

Ten-Year Review *of the*
Master Health Plan
for Northern Kentucky

MARCH 2008



NORTHERN KENTUCKY
INDEPENDENT DISTRICT
HEALTH DEPARTMENT



Ten-Year Review *of the* Master Health Plan for Northern Kentucky

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Table of Contents

INTRODUCTION	1
STRATEGIC PUBLIC HEALTH ISSUES	2
PRIORITY PUBLIC HEALTH ISSUES	3
PHYSICAL HEALTH	4
Low Birth Weight	
Heart Disease	
Cancer	
Diabetes	
LIFESTYLE AND ENVIRONMENT	8
Healthy Living, Healthy Weight	
Violence and Abuse	
Substance Abuse	
Outdoor Air Quality	
Surface Water Quality	
ACCESS TO HEALTH SERVICES	13
Health and Well-Being	
Mental Health and Depression	
Oral and Dental Health	
Childhood Immunizations	
Adult Immunizations	
DATA SOURCES	18



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INTRODUCTION

In 2001, the Northern Kentucky Community Health Committee adopted a vision of a healthy community:

Vision of a Healthy Community

“A healthy community is one that is safe, knowledgeable and engaged, nurturing, diverse, tolerant and has access to health care. A healthy community has a strong local public health system that includes: planning and policy development, shared leadership, accountability, response to challenges, and protects and promotes the health and well being of neighborhoods and their residents.”

This vision of a healthy community evolved as a result of an objective of the Quest vision developed in 1995. The Northern Kentucky Community Health Committee began the task of developing a Community Health Plan for Northern Kentucky. The first volume was published in 1996 and a subsequent volume was published in 1999.

In 2000, the Community Health Committee embarked on utilizing the Mobilizing for Action through Planning and Partnerships (MAPP) process developed by the National Association of County and City Health Officials. Through the MAPP process, they identified the five strategic issues that were published in the Public Health System Improvement Plan 2003.

These three volumes were condensed into the Master Health Plan for Northern Kentucky in 2005. The Master Health Plan also included four priority public health issues developed by other community processes

and identified by the MAPP assessment process.

This review is the first report on the strategic issues outlined in the Master Health Plan and the most current data for the 14 priority program objectives outlined in the Master Health Plan.

The 10-year review follows the organization of the Master Health Plan and is divided into four sections. The first section includes the overarching strategic objectives identified in the Public Health System Improvement Plan 2003. The 14 priority program objectives are organized under Physical Health, Lifestyle and Environment, and Access to Health Services.

This report will attempt to identify progress toward achieving the vision of a healthy community and the areas that still require more attention.



Strategic Public Health Issues

The five Strategic Public Health Issues

listed below were identified in the Public Health System Improvement Plan 2003. A survey of community organizations was developed and implemented to

measure the achievement of these strategic issues, goals and strategies. The chart below represents the baseline data for each strategic issue. Follow-up surveys will be sent to participating organizations to measure future progress.

Only these two summary questions are reported here:

1. How well did their organization meet the objective?
2. How well did they perceive that other organizations in the community were meeting the objective?

STRATEGIC ISSUE 1

How do we recognize and meet the needs of our diverse population and ensure access to the health care system? This includes, but is not limited to, the following populations: aging, minorities, imprisoned, homeless, uninsured, working poor, special needs, gay and lesbian, and vulnerable.

Level strategic issue 1 is reported as being achieved: 60.0 %

Level strategic issue 1 is perceived as being achieved: 47.5 %

STRATEGIC ISSUE 2

How do we gather, analyze, use and share data for program planning, evaluation and resource allocation?

Level strategic issue 2 is reported as being achieved: 60.0 %

Level strategic issue 2 is perceived as being achieved: 55.0 %

STRATEGIC ISSUE 3

How do we ensure the quality of the public health system?

Level strategic issue 3 is reported as being achieved: 62.5 %

Level strategic issue 3 is perceived as being achieved: 55.0 %

STRATEGIC ISSUE 4

How do we impact fragmented health care services to provide more seamless, integrated comprehensive care?

Level strategic issue 4 is reported as being achieved: 65.0 %

Level strategic issue 4 is perceived as being achieved: 60.0 %

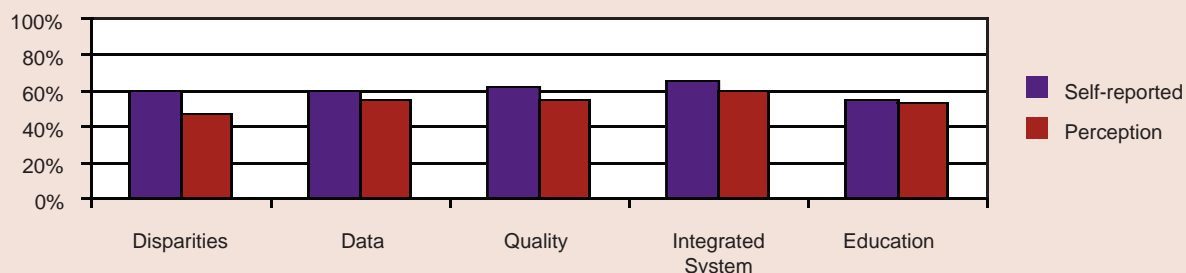
STRATEGIC ISSUE 5

How do we leverage our educational opportunities to disseminate health knowledge, skills and dispositions (attitudes)?

Level strategic issue 5 is reported as being achieved: 55.0 %

Level strategic issue 5 is perceived as being achieved: 52.5 %

STRATEGIC ISSUES



Priority Public Health Issues

The following tables and graphs indicate the level of achievement of the priority program objectives in the Master Health Plan for Northern Kentucky 2005.

All data, unless otherwise noted, is aggregated data for the four counties served by the Northern Kentucky Health Department. They are Boone, Campbell, Grant and Kenton counties.

The baseline includes data from 1993 or the closest year available. The most current data available is utilized for ending dates. The charts and graphs use three-year averages as representative data points to minimize yearly variations. One or two-year average data is used when three years are unavailable.

The data tables and graphs use the same summary years: 1993, 1996, 1999, 2002 and 2005. The graphs indicate the percentage of change from the earliest available baseline to the latest available year. Some years are extrapolated where data is missing to create a continuous line.

The indicator selection for each priority area is based on the original objectives and the availability of data. The number [#] refers to the data source listed at the end of the document. The notes below each data table refer specifically to the data in that table. Analysis and current status are based more on qualitative judgment than statistical measures of significance.

CURRENT STATUS COLOR KEY:

- Purple** = Near meeting or exceeding Master Health Plan goal
- Yellow** = No change or some improvement but goal is not reached
- Pink** = Indicator is moving in a negative direction



All data, unless otherwise noted, is aggregated data for the four counties served by the Northern Kentucky Health Department. They are Boone, Campbell, Grant and Kenton counties.

Physical Health: Low Birth Weight (1996)

Low birth weight was identified as the most important health priority due mostly to the high cost. In addition to the immediate hospital and medical costs, low birth weight often results in lifelong health and social problems. Many of the risk factors for low birth weight are preventable such as age, prenatal care and tobacco use.

ANALYSIS

The overall rate for low birth weight did not change significantly from 1993 until 2003. Northern Kentucky is, however, making significant progress toward some of the risk factors identified in the Master Health Plan. There is an increase in the number of women receiving prenatal care in the first trimester of pregnancy (decreasing

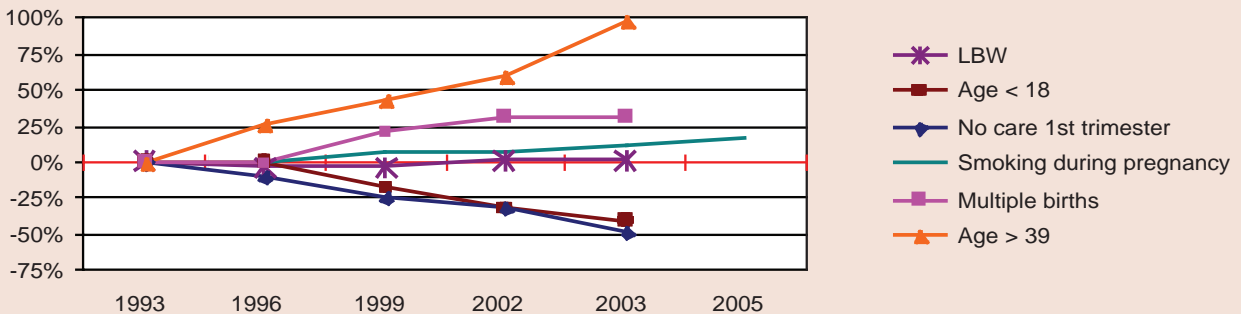
no prenatal care) and a significant decline in the teenage birth rate. This progress is offset by a rise in the number of women delaying childbirth until after age 39 and the increase in multiple births possibly triggered by the use of fertility drugs. The number of women who continue to use tobacco during pregnancy has been steadily increasing since 1996.

Indicators: Low Birth Weight	1993	1994 1996	1997 1999	2000 2002	2003 2005	MHP Goal	Current Status
Low birth weight (< 2,500 gm.) [5]	7.2	7.0	7.0	7.3	7.3	<5.0 (- 31%)	+2.1%
Mother age < 18 [5]	5.3	5.3	4.4	3.6	3.1	<6.5 (- 10%)	-40.5%
No prenatal care first trimester [5]	14.1	12.6	10.7	9.6	7.2	<12.7 (- 10%)	-49.0%
Smoking during pregnancy [15, 9a, 9]		22.5	24.0	24.1	26.0	<10.0 (- 57%)	+15.6%
Multiple births (twins and triplets) [5]	2.9	2.9	3.5	3.9	3.8	No MHP goal	+31.5%
Mother age > 39 [5]	1.1	1.3	1.5	1.7	2.1	No MHP goal	+98.8%

[5] Percent of total live births (1993-2003)

[15, 9a, 9] Percent of total live births (limited data: [15] 1996-2000, [9a] 1997-2001, [9] 2004-05)

LOW BIRTH WEIGHT



Physical Health: Heart Disease (1999)

Heart and cardiovascular disease were identified as priority health issues due to the high number of preventable deaths recorded in Northern Kentucky. Preventable risk factors include tobacco use, diet high in cholesterol and lack of regular physical exercise.

ANALYSIS

The mortality rates for both heart disease and associated cerebrovascular disease have had a significant decrease since the 1993 baseline. This decrease,

however, is probably based more on better treatment and medications than on changing lifestyles. The percent of the population having been told by their health professional that they have a high level of cholesterol increased between 2002 and 2005. This may be due to increased testing as well as changing lifestyles. The percentage of the population reporting having a healthy weight (Body Mass Index >19.5 and < 25.0 as calculated from reported height and weight) has steadily decreased between

1999 and 2005. This reflects an increase in the percentage of the population with a Body Mass Index greater than 25.

Trend data for an active lifestyle is inconclusive due to a difference in the questions asked in the 2005 survey. If mortality is partially based on the result of longtime behaviors, an increasingly overweight population may reverse the downward trend for heart disease and cardiovascular disease mortality in the near future.

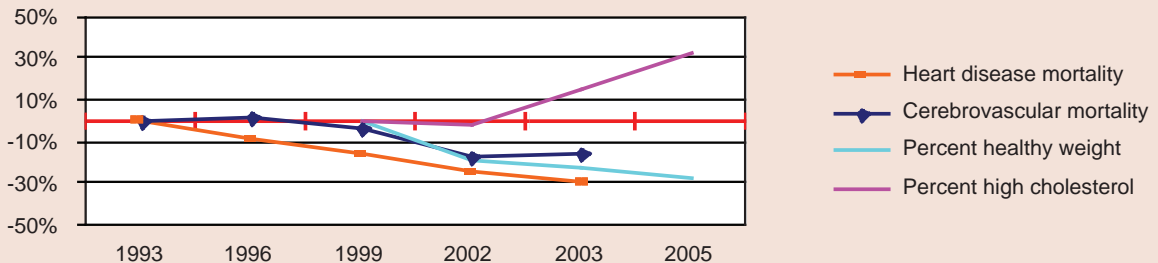
Indicators: Heart Disease	1993	1994 1996	1997 1999	2000 2002	2003 2005	MHP Goal	Current Status
Heart disease mortality [5]	279.7	255.8	233.4	208.6	198.2	<187.4 (- 33%)	-29.1%
Cerebrovascular disease mortality [5]	54.7	55.4	52.9	45.2	46.0	<49.2 (- 10%)	-15.8%
Healthy weight (BMI =18.5 to 24.9) [14]*			46.6	38.3	33.9	>62.0 (+33%)	-27.3%
Sedentary lifestyle (exercise <3 x week) [14]*			38.0	38.5		<25.5 (- 33%)	+0.5%
Population with high cholesterol [14]			21.9	21.4	28.9	<14.7 (- 33%)	+31.9 %

[5] Rate per 100,000 (1993-2003)

[14] Percent adult population (1999, 2002, 2005) Boone, Campbell, Kenton only 1999 and 2002. BMI was calculated from self-reported height and weight (2002, 2005). Average BMI is estimated from reported height and weight (1999). Sedentary lifestyle is unavailable for 2005 due to a change in questions on the 2005 survey (28.7 percent of adults exercised less than 30 minutes a day)

*See Healthy Living, Healthy Weight and Diabetes objectives for additional related indicators

HEART DISEASE



Physical Health: Cancer (1999)

Cancer was identified as a priority health issue due to the high number of preventable deaths recorded in Northern Kentucky. Four types of cancer were identified.

Breast and colorectal cancer deaths can be reduced by early detection and treatment. Lung cancer and melanoma incidence can be reduced by changes in behavior and lifestyle. Preventable risk factors for lung cancer include tobacco use and controlling for radon. Avoiding strong sunlight, using sunscreen and avoiding tanning beds can reduce occurrences of melanoma.

ANALYSIS

Total cancer mortality remains high but is improving toward the goal of a 10 percent reduction. This reduction may be due to better treatment techniques and increased early detection. The breast cancer mortality rate peaked at 18.1 per 100,000 in 2001. Since then the rate has leveled off near 15.0 per 100,000. Insufficient time has passed to predict a trend.

Colorectal cancer mortality is also decreasing and has exceeded the Master Health Plan goal of 10 percent. The incidences of melanoma and lung cancer are both increasing. Both

incidence and mortality from melanoma of the skin have dramatically increased since 1998. The percent may be somewhat inflated due to the small total number of cases.

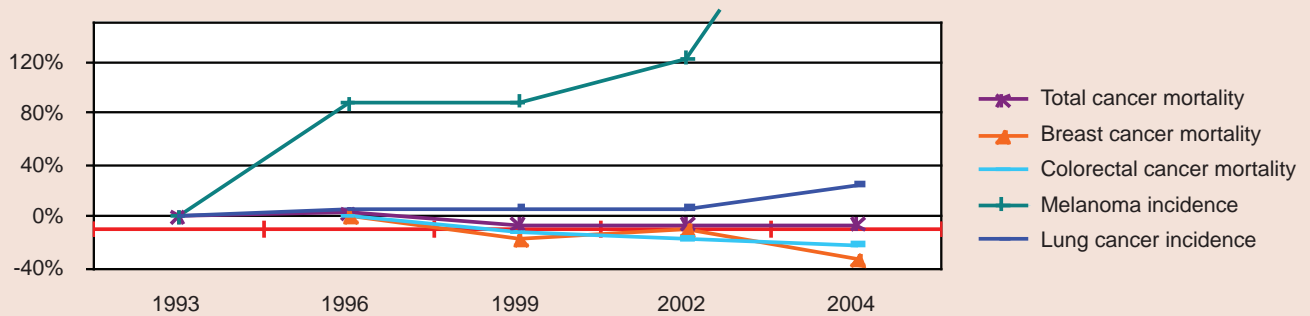
Lung cancer incidence rates declined slightly from 1996 through 1998, but have been rising steadily since. The increase in the incidence in lung cancer is likely related to the continued high rate of tobacco use in Kentucky. The other risk factor is a moderate to high prevalence of radon in Northern Kentucky. Mortality rates have remained relatively low for melanoma and very high for lung cancer.

Indicators: Cancer	1993	1994 1996	1997 1999	2000 2002	2003 2004	MHP Goal	Current Status
Cancer mortality (all types) [5, 16]	211.0	216.5	198.1	197.3	196.2	<189.9 (-10%)	-7.0%
Breast cancer mortality [5, 16]		16.9	13.9	15.2	11.6	<15.2 (-10%)	-31.7%
Colorectal cancer mortality [5, 16]		27.0	23.4	22.5	20.9	<24.3 (-10%)	-22.5%
Melanoma incidence [16]	7.0	13.2	13.3	15.6	28.7	<6.3 (-10%)	+311.1%
Lung cancer incidence [16]	79.8	83.9	84.9	85.2	99.5	<71.8 (-10%)	+24.8%

[5] Rate per 100,000 population (1993-2003); [16] All cancer mortality 2004, breast and colorectal mortality 1994-1997, 2004

[16] Rate per 100,000 population (1993-2004); Kentucky Cancer Registry incidence data was not published online prior to 1995, hard copy was used 1993-2002 and differs from the online data 1995-2002

CANCER MORTALITY AND INCIDENCE



Physical Health: Diabetes (1999)

Diabetes is a costly disease both monetarily and in quality of life. Type II diabetes can be largely prevented or made less severe through controlling diet and exercise. Controlling diabetes through regular monitoring and use of medications can reduce complications such as loss of limbs and eyesight.

ANALYSIS

Both diabetes mortality and prevalence are moving in a negative direction. The prevalence rate from two different surveys shows an increase in diabetes in the range of 40 to 70 percent between 1997 and 2005. Obesity is the greatest risk factor for type II diabetes and

the self-reported rates for obesity are increasing at an alarming rate (Note: BMI was calculated from self-reported height and weight. BMI for 1999 obese estimates based on incompatible data set formats. Also see Healthy Living, Healthy Weight objective.).

Indicator: Diabetes	1993 Baseline	1994 1996	1997 1999	2000 2002	2003 2005	MHP Goal	Current Status
Diabetes mortality [5]	26.1	27.1	31.4	31.1	32.2	<25.1 (-20%)	+23.4%
Diabetes prevalence [2]			5.3	5.7	9.1	<4.8 (-10%)	+71.7%
Diabetes prevalence [14]			7.3	5.2	10.0	<6.6 (-10%)	+37.4%
Percent obese (BMI >29.9) [14]*			16.4	19.1	26.4	<14.8 (-10%)	+61.0%

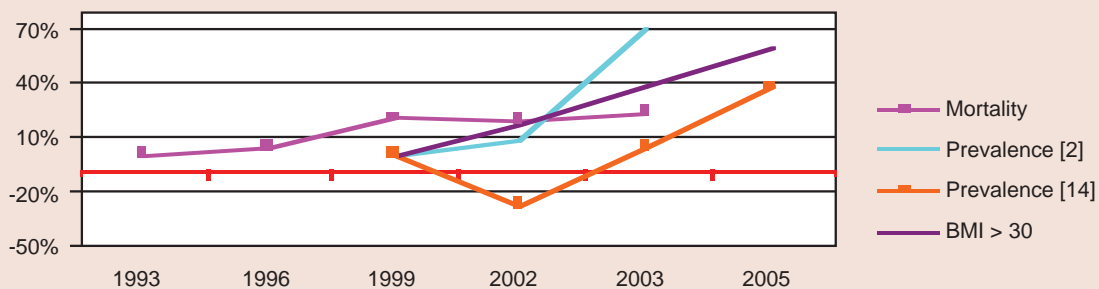
[5] Rate per 100,000 population (1993-2003)

[2] Percent adult population in Area Development District (1997-1999, 2000-2002, 2003)

[14] Percent adult population (1999, 2002, 2005) Boone, Campbell, Kenton only 1999 and 2002. BMI calculated from self-reported height and weight, 1999 BMI is estimated

*See Healthy Living, Healthy Weight and Heart Disease objectives for additional related indicators

DIABETES INDICATORS



Diet and exercise can help prevent or control Type II diabetes.

Lifestyle and Environment: Healthy Living, Healthy Weight (2003)

Healthy living, meaning an active lifestyle, and healthy weight, meaning having a body mass consistent for height and build, were identified as having the highest correlation with a feeling of well-being. Poor diet and lack of exercise are risk factors for many physical and mental health conditions. Healthy living and healthy weight were also identified as having the greatest correlation with overall health from the Greater Cincinnati Community Health Status Survey. The objectives are the same as those previously identified as risk factors for heart disease, cancer and diabetes.

ANALYSIS

There is some difficulty defining a trend for healthy living and healthy weight due to changing definitions and wording of questions on the Kentucky Behavioral Risk Factor Surveillance System [2] and the Greater Cincinnati Community Health Status [14] surveys. In 1998, the definition for overweight changed to a BMI of 25 or greater. The Master Health Plan objective was to reduce total caloric intake, but there is limited local data related to diet. There seems to be a slight trend toward more

exercise between 1999 and 2002. The percentage of adults who engage in vigorous physical activity is far less than defined by this data set. The definition of vigorous activity has varied from year-to-year, so indicating a trend is difficult. The main goal of healthy weight, however, has shown a sharp decrease between the 1999 and 2005 surveys. This decrease is reflected in an equal increase in overweight. The Behavioral Risk Factor Surveillance System data from 1999 to 2002 shows a similar trend.

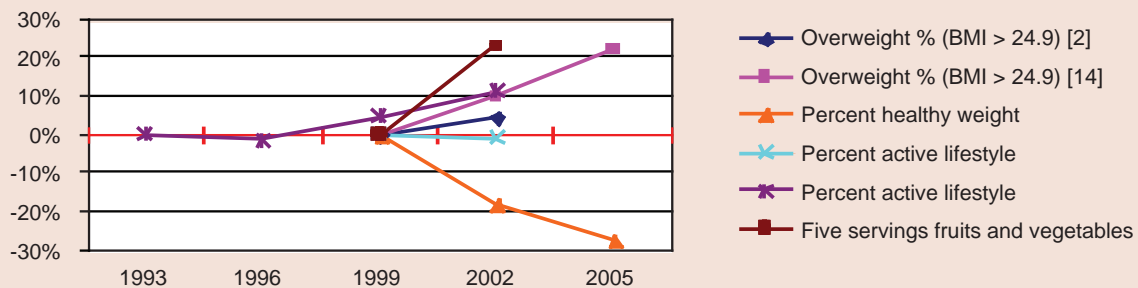
Indicator: Healthy Living Healthy Weight	1993	1994 1996	1997 1999	2000 2002	2003 2005	MHP Goal	Current Status
Overweight or obese (BMI>24.9) [2]			57.6	60.4		<57.6 (+0.0%)	+4.8%
Overweight or obese (BMI>24.9) [14]*			59.8	58.0	64.6	<52.9 (+0.0%)	+37.4%
Healthy weight (BMI =18.5 to 24.9) [14]*			46.6	38.3	33.9	>62.0 (+33%)	-27.3%
Physically activity 3 or more times a week [14]			62.0	61.5		>82.5 (+33%)	-0.8%
Leisure time activity in 30 days [2]	63.6	62.7	66.7	70.9		>84.6 (+33%)	+11.5%
Five servings a day of fruits and vegetables [2]			16.7	20.5		>16.7 (+0.0)	+22.8%

[2] Percent adult population (1997-2002) Area Development District (definition of overweight changed in 1998 to BMI > 24.9, definition of leisure time activity changed in 2000)

[14] Percent adult population (1999, 2002, 2005) Boone, Campbell, Kenton only 1999 and 2002. BMI was calculated from self-reported height and weight (2002, 2005). Average BMI is estimated from reported height and weight (1999). Active lifestyle [14] is unavailable for 2005 due to a change in questions on the 2005 survey (28.5 percent of adults exercised more than 30 minutes a day)

*Combined percent does not equal 100 percent. Underweight ranges from 0.5 to 3.7 percent accounting for the difference

HEALTHY LIVING, HEALTHY WEIGHT



Lifestyle and Environment: Violence and Abuse (1996)

Family violence and abuse, including both child and elder abuse, were identified as a priority health issue. Violence results not only in physical and mental health issues but requires the use of many community resources. Violence, abuse and neglect are correlated with substance abuse such as the use of alcohol and other drugs. There is also a strong relationship with mental illness and depression. The goal is to reduce all indicators by 10 percent.

ANALYSIS

All child abuse and neglect indicators have been reduced beyond the 10 percent goal. While homicide was not specifically named as an indicator, there is a close connection between homicide and family and domestic violence.

Data is only substantiated cases for childhood abuse and neglect. The percentage of reported cases that are substantiated varies from year to year, but remains between 20 and 25 percent. Both reported and substantiated cases of child abuse and neglect have been steadily decreasing. Since the requirements for substantiating cases

became more stringent after 1997, comparisons prior to 1998-1999 are not included on the graph below.

Violent crime rates in the community have varied on a year-to-year basis. Assaults reached a peak in 2001 but have been declining since and were below the 1993 rate in 2005. Reports of rape, however, have been steadily increasing since 1995. It is uncertain if the actual number of rape incidence is increasing or if the rate of reporting is increasing due to changing societal attitudes and attempts to make reporting incidence easier and more compassionate for the victim.

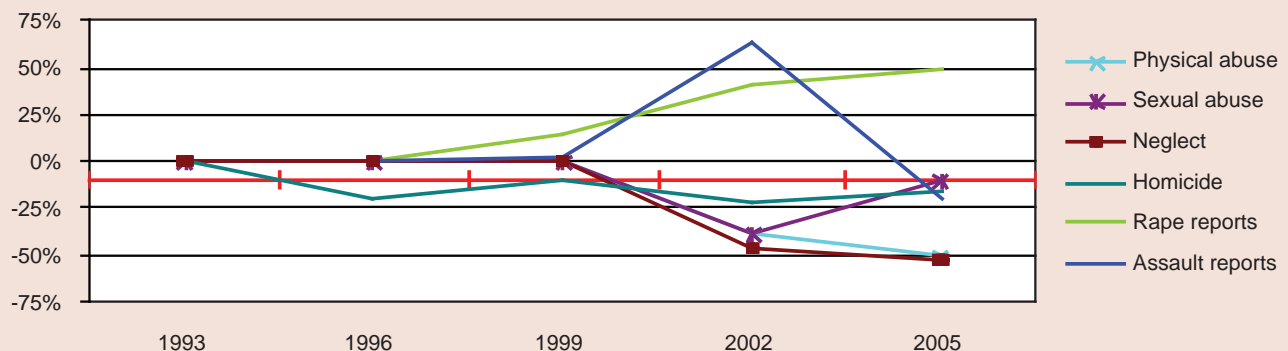
Indicator: Violence and Abuse	1993	1994 1996	1997 1999	2000 2002	2003 2005	MHP Goal	Current Status
Physical abuse substantiated age < 18 [9]	6.3	5.1	3.3	2.0	1.6	<3.0 (-10%)	-51.7%
Sexual abuse substantiated age < 18 [9]	2.4	1.8	1.1	0.7	1.0	<1.0 (-10%)	-10.3%
Neglect substantiated age < 18 [9]	14.3	15.2	11.7	6.2	5.5	<10.5 (-10%)	-53.2%
Homicide [5, 7a]	3.8	3.0	3.4	2.9	3.2	No MHP goal	-16.5%
Rape reports [7a]		25.4	28.8	35.7	37.6	No MHP goal	+48.1%
Assault reports [7a]		138.0	141.1	225.1	110.3	No MHP goal	-20.1%

[9] Rate per 1,000 children. 1997 data missing due to a change in definition. Current Status based on 1998-1999 baseline data, 1993-1996 data is for reference only. MPH goal based on 1998-1999 data

[5, 7a] Rate per 100,000, [5] county of residence (1993-2003); [7a] county of incidence (2004-2005)

[7a] Rate per 100,000 (1995-2005)

VIOLENCE AND ABUSE



Lifestyle and Environment: Substance Abuse (1996)

Substance abuse was defined as the use of alcohol, tobacco and other drugs. There is a strong relationship between the use especially of alcohol and other drugs with family violence and physical abuse. There is a high loss to the community through traffic crashes involving impaired drivers. The cost to the community is not only in the disruption of family life, but also in the use of community resources such as police, courts, jails and social service agency resources. Objectives for smoking during pregnancy are reported under the low birth weight objectives.

ANALYSIS

The major outcome indicators of excessive alcohol use are mortality from cirrhosis of the liver and automobile crash injuries and fatalities involving alcohol. Cirrhosis mortality dropped from 1996 to 1999 but has remained mostly level since then. The fall in motor vehicle injuries fatalities might be attributed to stricter DUI enforcement with a rise in convictions between 1996 and 1999. Since 1999, both DUI convictions and alcohol-related injuries have steadily decreased. Drunk-driving

media campaigns and safer vehicles may have been contributing factors for this decrease since binge drinking among adults showed a small increase since 1999. While chronic alcohol use has increased slightly, there has been a decrease in binge drinking.

Tobacco use among adults has decreased but still remains very high. There was a significant decrease in establishments selling tobacco products to minors.

Indicators: Substance Abuse	1993	1994 1996	1997 1999	2000 2002	2003 2005	MHP Goal	Current Status
Cirrhosis and liver disease mortality [5]	10.8	11.2	8.8	8.3	8.3	< 6.0 (-45%)	-23.0%
Motor vehicle injury/mortality with alcohol [7b]		112.2	95.7	88.4	74.6	No MHP goal	-33.6%
DUI convictions [7a]	710.0	681.7	878.6	835.3	698.3	No MHP goal	-1.6%
Arrests for drug use [7a]		4.84	7.47	10.04	10.04	<4.11 (-15%)	+107.6%
Chronic alcohol use [2]	5.2		3.4	5.0	5.5	<4.7 (-10%)	+5.8%
Acute alcohol use (binge drinking) adults [2]	16.9		15.2	13.7	14.0	15.2 (-10%)	17.2%
Tobacco use age > 18 [2]	34.6		26.3	27.3	26.2	22.4 (-15%)	-24.3%
Percent of adults who smoke daily [14]			47.4	45.1	42.9	37.9 (-20%)	-9.7%
Illegal tobacco sales to age < 18 [15]			15.7	13.4	0.9	No MHP goal	-94.3%

[5] Rate per 100,000 (1993-2003)

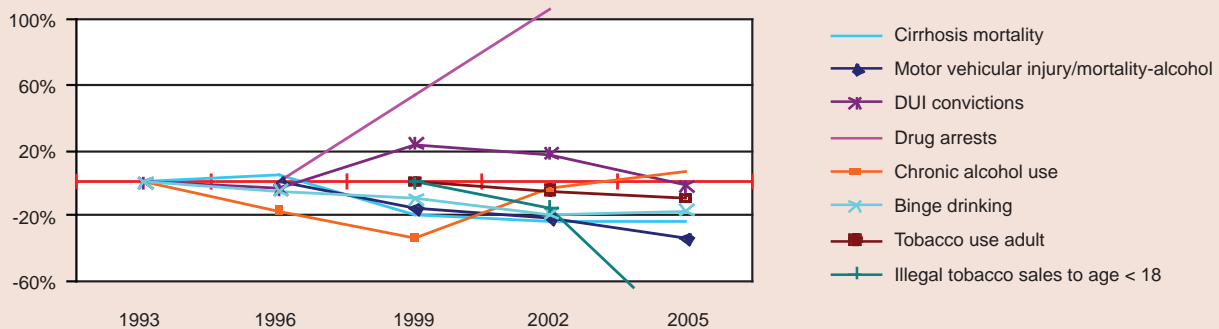
[7a, 7b] Rate per 1,000 population (1995-2005)

[2] Percent adult population (1997-1999, 2000-2002, 2003) Area Development District only

[14] Percent adult population (1999, 2002, 2005) Boone, Campbell, Kenton only 1999 and 2002

[15] Percent sales per attempt to buy (1997-2003)

SUBSTANCE ABUSE



Lifestyle and Environment: Outdoor Air Quality (1999)

While it is difficult to directly link air quality to specific health outcomes, it is known that ozone can trigger asthma attacks and cause respiratory distress in high-risk groups. Chronic obstructive pulmonary disease (COPD) is also correlated with poor air quality. Northern Kentucky (Boone, Campbell and Kenton counties) has been designated as a federal EPA non-attainment area of the 1990 Clean Air Act for ozone. The standard for ozone has recently changed from the eight-hour standard to the one-hour standard.

ANALYSIS

While the air quality using the older eight-hour standard has decreased, the new one-hour standard has shown an increase in the amount of ozone present during the summer months. This is closely related to the average daily vehicle miles driven since automobiles and trucks are a major contributor to ozone levels. While a 1.8 percent increase in vehicle miles driven does not seem like a lot, this amounts to more than 73 million miles a year or about 3.5 million additional gallons of gasoline burned each year (at 20 miles per gallon).

Both COPD and asthma are exacerbated by poor air quality. COPD mortality and prevalence have decreased while asthma had a dramatic increase in prevalence between 1999 and 2002 on the Greater Cincinnati Community Health Status Survey [14].

Tobacco use and indoor air quality also have an impact on asthma and COPD. A recent study has linked particulate matter (PM10) especially from diesel exhaust and power plants as a trigger for blood clots and heart attacks. PM10 levels have been decreasing since 1996 but remain high near interstate highways.

Indicator	1993	1994 1996	1997 1999	2000 2002	2003 2005	MHP Goal	Current Status
COPD mortality [5]			44.6	43.9	43.0	<35.7 (-20%)	-3.6%
Air quality 8-hour ozone [12]		0.086	0.088	0.090	0.080	<0.064 (-25%)	-7.4%
Air quality 1-hour ozone [12]		0.087	0.096	0.110	0.109	<0.065 (-25%)	+25.2%
Air quality particulates (PM10) [12]			0.059	0.054	0.057	0.047	-20.8%
Daily vehicle miles driven (x 1,000) [8]				11,177	11,235	No MHP goal	+1.8%
COPD prevalence [14]			5.2	5.7	4.6	<4.2 (-20%)	-11.2%
Asthma prevalence [14]			8.8	13.0	13.0	<7.0 (-20%)	+47.9%

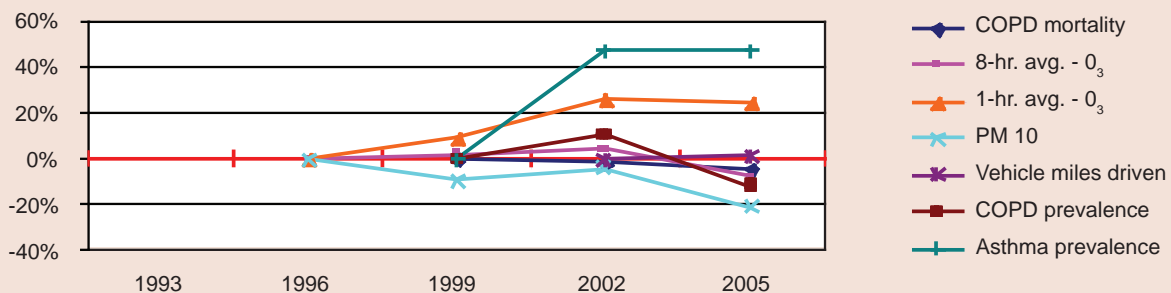
[5] Rate per 100,000 population (1997-2003, definition changed in 1997)

[12] Average daily ppm (1996-2005)

[8] Average daily miles driven times 1,000 (2000-2005, method for estimating daily miles changed in 1999)

[14] Percent adult population (1999, 2002, 2005) Boone, Campbell, Kenton only 1999 and 2002

OUTDOOR AIR QUALITY



Lifestyle and Environment: Surface Water Quality (1999)

Surface water is any water that flows into ponds, lakes, creeks or streams. This is different from groundwater, which is under the ground in the aquifer. Either of these water sources may be a source for drinking water. Surface water may also become a source for groundwater; and groundwater becomes surface water, as in springs. The life cycle of water and water use is very complex. There is little local data in a format suitable for this report.

A variety of diseases and health conditions can be associated with contact with contaminated surface water. Many of these conditions are not reportable diseases and thus remain largely unknown. Most of the reportable water-borne illnesses can also be attributed to

food contamination, swimming pools, drinking water and other sources.

ANALYSIS

The available data is insufficient for reaching any conclusions about surface water quality in Northern Kentucky. The main outcome objective is to reduce the cases of water-borne illness and toxic exposure due to contact with or ingestion of contaminated surface water. Reported water-borne illnesses peaked in 2002 due to a large shigellosis outbreak in 2001 and remained high due to a cryptosporidium outbreak in 2005. While most water-borne illnesses are reportable, they often go unreported due to a lack of laboratory testing to confirm diagnosis. In addition, these diseases can be transmitted through

means other than contact with surface water, such as swimming pools and poor hand washing.

Testing the Ohio River is the most consistent indicator, but the site near the Anderson Ferry measures contamination from Ohio and Kentucky and misses Boone and Grant counties entirely. These measures are also highly variable due to weather conditions at the time measure is taken. The river had shown a steady decline in bacteria counts through 2001 but shows a slight increase since 2002. Northern Kentucky has many miles of impaired streams and rivers but sampling frequency makes it difficult to compare designations over time to indicate the level of improvement.

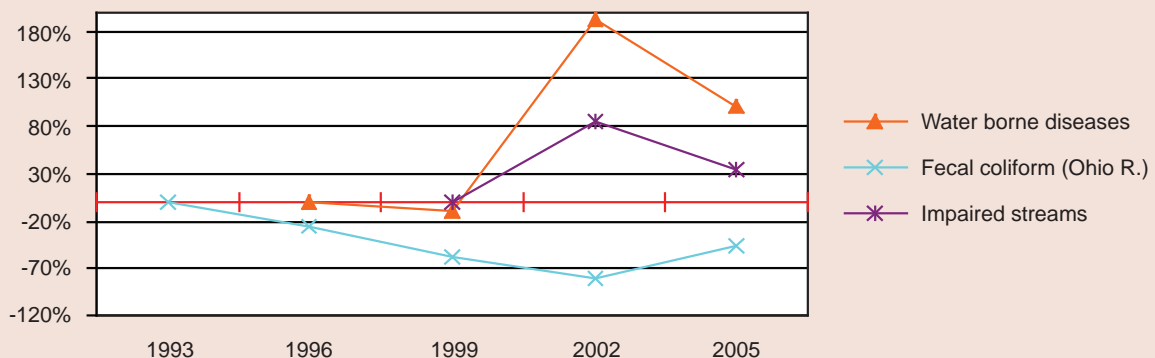
Indicators: Surface Water Quality	1993	1994 1996	1997 1999	2000 2002	2003 2005	MHP Goal	Current Status
Water-borne illness [4]		16.6	14.9	48.5	33.3	<8.3 (-50%)	+100.6%
Bacteria count, Ohio River [11]	569	417	239	111	301	No MHP goal	-47.1%
Impaired streams (miles) [6]			140	257	186	No MHP goal	+33.4%

[4] Water-borne illnesses: Campylobacter, cryptosporidium, hepatitis A, E. coli O157H7 and shigellosis. Data includes a shigellosis outbreak in 2001 and cryptosporidium outbreak in 2005. Rate/100,000 population (1998-2004)

[11] Average monthly geometric mean fecal coliform #/100mL (1992-2005; only May and June samples were recorded in 2005). Only samples from mile 477.5 at the Boone and Kenton County line were used

[6] Integrated Report to Congress on Water Quality, formerly 305(b) and 303(d) Reports (1996, 1998, 2000, 2002, 2004, 2006)

SURFACE WATER QUALITY



Access to Health Services: Health and Well-Being (1996 and 2003)

Enjoying generally good health and well-being was strongly linked in the Community Health Plan 1996 to access to primary health care. In the Public Health System Improvement Plan 2003 access was expanded to include the Northern Kentucky Community Action Commission's White Paper on Poverty in Northern Kentucky as it related to access to health care. Primary care is defined as family practice, general practice and internal medicine physicians. Ob/Gyn and pediatrics are considered as subspecialties. The Master Health Plan goal is for 95 percent of

Northern Kentucky residents to have a specified source of ongoing care.

ANALYSIS

Those reporting having a regular primary care provider or medical home where they get their preventive and episodic health care improved slightly between 1999 and 2002 but dropped below the 1999 level in 2005. This may be related to the dramatic increase of those reporting not having medical insurance. This trend could keep some from getting regular preventive care or waiting longer to have health problems

diagnosed. Delays could have consequences related to severity of illness before treatment is begun.

Reports on emergency room usage have remained unchanged. The Master Health Plan objective was to reduce inappropriate emergency room usage but this data is unavailable. The increase of those without a medical home and those without health insurance may impact the number of inappropriate emergency room visits.

Indicators: Access-Health & Well-being	1993	1994 1996	1997 1999	2000 2002	2003 2005	MHP Goal	Current Status
Population with medical home [14]			87.8	90.6	85.1	>95.0 (+8.2%)	-3.2%
Use of emergency room* [3]			484.4	493.1	485.3	No MHP goal	+0.2%
ARNP employed [1]				129	83	>0 (+100%)	+100%
Population per provider**[10]	1,348			971	1,107	<1,348 (-0.0%)	-21.4%
No health insurance [14]			6.2	7.2	13.5	<6.2 (-0.0%)	+118.9%

[14] Percent adult population (1999, 2002, 2005) Boone, Campbell, Kenton only 1999 and 2002

[3] Admissions per 1,000 population (1999-2004)

[1] Unpublished data (2002-2005)

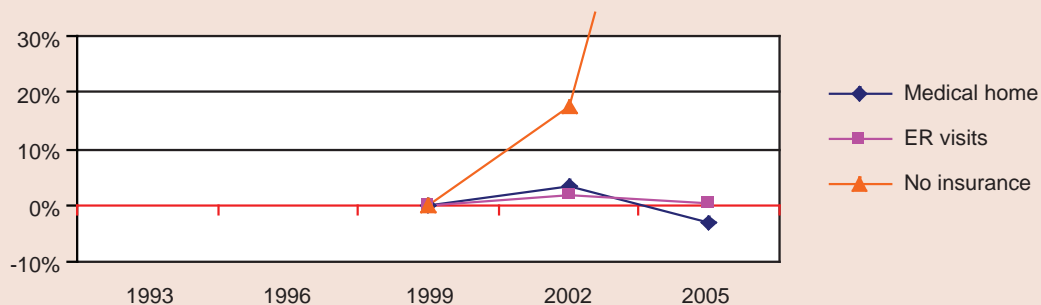
[10] Unpublished Health Department data from various sources (1993, 2000, 2005)

* MHP goal is to reduce inappropriate visits to hospital emergency rooms. Data available is for all emergency room visits

**Includes: family practice, general practice, Ob/Gyn and pediatrics

Note: Parts of Campbell County have been designated as Health Professional Shortage Areas for primary medical care [13]

ACCESS TO MEDICAL CARE



Access to Health Services: Mental Health and Depression (2003)

The United Way Healthy People Vision Council, through its Behavioral Health Initiative, identified access to mental health and substance abuse services as a priority need in Northern Kentucky. The Health Improvement Collaborative of Greater Cincinnati identified depression as a priority issue for the Greater Cincinnati region. The Community Health Plan 1999 identified mental health as a primary factor in the diagnosis and treatment of heart disease, cancer and diabetes. The Northern Kentucky Regional Planning Council¹ focuses on access to mental health and substance abuse services.

The Depression Project, an initiative of the Health Improvement Collaborative

of Greater Cincinnati, was successfully transitioned to the Mental Health Awareness Committee, a regional partnership of several agencies co-facilitated by the Mental Health Association of Northern Kentucky and NorthKey Community Care. Under the Health Improvement Collaborative, the project worked to significantly improve the early detection and treatment of adult depression. In addition, the task force focused on education of employers, the community and physicians.

¹ The Northern Kentucky Regional Planning Council was established in compliance with the requirements of House Bill 843 in the Kentucky Legislature. HB 843 was signed into law by Gov. Patton in 2000.

ANALYSIS

Hospital inpatient and admissions for acute psychiatric conditions have not changed significantly since 1999. Suicide mortality changed little from 1993 until 2000. There was a small decrease in 2001 and 2002 but a dramatic increase in 2003. It is too soon to tell if this upturn is a trend or an annual anomaly, as 2003 is the latest year available from vital statistics. Reported depression on the Greater Cincinnati Health Status Survey follows this same trend. Those reporting experiencing difficulty performing tasks due to emotional problems increased in 2002 but nearly returned to the 1999 level in 2005.

Indicators: Mental Health & Depression	1993	1994 1996	1997 1999	2000 2002	2003 2005	MHP Goal	Current Status
Suicide mortality [5]	11.8	11.9	12.0	10.7	13.0	<11.8 (-0.0%)	+10.8%
Diagnosed depression [14]			14.5	13.0	20.1	No MHP goal	+38.4%
Experienced emotional problems [14]			6.7	10.9	7.3	No MHP goal	+9.0%
Psychiatric inpatient [3]			9.9	9.6	10.3	No MHP goal	+4.0%
Psychiatric acute admissions [3]			112.8	115.7	113.0	No MHP goal	+0.2%

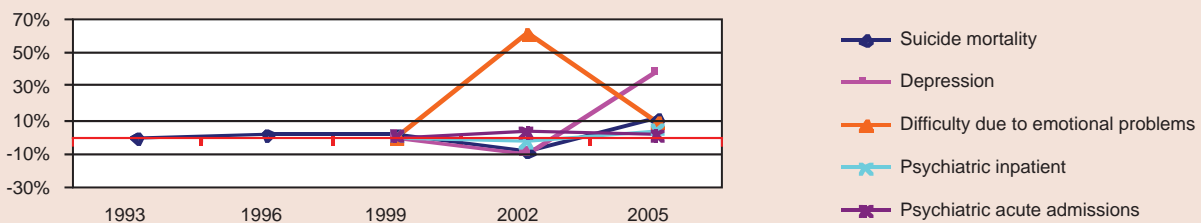
[5] Rate per 100,000 population (1993-2003)

[14] Percent adult population (1999, 2002, 2005) Boone, Campbell, Kenton only 1999 and 2002

[3] Hospital admissions per 1,000 population (1999-2004)

Note: Parts of Boone, Campbell, Grant and Kenton counties have been designated as Health Professional Shortage Areas for mental health care [13]

MENTAL HEALTH AND DEPRESSION



Access to Health Services: Oral and Dental Health (2003)

A regional approach was selected for the United Way Healthy People Vision Council's Regional Assessment and Planning Project to encompass the service areas of the United Way of Greater Cincinnati. A regional approach minimizes duplication and fragmentation, and takes advantage of a common transportation and media market. The target populations for this effort are vulnerable populations who have difficulty with access to oral health services.

Access to dental and oral health services, especially for children, the elderly, special populations and those living near poverty is critical for a healthy community. Many visits to area emergency rooms are for oral and dental health problems that could have been easily treated at a dental office if regular dental check-ups were available. Many, even with good health insurance, lack dental coverage. In addition, oral health often has a low priority in the community.

ANALYSIS

There are too few oral health indicators to accurately illustrate a trend. While oral cancer mortality is on the rise, the total number of cases is too small to reflect a statistical trend. Adult visits to the dentist within one year of the survey increased from the 1999 survey to the 2002 survey but remained the same for 2005. Other indicators listed were one-time studies that may or may not be repeated. Additional indicators may need to be developed to track these objectives.

Indicators: Oral and Dental Health	1993	1994 1996	1997 1999	2000 2002	2003 2005	MHP Goal	Current Status
Adults with no tooth loss [17]				59.0		>65.5 (+11%)	na
Sealants 3rd and 6th grades [18]				30.1		>39.1 (+30%)	na
Untreated decay 3rd and 6th grades [18]				30.6		<28.5 (-7.0%)	na
Adult visit to dentist last year [14]			60.9	71.6	70.1	>68.2 (+12%)	+15.2%
Oral cancer mortality [5, 16]	2.2	3.5	4.2	2.9	3.9	<1.9 (-15%)	+74.5%

[17] Percent of adult population multi-county Northern Kentucky region (2002)

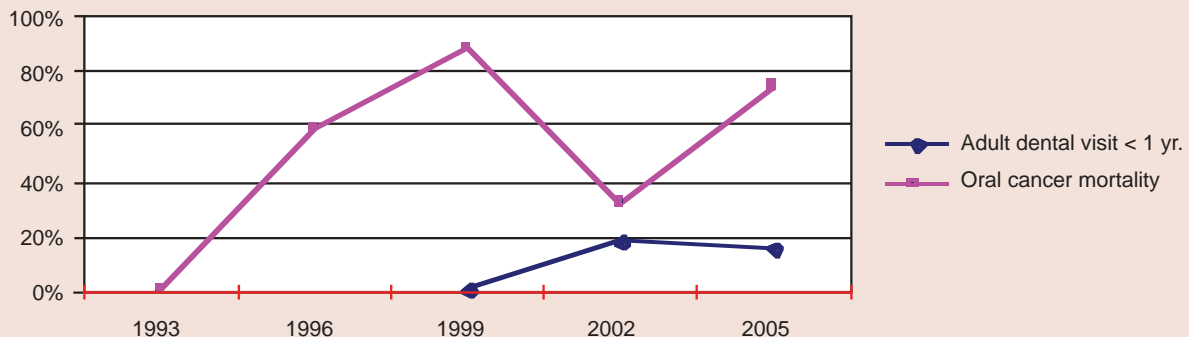
[18] Percent children age < 18, multi-county Northern Kentucky region (2001)

[14] Percent adult population (1999, 2002, 2005) Boone, Campbell, Kenton only 1999 and 2002

[5, 16] Rate per 100,000 population; [5] (1993-2003), [16] (2004)

Note: Parts of Campbell County have been designated as Health Professional Shortage Areas for dental health care [13]

ORAL HEALTH INDICATORS



Access to Health Services: Childhood Immunizations (1996)

This community health problem was identified as a lack of immunizations for preventable diseases. The problem was defined by the subcommittee as, “Incidence of preventable childhood diseases including: diphtheria, tetanus, pertussis, polio-myelitis, mumps, measles, rubella, hemophilus influenza type B, hepatitis B, and varicella.”

The current number of reported cases of childhood preventable diseases is, in fact, very low. The problem is the high number of children who have not received all of the recommended immunizations by age 2. When immunization rates are high, the potential for transmitting diseases to others is greatly

reduced. While any cases of preventable diseases are undesirable, it is noted that sporadic cases may occur despite the best immunization rates. The key concern is the spread of the disease to large populations.

ANALYSIS

The downward trend for preventable childhood diseases mirrors the increased percentage of children who have received all of the recommended immunizations by age 2. While the goal of no reported cases of childhood diseases is not totally realistic since there will always be sporadic cases, keeping the number of immunized children greater than 90 percent of

2-year-olds will prevent these cases from spreading and becoming an outbreak.

Increases in the percentage of children without vaccinations in the early 1990’s have leveled out at near 80 percent since 1997 and fell slightly in 2002 to 79 percent from a high of 84 percent in 2001. While the goals have not been achieved, there has been progress since this objective was identified in 1996. All Kentucky children (with a few exceptions) are required to have up-to-date immunizations before entering kindergarten. Licensed day care centers are also required to have copies of up-to-date immunizations records for admission.

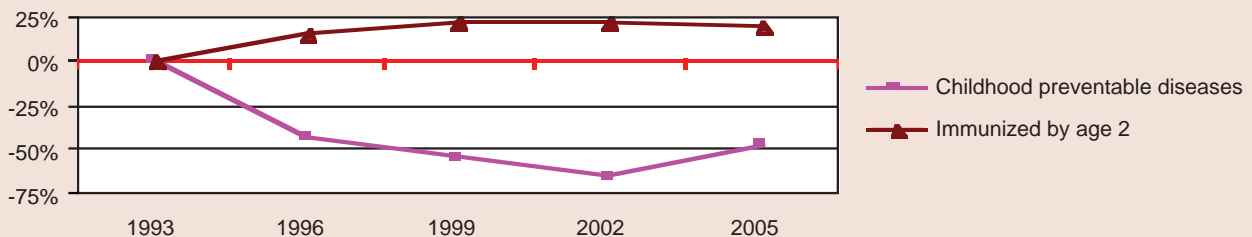
Indicators: Childhood Immunizations	1992 1993	1994 1996	1997 1999	2000 2002	2003 2005	MHP Goal	Current Status
Childhood preventable diseases* [4, 10]	16.1	5.5	5.2	4.3	7.3	0.0 (-100%)	-47.0%
Children immunized age 2 (percent) [10]	66	77	81	82	79	>90 (+36.4%)	+19.7%

[4] Rate per 100,000 age < 18 (1998-2004), [10] unpublished Health Department data (1992, 1996)

[10] Unpublished Health Department retrospective survey of kindergarten records for; 4 DTaP, 3 polio, 1 MMR (1993, 1996-2003)

*Childhood diseases include: Haemophilus, influenza B, hepatitis B, measles, rubella, pertussis and mumps

CHILDHOOD IMMUNIZATIONS



Access to Health Services: Adult Immunizations (2003)

Vaccines are among the greatest public health achievements of the 20th century. Immunizations can prevent disability and death from infectious diseases for individuals and can help control the spread of infections within communities. Recommended immunizations for adults aged 65 years and older include a yearly immunization against influenza (the “flu shot”) and a one-time immunization against pneumococcal disease.

The Adult Immunization Task Force was established by the Health Improvement Collaborative of Greater Cincinnati in 1998 to increase the number of adults, especially in high risk categories,

who receive the flu shot each year. The project was chosen because of its impact on the overall health of the community and the relatively fast turn around time for results. Partners in the project included physicians, health departments and private vendors delivering shots at employer and retail sites, hospitals, long-term care facilities and senior centers.

ANALYSIS

Mortality rates for influenza and pneumonia have been decreasing for the last 10 years. The data available for the rate of influenza and pneumonia immunizations is incomplete and inconclusive.

Survey data seems to indicate that immunizations rose between 1999 and 2002 but this question was not asked in the 2005 survey. Data for pneumonia immunizations over age 65 is even more inconclusive. Data from the Kentucky Behavioral Risk Factor Surveillance System is only for a few years and is only available for the eight-county Area Development District. The existing data shows a slight decrease in the number reporting having had a pneumonia immunization.

Availability of influenza vaccine over the last few years may have influenced the number seeking the vaccine.

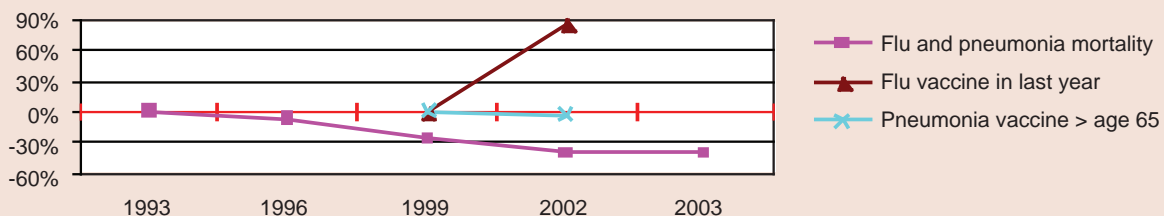
Indicators: Vaccine Preventable Diseases	1993	1994 1996	1997 1999	2000 2002	2003 2005	MHP Goal	Current Status
Influenza and pneumonia mortality [5]	32.4	30.1	23.9	19.2	19.1	<33.1(-0.0%)	-41.0%
Influenza immunization (annual) [14]			17.9	33.5		>17.9 (+0.0%)	+87.2%
Pneumonia immunization age > 65 [2]			58.0	56.7		>58.0 (+0.0%)	-2.2%

[5] Rate per 100,000 (1993-2003)

[14] Percent adult population (1999, 2002), Boone, Campbell, Kenton counties only

[2] Percent adult population age > 65 (1997-1999, 2001) Area Development District

ADULT IMMUNIZATIONS



Data Sources

NOTES ON DATA

Where possible, three-year averages are used with 1993 as the baseline. If unavailable, closest year data or two-year averages were used. All calculations were rounded to one decimal place. For comparison (graphs), all data was calculated as a percent of change from the first available year to the last available year. Color codes rating progress were assigned using qualitative judgment rather than a statistically calculated measure of significance.

POPULATION DATA

University of Louisville, Kentucky State Data Center: <http://ksdc.louisville.edu/kpr/popest/est.htm>

Kentucky Cabinet for Health and Family Services, Department for Public Health, Division of Epidemiology and Health Planning: <http://chfs.ky.gov/dph/vital/vitalstats.htm>

DATA FOR IDENTIFIED INDICATORS

Kentucky Board of Nursing

[1] Unpublished data: <http://kbn.ky.gov/>

Kentucky Cabinet for Health and Family Services

[2] Department for Public Health, Division of Epidemiology and Health Planning, Behavioral Risk Factor Surveillance System (BRFSS) 1994-1996, 1997-1999, 2000, 2001, 2002, 2003: <http://chfs.ky.gov/dph/epi/brfss.htm>

[3] Hospital Utilization Report 1999 – 2004: <http://chfs.ky.gov/dph/surv.htm>

[4] Reportable Diseases 1998-2004 (online reports) 1993-1997 (published documents): <http://chfs.ky.gov/dph/epi/rd5yr.htm>

[5] Vital Statistics Report 1998 - 2003 (online reports), Annual Vital Statistics Report 1993 - 1997 (published documents): <http://chfs.ky.gov/dph/vital/vitalstats.htm>

Kentucky Environmental and Public Protection Cabinet

[6] Division of Water: <http://www.water.ky.gov/sw/swmonitor/305b/default.htm>

Kentucky State Police

[7] Kentucky State Police Annual Reports 1995-2006, <http://www.kentuckystatepolice.org/data.htm>

[7a] Crime in Kentucky Annual Reports 1995-2006 (each report has five years data)

[7b] Traffic Collisions in Kentucky Annual Reports 1995-2006

Kentucky Transportation Cabinet

[8] Division of Planning, Unpublished Reports 1999-2005: http://www.planning.kytc.ky.gov/data_reports.asp

Kentucky Youth Advocates

[9] KIDS COUNT County Data Book (2006), the Annie E. Casey Foundation: http://www.kyouth.org/KIDS_COUNT/State/

[9a] University of Louisville, Kentucky State Data Center, KIDS COUNT County Data Book (1995-2005): <http://ksdc.louisville.edu/kpr/kidscount/KidsCount.htm>

Northern Kentucky Health Department

[10] Unpublished data: <http://www.nkyhealth.org>

Ohio River Valley Water Sanitation Commission (ORANSCO)

[11] Ohio River bacteria count data 1992-2005: <http://www.orsanco.org/data/datafiles/bacteria/default.asp>

United States Environmental Protection Agency

[12] Office of Air and Radiation: <http://www.epa.gov/air/data/reports.html>

United States Department of Health and Human Services

[13] Health Resources Service Administration (HRSA), <http://bhpr.hrsa.gov/shortage/>

University of Cincinnati

[14] Online Statistical and Information System, Greater Cincinnati Community Health Status Survey 1999, 2002 and 2005, The Health Foundation of Greater Cincinnati: http://www.oasis.uc.edu/OASIS_CODE/Templates/Login.cfm

University of Kentucky

[15] Kentucky Tobacco Research Program: <http://www.mc.uky.edu/tobaccopolicy/KentuckyDataReports/Pregnancy/pregnancy1996-2000.htm>

[16] College of Nursing, Kentucky Cancer Registry, CANCER-RATES.INFO: <http://cancer-rates.info/ky/index.html>

University of Louisville

[17] School of Dentistry for Kentucky Cabinet for Health and Family Services, Office of Oral Health of the Department for Public Health, Kentucky Adult Oral Health Survey 2002:

<http://chfs.ky.gov/NR/rdonlyres/F3509D88-532D-4E82-B04E-31DA874A890C/0/2002AdultOralHealthSurveyExecutiveSummary.pdf>

[18] Kentucky Children's Oral Health

Profile 2001: http://chfs.ky.gov/NR/rdonlyres/A1066BC6-7BCE-4F12-BA3A-1D568AF3FCDB/0/KCOHSRegionalprofiles_01.pdf

COMMUNITY ASSESSMENT AND PLANNING PROCESSES

National Association of County and City Health Officials (NACCHO), <http://www.naccho.org/>

Assessment Protocol for Community Excellence in Public Health (APEX-PH, 1991) <http://www.naccho.org/topics/infrastructure/APEXPH.cfm>

Protocol for Assessing Excellence in Environmental Health (PACE-EH, 2000) <http://www.naccho.org/topics/environmental/CEHA.cfm>

Mobilizing for Action through Planning and Partnerships (MAPP, 2001) <http://www.naccho.org/topics/infrastructure/MAPP.cfm>

Disclaimer: The purpose of this report is to evaluate the effectiveness of community efforts to improve the health status of Northern Kentucky. Most of the data has been copied and reformatted to provide a picture of the health status indicators in a consistent format. While every effort has been made to assure the accuracy of the data provided, mistakes inevitably will be made. All data should be verified against the original source before publication or policy decisions are made based on the data provided. Indicators are rounded to one decimal place. Status percentage is based on actual numbers and may be different from calculations based on the rounded numbers presented in the tables.

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