Kentucky Rural Health Plan

Medicare Rural Hospital Flexibility Program
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SUMMARY

This revised Kentucky Rural Health Plan presents a demographic and system-wide context for considering the role of small rural hospitals in addressing the healthcare needs in Kentucky. The basic purpose of the plan revision is to strategically identify how flex funding will be used in future years. This plan is the basis for long term perspective and its success will be measured by continuous improvement in services and positive patient outcomes in rural Kentucky. This plan is also intended to serve as a guide to other organizations in the state since no single organization can carry-out these activities alone. Hopefully, this plan will serve as a call to action and other groups will become involved to address the issues identified in this plan.

This plan was complied in large part from existing information already available and is not all-inclusive of the rural health care issues in Kentucky. The Kentucky Office of Rural Health and its partners will design and implement an on-going evaluation of this plan to keep it current based on needs of rural communities.

The findings and conclusions presented herein are those of the workgroup and do not necessarily reflect the views and opinions of others.

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I. Introduction and Purpose

The Medicare Rural Hospital Flexibility Grant Program was authorized by Section 4201 of the Balanced Budget Act (BBA) of 1997, (Public Law 105-33) and was reauthorized by Section 405 of the Medicare Prescription Drug Improvement and Modernization Act (MMA) of 2003, (Public Law 108-173). The Medicare Rural Hospital Flexibility Grant Program was created in 1997 in response to the financial distress of rural hospitals. A major requirement for participation in the Flex Program was the creation of a state rural health plan.

Kentucky is a diverse state that can be seen in terms of the landscape, distribution of population in rural and urban, levels of education, socioeconomic factors and health. Given this diverse nature and the importance placed on locality, efforts to address healthcare must begin with the citizens, providers and policymakers in the communities where they live, work, and participate in the healthcare system. In response to the pressing health needs in Kentucky's rural areas and a requirement from the U.S. Department of Health and Human Services (HHS), Health Resources and Services Administration (HRSA), Office of Rural Health Policy (ORHP) that all states should revise their State Rural Health Plan, Kentucky embarked on a revision process. The revised plan would urge the Flex Program to expand their focus beyond conversion activities and would serve as a roadmap toward using grant funds to provide support to Critical Access Hospitals (CAHs), CAH eligible's and the communities they serve in a strategic fashion.

The purpose of this revised Kentucky Rural Health Plan is to build on the original plan by utilizing a report from the Kentucky Institute of Medicine The Health of Kentucky to identify and address critical health issues and to lend urgency, direction, and purpose to planning and action designed to confront those issues of the highest priority. The report provides citizens at the county level with the needed information, knowledge and methodologies to make better health related decisions, tailor policies to meet their particular needs, and engage elected officials in an informed debate over health policy.

II. State Profile

A. Description of the State

Kentucky is a very diverse state. The diversity can be seen in terms of the landscape, the distribution of population in rural and urban areas, levels of education, socioeconomic factors, and health status.

Kentucky is located in the south central part of the United States along the west side of the Appalachian Mountains. The area of the state is 40,411 square miles which makes it the 37th largest of the 50 states. The state is bordered by seven states: Illinois, Indiana, and Ohio in the north; on the south by Tennessee, West Virginia and Virginia on the east, and Missouri on the west.

The geography of Kentucky is composed of five distinct geographic regions. In the eastern part of the state, the Cumberland Plateau region consists of mountains, plateaus, and valleys. In the northern central part of the state, lies the Bluegrass Region. It is bordered in Kentucky on the north and west by the Ohio River. This area is characterized by rolling meadows and by sandstone knobs. In the western part of the state, the Western Coal Field is comprised of less rugged mountains enclosed by the Mississippi Plateau. It is known as the Western Coal Field because of its large coal deposits. The Pennyroyal region or Pennyrile stretches along the southern border of Kentucky from the Appalachian Plateau west all the way to the Kentucky Lake. The southern part of this region is characterized by flat lands with some rolling hills with a center treeless area called The Barrens. In the northern part of this section there are rocky ridges with underground caves and tunnels. The southwest corner of the state, called the Jackson Purchase is characterized by flood plains and low hills.

Six hundred and seventy nine square miles of Kentucky are covered by water. The major rivers are the Cumberland River, Green River, Kentucky River, Mississippi River, and Ohio River. The major lakes are Kentucky Lake, Lake Barkley, and Lake Cumberland.

Source: http://www.netstate.com/states/geography/ky_geography.htm

B. Description of Rural Kentucky

Kentucky is the 10th most rural state in the nation. The main industries in rural Kentucky are coal, timber and tobacco. The area is rich in natural resources but lacks the physical and social infrastructures that are necessary for economic growth. Many of the promising young adults are leaving for college or work and not returning to their home. Manufacturing firms which once supplied a large number of jobs are leaving and moving to cheaper land with cheaper labor. The landscape of the agricultural sector has changed recently with the tobacco buyout. In addition, a number of farms are lost because of a lack of family interest or the land is lost to development. There is a lack of health care accessibility and affordability in many of the rural areas. A shortage of doctors and health care facilities in some of the rural parts of the state drives many of the health access problems. In addition, with medical costs increasing many small businesses owners and farmers find it difficult to pay for health insurance.

C. Population Distribution and Demographics

1. Population

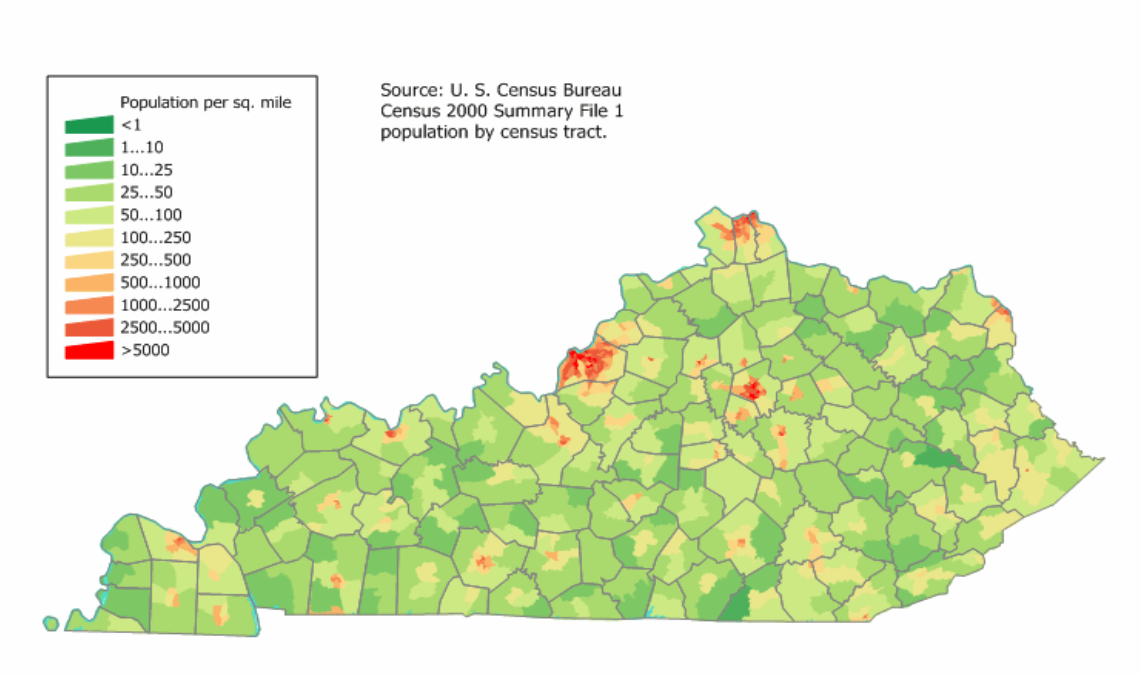
According to the estimates for 2007, Kentucky's population was 4,241,474, up 4.9 percent from the 2000 Census. At the national level, population increased 7.2 percent from the 2000 Census.

In Kentucky, according to estimates for the year 2007, 57.3 percent of residents live in urban areas and 42.7 percent live in rural areas. These numbers reflect a small increase in the population living in urban areas compared to the 1990s, when 56.2 percent of Kentucky's residents lived in urban areas and 43.8 percent in rural areas. Nationally, 83.4 percent of residents live in urban areas and 16.6 percent live in rural areas.

Table 1 Kentucky Population

Year	Rural	Urban	Total
1980	1,672,223	1,988,101	3,660,324
1990	1,645,442	2,039,854	3,685,296
2000	1,769,275	2,272,494	4,041,769
2007 (latest estimates)	1,811,654	2,429,820	4,241,474

Source: State Fact Sheets: Kentucky, ERS, USDA



The population growth in Kentucky's metropolitan areas outpaced the growth in the nonmetropolitan areas since the 1990's. During the 1990s, 14 counties lost population, one metro and 13 non metro counties (RUPRI, Demographic Economic Profile, Kentucky, 2006). During the period 2000-2007, 35 counties lost population, three metro and 32 non-metro counties. Since the 1990s the fastest growing county has been Spencer County in the Louisville-Jefferson County Metropolitan Area, with an increase of 73.0 percent during the 1990s and 43.1 percent from 2000 to 2007.

2. Race

As shown in table 2, the large majority of the population in Kentucky is Caucasian, followed by African American and Hispanics. The metropolitan population in the state is 86.5 percent Caucasian and 10.7 percent African American. The micropolitan population is 93.9 percent white and 4.5 percent African American[1]. Although many counties in the

[1] An area with a population of 50,000 or more is called a metropolitan area and an area with a population between 10,000 and 49,999 people is called a micropolitan area.

state have experienced significant increases in the Hispanic population over the past decade and a half (in all but 19 counties in Kentucky the Hispanic population more than doubled during the 1990s), these numbers still represent small share of the total population. In 2006, 1.9% of Kentucky's population is Hispanic compared to 14.1% at the national level.

Table 2. Kentucky Composition of Population by Race/Ethnicity

Race/Ethnicity	Kentucky	US
White	90.4%	80.4%
African American	7.5%	12.8%
Hispanic	1.9%	14.1%

Source: http://www.rupri.org/Forms/Kentucky.pdf

3. Age

Table 3. Demographic projection by age cohort

Age	% of total 2000 Population	% of total 2010 Population Projection	% of total 2030 Population Projection
Kentucky			
Under 18	24.6	23.5	22.6
65 and older	12.5	13.1	19.8
United States			
Under 18	25.7	24.1	23.6
65 and older	12.4	13.0	19.7

Source: 2000 US Census Bureau

The percent of the population in the 25 to 44 age groups is greater in the metro areas, while the percent of population age 55 and over is greater in non-metro areas. Table 3 provides a demographic projection by age. According to the US Census Bureau the percentage of people under 18 will likely decrease and the percentage of people 65 and older will increase in the next twenty two years both in Kentucky and at the national level. Seventy-nine of Kentucky's counties have a percentage of elderly population above the national average. This trend is expected to continue in rural areas. The health implications associated with an older population requires immediate attention.

D. Economy

The economy of Kentucky varies noticeably across counties and regions. In contrast to the generally prosperous Bluegrass area and the growing industrial cities, Eastern Appalachian Kentucky, which has been highly dependent on tobacco and coal mining, has long been one of the poorest regions in the US. In eastern Kentucky personal income is much lower, and unemployment rates higher, than in the rest of the state. Jefferson, Fayette, Boone, and Kenton counties accounted for 45% of Kentucky's GDP (Gross Domestic Product) and 29% of the population of the state. Jefferson county and Fayette county generated 37.4% of Kentucky's economy and combined for 23.1% of its population. Menifee, Carlisle, Hickman, Owsley and Robertson counties, which are the bottom five counties in terms to their contribution to the economy, accounted for only 0.2% of Kentucky's total GDP and 0.57% of the state's population.

In terms of their contribution to the total Gross State Product, the three primary industrial sectors in 2006 were manufacturing, government, and real estate, rental, and leasing sectors. Manufacturing is the largest industrial sector in the state, the most important sector as a source of both employment and income even though it has declined as a percentage of Kentucky's economy over the last few years. Manufacturing represented 27.8% of the total GDP in 1997 and 18.7% in 2006. Kentucky's GDP increased to $145.96 billion during 2006 up 5% from $138.6 billion in 2005.
Manufacture of transportation equipment is Kentucky's primary activity in this sector of the economy followed by the manufacture of chemicals, and in third place the manufacture of machinery.

Although agriculture contributes only around 2.0% to the GDP, it is still considered an important sector in Kentucky. In terms of the revenue generated by this sector, the top five agricultural products produced in Kentucky are horses/mules, broilers (young chickens), cattle and calve, tobacco, and soybeans.

Source: Kentucky Cabinet for Economic Development. Kentucky Economy

1. Income

   The economic status of a region has a profound impact on health and well-being of its population. In general, per-capita income levels are lower and poverty rates are higher in Kentucky as compared to the US. Additionally, rural areas have lower levels of per-capita income as compared to the urban areas and poverty rates are higher in the rural areas as compared to the urban areas.

   In 2006 the per capita personal income in the state of Kentucky was $29,729 compared to $36,714 at the national level. Per-capita income in 2006 dollars is higher in the urban areas than in the rural areas as can be seen in table 4. Additionally, from 2005 to 2006, the urban areas experienced a higher growth rate as compared to the rural areas.

   Only five Kentucky counties have per capita incomes above the national average.

In 2005, 16.9 percent of people in Kentucky lived in poverty status versus 13.3 at the national level. Poverty rates are higher in the rural areas as compared to the urban areas as seen in Table 4.

Table 4 Kentucky: Per-capita income and poverty rates

Per-capita income (2006 dollars)			
Year	Rural	Urban	Total
2005	$23,515	$33,676	$29,302
2006	$23,751	$34,219	$29,729
Percent change	1.0	1.6	1.5
Poverty rate			
1999	21.2%	11.6%	15.8%
2005 (latest model-based estimates)	22.0%	13.0%	16.9%

Source: United States Department of Agriculture Economic Research Service. State Fact Sheets. http://www.ers.usda.gov/StateFacts

The Economic Research Service considers counties as persistent poverty counties if they had experienced poverty rates of 20 percent or higher based on each Census from the year 1970 through 2000. In total, there are 386 persistent poverty counties in the US, 43 of them are located in rural Kentucky.

Source: RUPRI, Kentucky Demographic and Economic Profile, 2006.

2. Employment/Unemployment

The levels of employment/unemployment vary significantly within the state depending on the regional location. In general, Central and North Central Kentucky, which includes the cities of Louisville and Lexington and the metropolitan areas in the northern part of the state, have the lowest unemployment rates in the state.

The unemployment rate in 2007 was 5.5 percent down from 5.8 percent in the previous year. Nationally, the unemployment rate was 4.6 percent. Unemployment rates tend to be higher in rural areas as compared to the ones in urban areas and the percent of annual employment change also tends to be higher in urban areas as compared to the rural areas. For the same time period (2007) Jackson County had the highest unemployment rate (13.9%) and Woodford county, had the lowest (3.9%). Table 5 includes employment data and unemployment rates for the last few years comparing rural with urban areas.

Table 5. Kentucky: Employment

	Rural	Urban	Total
Total number of jobs			
2005	863,620	1,524,704	2,388,324
2006	876,606	1,556,295	2,432,901
Unemployment rate			
2006	6.5%	5.4%	5.8%
2007	6.2%	5.0%	5.5%

Source: United States Department of Agriculture Economic Research Service. State Fact Sheets. http://www.ers.usda.gov/StateFacts

In terms of the employment structure in the year 2004, government and government enterprises accounted for the largest shares of employment in Kentucky (14.9%) and the U.S. (13.9%). Manufacturing was the second largest sector in terms of employment in Kentucky.

Low employment counties, as defined by the Economic Research Service is one in which "less than 65 percent of residents 21-64 years old were employed in 2000." Forty seven counties are classified as low employment counties in Kentucky, three of them metro and 44 of them non-metro counties. The large majority of the low employment counties are located in the eastern part of the state.

Source: http://www.rupri.org/Forms/Kentucky.pdf

3. Uninsured Population

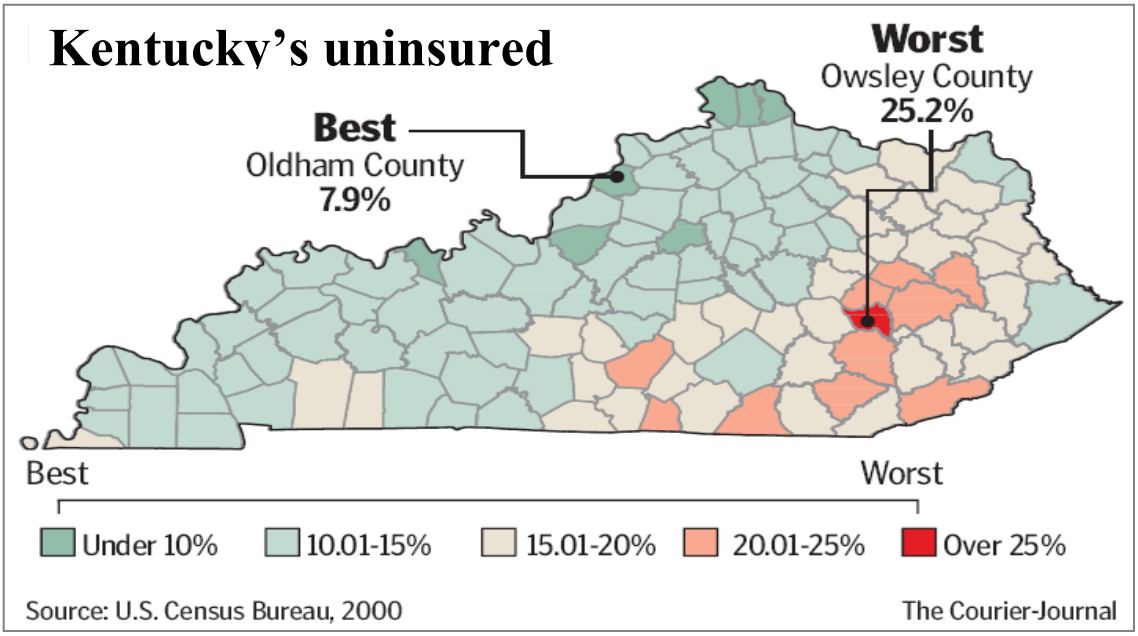
Among the most important problems in the United States is the lack of access to healthcare. According to the Institute of Medicine, because of the lack of health insurance around 18,000 people die unnecessarily every year.

During the period 2003-2005 approximately 86.4% of the population in Kentucky had health insurance, public or private. This percentage is higher than the national rate which is 83.4%. This is explained in part because of the higher than average Medicaid population. However, about 500,000 people in the state do not have any type of health insurance coverage. The uninsured population is less likely than the insured population to seek care when necessary. This means not having insurance is a significant risk factor for detection of diseases and their treatment. This problem is particularly problematic in rural Kentucky where uninsured rates are higher. Table 6 provides a breakdown of the counties with the highest proportion of the population without health insurance versus those counties with the smallest proportion of the population without health insurance.

Table 6 Rates of High and Low Uninsured Populations (2007)

Highest Uninsured Counties	Lowest Uninsured Counties
Owsley 25%	Oldham 7.9%
McCreary 24%	Hancock 8%
Clay 22%	Bullitt 9%
7 Counties 21%	Anderson 9%
	Boone 9%

Source: www.KentuckyHealthFacts.org



The Kentucky Health Insurance Research Project performed in 2005 found that the people in Kentucky who do not have health insurance tend to be older, poorer, and more likely to work part-time than their national counterparts. Table 7 provides an overview of the breakdown of health insurance by source.

Table 7 Health Insurance Coverage of the Total Population 2007

	KY number	KY %	US number	US %
Employer	2,209,966	54%	158,515,473	54%
Individual	148,179	4%	14,515,865	5%
Medicaid	589,828	14%	37,994,482	13%
Medicare	517,863	13%	35,049,875	12%
Other Public	37,015	1%	2,986,514	1%
Uninsured	568,514	14%	46,994,627	16%
Total	4,071,365	100%	296,056,836	100%

Source: Kaiser Family Foundation http://www.statehealthfacts.org

Insurance programs such as Medicaid and the State Children's Health Insurance Program (SCHIP) are important for rural communities. At the national level, Medicaid provides health insurance to a larger share of the population in rural areas than in urban areas.

SCHIP coverage applies to uninsured children with incomes that are too high to qualify for Medicaid but are less than or equal to the maximum SCHIP income limits. They can have access to comprehensive health insurance. The requirements of eligibility are based on age and family income. Children from birth to 19 from low-income families are eligible as long as they are residents of Kentucky. There are a large number of eligible children in Kentucky who are not benefiting from the program. Total SCHIP Enrollment in Kentucky is 52,536 as of June 2007.

Source: http://www.statehealthfacts.org

E. Education

In the report of The Health of Kentucky the authors suggest that education is vital for a healthy community. More educated individuals are expected to make better (healthier) lifestyle choices. On the other hand, healthy children are better learners. It is necessary to improve education to improve health and to improve health to improve education.

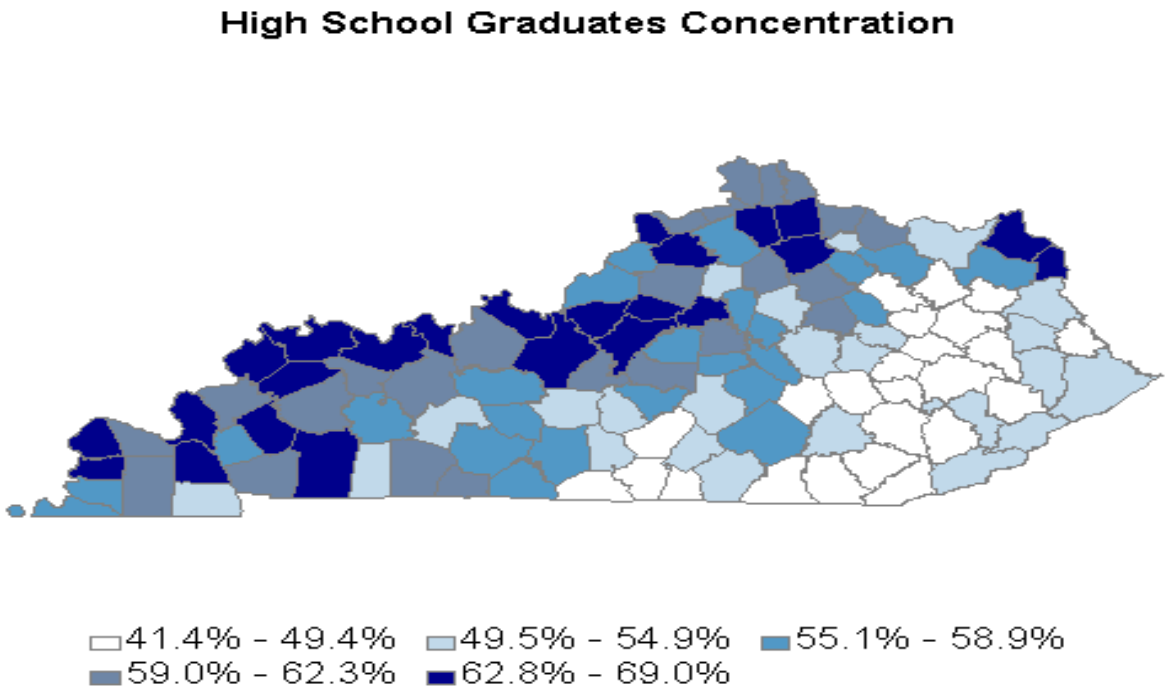
The percentage of people 25 or older who has completed college is 17% in Kentucky versus 24.4% in the US whereas the percentage of people completing high school is only 33.6% in Kentucky versus 28.6% nationwide. The percentage of the population with high educational attainment, a B.S. degree or higher, is greater in the metro areas. The percent of the population with low educational attainment, a high school degree or lower, is greater in the non metro areas. According to the Economic Research Service, a county is considered a low education county if "25 percent or more of residents 25-64 years old had neither a high school diploma nor GED in 2000." Sixty counties in Kentucky are classified as low education counties, 58 of them are considered rural or non-metro.

Source: RUPRI. Kentucky Demographic and Economic Profile. 2006.

Table 8. Kentucky: Education (Persons 25 and older)

	Rural	Urban	Total
Percent completing high school only			
1990	31.3	32.1	31.8
2000	35.5	32.1	33.6
Percent completing college			
1990	9.0	17.3	13.6
2000	11.3	21.8	17.1

Source: United States Department of Agriculture Economic Research Service. State Fact Sheets.



F. Health Care Workforce

Through the year 2012, Kentucky's economy is expected to generate over 76,000 jobs annually. These job openings will occur in a variety of industrial sectors, but numerous opportunities will emerge in one of the Commonwealth's fastest growing occupational category: Healthcare. Of the top 25 fastest growing occupations in Kentucky, healthcare-related jobs claim five spots, all of which are in the top fifteen. This growth can most likely be attributed to the rising need to care for aging Kentuckians due to longer life expectancies.

There is a current shortage of health care professionals in Kentucky and it's most acute in rural areas. There is a widespread agreement that geographic mal-distributions of health care professionals exists and the shortfalls are worse in rural and underserved areas.

I. Health Professional Shortage Areas

Health Professional Shortage Areas (HPSAs) are designated for primary medical care, dentist, and mental health professionals. The designations are made by the Bureau of Health Professions within the Department of Health and Human Services. The current process used for designation is under review and any changes could possibly have a negative impact on the state.

According to 2007 data, 77 of Kentucky's 120 counties were either whole or in part designated as a primary care HPSA, 23 counties were designated whole or part of a dental care HPSA, and 95 counties were designated whole or in part of a mental health care HPSA. Within each of these categories, the majority of counties were rural. The maps below present the status of counties as being whole or in part designated as part of an HPSA.

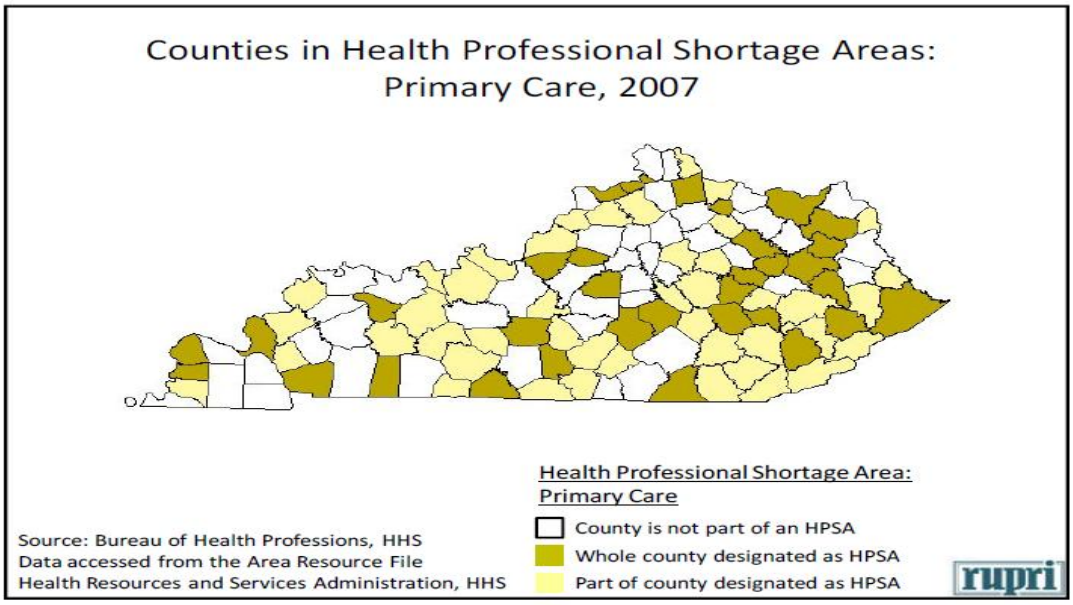


*Figure **1: Counties in Health Professional Shortage Areas: Primary Care, 2007***

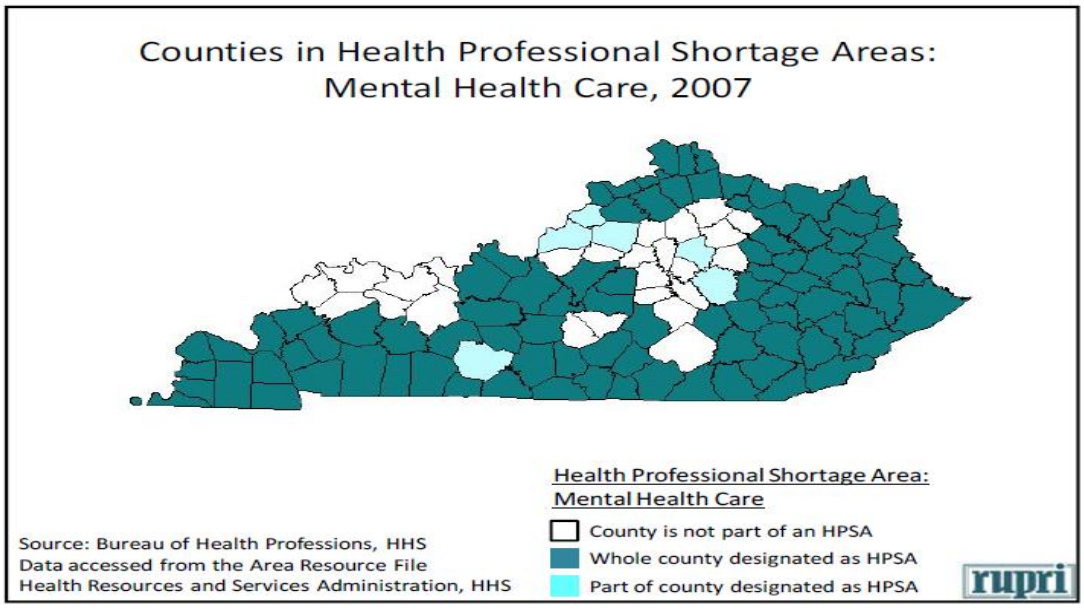


Figure 2: Counties in Health Professional Shortage Areas: Mental Health Care, 2007

Figure 3: Counties in Health Professional Shortage Areas: Dental Care, 2007

Source: http://www.rupri.org/Forms/Kentucky2.pdf

2. Medically Underserved Area / Medically Underserved Population

Medically Underserved Areas / Populations (MUAs/MUPs) are defined as areas or populations with a quantifiable shortage of personal health services as defined by the U. S. Department of Health and Human Services. MUAs/MUPs can be defined as having too few primary care providers, high infant mortality, high poverty and/or high elderly population. According to HRSA Geospatial Data Warehouse, 69 of Kentucky's 120 counties have a Whole County MUA/MUP designation and 13 have a Non-Whole County designation.

G. Rural Healthcare Infrastructure

1. Rural Transportation

Particularly in rural communities, public transportation services are not readily accessible statewide. The Human Service Transportation Delivery (HSTD) Program, which started in 1997/98 under Governor Paul Patton's Empower Kentucky Project, consolidated transportation services. They were provided previous to this by various state governmental agencies. The former transportation delivery process was fragmented, increasingly costly, and vulnerable to fraud and abuse. Additionally, transportation services were not easily accessible in some rural areas. The services are now under the auspices of the Transportation Cabinet. HSTD is providing a better quality service, curbing fraud and abuse.

Under the provisions of the program, transportation services are provided to Medicaid recipients meeting the following requirements:

- Non-emergency medical situations
- Persons under the Temporary Assistance for Needy Families (TANF) program who require transportation to interviews, job training, jobs and daycare centers for their children. This program also provides transportation services to persons eligible for Vocational Rehabilitation and Department of the Blind programs.

Although much has been accomplished in transportation there remains a need in rural areas. A total of 15 statewide transportation regions operate 24 hours a day, 7 days a week. The geographic nature of rural communities often inhibits the ability to provide transportation services to the people in a timely manner.

Sources:
http://www.fhwa.dot.gov/planning/rural/planningfortrans/appendixc.html
http://www.ridegrits.org/MedicaidTrans.htm

2. Telemedicine

A noted issue affecting rural areas is the availability of access to quality health care. In the last two decades a number of hospitals have closed in rural areas throughout the country (Since 1980, approximately 20% of the rural hospitals in the US have closed and

many others have significantly reduced the level of services and number of beds). Also, many health facilities have reported financial problems indicating that the health system in rural areas is fragile in many cases. It is in the rural areas where there are higher levels of poverty and where there is a high percentage of people who live without insurance.

Telemedicine is a relatively new alternative for providing health care in rural areas. Through video conferencing and the use of specialty cameras and diagnostic tools such as electronic stethoscopes, clinical telemedicine connects medical specialists from the University of Kentucky to patients who live in the rural parts of the state reducing the need for travel. The physician can provide an assessment and evaluation of the patients in several specialties and send recommendations to the primary care provider.

The Kentucky TeleCare Network, a telemedicine program based at the University of Kentucky's Chandler Medical Center has been active since 1994. This program helped launch a statewide telehealth initiative: the Kentucky TeleHealth Network (KTHN), co-managed by the University of Kentucky and the University of Louisville in 2000. KHTN is one of the first legislatively mandated statewide telehealth initiatives. This program provides clinical, educational, and administrative support for healthcare in rural Kentucky. It provides medical care through interactive videoconferencing and peripheral medical devices at 70 healthcare facilities across Kentucky. KHTN has allowed the medical community to reach out to rural areas to serve patients who may not normally be able to have contact with a specialist or reach a regional medical center. The busiest clinical applications for telehealth are dermatology, pediatric cardiology, infectious disease, radiation medicine, and psychiatry.

Other telehealth applications include:

- PROACT (Prepararedness and Response On Advanced Communications Technology) and bioterrorism training and disaster response activities. PROACT uses the capabilities of the KTHN to help medical personnel respond to public health disasters. It currently includes 20 selected KTHN sites across the state, most of them hospitals, that have committed to a 24/7 response in the event of a disaster. It has successfully completed several multi-state disaster drills with the Center for Disease Control (CDC).

- Mobile health clinics, equipped with telehealth technology, which can deliver healthcare services across the state.

Sources:
Strengthening a Fragile Rural Health Care System: Critical Access Hospitals and Telemedicine. By Susan M. Capalbo, Tyler J. Kruzich, and Christine N. Heggem. Choices, Fall 2002, pp. 26-29.
http://www.mc.uky.edu/kytelecare/clinical.asp
http://telemed.org/programs_t2/showprogram_t2.asp?item=2691
http//:www.techlines.ky.gov/2005/jan/kytelehealth.htm

3. Disaster Preparedness

The Cabinet for Health and Family Services (CHFS), Department for Public Health (DPH) works with local health departments, hospitals, emergency management, and other organizations to increase the preparedness of the state. In case of any incident of national significance such as outbreaks of a disease, natural disasters or acts of terrorism the citizens need to know where to get important answers. The CHFS has a website dedicated to inform people about emergency preparedness and disaster response plans among others.

Source: http://chfs.ky.gov/dph/epi/preparedness

4. Trauma Care in Rural Kentucky

Kentucky had been one of twelve states that did not have a statewide trauma network[2]. Trauma is the leading cause of death for ages 1-45 and it accounts for 150,000 fatalities each year. The trauma death rate in rural counties in Kentucky is at least double that of urban counties. There are three trauma centers in the state: one is located in Campbellsville, one in Lexington and one in Louisville. Because they are concentrated in the center of the state, those seriously injured patients who live outside the immediate area are at a greater risk of dying before they can reach the necessary specialized medical care.

On March 26th 2008, House Bill 371, which establishes the initial framework of a statewide trauma system, was passed unanimously in the Senate. The bill defines several terms related to trauma and trauma care in addition to recognizing unintentional injury as a significant cause of death and disability in the state of Kentucky.

Source:
"Lawmakers Approve Statewide Trauma System" by Melissa Houshell, University of Kentucky News, March 31, 2008, Lexington, Kentucky.
http://news.uky.edu/news/display_article.php?artid=3330&category=0&type=1

III. Health Care Status of Kentucky

A. Healthy Kentuckians 2010

Healthy People is the initiative that defines the nation's health agenda and guides policy. It includes specific objectives that are to be monitored over the next decade. Healthy Kentuckians 2010 is Kentucky's commitment to the national prevention initiative Healthy People 2010. Common overreaching goals of these initiatives are to increase the quality and years of healthy life and eliminate health disparities. The Kentucky Initiative follows the format of

[2] A trauma patient is a seriously injured person at high risk for death or disability in case it is not timely diagnosed and treated by a team of professionals supported by specialized sources. A trauma center is a hospital designated or verified by the American College of Surgeons that has surgeons and other specialists committed to treating trauma patients.

Healthy People 2010 with objectives and targets set to meet the needs of Kentuckians. The objectives fall into 26 focus areas which are further organized into four categories: (1) promote healthy behaviors; (2) promote healthy and safe communities; (3) improve systems for personal and public health; and (4) prevent and reduce disease and disorders. *Healthy People* relies on the measurement and improvement of 10 Leading Health Indicators, selected by the US Department of Health and Human Services, which reflect major public health concerns.

These Kentucky indicators are (with some examples):

- Activity (50% active 30 minutes, 5 days a week),
- Overweight and obesity (50% healthy BMI),
- Tobacco use (Reduce teenage tobacco use, reduce adult use),
- Substance abuse (Reduce past-month use of alcohol among adolescents less than 30%),
- Responsible sexual behavior (Increase 10% barrier method contraception),
- Injury and violence (Reduce motor-vehicle deaths and homicides),
- Mental Health (Increase the number with mental illness who receive health services to 30%),
- Environmental quality (Reduce health effects from air pollution),
- Immunization (Achieve immunization of 90% children), and
- Access to health care (Reduce to zero the number of children without health care).

Kentucky's success or in most instances, the need for improvement in most of these indicators are described in the following sections.

B. Kentucky County Rankings

The report on The Health of Kentucky, which is used as the main source of information for this section of the report, provides county-level data on various health conditions. The authors argue that statewide and regional studies that aggregate data often conceal the disparities that exist among counties, which does not allow us to see the true situation found at the local level. It is necessary to provide information specific to local problems.
The lists of the healthiest and least healthy Kentucky counties are provided in Tables 9 and 10 respectively.

Table 9: Healthiest counties

County	Rank
Oldham	1
Boone	2
Jessamine	3
Anderson	4
Woodford	5
Fayette	6
Spencer	7
Daviess	8
Calloway	9
Clark	10

Only two of the healthiest counties, Anderson and Calloway are counties which are considered rural,[3] all the others are located in urban areas. All of the least healthy counties are rural counties

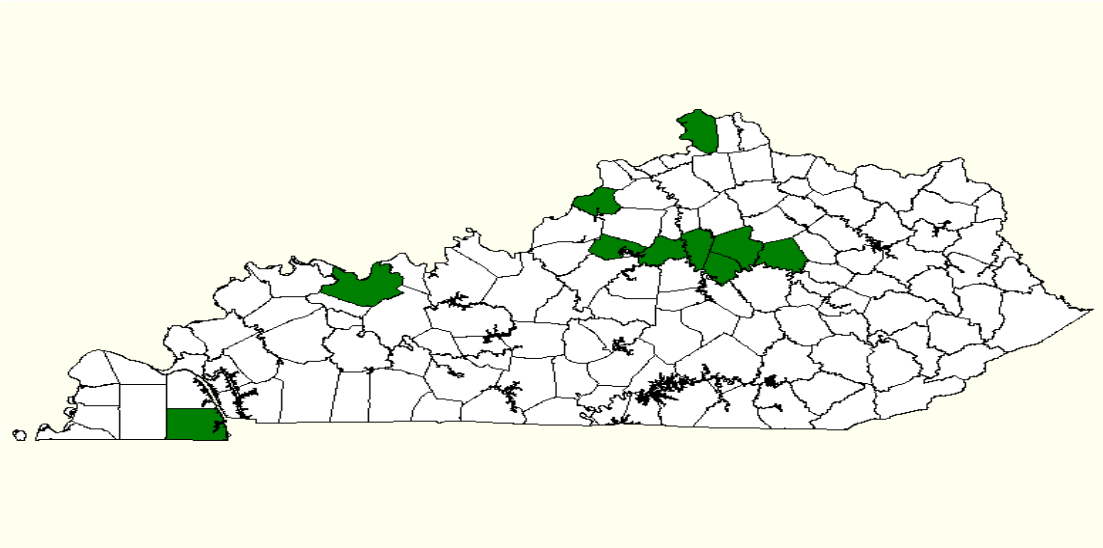


Figure 1. Healthiest counties in Kentucky

Table 10: Least Healthy Counties

County	Rank
Owsley	111
Powell	112
Hart	113
Knott	114
Lee	115
McCreary	116
Perry	117
Harlan	118
Clay	119
Wolfe	120

Source: Kentucky Institute of Medicine. The Health of Kentucky

[3] According to the urban influence codes, Anderson county, with an urban influence code of 5, for micropolitan adjacent to a small metro area and Calloway, with an urban influence code of 8, for micropolitan not adjacent to a small metro area.

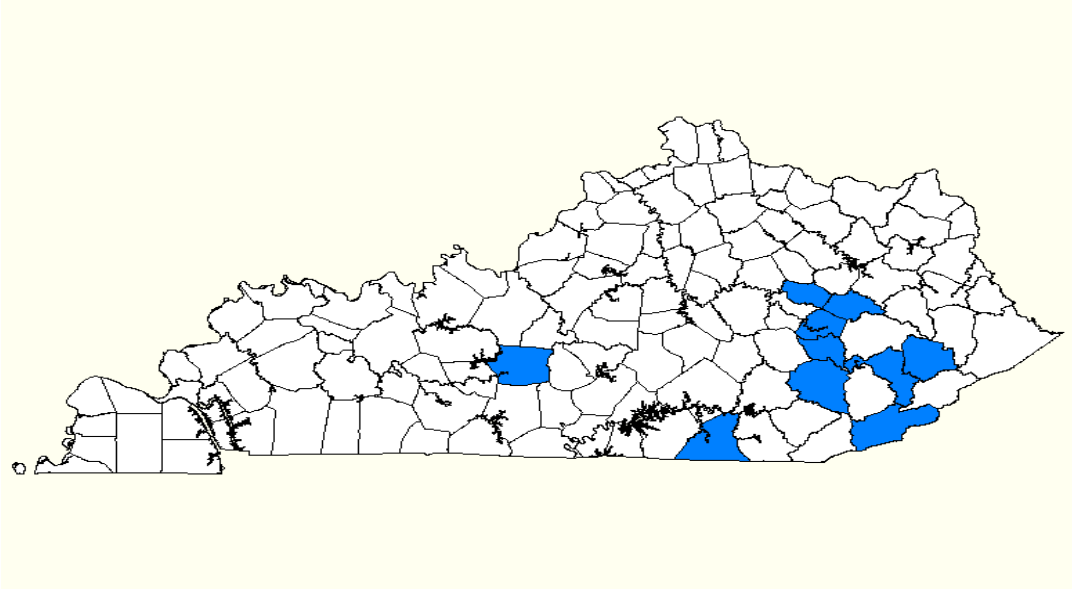


Figure 2. Least healthy counties in Kentucky

C. Health Risk Factors

"Kentucky is ranked 49th for the percentage of persons who smoke, 45th in the percentage of adults who are obese, 49th in poor mental health days in the past month, 48th in poor physical health, 46th in cardiovascular deaths, 50th in total mortality. All of these factors are interrelated." (page 9, The Health of Kentucky).

Many of the health problems in the state are due to poor lifestyle choices. Behavioral risk factors which can be modified such as tobacco use, poor diet and physical inactivity are identified as the main causes of mortality in the US as a whole and in Kentucky as well. Chronic diseases are often the result of such poor lifestyle choices and account for 70% of Kentucky's mortality rate. Improvements in lifestyle behaviors and regular primary health care can help prevent chronic diseases. Because many of the health problems that Kentucky is facing have an origin in the individual behavior that occurs at the local level, the local level is where actions to address these problems must begin, according to this report from the Kentucky Institute of Medicine.

1. Obesity and lack of physical activity

An estimated 29% of Kentuckians are obese versus an average of 24% in the United States. Approximately 38% of Kentuckians are considered overweight. At the national level, Kentucky ranks number six in the combined percentages of overweight and obese people. About 32% of people in Kentucky report no physical activity, compared to 24% of adults nationally. It is the second poorest ranking in the country. In the state of Kentucky only 10 of the counties are above the national average for physical activity and 78 are above the national average for obesity. Medical expenditures attribute to obesity for Kentucky stood at $1.1 billion (in 2003 dollars) in 2004.These two factors are clearly

related to the increased incidence of health disorders like cardiovascular disease, diabetes, stroke and others.

2. Tobacco Use

Twenty nine percent of adults in Kentucky smoke versus 21% at the national level. The smoking rates vary from 20% in Shelby, Washington, Breathitt, McCracken, and Christian counties) to 36% (Garrard, Boyle, and Taylor counties). In the state of Kentucky only five of the state's 120 counties have smoking rates below the national average. More than 8,000 people in Kentucky die annually from tobacco-related diseases. The higher smoking rates are in those areas of the state that traditionally grew tobacco for sale and also in those counties with lower education and lower income levels. Medical costs related to smoking for Kentucky are approximately $1.2 billion annually or more than $300 for each of the more than four million people who live in the state.

Among the well-known consequences of tobacco use are cancer, cardiovascular disease, and respiratory illnesses. "Kentucky leads the nation with the highest mortality rates for lung and bronchus cancer deaths... high mortality rates linked to smoking-related diseases are a problem throughout the state."[4]

Giving the fact that an estimated 25% of Kentucky high school-age students smoke, which is higher than 23% nationally, it is crucial to have programs designed to prevent the youth from starting to smoke and to help them quit. The use of tobacco is the leading cause of preventable death, disease, and unnecessary healthcare costs across the state of Kentucky. It is very important to educate the public about the health risks associated with using tobacco products.

3. Oral health

Among Kentucky adults, 37% have six or more missing teeth compared with 33% nationally. Only 39 counties in Kentucky have rates below the national average. In the year 2004, Kentucky had the nation's highest percentage or persons who have lost all their natural teeth due to tooth decay or gum disease. Poor oral health has been linked to other diseases such as heart disease, certain types of cancer, and premature birth.

4. Immunizing Children

According to the report, 80% of Kentucky's children are immunized versus the national rate of 81%. The immunization rate varies from 70% in Scott and Fulton counties to 89% in Hancock and Oldham counties. Over half of the counties are above the national rate. Early immunizations are important because they protect children from life threatening diseases that can impair their mental and physical development. Children who are uninsured or whose parents have a low level of education are at a higher risk of not getting all the recommended immunizations.

[4] Kentucky Institute of Medicine. The Health of Kentucky A County Assessment, page 16

5. Diabetes

Kentucky is above the national average and only sixteen of the state's 120 counties are below the national average.

6. Cardiovascular Disease

Cardiovascular disease is the leading cause of death in Kentucky. There are 113 counties with rates above the national average.

7. Cancer

For lung/bronchus cancer, the state's death rate is far higher than the nation's. All of Kentucky's counties have a rate above the national average. Also, the colorectal cancer death rate is higher the national average. Only five of the counties in Kentucky have a rate below the national rate. Kentucky's breast cancer death rate is above the national rate. Only forty-eight of Kentucky's counties have a rate below the national average. The prostate cancer death rate is above the national average in Kentucky. Only thirty one of Kentucky's 120 counties have a rate below the national average.

8. Crime

Violent crime measures the number of murders, rapes, robberies, and aggravated assaults per 100,000 people per year. Violent crime is strongly correlated with drug arrests. Kentucky has a violent crime rate of 267 per 100,000 population versus 469 for the whole nation. The violent crime offense rate varies depending on the county, for example it was 1,420 in Daviess County compared to 14 in Spencer county. Twenty five counties in Kentucky have violent crime offense rate above the national average which is a relatively low crime rate.

9. Drug abuse

The drug arrest rate in Kentucky is 1,046 per 100,000 people versus a national rate of 700. The drug arrest rate varies from Oldham County with a rate of 17 compared to 2,764 in Graves County.

"According to the Kentucky Needs Assessment program, about 375,000 adults and more than 50,000 adolescents need substance abuse treatment but are not receiving it"[5]The estimated cost of drug abuse in the state of Kentucky ranges from $2.5 to $3.6 billion every year. Cocaine abuse is more prevalent in the north-central part of the state, opiate abuse, which is mostly from prescription drugs more prevalent in eastern Kentucky. Methamphetamine use is more prevalent in western Kentucky and the use of stimulants, tranquilizers, and marijuana are widespread throughout the state.

[5] Kentucky Institute of Medicine. The Health of Kentucky A County Assessment. Page 18 from University of Kentucky Center on Drug and Alcohol Research, Kentucky Needs Assessment Project, Adult and Adolescent Households Surveys, 22 Feb. 2007 http://cdar.uky.edu/knap/.

10. Occupational Health

As stated in the report on the The Health of Kentucky occupational injuries are a major cause of loss of work productivity and unfortunately Kentucky leads the nation in work-related injuries and illnesses. Kentucky's high rates of injury and illnesses in the work place are in big part related to the fact that there is a concentration of workers in high-risk industries such as mining, logging, agriculture and manufacturing. Additionally, the failure to use safety equipment and follow standard safety practices contributes significantly to high workplace injury rates. The occupational death rate in Kentucky is 8 per 100,000 people versus 5 at the national level. Only 39 of the counties in Kentucky have a rate below the national average.

IV. Rural Healthcare Resources

A. Primary Care Physicians

The access to a regular primary care physician is associated with a positive health status since it provides more information about the diseases and gives access to recommended preventive health screenings and early treatment of diseases. The higher the number of primary care physicians the better the health outcomes, the lower the rates of infant mortality, and the lower low birth weight as well as the higher the life expectancy.

According to the US Bureau of Primary Health Care, Health Resources and Services Administration (HRSA), the minimal standard for primary care physician-to-population ratio is 1 per 3,500 people. As explained in the report The Health of Kentucky because of the extremely high chronic disease burden of the state, especially for heart disease and cancer, a greater number of providers per population is required to provide an acceptable level of care. The suggested ratio is one primary care physician per 2,000 people.

The national primary care physician ratio is 3.7 while in Kentucky it is 2.5. It varies depending by county, in some rural counties: Hancock, Robertson, Elliot, and Menifee, there are simply no physicians. The ratio is 5.5 in Fayette County. Only seven of the 120 counties in Kentucky have primary care physician ratios above the national average.

According to a KY Institute of Medicine (2007) Report, the number of Kentucky physicians per 100,000 residents is 213.5 and the national average for physicians per 100,000 residents is 267.9. Kentucky would need 2,300 additional physicians just to be on par with the national average. Additionally, according to the same source, more than half of the physicians within the state live in the Area Development Districts that contain Louisville and Lexington. There are 11,225 nonfederal physicians (2007) in Kentucky versus 973,524 in the US.

Source: Kaiser Family Foundation, http://www.statehealthfacts.org

A recent study (June, 2007) by the American Academy of Family Physicians, reports that family physicians, who provide a personal medical home for people of any age, are more likely than other primary care physicians to work in areas with the greatest needs, such as rural areas and health professional shortage areas (HPSA) federally designated area or populations with

the lowest ratios of health providers to population. According to a recent study by the Robert Graham Center for Policy Studies (www.graham-center.org) the impact per family physician per year in Kentucky is $878,642 and the total impact per year is $955,962,533.

B. Home Health and Hospic*e*

Home health care provides intermittent skilled and para-professional services to the medically homebound persons in their home. According to the 2007 Kentucky Annual Home Health Services Report, there are approximately 580 home health centers in the state of Kentucky. The number of home health patients served in 2007 was 105,664, three percent higher than the previous year. This number is well above the ten-year average (1998-2007) of 99,534 patients served. This is likely in response to changes in federal regulations in 1997 which included changes in reimbursement for agencies, several closures, and mergers.

Source: 2007 Kentucky Annual Home Health Services Report

Hospices provide comforting care and support services for dying persons and their families as an alternative to more traditional hospital or nursing home care. Medicare began reimbursing hospice services in 1983. The first hospices in Kentucky began accepting patients in 1978.

Source: www.ajph.org/cgi/reprint/77/12/1535.pdf

According to the 2007 Kentucky Annual Hospice Services Report, there are approximately 180 hospice centers in the state of Kentucky. The number of hospice patients served in 2007 was 16,178 compared to 14,573 in 2006 or an 11.01% increase. Fifty percent of all in-hospice deaths were due to cancer. There were 12,093 total hospital deaths in 2007 higher by 10.02% than in the previous year.

Source: 2007 Kentucky Annual Home Health Services Report

C. Emergency Medical Service (EMS)

Emergency medical services or EMS is a system that provides emergency medical care. It is more than the ride to the hospital. EMS is a system of coordinated response and emergency medical care which involves multiple people and agencies. They provide out-of-hospital acute medical care and/or transport to definitive care to patients.

The EMS components:

1. Agencies and organizations which can be both private and public: communication and transportation networks; trauma systems, hospitals, trauma centers, and specialty care centers; and rehabilitation facilities.

2. Highly trained professionals including volunteer and career pre-hospital personnel, physicians, nurses, therapists, administrators and government officials.

3. An informed public that knows what to do in case of a medical emergency.

Source: Ems.gov

EMS is an essential part of the health care system. According to the North Carolina Health Center, after the Emergency Services Systems Act of 1973 the complexity of services provided under the rubric of EMS as well as the challenges that face the communities in maintaining a modern EMS agency have increased. EMS agencies face challenges in maintaining infrastructure and a professional workforce. Because of the differences between urban and rural areas, there may be additional or unique challenges faced by the EMS agencies in the rural areas. Particularly, EMS agencies in rural areas face the challenge of maintaining an adequate workforce and also in getting the medical direction to support it. Data from a national survey to 1,425 local EMS directors, conducted in 2006-7 found that more than three-quarters of all EMS agencies, regardless of location, have paramedics or intermediate-level EMTs. However, rural EMS agencies are more likely to use only basic-level EMTs. There are 28 EMS Agencies in the state of Kentucky.

Source: North Carolina Rural Health Center, 2007:
http:// www.shepscenter.unc.edu/research_programs/rural_program

D. Rural Health Clinics (RHC)

There are 115 rural health clinics versus 3,592 in the US. The list of the rural health clinics can be found in the Appendix section (CMS, 2008). The Rural Health Clinic Act was passed in 1977 with two main goals. First, it encouraged the utilization of physician assistants and nurse practitioners. This was done by providing reimbursement for services provided by these health professionals to Medicare and Medicaid patients even in the absence of a full-time physician. The second goal was the creation of a cost-based reimbursement mechanism for services when they were provided at clinics located in rural areas considered undeserved. In 2000, the Benefits Improvement and Protection Act (BIPA) changed the way State Medicaid programs must reimburse RHCs. Medicaid pays them using a Prospective Payment System (PPS) methodology instead of cost-based reimbursement. The PPS methodology may be specific to each clinic and it varies depending on the State.

Source: Comparison of the Rural Health Clinic and Federally Qualified Health Center Programs, June 2006. http://www.ask.hrsa.gov/downloads/fqhc.rhccomparison.pdf

E. Federally Qualified Health Clinic (FQHC)

FQHC's serves the community, migrants, and the homeless population. These providers are non-profit, community-directed that serve communities located in high-need areas providing comprehensive primary and other health care services, high quality care, and saving the health care system between $9.9 and $17.6 billion a year nationally. There are 17 Kentucky Federally-Supported Health Centers as of 2007.

Source: Kentucky Health Center Fact Sheet 2007

The FQHC program enacted in 1989 and expanded in 1990 provided cost-based reimbursement under Medicare and Medicaid for legislatively specified services. However, similar to what happened with the RHCs, BIPA changed the way State Medicaid programs

reimburse FQHCs in the year 2000. Medicaid pays them using a PPS methodology instead of cost-based reimbursement. The PPS methodology may be specific to each clinic and it varies depending on the State.

Source: Comparison of the Rural Health Clinic and Federally Qualified Health Center Programs, June 2006. http://www.ask.hrsa.gov/downloads/fqhc.rhccomparison.pdf

F. Kentucky Health Departments

In the state of Kentucky, the Cabinet for Health and Family Services (CHFS) is home for most of the programs related to human services and health care in the state. The CHFS has a health department in each of the 120 counties. These programs include Medicaid, the Department for Community Based Services and the Department for Public Health. Nearly 8,000 employees work for the CHFS, one of the largest agencies in the state government.

Source: http://www.cdc.gov

G. Behavioral Health

Behavioral health was first used in the 1980's to name the combination of the fields of mental health and substance abuse. The Department of Mental Health, Developmental Disabilities and Addiction Services (DMHDDAS), part of the Kentucky Cabinet for Health and Family services operates several inpatient facilities. They provide psychiatric, rehabilitative, and nursing care services to its clients.

Source: http://mhmr.ky.gov/Facilities/default.asp?sub25

Community services that are publicly-funded for Kentuckians with mental health, mental retardation, and substance abuse problems are provided through Kentucky's 14 regional mental health and mental retardation (MHMR) boards. Regional boards are private, non-profit organizations established by statute. The MHMR boards serve residents of a designated multi-county region.

Source: Kentucky Cabinet for Health and Family Services, Department of Mental Health, Developmental Disabilities and Addiction Services. http://mhmr.ky.gov/cmhc/default.asp?sub23

H. Long Term Care

Long-term care is a variety of services that includes medical and non-medical care to people who have a chronic illness or disability. Most long-term care is to assist people with support services such as activities of daily living. Long term care can be provided at home, in the community, in assisted living or in nursing homes.

I. Kentucky Homeplace

Homeplace originally was developed by the University of Kentucky Center for Rural Health located in Hazard, Ky., as a demonstration project in just 14 counties. Because of its success,

Homeplace has expanded into 58 counties and now has 49 employees. Its geographic service area spans the length of the state, including most counties in eastern and western Kentucky and those along its southern border. Residents of these areas statistically are poorer, less educated and less likely to have medical coverage than those in other parts of the state and nation.

Since its inception 13 years ago, this lay health worker initiative has linked tens of thousands of rural Kentuckians with medical, social and environmental services they otherwise might have done without. From July 1, 2001 through June, 30, 2008 over 87,165 unduplicated clients have received over 2,017,977 services and have accessed over $135 million dollars in medications and other items such as medical equipment, supplies and other basic needs of life. In fact, during fiscal year 2007 alone, Homeplace workers provided more than 482,699 services to approximately 13,000 clients - and accessed $27 million worth of free medications and more than $2.6 million worth of other items (eyeglasses, hearing aids, wheelchairs, etc.) on their behalf. The overall return on investment for fiscal year 2007 equals $15 dollars per dollar invested.

V. Programs and Organizations supporting Rural Health

A. Kentucky Primary Care Association (KPCA)

The Kentucky Primary Care Association was founded in 1975 as a private, non-profit corporation of community health centers, rural health clinics, primary care centers and other organizations and individuals concerned about access to health care services for the state's underserved rural and urban populations. Association members are providers of primary care – first contact, broadly trained physicians, nurses and other professionals deliver that whole-person health care.

The Association is charged with determining and promoting the mutual interests of its members, throughout the Commonwealth, with a mission of promoting access to comprehensive, community-oriented primary health care services for the underserved. This mission is carried out through the training and education of health care providers, technical assistance, community development, and advocacy.

The importance of primary care is more widely recognized. Primary care covers all the cycles of life – prenatal, pediatric, adolescent, adult and geriatric. The affordable, accessible, comprehensive and continuous nature of primary care makes it a vital element to the health care services in our state.

With an emphasis on prevention, primary care providers focus on the role of the individual in maintaining good health, offering patients the tools and guidance they need to take responsibility for their own health as much as possible.

B. Kentucky Office of Rural Health (KORH)

The KORH was established in 1991. It is a Federal/State partnership, authorized by Federal Legislation. The mission of the KORH is to support the health and well-being of Kentuckians by promoting access to rural health services. Among the functions of the KORH are the

coordination of rural health resources and activities statewide, the provision of technical assistance, the encouragement of recruitment and retention of health professionals in rural areas and the participation in strengthening state, local and federal partnerships. The KORH insures that funding agencies and policy makers are made aware of the needs of rural communities and it assists clinicians, administrators and consumers find ways to improve communications, finances and access to quality health care.

C. Kentucky Rural Health Works (KRHW)

The KRHW is a program designed to highlight the economic importance of health care in your local community. KRHW is a joint program of the University of Kentucky College of Agriculture and UK College of Medicine. KRHW shows rural communities and their leaders the direct and indirect impact of health care on rural development and business growth. The two goals of the KRHW are to promote and support rural economic development and local healthcare networks.

D. Kentucky Rural Health Association (KRHA)

The KRHA was founded in 1999. The KRHA has two main goals. First, it educates providers and consumers on rural health issues. Second, it advocates actions both by private and public leaders to encourage equal access to health care for rural Kentuckians. The association has sponsored conferences and workshops on topics related to rural health, it works to recruit health professionals to rural areas, and it sends representatives to meetings of the National Rural Health Association. Membership is encouraged by KRHA, by being a member citizens have the opportunity to hear about decisions affecting members and are able to express their opinion to the people making those decisions.

E. Kentucky Hospital Association (KHA)

The KHA represents and advocates the interest of hospitals in the development and implementation of health policies that enhance their ability to deliver health care services to their communities. They provide services to hospitals that encourage and assist them in fulfilling their responsibilities in a cost-effective manner. KHA works to establish affiliations or joint ventures to augment and support the programs of the KHA and its subsidiaries.

F. Kentucky Ambulance Providers Association (KAPA)

The mission of the Kentucky Ambulance Providers Association is to assist every licensed Emergency Medical Service in the Commonwealth of Kentucky in providing the highest quality, state of the art, pre-hospital care possible to the citizens served by each licensed entity. This mission will be supported by the promotion of professional standards, compassionate care, and efficient management of all aspects of Emergency Medical Services at the administrative and operational levels for each licensed service

G. Kentucky Area Health Education Center Program (KAHEC)

The University of Kentucky Area Health Education (AHEC) Program is a collaborative effort

with the University of Kentucky, the University of Louisville Health Sciences Center, and eight regional centers to affect positively the distribution of health professionals throughout the Commonwealth. The centers, or AHECs, affiliated with the University of Kentucky are strategically located at **Morehead (Northeast AHEC), Mt. Vernon (Southern AHEC), and Hazard (Southeast AHEC)**. An additional AHEC in **Park Hills** (North Central) was established in July 1999 to encompass the north central portion of Kentucky. The AHECs affiliated with the University of Louisville are **Murray (Purchase AHEC)**, **Madisonville (West AHEC)**, **Bowling Green** (South Central **AHEC**) and **West Louisville** (Northwest AHEC). Each AHEC is directed by an Advisory Board composed of community leaders and health care practitioners representative of the area.

H. Health Resources and Services Administration (HRSA)

HRSA is an agency of the U.S. Department of Health and Human Services. It was created in 1982 when the Health Resources Administration and the Health Services Administration were merged. The primary role of this Federal agency is to improve the access to health care services for the uninsured, medically vulnerable or isolated population. The goals of HRSA are the following: improving access to health care, improving health outcomes, improving the quality of health care, eliminating health disparities, improving the public health and health care systems, enhancing the ability of the health care system to respond to public health emergencies and achieving excellence in management practices. It provides leadership and financial support to health care provides across the count. In rural communities, HRSA train health professionals and improve systems of care. It also oversees organ, tissue and blood cell donation and vaccine injury compensation programs. Finally, it maintains databases to protect against health care malpractice, waste, fraud and abuse.

I. Office of Rural Health Policy (ORHP)

The Office of Rural Health Policy (ORHP) promotes better health care service in rural America. Established in August 1987 by the Administration, the Office was subsequently authorized by Congress in December 1987 and located in the Health Resources and Services Administration. Congress charged the Office with informing and advising the Department of Health and Human Services on matters affecting rural hospitals and health care, coordinating activities within the department that relate to rural health care and maintaining a national information clearinghouse.

VI. Rural Hospital Profile

A. Rural Hospital Capacity and Utilization

Kentucky is a largely rural state and communities depend greatly upon local health care providers for primary care and acute care needs. There are 94 acute care hospitals in Kentucky. Thirty of these are critical access hospitals (CAH) and an additional 24 are considered small (less than 100 beds) *and* rural. Rural, acute care beds make up approximately 18 percent of all acute care beds in the state and account for approximately 15 percent of inpatient days. Inpatient days decreased by eight percent from 2004 to 2007. The decrease in the number of

licensed acute care beds is due to the transition of a number of hospitals from acute to CAH status and the subsequent reduction in licensed capacity.

Table 14 Hospital Utilization Data, Acute Services 2004-2007

Year	Discharges	Average Length of Stay	Inpatient Days	Licensed Beds	Licensed Beds Occupancy Rate	Operational Beds	Operational Beds Occupancy Rate
2004	99,091	3.5	343,614	2261	41.64%	2197	42.85%
2005	98,978	3.5	343,593	2261	41.63%	2195	42.89%
2006	98,525	3.5	349,553	2340	40.93%	2254	42.49%
2007	91,120	3.6	324,157	2472	35.93%	2387	37.21%

Sources: Small, rural and critical access hospitals only, Kentucky Hospital Association Discharge Database and Kentucky Annual Hospital Utilization and Services Report

Table 15 Major Diagnostic Category by Age (2007)

MDC Description	Age 0-17	Age 18-44	Age 45-64	Age 65+	Grand Total
Nervous System	112	525	841	1,959	3,437
Eye	20	20	20	23	83
Ear, Nose, And Throat	437	286	219	321	1,263
Respiratory System	2,338	1,832	5,767	10,187	20,124
Circulatory System	21	1,498	4,803	8,513	14,835
Digestive System	948	2,266	3,093	4,150	10,457
Hepatobiliary System And Pancreas	37	997	1,184	915	3,133
Musculoskeletal Sys & Connective Tissue	54	481	980	1,938	3,453
Skin, Subcutaneous Tissue, And Breast	351	1,105	961	1,036	3,453
Metabolic Diseases/Disorders	635	1,047	1,251	2,343	5,276
Kidney And Urinary Tract	270	1,072	1,167	2,710	5,219
Male Reproductive System	12	46	87	108	253
Female Reproductive System	52	997	363	117	1,529
Pregnancy, Childbirth, And The Puerperium	370	5,634	2	-	6,006
Newborns/Neonates	5,327	-	-	-	5,327
Blood/Blood Forming Organs/Immunity Disorders	39	88	218	658	1,003
Myeloproliferative	-	13	34	92	139
Infectious And Parasitic Diseases	311	254	496	1,082	2,143
Mental Diseases/Disorders	220	513	308	245	1,286
Substance Use	14	267	185	56	522
Injury, Poisoning, And Toxic Effects	80	584	365	254	1,283
Burns	7	19	21	12	59
Factors Influencing Health Status	11	55	175	569	810
Multiple Significant Trauma	-	5	4	13	22
HIV Infection (AIDS)	-	3	1	1	5
	11,666	19,607	22,545	37,302	91,120

Sources: Small, rural and critical access hospitals only, Kentucky Hospital Association Discharge Database

Over 40 percent of Kentucky's rural inpatient days are attributed to the population aged 65 and older. These patients experience more frequent and often longer patient stays. Additionally, nearly half of the patient days for the age group 65 + were related to respiratory and circulatory diagnoses.

B. Rural Hospital Payment Sources

In 2007, the care for nearly 75 percent of all small, rural and critical access hospital discharges and 80 percent of patient days was reimbursed through government payers. In some hospitals, Medicare and Medicaid patients comprise much higher than 80 percent of all inpatients. The extremely high proportion of care reimbursed by government payers makes the adequacy of those payments key to the stability and long-term viability of Kentucky hospitals. The CAH program is essential to ensuring viability of many of Kentucky's hospitals.

Due to longer lengths of stay of elderly patients, Medicare covers 60 percent of inpatient days. Medicaid, including Medicaid Managed Care, covers about 20 percent of all inpatients and inpatient days in small, rural and critical access hospitals.

Private insurance pays for the care of 15 percent of hospital patients and 12 percent of inpatient days. About 5 percent of patients are categorized as self-pay, although some uninsured patients may be included as "other" if they presented themselves as having insurance, but their services were not covered.

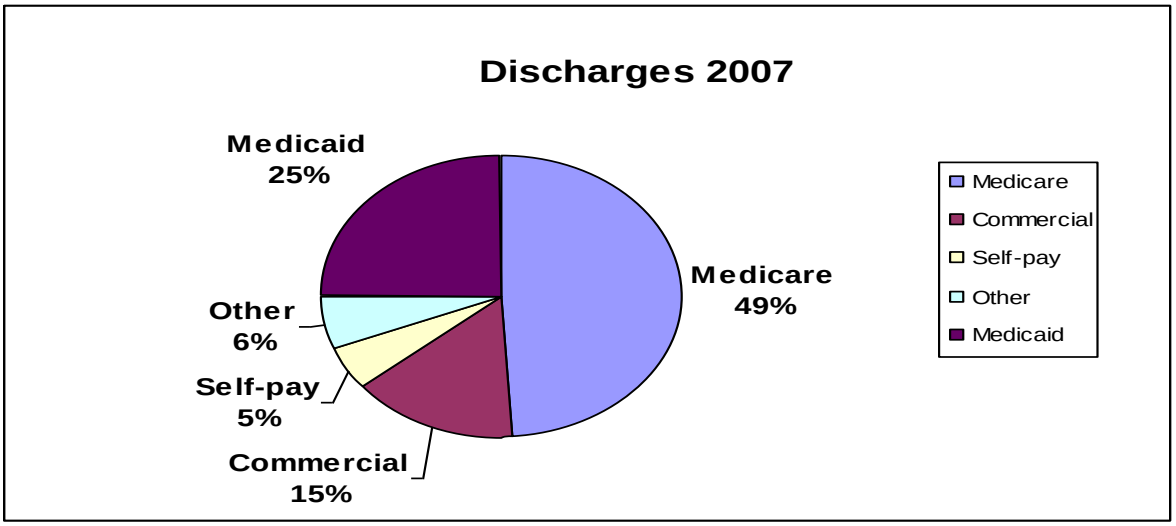


Figure: Kentucky Hospital Discharges, 2007

C. Critical Access Hospitals

1. Background

During the last two decades a large number of hospitals closed in rural communities across the United States. Between 1988 and 1997, 243 rural hospitals closed their doors (Pearson

and Tajalli, 2003). Among the main factors explaining such behavior are rural out-migration, changes in Medicare payment methodologies, increase in average costs and chronic operating losses.

The Medicare Rural Hospital Flexibility Grant Program was created in 1997 as a response to the financial distress of rural hospitals. The Kentucky Rural Hospital Flexibility Grant Program was implemented in 1999. Through this program rural hospitals were allowed to convert to critical access certification and receive reasonable cost-based reimbursement for Medicare, and in Kentucky, Medicaid acute inpatient and outpatient services. Cost-based reimbursement is intended to improve the financial performance of CAH hospitals, thereby reducing hospital closures.

A major requirement for participation in the Flex Program was the creation of a state rural health plan. The original plan identified 68 hospitals located in rural areas of Kentucky. Sixty-two of those hospitals were sole community providers. Of the 68 rural hospitals, 29 (43 percent) of those hospitals were in the Appalachian region of the state with traditionally high unemployment, high poverty levels and a higher than average population of senior citizens.

Because of Kentucky's geographic make-up and the key economic role that small rural hospitals play in their communities the Kentucky Cabinet for Health Services developed, with the advice of Kentucky Hospital Association's Critical Access Hospital Plan Committee, criteria to identify which hospitals are medically necessary to the heath care of the residents of the county. When these criteria were applied, 32 hospitals in 32 counties were eligible to qualify as Necessary Providers to the health of the residents of these counties.

2. Criteria

Critical Access Hospitals are limited service hospitals designed to provide essential services to rural communities. Criteria for designation of CAHs include:

- Located in a State that has established a rural hospital flexibility program
- Located more than 35 miles from another hospital, or 15 miles from another hospital in mountainous terrain, or with only secondary roads, or be certified as a Necessary Provider by the state before January 1, 2006
- Located in a rural area or is treated as rural
- Maintains no more than 25 inpatient beds for acute and or swing beds
- Maintains an annual average length of stay of 96 hours (calculated annually) per patient for acute inpatient care
- Provide 24-hour emergency care services 7 days per week

- Participate in a rural health network, which is defined as an organization consisting of at least one CAH and at least one full-service hospital where participants have entered into specific agreements regarding patient referral and transfer, communication, and patient transportation

- Establish credentialing and quality assurance agreements with at least one hospital that is a member of a network, Quality Improvement Organization or equivalent

3. Profile

As of April 2008, there were 30 licensed CAHs in Kentucky[6]. Figure 1 shows the Kentucky counties with CAHs. Mercer, Estill, Floyd, Union, Trigg, and Nicholas Counties joined the program in the year 2000; Carroll, Casey, Morgan, Woodford, Grant, and Owen Counties joined the program in the year 2001; Hart County joined the program in 2002; Breckinridge, Cumberland, Lincoln, Leslie, and Simpson Counties joined the program in 2003; Livingston, Ohio, and Wayne Counties joined the program in 2004 and the counties of Caldwell, Green, Letcher, Knox, Marshall, Russell, Madison, and Allen joined the program in 2005. In all counties, except for Floyd County which has a total of three hospitals including two CAHs, the CAH was the only hospital in the county.

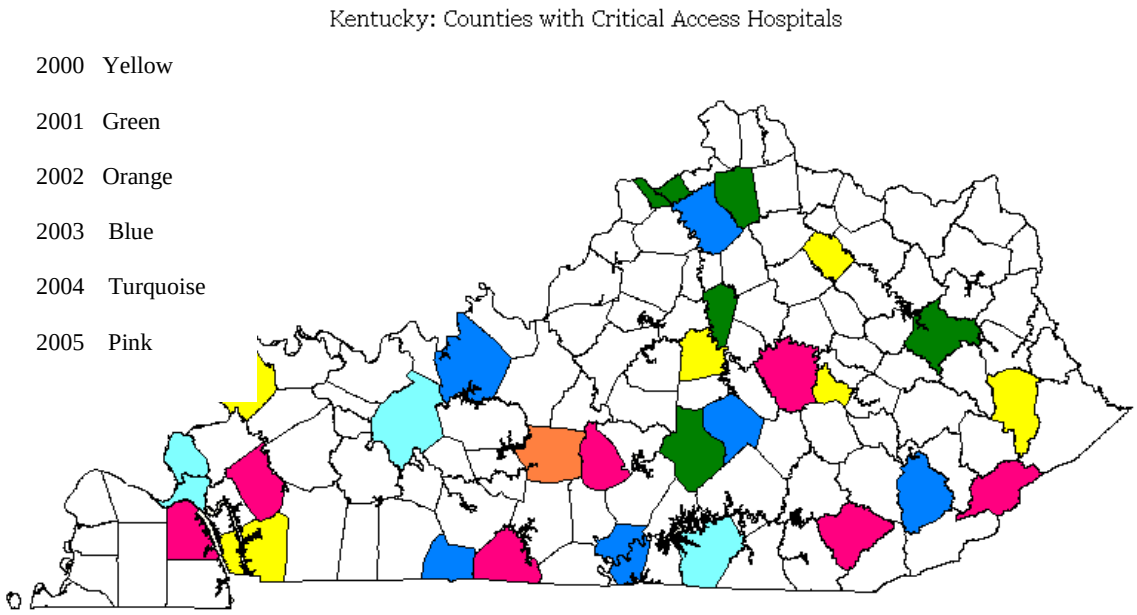


Figure 1. Kentucky: Counties with CAH hospitals

[6] http://chfs.ky.gov/NR/rdonlyres/C641AE31-E502-4B46-A070-0098C1B8EA7C/0/CriticalAccessHospitalDirectory.doc

In 2004, the Kentucky Rural Health Works program reported the economic impact of the CAH program on 20 rural Kentucky counties. The results indicated that the economic activities generated by 20 Kentucky CAH hospitals created approximately 4,682 local jobs, $285 million in local revenues and $140 million in labor income concluding that Kentucky CAH hospitals play an important role within their local communities by contributing to the overall economic viability of their home counties. In a separate study, it is reported that Kentucky CAHs are not as financially stable as non-converting peer group hospitals and are still performing below the state and national industry standards. However, CAH hospitals total margin ratios have remained positive since conversion in 2000 which provides some evidence that the CAHs have improved their financial condition since conversion to critical access (Adams and Scorsone, 2006). [7]

In 2008, in an Input/output study focused on the economic impact of the CAHs located in rural areas[8], the authors found that 5,046 jobs are directly and indirectly tied to Kentucky CAHs. Approximately $489.5 million in revenue is generated in the CAH counties due to sales from the Kentucky CAHs and their employees, and $216.4 million in income in the CAH counties are dependent on the KY CAHs. Additionally, using a Quasi-Experimental approach the authors concluded that although in most cases no statistically significant differences were found, annual payroll growth rates were higher in the CAH counties after conversion to CAH status compared to similar counties that did not have a hospital convert to critical access. This seems to be an indication of the improvement of the economic situation of the counties after conversion.

VII. Flex Program Goals and Strategies for the Future

A. Support of existing CAHs and Eligible Hospitals

Federal guidance required that Flex Programs expand their focus beyond conversion activities, as a result, the KRHFP staff made on-site visits to all CAHs and Eligible Hospitals. An informal needs assessment was conducted in face to face interviews with both Administrative and Mid-Level Management staff. The information collected was compiled and collated according to level of importance and commonality. The top five needs were quality improvement, financial improvement, leadership development, trauma training and health information technology. This process provided a much clearer picture of the hospitals strengths and weaknesses and resulted in a better understanding of how to best meet the identified needs and possible redistribution of future Flex funds if necessary.

In partnership with Kentucky Hospital Association a forum for small rural hospitals and CAHs was developed to give rural hospitals an opportunity to exchange ideas and address current changes in healthcare. Monthly meetings are scheduled via telephone conferencing and an annual meeting that coincides with the hospital associations meeting. Support of small rural hospitals will continue to be provided through various mechanisms and activities. Utilization of existing networks, partnerships and staff will assist hospitals to increase services and improve

[7] Total profit margin= Net income/Total revenues

[8] Ona, L., A. Davis, and A. Hudoyo. Economic Impact of the Critical Access Hospital Program on Kentucky's Communities. University of Kentucky. 2008.

their financial positions.

B. Development and Implementation of Rural Health Networks

Kentucky rural hospitals are involved in a broad range of collaborative activities, ranging from transfer agreements to formal network relationships due in part, to the requirement that Critical Access Hospitals be a member of a rural health network. Through the work of the KRHFP and many other partners, Kentucky has numerous networks in place that include both horizontal and vertical. These networks are at various stages of development ranging from the initial planning phase to a very high level of sophistication. Several Kentucky networks have received various HRSA Network/Outreach grants as well as funding from private foundations.

The KRHFP works diligently to always identify opportunities to utilize existing networks or build a new network to improve and meet community needs. Building upon the proven success of existing local and regional networks the KRHFP has tentative plans in place to move towards the development of statewide networks. Planning is underway to link one of the networks with a major state university to work collaboratively on a research project.

C. Improvement and Integration of EMS Services

From the beginning EMS has been an integral part of the KRHFP as a contributing member of local hospital networks. Rural EMS providers have long struggled with both receiving local training to remaining current on best practice procedures and being accepted as a valid partner in the health care community. The passage of recent legislation for the development of a statewide trauma system will have a positive impact on EMS and their role in rural healthcare. Existing collaborations of the local hospitals and EMS will expedite Trauma Team Development in rural areas.

The KRHFP will continue to work to improve EMS integration by support of the following

- assisting in elevating the role of Rural EMS providers through education
- advanced certifications and continued networking
- continue support for Trauma Team development in small rural hospitals
- recruitment and retention of EMS personnel
- reducing the burden of regulatory requirements (eliminate 35 mile rule, any state laws that might restrict EMS staff)

Resources will also be devoted to leadership training for EMS boards and management staff.

D. Improving Quality of Care

Kentucky's rural hospitals are dedicated to improving the quality of health care they provide to their communities through outpatient, emergency and inpatient services. Hospitals are involved in many patient safety and quality improvement initiatives to support these efforts. In the coming years, small rural and CAHs will embark on a number of new initiatives including an MRSA Collaborative, a surgical timeout project, standardization of emergency codes, wrist-bands, and precaution signage and improving quality and performance measure benchmarking

In 2008 and 2009, small, rural and CAHs will join a statewide MRSA (methicillin-resistant *Staphylococcus aureus)* Collaborative. The focus of the collaborative is to implement evidence based best practices for improving identification, treatment and containment of MRSA. Additionally, hospitals will participate in monthly incidence data collection and benchmarking against peers and regional providers.

Hospitals will continue to participate in the Rural Quality Benchmarking Program. Participating hospitals will submit data quarterly on a number of new measures being developed by hospital users. Additionally, new indicators for performance improvement will be identified so that hospitals can gauge impact of quality initiatives to other areas of performance. Critical Access Hospitals will be encouraged to continue and maintain the current one hundred percent participation in CMS Hospital Quality Initiative "Hospital Compare".

Standardization of emergency overhead codes, color-coded wrist-bands and precaution signage has been identified as an excellent tool to reduce medical errors. Small, rural and CAHs will work with other Kentucky hospitals to identify ways to increase standardization in Kentucky so that health care workers serving multiple facilities will have a consistent set of codes and tools to work with. Additionally, promotion and education on standardization will support patients and families understanding of health care precautions.

E. Designation of Critical Access Hospitals

Federal legislation, effective January 1, 2006, mandated the Necessary Provider Rule would sunset. As a result, there will be no other Critical Access Hospital conversions in Kentucky. The KRHFP is in support of this legislation being rescinded as there are several small rural hospitals that might benefit from conversion.