

2015 Kentucky Diabetes Report



Department for Medicaid Services

Department for Public Health

Office of Health Policy

Cabinet for Health and Family Services

Department of Employee Insurance

Personnel Cabinet

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Executive Summary

In response to KRS 211.752, a report to the Legislative Research Commission on Diabetes-related efforts was jointly developed by the Department for Public Health (DPH), the Department of Medicaid Services (DMS), the Office of Health Policy (OHP), and the Kentucky Employee Health Plan (KEHP) under the Personnel Cabinet. It includes data on the scope and cost of Diabetes for each collaborative partner; progress by each partner since the first report; how each partner is addressing Diabetes prevention and control for their population; establishes benchmarks for tracking progress in addressing Diabetes; and makes recommendations on how the state can improve Diabetes outcomes, and a budget to implement recommendations if funding becomes available.

The Scope of Diabetes in Kentucky

Diabetes is a very common disease in Kentucky and the nation, with type 2 diabetes being the most common form:

Prevalence in adults:

- The prevalence of Diabetes has increased from 6.5% of Kentucky adults (240,000) in 2000 to 10.6% (359,000 adults) in 2013. The U.S. Diabetes prevalence rate is 9.7%
- 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.

Prevalence in youth

- During SFY 2013, there were 3,130 Medicaid members under the age of 20 who had a diagnosis of Diabetes on at least one claim.
- There are 472 youth aged 19 and younger with Diabetes covered by KEHP.

Prevalence of Diabetes during pregnancy

- Five percent of all pregnant women in Kentucky had Gestational Diabetes prior to delivery. This is statistically similar to a national estimate by CDC of 4.6% for Gestational Diabetes.

Prevalence of Prediabetes

- In Kentucky, 289,000 adults report having been diagnosed with prediabetes and are at high risk of progression to Diabetes.

Diabetes is Serious:

Common complications of Diabetes include:

- Heart and blood vessel disease
- Kidney damage (nephropathy), leading to kidney failure and dialysis
- Blindness
- Nerve damage (Neuropathy) causing pain, then loss of sensation in the feet and hands

- Foot disease, leading to amputation
- Dental disease leading to tooth loss

Diabetes is Costly:

- The American Diabetes Association (ADA) has estimated that Diabetes costs Kentucky \$2.66 billion dollars in direct medical costs and an additional \$1.19 billion in reduced productivity, for a total cost to the Commonwealth of \$3.85 billion.
- For Medicaid, Diabetes has the highest overall cost of several common chronic diseases at almost \$540 million and the highest cost per person at \$6,500 per member per year.
- 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.

Diabetes is Controllable and in Some Cases, Preventable

The key to prevention of type 2 Diabetes and prevention of Diabetes complications is for individuals and health care practitioners to follow evidence-based guidelines for diagnosis, treatment and lifestyle management of Diabetes. When guidelines are followed, development of type 2 Diabetes can often be slowed or prevented, and the serious complications caused by high blood sugar for those with type 1 or type 2 Diabetes can be prevented.

For people with Diabetes, learning about Diabetes and how it impacts their body is vital for making lifestyle changes and understanding guidance from their physicians. Evidence shows that Diabetes Self-Management Education (DSME) programs offered by people specially trained in how to provide this guidance has the best chance of helping people make needed changes. DSME classes teach how and why a person needs to make changes in physical activity, eating habits, taking medications as directed, tracking their blood sugar, and having routine medical services such as A1C tests, foot exams, eye exams and an annual flu shot. Actions to support the availability of accredited DSME programs, physician referral of patients to these programs and enrollment in the programs is one of the primary recommendations of this report.

Research has shown that the development of type 2 Diabetes can be delayed, and in many cases prevented, with moderate weight loss of 5% to 7% of total body weight. People with multiple risk factors for Diabetes, or a diagnosis of prediabetes, can reduce their risk of developing Diabetes by 58% through participation in evidence-based lifestyle change programs such as the Diabetes Prevention Program (DPP). In DPP classes, the person at risk for Diabetes learns how to make dietary changes and how to increase physical activity to achieve weight loss adequate to normalize blood sugar levels. Actions to increase access to Centers for Disease Control and Prevention (CDC) Recognized DPP programs, physician referral of patients to these programs and enrollment in the programs are also primary recommendations of this report.

Ongoing activities to prevent Diabetes and improve Diabetes outcomes

No one person, agency, organization, or association can successfully address the epidemic of Diabetes alone. The task of improving Diabetes outcomes and preventing Diabetes will take a

concerted effort by policy-makers, healthcare providers, educators, public and private health plans, employers, individuals with Diabetes, public health, health technology resources, communities, and more.

DPH, OHP, DMS and the KEHP and their partners support a wide range of activities designed to improve Diabetes prevention and control in their respective populations – as well as the state as a whole.

Examples include:

- Providing access to care through *kynect*, Kentucky's health insurance market exchange, for prevention, early detection and treatment of diabetes
- Supporting statewide policies that would benefit those with and at risk for Diabetes such as a state comprehensive secondhand smoke-free law.
- Supporting the Governors *kyhealthnow* initiative which includes goals that will positively impact Diabetes outcomes.
- Collecting, analyzing and reporting of data to improve understanding of the prevalence, impact and cost of Diabetes in Kentucky.
- Providing education about Diabetes prevention and control to the public and to health plan members.
- Providing training to health care professionals to offer Diabetes Self-Management Education programs.
- Encouraging health care providers to refer patients with Diabetes to DSME programs.
- Providing Disease Management and Case/Care Management programs for health plan members with serious Diabetes complications or multiple chronic conditions.
- Providing state leadership in the development of a network of sites providing the Diabetes Prevention Program (DPP).
- Providing leadership in offering Professional Education Programs on Diabetes for health care providers.
- Providing Health Risk Assessments to plan members to identify those at risk for Diabetes.
- Supporting development of referral mechanisms to connect people with or at risk for Diabetes to appropriate care.
- Offering Wellness Programs to plan members to increase physical activity levels and improve dietary choices.
- Convening state partners to coordinate Diabetes prevention and control activities and carry out evidence-based activities.

Benchmarks to measure progress

The partners involved in this report have agreed to establish comparable benchmarks to measure progress in Diabetes management in the state.

- Medicaid requires the Medicaid Managed Care Organizations to report Healthcare Effectiveness Data and Information Set (HEDIS) Diabetes Measures.
- KEHP will report "HEDIS-like" measure on Diabetes for members in that plan.

- DPH will report measures on Diabetes clinical benchmarks from the Behavioral Risk Factor Survey.
- The Office of Health Policy will report Diabetes Prevention Quality Indicators (PQIs) as defined and instituted by the Agency for Healthcare Research and Quality (AHRQ).

Collectively, these data will provide a picture of Diabetes care, management, and control across the Commonwealth.

Recommendations for Addressing Diabetes

The committee of collaborative partners that developed this document has identified a number of recommendations addressing Diabetes prevention, diagnosis, treatment, and management. These are consistent with current standards of care and scientific evidence and are consistent with national and state guidelines/initiatives such as Governor Beshear's *kyhealthnow* initiative, existing chronic disease state planning efforts, and federal grant guidance from the Center for Disease Control and Prevention (CDC).

Recommendations include:

- Increase the availability and use of evidence-based lifestyle change programs such as the National Diabetes Prevention Program (DPP).
- Improved efforts to identify prediabetes and Diabetes via evidence-based screening.
- Increase the availability and use of evidence-based Diabetes Self-Management Education (DSME) programs to help those with Diabetes learn to make behavior changes necessary to manage their Diabetes.
- Assure a sustainable Diabetes prevention and control infrastructure and workforce.
- Support policies that improve outcomes for persons with and at risk for Diabetes and other chronic diseases.
- Improve Diabetes and chronic disease surveillance systems needed to determine the extent and impact of Diabetes on the Commonwealth.

The burden of Diabetes in Kentucky continues to grow, so it is imperative that the citizens of Kentucky review the recommendations made in this Diabetes Report and make an effort to address the challenges of Diabetes. Changes must occur in our health care system, community settings, and in personal behaviors in order to impact the Diabetes epidemic. Many federal agencies have been active in responding to the Diabetes epidemic, including the Department of Health and Human Services (HHS), the CDC and the National Institute of Diabetes and Digestive and Kidney Diseases. These agencies, along with non-government entities such as the American Diabetes Association, have amassed an impressive amount of evidence as to "what works" in Diabetes control. Now is the time for our Commonwealth to act on the information in this report and move forward with making changes to improve Diabetes care and prevention for Kentuckians. This will ultimately improve quality of life for our citizens and promote better outcomes for Kentucky.

Introduction

Purpose of the Report

Diabetes is one of the leading causes of death and disability in the US. In 2013, it was the 7th leading cause of death in the U.S. and Kentucky^{1, 2}. 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 2-4 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 (high blood pressure often coupled with swelling, sudden weight gain, headaches and changes in vision), intrauterine growth restriction (baby is smaller than expected), birth defects or intrauterine death. Women that develop Gestational Diabetes have up to a 50 percent chance of developing Diabetes later in life without education and life style changes.

Many of these complications and deaths from Diabetes can be prevented, delayed or significantly reduced with proven interventions. Physical activity and dietary interventions, self-management training, ongoing support, and, when necessary, medications can help control the effects of Diabetes. By working with a support network and health care providers, a person with Diabetes can prevent premature death and disability. **(See Attachment E, Diabetes Overview).**

This report is a requirement of KRS 211.752 (**Attachment A**). The statute requires that in odd numbered years, three agencies under the Cabinet for Health and Family Services; the Department for Public Health, Department of Medicaid Services and Office of Health Policy; in addition to the Personnel Cabinet, collaborate in developing a report on the impact of Diabetes on the Commonwealth as well as proposing a plan and recommendations for how to address the epidemic.

The first report was submitted in January 2013. As in the first version, the current report will address the following: the scope of the Diabetes epidemic in Kentucky; the cost and complications of Diabetes; initiatives of four agencies in Kentucky State government to address Diabetes in populations which they serve; and recommendations on how to improve the health of Kentucky residents with, or at risk for, Diabetes. In addition, this report will describe progress made toward the recommendations listed in the 2013 report.

Report Development

The Secretary of the Cabinet for Health and Family Services assigned oversight of the development of the report to the Department for Public Health (DPH). A committee with representatives from each of the entities named in the legislation was assembled to review the legislation and develop the report (**Attachment B**). The committee first met in May 2013 to review the previous process and determine how to proceed for the current version. Meetings were held approximately monthly thereafter, until the report was completed in the fall of 2014.

Governor Beshear's *kyhealthnow* initiative (**Attachment C**), announced through an Executive Order in February 2014, has elevated the significance of this collaborative effort.

Because Kentucky was the first state to pass this kind of legislation, the Kentucky report and the process have become a model for other states pursuing or implementing related legislation. The National Association of Chronic Disease Directors (NACDD) has been working with states to assist them through this process and is currently developing a toolkit. A representative from the NACDD, Ms. Marti Macchi, was involved with Kentucky's first report and was invited back this year to address the committee and offer current information regarding the national landscape around this issue.

This ongoing collaboration has led to the generation of new ideas and renewed energy regarding Diabetes prevention and control in Kentucky. We are pleased to offer the following report for your review and look forward to your feedback and future collaborative opportunities.

Progress Since the 2013 Report

In January of 2013, the first Kentucky Diabetes Report was submitted to the Legislative Research Commission. It contained a number of "recommendations" and "action items" to move the Commonwealth forward in its efforts to address the epidemic of Diabetes. Since that time, significant progress has been made toward many of those items listed in the report. The completion of the 2013 report in and of itself was an accomplishment. Since Kentucky was the first state to pass legislation requiring this report (several others have followed), much attention has been paid to Kentucky's process for developing the report. The DPH Diabetes Prevention and Control Program Manager, Theresa Renn, RN, BSN, CDE, has worked with the National Association of Chronic Disease Directors (NACDD) and several other states to share Kentucky's experience with this legislation and development of the report. In addition, the DPH Commissioner, Dr. Stephanie Mayfield, and the CHFS Secretary, Audrey Haynes have also delivered national presentations and/or have been interviewed regarding the document.

Highlights of progress made since the 2013 report was developed are listed below and more detail is included in **Attachment F**.

Medicaid expansion and kynect

Kentucky has had tremendous success in providing people the health care coverage they need and deserve through kynect, Kentucky's health benefit exchange. In the first year of open enrollment, 413,000 Kentuckians enrolled in expanded Medicaid or a qualified health plan offered on the exchange. This effort means that more Kentuckians with Diabetes will have access to vital health care to improve their quality of life and also will improve overall diabetes outcomes in the state. In his *kyhealthnow* initiative, Governor Beshear set a goal of reducing the number of uninsured Kentuckians to less than 5 percent of the population by 2019.

kyhealthnow

Governor Steve Beshear has made improving the health and wellness of Kentucky's children, families and workforce one of his highest priorities. To significantly advance the wellbeing of Kentucky's citizens, Governor Beshear has announced seven health goals for

the Commonwealth and outlined a number of strategies to help achieve these goals over the next five years. These strategies, which include Diabetes prevention/DPP and control of A1C levels, are being implemented through executive and legislative actions, public-private partnerships and through the success of enrolling Kentuckians in health care coverage. All seven goals are linked with the diabetes epidemic in Kentucky as seen in the table shown in **Attachment D** in the Appendix.

Support of the Diabetes Prevention Program (DPP)

Kentucky was one of eight states to receive a small grant from the National Association of Diabetes Educators (NACDD) in 2013 to further promote and scale the DPP in the Commonwealth.

As of January 1, 2014, DPP became a covered benefit under the Kentucky Employee Health Plan (KEHP) - making it one of only three states in the Nation to do so to date (10/14). Kentucky currently has 20 CDC Recognized DPP programs across the state – up from 2 in 2012. A map illustrating the locations of these programs is located in **Attachment G**.

Kentucky Health Information Exchange (KHIE)

In August, 2009 Governor Beshear established an agency to oversee the advancement of health information exchange in Kentucky. The nationally award winning Kentucky Health Information Exchange (KHIE) focuses on improving the health, quality and safety of healthcare for Kentucky's residents and visitors through a statewide, interoperable health information exchange. This network provides timely communication of medical data enhancing clinical and cost effectiveness in healthcare. KHIE is working with over 2,400 provider locations across the state and has completed over 1,000 connections at this point in time.

Designation of state funds for Diabetes

In the SFY 15-16 biennial budget, 2.6 million state general fund dollars, within the DPH budget, were appropriated in each fiscal year for Diabetes prevention and control in Local Health Departments (LHDs).

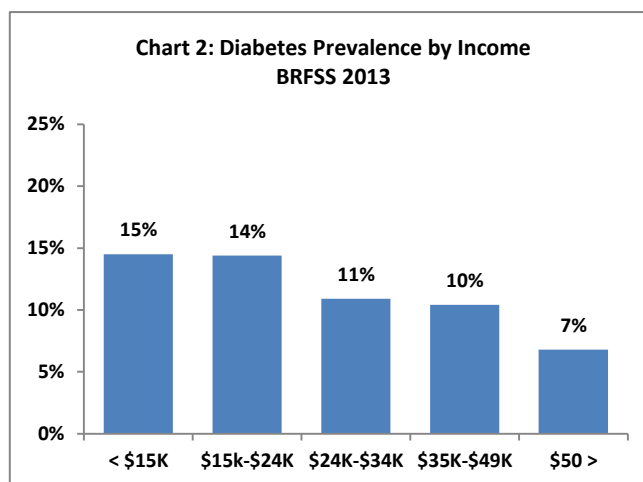
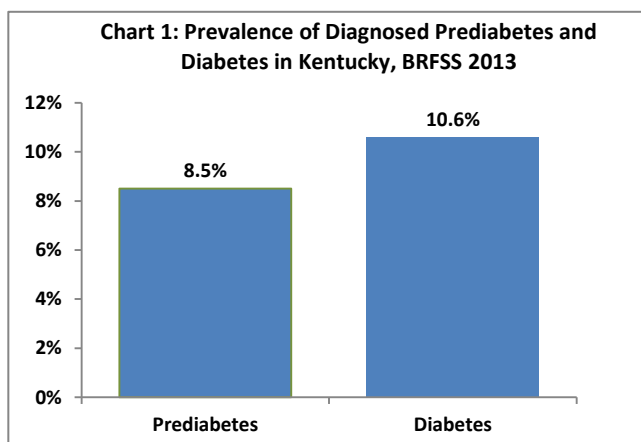
Section 1: The Scope of Diabetes in Kentucky

This section of the report provides data on the scope of Diabetes in the Commonwealth overall, and within the populations covered by the Kentucky Employees' Health Plan (KEHP) and the Medicaid program. When possible, data has been provided specific to youth and for women with either gestational Diabetes or with preexisting Diabetes at the time of pregnancy. This section also reviews deaths due to Diabetes, and the financial impact of diabetes and its most common complications. Finally, a comparison of the impact of Diabetes to other common chronic conditions is also included.

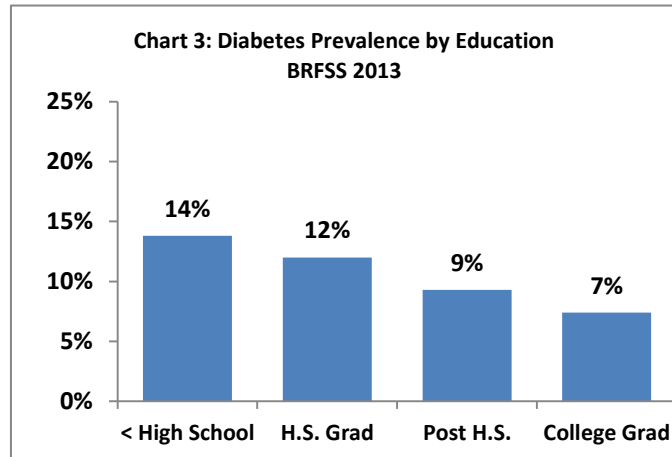
Prevalence and Social Determinates of Diabetes

Statewide Prevalence of Diabetes and Prediabetes in Kentucky: Adults

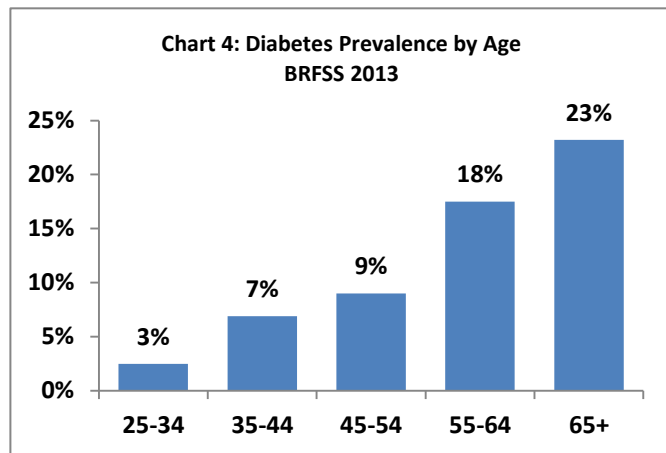
- Data from the Behavioral Risk Factor Surveillance Survey (BRFSS) indicate that in 2000, approximately 6.5% of Kentucky adults (240,000 adults) had been diagnosed with Diabetes. By 2013, the prevalence rate for Diabetes had increased to **10.6% or approximately 359,000 adults** (Chart 1).
- Based on national trends, approximately 95% of adults diagnosed with Diabetes most likely have type 2 Diabetes and 5% most likely have type 1 Diabetes. (2011 CDC National Diabetes Fact Sheet)
- An additional **8.5% of Kentucky adults (289,000 adults)** have been diagnosed with prediabetes and are at high risk of progression to Diabetes (Chart 1).
- Social determinants of health have a strong impact on Diabetes prevalence. Diabetes is more common among those with lower incomes and/or lower levels of education. Chart 2 shows that fifteen percent (15%) of Kentuckians earning \$15,000 or less per year have diabetes compared to 11% earning between \$25K and \$35K, and 6.8% of those earning \$50K or more annually.



- Chart 3 depicts Diabetes prevalence rate by education. Those with less than a high school education have a prevalence rate twice as high (14%) as college graduates (7%).

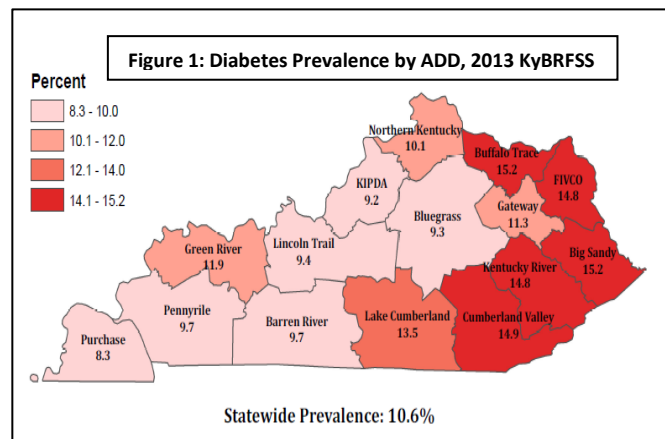


- Diabetes is also more prevalent as people age. Therefore with an aging population, Kentucky (like the rest of the nation) can expect to continue seeing high rates of Diabetes. Almost 7 percent (6.9%) of adults age 35-44 have Diabetes compared to 9% of those aged 45-54, 17.5% of those aged 55-64 and 23.2% of those aged 65 and older (Chart 4).



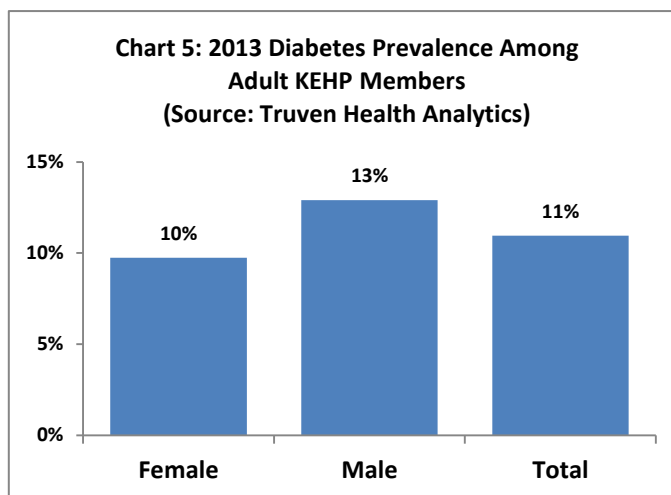
- Diabetes is more prevalent in Eastern Kentucky (see Figure 1) than in other areas of the state; however, it is important to note that Diabetes is quite high across all of Kentucky.

- 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). The national rate is 9.7%



Prevalence of Diabetes Among Adult Kentucky Employees' Health Plan (KEHP) Members

- In 2013, among the 225,681 adults covered by KEHP, 11% (24,825) have been diagnosed with Diabetes based on claims filed with that diagnosis. This rate is consistent with the state as a whole.
- Diabetes rates are somewhat higher among male (13%) KEHP members in comparison to females (9.7%) (See Chart 5).



- Table 1 depicts the percentage and number of adult KEHP members with Diabetes living in each Area Development District (ADD). As in the state overall, prevalence rates are higher in areas of eastern Kentucky, but are highest among those who are out of state. Those residing out of state may be more likely to be older/retired persons for whom we expect rates to be higher.

Table 1: 2013 Diabetes Prevalence Among Adult KEHP Members by Area Development District (ADD) of Residence				
	Prevalence Rate		Number with Diabetes	
Area Development District	Female	Male	Female Patients	Male Patients
Barren River	6.86%	9.88%	640	547
Big Sandy	11.22%	13.24%	575	403
Bluegrass	7.22%	9.99%	2171	1,883
Buffalo Trace	8.32%	12.64%	172	171
Cumberland Valley	9.74%	12.34%	785	638
FIVECO	9.34%	12.87%	372	331
Gateway	8.46%	11.60%	276	268
Green River	7.17%	10.24%	479	393
KIPDA	7.81%	10.63%	2080	1736
KY River	10.29%	12.27%	471	372
Lake Cumberland	7.86%	10.49%	562	510
Lincoln Trail	7.28%	10.14%	553	473
Northern KY	6.78%	9.81%	686	625
Pennyrile	8.43%	11.18%	623	514
Purchase	6.80%	10.71%	432	426
Out of State	15.25%	20.01%	686	560
Source: Truven Health Analytics				

Prevalence of Diabetes Among Adult Kentucky Medicaid Members

For State Fiscal Year (SFY) 2013, 18%, or 82,278 adult Medicaid members had a diagnosis of Diabetes on at least one claim, a rate nearly twice as high as the Kentucky rate of 10.6%, and two and a half times higher than the national rate of 6.9%. Men and women experience statistically identical rates of 19% and 18% respectively (Table 2).

Table 2: Diabetes Prevalence Rate by Medicaid Region SFY 2013 Medicaid enrolled Adults aged 20 and older*						
	Prevalence Rate		Number of Diabetes Cases		Total Adult Enrollment	
Medicaid Region	Women	Men	Women with Diabetes	Men with Diabetes	Total Women Enrolled	Total Men Enrolled
Region 01	17%	17%	2,610	1,186	15,335	6,984
Region 02	18%	19%	4,713	2,345	26,200	12,189
Region 03	16%	18%	10,393	5,183	65,254	29,109
Region 04	19%	19%	7,725	4,304	41,164	22,079
Region 05	17%	19%	8,550	4,304	49,928	23,225
Region 06	14%	16%	2,635	1,211	18,322	7,545
Region 07	19%	19%	4,296	2,351	22,433	12,631
Region 08	21%	20%	12,774	7,698	60,860	38,136
Grand Total	18%	19%	53,696	28,582	299,496	151,898
This data includes All Dual Eligible Recipients, All MCO and Fee For Service populations;						
* Prior to January 2014, Medicaid eligibility guidelines resulted in higher enrollment of females than males. Expansion of Medicaid after January 2014 will result in increased enrollment of men in Medicaid.						

Prevalence of Diabetes among Youth

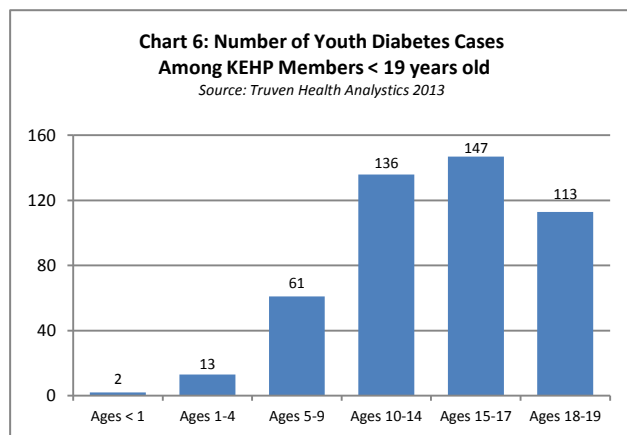
There is no reliable source of data on the prevalence of either type 1 or type 2 Diabetes among youth in Kentucky. The data from Medicaid and KEHP presented in this section represent a significant segment of the Kentucky youth population, but omits youth covered by other insurers. Another gap in this data is the inability to separate patients with type 1 and type 2 Diabetes diagnoses, which is important in order to determine the extent of Diabetes among youth. Efforts to distinguish cases of type 1 from type 2 Diabetes using claims data were not successful due to discrepancies in coding. For example, a large number of claims showed that in many instances the person was coded as having type 1 Diabetes on one visit but type 2 Diabetes on a different visit; however, this is not clinically possible and therefore clearly an error in coding. Research by CDC shows that type 2 Diabetes remains fairly rare among youth with a prevalence rate of only .24 per 1,000, although prevalence is increasing more among youth who are African American, Hispanic/Latino American and American Indian compared to youth who are White. In addition, CDC sponsored research has shown that among youth aged 12 to 19 years, the overall prevalence rate of prediabetes may be as high as 23%.

CDC research also shows that youth experience overall (either Type 1 or Type 2) Diabetes rates

of 28.1 per 100,000. If Kentucky youth experienced Diabetes prevalence rates similar to the rest of the nation, predictions would indicate approximately 2,300 cases of either type 1 or type 2 Diabetes. Data from Medicaid and KEHP show the number of youth aged 19 and younger with Diabetes in Kentucky is higher than expected, with 3,602 cases. If data was available from private insurers, the total would be even higher.

KEHP Prevalence of Diabetes: Youth

- Among KEHP covered youth, a total of 472 or .67% has a diagnosis of Diabetes on a claim. Of these youth, 45% are aged 14 or younger, while 55% are 15 or older. (Chart 6)



Medicaid Prevalence of Diabetes: Youth

- During SFY 2013 there were 3,130 Medicaid members under age 20 who had a diagnosis of Diabetes on at least one claim. There were 1,746 female members that were under age 20 and 1,384 male members under age 20 (Table 3).

Table 3: Diabetes Prevalence Rate by Medicaid Region State Fiscal Year 2013 Children under age 20 years by Medicaid Region						
	Prevalence Rate		Number of Diabetes Cases		Total Enrollment	
Medicaid Region	Girls	Boys	Girls with Diabetes	Boys with Diabetes	Total Girls Enrolled	Total Boys Enrolled
Region 01	1%	<1%	79	61	14,169	14,406
Region 02	1%	<1%	137	106	25,444	26,723
Region 03	1%	<1%	460	358	73,341	77,432
Region 04	1%	1%	224	196	36,672	37,956
Region 05	1%	<1%	288	223	49,712	52,373
Region 06	0%	<1%	99	69	21,496	22,934
Region 07	1%	<1%	107	92	18,483	19,395
Region 08	1%	1%	352	279	43,742	46,490
Grand Total	1%	0.5%	1,746	1,384	283,059	297,709
This data includes All Dual Eligible Recipients, All MCO and Fee For Service populations						

Prevalence of Diabetes during Pregnancy

Diabetes can cause complications during pregnancy. Gestational Diabetes is the more familiar complication of pregnancy, but increasingly, pregnancies occur in women with pre-existing type

1 or type 2 Diabetes. Women with Gestational Diabetes or pre-existing Diabetes are at increased risk for preeclampsia or Cesarean section. In addition to these complications, women with pre-existing Diabetes are at increased risk for preterm birth, miscarriage or stillbirth.

Babies born to women with Diabetes are at increased risk of high weight at birth which can result in nerve damage to the shoulder/neck during delivery (shoulder dystocia), birth defects of the brain, spine or heart, low blood sugar after birth and an increased lifetime risk of being obese or overweight as adults and of developing type 2 Diabetes.

- Table 4 shows all births to Kentucky women for 2013, and indicates whether they were diagnosed with Gestational, pre-existing or no Diabetes prior to delivery. Out of 53,613 total births, 489 (0.9%) were to mothers with pre-existing Diabetes and 2,741 (5.1%) to mothers with Gestational Diabetes. This is statistically similar to a national estimate by CDC of 4.6% for Gestational Diabetes.

Table 4: Kentucky 2013 Births - Diabetes In Pregnancy Source: KY Vital Statistics, Birth Records						
	Gestational	Pre-Existing	No Diabetes	UNK	TOTAL	%
Lake Cumberland	119	34	2,273	10	2,436	6.3%
Barren River	204	26	3,488	10	3,728	6.2%
Bluegrass	708	124	9,280	50	10,162	8.2%
Purchase	94	16	2,101	5	2,216	5.0%
Gateway	73	7	959	2	1,041	7.7%
Cumberland Valley	156	36	2,892	3	3,087	6.2%
Northern KY	249	33	4,176	5	4,463	6.3%
FIVCO	67	10	1,167	2	1,246	6.2%
Buffalo Trace	41	7	570	0	618	7.8%
Kentucky River	76	11	1,291	14	1,392	6.3%
Lincoln Trail	195	32	3,323	19	3,569	6.4%
KIPDA	418	88	11,697	16	12,219	4.1%
Pennyrile	118	31	2,895	3	3,047	4.9%
Green River	142	20	2,414	3	2,579	6.3%
Big Sandy	81	14	1,710	5	1,810	5.2%
Total	2,741	489	50,236	147	53,613	53,613
% by Column	5.1%	.9%	93.7%	.3%	100%	6.0%

Hospitalizations during Pregnancy

One important source of data on the impact of Diabetes on pregnancies in Kentucky is from

hospitalizations of pregnant women. Table 5 shows hospitalizations for women with both Gestational and pre-existing Diabetes. These hospital stays are shown for both stays in which the woman delivered and also for hospitalizations which did not result in a delivery – stays during which a complication of pregnancy had to be managed in the hospital setting.

Only 1.6% of all pregnancy-related hospitalizations were for women with pre-existing Diabetes. However, 30% of instances of hospitalizations with a diagnosis of pre-existing Diabetes had non-delivery hospital stays in 2013 (273/900). By contrast, 5.8% of all maternal stays were for women with Gestational Diabetes, while only 8.4% of Gestational Diabetes stays were non-delivery stays (281/3327).

The difference in the type of delivery stays is also striking. For all delivery stays, 63% are for vaginal deliveries. However, only 31% of stays for women with pre-existing Diabetes result in vaginal deliveries compared to 50% vaginal deliveries for stays with Gestational diabetes.

Table 5: Number and percentage of delivery and non-delivery maternal hospital stays associated with Diabetes and pregnancy, Kentucky: 2013				
Type of Stay	2013			
	Pre-existing Diabetes complicating pregnancy	Gestational Diabetes	Maternal Stays without Diabetes	Total Stays
Total Stays (% of ALL maternal stays)	900 (1.58%)	3,327 (5.83%)	52,847 (92.59%)	57,074 (100%)
Non-Delivery Stays (% of only non-delivery stays)	273 (4.61%)	281 (4.74%)	5,369 (90.65%)	5,923 (100%)
Stays with Delivery (% of stays with delivery)	627 (1.23%)	3,046 (5.95%)	47,478 (92.82%)	51,151 (100%)
Type of Delivery				
Vaginal Delivery (% stays based on Diabetes Type)	194 (30.94%)	1,521 (49.93%)	30,365 (63.96%)	32,080 (62.71%)
C-Section Delivery (% stays based on Diabetes Type)	433 (69.06%)	1,525 (50.07%)	17,113 (36.04%)	19,071 (37.28%)
Source: 2013 Kentucky Hospital Discharge Data, based on all listed diagnoses				

KEHP – Pregnancy and Diabetes

Table 6 includes the number of women in KEHP who had the diagnosis code of pregnancy and a diagnosis of Diabetes. The principal diagnoses listed show the wide range of complications that can occur for women who have Diabetes during pregnancy and the costs for medical care.

Table 6: KEHP 2013 Diabetes and Pregnancy		
Principal Diagnosis	Patients	Payment for Medical
Diabetes in Pregnancy-Unspecified	16	\$2,173
Diabetes Insipidus	33	\$9,861
Diabetes-Antepartum	94	\$100,966
Diabetes-Delivered	19	\$110,728
Diabetes-Delivered w P/P	2	\$368
Diabetes-Postpartum	9	\$1,409
Diabetic Cataract	4	\$1,623
Diabetic Macular Edema	68	\$44,597
Diabetic Retinopathy NOS	177	\$16,638
Gestational Diabetes	10	\$2,011
Infant Diabetic Mother Syn	10	\$31,982
Nephrogen Diabetes Insipidus	1	\$35
Neuropathy in Diabetes	94	\$21,573
Diabetes Med Overdose	12	\$12,798
Prolif Diab Retinopathy	91	\$40,349
Total		\$397,111

Medicaid – Screening for Gestational Diabetes

In SFY 2013, 29,668 women were identified with a delivery. Of those women/deliveries, 20,449 or only 68.9% had been screened for gestational diabetes indicating an opportunity for improvement.

Diabetes Mortality

In 2011, Kentuckians had the eighth highest rate of death due to Diabetes in the nation. In that year alone, 1,236 Kentuckians died as a result of Diabetes with an age adjusted rate of 25.8 per 100,000 residents, as compared to the national rate of 21.7. The Kentucky mortality rate for men was 28.8 per 100,000 compared to the national rate of 26.0. The rate for Kentucky women was 23.5 per 100,000, compared to a national rate of 18.2 (see Table 7).

The racial disparity in mortality rates are particularly striking, both when comparing Kentucky to the nation and when comparing racial groups within Kentucky. The age adjusted mortality rate for African American men in Kentucky (57.1) is more than twice as high as for white men in Kentucky (27.1). Likewise, the mortality rate for African American women in Kentucky is 49.7 compared to 21.8 for white women in Kentucky. National comparisons are also striking. The age adjusted mortality rate for African American men nationwide is 44.9, compared to 57.1 per 100,000 for African American men in Kentucky. For African American women nationwide the rate is, 35.8 compared to 49.7 in Kentucky.

Table 7: 2011 Kentucky Deaths Due to Diabetes By Race and Gender (Source: Kentucky Vital Statistics)			
	Ranked Cause of Death in Kentucky	Kentucky Age Adjusted Rate	National Age Adjusted Rate
All Groups	7th	25.8	21.7
Women	7th	23.5	18.2
Men	6th	28.8	26.0
White	7th	24.2	19.8
White Males	6th	27.1	24.3
White Females	7th	21.8	16.2
African American	4th	51.8	39.6
African American Males	5th	57.1	44.9
African American Females	4th	49.7	35.8

Table 8 shows Kentucky Diabetes mortality rates for each Area Development District. The table lists the number of people for whom Diabetes was listed as the underlying cause of death, the age adjusted death rate per 100,000 residents and shows where Diabetes ranks as a leading cause of death in each area.

- The highest mortality rates are seen in the Kentucky River and Green River, Big Sandy and Cumberland Valley Districts.
- Diabetes is the 5th ranked cause of death in Green River District, and this is the highest ranking we see for Diabetes as a cause of death in Kentucky.

Table 8: 2011 Kentucky Deaths Due to Diabetes by Area Development District (ADD) (Source: Kentucky Vital Statistics)			
ADD	Number of Deaths	Age Adjusted Rate/100,000	Ranked Cause of Death
Lincoln Trail	60	20.78	7th
FIVCO	35	20.83	8th
Bluegrass	169	21.64	7th
Purchase	58	21.93	8th
Gateway	20	23.29	6th
Northern Kentucky	105	25.12	7th
KIPDA	277	26.31	7th
Lake Cumberland	71	27.66	6th
Pennyrile	69	27.7	7th
Buffalo Trace	19	28.6	6th
Barren River	89	28.65	6th
Cumberland Valley	84	30.16	6th
Big Sandy	55	31.12	6th
Green River	83	32.47	5th
Kentucky River	42	32.87	6th
Total	1,236	25.82	7th

The Financial Impact of Diabetes and its Complications

Estimated Costs of Diabetes

In a report entitled “Economic Costs of Diabetes in the U.S. in 2012”, the American Diabetes Association (ADA) has estimated that Diabetes costs Kentucky \$2.66 billion dollars in direct medical costs and an additional \$1.19 billion in reduced productivity, for a total cost to the state of \$3.85 billion. Their analysis of the data shows that after taking into account the impact of the aging population and gender differences, people with Diabetes have costs 2.3 times higher than would be expected in the absence of Diabetes.

In addition, the 2012 ADA report estimates the largest component of medical care costs attributed to Diabetes (43%) are for inpatient hospital care. Given that inpatient hospital care is such a large component of Diabetes expenditures, examining Kentucky’s data on Diabetes hospitalization costs and patterns is an important component of understanding the impact of this disease on individuals, families and the Commonwealth. This data also serves as a reflection of how well Diabetes is, or is not, managed by healthcare providers and patients. The Agency on Healthcare Research and Quality (AHRQ) notes that Diabetes hospitalizations “provide insight into the community health care system or services outside the hospital setting. Patients with

diabetes may be hospitalized for diabetic complications if their conditions are not adequately monitored or if they do not receive the patient education needed for appropriate self-management.”⁸ In other words, if a person with Diabetes is admitted to the hospital, it can be seen as a reflection of lack of access to care, a failure to provide appropriate care in the physician’s office, an inability of the patient to adhere to their plan of care, or a combination of all three. With the expansion of Medicaid in January 2014, we anticipate that there will be improvement of Diabetes care and a decrease in hospitalizations.

Hospitalization Costs Due to Diabetes

Kentucky’s inpatient hospital discharge data and emergency department utilization data are collected by the Office of Health Policy (OHP) within the Cabinet for Health and Family Services. This data is routinely referred to as “hospital discharge data” and “ED data”, respectively. This data provides a wealth of information on the diagnoses of those hospitalized or treated in an ED and the financial charges associated with each episode of hospitalization or ED visit. Collected pursuant to KRS 216.2920 to 216.2929, the data is standardized administrative information routinely submitted by Kentucky hospitals to bill for their services and is also referred to as “administrative claims data.”

Kentucky statutes governing data submission do not allow the state to include individual identification information which would allow for determination of multiple hospitalizations or emergency department visits by one person. This means that this data show the number of hospital discharges or emergency department visits that occur during a year, not the actual (unduplicated) number of people who are hospitalized and discharged or who visit an ED. Currently, individual level data is not available; however, this information would be very useful in planning how to best respond to how Diabetes costs (and indeed all hospitalization and ED costs) are incurred. OHP is exploring alternatives for reporting on an individual level without actually identifying the person.

Another limitation of this data is a result of the nature of the cost information. The cost information reported is for the initial charges for each hospital discharge or ED visit. The actual reimbursement is not reported to the state as part of the administrative claims data. The actual amount reimbursed by various payer sources is based on agreement between the payer and the hospital and is typically far less than the amount charged.

An inpatient hospital discharge record includes all information from admission to discharge. An ED record includes visits to an ED that do not result in a 24 hour inpatient admission. ED records do include data of patients that are held for a 23 hour observation stay but not fully admitted as an inpatient to a hospital. This report includes hospital discharge and ED visit data for both 2012 and 2013.

Table 9 shows the number of hospital discharges in which Diabetes was coded as the principal diagnosis. The data is reported by ADD in which the person resides – not the ADD where the hospital is located. In the calendar years 2012 and 2013, there were **8,550 and 8,610 inpatient hospital discharges, respectively, from Kentucky hospitals for Kentucky residents** for which the principal diagnosis was Diabetes (not including Gestational Diabetes which is reported separately). The total charges associated with these inpatient hospital discharges were **\$194,916,954 in 2012 and \$223,507,310 in 2013.**

Table 9: Kentucky Inpatient Discharges for Primary Diabetes 2012-2013					
Patient ADD	2012		2013		2012-2013 Average Charges
	Cases	Total Charges	Cases	Total Charges	
Purchase	437	\$8,331,046	383	\$7,886,279	\$8,123,307
Pennyrile	424	\$6,523,913	437	\$7,946,813	\$7,246,105
Green River	319	\$5,895,056	316	\$8,021,218	\$6,953,115
Barren River	515	\$9,340,156	500	\$11,020,721	\$10,168,020
Lincoln Trail	475	\$7,890,473	501	\$9,729,862	\$8,834,667
KIPDA	1,758	\$47,896,094	1,872	\$54,843,299	\$51,478,785
Northern KY	775	\$18,925,152	761	\$19,776,030	\$19,346,713
Buffalo Trace	144	\$3,389,667	96	\$2,828,257	\$3,165,103
Gateway	154	\$3,459,386	183	\$4,647,744	\$4,104,696
FIVCO	294	\$6,124,919	313	\$7,692,384	\$6,933,184
Big Sandy	383	\$11,825,028	403	\$15,177,409	\$13,543,870
KY River	515	\$12,392,885	474	\$13,614,098	\$12,978,178
Cumberland Valley	671	\$15,036,084	613	\$13,425,939	\$14,267,378
Lake Cumberland	374	\$7,213,810	381	\$9,810,546	\$8,524,216
Bluegrass	1,312	\$30,673,285	1,377	\$37,086,711	\$33,957,513
Total	8,550	\$194,916,954	8,610	\$223,507,310	\$209,264,850

Specific Diabetes Complications as Principal Diagnosis for Inpatient Hospital Discharges

Hospitalizations for Diabetes may occur due to a variety of common complications of the disease. All of the complications discussed in this section of the report are identified from the principal diagnosis code assigned by the physician during the hospital stay. The principal diagnosis is defined in the Uniform Hospital Discharge Data Set (UHDDS) as "that condition established after study to be chiefly responsible for occasioning the admission of the patient to the hospital for care". Table 10 below shows discharge data for specific Diabetes complications. The data show the number of discharges for 2012 and 2013 combined, the average length of stay (ALOS), the average charge for each type of complication and the total charges.

Table 10: Kentucky Inpatient Hospital Discharges 2012 and 2013 Combined Specific Diabetes Complication as Principal Diagnosis					
ICD-9-CM Diagnosis Code	Total Discharges	Percent of Discharges	ALOS	Avg. Charge	Total Charges
(250.0) Without mention of complication	1,859	10.8%	2.72	\$10,860	\$20,187,852
(250.1) Ketoacidosis (DKA)	6,107	35.6%	3.14	\$17,398	\$106,247,631
(250.2) Hyperosmolarity	570	3.3%	3.63	\$18,817	\$10,725,601
(250.3) With other coma	88	0.5%	5.09	\$31,885	\$2,805,861
(250.4) With Renal Manifestations	411	2.4%	6.88	\$58,830	\$24,179,328
(250.5) With Ophthalmic manifestations	28	0.2%	3.21	\$17,749	\$496,965
(250.6) With Neurological Manifestations	1,988	11.6%	5.14	\$23,258	\$46,236,642
(250.7) With Peripheral Circulatory Disorders	1,231	7.2%	8.61	\$53,208	\$65,498,844
(250.8) With Hypoglycemic Manifestations	4,702	27.4%	6.33	\$29,771	\$139,982,784
(250.9) Unspecified Complications	176	1.0%	3.04	\$11,720	\$2,062,755
Total	17,160	100.0%	4.71	\$24,384	\$418,424,263

- Diabetic Ketoacidosis or DKA accounts for almost one third of all Diabetes primary hospitalizations. DKA is a life-threatening complication in which ketones (fatty acids) build up in the blood due to a lack of insulin. Between 2012 and 2013, 35.6% (6,107) of all Diabetes-primary cause hospitalizations were a result of DKA, with an ALOS of 3.14 days, an average charge of \$17,398 and total billed charges of \$106,247,631.
- The second most frequent Diabetes complication causing hospitalization was “Diabetes with Hypoglycemic Manifestations,” which accounted for 27.4% (4,702) of all cases. The ALOS for this group was 6.33 days, with an average charge of \$29,771 and total billed charges of \$139,982,784.
- Diabetes with peripheral circulatory disorders resulted in the longest ALOS of 8.61 days, an average charge of \$53,208 and total billed charges of \$65,498,844. Peripheral circulatory disorders contribute significantly to the development of lower extremity infections and can result in amputations.
- Kidney disease leading to kidney failure requiring dialysis and transplant is a common complication of Diabetes. Hospitalizations with renal (kidney) complications of Diabetes account for a relatively small (2.4%) percentage of cases. However, this group has the second longest ALOS at 6.88 days, and also reflects the highest average charge of \$58,830 with total billed charges of \$24,179,328.

KEHP Hospitalizations for Diabetes Complications

Table 11 below shows the number of hospital admissions and associated costs for KEHP members who had a principle diagnosis code of Diabetes. Also displayed is the number of admissions, length of stay, net pay complete with medical and hospital pharmacy charges during the admission; and the allowed amount. Just as in the general population, the most frequent reason for hospitalization was “Diabetes with Ketoacidosis”.

Table 11: KEHP 2013 Diabetes Hospital Admissions				
(Source: Truven Health Analytics)				
Diagnosis Principal w Code	Number of Admits	Days LOS Admit Acute	Net Pay*	Allowed Amount**
			Complete Medical and Rx	
Diabetes Mellitus without Complication	30	1.97	\$156,263.30	\$178,563.57
Diabetes with Other Specified Manifestations	61	6.15	\$1,194,801.70	\$1,223,128.44
Diabetes with Neurological Manifestations	26	4.88	\$338,708.49	\$339,866.27
Diabetes with Ketoacidosis	87	2.55	\$770,194.25	\$835,525.17
Diabetes with Peripheral Circulatory Disorders	9	6.67	\$276,741.10	\$298,119.76
Diabetes with Unspecified Complications	1	2	\$8,739.54	\$9,383.99
Gestational Diabetes	61	6.15	\$1,194,801.70	\$1,223,128.44
Diabetes with Renal Manifestations	1	2	\$536.69	\$5,568.22
Diabetes with Hyperosmolarity	8	3.38	\$66,412.67	\$73,608.04
Diabetes with other Coma	1	12	\$125,974.25	\$125,845.56
Total			\$4,133,173.69	\$4,312,737.46
* Net Payment is the net amount paid for all claims. The amount after all contractual adjustments, deductibles, copays and coinsurance.				
** Allowed Amount is the amount of submitted charges after applying contractual adjustments.				

Medicaid Hospitalizations for Diabetes

For Medicaid recipients, we again see that the most frequent reason for hospitalization was “Diabetes with Ketoacidosis” (See Table 12). DKA also accounts for the largest total expenditure for Diabetes specific hospitalizations. The next highest number of Diabetes admissions was “Diabetes with Other Specified Manifestations,” which is the code often used in conjunction with cardiovascular complications of Diabetes and/or lower extremity ulcers resulting from uncontrolled Diabetes. This is also the category associated with the highest number of covered days in the hospital. The longest stays were associated with “Diabetes with Peripheral Circulatory Disorders” at 8.8 days and “Renal Manifestations” at 6.6 days on average.

Table 12: SFY13 Medicaid Inpatient Admissions with Primary Diagnosis of Diabetes

Diagnosis	Total Admissions	Utilizers	Covered Days	Total Spend	Average Length of Stay (Days)
Diabetes with other Coma	13	11	32	\$32,165	2.5
Diabetes with Ketoacidosis	1,037	661	2,794	\$3,188,531	2.7
Diabetes with Hyperosmolarity	68	62	241	\$167,912	3.5
Diabetes with Renal Manifestations	65	64	429	\$570,412	6.6
Diabetes with Ophthalmic Manifestations	5	5	10	\$16,469	2.0
Diabetes with Unspecified Complications	28	27	71	\$58,873	2.5
Diabetes with Neurological Manifestations	257	208	1,258	\$1,305,245	4.9
Diabetes with other Specified Manifestations	615	528	3,563	\$3,020,828	5.8
Diabetes with Peripheral Circulatory Disorders	165	143	1,458	\$1,170,755	8.8
Diabetes Mellitus without Mention of Complication	277	269	646	\$732,124	2.3
Includes All Dual Eligible Recipients, All MCO and Fee For Service Populations					

Emergency Department (ED) Visits for Diabetes

Table 13 below shows the number and cost of ED for each ADD. It is important to recall ED data covers only visits which DO NOT result in a 24 hospitalization; 23 hour observation stays are included in ED data. ED visits for Diabetes produced billed charges of approximately \$28 million in 2012 and \$33 Million in 2013. It is notable that there is a wide variation in the average charge for ED visits between different ADDs. The highest average charges are seen in the Big Sandy and Kentucky River ADD, areas known to have among the highest rates of Diabetes in the state. However, since these are average charges, the disparity in costs suggests that those with Diabetes may experience more costly complications of the disease or may make more frequent use of the services at an ED.

Table 13: Kentucky 2012 and 2013 Emergency Department Encounters with Diabetes Primary Diagnosis					
Patient ADD	2012		2013		Average Charge
	Cases	Total Charges	Cases	Total Charges	
Purchase	503	\$1,162,370	576	\$1,478,380	\$2,447
Pennyrile	622	\$1,408,653	630	\$1,530,610	\$2,348
Green River	540	\$1,637,484	621	\$2,257,774	\$3,355
Barren River	634	\$1,318,104	631	\$1,520,942	\$2,244
Lincoln Trail	481	\$1,033,179	501	\$1,161,148	\$2,235
KIPDA	2,174	\$6,587,808	2,008	\$7,727,022	\$3,423
Northern KY	771	\$1,735,810	786	\$1,885,755	\$2,326
Buffalo Trace	112	\$264,731	89	\$290,691	\$2,763
Gateway	264	\$598,259	299	\$734,174	\$2,367
FIVCO	470	\$1,336,321	476	\$1,299,229	\$2,786
Big Sandy	459	\$1,996,814	496	\$2,609,002	\$4,823
KY River	403	\$1,609,882	435	\$1,980,968	\$4,285
Cumberland Valley	934	\$2,505,904	836	\$2,569,344	\$2,867
Lake Cumberland	559	\$1,099,084	639	\$1,556,913	\$2,217
Bluegrass	1,743	\$4,346,986	1,632	\$4,409,798	\$2,595
Total	10,669	\$28,641,389	10,655	\$33,011,751	\$2,891

Medicaid - Diabetes and ED use:

The population diagnosed with Diabetes is 1.3 times more likely to visit the emergency room than Medicaid members without Diabetes. Those with Diabetes are 4.5 times more likely to visit the emergency room 10 or more times and 7 times more likely to visit the emergency room 20 or more times. In SFY 2013, 8,333 members with Diabetes visited the emergency room 10 or more times and 295 members with Diabetes visited the emergency room 20 or more times. (note: Diabetes was not the primary cause for all of the ED visits referenced above. For example a person with diabetes may have gone to the ED due to an asthma attack).

Table 14 shows the number of ED visits and utilizers for the Medicaid population for SFY 2013 by Area Development District. There were 3,519 visits with 2,615 utilizers with a **primary diagnosis** of Diabetes, meaning the reason coded for the visit was a complication of Diabetes.

Table 14: Medicaid ED visits for Diabetes SFY2013 (all ages)			
Area Development Districts	Total ED Visits	Utilizers	Total Spend
Gateway	109	86	\$36,147
Purchase	185	143	\$56,956
Big Sandy	190	152	\$78,020
Bluegrass	508	377	\$204,541
Pennyrile	216	168	\$84,063
Green River	224	154	\$124,587
Barren River	256	181	\$71,568
KIPDA	535	382	\$151,925
Buffalo Trace	39	32	\$15,159
Lincoln Trail	145	112	\$51,839
Kentucky River	205	143	\$113,971
Lake Cumberland	246	194	\$63,976
Cumberland Valley	411	306	\$123,526
Northern Kentucky	241	177	\$98,843
FIVCO	168	110	\$62,229
Out of State & Guardianship	9	8	\$2,230

Diabetes Comorbidities, Complications, and Costs Relative to other Chronic Diseases

Diabetes Comorbidities and Risks for Complications

It is always important to remember that Diabetes does not exist in a vacuum, as people with Diabetes often have additional chronic illnesses that impact their ability to self-manage thereby presenting Diabetes management challenges to their provider. BRFSS 2013 data shows that 58% of people with Diabetes also have arthritis. Symptoms of their arthritis may limit their capacity to use physical activity as a method of improving their blood sugar control. Arthritis in the hands can also affect the person's ability to provide self-care including taking medication and injecting insulin. Eighteen percent of those with Diabetes also have asthma. Inhaled corticosteroids used to control asthma attacks can make blood sugar control more difficult. Twenty-four percent of people with Diabetes also have COPD and 20% have angina/Coronary Heart Disease. People with Diabetes also have higher rates of obesity (60%) and high cholesterol levels (71%) than those without Diabetes.

Almost 80% of adults with Diabetes report that they also have high blood pressure. Uncontrolled high blood pressure, with or without uncontrolled blood sugar, may lead to very serious complications including blindness, kidney disease, and peripheral artery disease and contributes to lower extremity amputations. One piece of good news about Diabetes outcomes is related to kidney disease. Due to earlier diagnosis and improved treatments, the

rate of end stage kidney disease among those with Diabetes has declined substantially since 2000. Analysis of end stage renal data by CDC shows that like the rest of the nation, Kentuckians with Diabetes are experiencing substantially lower rates of end stage renal disease over the past decade.

Recent research makes a clear link between Diabetes and colon cancer.⁷ Those with Diabetes have a 30% higher death rate from colon cancer than those without Diabetes. In addition, Diabetes makes cancer treatment more challenging due to the adverse effects of cancer treatment such as anorexia, nausea and weight loss. Furthermore, acute Diabetes complications such as severe hyperglycemia, may delay cancer treatment.

Many individuals with Diabetes have unhealthy behaviors which can put them at greater risk for complications due to Diabetes. Forty-three percent of persons with Diabetes report no leisure time physical activity compared to 28.6% of those without Diabetes. Those with Diabetes who smoke are at higher risk for serious complications including heart and kidney diseases; poor blood flow in the legs and feet that can lead to infections, ulcers, and possible amputations; retinopathy which can cause blindness; and neuropathy (damage to nerves) in the arms and legs causing numbness, pain, weakness and poor coordination. Another good piece of news about Diabetes in Kentucky come from the 2013 Kentucky BRFSS which shows that smoking rate among those with Diabetes is only 17.9%, well below the state rate of 26.5%.

Perhaps the most common complication of uncontrolled Diabetes is cardiovascular disease. The combination of Diabetes with high blood pressure and high cholesterol are directly tied to increased rates of cardiovascular diseases such as heart attacks and stroke. In fact 65% of those with Diabetes will die of cardiovascular complications of the disease.

Table 15: Kentucky Hospitalizations Due to Cardiovascular Diseases for those With and Without Diabetes, 2013					
Cardiovascular Complication	With Diabetes		Without Diabetes		% of Discharges with Diabetes
	Number of Discharges	Total Charges	Number of Discharges	Total Charges	
Hypertensive Disease	1,697	\$49,077,233	2,434	\$70,116,837	41%
Ischemic Heart Disease	8,897	\$530,611,569	12,840	\$738,723,022	41%
Congestive Heart Failure	8,128	\$251,141,551	8,397	\$249,277,027	49%
Cerebrovascular Disease	5,450	\$198,536,409	9,351	\$383,530,530	37%
Total	24,172	\$1,029,366,762	33,022	\$1,441,647,416	42%

Table 15 illustrates the relationship between Diabetes and cardiovascular conditions which result in hospitalization. In approximately 37% to 49% of hospitalizations for which hypertension, ischemic heart disease, congestive heart disease or cerebrovascular disease

is coded as the **primary** reason for hospitalization, Diabetes was coded as a **secondary cause** of the hospital stay. Such Diabetes related cases incur charges of over \$1 billion.

Diabetes and other chronic diseases often result in costly hospitalizations. Table 16 depicts the number of hospitalizations due to Diabetes and other chronic diseases, the average charge for those hospital stays and the total charges by disease. The medical conditions that result in the most expensive hospitalizations are cardiovascular conditions strongly related to Diabetes: coronary heart disease, congestive heart failure and hypertension. Diabetes has the fourth highest average cost for individual hospitalizations at \$25,959.

Table 16: Kentucky 2013 Inpatient Discharges for Chronic Diseases (Source: Kentucky Inpatient Hospital Discharge Claims 2013 Kentucky Cabinet for Health and Family Services, Office of Health Policy)			
Primary Diagnosis - Chronic Disease	2013		
	Cases	Average Charges	Total Charges
Diabetes	8,610	\$25,959	\$223,507,308
Asthma - Adult	3,581	\$18,183	\$65,114,080
Asthma- Childhood	1,394	\$11,616	\$16,193,317
COPD	17,516	\$20,250	\$354,691,556
Coronary Artery Disease	20,103	\$57,530	\$1,156,532,595
Congestive Heart Failure	15,659	\$29,763	\$466,065,960
Hypertension	3,885	\$27,722	\$107,699,924

Kentucky Employees' Health Plan Costs for Diabetes and Other Chronic Diseases

Analysis by TRUVEN Health Analytics shows that 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 year 2013. The highest cost condition for this group was Osteoarthritis at a total of \$82 million. Costs are highest for those with a diagnosis of type 1 Diabetes, where costs for an episode of care cost an average of \$6,918, compared to a cost per episode of \$2,835 for a person with type 2 Diabetes.

Table 17 illustrates the comparison of the costs of Diabetes and other chronic diseases for patients covered by KEHP who are 19 years old or older. The third column includes the net pay of medical and pharmacy services delivered in an inpatient

Table 17: KEHP Adult Members Age 19 and Older Comparison of Diabetes vs. Other Chronic Conditions for Plan Year 2013 (Source: Truven Health Analytics)			
	Patients	Net Pay Medical and Hospital Pharmacy Claims	Net Pay Per Patient
Cancer	19,142	\$76,868,852	\$4,016
Chronic Back	47,360	\$48,045,466	\$1,014
Osteoarthritis	23,222	\$57,102,293	\$2,459
Coronary Artery Disease	7,746	\$35,081,757	\$4,529
Diabetes	24,723	\$13,679,216	\$553
Hypertension, Essential	48,369	\$10,943,255	\$226
Overweight/Obesity	3,457	\$13,365,228	\$3,866
Congestive Heart Failure	1,446	\$5,790,870	\$4,005
COPD	3,985	\$3,018,159	\$757
Asthma	6,167	\$2,626,001	\$426

setting, and the fourth column only includes the net pay of the medical costs per patient. For this group, Diabetes is in fact not the most expensive chronic condition covered by the plan. Instead, coronary heart disease, congestive heart failure, bariatric treatment of obesity and osteoarthritis are the higher cost conditions compared to diabetes. It is important to remember however, that the costs shown include pharmacy costs only during hospitalization. However, it should be noted that Diabetes medications, whether injectable or oral, which must be taken every day are a significant cost for this patient population which are not reflected in the table.

Table 18 below compares the costs of Diabetes and other chronic diseases for patients covered by KEHP who are 18 years old or younger. The third column includes the net pay of medical and pharmacy services, and the fourth column only includes the net pay of medical costs per patient. For this group of KEHP members, Diabetes is the second most costly chronic condition per patients after cancer. Like the table above, the cost of daily prescription medication is not included in this table.

Table 18: KEHP Youth Members Age 18 and Younger Comparison of Diabetes vs. Other Chronic Conditions for Plan Year 2013 (Source: Truven Health Analytics)			
	Patients	Net Pay Medical and Hospital Pharmacy Claims	Net Pay Per Patient
Cancer	180	\$874,942	\$4,861
Chronic Back	4,404	\$1,910,827	\$434
Osteoarthritis	153	\$99,148	\$648
Coronary Artery Disease	7	\$3,958	\$565
Diabetes	359	\$843,223	\$2,349
Hypertension, Essential	173	\$137,611	\$795
Overweight/Obesity	208	\$68,806	\$331
Congestive Heart Failure	10	\$2,731	\$273
COPD	80	\$23,148	\$289
Asthma	2,789	\$921,880	\$331

Medicaid Costs for Diabetes compared to other Chronic Diseases:

For Medicaid recipients, Diabetes has the highest overall cost at almost \$538 million and highest cost per person at \$6,407 per member per year compared to other chronic conditions (Table 19).

Table 19: SYF 2013 Kentucky Medicaid, Cost Comparison of Chronic Conditions			
Chronic Condition	Total Kentucky Medicaid Spend	Member Count	Cost per Member
Diabetes	\$537,949,869	83,956	\$6,408
Congestive Heart Failure	\$33,673,399	13,963	\$2,412
Coronary Heart Disease	\$53,849,811	30,612	\$1,759
COPD and Allied Conditions	\$78,371,242	74,755	\$1,048
Hypertension	\$58,360,144	107,485	\$543
Asthma - 20 and Over	\$8,536,028	19,081	\$447
Asthma - Less than 20	\$10,774,826	30,672	\$351
Includes All Dually Eligible Recipients, All MCO and Fee For Service Populations			

Conclusion

The data presented in this section has shown that Diabetes is a common and costly disease in the Commonwealth. We also know that Diabetes is both preventable (type 2) and controllable. Prevention and control/management of Diabetes is key to controlling the financial cost of this disease and more importantly increasing quality of life for those living with this chronic illness. The next section of the report will review information about how Diabetes is best prevented, controlled/managed, and the efforts being made by each contributor to this report to apply this knowledge as we battle the Kentucky Diabetes epidemic.

Section 2 – Addressing Diabetes in Kentucky

Proven Approaches to Diabetes Prevention and Management

As illustrated in the previous section, diabetes is a **Common, Serious, and Costly** disease in the Commonwealth; however, it is also **Controllable** and in the case of Type 2 Diabetes, can be **Preventable**.

We have strong science that tells us that good control of the ABC's (**A1C, Blood Pressure, and Cholesterol**) can dramatically improve outcomes in people with both type 1 and type 2 Diabetes. For example:

- Reducing A1C (a measure of blood glucose control) by one percentage point can reduce the risk of eye, kidney, and nerve diseases by 40%.
- Controlling blood pressure can reduce the risk of heart disease and stroke by 33%–50% and the risk of eye, kidney, and nerve diseases by 33%.
- Improving control of low-density lipoprotein (LDL) cholesterol can reduce cardiovascular complications by 20%–50%.
- Treating diabetic eye disease with laser therapy can reduce the risk of loss of eyesight by 50%–60%.
- Accessing comprehensive foot care programs can reduce amputation rates by 45%–85%.
- Detecting and treating early Diabetic kidney disease by lowering blood pressure can reduce the decline in kidney function by 30% - 70%.

We know the specific clinical and self-care practices necessary to achieve this control. There are specific, clinical management guidelines for Diabetes - the Standards of Care developed and disseminated by the American Diabetes Association. The recommendations include screening, diagnostic, and therapeutic actions that are known or believed to favorably affect health outcomes of patients with Diabetes⁴. They include things such as:

- Measuring blood pressure at every visit
- Checking feet for sores at every visit and providing a thorough foot exam at least once a year
- Laboratory testing such as:
 - A1C test at least twice a year to determine the level of glucose control
 - Kidney function tests through urine and blood tests at least once a year
 - Blood lipids (fats)—total cholesterol; LDL or low-density lipoprotein (“bad” cholesterol); HDL or high-density lipoprotein (“good” cholesterol); and triglycerides at least once a year
- Immunizations
 - An annual flu shot
 - A pneumonia shot (according to age guidelines)
- Referrals for preventive exams such as:
 - A dental checkup twice a year
 - A dilated eye exam once a year

These standards can be difficult to achieve within a health care system designed for more acute, episodic care as opposed to ongoing chronic care. Also, while critical, clinical care alone is not enough to manage a complex chronic disease like Diabetes. A host of other risk reduction strategies, behavior changes/self-management and support are necessary to achieve Diabetes control and avoid short and long term complications of the disease.

Diabetes Self-Management Education (DSME) is a proven way for a person with Diabetes to learn the many things they need to know to help them manage their condition. The *Guide to Community Preventive Services*, a resource for evidence-based recommendations and findings about what works in public health, recommends DSME as an effective and cost efficient way for persons with Diabetes to learn to improve blood sugar control, improve quality of life and prevent complications⁵. The Guide is produced by the Community Preventive Services Task Force, an independent group established by the Department of Health and Human Services to examine the evidence and produce findings and recommendations about effective and ineffective programs, services, and policies⁵.

There are national standards, developed by experts in the field of Diabetes that define quality DSME. The most recent version of the *National Standards for Diabetes Self-Management Education*, released in 2012 and supported by the American Association of Diabetes Educators (AADE) and the American Diabetes Association (ADA), note that DSME is a “critical element of care for all people with diabetes and is necessary to prevent or delay the complications of diabetes.”⁶ The standards also acknowledge that the implementation and maintenance of these behavior changes make ongoing support, after the educational service, critical for success.

We have strong science that tells us that good control of the ABC’s prevents complications and improves outcomes in both type 1 and type 2 Diabetes. We know the specific clinical and self-care practices necessary to achieve this control. We have more tools and medication therapies than ever before to help achieve this level of control. However, a gap still exists between current and desired Diabetes clinical care and self-care practices.

Data on how well Kentuckians with Diabetes fare in meeting clinical and self-care measures is noted in Table 20. Kentucky meets or exceeds the national rate in 4 key measures: rates of

flu and pneumonia vaccinations, rate of self-foot exams, and self-blood sugar monitoring (highlighted), but there is much more work to be done. One significant area of opportunity

Table 20: Reported Rate of Diabetes Care Practices Among Adults with Diabetes, Kentucky and US 2011-13		
Preventive Care Practice	KY 2011-13	US Median 2012
Received a Professional Foot Exam	68.2%	72.4%
Annual Dilated Eye Exam	63.8%	68.0%
Received 2 or more A1C’s Past Year	71%	73.2%
Received a Flu Shot Past Year	58.5%	55.8%
EVER Received a Pneumonia Shot	60.2%	57.9%
Performs Daily Self Foot Exam	66.5%	62.2%
Daily Self Blood Glucose Monitoring	67.2%	63.4%
EVER had Self-Management Education	48.8%	54.6%
Source: Kentucky BRFSS and CDC Division of Diabetes Translation Note: Kentucky data is a 3 year average to minimize 1 year data shifts; US data is the median value reported for the 32 states which collected data in 2012)		

for improvement is increasing the percentage of people who have participated in Diabetes Self-Management Education (DSME).

In addition to the solid evidence around Diabetes control and education, science also tells us that those at high risk for Diabetes, including those with prediabetes, can reduce their risk of developing diabetes by 58% with lifestyle change programs such as the Diabetes Prevention Program (DPP).⁹ Kentucky has made significant progress in promoting and scaling the DPP program in the Commonwealth over the last two years; however, with only 20 sites currently offering the program (as of December, 2014) – more programs are needed to address the almost 1 million Kentuckians estimated to need this intervention.

No one person, agency, organization, or association can successfully address the epidemic of Diabetes or achieve the Institute for Health Care Improvement Triple Aim Goals of Better Health, Better Care, and Better Value alone. The task of improving Diabetes outcomes, and preventing Diabetes will take a concerted effort by policy-makers, healthcare providers, educators, public and private health plans, employers, individuals with Diabetes, public health, technology resources, communities, and more; applying evidence-based strategies – at an appropriate dose, for prevention, detection, and management of Diabetes within a health care delivery system that supports and provides continuous, proactive, planned, patient-centered and population-based care.

Current Diabetes Efforts

The Department for Public Health (DPH), Office of Health Policy (OHP), Department for Medicaid Services (DMS), and the Personnel Cabinet - Kentucky Employees' Health Plan (KEHP) all support a number of interventions related to Diabetes. A summary of these activities is provided below.

Department for Public Health (DPH)

The Kentucky Department for Public Health has housed the **Kentucky Diabetes Prevention and Control Program (KDPCP)** for over 30 years. Beginning in the early 1980s, the Kentucky General Assembly committed funds to support a statewide public health Diabetes program. In addition, KDPCP received a grant from the CDC to further support Diabetes control efforts. The program has evolved greatly over its 30 year history due to changes in science, the health care system and funding.

Today, the KDPCP continues to be a population-based public health initiative whose mission is to reduce the sickness, disability and death associated with Diabetes and its complications and to prevent new cases of type 2 Diabetes. This work is accomplished through a network of state, regional, and local partners that expand the reach of Diabetes prevention and control efforts across the state. Visit www.chfs.ky.gov/Diabetes for more KDPCP information. Staff at the DPH in Frankfort provide leadership for the program, training and technical assistance, monitoring, data collection and dissemination, and evaluation. In concert with the state staff, a variety of partners are involved in implementing the program. Two of the major partners include the local

health departments and coalitions (state and local).

Since the inception of the state program, the **Local Health Departments (LHDs)** have been a major partner, providing critical infrastructure to reach people across the state. During FY 13, funding was distributed to local health departments to address local priorities as needed in their own communities. As a result, there was great variation from county to county in how Diabetes was addressed. For FY 14, these funds are distributed to the local health departments with enhanced guidance by KDPCP.

Another major partner is the **Kentucky Diabetes Network (KDN)**. The KDN is a coalition of over 250 members representing health plans, health care professionals and organizations, academics, businesses, public health workers and many other stakeholders. This coalition is an incorporated, 501c-3 organization and has been active for fifteen (15) years. KDN's mission is to collaborate and advocate for the prevention, care, control, and cure of Diabetes. More information may be found at: www.kentuckydiabetes.net.

Collectively, the local health departments, the KDN, and many others work together to support and implement the KDPCP's many activities. Adult Kentuckians with, or at risk for, Diabetes or prediabetes, are the population of focus. In addition, African American, Hispanic/Latino, senior and Appalachian populations have Diabetes-related disparities and are priority target audiences. The most recent guidance provided to LHDs includes the following short-term, targeted outcomes:

Within the LHD service area:

- Increase the number of CDC Recognized Diabetes Prevention Programs (DPPs);
- Increase the number of DPP delivery sites and/or times programs are available;
- Increase the number of individuals with or at risk for prediabetes enrolled in DPPs
- Increase referrals to DPP programs;
- Increase the number of accredited, recognized or licensed Diabetes Self-Management Education (DSME) programs;
- Increase the number of participants in accredited, recognized or licensed DSME programs; and,
- Increase the number of individuals with Diabetes and hypertension with a self-management goal/plan.

To achieve these outcomes, LHDs are directed to use their Diabetes funds to support evidenced-based strategies, specifically those geared toward increasing access to, and participation in:

- Diabetes Prevention Programs (DPP) with an emphasis on achieving the Centers for Disease Control and Prevention (CDC) Recognition;
- Comprehensive Diabetes Self-Management Education (DSME) programs with an emphasis on achieving American Association of Diabetes Educators (AADE)

accreditation, the American Diabetes Association (ADA) recognition.

- Stanford Diabetes Self-Management Programs (DSMP).

Diabetes Research Board

The Diabetes Research Board was created by KRS 211.736 and attached to the Cabinet for Health and Family Services for the purpose of administrative support. This support was provided by staff of the KDPCP. The Board was responsible for a Diabetes Trust Fund which allocated funds for Diabetes-related research to the University of Kentucky and the University of Louisville when funding was available. The Board has not been funded since FY 2008.

Funding:

The KDPCP receives **CDC funds** for Diabetes prevention and control efforts which are used to support state-level Diabetes personnel and operating costs, fund local Diabetes coalitions, support epidemiological and evaluation efforts, and add support to interventions. In 2012, CDC adjusted the distribution of funds to states. The current method includes funding to link and support the programs of Diabetes, Coordinated School Health, Heart Disease and Stroke, and Obesity programs through one grant. This is intended to assist with collaboration between programs.

Kentucky has been fortunate to also have **state general funds** to support Diabetes prevention and control efforts statewide. In FY 13-14, funds distributed to local health departments were spent on a variety of public health activities as dictated by local need. For FY 15 and FY 16, the General Assembly has designated 2.6 million dollars each fiscal year specifically for LDH Diabetes prevention and control efforts. KDPCP has designed more focused guidelines for how LHDs use these funds, beginning in the fall of 2014.

Programming in the area of Diabetes prevention is urgently needed and has been a new focus for KDPCP. In 2013, Kentucky was fortunate to receive a small, twelve month, Federal grant to promote the Diabetes Prevention Program (DPP) in Kentucky. This allowed the KDPCP to convene partners and to “jump-start” some exciting DPP efforts in the Commonwealth including:

- Development of a Kentucky prediabetes/DPP Steering Committee
- Creation of tool kits for providers, diabetes educators, and businesses/employers
- State and regional presentations
- A segment discussing prediabetes on Kentucky Educational Television
- Educated KEHP and DMS about the DPP and its value
- DPP became a covered benefit for state employees under KEHP as of January 2014
- Participated in business coalition/Chamber of Commerce events to educate employers about DPP and assess their interest in the program

While this represents resounding success for a period of 12-18 months, much more work is needed to continue the momentum; however, there are no designated state funds specific for

this purpose. Current CDC funding and guidance support work in Diabetes prevention as part of the overall package of activities they identify, but the amount of funding provided is inadequate to accomplish the extensive amount of work needed in this area. In addition, the total amount of funding from CDC has declined in the past 2 years further impacting the ability of KDPCP to address this important area of work.

Reach and Benefits of KDPCP Activities:

From FY 13 to FY 14, there has been a significant decrease in the number of professional education programs offered; the number of counties where comprehensive Diabetes Self-Management Education (DSME) classes are offered, and the number of LHDs offering non-comprehensive DSME.

Despite funding challenges, significant activity has occurred at the local and state level:

Local Level:

During FY 13

- 18,310 participants in educational programs
- 20 Professional Educational Programs
- 1,064 Group Patient Educational Classes
- 9.7 Million Exposures to Diabetes Messages
- 685 Public Awareness Activities Implemented
- Participation of more than 210 Partners

During FY 14

- 9,630 participants in educational programs
- 11 professional education programs
- 810 group patient education classes
- 1.5 million exposures to diabetes messages
- 436 Public Awareness Activities Implemented
- 19 Local Health Departments offered comprehensive DSME covering 46 counties
- Participation of over 200 Partners
- 1 additional local health department (10 county district) achieved accreditation from the American Association of Diabetes Educators (AADE) for their Diabetes Self-Management Education (DSME) program for a total of 4 health departments and a total of 43 accredited DSME sites overall
- 5 local health departments (covering 17 counties) have achieved pending recognition for the Diabetes Prevention Program (DPP) for a total of 20 sites overall in Kentucky.

State Level:

- Kentucky was the first state in the Nation to pass a law requiring licensure of Diabetes Educators
- Kentucky was chosen by the CDC as one of six states to have staff and KDN partners

interviewed on film regarding strategic planning and partnership efforts for using on-line training modules being developed by CDC.

- The KDPCP was included in a CDC publication entitled, *“Compendium of Effective Public Health Strategies to Prevent and Control Diabetes”*, highlighting successful state Diabetes prevention and control efforts. KDPCP has 2 entries.

The Compendium can be found at:

<http://www.cdc.gov/Diabetes/pubs/pdf/PublicHealthCompendium.pdf>.

- KDPCP was one of eight (8) states to receive a grant from the NACDD for the Diabetes Prevention Program (DPP). View the “Success Stories” from this project at: www.haltDiabetes.org.
- Prediabetes/DPP was featured on KET as part of the show “Connections with Renee Shaw.” Dr. Raymond Reynolds, Professor of Internal Medicine at the University of Kentucky (UK), and Rebecca Farmer, Louisville YMCA were also featured. It aired on November 8th and November 10th, 2013. View the video at: http://www.ket.org/cgi-bin/cheetah/watch_video.pl?nola=KCWRS+000910&altdir=&template=
- The DPH Commissioner, was a panelist at the National Joslin Center for Diabetes Conference to discuss Kentucky’s diabetes related legislation

With the designation of 2.6 million dollars for LHD Diabetes prevention and control efforts for FY 15 and FY 16, DPH has been working to design a more focused program within LHDs which began in the fall of 2014. Program guidance associated with these funds supports evidence-based interventions and is in alignment with appropriate priorities in DPH’s federal grant, the Governor’s *kyhealthnow* initiative (**Attachment C**), and the 2013 KY Diabetes Report to the Legislative Review Committee.

Office of Health Policy (OHP)

The Office of Health Policy (OHP) is responsible for collecting and analyzing statewide claims data. Through its data collection and analysis, the office identifies opportunities for preparing and distributing relevant information to the public and other governmental entities about health, health care, and public policy. OHP collects administrative claims data in the form of billing records from hospitals and ambulatory facilities. This administrative data includes many elements such as procedure codes, diagnosis codes, facility charges and patient demographic information. OHP collects administrative claims data related to inpatient hospital discharges, emergency department utilization (including observation stays), outpatient surgery, mammograms, and other outpatient procedures such as MRI, CAT scan or procedures identified by specific CPT® codes.

The data is published on the OHP web site (<http://www.chfs.ky.gov/ohp/healthdata/>) and includes information regarding charges for health-care services and quality and outcome measures. The quality indicator reports have been created using Quality Indicator software (MONAHRQ) which was developed by the Agency for Healthcare Research and Quality (AHRQ) and the Department for Health and Human Services (DHHS). The Indicators provide a measure of quality for specific medical conditions and surgical procedures performed in a hospital setting,

hospital utilization, avoidable hospital stays maps, and county rates of hospital use. This data is a valuable source of information for the public, as well as, other governmental entities. OHP also prepares analysis of the data in response to requests from other entities to support policy. Generally about 100 reports are produced annually, with approximately one half of those requests originating from DPH.

Funding

OHP does not receive funding from the Kentucky General Assembly for specific programs or activities aimed at reaching those with Diabetes. Included within the operating budget is \$200,000 allocated for the collection of administrative claims data. Various grant funded projects may indirectly affect individuals with Diabetes.

Effectiveness

OHP collaborates with DPH by providing analysis of hospitalization and Emergency Department visit data, and provides technical support for reports. Utilizing MONAHRQ to create an interactive web site, OHP provides information about quality of care and health care utilization at the hospital level, as well as, preventable hospitalizations and rate of conditions and procedures at the county level. Data is published in a routine manner and responses to unique data requests occur in a timely manner.

Department for Medicaid Services (DMS)

In November 2011, the Kentucky Department for Medicaid Services (DMS) began the transition from a largely Fee-for-Service (FFS) environment to a comprehensive, state-wide managed care environment. The purpose of this transition was two-fold, to: 1) Enhance financial stewardship and make more efficient use of limited resources; and, 2) Promote and improve care coordination of patients covered by Medicaid. Managed care organizations, working with the member's primary care provider promote a holistic approach to care coordination, encompassing both the physical and behavioral health needs of the member.

Table 21 includes data representing the number of recipients who had a diagnosis of Diabetes and were enrolled in Disease and/or Case/Care Management (Care Management) during the month of June 2013 under the designated Managed Care Organizations (MCOs).

Table 21: Members with Diabetes Enrolled in Case/Disease Mgt.	
WellCare	2,753
Coventry	11,321
Passport	5,860
Humana	65 members had an open case at any point from January to June 2013 using HEDIS definitions

To assess the need for targeted interventions available through Care Management and Disease Management, the MCOs are required by their contracts to conduct health screening

questionnaires for all new members within 90 days of enrollment. These screenings help the MCOs determine which members need to be offered enrollment in Disease or Care Management. They also use other means such as claims data, to identify recipients who would benefit from additional resources. All these programs are optional for the member.

Each MCO provides different interventions based on recipient needs. Some examples of the advantages when agreeing to participate include quarterly newsletters, website information, telephonic management, educational materials, annual reminders for vaccines, additional support as needed, and community resources available depending on the MCO chosen by the recipient. A brief overview of the each MCO's Diabetes programming is as follows:

CoventryCares: In SFY 2013, CoventryCares identified 1,368 members with Diabetes and established a care plan and specified interventions. For this population there were 3,692 Care Management Diabetes interventions performed. Examples of these interventions included the following: Blood sugar, diet, exercise, and weight monitoring, eye and foot exams, vision assistance, and medication management. CoventryCares also conducted activities within communities including distributing cookbooks with Diabetes friendly recipes, sponsoring walks and cooking classes.

To empower members to self-manage their health, CoventryCares initiated Process Endpoints to integrate a Multidisciplinary Team (MDT), which entails a member specific case plan, and the members' primary care physicians in an effort to *enhance care quality and reduce medical utilization*. The process utilizes face-to-face and telephonic visits to assess the member's environment, medical conditions, cognitive level, social needs, perform a medication reconciliation, and set member goals. The Case Manager (CM) will summarize the information gathered through the initial visit into an evidenced-based case plan which will be discussed during the weekly MDT meeting. The MDT consists of CM, Social Workers (SW), a Coventry Medical Director, Coventry Pharmacists, a dedicated representative from MHNet which administers behavioral health services and other ad hoc members as indicated.

Criteria: The CoventryCares Care Management program focuses on members with 1 of 9 primary conditions (Heart Failure, Asthma, COPD, **Diabetes**, CVA, Dementia, Chronic Pain, Depressive Disorder and/or Schizophrenia) and their associated co-morbid conditions. Identification and stratification is based on patient factors, health risk assessment (HRA) responses and scoring, and claims-based factors including primary disease state and associated co-morbid conditions. Exclusions to the program include those receiving cancer treatment, on dialysis, waiting for, or who have received solid organ transplant, in hospice, who live greater than 50 miles from the health plan, or who live anywhere other than in a community setting (i.e. skilled nursing or assisted living facility). Currently, the CoventryCares Care Management program is manually selecting cases based on 1 Inpatient or 2 ER visits in the past 6 months in addition to the above criteria/exclusions.

WellCare: WellCare strives to improve quality care for their members with Diabetes by implementing member and provider interventions. Their quality department has staff located at

the regional level throughout Kentucky and work directly with provider offices. The regional workers are referred to as HEDIS Clinical Practice Advisors and are responsible for maintaining collaborative relationships with providers to improve Diabetes HEDIS results and outcomes.

The mission of the Disease Management (DM)/Chronic Care Improvement (CCI) Program (DM/CCI Program) is to identify members with selected chronic diseases and provide education and health coaching to these members and/or their caregivers to empower them to make behavior changes (i.e. avoiding triggers), self-manage their condition(s) and ensure the choices they make will improve their health and quality of life, as well as reduce the complications of their disease and medical costs.

WellCare's DM/CCI Program provides services to members with selected chronic conditions. The services are offered through a team of registered nurses and health professionals with clinical experience in specific diseases. The DM/CCI Program is an opt out design which employs a population based strategy that focuses on providing care across the continuum for members at risk and encompasses their co-morbid conditions to ensure a holistic care approach. Elements of the Program include educating the member about their particular condition, empowering self-management, and monitoring the member for adherence to a treatment plan, all of which are supported through the use of evidence-based clinical practice guidelines.

Passport Health Plan (PHP): The Diabetes program implemented by Passport Health Plan (PHP) uses specific selection criteria to identify members that include high rates of ER use, inpatient admissions, and readmissions. Other factors have included low rates of adherence to medication recommendation(s) and the plan's ability to impact disease progression based on clinical and behavioral modifications. The Diabetes program is administered by two registered nurses licensed in Diabetes Education. Approximately 3% of PHP membership were identified as having Diabetes in SFY 2013.

Disease Management/Care Management (CM) works to improve the health status and quality of life of members with multiple complex medical conditions, while decreasing unnecessary hospitalizations and emergency room (ER) visits, by improving member self-management skills, and increasing adherence to Care Plans. The PHP Complex CM Program includes procedures for improvement in delivery and management of health care services promoting quality, cost-effective outcomes.

While care for each member is individualized, PHP Complex CM procedures consistently address the following:

- Members' right to decline participation or dis-enroll from Care Coordination programs and services offered by the organization;
- Initial assessment of members' health status, including condition-specific issues;
- Documentation of clinical history, including medications;
- Initial assessment of activities of daily living;
- Initial assessment of mental health status, including cognitive functioning.

- Initial assessment of life planning activities;
- Evaluation of cultural and linguistic needs, preferences or limitations;
- Evaluation of caregiver resources and involvement;
- Education/evaluation of available benefits within the organization and from community resources;
- Evaluation of visual and hearing needs, preferences, or limitations;
- Development of an individualized CM plan, including prioritized goals, that considers the members' and caregiver's goals, preferences, and desired level of involvement in the CM plan;
- Identification of barriers to meeting goals or complying with the plan;
- Facilitation of member referrals to resources and follow-up process to determine whether members act on referrals;
- Development of a schedule for follow-up and communication with the member;
- Development and communication of member self-management plans; and,
- Process to assess progress against the CM plans for members.

Humana CareSource (HCS). HCS had a Diabetes Disease Management Program during SFY 2013, but it was only operational for six months due to only being active with Kentucky Medicaid for that time. The program components include total population identification processes, evidence-based practice guidelines, patient self-management education, process and outcomes measurement, evaluation and management, and individual Disease/Care Management for at-risk members. At risk members of the Diabetes Disease Management Program were identified and placed into low, medium, and high-risk categories by using medical and pharmacy claims, lab claims when available, and HEDIS data combined with risk stratification identification utilizing Johns Hopkins software. Depending on the risk level of the member, program interventions may have included a welcome letter, educational mailings, newsletters, and/or personalized letters noting gaps in care. Other interventions included one-on-one support, decision support, prevention support, and behavioral support.

Humana - CareSource has now expanded their disease management programs in areas such as Diabetes, asthma, and behavioral health. These focused programs include targeted educational materials, reminder calls, and access to a disease and/or case manager for individualized, tailored assistance. Humana - CareSource has a no wrong-door policy for member referrals. Members are referred through various methods, such as the Bridge to Home program, High Risk Case Management, providers, member self-referrals, and predictive modeling. If a case manager or Bridge to Home nurse feels that a member with an asthma or Diabetes diagnosis would benefit from a HCS program, the member is referred for enrollment to a higher level of case management.

The scope of the HCS Disease Management Program is comprehensive. It monitors and evaluates members in the management of their disease. The program encompasses a wide array of interventions for members with a variety of chronic conditions. Humana - CareSource uses a multi-faceted and total population approach to achieve the best possible outcomes based

on access to care, assessment of member needs, ongoing care monitoring, evaluation, and tailored member and practitioner interventions including wellness and prevention. Through the use of disease specific interventions, the program attempts to improve members' self-management skills and knowledge of the condition. This approach is targeted at improving member outcomes while promoting quality of life and optimal management of the condition.

The total population remaining in FFS is approximately 169,750, and includes those in long-term care facilities and waiver programs. Of the FFS population not in long-term care facilities, approximately 34,750 have Diabetes. DMS continues to provide Medicaid members with health information related to chronic diseases. DMS also provides updates to providers on Diabetes through website communication at the following link: http://chfs.ky.gov/dms/hi/Diabetes.htm?wbc_purpose=basic&WBCMODE=presentationunpublished.

Diabetes and Smoking

Tobacco cessation assessments and medications are available through Medicaid. DMS will reimburse for a tobacco cessation assessment if the provider completes the Tobacco Cessation Referral Form corresponding to the assessment (907 KAR 3:215). Each MCO has a Tobacco Cessation Program. Detailed data from all of the MCOs regarding tobacco use and Diabetes wasn't available at the time this report publication.

During SFY 2013, CoventryCares performed 24 smoking assessments on members with Diabetes and referrals to their smoking cessation program and subsequently provided members with smoking/tobacco cessation education. Also during SFY 2013, 1,462 WellCare members reported being tobacco users and having Diabetes on their health risk assessment forms. The health risk assessment form is requested of the member upon enrollment. This does not represent a total number of WellCare members who use tobacco and have Diabetes. During SYF 2013, 4,366 Smoking Cessation Literature packages were sent out to WellCare members.

Funding

The MCOs are paid a capitation rate per member, per month. In SFY 2013, DMS spent approximately \$329 million with a state share of \$99 million for Diabetes related services in the fee-for-service population.

Effectiveness

Medicaid managed care was implemented November 1, 2011 with some additional managed care entities beginning in January of 2013 and 2014. Therefore, they are still in the process of identifying needs and developing programs to serve the Medicaid population; however, preliminary analysis indicates that MCOs in Kentucky are increasing the number of A1C tests throughout the state, as well as other screening measures as indicated by the HEDIS Scores for 2013 below:

Comprehensive Diabetes Care **Measure:**

	KY Weighted Average:
Hemoglobin A1c (HbA1c) Testing	83.38%
HbA1c Poor control (>9.0%)	47.42%
Eye Exam (Retinal) Performed	41.91%
LDL-C Screening Performed	75.27%
(Medical Attention to Nephropathy)	76.67%

Personnel Cabinet - Kentucky Employees' Health Plan (KEHP)

The Kentucky Employees' Health Plan (KEHP) is a self-funded program providing health insurance benefits to the employees and retirees under the age of 65 of the Commonwealth of Kentucky, local school boards, and various cities and county governmental agencies. KEHP offers health insurance coverage to approximately 266,000 employees, retirees and their dependents. KEHP partners with Humana as a third party administrator for medical claims; HumanaHealth to oversee medical management; and HumanaVitality® as the incentivized wellness provider.

In 2013 there were over 28,000 members in KEHP who had a medical claim for Diabetes. Diabetes is the second most costly chronic condition for both active and early retirees, at \$66 million in related medical and prescription drug costs for diabetes care in year 2013.

KEHP/Humana Diabetes Program Overview

Humana's support for members with Diabetes focuses on the unique individual. The approach is to provide various levels of support, matching intensity of support to the needs of members with ongoing health challenges. Levels of support include a high acuity complex chronic program focused on Diabetes and a low-to-medium acuity program for members with Diabetes administered by a Personal Nurse® service.

Humana's goals include the following:

- Promoting the physician/patient relationship and treatment plan;
- Emphasizing evidence-based guidelines to reduce symptoms and complications ;
- Providing education and increase knowledge of the disease;
- Developing strategies that empower patients to practice both self-care and behavior change;
- Helping members and their caregivers meet personally selected health improvement goals; and,
- Showing members how to get the most from their doctor visits.

In 2013, KEHP along with Humana, began a new program of recruiting and referring eligible members to a Diabetes Prevention Program (DPP). The DPP is available for members who are

prediabetic or are considered at a very high risk of developing Diabetes. The criteria for participation in a DPP include the following:

- Prediabetes and being overweight/obese with a BMI of >25;
- Prediabetes with high cholesterol;
- Prediabetes with high blood pressure; or,
- Ever having Gestational Diabetes.

There is no cost to the member to participate in DPP, and as of 2014, it is a covered benefit under KEHP. All DPPs have certified lifestyle coaches at either a hospital or a YMCA within Kentucky. The DPP participants meet in person as a group with a lifestyle coach, once a week for 16 weeks, and then once a month for another 6-8 months. The support of a lifestyle coach helps member make important changes, such as losing weight, being more physically active and managing stress. Members are eligible if they are overweight/obese (BMI > 25) and have prediabetes or are at high risk for developing Diabetes.

Funding

KEHP receives state General Funds to support the group health plan. These funds, by way of employer portion of premium contributions are for the overall support of the KEHP including claims and administration. The KEHP trust fund may only use KEHP funds for claims and administration of the KEHP. Disease management funds are a part of Humana's overall administrative fees. There are no funds specifically earmarked by the General Assembly for Disease Management or administration of the KEHP. For context, less than 5% of the plan's expenses are for the administration of the KEHP.

Effectiveness

KEHP has a robust Disease Management program in place and provides medical management programs offered through HumanaHealth. Among the top conditions being addressed by the medical management program are hypertension, Diabetes, musculoskeletal pain, heart disease, COPD and obesity. Specifically, DPP participants have reduced their risk of developing Type 2 Diabetes by 58%.

Humana deploys multiple methods to effectively identify any member facing Diabetes and/or other chronic conditions who could benefit from education and support. This multifaceted approach is used to serve as a "safety net" to identify appropriate and comprehensive number of individuals. These approaches include the following:

- Advanced proprietary predictive models and algorithms;
- Direct system rules and triggers;
- Analysis of care gaps;
- Lab values and biometric screenings;
- Transition of care;
- Health assessment responses;
- Program-to-program referrals;
- Member self-referrals; and,

The backbone of identification includes advanced predictive modeling to identify members who need support in the early stages of their condition, when KEHP can have the greatest impact.

By using medical and pharmacy claims, along with other data elements such as behavioral and socioeconomic input, this early identification allows Humana's clinical programs to intervene before a major health event occurs. Sophisticated algorithms allow for precise risk stratification, and members are queued in "risk rank order" for engagement, focusing on the highest-risk cases first.

Direct System Rules and Triggers

Humana performs ongoing, real-time analysis of all members, as more information is continually added to the system; additionally, certain factors and risk parameters trigger appropriate program outreach. Furthermore, key clinical data (i.e., post-discharge, ER events, out-of-range lab values) and clinical protocols alert clinicians when they can make a positive impact on the condition and a member's health. Ongoing risk stratification and assessment triggers the most appropriate level and intensity of intervention.

Analysis of Care Gaps

Humana consolidates all available data elements into a clinical profile for each member. This profile is monitored continuously through a "rules engine", which systematically identifies members who should receive a Humana Health Alert. These alerts let members know about available disease-specific care and inform them of any gaps in care.

Lab Values and Biometric Screenings

Humana has partnered with independent labs to receive not only the claim for a completed test, but also the actual lab value.

Health Assessment Responses

By reviewing answers to a confidential lifestyle questionnaire, Humana can identify health risks and improvement options more quickly than by relying solely on claims data. The assessment also helps identify members with chronic illnesses early, and early detection can lead to more effective treatment.

Program-to-Program Referrals

Humana also identifies potential candidates for nursing support through intra-program referrals, quality department nurses, behavioral health clinicians, provider referrals, and referrals from customer service. Because the nurses all use the same system, these Intra-program referrals are seamless and allow the new clinicians to immediately become familiar with the history of the members and their care. After receiving the referral, Humana screens the potential candidates for program eligibility.

Member Self-Referrals

Humana recognizes that KEHP members may not know which program or service may be best to support their individual needs. Members may not know if utilization, Care, or Disease Management is appropriate but they know help is needed. To alleviate this burden, Humana has a centralized member self-referral line combined with a 24-hour nurse advice line. This

provides members the ability to call one single number, and find out how Humana can help.

Complex Chronic provides best-practice, industry-standard educational components, and assessments that are focused on specific conditions, while maintaining holistic, tailored, member-centric focus. To promote standards of care, Humana may identify the primary condition on which to center for goal development. Humana has focused programs on the primary conditions that most often affect members' health, including Diabetes.

The program specializes in working with members with multiple comorbidities. The program is designed for members who have a high need for care and are at high risk for a hospital admission or readmission. Humana proactively identifies potential participants with conditions where intervention can make a positive impact and situations can be managed successfully.

The ultimate goal is to improve member quality of life, reduce healthcare costs by preventing unnecessary utilization, and proactively address chronic issues. To accomplish this, the program is built on a member-centered model with support from a multidisciplinary team that works to address complex member needs and strives for seamless continuity of care. This includes an emphasis on delivering the right care at the right time, improving access to care across providers and community resources, and enabling members to take control of their own care to get the most from their health benefits.

All participants are assigned a registered nurse who is responsible for coordinating all of the member's needs. This nurse serves as the point person, via telephone, for the member, the member's providers, and others on the care team. In addition, telephonic social workers and behavioral health specialists are responsible for filling needs not otherwise addressed through medical care (e.g., meals, transportation, medical equipment, or assistive products not otherwise covered by the plan). Local-area and care-center-based community health educators (CHEs) work in tandem with the nurses by connecting members to community resources and sending out tailored health education material.

Personal Nurse serves as the primary program for members with low-to-medium severity chronic issues. This industry-leading program is centered on motivational interviewing and behavior change, and develops a relationship with members to engage and empower them to achieve their best health. Our advanced predictive modeling tools target members based on their projected use of healthcare services, not solely on their current condition. Comorbid condition management also includes behavioral health issues such as clinical depression, for which members are continuously assessed.

Within the Personal Nurse program, there is a specialized track for members with low-to-medium acuity Diabetes. The program utilizes behavior change with Disease Management, promotes self-management of chronic illness and improves health outcomes and quality of life. The nurse and member set goals, develop plans to control Diabetes, and discuss questions and concerns. The focus is on closing gaps in care and maintaining compliance with recommended tests and medications.

Humana helps members and their caregivers meet personally selected health improvement goals. In addition to addressing the member's knowledge of the disease, clinicians support the development of healthy behaviors and coping skills. They also show members how to get the most from their doctors' visits. Clinicians provide personalized coaching, education, and care coordination, as well as suggestions for external resources.

All nurses have access to a directory of community resources that contain more than 18,000 national, state, and local community agencies and services for members, covering transportation, meal service, assistance with utility bills, and many other day-to-day needs.

Humana's specially trained clinicians tailor discussions to the member's needs, concerns, and readiness to change. The Care Manager and member work through ongoing conversations until the member reaches their health goals and can self-manage without scheduled clinician support. Even after the scheduled calls stop, members can reach out to their single connection for the entire time they are with Humana, if needs arise. The relationships established between clinicians and members are a testament to the value the members see in their clinical programs.

HumanaVitality, a key component to KEHP's LivingWell program, is a wellness and rewards program designed to improve well-being and encourage healthy living for KEHP members and their families. Members in KEHP are incentivized and rewarded for making healthy choices. A KEHP member who participates in a DPP class can earn HumanaVitality points just for participating in the class.

A component of the HumanaVitality program is to build and support the development of worksite wellness. Wellness Champs, who are role models in their respective cabinets, promote health assessment completion days, schedule Vitality Check events onsite, promote health awareness campaigns, and provide communications in their worksite. Champs are kept informed of health and wellness benefits such as the flu shot promotion program, open enrollment, and encouraging the use of telephonic coaching programs. HumanaVitality sponsored and promoted 5K and Marathon races in the Louisville and Frankfort areas and assisted in promoting the PARKS race series. Several state employees have won entries into the Derby and Louisville Sports Commissions races. The KEHP competitive teams won the Louisville Sports Commission Race the last two years and came in second place in the 2013 Derby Marathon. HumanaVitality helps our members reach their best health possible by managing their condition, their environment, and their social situation.

Coordinated Efforts

In addition to the activities that the DPH, DMS, OHP and KEHP do to individually address Diabetes, these organizations also collaborate on, and/or provide support for, Diabetes-related activities. One of the most comprehensive examples of this collaboration is Governor Steve Beshear's *kyhealthnow* initiative. This and other examples are described below.

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* (**Attachment C**), 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 success of enrolling Kentuckians into expanded health care coverage.

Lieutenant Governor Jerry Abramson served as chair of the *kyhealthnow* work group, and the new Lieutenant Governor, Crit Luellen has assumed this role. The group meets quarterly and reports to the Governor every six months. The DPH Commissioner Dr. Stephanie Mayfield serves as vice chair. The *kyhealthnow* oversight team is composed of leaders from every state Cabinet, along with input and partnerships from various nonprofit and private sector agencies. The goals are as follows:

kyhealthnow 2019 Goals:

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

The goals regarding obesity and cardiovascular deaths include specific objectives/activities for increasing the access to, and participation in, DPP programs; as well as, objectives to improve A1C levels due to the relationship between Diabetes and cardiovascular disease. In addition, the goals related to reducing smoking, oral health and reducing the rate of uninsured Kentuckians also have a strong impact on Diabetes. A more detailed list of each goal, related strategies, and other resource material can be found at <http://kyhealthnow.ky.gov>, and in **Attachment C and Attachment D** which provides details on how Diabetes is connected to each *kyhealthnow* goal.

Coordinated Chronic Prevention and Health Promotion State Plan

The Coordinated Chronic Disease Prevention and Health Promotion Plan, was completed in August 2013 through the work of over an eighty (80) member steering committee representing universities, advocacy organizations, hospitals, public health, providers, schools, businesses, transportation, and state government agencies in addition to over 200 individual stakeholders. The steering committee and stakeholders continue their participation in the annual meeting

where synergy is created around the key initiatives within the plan and collectively, have become ambassadors of the key strategic areas within the plan. These four strategic areas are foundational for successful partnerships and programs related to chronic disease prevention in the state and are as follows:

- Promote policy, environmental and system changes that will support healthy choices and healthy living in Kentucky and its communities;
- Expand access to coordinated, quality, evidence-based clinical screenings, clinical management and chronic disease self-management;
- Cultivate strong connections linking individuals, community organizations, businesses, schools, the health care system and other partners to improve health outcomes, reduce health care costs, and improve quality of life; and,
- Translate surveillance, research and evaluation findings into information that is easily accessible to and useful to the community partners, health advocates and decision makers.

The plan continues to be utilized at state meetings, trainings and public health forums and in assisting communities with prioritizing their own strategic plans.

Data from the Office of Health Policy (OHP)

The data collected and compiled by the OHP is utilized extensively by DPH and many organizations to produce burden/impact reports, fact sheets, presentations, grant applications, and more.

KEHP and the Department for Public Health (DPH)

The Personnel Cabinet, KEHP, and DPH have partnered in pursuit of promoting and improving access to wellness programs. The Personnel Cabinet and DPH continue to explore embedding DPH Diabetes Education and KEHP Disease Management into the LivingWell program. This would provide both local and face-to-face Diabetes Education and Management to members in hopes to enhance the KEHP Diabetes Disease Management services already provided.

More specifically, KEHP launched HumanaVitality in January 2012. HumanaVitality is a comprehensive wellness program that integrates rewards with healthy lifestyles and provides tools and support to help KEHP members live healthier lives. Based on research, HumanaVitality-engaged individuals have significantly lower medical claims compared to other members, and non-members. In summary, the more a person engages with the program, the more opportunities to earn incentives and get healthier.

In plan year 2014, the HumanaVitality health assessment was a requirement of the KEHP LivingWell Promise. KEHP members who chose a LivingWell health plan option were required to take the HumanaVitality health assessment which provided the member with a VitalityAge vs. a chronological age.

The partnership between KEHP and DPH has expanded access for KEHP members to receive a Vitality Check as part of the HumanaVitality wellness program. The Vitality Check is a blood

screening and biometric assessment that measures body mass index (BMI), blood pressure, blood glucose and total cholesterol. KEHP members may receive their Biometric Screening at various locations, such as a KEHP scheduled onsite location; LHDs; retail clinics such as Kroger and Walgreens; or at the member's primary care physician office. LHDs across the state have been a strong partner in this effort. Some have used this screening as an opportunity to refer to programs/resources in their area – particularly DPP and DSME. There is great opportunity for enhancement of this linkage.

The more KEHP members who have a Vitality Check, the more early diagnosis of prediabetes and Diabetes will occur. Once diagnosed with prediabetes or Diabetes, the member's primary care provider and KEHP's disease management programs can assist with managing the condition. While it is important for individuals to manage their own health, HumanaVitality also recognizes the gravity of certain illnesses and health conditions as being best managed under a disease management program.

MCO's Utilizing KDPCP Materials

KDPCP produces and updates Diabetes-related educational materials. A number of organizations outside of DPH request and utilize these materials in their education and disease management programs. Passport Health Plan has been utilizing "Diabetes Basics" within their Disease Management program for several years. CoventryCares is currently utilizing KDPCP's "Nutrition Basics" with their members.

Diabetes Self-Management Education (DSME)

A primary focus of the KDPCP has been to increase access to DSME in Kentucky. The classes provided by the LHDs are open to anyone with Diabetes in the community including, but not limited to, Medicaid recipients, staff, and community members. DSME is an evidence-base intervention demonstrated to improve outcomes in persons with Diabetes.

Medicaid and LHDs

Medicaid and DPH are both in the Cabinet for Health and Family Services and have collaborated closely over many years. All of the MCOs have contacts with the LHDs for a variety of preventive services providing care to Kentuckians in their local communities. Outside of their Preventive Fee Schedule, LHDs offer other programs that can improve the health of the community (population health) outside of the MCO payment model, such as WIC, EPSDT, family planning, prenatal care, and TB treatment that are covered by Medicaid.

Diabetes Prevention Program

As detailed in the previous section, both KEHP and DPH have been very involved with promoting the DPP effort in Kentucky. Personnel Cabinet/KEHP staff, as well as Humana staff, serve on the prediabetes/DPP steering committee. Once coverage for DPP began, Humana was a great partner in identifying and referring eligible participants to DPP programs. DPH provided an updated listing of DPP providers across the state on a monthly basis; and added them to the existing web-based Diabetes resource directory to facilitate referrals.

Dr. Ann Albright, Director of Diabetes Translation at CDC, visited Kentucky and gave a presentation on DPP to the DMS and MCO Medical Directors to inform them about the evidence base around DPP and encourage referrals to, and ultimately reimbursement for, the program. DPH, KEHP and the MCO's are continuing to discuss how DPP can be provided for these populations.

Community Health Worker Certification/State Plan Amendment

DPH initiated a Community Health Worker (CHW) Work Group to explore the potential for developing a CHW program in Kentucky that would provide certification for CHWs and payment for CHW services. The Task Force included representatives from LHDs, hospitals, non-profits, faith-based organizations, universities, nursing, Primary Care, OHP, KHIE, and Foundation for a Healthy Kentucky. DMS has also been involved with development of this proposal. At the time of this report, preliminary work is ongoing to create a Medicaid State Plan Amendment (SPA) to include CHWs as reimbursable non-physician providers and to develop regulations.

Section 3: Moving Kentucky Forward with Joint Benchmarks

Healthcare Effectiveness Data and Information Set (HEDIS) and Hospital Discharge Prevention Quality Indicators (PQI's)

The legislation which guides the content of this report requires the Department for Medicaid Services, Department for Public Health, Office of Health Policy and Kentucky Employees' Health Plan develop joint benchmarks on Diabetes. This is a challenge, as each entity serves different groups of consumers and has very different types of data available. However, to meet this call for common benchmarking, the group has chosen related measures which, when tracked over time, can demonstrate Kentucky's progress in responding to the Diabetes epidemic.

HEDIS and HEDIS-Like Measures

As discussed earlier in the report, there is widespread agreement among health care and public health professionals as to how Diabetes should be addressed to improve outcomes for those with Diabetes. There are clear standards of care which must be addressed, and many of these standards are benchmarked and measured via the Healthcare Effectiveness Data and Information Set (HEDIS). HEDIS is a tool used by more than 90 percent of America's health plans to measure performance on important dimensions of care and service. National benchmarks for these measures have been established for Medicaid, Medicare and private insurers. The Diabetes specific HEDIS measures are as follows:

The percentage of adults 18-75 years of age with Diabetes (type 1 or 2) who had each of the following:

- A1C testing
- A1C poor control (>9.0%)
- A1C control (<8.0%)
- A1C control (<7.0%) for a selected population
- LDL-C screening*
- LDL-C control (<100 mg/dl)*
- Medical attention for nephropathy
- BP control (<140/80 mm Hg)*
- BP Control (<140/90 mm Hg)

*these measures are subject to exclusion from the 2015 HEDIS standards now under review.

Diabetes is one of six (6) conditions which DMS requires MCOSs to target for improvement as part of the External Quality Review (EQR) process. Diabetes specific HEDIS measures are reported for each MCO. Similarly, the KEHP makes use of what are termed "HEDIS-like" measures in which data is reported in a manner very similar to the HEDIS standards. The DPH conducts the Kentucky Behavioral Risk Factor Surveillance Survey (BRFSS) which includes data on Diabetes standards of care. Only one of these, the A1C measure, is similar to a HEDIS measure; however, the other measures reported are key standards of care which are important to track as measures of Diabetes management, and these measures will be used as benchmarks

for DPH in monitoring overall population health.

Medicaid – HEDIS Measures

Table 22 shows how Kentucky Medicaid managed care adults with Diabetes fared on selected HEDIS measures. On 3 items indicated by (+), Kentucky compares favorably with the national average score for all Medicaid managed care programs nationwide. The 2 items marked with a (-), are items where Kentucky Medicaid managed care members lag behind the nation, the most notable of these being a lack of eye exams. Please note that this data includes only those enrolled in a Medicaid Managed Care program.

Table 22: Kentucky Medicaid Managed Care HEDIS Scores 2013 (adults aged 18-75 enrolled in a Kentucky Medicaid managed care plan)					
	Coventry (+)=compares favorably (-) compares unfavorably	Humana (+)=compares favorably (-) compares unfavorably	Passport (+)=compares favorably (-) compares unfavorably	WellCare (+)=compares favorably (-) compares unfavorably	2013 HEDIS National Benchmark (50 th percentile)
Hemoglobin A1c (HbA1c) Testing	83.1%(+)	83.9%(+)	86.6%(+)	88.3%(+)	82%
HbA1c Poor control (>9.0%)	45.7%(-)	69.5%(-)	36.3%(+)	39.3%(+)	42% (lower is better)
Eye Exam (Retinal) Performed	38.1%(-)	37.9%(-)	57.9%(+)	35.3%(+)	54%
LDL-C Screening Performed	78.7%(+)	70.6%(-)	77.1%(+)	84.2%(+)	75%
Medical Attention to Nephropathy	79.6%(+)	75.2%(-)	80.6%(+)	79.7%(+)	79%

KEHP HEDIS-Like Measures

The Kentucky Employees' Health Plan reviews data which are very similar to the HEDIS measures, but which may deviate somewhat from the formal HEDIS data parameters; such measures are called "HEDIS-Like" and are commonly used when the data does not conform to the full set of guidelines. Truven Health Analytics provides analysis for the selected Diabetes data for KEHP. Table 23 depicts HEDIS-Like rates for early retirees and active members with Diabetes. For all 4 measures reported by Truven, KEHP members have higher (better) rates than the national Benchmark.

Table 23: KEHP Diabetes HEDIS-Like Measures Rates 2013		
Measure	KEHP RATE (+)=compares favorably (-) compares unfavorably	2013 Quality Measure Base
Pediatric Hemoglobin A1c (HbA1c) Testing (age 5-17)	93% (+)	88%
Hemoglobin A1c (HbA1c) Testing (age 18-75)	88% (+)	79%
Eye Exam Performed (age 18-75)	40% (+)	36%
Lipid Screening Performed (age 18-75)	82% (+)	73%
Microalbumin/Nephropathy Test Performed (age 18-75)	87%(+)	80%

Department for Public Health HEDIS-Like Measures

The Department for Public Health conducts the Kentucky Behavioral Risk Factor Surveillance Survey (BRFSS) which tracks specific health measures for Kentucky adults. Table 24 includes data on Diabetes standards of care from the Kentucky BRFSS. Only the first reported item on A1C is similar to a HEDIS measure; however, the other measures reported are key standards of care which are important to track as measures of Diabetes management. Almost 85% of Kentucky adults with Diabetes report they have had at least one A1C test in the previous 12 months. Seventy one percent report that they have had two or more A1C tests in the previous 12 months, as is considered standard for a person with Diabetes.

Table 24: Diabetes Standards of Care for Kentucky Adults	
<small>KY BRFSS- 2011-2013 combined to increase statistical reliability</small>	
One or more A1C past 12 months	84.6%
Two or more A1C past 12 months	71.0%
Foot exam from HCP in past 12 months	68.2%
Dilated Eye Exam past 12 months	63.8%

Office of Health Policy - Prevention Quality Indicators (PQI's)

The OHP maintains a nationally benchmarked set of indicators based on hospital discharge data, "Prevention Quality Indicators (PQIs)". The PQIs are measures instituted by the Agency for Healthcare Research and Quality (AHRQ) and are described as follows:

A set of measures that can be used with hospital inpatient discharge data to identify the quality of care for "ambulatory care sensitive conditions." These are conditions for which good outpatient cares can potentially prevent the need for hospitalization or for which early intervention can prevent complications or more severe disease. Even though these indicators are based on hospital inpatient data, they provide insight into the community health care system or services outside the hospital setting. For example, patients with diabetes may be hospitalized for diabetic complications if their conditions are not adequately monitored or if they do not receive the patient education needed for appropriate self-management. With high-quality, community-based primary care, hospitalization for these illnesses often can be avoided. Although other factors outside the direct control of the health care system, such as poor environmental conditions or lack of patient adherence to treatment recommendations, can result in hospitalization, the PQIs provide a good starting

point for assessing quality of health services in the community.

These measures show a strong population wide picture of Diabetes complications and management for the entire Commonwealth. In addition to the advantage of national benchmarking provided by use of the PQI measures, the data is available at the county level with comparisons to the national benchmark, which allows more precise identification of geographic areas where the need for intervention may be high. It should also be noted that these two sets of measures, HEDIS and PQI, are directly related to each other. Improvements in HEDIS measures should produce improvements in the PQI measures as people with Diabetes experience greater control of blood sugar, cholesterol and blood pressure (measured by HEDIS) will incur fewer hospitalizations for the complications of Diabetes (measured by the PQIs).

The most recent data available for Kentucky's Diabetes related PQI are provided in Table 25. Kentucky compares favorably to the nation in all but one measure where there is somewhat higher rates of hospitalizations for short term complications of Diabetes.

Table 25: 2011 Kentucky AHRQ Prevention Quality Indicator Data		
PQI Indicator	Kentucky (+)=compares favorably (-) compares unfavorably	National Rate
PQI1: Short Term Diabetes Complications	.77/1,000(-)	.63/1,000
PQI3: Long Term Diabetes Complications	1.05/1,000(+)	1.18/1,000
PQI14: Uncontrolled Diabetes	.21/1,000(+)	.22/1,000
PQI16: Lower Extremity Amputations	.16/1,000(+)	.17/1,000
Source: Office of Health Policy		

Beginning with the 2017 Kentucky Diabetes Report, trend data will be reported on the Benchmarks discussed above to determine how well Diabetes is being managed in the Medicaid population, among KEHP members and for the state population at large.

Recommendations and Actions Items to Address Diabetes

The committee has identified six broad areas addressing both preventing the development of new cases of Diabetes and improvement of outcomes for Kentuckians of all ages living with Diabetes. Under each of these areas, we have identified specific actions to support Diabetes prevention and control. These recommendations and actions are based on accepted standards of practice and scientific evidence of what works to improve prevention and control outcomes for those with Diabetes and are consistent with national and state efforts such as the Governor's *kyhealthnow* initiative, existing Diabetes and other chronic disease state planning efforts, federal grant guidance from CDC.

Some of the recommended actions require additional state financial support if they are to be implemented, some may require changes to contracts with the MCOs, and at least one recommendation would require legislative action.

Please note that these recommendations are NOT listed in order of priority, rather, they are listed in the logical sequence of prevention, diagnosis, and improved clinical and self-management, along with recommendations for infrastructure, policy and health information technology capabilities necessary to address the diabetes epidemic.

Recommendation #1: Strengthen efforts to prevent the development of new cases of Diabetes.

Primary focus - Increase the availability and utilization of evidence-based lifestyle change programs such as the National Diabetes Prevention Program (DPP).

Rationale:

Data from CDC shows that, if current trends continue, 1 of 3 U.S. adults will have diabetes by 2050. Research has shown that approximately 15-30% of persons with prediabetes will develop Type 2 Diabetes in 5 years in the absence of intervention. The DPP has been shown to decrease the progression to Diabetes in those at high risk by 58%. Currently, there are few DPP providers in Kentucky and training opportunities are limited and expensive. CDC funds cannot be used for training DPP coaches or for program implementation which is a significant barrier to expanding the program.

Budget Request: An additional \$100,000 in new funds in the DPH budget are requested to support the work identified below.

Action Items:

- A. DPH will work with partners to expand the number of CDC Recognized DPP programs in Kentucky. This work continues what began under a small grant which is no longer in existence.
 - 1) Provide financial support for training of DPP Lifestyle Coaches;
 - 2) Coordinate implementation of health communication and marketing campaigns or

coalition initiatives that raise awareness of prediabetes risk factors and the locations and enrollment information for DPP programs.

B. Address financial sustainability of DPP programs

- 1) Engage state, county and local government agencies to include DPP as a covered benefit for employees;
- 2) Maintain DPP services as a covered benefit under KEHP;
- 3) DPH will collaborate with KEHP to support DPP services during the transition to Anthem, the new medical third-party administrator; to ensure that all members with prediabetes are notified of the availability of DPP as a covered benefit;
- 4) DPH and DMS will work to encourage MCOs to include the DPP a covered benefit under Medicaid by beginning with pilot projects in areas where DPP classes are already offered; and,
- 5) Provide outreach and information to employer groups and private insurers about DPP and encourage offering DPP as a covered employee benefit

Recommendation #2: Strengthen efforts to diagnosis prediabetes, type 2 Diabetes, and Gestational Diabetes at the earliest point possible point.

Primary focus - Increase use of evidence-based screening tools and protocols for the diagnosis of prediabetes, Diabetes and Gestational Diabetes and referral to appropriate services as described in recommendations 1 and 3.

Rationale:

In order to minimize the impact of Diabetes on Kentuckians it is necessary to make use of scientifically proven techniques to diagnose Diabetes early in its course before significant damage has occurred. Once diagnosed, those with prediabetes, Diabetes or Gestational Diabetes need to be connected to appropriate programs to learn about the disease and how they can take charge of their health in managing the disease.

Budget Request: An additional \$100,000 in new funds in the DPH budget are requested to support the work identified below.

- A. DPH, DMS and KEHP will work with health care providers, MCO's and other health plans, and others to implement systems of clinical screening for diagnosis of prediabetes/Diabetes and Gestational Diabetes as well as referral for people with prediabetes, or multiple risk factors for type 2 Diabetes, to DPP as covered benefits. Clinical screening should follow standards to be released in 2015 by the USPSTF which specifies when individuals should be screened and which screening tests are appropriate for use, including use of HgA1C as a diagnostic test.
- 1) Support appropriate, evidence-based clinical screening for prediabetes, Diabetes and Gestational Diabetes;
 - 2) Link biometric screening to referral to DPP referral;
 - 3) Identify numbers of people/members with prediabetes in DMS and in KEHP; and,
 - 4) Promote identification (during the pregnancy) and education of those with

Gestational Diabetes (GDM) for follow-up (after delivery) and referral to DPP if necessary.

- 5) Medicaid MCOs and KEHP will track and report data on Gestational and prediabetes for all member pregnancies based on status by the end of the pregnancy.

Recommendation #3: Strengthen efforts to improve management and control among those who now have Diabetes.

Primary Focus – Increase the availability and use of financially sustainable, evidence-based Diabetes Self-Management Education (DSME) programs and other evidence-based chronic disease self-management and behavior change education initiatives to decrease the occurrence of diabetes complications, control healthcare costs and improve quality of life for Kentuckians with Diabetes.

Rationale: Learning the necessary self-care behaviors to manage Diabetes such as healthy eating, appropriate physical activity, managing medication, smoking cessation, and monitoring blood sugar is vital, complex, and time consuming. Self-management education is a key step in improving health outcomes and quality of life. It is a collaborative process in which Diabetes educators help people with or at risk for Diabetes gain the knowledge and problem-solving and coping skills needed to successfully self-manage the disease and its related conditions.

Budget Request: An additional \$250,000 in new funds in the DPH budget are requested to support the work identified below. Funds will be used to support appropriate data systems to document provision of DSME services and provide data for program recognition and certification, underwrite DSME training expenses and to develop and provide DSME via telehealth.

Action Items:

A. Support KEHP programs:

- 1) Continue to incentivize KEHP members with Diabetes to participate in an evidence-based DSME program.
- 2) Collaborate with the Department for Public Health on Diabetes self-management education. KEHP members would be afforded the opportunity to not only work with disease management and case managers, but could also receive Diabetes self-management education or other Diabetes management programs at local health departments.
- 3) Continue offering LivingWell Health Plans and HumanaVitality assessments to provide biometric screenings to KEHP members.

B. Expand availability of evidence-based DSME programs to improve behavioral and/or clinical outcomes for people with Diabetes (ADA Recognized or AADE accredited DSME programs)

- 1) Increase the number of nationally recognized/accredited Diabetes self-management education programs;

- 2) Increase the number of Certified Diabetes Educators (CDEs) and Licensed Diabetes Educators (LDEs);
 - 3) Expand availability of “telehealth” to extend the reach of Diabetes education throughout the state where face to face DSME services are not available;
 - 4) Expand the appropriate use of health care extenders to provide certain DSME support services;
 - 5) Support the sustainability of quality DSME programs in Kentucky; and,
 - a. Support reimbursement of Certified Diabetes Educators (CDE) as non-physician health care providers
 - b. Work with KEHP, DMS and the MCOs to clarify and provide consistent guidelines/messaging about coverage for DSME services
 - 6) Increase utilization of tobacco cessation services (e.g. quitlines, smoking cessation programs) for adult tobacco users with Diabetes.
- C. Work with health care providers, health plans, and others to implement systems of referral for people with Diabetes to DSME services.
- a. Link biometric screening to referral to DPP
 - b. Support appropriate screening for Diabetes
 - c. Identify numbers of people/members with prediabetes in DMS and in KEHP

Recommendation #4 - Assure a sustainable Diabetes prevention and control public health infrastructure and workforce at the state and local level.

Primary Focus – Support the state level public health workforce in coordination of planning, training, and education and marketing efforts to expand availability of DSME, DPP and the inclusion of non-traditional providers in the Diabetes education process.

Rationale:

The state Diabetes Prevention and Control Program is a population based public health initiative consisting of a network of state, regional and local partners whose mission is to reduce new cases of Diabetes, as well as the sickness, disability and death associated with Diabetes and its complications.

Budget Request: Maintain existing state general funds for Diabetes in the biennial budget (\$2.6 Million) and provide an additional \$500,000 in new funds in the DPH budget are requested to support the work identified below. Funds will support staff needed to provide state level program services, program marketing and partnership collaboration.

Action Items:

- A. Provide leadership and coordination for expansion of Diabetes Self-Management Education (DSME), and the Diabetes Prevention Program (DPP), including professional education for health care professionals.
 - 1) Professional education/licensure/training for DSME

- a. Continue development, updating and distribution of the DSME Curriculum which meets national standards for program recognition/accreditation.
 - b. Provide training and support to LHD's and staff from other health care systems to deliver DSME across Kentucky
 - c. Continue development and support of medical education programs/symposia for health care professionals to improve knowledge of Diabetes diagnosis, treatment and management.
- 2) Coordinate the expansion of the DPP across Kentucky;
- 3) Develop/sustain a communication hub of diabetes information;
- B. Increase the number of Certified Diabetes Educators (CDE's) and licensed Diabetes educators (LDE) in Kentucky
- C. Increase the number of accredited/recognized DSME programs
- D. Work with the "Diabetes Educator Licensure Board" to provide training program consistent with licensure
 - a. Identify legalities re: health care extenders unique to Kentucky
- E. Increase use of Pharmacists, Community Health Workers (CHWs), and other health care extenders in Diabetes education.
 - 1) Work with Diabetes stakeholders to define roles for health professionals, allied health professionals, community health workers, and others in promoting standard Diabetes education/management.
 - 2) Develop/Identify competencies for health care extenders and implement appropriate training programs for them.
 - 3) Work with the Kentucky Pharmacist Association and other stakeholders to support the increased use of Pharmacists in Diabetes management and education.
 - 4) The Department for Public Health will develop a certification program for CHW's to ensure appropriate practice.
 - 5) Department for Medicaid Services and DPH will develop of a State Plan Amendment to use CHWs as non-physician providers.
 - 6) Work with the Kentucky Department of Education (KDE), Kentucky School Nurses Association, the Kentucky Board of Nursing (KBN), etc. to support Diabetes-related training for school nurses - including support for training of non-licensed personnel administering insulin in the schools.
- F. Work with partners to develop and implement a Diabetes/Chronic Disease Leadership Institute/Training Center to address the training needs of professionals, allied health professionals, and health care extenders in Diabetes prevention and control

Recommendation #5 - Support policy changes to improve outcomes for persons with prediabetes, Diabetes, and other chronic diseases.

Primary Focus – Includes passage of a statewide comprehensive secondhand smoke-free law,

maintain Medicaid expansion under the Affordable Care Act, continue support of the state health benefit exchange, and support policies to provide DSME and DPP as covered benefits under insurance plans.

Rationale: Systems and policy change is a sustainable and cost effective way for states to improve a population's health. There is strong evidence that Comprehensive Secondhand Smoke Free Laws improve health by reducing heart attacks, respiratory problems such as asthma attacks and lung cancer which in effect reduces the overall social and financial burden to individuals, families, communities and states. Access to healthcare can reduce overall costs through preventive services and early interventions. Electronic Medical Records and information sharing through the Kentucky Health Information Exchange (KHIE) can help ensure continuity and coordination of care and provide opportunities to engage patients in their own care. Reimbursement for Diabetes education classes by Certified Diabetes Educators can ensure that people can learn how to manage their Diabetes and prevent complications.

Budget Request: The subjects addressed below are issues which the Cabinet for Health and Family Services and Legislature should consider for the improved health of all Kentuckians, including those with Diabetes or other chronic diseases. However, direct funding for these items are outside the scope of this report and not included in our budget.

Action Items:

- A. Support passage of the statewide comprehensive secondhand smoke-free law which will benefit people with Diabetes who are at higher risk for cardiovascular complications;
- B. Continue support for health care coverage for the Kentucky uninsured through the state health benefit exchange, kynect, so that people with prediabetes/Diabetes have insurance coverage and access to medical care
- C. Support policies to expand usage of Electronic Medical Records by all health care providers in Kentucky;
- D. Support policies to facilitate all health care providers engagement with KHIE;
- E. Support policies for Medicaid, KEHP, and other insurers to provide reimbursement for evidence-based Diabetes education;
- F. Support policies to provide reimbursement for Certified Diabetes Educators (CDE) and Licensed Diabetes Educators (LDE) in Kentucky;
- G. Continue to explore funding for health education and interventions provided by Community Health Workers (CHW)
- H. Support policies that require insurance plan coverage of Hemoglobin A1C as a screening/diagnostic test for Diabetes/prediabetes as well as a test for Diabetes management and control.

Recommendation #6 - Improve Diabetes and chronic disease surveillance systems and Health Information Technology (HIT) systems needed to determine the extent and impact of

diabetes on the Commonwealth.

Primary Focus: Include a “unique patient identifier” on hospital and emergency department administrative claims records to understand diabetes-related hospital and ER visit patterns, support work by the Kentuckiana Health Collaborative to collect and report HEDIS data on a statewide level, provide funding to support the Behavioral Risk Factor Survey conducted by DPH and CDC, and support the adoption of Health Information Technology (HIT) and connection with the Kentucky Health Information Exchange (KHIE) across the Commonwealth.

Budget Request: An additional \$250,000 in new state general funds are requested to support the work detailed below. \$100,000 for expansion of the Kentucky BRFs sample to ensure adequate data for tracking health disparities, \$25,000 to support data aggregation and analysis by the KHC and \$125,000 to begin architecture design and programming for use of KHIE data as a Diabetes and/or A1C Registry.

Rationale:

The ongoing, systematic monitoring and improvement of data collection on Diabetes and other chronic diseases is vital for public health planning. Our administrative claims data on hospitalizations and emergency department visits lacks a unique patient identifier to allow identification of inpatient readmissions and repeated ED usage. Our administrative data is also limited to only the data elements on a billing claim and to only discharges and encounters of a certain type. Continuing to expand uptake of Electronic Health Records (EHR's) and health care providers submitting EHR data to the Kentucky Health Information Exchange (KHIE) could make it possible to have a much better understanding of the actual medical management of Diabetes and serve as a platform for a population based Diabetes Disease Registry.

Action Items:

- A. Establish policies to improve the quality of administrative claims data to:
 1. Include a unique identifier on each case to allow data analysis to determine if patients have multiple hospitalizations for the same disease or condition
 2. Require inclusion of additional data elements such as lab results, medications and tobacco use status to provide more information on the severity of the patient condition
 3. Expand the cases collected within the administrative claims data to include all visits to hospitals and ambulatory care centers. This addition would include laboratory and other previously uncollected data that could be used to better analyze the financial and quality of care impact of Diabetes.
- B. Join other states in the development of an All Payer Claims Data Base (APCD): A statewide repository of health insurance claims information from all health care payers, including health insurers, government programs and self-insured employer plans. This information would allow Kentucky to better identify cost saving approaches to health care and support quality improvement efforts.
- C. Provide state funding for the Behavioral Risk Factor Survey to support a sample size adequate to provide data at the Area Development District or county level. This will

improve data on all conditions including Diabetes and greatly improve understanding of health disparities.

- D. Support Medicaid in the collection and reporting of HEDIS data as part of the Kentuckiana Health Collaborative (KHC) project described below. This HEDIS data form the basis for the joint benchmarking required by as part of this report.
- E. Support statewide coverage of the KHC Consolidated Measurement Reports. KHC works with health insurers to use HEDIS data to create and distribute reports to clinicians illustrating the quality of care their patients received in select clinical areas of focus including Diabetes. Since 2007, KHC has partnered with statewide organizations including Anthem Blue Cross Blue Shield, Humana Health Plan of Kentucky, Passport Health Plan, and Kentucky Medicaid. The Medicaid Managed Care Organizations have indicated a willingness to participate in this project.
- F. Promote and support the adoption of EHRs
- G. Encourage health care providers to contribute data to KHIE
- H. Work with KHIE, Regional Extension Centers, and other partners to encourage primary care providers to select the Diabetes Clinical Quality Measures (CQM). The EHR Incentive Program requires that providers select a certain number of CQMs for quality improvement work. Focusing on Diabetes would improve outcomes for these patients.
- I. Investigate use of the KHIE to expand assessment and improvement in the quality of Diabetes care at the population level in Kentucky. For example, the use of lab data to create an A1C registry which could provide information on the level of Diabetes control in our population of persons with Diabetes; a registry function which could assess whether quality measures/standards of care being met; expand our knowledge of how many people have been diagnosed with Diabetes in Kentucky, including youth and pregnant women.

Recommendations and Actions Items to Address Diabetes: Budget Summary

Please note that these recommendations are NOT listed in order of priority, rather, they are listed in the logical sequence of prevention, diagnosis, and improved clinical and self-management, along with recommendations for infrastructure, policy and health information technology capabilities necessary to address the diabetes epidemic.

Budget Summary		
Recommendation	Priority	Funding Needed
Recommendation #1: Strengthen efforts to prevent the development of new cases of Diabetes.	Increase the availability and utilization of evidence-based lifestyle change programs such as the National Diabetes Prevention Program (DPP).	\$100,000
Recommendation #2: Strengthen efforts to diagnosis prediabetes, type 2 Diabetes, and Gestational Diabetes at the earliest point possible point.	Increase use of evidence-based screening tools and protocols for the diagnosis of prediabetes, Diabetes and Gestational Diabetes and referral to appropriate services such as DPP or DSME.	\$100,000
Recommendation #3: Strengthen efforts to improve management and control among those who now have Diabetes.	Expand availability of evidence-based comprehensive DSME programs to improve behavioral and/or clinical outcomes for people with Diabetes (ADA Recognized or AADE accredited DSME programs) and develop referral systems to connect people with Diabetes to these programs.	\$250,000

Recommendation #4 - Assure a sustainable Diabetes prevention and control public health infrastructure and workforce at the state and local level.	Support the state level public health workforce development, updating and distribution of a DSME curriculum which meets national standards for program recognition/accreditation; provide DSME training to LHD's and staff in other health care systems and develop/deliver Diabetes specific CME opportunities.	\$500,000
Recommendation #5 - Support policy changes to improve outcomes for persons with prediabetes, Diabetes, and other chronic diseases.	Passage and implementation of a statewide comprehensive secondhand smoke-free law, maintain Medicaid expansion under the Affordable Care Act, continue support of the state health benefit exchange, and support policies to provide DSME and DPP as covered benefits under insurance plans.	No Budget Request related to policy
Recommendation #6 - Improve Diabetes and chronic disease surveillance systems and Health Information Technology (HIT) systems needed to determine the extent and impact of Diabetes on the Commonwealth.	Include a "unique patient identifier" on hospital and emergency department administrative claims records to understand repeated Diabetes-related hospital and ED visit patterns; support work by the Kentuckiana Health Collaborative to collect and report HEDIS data on a statewide level; provide funding to support the Behavioral Risk Factor Survey conducted by DPH and CDC, and support the adoption of Health Information Technology (HIT) and connection with the Kentucky Health Information Exchange (KHIE) across the Commonwealth.	\$250,000 <ul style="list-style-type: none"> • \$25,000 Ky Hospital Association data changes • \$100,000 BRFSS Sample size expansion • \$125,000- KHIE - initial architecture design and programming for a population based Diabetes/A1C registry
Total Budget Request		\$1,200,000

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3. Kentucky Department for Public Health. 2013 Kentucky Behavioral Risk Factor Survey.
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5. Guide to Community Preventive Services. Diabetes prevention and control. www.thecommunityguide.org/Diabetes/index.html. Last updated: 1/10/2013.
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8. Prevention Quality Indicators Overview. AHRQ Quality Indicators. July 2004. Agency for Healthcare Research and Quality, Rockville, MD.
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Glossary/Acronym List

ABCs - Acronym referring to key elements of care for Diabetes, heart disease and stroke. The letter “A” may be used to stand for Aspirin and/or A1C, the letter “B” is for blood pressure, the letter “C” for cholesterol/lipid management, and the letter “s” for smoking/tobacco cessation.

A1C - Blood test that provides information about a person’s average levels of blood glucose (sugar), over the past 3 months. The A1C test is sometimes called the hemoglobin A1C, HBA1c, or glycohemoglobin test.

Behavioral Risk Factor Surveillance System (BRFSS) – a cross-sectional telephone health survey jointly sponsored by the CDC and the Kentucky Department for Public Health. The survey is randomly administered to non-institutionalized civilian adults aged 18 or over. Participation in the survey is strictly voluntary and personal identifying information is not collected. This survey is a key source of chronic disease prevalence data which is used in health reports comparing state and county level data such as the County Health Rankings.

Chronic Disease – Diseases of long duration and generally slow progression. Chronic diseases, such as heart disease, stroke, cancer, chronic respiratory diseases and diabetes are leading causes of mortality worldwide.

Diabetes Prevention Program (DPP) - The CDC-led National Diabetes Prevention Program is an evidence-based lifestyle change program for preventing Type 2 Diabetes.

Electronic Health Record – a longitudinal electronic record of patient information generated by one or more encounters in any care delivery setting. Designed to share information with other health care providers so that data can be created, managed, and consulted by authorized clinicians and staff across more than one healthcare organization.

Health Information Technology – a global term (which encompasses electronic health records and personal health records) to indicate the use of computers, software programs, electronic devices and the internet to store, retrieve, update and transmit information about patients’ health.

KEHP - Kentucky Employees’ Health Plan is a non-profit, self-funded health plan that offers health insurance benefits and flexible spending accounts to nearly 300,000 members. This group is composed of eligible employees of state agencies, boards of education, health departments and quasi agencies. Also retirees of Kentucky Community Technical College System, retirees of the Kentucky Retirement Systems, Teachers’ Retirement System, the Legislators’ Retirement Plan and the Judicial Retirement Plan who are under age 65, and their eligible dependents.

Kentucky Health Information Exchange – a common, secure electronic health information infrastructure. The KHIE architecture meets national standards to ensure interoperability across various health systems and connectivity to the National Health Information Network.

The system affords healthcare providers the functionality to support preventive health and disease management through alerts, messaging and other tools. KHIE provides a baseline set of functions available across the state to support the exchange of electronic health information.

Prediabetes – a condition in which individuals have blood glucose or A1C levels higher than normal but not high enough to be classified as Diabetes. People with prediabetes have an increased risk of developing Type 2 Diabetes, heart disease and stroke.

Acronym List	
A1C	Hemoglobin A1C
ABCs	A1C, Blood Pressure, Cholesterol, and Smoking
ADA	American Diabetes Association
ADD	Area Development District
AHRQ	Agency for Healthcare Research and Quality
ALOS	Average Length of Stay
BMI	Body Mass Index
BRFSS	Behavioral Risk Factor Surveillance System
CDC	Centers for Disease Control and Prevention
COPD	Chronic Obstructive Pulmonary Disease
DKA	Diabetic Ketoacidosis
DM	Disease Management
DMS	Department for Medicaid Services
DSME	Diabetes self-management education
ED	Emergency Department
EHR	Electronic Health Record
EMR	Electronic Medical Record
EQR	External Quality Review
FFS	Fee for Service
FFY	Federal Fiscal Year
HCS	Humana CareSource
HEDIS	Healthcare Effectiveness Data and Information Set
HIT	Health Information Technology
KHIE	Kentucky Health Information Exchange
LHD	Local Health Department
MCO	Managed Care Organization
NACDD	National Association of Chronic Disease Directors
PHP	Passport Health Plan
PQI	Prevention Quality Indicators
Rx	Prescription
SFY	State Fiscal Year
USPSTF	U.S. Preventive Services Task Force

Legislation (Attachment A)

KRS 211.751-753

211.751 Goals, benchmarks, and plans to reduce incidence of Diabetes, improve care, and control complications.

The Department for Medicaid Services, the Department for Public Health, the Office of Health Policy, and the Personnel Cabinet shall collaborate to identify goals and benchmarks while also developing individual entity plans to reduce the incidence of Diabetes in Kentucky, improve Diabetes care, and control complications associated with Diabetes.

Effective: June 8, 2011

History: Created 2011 Ky. Acts ch. 83, sec. 1, effective June 8, 2011.

211.752 Annual reports to Legislative Research Commission.

The Department for Medicaid Services, the Department for Public Health, the Office of Health Policy, and the Personnel Cabinet shall submit a report to the Legislative Research Commission by January 10 of each odd-numbered year on the following:

(1) The financial impact and reach Diabetes of all Types is having on the entity, the Commonwealth, and localities. Items included in this assessment shall include the number of lives with Diabetes impacted or covered by the entity, the number of lives with Diabetes and family members impacted by prevention and Diabetes control programs implemented by the entity, the financial toll or impact Diabetes and its complications places on the program, and the financial toll or impact Diabetes and its complications places on the program in comparison to other chronic diseases and conditions;

(2) An assessment of the benefits of implemented programs and activities aimed at controlling Diabetes and preventing the disease. This assessment shall also document the amount and source for any funding directed to the agency or entity from the Kentucky General Assembly for programs and activities aimed at reaching those with Diabetes;

(3) A description of the level of coordination existing between the entities on activities, programmatic activities, and messaging on managing, treating, or preventing all forms of Diabetes and its complications;

(4) The development or revision of detailed action plans for battling Diabetes with a range of actionable items for consideration by the General Assembly. The plans shall identify proposed action steps to reduce the impact of Diabetes, prediabetes, and related Diabetes complications. The plan shall also identify expected outcomes of the action steps proposed in the following biennium while also establishing benchmarks for controlling and preventing relevant forms of Diabetes; and

(5) The development of a detailed budget blueprint identifying needs, costs, and resources required to implement the plan identified in subsection (4) of this section. This blueprint shall include a budget range for all options presented in the plan identified in subsection (4) of this section for consideration by the General Assembly.

Effective: June 8, 2011

History: Created 2011 Ky. Acts ch. 83, sec. 2, effective June 8, 2011.

211.753 Use of agencies' existing Diabetes information, data, initiatives, and programs to implement KRS 211.751 and 211.752.

The requirements of KRS 211.751 and 211.752 shall be limited to the Diabetes information, data, initiatives, and programs within each agency prior to June 8, 2011, unless there is unobligated funding for Diabetes in each agency that may be used for new research, data collection, reporting, or other requirements of KRS 211.751 and 211.752.

Effective: June 8, 2011

History: Created 2011 Ky. Acts ch. 83, sec. 3, effective June 8, 2011.

Committee Members (Attachment B)

The following individuals participated in the preparation of this report.

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kyhealthnow (Attachment C)



Governor Steve Beshear has made improving the health and wellness of Kentucky's children, families and workforce one of his highest priorities. To significantly advance the wellbeing of Kentucky's citizens, Governor Beshear is announcing the following health goals for the Commonwealth. He is outlining a number of strategies to help achieve these goals over the next five years, and will continue to add strategies throughout his term. These strategies will be implemented through executive and legislative actions, public-private partnerships and through the success of enrolling Kentuckians in health care coverage.

kyhealthnow 2019 Goals

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

Goal: Reduce Kentucky's rate of uninsured individuals to less than 5%.

Kentucky has had tremendous success in providing people the health care coverage they need and deserve through kynect, Kentucky's health benefit exchange. To date, over 230,000 Kentuckians have enrolled. We must work to improve our efforts to identify and enroll uninsured Kentuckians. Today, Gov. Beshear set a goal of reducing the number of uninsured Kentuckians to less than 5 percent of the population by 2019. Strategies he will use to achieve this goal include:

- Enroll at least 350,000 individuals in Medicaid and/or Health Benefit Exchange plans by the end of 2015. These individuals include previously uninsured individuals, as well as previously insured individuals who are now eligible for Medicaid or who choose to purchase plans through kynect.
- Increase the number of kynectors and insurance agents participating in kynect by 10% by the end of 2015.
- Continue to develop and execute kynect advertising and marketing campaigns, including continued collaboration with stakeholders to reach and enroll the uninsured.
- Allow for rate quotes and a browse feature for health insurance plans offered through kynect for small employers and agents without creating an account or filing an application.
- Increase collaboration between state agencies to identify uninsured individuals who may be

enrolled in other state programs.

- Increase access to kynect for individuals who speak languages other than English and Spanish.
- Increase application web functionality for employers and insurance agents.
- Increase outreach efforts to small employers by working with business associations.

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

Health experts agree – tobacco use is the single biggest factor negatively impacting the overall health of Kentuckians. In study after study, Kentucky ranks at the bottom on tobacco use – 50th in smoking (28.3% of adults, 24.1% of youth, 24.4% of pregnant women). Therefore, Gov. Beshear will launch an aggressive campaign to decrease Kentucky's smoking rate, including the following strategies:

- Continue to support comprehensive statewide smoke-free legislation.
- Encourage Kentucky's cities and counties to continue to implement smoke-free policies.
- Expand tobacco-free policies to more executive branch property.
- Support increases in taxes on cigarettes and other tobacco products, and tax e-cigarettes commensurate with other tobacco products.
- Partner with school districts and universities to implement tobacco free campuses.
- Increase use of smoking cessation therapy by 50%.
- Support legislation to ban the sales of e-cigarettes to minors.

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

Kentucky's obesity problem has far-reaching health and productivity implications – and threatens the future health of children. The Commonwealth ranks 42nd in obesity and 46th in physical inactivity. A shocking 31.3% of adults in Kentucky are obese. Obesity is linked to multiple chronic conditions, including Diabetes, heart disease and stroke. The Governor will initiate multiple strategies to address this problem, including:

- Double the number of enrollees in the Diabetes Prevention Program through those enrolling through kynect.
- Ensure access for all state employees to the Diabetes Prevention Program as part of the Humana Vitality program.
- Direct executive branch facilities to implement federal guidelines requiring posting of nutritional information for vending and concessions in state buildings.
- Work with public and private workplaces to adopt healthy concessions and vending policies reflecting federal guidelines.
- Provide ready access to executive branch employees to stairwells at work.
- Certify 10 new "Trail Towns" through the Kentucky Office of Adventure Tourism by the end of 2015.
- Complete the Dawkins Rail Line Trail by the end of 2015, adding 36 miles of trail to Kentucky's statewide trail network.
- Invest more than \$30 million in federal funds by the end of 2015 to support many community-driven initiatives for pedestrian and bicycle paths.
- Challenge school districts to increase physical activity opportunities for children through implementing comprehensive school physical activity programs.

- Double the number of schools rating proficient or higher for coordinated school health committees by the end of 2015.
- Partner with school districts to increase the number of school districts collecting and reporting body mass index (BMI) data within the Kentucky Student Information System.
- Work with early child care providers to increase opportunities to prevent obesity among our youngest children.
- Develop initiatives to honor and recognize businesses and schools that provide greater opportunities for physical activity.

Goal: Reduce Kentucky Cancer Deaths by 10%.

With nearly 9,500 cancer deaths every year, Kentucky ranks 50th in the nation for cancer deaths. In addition to the strategies identified above under Tobacco Use and Obesity, Gov. Beshear will implement additional strategies specifically targeted to reduce cancer deaths in the Commonwealth, including:

- Increase screening rates for colon, lung and breast cancer by 25% in accordance with evidence-based guidelines.
- Provide a \$1 million match to the Kentucky Colon Cancer Screening Program in the 2014-2016 executive budget to provide \$2 million for screenings for uninsured and underinsured Kentuckians.
- Provide \$1 million to expand screenings through the Kentucky Cancer Program in the 2014-2016 executive budget to increase breast and cervical cancer screening among Kentucky women. The funding also helps women navigate the health care system.
- Increase rates of HPV vaccination by 25% in order to reduce incidence of cervical, oral, and related cancers among men and women, through support for legislation requiring HPV vaccination among boys and girls as a condition of school attendance, along with partnering with stakeholders to implement a comprehensive educational campaign regarding safety, effectiveness and importance of the HPV vaccination for both girls and boys.
- Support legislation banning tanning bed use by children under 18 to reduce the incidence of skin cancer.

Goal: Reduce Cardiovascular Deaths by 10%.

With more than 12,000 deaths per year, Kentucky ranks 48th in the nation in cardiovascular deaths. In addition to supporting the strategies listed above under Tobacco Use and Obesity, Governor Beshear will implement strategies to reduce cardiovascular disease, including:

- Increase by 25% the proportion of adults receiving aspirin therapy in accordance with evidence-based guidelines.
- Reduce the proportion of adults with uncontrolled hypertension by 10%.
- Reduce the proportion of adults with hypertension who are current smokers by 10%.
- Increase by 10% the proportion of adults who have had their blood cholesterol checked within the preceding 5 years.
- Increase the percentage of individuals receiving evidence-based smoking cessation treatment by 50%.
- Decrease the percentage of Kentuckians with diabetes whose most recent hemoglobin A1C level was greater than 9% during the preceding year, recognizing the link between Diabetes and heart

disease.

- Support the ongoing efforts of the Kentucky CARE Collaborative, a statewide effort designed to provide blood pressure awareness education within communities.
- Continue efforts to lower sodium intake in government-regulated facilities, given the link between sodium intake and cardiovascular disease.
- Continue support for efforts of the Stroke Encounter Quality Improvement Project, a statewide voluntary initiative among hospitals to implement evidence-based integrated cardiovascular health systems in Kentucky.

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

Kentucky's dental problems have long been a source of ridicule, and have real and detrimental impacts on schoolchildren, the workforce and families. In fact, Kentucky ranks 41st in annual dental visits, 45th in the percentage of children with untreated dental decay (34.6%), and 47th in the percentage of adults 65+ missing 6 or more teeth (52.1%). Gov. Beshear proposes to tackle this problem with a number of strategies, including:

- Increase pediatric dental visits by 25% by the end of 2015.
- Partner with Managed Care Organizations to encourage increased utilization of dental services.
- Create public-private partnerships to increase to 75% the proportion of students in grades 1-5 receiving twice yearly dental fluoride varnish application.
- Increase by 25% the proportion of adults receiving fluoride varnish during an annual dental visit.
- Increase by 25% the percentage of adults receiving medically indicated dental preventive and restorative services, including fillings and root canals, in accordance with evidence-based practices.
- Partner with stakeholders to increase the number of dental practitioners in Kentucky by 25%.

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

With the third-highest drug overdose ranking in the nation, Gov. Beshear has worked tirelessly to reduce Kentuckians' illegal use of prescription drugs. And while Kentucky ranks 49th in "poor mental health days," which means days when people report limiting normal activity due to mental health difficulties, he has worked to protect funding for Kentucky mental health programs despite dramatic budget cuts in other areas of state government. Still, more needs to be done. Strategies to help reach these goals include:

- Double the number of individuals receiving substance abuse treatment by the end of 2015.
- Support legislation creating a "Good Samaritan Rule" for individuals seeking overdose treatment or assistance for others.
- Expand access to naloxone by 100% among first responders and medical professionals to enable rapid administration of this life-saving treatment.
- Increase by 50% the availability of substance treatment for adolescents.
- Increase substance use disorder residential and intensive outpatient treatment capacity by 50%.
- Partner with stakeholders to increase the number of credentialed substance use treatment professionals by 25%.
- Create a more comprehensive and open access behavioral health network and increase by 25% the

number of behavioral health providers eligible to seek reimbursement from Medicaid by the end of 2015.

- Increase by 25% the percentage of adults and children receiving medically indicated behavioral health services by the end of 2015.
- Increase the proportion of adults and adolescents who are screened for depression during primary care office visits by 10%.
- Increase the proportion of persons with co-occurring substance abuse and mental disorders who receive treatment for both disorders by 10%.
- Partner with stakeholders to increase the use of Screening, Brief Intervention, and Referral to treatment (SBIRT) to 25% of medical providers (primary care, prenatal care providers, and emergency departments).

kyhealthnow Goals and Diabetes (Attachment D)

<i>kyhealthnow</i> goals and Prediabetes, type 1 and type 2 Diabetes and Gestational Diabetes	
<i>kyhealthnow</i> Goal	Connection to diabetes prevention and control
1. Reduce KY's rate of uninsured individuals	Access to affordable health insurance is vital for a person with diabetes who needs access to supplies like test strips, meters and diabetes medications. Regular health care visits help a person to control their diabetes, and prevent or treat common complications ¹ .
2. Reduce KY's smoking rate by 10%	Smoking is a known cause of diabetes, and smokers are 30-40% more likely to develop type 2 diabetes than non smokers ² . Smoking makes diabetes harder to control, and people with diabetes who smoke are more likely to have serious complications ³ .
3. Reduce the rate of Obesity among Kentuckians by 10%	Being overweight or obese is a leading risk factor for type 2 diabetes. Being overweight affects the body's ability to produce insulin and to properly use insulin ⁴ .
4. Reduce KY Cancer Deaths by 10%	Diabetes is a possible cause of colorectal cancer. Diabetes Mellitus (DM) and colorectal cancer (CRC) share many risk factors. They also disproportionately affect similar populations: people over 50, African Americans and those with a higher body mass index. Patients with diabetes also have a 30 percent higher risk of CRC ⁵ .
5. Reduce Cardiovascular deaths by 10%	Cardiovascular disease is the leading cause of early death among people with diabetes. Adults with diabetes are two to four times more likely than people without diabetes to die of heart disease or experience a stroke. Also, about 70% of people with diabetes have high blood pressure, a risk factor for cardiovascular disease ⁶ .
6. Reduce dental disease	People with diabetes are more susceptible to serious gum disease which in turn makes it harder to control blood glucose and contributes to the progression of diabetes. People with diabetes are at an increased risk for serious gum disease because they are generally more susceptible to bacterial infection, and have a decreased ability to fight bacteria that invade the gums ⁷ .
7. a. Reduce deaths from drug overdose	The effects of Illicit drug use such as impaired thinking, increased metabolism, sleeping for long periods of time after coming down from a high and either over eating or under eating can cause people with diabetes to miss needed medications or fail to recognize dangerous low blood sugar levels ⁸ .
7. b. Reduce the average number of poor mental health days for Kentuckians	People with diabetes are twice as likely to experience depression as the general population. Those with diabetes and depression have more severe complications than those who have diabetes but no depression ⁹ .

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8. Oregon Health and Science University, Harold Schnitzer Diabetes Health Center. <http://www.ohsu.edu/xd/health/services/diabetes/kids-teens/upload/Drugs-and-Diabetes.pdf> [accessed 2014 Nov 25]
9. National Institute of Mental Health. <http://www.nimh.nih.gov/health/publications/depression-and-diabetes/index.shtml> [accessed 2014 Nov 25]

Diabetes Overview (Attachment E)

What is Diabetes?

Diabetes is a common chronic disease in which the amount of sugar (glucose) in a person's blood is too high. Either the body does not produce insulin or is not able to make use of the insulin it produces. Insulin is a hormone that is needed to convert sugar, starches and other food into energy needed by every cell in the body for daily life. When the amount of sugar circulating in the blood is too high, it causes damage to many parts of the body including the eyes, heart, blood vessels, kidneys and nerves. This damage makes Diabetes the leading cause of adult blindness, end-stage kidney disease and amputations of the foot and/or leg. People with Diabetes are also at greatly increased risk for heart disease and stroke. In addition, Diabetes can cause serious complications during pregnancy resulting in more preterm births, more Cesarean sections due to larger babies, life threatening conditions such as preeclampsia, birth defects and increased risk of Type 2 Diabetes for both the mother and the child once she/he reaches adulthood.

What is Prediabetes?

Prediabetes is a condition in which an individual's blood glucose or A1C levels (a blood test that provides an average of the patient's blood glucose levels over the last 12 weeks) are higher than normal, but not high enough to be classified as Diabetes. People with prediabetes are at increased risk for developing Type 2 Diabetes, heart disease and stroke. Evidence has shown that people with prediabetes that lose weight and increase their physical activity can prevent or delay the development of Type 2 Diabetes and may even return blood sugar levels to normal.

How are Diabetes and Prediabetes Diagnosed?

Appropriate blood testing for Diabetes among those at risk for the disease is vital to ensure patients that those with elevated blood sugar levels or high A1C are identified as early as possible. Early diagnosis and appropriate treatment/management provides the best opportunity to prevent Diabetes and its complications. Testing involves a simple blood test performed in a health care facility.

Types of Diabetes

The major Types of Diabetes are:

- **Type 1** Diabetes (previously known as "Juvenile Diabetes") develops when the body does not produce insulin, which controls blood sugar (glucose) levels. To survive, people with Type 1 Diabetes must have insulin delivered by injections or an insulin pump. This form of Diabetes usually strikes children and young adults, although disease onset can occur at any age. In adults, Type 1 Diabetes accounts of approximately 5% of all diagnosed cases of Diabetes. **There is no known way to**

prevent Type 1 Diabetes.

- **Type 2 Diabetes** usually begins as insulin resistance, a disorder in which the cells do not use insulin properly. As the need for insulin rises, the pancreas gradually loses its ability to produce it. In adults, Type 2 Diabetes accounts for about 90-95% of all diagnosed cases of Diabetes. Risk factors for Type 2 Diabetes include: older age, obesity, family history of Diabetes, personal history of Gestational Diabetes, impaired glucose metabolism, physical inactivity and race/ethnicity. African Americans, Hispanic/Latino Americans, American Indians, some Asian Americans and Native Hawaiians or other Pacific Islanders are at particularly high risk for development of Type 2 Diabetes and its complications. Type 2 Diabetes in children and adolescents, although still rare, is being diagnosed more frequently among African Americans, Hispanic/Latino Americans, American Indians and Asian/Pacific Islanders. Type 2 Diabetes may be preventable through modest lifestyle changes.
- **Gestational Diabetes** is a form of glucose intolerance diagnosed during pregnancy. It occurs more frequently among African Americans, Hispanic/Latino Americans, and American Indians. It is also more common among obese women and women with family history of Diabetes or Gestational Diabetes. During pregnancy, Gestational Diabetes requires treatment to optimize maternal blood glucose levels to lessen the risk of complications in the infant and mother. Women who have had gestational Diabetes have a 35% - 60% chance of developing Diabetes in the next 10-20 years.

How is Diabetes Managed?

Diabetes can affect many parts of the body and can lead to serious complications such as blindness, kidney damage, and lower-limb amputations. Working together, people with Diabetes, their support network and their health care providers can reduce the occurrence of these and other Diabetes complications by controlling the levels of blood glucose, blood pressure and blood lipids, and by receiving other preventive care practices in a timely manner.

Managing Diabetes is a complicated endeavor. Diabetes is managed by a combination of appropriate clinical care from a health care provider who understands Diabetes care, combined with individual responsibility of the person with Diabetes for taking medications as directed, making changes to their food choices and developing a regular pattern of physical activity in order to control blood sugar.

Prevention of Type 2 Diabetes

The Diabetes Prevention Program (DPP), a large prevention study of people at high risk for developing Diabetes, demonstrated that lifestyle intervention to lose weight and increase physical activity reduced the development of Type 2 Diabetes by 58% during a three year

period. The reduction was even greater, 71%, among adults aged 60 years and older. Interventions to prevent or delay Type 2 Diabetes in individuals with prediabetes can be feasible and cost-effective. The drug metformin also reduced risk, although less dramatically, by 31 percent.⁹.

The evidence-based lifestyle change program, the National Diabetes Prevention Program (DPP), is a proven intervention for preventing diabetes in those at high risk for the disease. For more information, see the website at: <http://www.cdc.gov/diabetes/prevention/index.htm>

2013 Kentucky Diabetes Report – Progress Toward Goals (Attachment F)

Goal	Action Items	Progress/Status
<p>1. Support existing state health promotion plans, coalitions, and partnerships related to diabetes prevention and control</p>	<ul style="list-style-type: none"> • Provide financial support for: <ul style="list-style-type: none"> ○ Implementation of the State Diabetes Plan ○ Implementation of the Coordinated Chronic Disease Prevention and Health Promotion Plan – “Unbridled Health” 	<p>The Coordinated Chronic Disease Prevention and Health Promotion Plan “Unbridled Health” was completed in August 2013 through the work of over 80 individuals on the steering committee representing universities, advocacy organizations, hospitals, public health, providers, schools, businesses, transportation, and state government agencies and over 200 individual stakeholders. The steering committee and stakeholders continue their participation in the annual stakeholders meeting where synergy is created around the key initiatives within the plan and have become ambassadors of the key strategic areas within the plan. These four strategic areas are foundational for successful partnerships and programs related to chronic disease prevention in the state. The four strategic areas are as follows:</p> <ul style="list-style-type: none"> • Promote policy, environmental and system changes that will support healthy choices and healthy living in Kentucky and its communities • Expand access to coordinated, quality, evidence-based clinical screenings, clinical management and chronic disease self-management • Cultivate strong connections linking individuals, community organizations, businesses, schools, the health care system and other partners to improve health outcomes, reduce health care costs, and improve quality of life • Translate surveillance, research and evaluation findings into information that is easily accessible to and useful to the community partners, health advocates and decision makers. <p>The Unbridled Health plan continues to be utilized at state meetings, training, public health forums and in assisting communities with prioritizing their own strategic plans.</p>

Goal	Action Items	Progress/Status
		<p>The Personnel Cabinet, Department of Employee Insurance (DEI)</p> <ul style="list-style-type: none"> • Supports the implementation of SB63 by attending monthly meetings, and collaborating with the Department for Medicaid Services, the Department for Public Health and the Office of Health Policy on diabetes prevention. • supports Governor Beshear’s health goals and strategies in kyhealthnow
<p>2. Increase the availability and utilization of evidence-based lifestyle change programs such as the National Diabetes Prevention Program (DPP)</p>	<ul style="list-style-type: none"> • Provide financial support to: <ul style="list-style-type: none"> ○ Expand DPP programming in Kentucky and engage state, county, and local government agencies to provide access to DPP as a covered benefit for employees ○ Work with health care providers to implement systems for referral of people with prediabetes or multiple risk factors for type 2 diabetes to DPP. ○ Coordinate implementation of health communication and marketing campaigns or coalition initiatives that raise awareness of prediabetes risk factors and the locations and enrollment information for DPP programs. ○ Coordinate implementation of health communication and marketing campaigns or coalition initiatives that raise awareness of prediabetes risk factors and the locations and enrollment information for DPP programs. ○ Provide outreach and information to employer groups about DPP and encourage offering DPP as a covered employee benefit. 	<ul style="list-style-type: none"> ○ DPH applied for, and was one of eight states to receive a grant to promote DPP <ul style="list-style-type: none"> ○ Created a document stating the business case ○ Ann Albright PhD, Director of the Division of Translation at CDC presented to the Kentucky Chamber of Commerce at their annual wellness conference. ○ Dr. Albright, also spoke to DMS and several of the MCO Medical Directors re: DPP ○ The Personnel Cabinet, Department of Employee Insurance (DEI), in conjunction with our third party administrator, Humana: <ul style="list-style-type: none"> ○ Have a pilot DPP program with 12 KEHP members referred in 2013. Locations of the DPP are at local YMCAs and hospitals. ○ refers KEHP members to a DPP if they have symptoms of pre-diabetes such as, high blood pressure, obesity, and/or high cholesterol ○ Began offering DPP as a covered benefit in the KEHP in 2014 and early 2014 results are very encouraging. ○ HumanaVitality points are given for DPP. Participants in a DPP receive 350 HumanaVitality points for participation.

Goal	Action Items	Progress/Status
3. Increase the availability and utilization of sustainable evidence-based diabetes and chronic disease self-management education and other health education or behavior change initiatives to improve control of A1C, blood pressure, and cholesterol and to promote tobacco cessation.	<ul style="list-style-type: none"> • Support KEHP pilot projects: <ul style="list-style-type: none"> ○ Incentivize KEHP members with diabetes to participate in an evidence-based DSME program ○ Collaborate with the DPH on diabetes disease management. KEHP members would be afforded the opportunity to not only work with disease management and case managers, but could also receive diabetes training or other diabetes management programs at local health departments ○ Explore integration of wellness into KEHP plan design, shifting from voluntary to mandatory participation. Possibilities include requiring the completion of an annual health assessment (HA) and/or a biometric screening both which are available through the KEHP's current wellness program, HumanaVitality 	<ul style="list-style-type: none"> • KEHP had over 25,000 members participate in a clinical program with Humana for 2014. Clinical programs consist of disease management, case management and nurse support for complex conditions. • PY 2014 requires KEHP members to complete the HumanaVitality health assessment to choose a LivingWell health plan. Over 137,000 assessments were completed. • KEHP has a HealthyFood™ Program where members are eligible to participate in the HumanaVitality® HealthyFood™ program. All items purchased at Walmart® and labeled Great For You™ earn a 5% savings on their Vitality HealthyFood Shopping Card. Savings are applied to the Vitality HealthyFood Shopping Card within 5-7 business days and are to be used on future Walmart purchases. Increase your 5% savings to 10% when you or any HumanaVitality family members, at least 18 years of age who have completed their health assessment and have received a Vitality Check®. Over 32,000 HealthyFood cards have been issued as of May 2014. • Over 12,000 members in KEHP have received a biometric screening through May 2014. • PY 2014 required KEHP plan-holders to sign a tobacco use form declaring whether or not they and/or a member of their covered family age 18 or older use tobacco. This is more stringent than the previous plan years, in that it includes dependents and all forms of tobacco, not just smoking. • The rate of employees electing tobacco use plans has increased 28.72%, from 17,408 smoker plans in 2013 to 22,406 tobacco user plans in 2014. This increase is due to: <ul style="list-style-type: none"> ○ KEHP expanded the range of products to include more than cigars and cigarettes and included all forms of non-

Goal	Action Items	Progress/Status
	<ul style="list-style-type: none"> • Provide financial support to: <ul style="list-style-type: none"> ○ Expand availability of evidence-based DSME programs to improve behavioral and/or clinical outcomes for people with diabetes (ADA Recognized or AADE Accredited DSME programs) ○ Expand availability of the Stanford Diabetes Self-Management and Chronic Disease Self-Management Programs which are proven to improve ABC control. ○ Increase utilization of tobacco cessation services (e.g., quitlines) for adult tobacco users with diabetes. 	<p>religious, non-ritual use of tobacco products</p> <ul style="list-style-type: none"> ○ KEHP expanded this to include covered family members age 18 or older who use tobacco.
<p>4. Assure a sustainable diabetes prevention and control infrastructure and workforce.</p>	<ul style="list-style-type: none"> • Maintain and allocate new state general funds for diabetes in the biennial budget. State funds will support: <ul style="list-style-type: none"> ○ Continued updating and distribution of the DSME Curriculum which meets national standards for program recognition/accreditation ○ Training LHD and staff for other entities in the delivery of DSME classes ○ Workshops for health care professionals to improve knowledge of diabetes diagnosis, treatment, and management <ul style="list-style-type: none"> ▪ Professional education/licensure/training ▪ DSME ○ Coordination of the expansion of the DPP program across KY 	<p>For FY 15 and FY 16, the General Assembly designated 2.6 million dollars each fiscal year specifically Diabetes prevention and control efforts. The DPH has allocated these funds to LHDs and provided guidance for their use - including priorities for expansion of DPP and DSME programs/services across the state. The state level efforts noted in the action items are not supported by these funds.</p>

Goal	Action Items	Progress/Status
	<ul style="list-style-type: none"> ○ Develop/sustain a communication hub of diabetes information ○ The Diabetes Research Board ○ Public Health Infrastructure ● Increase the number of CDEs and licensed diabetes educators in Kentucky ● Work with the “Diabetes Educator Licensure Board” to implement the new licensure requirement ● Work with diabetes stakeholders to define roles for health professionals, allied health professionals, community health workers, and others in promoting standard diabetes education management 	<ul style="list-style-type: none"> ● Number of Certified Diabetes Educators (CDE) <ul style="list-style-type: none"> ○ 2011 - 254 ○ 2013 - 260 ○ 2014 - 270 ● Kentucky was the first state to pass legislation requiring licensure of diabetes educators. The licensure law and associated regulations have been implemented. There are currently 600 licensed diabetes educators (LDE) in Kentucky.
5. Improve diabetes and chronic disease surveillance systems needed to determine the extent and impact of diabetes on the Commonwealth	<p>Provide financial support to:</p> <ul style="list-style-type: none"> ● Establishing a policy to include unique patient identifiers on each administrative claims (Hospital Discharge) record. Without a unique patient identifier on each record, it is impossible to determine if a patient has multiple hospitalizations or ED visits in a given time period. ● Improve BRFSS data on populations in Kentucky that experience health disparities. One target would be to improve data collection for African Americans as this population experiences drastically higher mortality rates due to diabetes than does the rest of the KY population. ● Support Medicaid and KEHP in the collection and reporting of HEDIS data as part of the Kentuckiana Health Collaborative (KHC) project described below. This HEDIS data forms the basis for the joint benchmarking required for this report. 	<p>Kentucky’s Behavioral Risk Factor Survey has been oversampling African American residents in Kentucky since 2011. Prevalence of diabetes in African American residents at Area Development District level is available since 2011.</p> <p>KHC received HEDIS data from 2 of the Medicaid Managed Care Organizations.</p>

Goal	Action Items	Progress/Status
	<ul style="list-style-type: none"> Investigate expanded use of the Kentucky Health Information Exchange by laboratories reporting data as an A1C registry similar to that used by New York City. This would provide information on the level of diabetes control in our population of persons with diabetes in Kentucky. In addition, it may expand our knowledge of how many people have diagnosed diabetes in Kentucky, including how many youth have diabetes. 	<ul style="list-style-type: none"> The KHIE has experienced robust growth as evidenced by the items below. Although registries have been discussed for A1C, diabetes, and stroke, there are no immediate plans to proceed with this. <ul style="list-style-type: none"> 601 Signed Participation Agreements (Represents 2,154 Locations) As of August 15, 2014 KHIE had a total of 986 provider locations submitting live data and actively exchanging information. 80% of the hospitals are live on KHIE. KHIE is now providing <i>clinical notifications</i> in the Continuity of Care Document (CCD), accessible via the KHIE Community Record (Virtual Health Record). The clinical notification acts as a <i>flag</i> in the CCD to aid in the coordination of care and enables providers to make information-driven decisions at the point of care. Examples include, but are not limited to: <ul style="list-style-type: none"> Diabetes: no eye exam in the last 365 days Diabetes: no lipid panel in the last 365 days Diabetes: no urine protein screening in the last 365 days Diabetes: HgA1C check due Blood pressure check due Developmental/Behavioral assessment due Nutrition counseling due Tuberculin Test (TB test) due IF 'At Risk'
6. Review promising practices with the implementation of health care reform.	<ul style="list-style-type: none"> KEHP pilot project – analyze the viability for KEHP members to participate in partnership with Humana in an ACO. The pilot would focus on a segment of Louisville-based KEHP members. 	<p>In 2013 the Kentucky Employees' Health Plan joined the Humana/Norton ACO. The first year of participation served to create the baseline for quality and cost trending for KEHP attributed members. Below are some key points and results for 2014:</p> <ul style="list-style-type: none"> 5% increase in attributed members is due to expansion of attribution model to include OB/GYN and Pediatrics. 1Q 2014 Cost Trend for KEHP attributed members shows a 3.2% reduction in PMPM claims cost compared to the same attributed members experience in 2013.

Goal	Action Items	Progress/Status
		<ul style="list-style-type: none"> • 1Q 2014 Actual Cost is at 97.6% of the target indicating the potential for shared savings. • Claims analysis demonstrates a 2% cost reduction in OP Services combined with a 17.5% reduction in Physician Services. This was offset by a 13.5% increase in Inpatient services.
7. Support policies that improve outcomes for persons with and at risk for diabetes and other chronic diseases.	<ul style="list-style-type: none"> • Support passage of the statewide comprehensive smoke-free law • Take advantage of the opportunity for expansion of the access to care provision of the ACA such as the Health Benefit Exchange and Medicaid expansion so that more uninsured people with diabetes are able to receive appropriate medical care and avoid costly, unnecessary hospitalizations or ED visits • Support policies to expand usage of electronic health records by all health care providers and link those systems to the KHIE • Support policies for Medicaid, KEHP, and other insurers to provide reimbursement for evidence-based diabetes education classes 	<ul style="list-style-type: none"> • Advocates worked hard to pass a comprehensive secondhand smoke-free law, which was not passed. However we anticipate that this bill will be reintroduced in the next legislative session. • Healthcare coverage through Medicaid expansion and qualified health plans purchased through the health benefit exchange (kynect) began January 2014. Kentucky expanded Medicaid and created and launched a health benefits exchange to provide insurance coverage under the Affordable Care Act. <ul style="list-style-type: none"> ○ Of the 640,000 uninsured at that time, 413,000 individuals enrolled in expanded Medicaid or a qualified health plan purchased through kynect in the first open enrollment. The second open enrollment is currently ongoing. <p>As of January, 2014, KEHP offers DPP as a covered benefit.</p>

CDC Recognized Diabetes Prevention Program (DPP) Sites for Kentucky (Attachment G)

Kentucky's CDC Recognized National Diabetes Prevention Programs (NDPP)

December, 2014 (taken from CDC website list and NDPP NDPP Provider List)



 **KY CDC Recognized NDPP Providers - 20**
(includes Cincinnati YWCA which covers some northern KY counties)

NOTE: Symbols for NDPP providers do not correspond to an exact address.

 **KY Counties Covered by NDPP - 36**
(counties may have multiple NDPP locations)

CDC = Center for Disease Control and Prevention
KDPCP = KY Diabetes Prevention and Control Program

