drugs – United States	43,982	316,128,839	13.8

**Table 8. Drug Overdose Death Rates (CDC WONDER)**

The current kyhealthnow goal also includes reference to poor mental health days in Kentucky by establishing a goal for reducing the average by 25%. **Table 9** outlines preliminary Kentucky BRFSS data for 2014 and compares to the 2013 baseline, which indicates results in this area are unchanged.

Metric	Baseline (2013)	Current (2015)	Data Source
Poor Mental Health Days	4.5 days	4.5 days	BRFSS

**Table 9. Average Number of Poor Mental Health Days (BRFSS)**

## Stakeholder Engagement

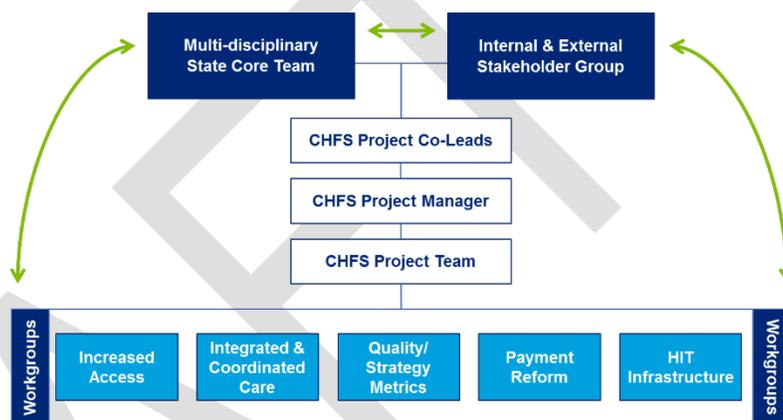
As described in Kentucky's SIM Stakeholder Engagement Plan submitted to CMS as part of its Model Design on April 3, 2015, effective stakeholder engagement forms the foundation of Kentucky's Model Design process and will be the key to achieving lasting, sustainable health system reform for the Commonwealth. Throughout the Model Design period, CHFS will use a robust, iterative process with internal and external stakeholders to craft the components of the Model Design, the first component being the PHIP.

The Kentucky SIM team has developed a formal stakeholder engagement approach that will be used to develop the strategies and interventions for future inclusion in the PHIP.

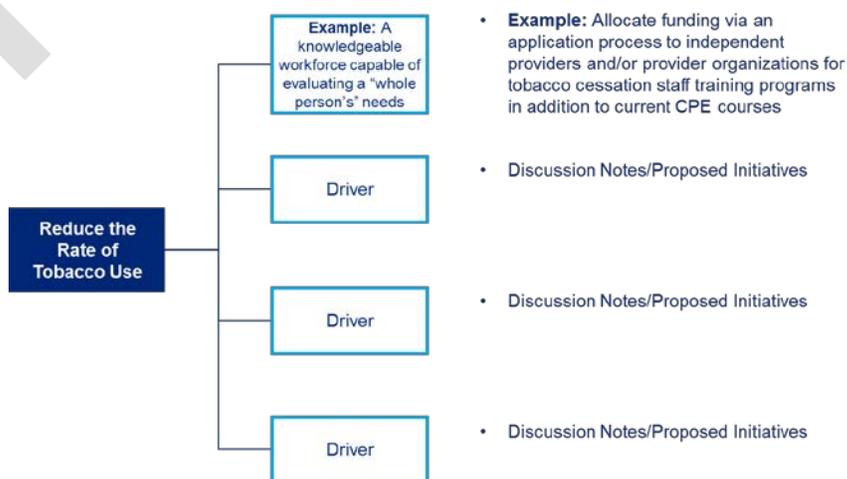
This approach includes regular stakeholder engagement sessions following the cadence of a large stakeholder meeting at the beginning of each month followed by five area-specific workgroup sessions in the middle of the month, which will be held at staggered times so that stakeholders can attend as many workgroup sessions as possible. This biweekly rotation of large stakeholder meetings and small workgroup sessions allows the work of all stakeholder workgroups to be woven together to eventually craft the final PHIP, and subsequently the Model Design.

The development of the final PHIP will involve continuous stakeholder input and involvement at every step of the process across all health system sectors. The ownership of this work and detailed deliberation by stakeholder workgroups, followed by broad-based discussions in the large stakeholder meeting setting, provide critical mechanisms by which to cultivate and maintain lasting stakeholder support for the PHIP's reforms and interventions. The workgroups have been organized by topic area in order to align with the way in which components of the Model Design must be developed, however all workgroups will conduct exercises and reach consensus around the interventions included in the PHIP.

For example, each stakeholder workgroup conducted a series of driver diagram exercises in March to identify the current barriers to improving population health in



**Figure 17. KY SIM Stakeholder Engagement Approach.**



**Figure 18. Example Stakeholder Driver Diagram Exercise: Tobacco Use**

Kentucky. Initially, these exercises were conducted for the three key population health focus areas – tobacco, obesity, and diabetes. The workgroups then worked to identify sets of drivers to reduce these current barriers, and proposed tangible initiatives that could support those drivers from the perspective of their workgroup topic area. This exercise, while brainstorming in nature, developed a “cause-and-effect” way of thinking throughout the Model Design period, and began the discussion around potential population health-driven initiatives for further review and refinement by stakeholders and CHFS for inclusion in the final PHIP. CHFS will leverage this initial work over the course of the next nine months as it works to propose, reach consensus upon, and ultimately design interventions for inclusion in an updated version of this plan. A full catalog of these draft driver diagrams is available in Appendix I.

## Strategies and Interventions to Impact Population Health

Over the course of the next nine months, CHFS and SIM stakeholders will develop strategies and associated delivery system transformation interventions to address the gaps in access to care and the health status disparities outlined in this PHIP. CHFS recognizes the importance of developing SIM initiatives that are specific, measurable, achievable in the specific time period, realistic, and time-bound. CHFS also recognizes that these interventions must address the identified kyhealthnow priority areas, and be designed to impact both the health care delivery system and the underlying social determinants of health that contribute to these seven prioritized health conditions currently impacting Kentuckians.

As the key elements of Kentucky’s Model Design crystalize in the coming months, service delivery options, payment methodologies, and policy/regulatory levers for this plan will be developed in their respective workgroup areas and will be included in their respective State Health System Innovation Plan (SHSIP) components to create a truly integrated Model Design. As a result, this plan will be continually updated to reflect these draft strategies for addressing high priority areas and gaps as they are developed and reach consensus between the Cabinet and its stakeholders.

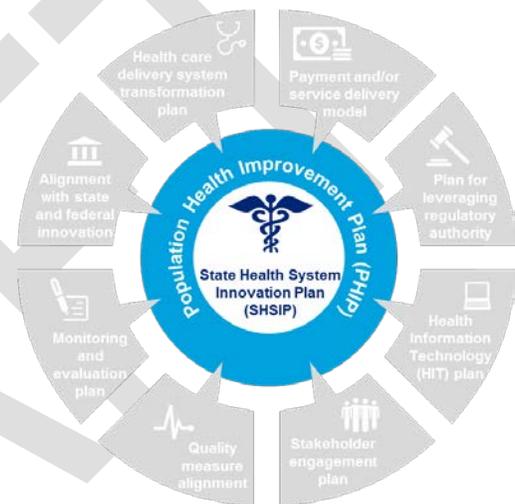


Figure 19. PHIP and SHSIP Integration.

## Guiding Principles

To date in the Model Design process, Kentucky SIM stakeholders have discussed and developed a draft set of principles that will be used to guide the design of future service delivery and payment reforms targeted at improving population health. These principles will also be used in the SIM workgroups to identify the necessary health information technology infrastructure, legal, policy, and regulatory levers, and workforce needs to support the initiatives designed through SIM. To begin this process, stakeholders to date have identified the following principles as important elements for future SIM interventions to consider, which may be refined further as work on the PHIP continues:

- Be evidence-based and data-driven
- Promote administrative simplification
- Be designed to promote multi-payer support
- Promote the inclusion of all populations
- Encourage providers to focus on social determinants to health
- Focus both on process improvements and health outcomes

- Make connections between the health care delivery system and other existing systems
- Increase the focus on prevention
- Encourage consumer engagement and accountability
- Develop a quality strategy that ties initiatives to PHIP goals

## Service Delivery Model Options

Over the course of the Model Design period, this PHIP section will be populated with the goals, objectives and new service delivery interventions that will be designed to improve population health outcomes in each of the seven focus areas outlined in the PHIP.

## Payment Methodologies

Over the course of the Model Design period, this PHIP section will be populated with the goals, objectives and new multi-payer payment methodologies that will be structured to improve population health outcomes in each of the seven focus areas outlined in the PHIP.

## Health Information Technology Investments and Innovation

Over the course of the Model Design period, this PHIP section will be populated with the goals, objectives and identified HIT investments that will be explored to improve population health outcomes in each of the seven focus areas outlined in the PHIP.

## Policy and Regulatory Levers

Over the course of the Model Design period, this PHIP section will be populated with the goals, objectives and identified state policy, legal, and regulatory levers that will be explored to improve population health outcomes in each of the seven focus areas outlined in the PHIP.

## Workforce Assessment Needs

Over the course of the Model Design period, this PHIP section will be populated with the goals, objectives and strategies to address workforce needs that will be proposed to improve population health outcomes in each of the seven focus areas outlined in the PHIP.

## Implementation Plan and Governance Framework

As noted in Kentucky's Model Design application, a critical element of sustainability of the PHIP will be its full integration and alignment with the Health Care Delivery System Transformation and Payment Reform plans developed through SIM, in addition to full integration of the PHIP at the community level. Over the course of the Model Design period, the Commonwealth and its stakeholders will develop an implementation plan and governance framework which will build upon the ongoing efforts of the Kentucky Department for Public Health (KDPH) at the community level. The governance framework for the PHIP will build upon strategies already in place, and develop a statewide governance framework in alignment with Governor Beshear's kyhealthnow initiative to ensure that this plan and its delivery system transformation components make an impact on all Kentuckians.

# Appendix I: Draft Driver Diagrams

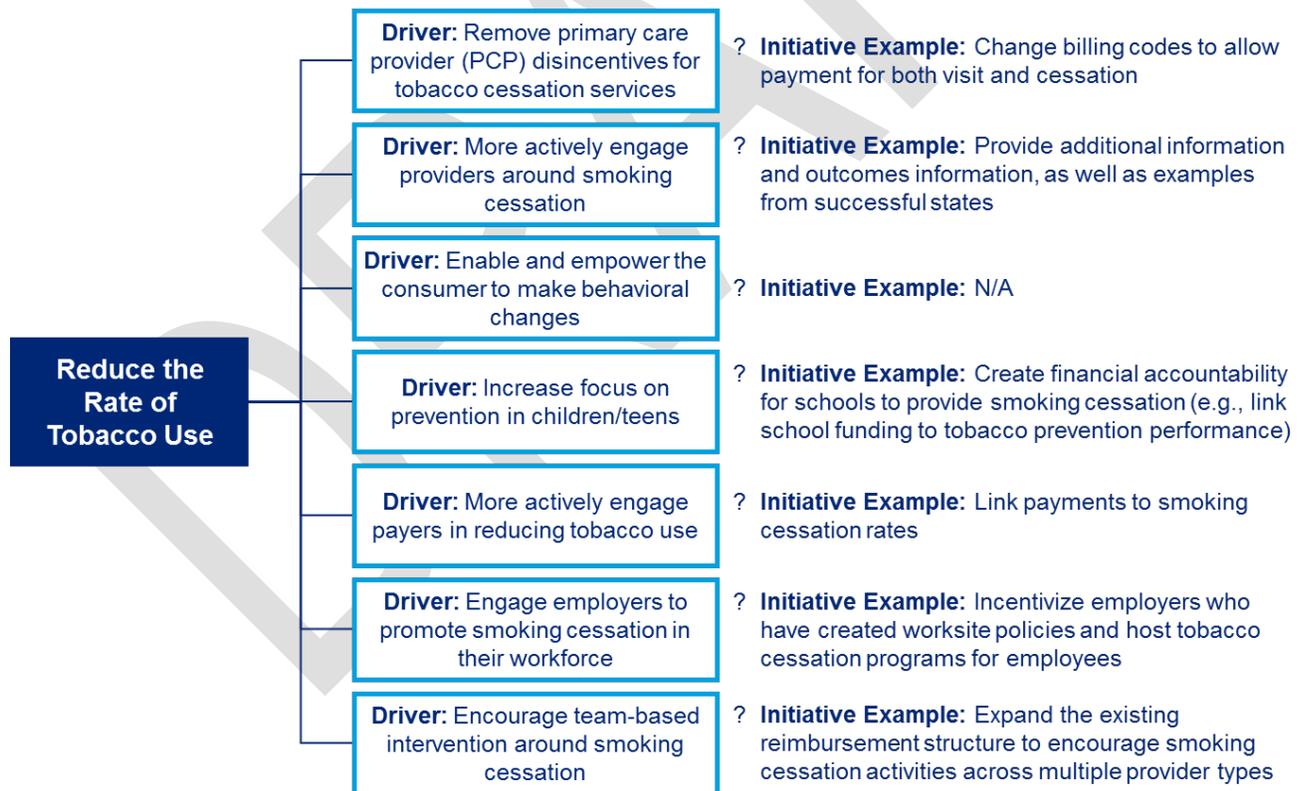
During the SIM workgroup kickoff meetings held in March 2015, Kentucky SIM stakeholders participated in a driver diagram exercise to identify barriers to and drivers of three specific population health goals, including reducing the rate of tobacco use, the incidence of obesity, and the incidence of diabetes. While this activity was only conducted for three of the key population health focus areas outlined in this plan, and that a future thought process for the remaining areas of cardiovascular disease, cancer, oral health, and drug overdose/poor mental health days may occur, this initial process helped to develop a “cause-and-effect” way of thinking amongst stakeholders for the Kentucky SIM Model Design.

The goal of this exercise was to brainstorm and discuss potential population health-driven initiatives for further review and refinement by stakeholders and the Commonwealth, and to set the stage for defining the “how” elements of the SIM project, or the specific changes or interventions that could lead to the desired population health and delivery system reform outcomes. These driver diagrams currently serve as a tool for the workgroups to reference and potentially update as the groups refine the SIM objectives, and will serve as continuous reference points when the groups begin to develop delivery system and payment reforms in their respective areas.

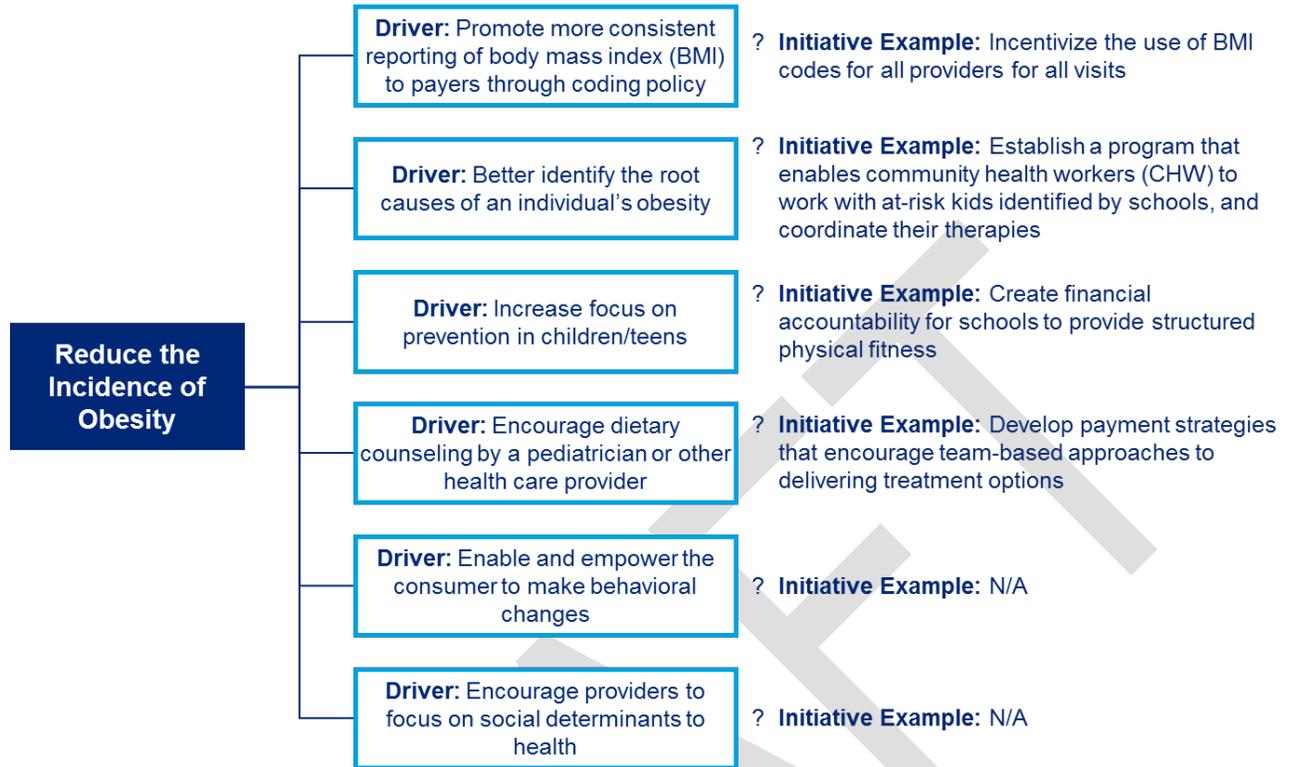
The driver diagrams below represent a reporting of facilitated workgroup activities only and do not reflect CHFS-endorsed proposals or policy prescriptions.

## Payment Reform Workgroup

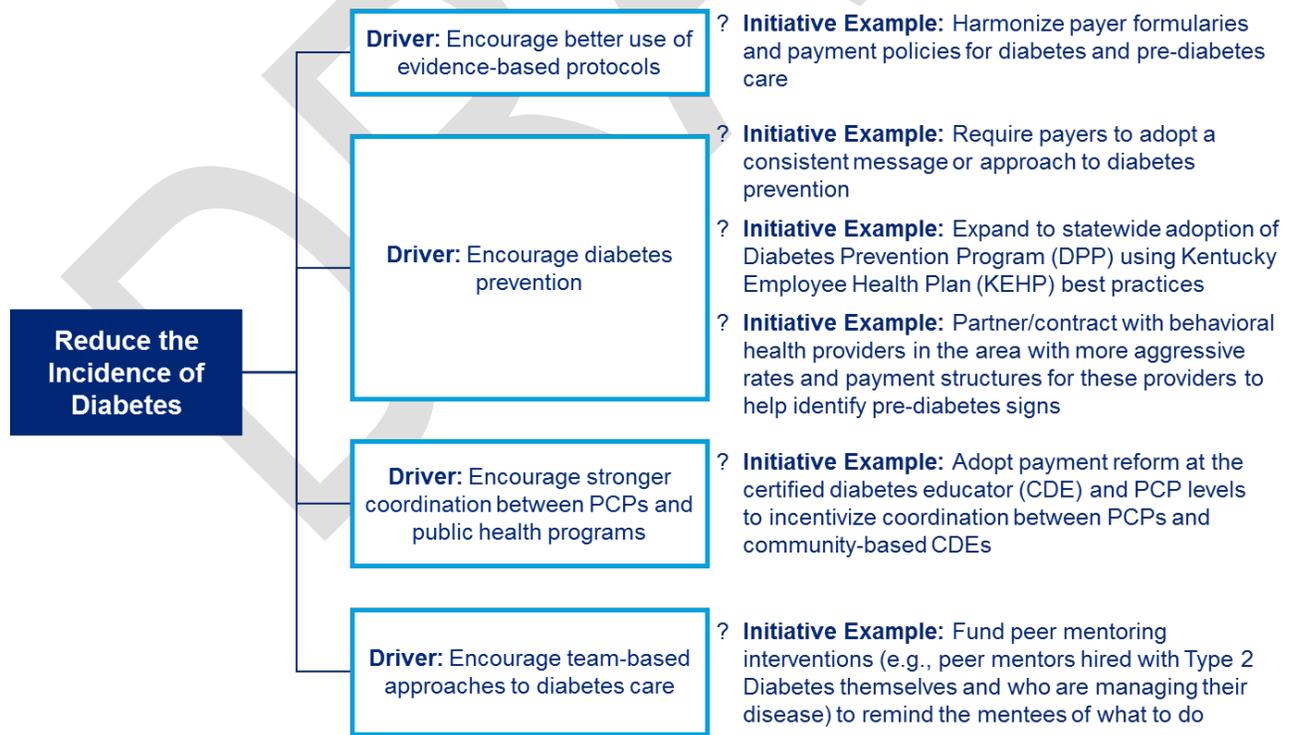
### Tobacco



## Obesity

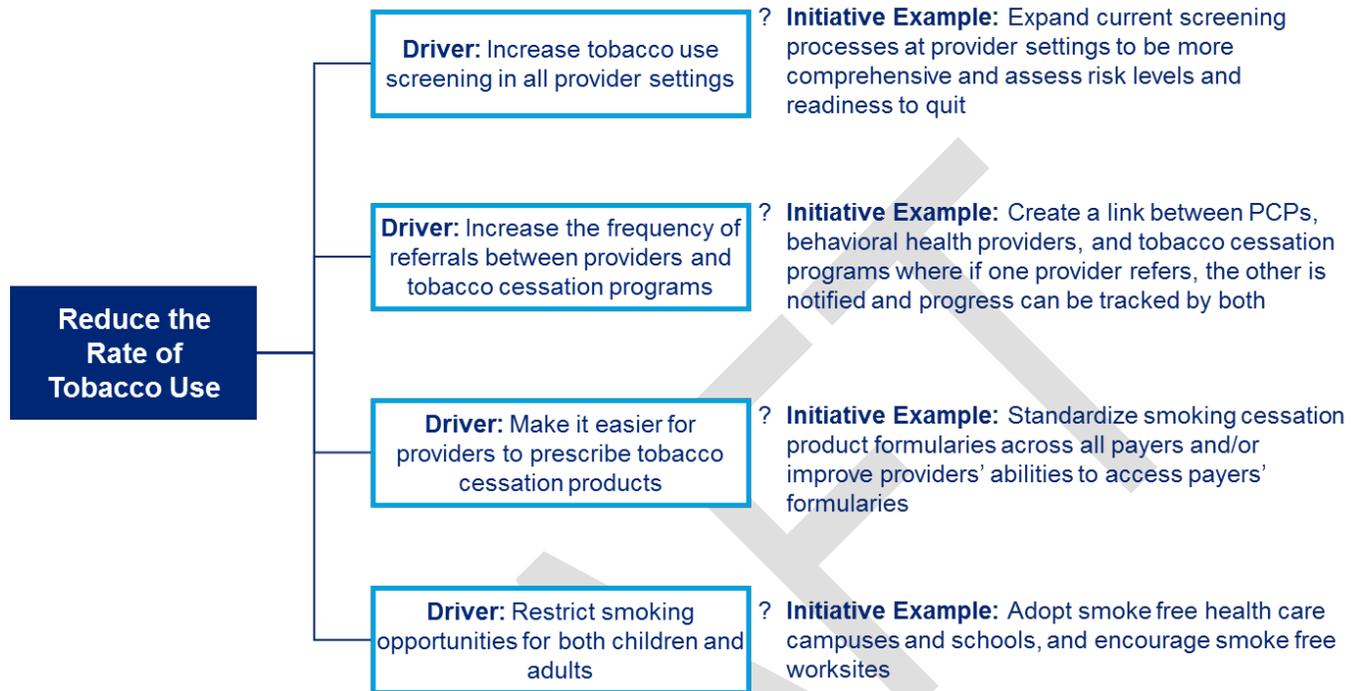


## Diabetes

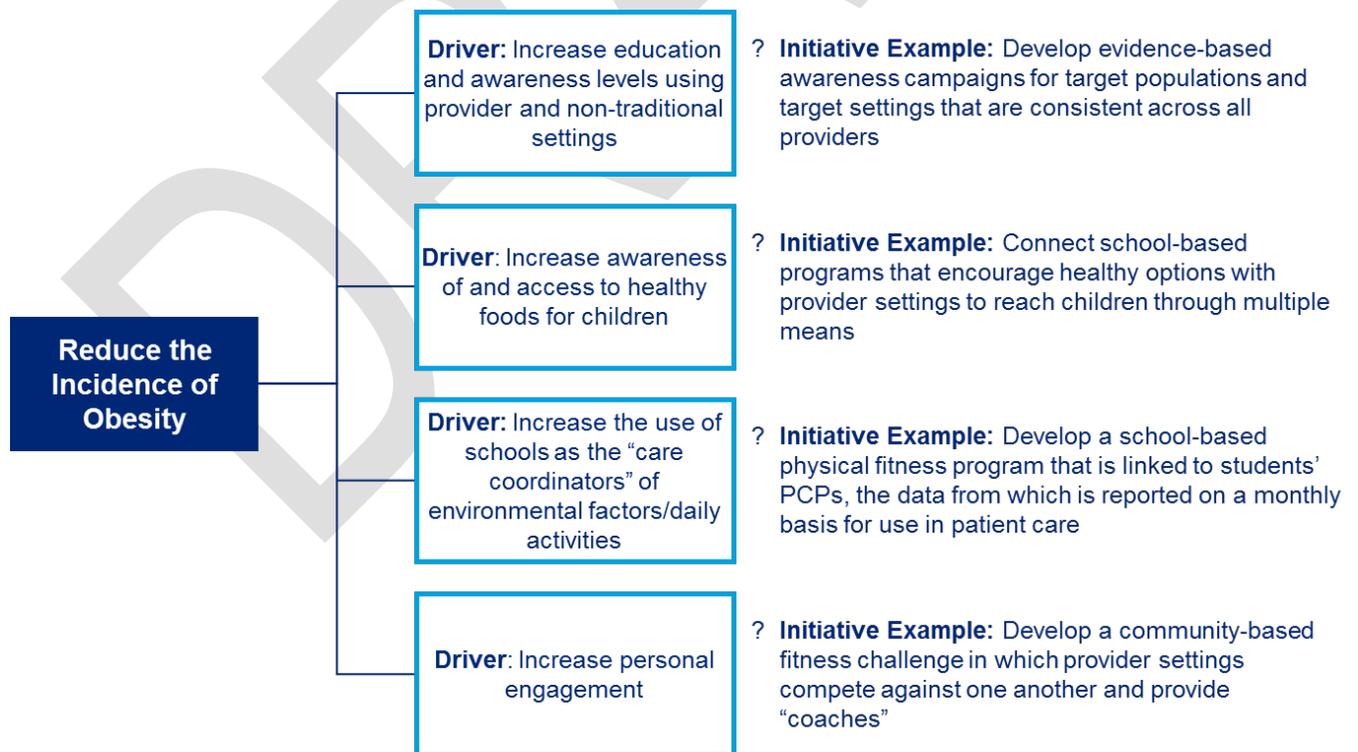


# Integrated and Coordinated Care Workgroup

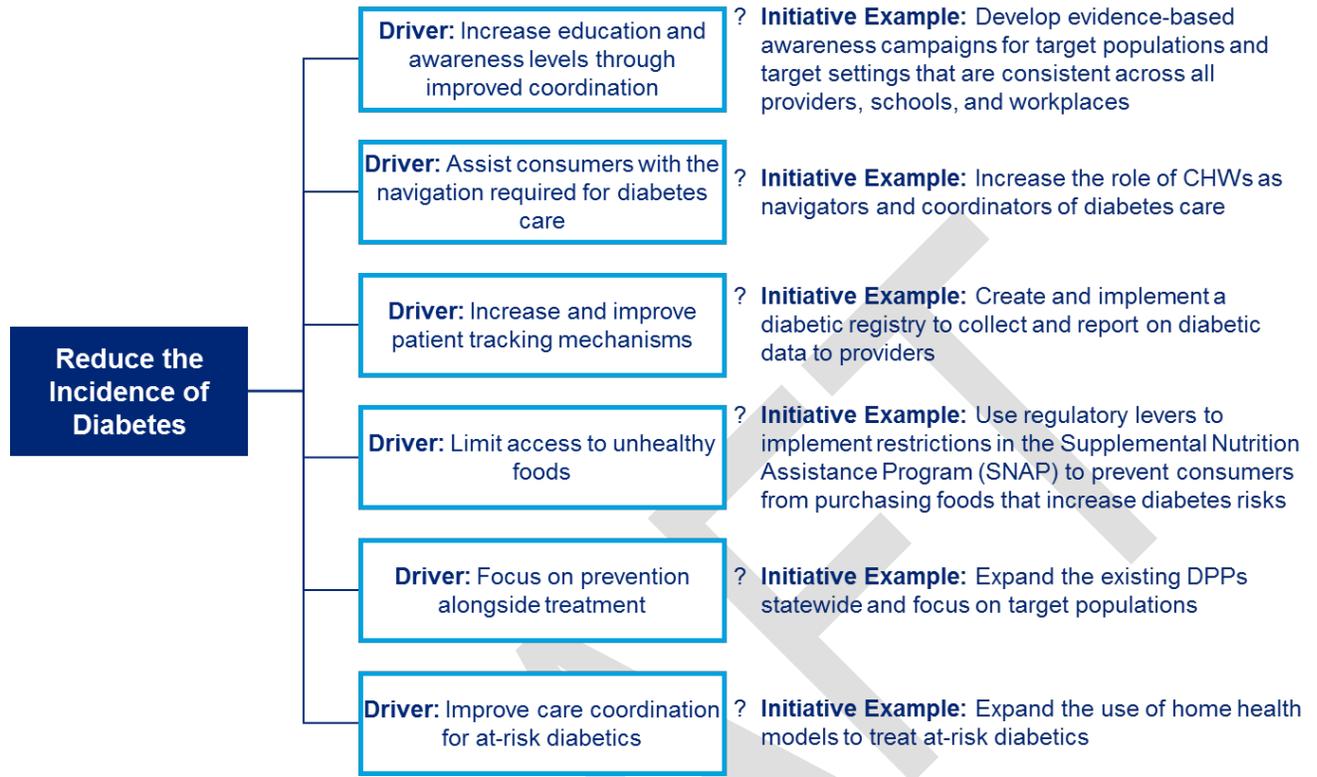
## Tobacco



## Obesity

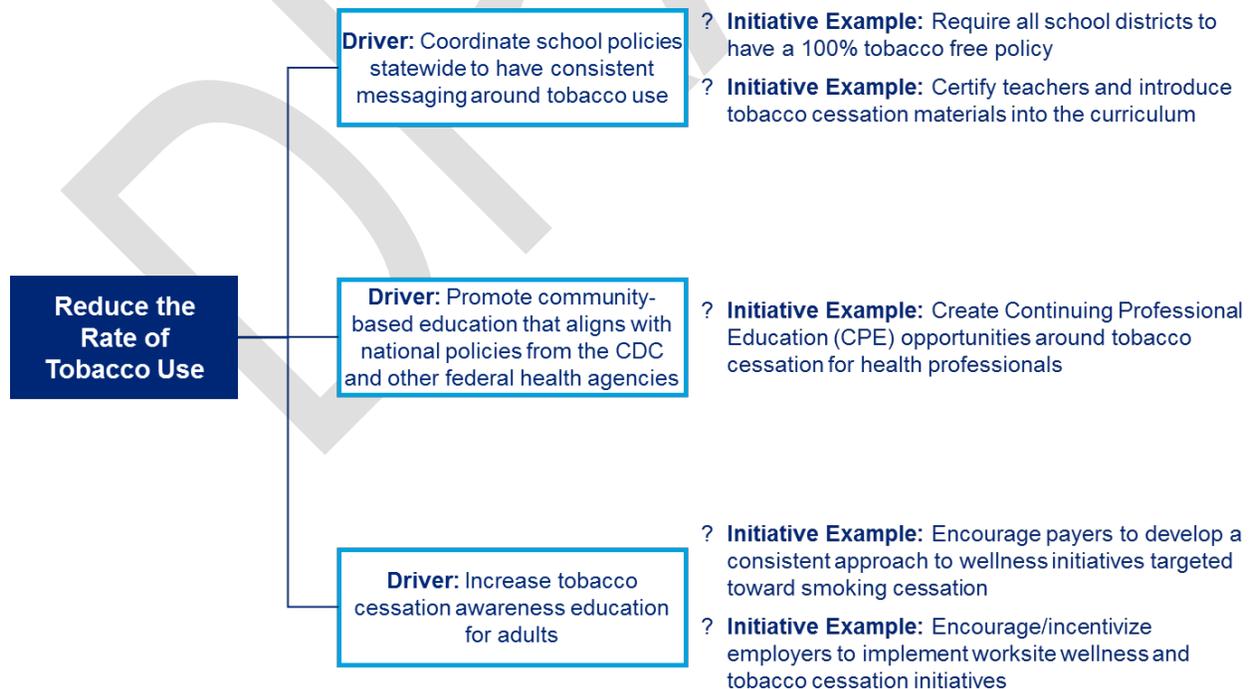


## Diabetes

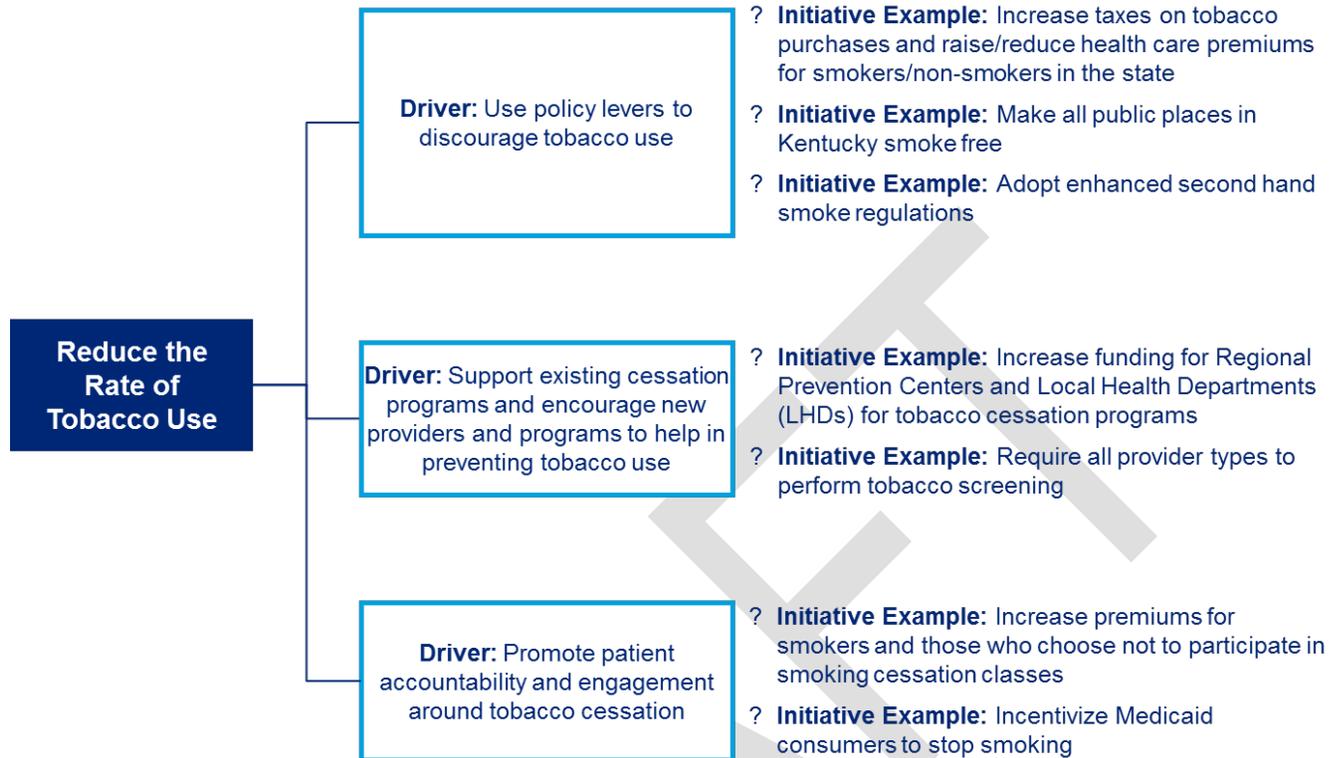


## Increased Access Workgroup

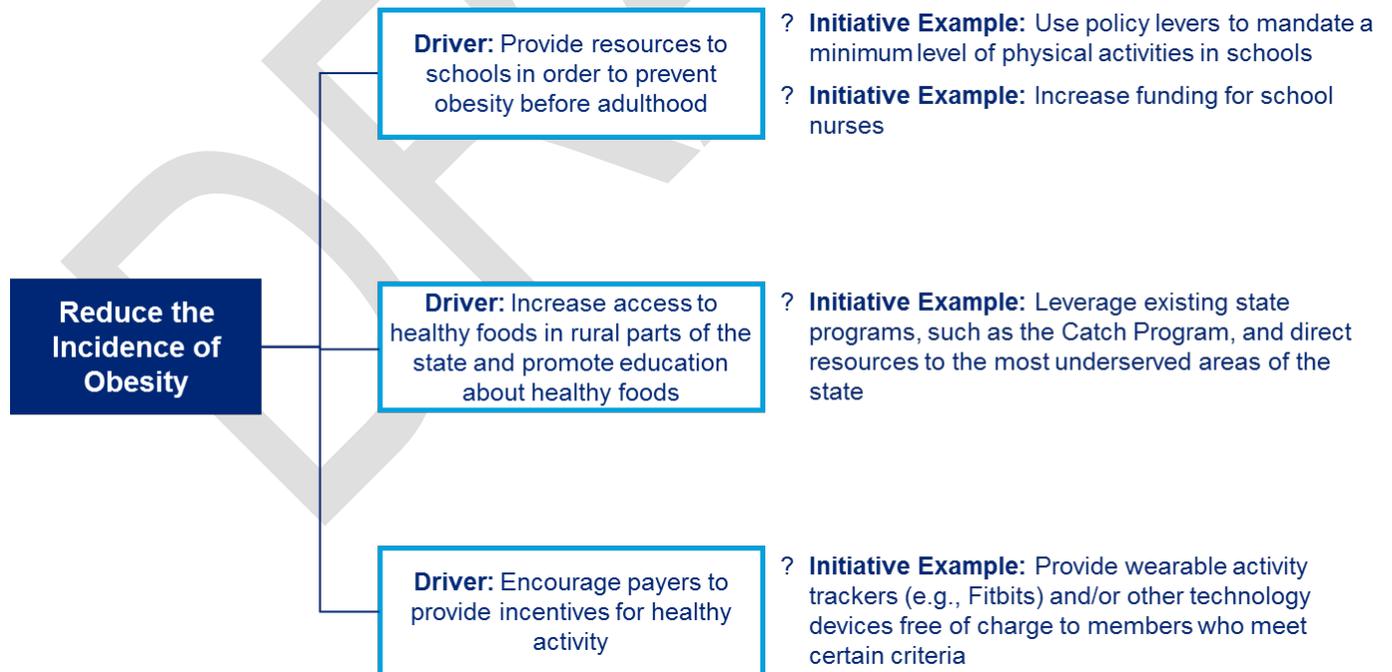
### Tobacco



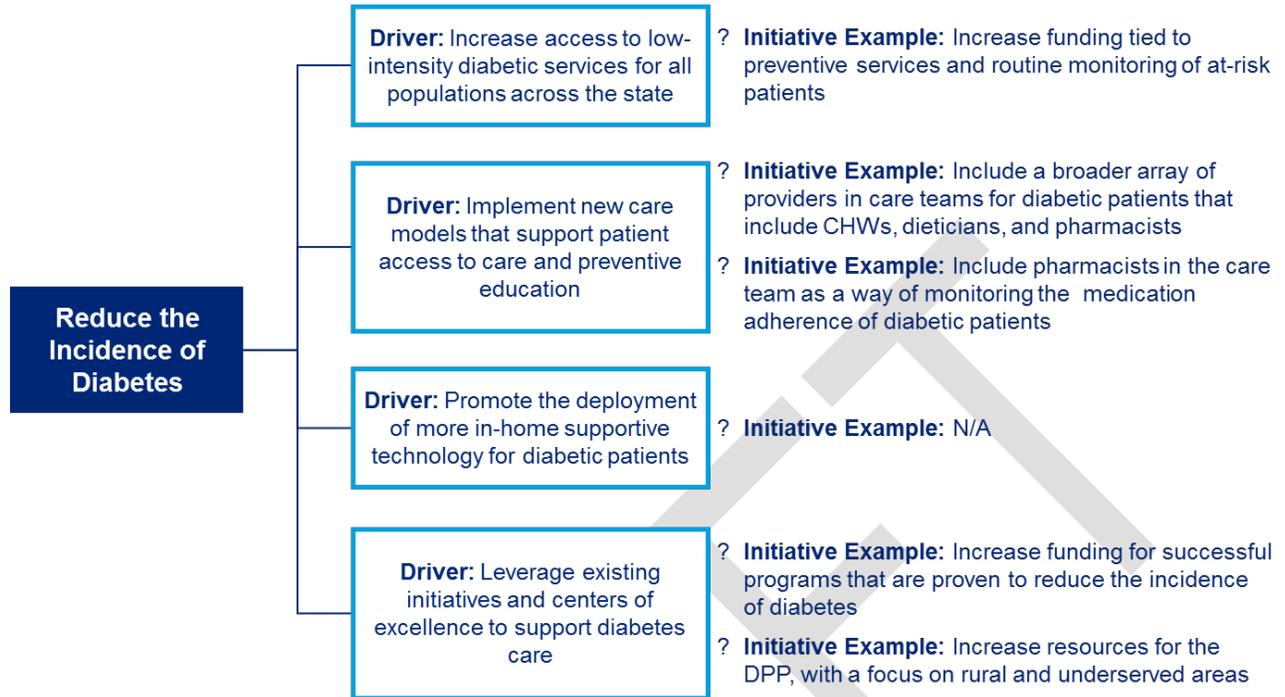
## Tobacco (Continued)



## Obesity

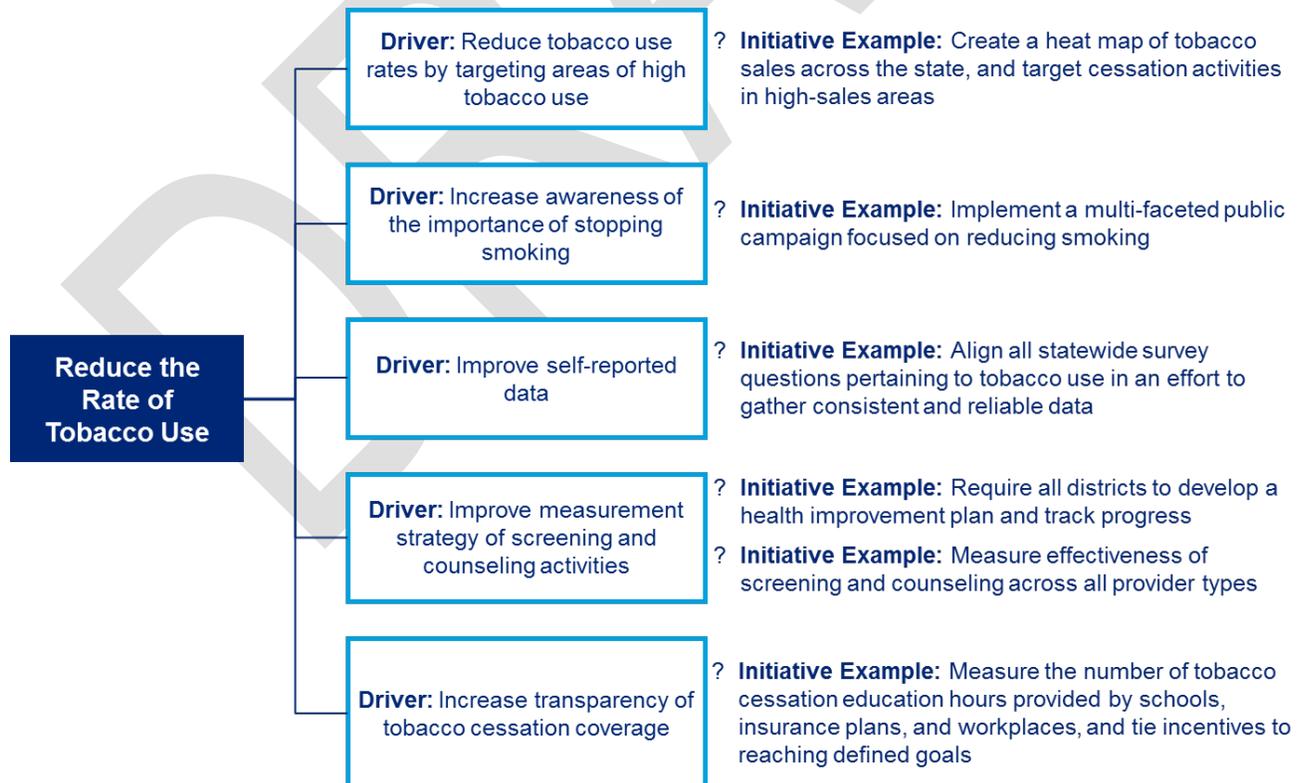


## Diabetes

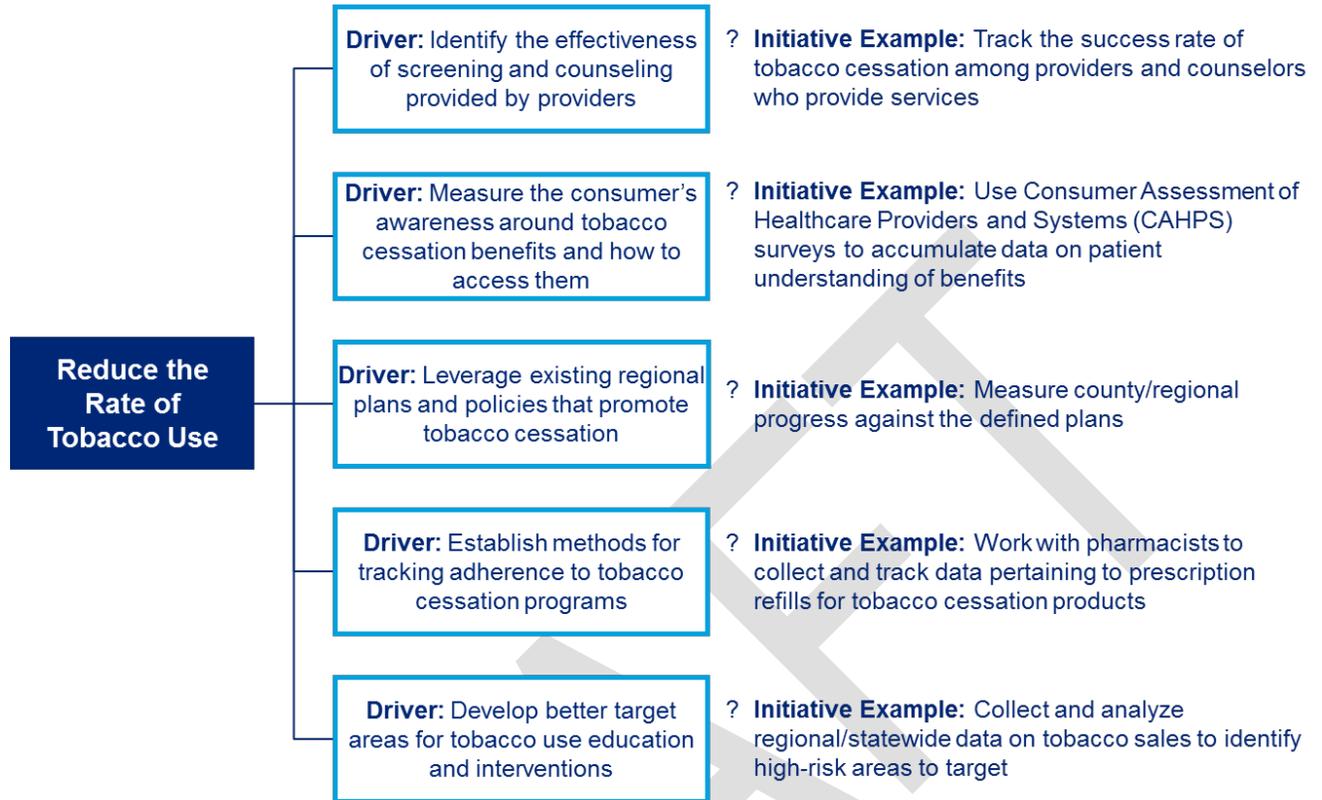


## Quality Strategy / Metrics Workgroup

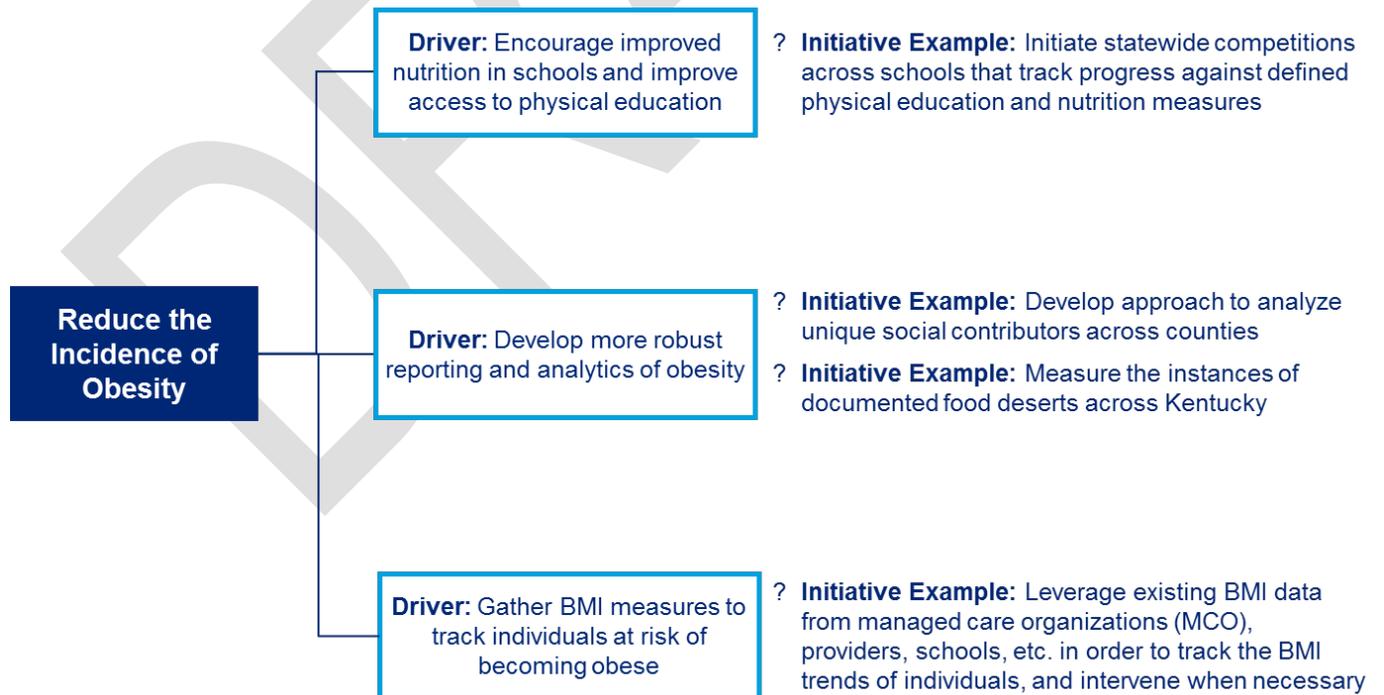
### Tobacco



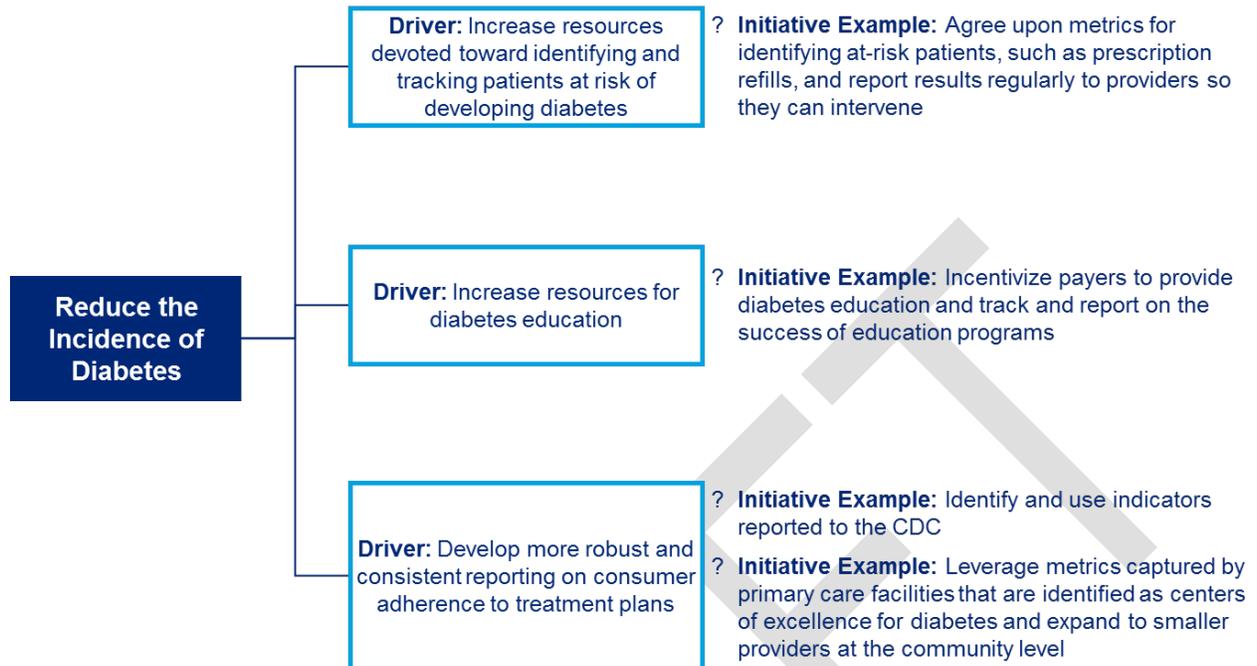
## Tobacco (Continued)



## Obesity

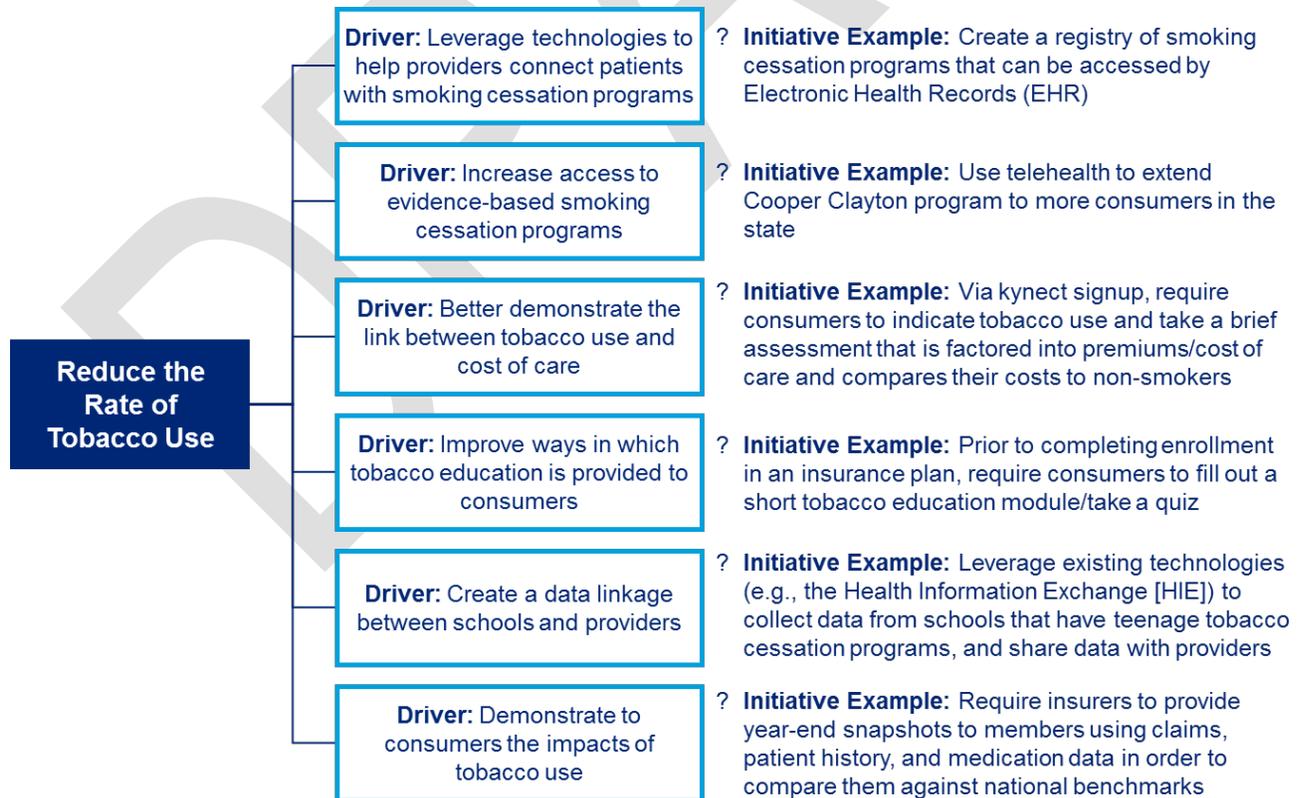


## Diabetes

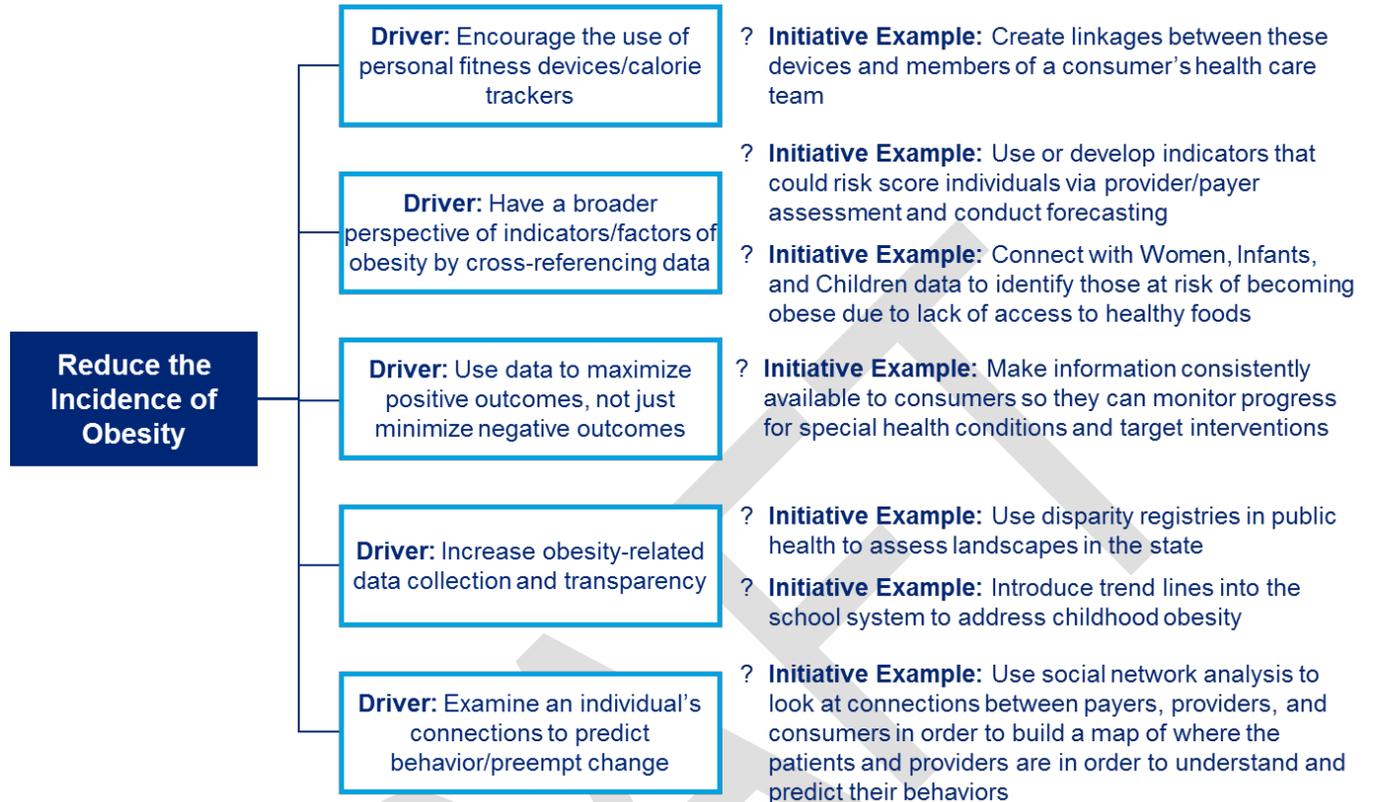


## HIT Infrastructure Workgroup

### Tobacco



## Obesity



## Diabetes

