Acknowledgements

Healthy Kansans 2020 Steering Committee

The Healthy Kansans 2020 Steering Committee is chaired by Dr. Robert Moser, the State Health Officer and Secretary of the Kansas Department of Health and Environment (KDHE). The steering committee is comprised of leaders from state and local agencies and organizations whose connection to health is both direct and indirect. The diverse makeup of this committee contributed to robust discussions that facilitated the development of a comprehensive and targeted plan for improving the health of Kansans by 2020.

<table>
<thead>
<tr>
<th>Committee Member</th>
<th>Organization</th>
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<tbody>
<tr>
<td>Adrienne Foster</td>
<td>Kansas Hispanic &amp; Latino American Affairs Commission</td>
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<tr>
<td>Annarose Hart</td>
<td>Kansas Department of Agriculture</td>
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<tr>
<td>Representative Barbara Ballard</td>
<td>Kansas House of Representatives</td>
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<tr>
<td>Billie Hall</td>
<td>Sunflower Foundation</td>
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<tr>
<td>Representative Brenda Landwehr</td>
<td>Kansas House of Representatives (1995-2013)</td>
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<tr>
<td>Brenda Sharpe</td>
<td>REACH Healthcare Foundation</td>
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<tr>
<td>Representative Brian Weber</td>
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<tr>
<td>Chris Cupp</td>
<td>Kansas Academy of Family Physicians</td>
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<tr>
<td>Chris Howell</td>
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<tr>
<td>Cindy Luxem</td>
<td>Kansas Health Care Association</td>
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<tr>
<td>Cindy Samuelson</td>
<td>Kansas Hospital Association</td>
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<tr>
<td>Claudia Blackburn</td>
<td>Sedgwick County Health Department</td>
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<td>Representative David Crum</td>
<td>Kansas House of Representatives</td>
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<td>University of Kansas School of Medicine-Kansas City</td>
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<tr>
<td>Dennis Mesa</td>
<td>Kansas Housing Resources Corporation</td>
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<td>Representative Don Hill</td>
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<td>Doug Vance</td>
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<tr>
<td>Ed Ellerbeck</td>
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<td>Gary Doolittle</td>
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<td>Gina Frack</td>
<td>Norton County Health Department</td>
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<td>Jason Glasrud</td>
<td>Kansas Department of Commerce</td>
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<td>Jeff Willett</td>
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<td>Jeffrey Colvin</td>
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<td>Jeremy Barclay</td>
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<td>Jerry Slaughter</td>
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<td>Joe Davison</td>
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<td>Kevin Robertson</td>
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<td>Kim Moore</td>
<td>United Methodist Health Ministry Fund</td>
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<td>Senator Laura Kelly</td>
<td>Kansas Senate</td>
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<td>Leonard Hernandez</td>
<td>Morton County Health System</td>
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<tr>
<td>Linda Sheppard</td>
<td>Kansas Insurance Department</td>
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<tr>
<td>Liz Hendricks</td>
<td>Public Square Communities, Inc.</td>
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<tr>
<td>Mark Synovec</td>
<td>Kansas Medical Society</td>
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<tr>
<td>Mark Thompson</td>
<td>Kansas State Department of Education</td>
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<tr>
<td>Martha Gabehart</td>
<td>Kansas Commission on Disability Concerns</td>
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<tr>
<td>Matt All</td>
<td>Blue Cross and Blue Shield of Kansas</td>
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<tr>
<td>Michelle Ponce</td>
<td>Kansas Association of Local Health Departments</td>
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<tr>
<td>Secretary Mike King</td>
<td>Kansas Department of Transportation</td>
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<tr>
<td>Mildred Edwards</td>
<td>Kansas African American Affairs Commission</td>
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<tr>
<td>Secretary Phyllis Gilmore</td>
<td>Kansas Department for Children and Family Services</td>
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<tr>
<td>Robert St. Peter</td>
<td>Kansas Health Institute</td>
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<tr>
<td>Sarah Green</td>
<td>Kansas Department of Agriculture</td>
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<tr>
<td>Secretary Shawn Sullivan</td>
<td>Kansas Department for Aging and Disability Services</td>
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<tr>
<td>Shirley Orr</td>
<td>Kansas Public Health Association</td>
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<tr>
<td>Terri Williams</td>
<td>Kansas Department of Corrections</td>
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<tr>
<td>Commissioner Tim Norton</td>
<td>Sedgwick County Board of Commissioners</td>
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<tr>
<td>Tom Bell</td>
<td>Kansas Hospital Association</td>
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<tr>
<td>Senator Vicki Schmidt</td>
<td>Kansas Senate</td>
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Healthy Kansans 2020 Content Expert Workgroups

The Healthy Kansans 2020 process relied on a vast network of content experts from across the state. These experts hail from state and local agencies and organizations, as well as academia and philanthropy. Experts were engaged throughout the health assessment and planning process to outline the current assets and barriers to improving health, and to fine tune priorities, objectives and action steps to ensure a final plan that is both achievable and supported by the latest scientific evidence.

See Appendix for the list of workgroup members.

External Stakeholders (Feb. 24 meeting participants)

The success of the state’s health improvement plan relies heavily on the willingness of partners to embrace the plans objectives and work towards improvement. The Healthy Kansans 2020 process engaged a broad base of partners via electronic surveys, webinars, in-person meetings and through public comment on the Healthy Kansans 2020 website. Feedback received through these various mediums was incorporated into the final document.

KDHE Administration, Program Staff, Epidemiologists and A-Team

KDHE began its efforts to prepare for public health accreditation in 2010 with the formation of the Community Health Assessment Team (CHA-Team) and the Accreditation Team (A-Team). While the CHA-Team completed its work in 2011, the A-Team continues to support the agency accreditation process, having formalized its efforts to guide the process through the adoption of a team charter in 2013. Beginning in 2012, agency epidemiologists, bureau directors, section leads and program administrators began compiling data to inform the state health assessment process. Work continued through 2013 and into early 2014 to develop and prioritize state plan strategies, objectives and actions. KDHE continues in its efforts to become an accredited state public health agency and will finalize all required evidence to support the Public Health Accreditation Board’s (PHAB) standards and measures by 2015.

See Appendix for the list of KDHE Review Team members and KDHE Accreditation Team members.
Dear Fellow Kansans:

As the State Health Officer and Secretary of KDHE, I had the privilege to chair the Healthy Kansans 2020 process. This dynamic planning approach began in 2010 with early work to prioritize the 42 health topic areas outlined in Healthy People 2020 and concluded in 2014 with the development of specific objectives and action steps to move the health of Kansans in a positive direction. I am thankful to the hundreds of individuals and organizations who committed time and energy to assess the health landscape in Kansas and develop the plan outlined in this document.

As proud Kansans we all want what is best for our state and the people who call her home. Kansas is served by a diverse collection of organizations and advocacy groups who valiantly call attention to the challenges we face and those people who are disproportionately impacted by these issues. This health improvement plan is a beginning point for our collective work to address some of these very challenges. It is my hope that the many organizations, advocacy groups, communities and individuals from across the state will connect with the issues detailed in this plan and in turn find a way to contribute to the work required to move the objectives and activities forward.

In the coming years, the financial resources, assets and barriers to addressing health are sure to change and so too will the priorities of the state’s health improvement plan. During the next six years, I encourage us to unite around this plan and begin down the path of implementation. True success will come from us all working together for a common good, a healthier Kansas to call home.

Sincerely,

Robert Moser

Dr. Robert Moser, Secretary and State Health Officer
Kansas Department of Health and Environment
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Executive Summary

Since its release in 1980, Healthy People has proven an invaluable resource and tool for national, state and local partners working to improve the health of their communities. Kansas has actively engaged in planning processes to address healthy people objectives since the mid-1980’s. These processes have evolved to include a more diverse set of partners to reflect the changing nature of healthy people.

The latest iteration of Healthy People, Healthy People 2020, provides a comprehensive set of 10-year, national goals and objectives for improving the health of all Americans. With nearly 1,200 health objectives and measures spanning 42 topic areas, Healthy People 2020 illustrates the complex and diverse nature of issues which now face the public health system. While all the topic areas and objectives included in Healthy People 2020 are noteworthy, further refinement was needed to prioritize a more manageable set of topics for review. More than 1,700 Kansans responded to a public opinion survey in 2010 to prioritize the 42 topic areas of Healthy People 2020 to a more practical 12.

In 2012, the Kansas State Health Officer convened a 50-member steering committee to complete an in-depth review of the 12 topic areas and develop recommendations to guide the development of a state health improvement plan. The committee was supported by a team of Kansas content matter experts and state health department staff tasked with researching topics, analyzing data, presenting information and providing insight into the current assets and barriers to specific health issues. In 2013, the steering committee released the Healthy Kansans 2020 Framework, outlining three cross-cutting themes and 11 strategies to assist Kansas stakeholders in the development of the state health improvement plan. What follows is a description of the priority strategies that determined the objectives and actions recommended in the plan.
Moving from Planning to Action

The challenges Kansas faces are in many ways the same as those faced by the majority of states—rising health care costs, chronic disease and a public health and health care system treading water in a sea of technology changes. And if these challenges weren’t enough, many states, including Kansas, are still grappling with public health threats that have been a mainstay for decades such as infant mortality, injuries and communicable and infectious diseases. But while the challenges may be similar, the context in which states are working to address these issues are not. As a primarily rural state with a population of more than 2.8 million people, the Kansas landscape is divided into 105 counties whose populations range from 1,500 residents to more than 500,000 residents. Critical public services such as public health and education operate in a decentralized system controlled by local boards of health and education. Kansas is home to 100 independent local health departments and 286 school districts. This loosely connected patchwork of critical partners requires well developed networks to support collaboration and to ensure the most basic public health services are delivered effectively and efficiently. And while not without its challenges, this loosely connected system has proven adequate to supporting public health work in Kansas since the state’s first set of public health recommendations were released in 1885. Public health in Kansas must continue...
to rely on these existing partner channels, while actively forging new relationships to address the growing complexity of the public health system demands.

The changing landscape of public health partners reflects the diverse and challenging issues which now face the public health system. Once dominated by infectious, preventable diseases, the leading causes of death in Kansas have shifted to reflect the rise in chronic disease and injuries.

While many of these issues remain preventable, they disproportionately impact African-Americans, Hispanic and Latinos, Native Americans and other minority groups living in Kansas. These issues are more prevalent in individuals living in poverty, in areas with limited access to healthy foods and quality medical services, areas void of safe and reliable public transportation, areas with limited access to quality schools and a host of other environmental, economic and social characteristics that can impact health and well-being.

The leading health challenges and their impact on vulnerable population groups in Kansas were the focus of ongoing discussions by the steering committee and state content experts throughout 2012 and 2013. The discussions lead to the development of the Healthy Kansans 2020 Framework, which calls attention to 11 health strategies. The Framework set the stage for a stakeholder driven process to develop a plan to improve the health of Kansans by 2020. The resulting state health improvement plan includes a focus on five of the 11 health strategies with 13 targeted objectives and more than 50 partner driven activities.

Leading Causes of Death, Kansas 2012

<table>
<thead>
<tr>
<th>Cause</th>
<th>Percentage</th>
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</thead>
<tbody>
<tr>
<td>Cancer</td>
<td>25%</td>
</tr>
<tr>
<td>Heart disease</td>
<td>20%</td>
</tr>
<tr>
<td>Chronic lower respiratory diseases</td>
<td>10%</td>
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<tr>
<td>Stroke</td>
<td>5%</td>
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<tr>
<td>Unintentional injuries</td>
<td>3%</td>
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<tr>
<td>Alzheimer's disease</td>
<td>2%</td>
</tr>
<tr>
<td>Diabetes</td>
<td>1%</td>
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<td>Pneumonia &amp; influenza</td>
<td>1%</td>
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<tr>
<td>Kidney disease</td>
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</tbody>
</table>
Kansas Health Improvement Plan Priority Strategies

Priority Strategy One

Healthy Living - Promote healthy eating and physical activity in Kansas through increased access to farmer’s markets and community gardens and through food policy councils and a growing network of schools, worksites and early childhood care providers.

Priority Strategy Two

Healthy Living - Promote a comprehensive approach to tobacco use prevention and control to reduce initiation and provide support for Kansans trying to quit tobacco through cessation interventions, including promotion and use of the Kansas Tobacco Quitline.

Priority Strategy Three

Healthy Communities - Promote environments and community design that impact health and support healthy behaviors with roadways designed to accommodate all users, access to trails connecting business and residential areas, initiatives to ensure clean air (indoor and outdoor), safe housing, access to quality drinking water and implementation of best practices such as community driven recycling.

Priority Strategy Four

Access to Services - Address the root causes of poor health through a renewed focus on improving health literacy, and by establishing more direct links between health initiatives and initiatives focused on decreasing the number of Kansans living in and impacted by poverty.

Priority Strategy Five

Access to Services - Promote integrated health care delivery by encouraging providers to move toward integrative models of care, increase health care access and the use of telemedicine, and expand the number of providers who adopt electronic health records (EHR) systems and connect to and use a health information exchange.
Healthy Kansans 2020 Timeline

- **4/2010 - 10/2010** Conduct the HK 2020 public opinion survey
- **8/2012** Convene HK 2020 Steering Committee
- **1/2013** Steering Committee releases HK2020 Framework
- **2/2014** Stakeholders prioritize strategies and approaches for health improvement plan
- **4/2014** Draft of health improvement plan completed and released for comment

- **12/2011** Launch HK 2020 health assessment process
- **11/2012** Kansas conducts National Public Health Performance Standards State Assessment
- **11/2013** Steering Committee and content experts identify key health improvement plan approaches
- **3/2014** Content experts review the evidence-base for each identified approach
- **5/2014** Plan submitted with KDHE public health accreditation application
Kansas entered the Union on January 29, 1861, as the 34th state, a free state. It is named after the Kansa Native American tribe, which originally inhabited the area. Kansas is the 15th largest state by land area, and the 34th most populous state (2013 Census estimate). The state capital is Topeka, with a population of 127,939 (2012 Census estimate). Topeka is located in Shawnee County. Kansas tends to have a decentralized local government structure with 105 counties, 627 incorporated cities, 100 decentralized local health departments and 286 unified school districts.

Compared with national averages, Kansas is a bit younger, less racially diverse and much less densely populated. Kansas has a lower median household income than the U.S., but fewer people living in poverty. However, Kansas mirrors national trends in many areas, with few dramatic differences from U.S. demographic breakouts, proportionally.

Before reviewing current demographics in anticipation of planning for a healthier Kansas in 2020, we first look back in a brief historical overview of demographic and key health outcome trends.

**Historical Overview**

During the last 110 years, Kansas, like the rest of the nation, has evolved demographically while making great strides in improving health outcomes.
Kansas in 1900

Like today, the eastern side of the state was more densely populated than the western side in 1900, but the population was more homogenously distributed. Kansas represented 2 percent of the total U.S. population, and the 10 most populous counties comprised 28 percent of the state’s population.

10 Most Populous Counties in 1900

1. Wyandotte
2. Shawnee
3. Sedgwick
4. Cherokee
5. Leavenworth
6. Crawford
7. Cowley
8. Montgomery
9. Reno
10. Atchison

Number of Farms: 173,000+

Leading Causes of Death:
1. Pneumonia and Influenza
2. Tuberculosis
3. Diarrheal diseases

U.S. Infant Mortality Rate: 162 infant deaths per 1,000 live births

U.S. Life Expectancy: 47 Years
Kansas in 1960

In 1960, the population was distributing more toward urban areas and regional centers. Kansas represented 1.2 percent of the U.S. population, and the 10 most populous counties comprised more than half (51%) of the Kansas population. The number of farms decreased by 40 percent between 1900 and 1960. The infant mortality rate decreased to one-sixth of what it was in 1900, and life expectancy increased nearly 50 percent.

10 Most Populous Counties in 1960
1. Sedgwick
2. Wyandotte
3. Johnson
4. Shawnee
5. Reno
6. Saline
7. Leavenworth
8. Montgomery
9. Douglas
10. Riley

Number of Farms: 104,000

Leading Causes of Death:
1. Heart Disease
2. Cancer
3. Cerebrovascular Disease

U.S. Infant Mortality Rate: 26 infant deaths per 1,000 live births

Kansas Infant Mortality Rate: 22 infant deaths per 1,000 live births

U.S. Life Expectancy: 70 Years
Kansas in 2010

The national growth rate continued to outpace Kansas’ population growth. By 2010, Kansans represented less than 1 percent of the nation’s population. There were 38,000 fewer farms in 2010 compared with 1960. The geographic trend of increasing densities in urban and regional centers continued, with decreasing populations in the most rural areas of the state. The 10 most populous counties comprised nearly two-thirds (64%) of the state’s population. The 60 smallest counties together made up less than 10 percent of the state’s population. Health outcomes continued to improve, in Kansas and nationally. The state’s infant mortality rate was down 71 percent compared with 1960, and life expectancy increased from 70 to 79 years.

10 Most Populous Counties in 2010

1. Johnson
2. Sedgwick
3. Shawnee
4. Wyandotte
5. Douglas
6. Leavenworth
7. Riley
8. Butler
9. Reno
10. Saline

Number of Farms: 66,000

Leading Causes of Death:
1. Heart Disease
2. Cancer
3. Chronic Lower Respiratory Diseases

U.S. Infant Mortality Rate: 6.3 infant deaths per 1,000 live births

Kansas Infant Mortality Rate: 6.3 infant deaths per 1,000 live births

U.S. Life Expectancy: 79 Years
These highlights demonstrate that significant change has happened in Kansas in the past, both in demographics and key health outcomes. However, those changes are most evident when tracked over decades rather than single years. Looking at the past reminds us that significant demographic shifts can take place in our population, which may contribute to health outcomes. It also gives us hope for making significant impact on the health of Kansans as we move toward 2020 and beyond.

**Age, Gender and Race and Ethnicity Distribution**

In 2013, Kansas had an estimated total population of 2,893,957, compared with 316,128,839 for the U.S. For Kansas, this represents a 1.4 percent increase, compared with a 2.4 percent increase nationally for the same period. Our population is 50.3 percent female and 49.7 percent male, which is similar to the national percentage of female (50.8%) and male (49.2%).

Racially, Kansans are 87.2 percent white “alone” (as opposed to in combination with another race). Black or African-American alone is the largest racial minority, which is 6.2 percent of the population. More than 1 in 10 (11.0%) Kansans are of Hispanic ethnicity (2012 Census estimates).
Seven percent of Kansans are under 5 years old, compared with 6.4 percent for the U.S. One quarter (25.1%) of Kansas are under 18 years old, which is also slightly higher than national proportion (23.5%). Both Kansas and the U.S. have 13.7 percent of the population 65 years old and older (2012 Census estimates).

The median age of Kansans is 36.0, compared with 37.4 for the U.S. (2012 Census estimates). Racial and ethnic minorities have younger median ages than white Kansans, and males have younger median ages than females. Hispanic males and females have young median ages, at 23.8 and 23.2 years, respectively. Those identifying themselves using two or more races have a much younger median age. The way younger people versus older people choose to identify racially or how parents identify their children may be contributing factors to the extremely young age of those using two or more racial categories to self-identify.

Source: 2012 U.S. Census population estimates
Looking at graphs showing five-year age groups by gender, also known as population pyramids, we can see how the population is distributed throughout the age groups and how minority racial and ethnic groups tend to be younger.
Socioeconomic Factors

Compared with the U.S., Kansas has a slightly lower per capita income ($26,390 versus $27,319), median family income ($79,648 versus $83,124), and median household income ($50,241 versus $51,371). However, fewer Kansans (14.0%) are living in poverty than the national proportion (15.9%) (2012 U.S. Census, American Community Survey).

Considering family income, Kansas has more families in the middle income ranges and fewer in the lowest and highest income categories than the U.S.: 51.0 percent of Kansas families have incomes ranging from $35,000 to $99,999 compared to 46.5 percent of U.S. families. Only 6.2 percent of Kansas families are in the lowest income category (less than $15,000) compared to 8.4 percent of U.S. families. Looking at the highest income category, the proportion of U.S. families earning $100,000 or more is 27.1 percent, slightly higher than the proportion of Kansas families (25.1%) in the same category.

Poverty determinations are based on annual income and family size. Poverty ratios measure income as a ratio to the poverty level: 100 percent poverty is equal to the poverty level, while 200 percent poverty represents an annual income twice as much as the poverty level. The higher the income, the greater the poverty ratio. Poverty ratios are often a key factor determining eligibility for federal and state programs, including Medicaid and CHIP. For example, pregnant women in Kansas with an income below 150% poverty are eligible for Medicaid.
This table lists the 2012 federal poverty guidelines, which apply to Kansas and the other 47 contiguous states and the District of Columbia. (Alaska and Hawaii have separate guidelines.) Selected poverty ratios for are also provided for reference.

<table>
<thead>
<tr>
<th>Persons in Family/Household</th>
<th>Poverty Guideline (100% Poverty)</th>
<th>150% Poverty</th>
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<tr>
<td>1</td>
<td>$11,170</td>
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<td>$30,970</td>
<td>$46,455</td>
<td>$61,940</td>
<td>$92,910</td>
</tr>
</tbody>
</table>

Poverty guidelines, which are used for program eligibility determination, are slightly different than poverty thresholds, which are used by the Census Bureau for statistical purposes. (See http://aspe.hhs.gov/poverty/12poverty.shtml for original source and more information.)

Based on the latest estimates (2012 U.S. Census, American Community Survey), 14 percent of Kansans are below 100 percent poverty and 1 in 3 (33.3%) are below 200 percent poverty.

By age group, children are more likely to be below 100 percent and 200 percent poverty than adults. (2010-2012 U.S. Census, American Community Survey)
According to the 2012 American Community Survey (U.S. Census), 13.0 percent of Kansans were uninsured. More than one quarter (27.2%) of those living below poverty are uninsured, compared with 5.7 percent of those at 250 percent poverty or higher.

Statewide, 6.6 percent of children 0 to 17 years old are uninsured (2012 American Community Survey). By poverty ratio, the highest proportion of uninsured children is in the 100 to 149 percent poverty group.
According to the Kansas Labor Information Center, the unemployment rate for 2013 was 5.4 percent. Looking at the trend over several months, monthly cycles were higher than average during the summer as well as in January and February.
According to the American Community Survey (2012), the educational attainment levels of Kansans are slightly higher than the U.S. average: 90.1 percent of Kansans have at least a high school diploma compared with 86.4 percent nationally, and 30.4 percent of Kansans have a bachelor’s degree or higher compared with 29.1 percent in the U.S.

Slightly more than 1 in 10 Kansans (11.2%) speak a language other than English at home compared with 1 in 5 (21%) nationally. Among those who speak a language other than English at home, Spanish is the most common, both nationally and in Kansas. An estimated 4.4 percent of Kansans 5 years old and older speak English less than “very well,” meaning they may struggle to understand health and medical information provided in English only. This compares to 8.5 percent nationally.

### Percentage of Languages Spoken Other Than English

<table>
<thead>
<tr>
<th>Language</th>
<th>U.S.</th>
<th>Kansas</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spanish</td>
<td>13.0%</td>
<td>7.5%</td>
</tr>
<tr>
<td>Other Indo-European</td>
<td>3.8%</td>
<td>1.4%</td>
</tr>
<tr>
<td>Asian &amp; Pacific Islander</td>
<td>3.3%</td>
<td>1.8%</td>
</tr>
<tr>
<td>Other Languages</td>
<td>0.9%</td>
<td>0.4%</td>
</tr>
</tbody>
</table>

2012 American Community Survey
According to the American Community Survey (2012), the mean travel time to work for Kansans is 19 minutes compared with 25.74 minutes nationally. Kansas also has lower urban (18.2 minutes) and rural (21.5 minutes) commute times compared to the national averages. The percentage of people who take less than 15 minutes to get to work is higher in Kansas (41%) than nationally (27.6%).
Measuring Health Status in Kansas

Central to an effective health assessment process is access to and review of reliable and sound public health data. Data elements which support a comprehensive health assessment process include a diverse set of indicators ranging from poverty and education measures to disease specific mortality and morbidity data. The Kansas public health system invests considerable time and resources to ensure data routinely collected through reliable sources are made available to partners. Kansas has implemented several key initiatives during the past five years (described below), which have been central to supporting the health assessment process.

Health Assessment Data: The Core and Universal Indicators

In 2008, Kansas was one of 16 states selected to participate in the third phase of the Robert Wood Johnson Foundation’s (RWJF) Multi-State Learning Collaborative: Lead States in Public Health Quality Improvement (MLC). The third phase of the learning collaborative consisted of 11 teams assembled from across Kansas representing state, regional and local perspectives, including a team representing the state health department. The KDHE team concentrated its work on the topic of community health assessment, focusing specifically on how KDHE could remove existing barriers to accessing routinely collected data and package and promote the data in a more targeted way to better support partners in conducting health assessments.

As the project progressed, the team expanded its focus beyond KDHE data sets and collected indicators to represent a more diverse set of measures required to support a comprehensive community health assessment process. The team engaged the Kansas Health Institute to assist in developing a core and universal set of health indicators. The team engaged local health department staff to provide feedback on the usefulness of the proposed indicators to support the health assessment process. And while the number of indicators included in the core has increased since the set was initially released in 2011, these early indicators served as the foundation on which the Kansas Health Matters website was developed.
Enhancing Access to Reliable Health Indicators: Kansas Health Matters

Kansas Health Matters brings community health-related statistical data, local resources and a wealth of information to one accessible, user-friendly website. The data are obtained from multiple sources and are updated whenever their sources are, providing the most up-to-date information of its kind. Information is available for each county, for regions and for the state. The site is intended to help hospitals, health departments, community groups, schools, health associations, chambers of commerce, tourism, community members, policy makers and many other organizations learn about the health of the community and how to improve it. In addition to state and local health data, the site provides resources, promising best practices, news articles and information about community events related to important community health issues. The site specifically aims to support the development of community health assessments and community health improvement plans by hospitals and local health departments, but its content is relevant for anyone interested in how to assess and improve the health of communities. For more information about Kansas Health Matters and for a complete overview of the indicators included on this site, please visit kansashealthmatters.org.
Prioritizing Healthy People Topic Areas: Healthy Kansans 2020 Public Opinion Survey

Healthy People 2020 contains 42 topic areas and nearly 1,200 objectives. While all topic areas, objectives and measures are important and warrant attention, the volume of work and resources required to thoroughly review each of these topics is prohibitive. To prioritize the Healthy People 2020 topics, Kansas public health professionals, stakeholders and members of the general public participated in an electronic opinion survey in 2010.

The opinion survey was implemented using a convenience sample and distributed through multiple delivery mechanisms (social media, list serve and kiosks at state conferences). While the sampling methods differed, comparisons were still possible between the opinion survey implemented in 2010 and a similar survey implemented as part of the Healthy Kansans process in 1992. This comparison provided unique insight into how Kansans’ understanding of health issues, risk and protective factors and priorities has changed during the past 20 years.

Paring down the 42 topic areas of Healthy People 2020 to a more manageable 12 was the first step in the state health assessment process. The 1,700 respondents to the 2010 survey prioritized a subset of Healthy People 2020 topics, objectives and measures upon which partners in Kansas could focus their energy.

12 Healthy Kansans 2020 Prioritized Topic Areas

1. Chronic diseases
2. Access to care
3. Lifestyle behaviors
4. Social factors affecting health
5. Environment
6. Health issues affecting mothers, infants and children
7. Mental health issues
8. Health issues among Kansans living with disabilities
9. Violence
10. Oral (dental) health
11. Injury and safety
12. Infectious diseases

For more information about the Healthy Kansans 2020 public opinion survey and for complete survey results, please visit the Healthy Kansans 2020 website at healthykansans2020.org.

Data Review: Overview of the 12 Healthy Kansans 2020 Topic Areas

KDHE epidemiologists and program staff began compiling data to support the state health assessment process in 2012. The data review that follows is organized around the 12 topic areas prioritized by stakeholders through the Healthy Kansans 2020 public opinion survey. Each of the topic areas includes a collection of specific indicators selected by KDHE epidemiologists and program staff based on their relevance to the broader topic and their role in driving mortality, morbidity, prevalence, cost and/or a reduced quality of life.
Chronic Disease

Chronic diseases, such as heart disease, stroke, cancer, diabetes and arthritis, are the leading causes of death, poor quality of life, and lifelong disability in the United States. The cost of chronic disease treatment account for about 75 percent of the country’s health care costs. Chronic diseases, defined by their long duration, slow progression and ongoing management, are the most common, persistent and costly, yet are the most preventable of all health problems in the nation. Chronic diseases are preventable because most of the illness, disability and premature death related to these diseases is contributed by four modifiable health risk behaviors: lack of physical activity, poor nutrition, tobacco use and excessive alcohol consumption. Often these behaviors are established during adolescence, long before the onset of chronic disease. Thus, lifestyle changes and health promotion activities can vastly reduce the risk of these diseases and can modify their progression.

Prevention efforts should be done within multiple sectors and throughout people’s life spans.

Section Overview

As in the U.S., chronic diseases are also the leading causes of death and disability in Kansas, costing $19.5 billion out of $26 billion spent on health care in Kansas. About 71 percent of all deaths each year in Kansas are due to chronic diseases. In addition, 7 out of 10 leading causes of death are chronic diseases, which constitute about two-thirds (63%) of all deaths among Kansans. This pattern of chronic diseases taking at least seven spots on the list of 10 leading causes of death and being responsible for major proportion of all deaths in the state is seen during the last several years. Each year during this period, more than 50 percent of total deaths have been due to four leading causes of death: cancer, coronary heart disease, stroke and diabetes. In 2011, these four diseases were responsible for 12,785 out of 25,114 total deaths. These diseases are also responsible for high morbidity and disability in Kansas. In addition to these diseases, arthritis -- another chronic disease – is a major contributor of poor quality of life and disability in Kansas.
This section discusses the status of four chronic diseases (cancer, coronary heart disease, stroke and diabetes) among Kansas. It examines mortality, prevalence or incidence of these diseases in the overall population of Kansas as well as in population subgroups to understand existing disparities. Regarding cancer burden, this section discusses burden of six cancers: lung cancer, colorectal cancer, female breast cancer, prostate cancer and melanoma (leading causes of cancer death and incidence rates) and cervical cancer (the most preventable and treatable cervical cancer) among Kansans.

**Highlights and Discussion**

In Kansas, age-adjusted mortality rates for cancer, coronary heart disease and stroke have been declining during the last several years, whereas the age-adjusted diabetes mortality rate has not shown any change during this period. Despite of these patterns in the mortality trends, these four diseases still represent 50 percent of all deaths in the state. Mortality trends for these four chronic diseases are parallel to national trends. In Kansas, during the last several years, lung cancer has been the leading cause of cancer death among men and women. Among men, colorectal cancer has been the second and prostate cancer the third leading cause of cancer deaths. Among women, breast cancer has been the second and colorectal cancer the third leading cause of cancer deaths. Age-adjusted mortality rates for lung cancer, colorectal cancer and melanoma have not shown any change during the last several years. The age-adjusted cervical cancer mortality rate among women has not changed. Declining trends are seen in the age-adjusted mortality rates of prostate cancer among men and breast cancer among women during the last several years.
In addition to being responsible for the majority of deaths among Kansans, these four chronic diseases are also responsible for significant illness and suffering. During the last several years, prevalence of diabetes among adults 18 years old and older has been increasing. Between 2000 and 2010, there was an increase of 42 percent in the prevalence of diabetes among adults 18 years old and older. This trend is similar to the national trend.  

Age-adjusted overall cancer incidence rates have remained relatively stable during the last several years. The most commonly diagnosed cancers among Kansas males during the last several years are prostate, lung and colorectal cancer. Among Kansas females, the most commonly diagnosed cancers during this period are breast, lung and colorectal cancer. 

Chronic health conditions often co-occur. For example, more than half (53.2%) of Kansas adults with arthritis had at least one other chronic health condition in 2009.
Disparities

These chronic diseases are not only responsible for majority of deaths and illness in the overall population of Kansas, but the situation is complicated by disparities in their mortality and morbidity rates in population subgroups.

Age-adjusted death rates for coronary heart disease and stroke are higher among African-American Kansans compared with white Kansans.\(^7,11\) Similarly, age-adjusted death rates for all cancers, lung cancer, colorectal cancer and prostate cancer are higher among African-American Kansans compared with white Kansans.\(^8,11\) Also, diabetes age-adjusted mortality rate is higher among African-Americans and Hispanics compared with whites.\(^8,11\) Age-adjusted death rates for coronary heart disease, diabetes, lung cancer, colorectal cancer and melanoma are higher among men compared with women.\(^7,8,9,11\) Higher death rates for diabetes, stroke and coronary heart disease are also seen among rural population subgroups.\(^7,8,9,11\)

Prevalence of coronary heart disease was higher among non-Hispanic whites compared with non-Hispanic African-Americans and Hispanics.\(^7,12\) Lower prevalence of coronary heart disease among non-Hispanic African-Americans compared with non-Hispanic whites may be related to higher mortality rates among African-Americans compared with whites. Age-adjusted prevalence of diabetes among non-Hispanic African-American adults, non-Hispanic American Indian or Alaska Native adults, non-Hispanic adults of other races or multiple races and Hispanic adults are all significantly higher than for non-Hispanic white adults.\(^9,12\) Age-adjusted incidence rates for lung cancer, colorectal cancer, melanoma and prostate cancer is significantly higher for African-American Kansans than for...
white Kansans. Age-adjusted incidence rates for lung cancer, colorectal cancer and melanoma are higher among men compared with women. Prevalence of coronary heart disease is higher among men compared with women. Prevalence of diabetes is higher among adults 18 years and older with lower education and annual household income.

Summary

Chronic disease is the major public health challenge of the 21st century, as indicated by the huge burden of overall mortality and morbidity and disparities in population subgroups in the U.S. and Kansas. Even though chronic diseases are among the most common and costly of all health problems, fortunately, they are also among the most preventable. To reduce chronic disease burden and associated disparities, efforts are needed in multiple sectors and across people’s life spans. Efforts encompass health promotion activities that encourage healthy living and limit the initial onset of chronic diseases, early detection efforts, such as screening at-risk populations, and appropriate, timely treatment and management of illness and related complications.

References

In the United States, because of extensive and continuous advances in cancer screening, detection and treatment, a decline is seen in both incidence and death rates for all cancers. Now, about more than half of the people who develop cancer survive five years. However, despite this progress, cancer remains a leading cause of death, killing about 570,000 Americans each year, which is more than 1,500 people a day. In addition, about 1,530,000 Americans are diagnosed with new cancers each year. To improve cancer mortality and morbidity, it is important to promote evidence-based screening for cervical, colorectal and breast cancer through screening tests identified in the U.S. Preventive Services Task Force (USPSTF) recommendations. In addition to promoting recommended screening practices for prevention, early diagnosis and prompt treatment of these cancers, it is also important to address the risk factors, such as tobacco use, physical inactivity, poor nutrition, obesity and exposure to ultraviolet light, along with promoting vaccination against human papillomavirus and hepatitis B virus to prevent cancers that have shown some association with these risk factors.

In Kansas, more than 13,000 people are diagnosed with cancer each year and approximately 5,300 die from the disease. Cancer is the leading cause of death in the state. Furthermore, cancer is a massive financial drain on state resources—estimated cost to the state is approximately $2 billion annually.

In Kansas, the specific cancers that are the leading causes for the highest number of cancer deaths and new cancer cases are lung cancer, colorectal cancer, female breast cancer, prostate cancer and melanoma. On average, each year:

- More than 1,500 Kansans die of and more than 1,800 are diagnosed with lung cancer.
● More than 500 Kansans die of and nearly 1,400 are diagnosed with colorectal cancer.
● About 380 Kansas women die of and 1,900 are diagnosed with breast cancer.
● Approximately 30 Kansas women die of and 90 are diagnosed with cervical cancer.
● Approximately 250 men die of and 2,000 are diagnosed with prostate cancer.
● More than 90 Kansans die of and 600 are diagnosed with melanoma.

Disparities are also seen in mortality and incidence rates of these cancers.\textsuperscript{1,10,13}

It is imperative action be taken to confront cancer with a focused and systematic plan. The primary goals of public health and clinical efforts should be reducing the burden and suffering of patients with cancer, and enhancing the lives of all Kansas cancer survivors and their families. Efforts to address issues related to cancer must be coordinated and collaborative, and should leverage the strengths and resources of all partners.

**Definition and Introduction:**

Cancer is a group of diseases in which abnormal cells divide uncontrollably and invade other tissues. Cancer cells can spread to other parts of the body through the blood and lymphatic systems. There are more than 100 different types of cancer, most of which are named for the organ or type of cell in which they start.\textsuperscript{1,2} If the spread is not controlled, cancer can result in death. In the U.S., cancer is a leading cause of death, accounting for nearly 1 in 4 deaths.\textsuperscript{1,3}

Although anyone can develop cancer, the risk of developing cancer increases with age because most cancers result from damage to genes that occurs during the course of one’s lifetime, as opposed to inherited genetic mutations. Genetic damage may result from internal factors, such as hormones and immune conditions, or external factors, such as tobacco, viruses, chemicals and radiation. Several of the most common cancers are largely preventable through avoidance of tobacco use and secondhand smoke exposure, maintenance of a healthy weight, adequate physical activity and healthful nutrition. Other cancers caused by viruses and ultraviolet radiation are also preventable through vaccination and skin protection, respectively. Cancer screenings can also prevent certain cancers, such as colorectal and cervical cancer, through the detection and removal of precancerous cells before they turn into cancer. In addition, screenings are beneficial because they can result in the diagnosis of cancers at an early stage when they are most amenable to treatment. For example, research has demonstrated that early detection of breast cancer with mammography saves lives and increases treatment options for women.\textsuperscript{1,3}

A decline in both incidence and death rates for all cancers is seen in the U.S. as a result of extensive and continuous advances in screening, detection and treatment of cancer.\textsuperscript{4} Now, about more than half of the people who develop cancer survive five years.\textsuperscript{5} However, despite this progress, cancer still remains the leading cause of death in the nation killing about 570,000 Americans each year, which is more than 1,500 people a day.\textsuperscript{6,7} In addition, about 1,530,000 new cancer cases are
diagnosed each year. To improve the mortality and morbidity due to cancer, it is important to promote evidence-based screening for cervical, colorectal and breast cancer by the use of screening tests identified in the U.S. Preventive Services Task Force (USPSTF) recommendations. In addition to promoting recommended screening practices for prevention, early diagnosis and prompt treatment of these cancers, it is also important to address the risk factors, such as tobacco use, physical inactivity, poor nutrition, obesity and exposure to ultraviolet light, along with promoting vaccination against human papillomavirus and hepatitis B virus to prevent the cancers that have shown some association with these risk factors.

Cancer is the leading cause of mortality in Kansas. More than 5,300 Kansans, on average, die of cancer each year. In Kansas, age-adjusted cancer mortality rate has decreased significantly during the last several years, from 186.2 deaths per 100,000 people (95% confidence interval: 181.1 to 191.3) in 2000 to 169.7 deaths per 100,000 people (95% confidence interval: 165.1 to 174) in 2011. Age-adjusted cancer mortality rate has also decreased significantly in the U.S. during this time. Furthermore, cancer is a massive financial drain on state resources—estimated cost to the state is approximately $2 billion annually. Kansas has not met the HP2020 target for overall cancer mortality rate, therefore further work is needed to achieve this target.

This section discusses mortality and morbidity due to six specific cancers: lung cancer, colorectal cancer, female breast cancer, cervical cancer, prostate cancer and melanoma. Lung cancer, colorectal cancer, female breast cancer, prostate cancer and melanoma are the leading causes of cancer deaths and incidence in Kansas.

**Mortality and Morbidity Due to Specific Cancers in Kansas**

**Lung Cancer in Kansas**

Lung cancers are usually grouped into two main types, small cell and nonsmall cell, which grow differently and are treated differently. Nonsmall cell lung cancer is more common than small cell lung cancer. Cigarette smoking is the number one preventable cause of lung cancer. The disease can also be caused by exposure to secondhand smoke, asbestos or radon. In Kansas, lung cancer is the leading cause of cancer death, and the second most commonly diagnosed cancer overall.

**Mortality - Time Trends**

On average, each year more than 1,500 Kansans die of lung cancer. Age-adjusted lung cancer mortality rate has remained relatively stable during the last several years with no observed statistically significant differences. The age-adjusted lung cancer mortality rate in Kansas is 52.2 deaths per 100,000 people (95% confidence interval: 49.6 to 54.9). Kansas has not met the HP2020 target for lung cancer mortality rate in the overall population, and because there are disparities in mortality rates among population subgroups, further work is needed to achieve this target in Kansas.

**Age and Gender**

Age-specific mortality rate for lung cancer is higher for Kansans 65 years and older compared with those between 45 and 64 years old. During the last several years, significantly higher age-adjusted lung cancer mortality rates are seen for
males as compared to females. Age-adjusted lung cancer mortality rates have remained stable during this period for men and women.\textsuperscript{1,10}

**Race and Ethnicity**

The age-adjusted lung cancer mortality rate is significantly higher for African-American Kansans than for white Kansans. The age-adjusted lung cancer mortality rate is significantly lower for Hispanic Kansans than for non-Hispanic Kansans.\textsuperscript{1,10}

**Lung Cancer Morbidity**

**Lung Cancer Incidence**

On average, each year more than 1,800 lung cancers are diagnosed among Kansans. Age-adjusted lung cancer incidence rate has remained relatively stable during the last several years with no observed statistically significant differences. The age-adjusted lung cancer incidence rate in Kansas is 62.1 cases per 100,000 people (95% confidence interval: 59.2 to 65.0).\textsuperscript{1,13}

Disparities are seen in the incidence of lung cancer. During the last several years, significantly higher age-adjusted lung cancer incidence rates are seen for males compared with females. Age-adjusted lung cancer incidence rates have remained unchanged for males or females during this period. The age-adjusted lung cancer incidence rate is significantly higher for African-American Kansans than for white Kansans. The age-adjusted lung cancer incidence rate is significantly lower for Hispanic than for non-Hispanic Kansans.\textsuperscript{1,13}

**Lung Cancer Stage at Diagnosis among Race Groups**

In Kansas, nearly half (48%) of invasive lung cancers are diagnosed at the distant stage for white and African-American Kansans.\textsuperscript{1,13}

**Colorectal Cancer in Kansas**

Colorectal cancer develops from precancerous polyps in the colon (large intestine) or rectum. The cause of most colorectal cancers is not yet known; however, research has shown that increased physical activity and maintaining a healthy weight can decrease the risk for colorectal cancer.\textsuperscript{14} In Kansas, colorectal cancer is the second leading cause of cancer death among males and the third leading cause of cancer death among females, and the third most commonly diagnosed cancer among both males and females.\textsuperscript{1}

**Mortality - Time Trends**

Each year, on average more than 500 Kansans die due to colorectal cancer. Age-adjusted colorectal cancer mortality rate in Kansas is 15.4 deaths per 100,000 people (95% confidence interval: 14.1 to 16.9). Age-adjusted colorectal cancer mortality rate has remained relatively stable during the last several years with no observed statistically significant differences.\textsuperscript{1,10}

Kansas has not met the HP2020 target for colorectal cancer mortality rate for the overall population, and because there disparities in mortality rates among population subgroups, further work is needed to achieve this target.
Age and Gender
Age-specific mortality rate for colorectal cancer is higher for Kansans 65 years old and older compared with those between 45 and 64 years old. During the last several years, significantly higher age-adjusted colorectal cancer mortality rates are seen for males compared with females. Age-adjusted colorectal cancer mortality rates have remained stable during this period for men and women.

Race and Ethnicity
The age-adjusted colorectal cancer mortality rate is significantly higher among African-American Kansans than white Kansans. The age-adjusted colorectal cancer mortality rate is significantly lower among Hispanic Kansans than for non-Hispanic Kansans.

Colorectal Cancer Morbidity

Colorectal Cancer Incidence
Each year, on average nearly 1,400 colorectal cancers are diagnosed among Kansans. During the last several years, the age-adjusted colorectal cancer incidence rate has decreased significantly. The age-adjusted colorectal cancer incidence rate in Kansas is 46.4 cases per 100,000 people (95% confidence interval: 44.0 to 49.0).

Disparities are seen in the incidence of colorectal cancer in Kansas. During the last several years, there are significantly higher age-adjusted colorectal cancer incidence rates among males compared with females. The age-adjusted colorectal incidence rates have decreased significantly for males during this period, whereas age-adjusted colorectal incidence rates have remained stable for females during this period. The age-adjusted colorectal cancer incidence rate is significantly higher for African-American Kansans than for white Kansans. The age-adjusted colorectal cancer incidence rate is significantly lower for Hispanic than for non-Hispanic Kansans.

Colorectal Cancer Stage at Diagnosis Among Race Groups
In Kansas, approximately 2 in 5 invasive colorectal cancers are diagnosed at the local stage for both white and African-American Kansans (43% and 40%, respectively), while approximately one-third are diagnosed at the regional stage (33% and 30%, respectively).

Female Breast Cancer in Kansas
There are different kinds of breast cancer depending on which cells in the breast turn into cancer, such as the ducts, which carry milk to the nipple (ductal carcinoma), or the glands,
which produce milk (lobular carcinoma). Among Kansas women, breast cancer is the most commonly diagnosed cancer, and the second leading cause of cancer death among women.

**Mortality - Time Trends**

Each year, on average approximately 380 Kansas females die due to breast cancer. The age-adjusted female breast cancer mortality rate has decreased significantly during the last several years. The age-adjusted female breast cancer mortality rate in Kansas is 21.4 deaths per 100,000 females (95% confidence interval: 19.2 to 23.8).\(^\text{1,10}\)

Kansas has not met the HP2020 target for breast cancer mortality rate for overall female population, and there are disparities in mortality rates among female population subgroups; therefore, further work is needed to achieve this target in Kansas.

**Age**

Age-specific mortality rate for breast cancer is higher for Kansas women 65 years old and older compared with those between 45 and 64 years old.\(^\text{10}\)

**Race and Ethnicity**

No significant difference is seen in the age-adjusted breast cancer mortality rates for African-American women and white women. The age-adjusted female breast cancer mortality rate is significantly lower for Hispanic women than for non-Hispanic women.\(^\text{1,10}\)

**Female Breast Cancer Morbidity**

**Female Breast Cancer Incidence**

On average, nearly 1,900 breast cancers are diagnosed among Kansas females each year. During the last several years, the age-adjusted female breast cancer incidence rate has decreased significantly. The age-adjusted female breast cancer incidence rate in Kansas is 120.3 cases per 100,000 females (95% confidence interval: 114.8 to 126.0).\(^\text{1,13}\)

In Kansas, no significant difference is seen in the age-adjusted breast cancer incidence rates among African-American women and white women. The age-adjusted breast cancer incidence rate is significantly lower among Hispanic women than non-Hispanic women.\(^\text{1,13}\)

**Female Breast Cancer Stage at Diagnosis among Race Groups**

In Kansas, invasive female breast cancers are more commonly diagnosed at the local stage among white women (61%) as compared with African-American women (51%). Conversely, invasive female breast cancers are more commonly diagnosed at the regional and distant stage among African-American women (37% and 8%, respectively) as compared with white women (31% and 5%, respectively).\(^\text{1,13}\)

**Cervical Cancer (Uterine Cervix) in Kansas**

The cervix is the lower, narrow end of the uterus. The human papillomavirus (HPV) is the main cause of cervical cancer. HPV is a common virus that is passed from one person to another during sex. At least half of sexually active people will have HPV at some point in their lives, but few women will get cervical cancer.\(^\text{16}\)

**Mortality - Time Trends**

On average, approximately 30 Kansas females die due to cervical cancer each year. During the last several years, the age-adjusted cervical cancer mortality rate has remained stable. The age-adjusted cervical cancer mortality rate in Kansas is 1.9 deaths per 100,000 females (95% confidence interval: 1.3 to 2.8).\(^\text{1,10}\)
Kansas has already met the HP2020 target for cervical cancer mortality rate for overall female population. However, because there are disparities in mortality rates among female population subgroups, further work is needed to address these disparities.

**Age**

Age-specific mortality rate for cervical cancer is higher for Kansas women 65 years old and older compared with those between 45 and 64 years old.10

**Race and Ethnicity**

In Kansas, age-adjusted mortality rates for cervical cancer among African-American and Hispanic women are not examined because the number of cervical cancer deaths in these racial/ethnic subgroups is not sufficient for computation of scientifically reliable rates.

**Cervical Cancer Morbidity**

**Cervical Cancer Incidence**

On average, approximately 90 cervical cancers are diagnosed among Kansas females each year. In Kansas, during the last several years, the age-adjusted cervical cancer incidence rate has decreased significantly. The age-adjusted cervical cancer incidence rate in Kansas is 5.6 cases per 100,000 females (95% confidence interval: 4.4 to 7.1).1,13

No statistically significant differences are observed in age-adjusted cervical cancer incidence rates among African-American females and white females. The age-adjusted cervical cancer incidence rate is significantly higher for Hispanic females compared with non-Hispanic female.1,13

**Cervical Cancer Stage at Diagnosis Among Race Groups**

In Kansas, nearly half (46%) of invasive cervical cancers are diagnosed at the local stage for white females, while slightly more than one-third (36%) are diagnosed at the regional stage. Cervical cancer stage at diagnosis for African-American women and women in other racial categories cannot be examined due to insufficient number of cases for computing statistically reliable percentages.1,13 Nationally, half (50%) of invasive cervical cancers are diagnosed at the local stage among white women, while only 43 percent are diagnosed at the local stage among African-American women. Additionally, the five-year survival rates are higher among white women compared with African-American women at the same stages at diagnosis.17

**Prostate Cancer in Kansas**

The prostate, part of the male reproductive system, produces fluid that makes up part of semen. Researchers do not agree on the factors that can influence a man’s risk of developing prostate cancer, either positively or negatively.18 In Kansas, prostate cancer is the most commonly diagnosed cancer and for the last several years it is the third leading cause of cancer death among men.1
Mortality - Time Trends
On average, each year approximately 250 men die due to prostate cancer. During the last several years, the age-adjusted prostate cancer mortality rate has decreased significantly. The age-adjusted prostate cancer mortality rate in Kansas is 19.7 deaths per 100,000 males (95% confidence interval: 17.3 to 22.4).\textsuperscript{1,10} Kansas has met the HP2020 target for prostate cancer mortality rate for the overall male population. However, because there are disparities in mortality rates among male population subgroups, further work is needed to address these disparities.

Age
Age-specific mortality rate for prostate cancer is higher for Kansas men 65 years old and older compared with those between 45 and 64 years old.\textsuperscript{10}

Race and Ethnicity
In Kansas, the age-adjusted prostate cancer mortality rate is significantly higher for African-American men than for white men. No significant difference is seen in the age-adjusted prostate cancer mortality rate among Hispanic men and non-Hispanic men.\textsuperscript{1,10}

Prostate Cancer Morbidity
Prostate Cancer Incidence
On average, each year more than 2,000 prostate cancers are diagnosed among Kansas males. Age-adjusted prostate cancer incidence rate has decreased significantly during the last several years. The age-adjusted prostate cancer incidence rate in Kansas is 151.3 cases per 100,000 males (95% confidence interval: 144.7 to 158.1).\textsuperscript{1,13}

In Kansas, the age-adjusted prostate cancer incidence rate is significantly higher for African-American men than for white men. The age-adjusted prostate cancer incidence rate is significantly lower for Hispanic men than for non-Hispanic men.\textsuperscript{1,13}

Prostate Cancer Stage at Diagnosis Among Race Groups
In Kansas, the majority of invasive prostate cancers are diagnosed at the local stage for both white and African-American men (83% and 82%, respectively).\textsuperscript{1,13}

Melanoma of Skin in Kansas
Skin cancer is the most common form of cancer in the United States. The two most common types of skin cancer—basal cell and squamous cell carcinomas—are highly curable. Melanoma, the third most common skin cancer, is almost always curable in its early stages, but it is much more likely than basal or squamous cell cancer to spread to other parts of the body if not caught early.\textsuperscript{19} Between 65 and 90 percent of melanomas are caused by exposure to ultraviolet (UV) light.\textsuperscript{20} Ultraviolet (UV) rays are an invisible kind of radiation that comes from the sun and tanning beds, and can change skin cells.\textsuperscript{21}

Mortality - Time Trends
Each year, on average more than 90 Kansans die due to melanoma. During the last several years, the age-adjusted melanoma mortality rate has remained stable. The age-adjusted melanoma mortality rate in Kansas is 3.1 deaths per 100,000 people (95% confidence interval: 2.5 to 3.9).\textsuperscript{1,10}
Kansas has not met the HP2020 target for melanoma mortality rate for the overall population, and because there are disparities in mortality rates among population subgroups, further work is needed to achieve this target.

**Age and Gender**

Age-specific mortality rate for melanoma is higher for Kansans 65 years old and older compared with those between 45 and 64 years old.\(^{10}\) Age-adjusted melanoma mortality rates are significantly higher for males compared with females during the last several years. Age-adjusted melanoma mortality rates among men and women have remained stable during this period.\(^{1,10}\)

**Race and Ethnicity**

In Kansas, age-adjusted mortality rates for melanoma among African-American and Hispanic women are not examined because the number of melanoma deaths in these racial/ethnic subgroups is not sufficient for computation of scientifically reliable rates.\(^{1,10}\)

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**Melanoma Morbidity**

**Melanoma Incidence**

Each year, on average approximately 600 melanomas are diagnosed among Kansans. During the last several years in Kansas, the age-adjusted melanoma incidence rate has increased significantly. The age-adjusted melanoma incidence rate in Kansas is 21.9 cases per 100,000 people (95% confidence interval: 20.2 to 23.7).\(^{1,13}\)

Disparities are seen in the incidence of skin cancer. During the last several years, the age-adjusted melanoma incidence rates are significantly higher for males compared with females. The age-adjusted melanoma incidence rates have increased significantly for both males and females during this time. The age-adjusted incidence rates for melanoma among African-Americans and Hispanics cannot be examined because the number of new cases of melanoma in these racial/ethnic subgroups is not sufficient for computation of scientifically reliable rates.\(^{1,13}\)

Nationally, age-adjusted melanoma incidence and mortality rates are about four times higher among non-Hispanics compared with Hispanics.\(^{22}\)

**Melanoma Stage at Diagnosis Among Race Groups**

In Kansas, the majority (82%) of invasive melanomas are diagnosed at the local stage for white Kansans. Melanoma stage at diagnosis for African-Americans and those in other racial categories cannot be examined due to insufficient number of cases for computing statistically reliable percentages.\(^{1,13}\)
References


Coronary Heart Disease

HP 2020 Goal

Improve cardiovascular health and quality of life through prevention, detection and treatment of risk factors for heart attack and stroke, early identification and treatment of heart attack and stroke, and prevention of repeat cardiovascular events.

HP 2020 Objective

| Reduce coronary heart disease deaths. | Target: 100.8 deaths per 100,000 population |

Summary

Coronary heart disease (CHD) is the leading cause of death and illness in the United States.\(^1\) It affects people of all ages and backgrounds.\(^1\) It kills more than 385,000 Americans each year.\(^2\) This disease alone costs $108.9 billion each year in the U.S., including costs of health care services, medications and loss of productivity.\(^5\)

Similar to the national pattern, CHD is responsible for the very high burden of mortality and illness in Kansas. CHD is the second leading cause of death in Kansas, causing 3,134 deaths in 2011.\(^7\) Higher death rates are seen among older adults, men, African-Americans and those living in rural areas. Similar to the national pattern, CHD mortality rates for overall population as well as population subgroups have been declining during the last several years in Kansas. This pattern is likely because of advancements in detection and treatment of disease and its risk factors such as hypertension and high serum cholesterol; however, still half of these deaths are pre-transport deaths.\(^8\) In addition to being a leading cause of death, CHD is also a major cause of illness in Kansas. An estimated 82,000 (4%) Kansas adults 18 years old and older have been told by their health care provider that they have angina or coronary heart disease, whereas an estimated 78,000 Kansas adults 18 years old and older (3.7%) have had a heart attack. Disparities are also seen in CHD prevalence among population subgroups.\(^8\)\(^,\)\(^9\)

The mortality and morbidity due to CHD can be reduced among the overall Kansas population as well as population subgroups by prompt detection and treatment and by preventing and controlling the modifiable risk factors of the disease (hypertension, high serum cholesterol, smoking, obesity, lack of physical activity and diabetes).

Definition and Introduction

Coronary heart disease (CHD) is a condition that occurs when the arteries that supply blood to the heart muscles, called coronary arteries, become hardened and narrowed. The coronary arteries become hard and narrow due to a process called atherosclerosis, which involves build up and deposit of fatty substances, cholesterol, cellular waste products, calcium and fibrin (a clotting material in the blood) in the inner lining of an artery. The lipid-laden deposit is called plaque. These plaques grow and cause narrowing of the arteries, leading to decrease in blood flow to the heart muscles. The plaque may also rupture, leading to thrombus formation. Thus, plaque or the thrombus formed by the rupture of plaque can cause partial or complete occlusion of blood flow to the heart muscles. The partial occlusion of blood flow results in angina, whereas complete occlusion leads to permanent damage of heart muscle, resulting in myocardial infarction or heart attack.\(^1\)
Coronary heart disease (CHD), the largest category of cardiovascular disease, is the leading cause of death in the U.S., killing more than 385,000 people each year. Nationwide, an estimated 17.6 million people have CHD and 715,000 people have heart attack – 525,000 of which are the first heart attack and 190,000 happen in those who already had a heart attack. CHD alone costs $108.9 billion each year in the U.S. including the cost of health care services, medications and loss of productivity.

Strategies are needed to increase national, state and local capacity for addressing control and prevention of heart disease and related risk factors (e.g., hypertension and high levels of low-density lipoprotein cholesterol). Greater control of risk factors and declining incidence can reduce CHD prevalence, whereas improved treatment can result in lower mortality rates and lead to reduction of overall burden of disease in the population.

CHD Mortality

CHD is the second leading cause of mortality in Kansas, killing about 3,134 Kansans each year. This section will examine mortality and morbidity due to CHD in Kansas.

Trends

In Kansas, between 2000 and 2011, age-adjusted CHD mortality rates decreased from 160.4 per 100,000 people (95% confidence interval: 155.8 deaths to 165.0 deaths per 100,000 people) in 2000 to 93.6 deaths per 100,000 people (95% confidence interval: 90.3 deaths to 97.0 deaths per 100,000 people) in 2011. This decline in CHD mortality in Kansas is parallel to the national trend. Pre-transport death is another important aspect of CHD mortality. More than half of people (57%) die from CHD before reaching a medical facility (pre-transport deaths). This lag is driven from the delay in seeking medical care – perhaps due to access. The percentage of pre-transport CHD deaths has not increased or decreased significantly during the last several years despite the general decline in CHD mortality during the period. Decreasing the delay in the decision to seek medical care may be an opportunity to further decrease CHD mortality in Kansas. CHD is not only responsible for the majority of deaths in the Kansas, but the situation is complicated by disparities in death rates seen among population subgroups (age, gender, race and population density peer groups).

Kansas has already met the HP2020 goal for CHD mortality rate for overall population; however, because there are disparities in mortality rates among population subgroups, further work is needed to achieve this goal in those subgroups. Strategies are also needed to reduce percentage of pre-transport deaths.

Geographic Variation

In Kansas, modest differences in age-adjusted CHD mortality rates are seen among county population density peer groups. The age-adjusted mortality rate for the urban county peer group is significantly lower than all other population density county peer groups. The highest rate is seen in the densely-settled rural county peer group.
Age and Gender

Similar to national patterns, the CHD mortality rates in Kansas increase with age. Higher age-adjusted CHD mortality rates are seen for men compared with women during the last several years. Age-adjusted rates for men are nearly twice as high compared with women throughout the period. The large difference in age-adjusted mortality rates between men and women is also evident in national data.

Race and Ethnicity

Each year during the last several years, the age-adjusted CHD mortality rates have been higher for African-American Kansans than for white Kansans. Death rates have declined for both racial groups, but the difference in death rates for these two groups is fairly constant during these years. These trends are consistent with national trends in age-adjusted CHD mortality rates for these two groups. The mortality rates for American Indians/Alaska Natives, Asians, Pacific Islanders or Kansans of other racial categories and Hispanics cannot be examined because the number of deaths for these racial/ethnic groups was insufficient for computation of statistically reliable death rates.

CHD morbidity

CHD Prevalence

In addition to being a leading cause of death, CHD is also a major cause of illness. An estimated 82,000 (4%) of Kansas adults 18 years old and older have been told by their health care provider that they have angina or coronary heart disease, whereas an estimated 78,000 Kansas adults 18 years old and older (3.7%) have had a heart attack. Neither CHD nor heart attack prevalence has changed significantly during the last several years.

CHD prevalence is higher among men than women and higher among Kansans 65 years old and older compared with younger age groups. The prevalence of CHD was higher among non-Hispanic whites compared with non-Hispanic African-Americans and Hispanics. The lower prevalence of CHD among non-Hispanic African-Americans compared with non-Hispanic whites may be related to higher mortality rates among African-Americans compared with whites. The prevalence of heart attack is also higher among men than women, among Kansans 65 years old and older than those in younger age groups and among non-Hispanic whites than non-Hispanic African-Americans and Hispanics. Neither CHD nor heart attack prevalence has changed significantly during the last several years.
CHD Hospital Discharges

Consistent with the decline in CHD mortality, age-adjusted hospital discharge rates for CHD (as primary diagnosis) have also declined in Kansas (from 64.7 per 10,000 people in 2000 to 37.8 per 10,000 people in 2008). However, this trend should be interpreted with caution because the number of hospitals submitting discharge data to the Kansas hospital discharge database varies every year, suggesting that the decline may simply reflect a lack of data.

The age-adjusted hospital discharge rates are higher for women than for men in Kansas during the last several years. Age-adjusted hospital discharge rates have declined for both men and women during this period. For patients younger than 65 years old, payment for CHD hospitalizations comes from a variety of sources. The majority (61.1%) of hospitalizations for patients 64 years old and younger lists commercial or private insurers as the primary source of payment. For patients 65 years old and older, Medicare is listed as the primary source of payment for the vast majority of CHD inpatient stays (91.3%). This pattern of primary payment source for CHD hospitalizations for patients younger and older than 65 years old has been consistent for last several years.

References

6. Prevalence of Coronary Heart Disease – United States, 2006-1010. MMWR. October 14, 20011/60(40);1377-1381. Available at http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6040a1.htm?s_cid=mm6040a1_w
Diabetes

**HP 2020 Goal**
Reduce the disease and economic burden of diabetes mellitus (DM) and improve the quality of life for all people who have, or are at risk for DM.

**HP 2020 Objective**
Reduce diabetes death rate.
Target: 65.8 deaths per 100,000 population

**Summary**
Diabetes is a common chronic condition with devastating complications such as heart disease, stroke, kidney failure, blindness, lower extremity amputation and premature death. About 25.8 million Americans have diabetes; it is the seventh leading cause of death in the U.S. and has huge financial impacts on individuals as well as on the health care system. Similar to the national pattern, diabetes is responsible for the very high burden of mortality and illness in Kansas. Diabetes is the seventh leading cause of death in Kansas. Higher death rates are seen among older adults, men, those living in rural areas and all racial and ethnic groups compared with non-Hispanic whites. Similar to the national pattern, diabetes mortality rates for overall population as well as for population subgroups have not been declining during the last several years in Kansas. In addition to being a leading cause of death, diabetes is also a major cause of illness in Kansas. An estimated 179,000 (8.4%) Kansas adults 18 years old and older have diagnosed diabetes. Disparities are also seen in diabetes prevalence among population subgroups.

The mortality and morbidity due to diabetes can be reduced in the overall Kansas population as well as in population subgroups by prompt detection, disease management, and prevention by adopting a healthful lifestyle, which includes regular physical activity and a healthful diet. Complications of diabetes can also be prevented through early detection and appropriate clinical management.

**Definition and Introduction**
Diabetes is a common chronic but serious condition marked by elevated levels of sugar in the blood. It can lead to devastating complications such as heart disease, stroke, kidney failure, blindness, lower extremity amputation and premature death. Managing diabetes is complex and costly, requiring a coordinated effort among the person with diabetes, medical care providers, specialists, clinical and public health systems and the community. Nevertheless, diabetes can be prevented by adopting a healthful lifestyle, including regular physical activity and a healthful diet. Complications of diabetes can be prevented through early detection and appropriate clinical management.

Diabetes is chronic disease characterized by elevated blood sugar, also called blood glucose. High levels of blood glucose result from inadequate production of insulin or a resistance to the effect of insulin, a hormone produced by the pancreas. Under normal conditions, insulin is secreted by the pancreas to signal cells to absorb blood glucose, the primary fuel cells use to produce energy. In diabetes, this signal is absent or ineffective, resulting in high levels of glucose in the blood. Prolonged elevation
of blood glucose can lead to damage in many tissues and organs. This damage can result in cardiovascular disease, kidney disease, visual impairment and blindness, peripheral neuropathy and other complications.¹

Diabetes affects 25.8 million Americans, which is 8.3 percent of the nation’s population. About 18.8 million have diagnosed diabetes, whereas seven million have undiagnosed diabetes. About 27 percent of Americans 65 years old and older have diabetes.² Racial and ethnic differences are seen in the burden of diagnosed diabetes. The risk of diagnosed diabetes is 18 percent higher among Asian Americans, 66 percent higher among Hispanics and 77 percent higher among non-Hispanic African-Americans compared with non-Hispanic whites. Among Hispanics, the risk of diagnosed diabetes is about the same for Cubans and for Central and South Americans, 87 percent higher for Mexican Americans and 94 percent higher for Puerto Ricans compared with non-Hispanic white adults.² It is the seventh leading cause of death in the U.S.² The total estimated cost of diagnosed diabetes is $245 billion, including $176 billion in direct medical costs and $69 billion in reduced productivity.³

In Kansas, about 179,000 adults 18 years old and older (8.4%) have diagnosed diabetes and it is the seventh leading cause of death.¹ This section will examine mortality and morbidity due to diabetes in Kansas.

**Diabetes Mortality**

**Time Trends**

Diabetes is the seventh leading cause of death in Kansas. Diabetes is listed as the underlying cause of death for about 628 Kansans each year. The age-adjusted mortality rate for diabetes is 20.2 deaths per 100,000 people. During the last several years, the Kansas age-adjusted diabetes mortality rate has not been significantly different from the national rate.⁴ During the past decade, there was no decline in the age-adjusted mortality rates of diabetes. Before the last decade, diabetes death rates had been increasing.⁴

Kansas has already met the HP2020 goal for diabetes mortality rate for overall population. However, because there are disparities in mortality rates among population subgroups, further work is needed to address these disparities.

**Geographic Variation**

In Kansas, modest differences in age-adjusted diabetes mortality rates are seen among county population density peer groups. The age-adjusted mortality rate for the urban county population density peer group is significantly lower than rural and densely-settled rural county population density peer groups.¹, ⁵

**Age and Gender**

The diabetes mortality rates in Kansas increase with age. The age-adjusted diabetes mortality rates are significantly higher for Kansans 45 years old and older compared with those 24 to 44 years old.⁵ The age-adjusted mortality rate for men is significantly higher than the rate for women. This difference is evident throughout the last several years. Also, it mirrors the national pattern.¹, ⁵
Race and Ethnicity

Age-adjusted diabetes mortality rates in Kansas are significantly higher among non-Hispanic African-Americans, non-Hispanic American Indians or Alaska Natives and Hispanics compared with non-Hispanic whites.

Diabetes Morbidity

Diabetes Prevalence

In addition to being a leading cause of death, diabetes is also a major cause of illness. About 179,000 (8.4%) of Kansas adults 18 years old and older (95% confidence interval: 8.1 to 9.0) are diagnosed with diabetes. During the last several years, the percent of Kansans 18 years old and older with diabetes has increased from 5.9 percent (95% confidence interval: 5.1 to 6.7) in 2000 to 8.4 percent (95% confidence interval: 8.1 to 9.0) in 2010, a 42 percent increase. Similarly, the median national diabetes prevalence has increased from 6.1 percent in 2000 to 8.7 percent in 2010.6

Disparities are seen in the prevalence of diabetes in subgroups of the population.1,7 The prevalence of diagnosed diabetes among adults increases dramatically with age. Nearly 1 in 5 Kansans 65 years old and older have been diagnosed with diabetes. No difference is seen in the overall prevalence of diabetes among men and women 18 years old and older; however, it is higher among men 65 years old and older compared with women 65 years old and older. For all other age groups, the prevalence of diabetes is not significantly different for women compared with men. In Kansas, diabetes prevalence shows disparities among racial and ethnic groups. The age-adjusted prevalence of diabetes among non-Hispanic African-American adults, non-Hispanic American Indian or Alaska Native adults, non-Hispanic adults of other races or multiple races and Hispanic adults are all significantly higher than for non-Hispanic white adults. No urban-rural differences are seen in the prevalence of diabetes among Kansans 18 years old and older.1,7

Income and education are also important factors in diabetes prevalence. The percent of adults 18 years old and older with diagnosed diabetes is higher among people with lower annual household income during the last several years. The prevalence of diabetes is significantly lower among those with an annual household income of $50,000 or more compared with all other income groups. Differences in diabetes prevalence by annual household income are present in all age groups. Within each age group, the highest prevalence of diabetes occurs among those with annual household incomes below $15,000. The percent of adults 18 years old and older with diagnosed diabetes is higher among people with lower levels of education during the last several years. The prevalence of diabetes is significantly higher among people who did not graduate from high school compared with people with all other levels of education. Differences in diabetes prevalence by education level are present in all age groups. Within each age group the highest prevalence of diabetes occurs among those who didn’t graduate from high school. The lowest prevalence of diabetes occurs among college or technical school graduates.
Kansans living with a disability are disproportionately affected by diabetes. A higher percent of Kansans 18 years old and older living with a disability has diabetes compared with those not living with a disability. This disparity in diabetes prevalence by disability status is present regardless of gender, age, race, ethnicity, annual household income and education.¹,⁷

**Diabetes Hospital Discharges**

Diabetes poses a significant challenge for the health care system in Kansas. Because diabetes can affect multiple bodily systems, it is important to consider not only hospitalizations for which diabetes is the primary diagnosis, but also hospitalizations that list diabetes as a secondary diagnosis. The age-adjusted hospital discharge rates for diabetes as the primary diagnosis or as any listed diagnosis are 14.5 per 100,000 people and 200.6 per 100,000 people, respectively. During the last several years, the age-adjusted hospital discharge rate for discharges with a primary diagnosis of diabetes has declined moderately; however, during the same period, the age-adjusted discharge rate for discharges with diabetes listed as a primary or any secondary diagnosis has increased. In Kansas, for patients younger than 65 years old, the leading sources of payment for hospitalizations for diabetes listed as any primary or secondary diagnosis are commercial or private insurance plans (41.5%), Medicare (28.4%) and Medicaid (16.1%). For patients 65 years old and older, Medicare is listed as the primary source of payment for the vast majority of diabetes-related inpatient stays (92.4%).¹,⁸

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**References**


4. U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Health Statistics, Compressed Mortality File on CDC WONDER On-line Database.


HP 2020 Goal

Improve cardiovascular health and quality of life through prevention, detection and treatment of risk factors for heart attack and stroke; early identification and treatment of heart attacks and strokes; and prevention of repeat cardiovascular events.

HP 2020 Objective

Reduce stroke deaths. Target: 33.8 deaths per 100,000 population

Summary

Stroke is the fourth leading cause of death in the U.S. and is a major cause of adult disability. Each year about 800,000 Americans have a new or recurrent stroke. It kills nearly 130,000 Americans each year. On average, one American dies from a stroke every 4 minutes. Stroke leads to an estimated direct and indirect cost of $73.7 billion in the U.S. The death and disability from stroke can be prevented by prompt treatment. Stroke can be prevented or risk of having stroke can be reduced by adopting healthy lifestyle changes. In addition, risk of stroke in some people can be reduced by medication.

Similar to national trends, stroke is responsible for very high burden of mortality and illness in Kansas. Stroke is the fourth leading cause of death in Kansas, causing about 1 in 16 deaths. Higher death rates are seen among older adults, men, African-Americans and those living in frontier areas. Similar to national trends, the stroke mortality rates for overall population as well as population subgroups are declining during of the last several years in Kansas. This pattern is seen as a result of advancements in detection and treatment of disease and its risk factors such as hypertension and high serum cholesterol. However, still more than half of these deaths are pre-transport deaths. In addition to being a leading cause of death, stroke is also a major cause of illness in Kansas. Nearly 55,000 Kansans ages 18 years old and older have been told by a health care provider they have had a stroke. The prevalence of stroke has not changed significantly during the last several years.

The mortality and morbidity due to stroke can be reduced among overall Kansas population as well as population subgroups by prompt detection and treatment of disease as well as by preventing and controlling the modifiable risk factors of the disease (hypertension, high serum cholesterol, smoking, obesity, lack of physical activity and diabetes).

Definition and Introduction

Stroke, also called cerebrovascular disease or brain attack, occurs when the blood supply to the brain is interrupted. It constitutes the second largest category of cardiovascular disease after coronary heart disease. Stroke can be caused either by a blockage of blood flow by a clot (ischemic stroke) or by rupture of a blood vessel leading to bleeding in or around the brain (hemorrhagic stroke). Stroke is a medical emergency and can lead to permanent disability and death.

Stroke is the fourth leading cause of death in the United States and is a major cause of adult disability. Each year about 800,000 Americans have a new or recurrent stroke. On average, one American dies from a stroke every 4 minutes.
It kills nearly 130,000 Americans each year—1 in 19 deaths in the U.S.² Stroke leads to an estimated direct and indirect cost of $73.7 billion in the U.S.¹

The death and disability from stroke can be prevented by prompt treatment. Stroke can be prevented or risk of having stroke can be reduced by adopting healthy lifestyle changes.² In addition, risk of stroke in some people can be reduced by medication.²

Stroke is the fourth leading cause of death in Kansas. Before 2008, stroke was the third leading cause of death in Kansas. About 1 in 16 Kansans die due to stroke.¹ This section will examine mortality and morbidity due to stroke in Kansas.

**Stroke Mortality**

**Trends**

In Kansas, between 2000 and 2011, the age-adjusted stroke mortality rates have decreased from 60.3 per 100,000 people (95% CI: 57.6 deaths to 63.2 deaths per 100,000 people) in 2000 to 39.5 deaths per 100,000 people (95% CI: 37.4 deaths to 41.8 deaths per 100,000 people) in 2011.⁶ This declining trend in stroke mortality in Kansas is parallel to the national trend.¹ Many stroke deaths can be prevented if medical care is accessed immediately. This requires early recognition of stroke onset, prompt access to emergency transport and medical treatment. In Kansas, more than half of people who die from stroke (54%) die before reaching a hospital, clinic or medical center.¹ The most recent national estimate of the percentage of pre-transport deaths is 49.2 percent.⁷ The percentage of pre-transport deaths in Kansas is higher than the national percentage. The percentage of pre-transport stroke deaths has not increased or decreased significantly during the last several years despite of general decline seen in stroke mortality during this period.¹ Decreasing the delay in the decision to seek medical care may be an opportunity to further decrease stroke mortality in Kansas.

Stroke is not only responsible for the majority of deaths in the overall Kansas population, but the disparities in death rates are seen among population subgroups (age, race and population density peer groups).

Kansas has not met the HP2020 goal for stroke mortality rate for overall population, and because there are disparities in mortality rates among population subgroups, further work is needed to achieve HP2020 target. Strategies are also needed to reduce the percentage of pre-transport deaths.

**Geographic Variation**

In Kansas, there was a modest difference in the age-adjusted mortality rate for the frontier county population density peer group and the densely-settled rural county population density peer group, but not among other county population density peer groups.¹⁸
Age and Gender

Similar to national trends, the stroke mortality rates in Kansas increase with age.\textsuperscript{1,8} In Kansas, age-adjusted stroke mortality rates are similar for men and women during the last several years. Mortality rates have declined for both men and women during this period, consistent with the national trend for men and women.\textsuperscript{1,8}

Race and Ethnicity

In Kansas, stroke mortality is declining among whites and African-Americans during the last several years. Despite the decline in mortality rates in both racial subgroups, stroke mortality is higher for African-American Kansans than for white Kansans. This disparity in stroke mortality is evident each year during the period. The mortality rates for American Indians/Alaska Natives, Asians, Pacific Islanders or Kansans of other racial categories and Hispanics cannot be examined because the number of stroke deaths for these racial and ethnic groups was insufficient for computation of statistically reliable death rates.\textsuperscript{1,8}

Among those between 65 and 85 years old, stroke mortality rates are higher among African-American men compared with white men and among African-American women compared than white women. The mortality rate is particularly high for African-American men between 65 and 84 years old compared with white men and women of either racial subgroup, but among those 85 years old and older the mortality rate is lower for African-American men. This pattern of age-specific mortality rates likely reflects a younger age of stroke death for African-American men compared with stroke deaths among white men and women of either racial subgroup. The median age of death from stroke for African-American men is 72 years; 82 years for white men; 76 years for African-American women; and 86 years for white women.\textsuperscript{1,8}

Stroke Morbidity

Stroke Prevalence

In addition to being a leading cause of death, stroke is a major cause of illness. Nearly 55,000 Kansans ages 18 years old and older (2.6\%) have been told by a health care provider they have had a stroke. The prevalence of stroke has not changed significantly during the last several years. The prevalence of stroke in Kansas is similar to the national median prevalence (2.4\%).\textsuperscript{1,9}

Stroke prevalence is higher in older age groups. About 7 percent of Kansans 65 years old and older have been diagnosed with stroke. No significant differences are seen in stroke prevalence between men and women or among racial and ethnic groups.\textsuperscript{1,9}

Stroke Hospital Discharges

In Kansas, consistent with the decline in stroke mortality rate, age-adjusted hospital discharge rates for stroke (as the primary diagnosis) have declined from 24.3 per 100,000 people in 2000 to 20.1 per 100,000 people in 2008.\textsuperscript{1,10} However, this trend should be interpreted with caution because the number of hospitals that submit discharge data to the Kansas hospital discharge database varies every year, suggesting that the decline may simply reflect a lack of data.
The age-adjusted hospital discharge rates for stroke are higher for men than for women in Kansas during the last several years. Age-adjusted hospital discharge rates have declined for both men and women during this period. For patients younger than 65 years old, the primary payment for stroke hospitalizations comes from a variety of sources. The majority (53.8%) of hospitalizations for patients 64 years old and younger lists commercial or private insurers as the primary source of payment. For patients 65 years old and older, Medicare is listed as the primary source of payment for the vast majority of stroke inpatient stays (93.4%). This pattern of primary payment source for stroke hospitalizations for patients younger and older than 65 years has been consistent for last several years.1,10

References

Strengths and Assets

Strengths

Chronic Disease Self-Management

The Arthritis program coordinates a network of trainers and class leaders to implement the chronic disease self-management program (CDSMP). This program helps individuals with chronic conditions learn how to manage and improve their own health. The program focuses on problems that are common to individuals dealing with any chronic condition, such as pain management, nutrition, exercise, medication use, emotions, and communicating with doctors.

Led by a pair of trained facilitators, one or both of whom manage a chronic condition themselves, the workshops cover 15 hours of material during a six-week period. During the program, approximately 10 to 15 participants focus on building the skills they need to manage their conditions by sharing experiences and providing mutual support.

Kansas Quality of Care

The Kansas Quality of Care initiative is a collaboration involving health care organizations and clinic sites from across the state to use quality improvement tools to improve patient care and outcomes associated with diabetes, hypertension and hyperlipidemia.

Cancer

The Early Detection Works Breast and Cervical Cancer Screening program (EDW) partners with a large network of medical providers from across the state to pay for clinical breast exams, mammograms, Pap tests and diagnostic services for women who qualify. Other evidence-based practices for increasing breast and cervical cancer screening among low income, high risk women are coordinated through EDW such as patient reminders delivered via mail and through community clinics, removal of structural barriers, small media promotion and reduction of out-of-pocket costs. More than 7,000 Kansas women were served last year.

State Plans

Stakeholders from non-profits, health and dental care organizations, state and local government, universities and health insurers convened to develop state plans for arthritis, cancer, diabetes, heart disease and stroke, and tobacco control. In 2014 a Chronic Disease State Plan was finalized that focuses on overarching chronic disease goals and objectives.
Assets

Human and Organizational Resources

- Dedicated individuals at the state and local levels, health care providers and coalitions (Tobacco Free Kansas, Kansas Cancer Partnership, Chronic Disease Alliance of Kansas, Oral Health Kansas) committed to preventing and controlling chronic disease
- Expanded chronic disease data sets and other quantitative and qualitative information
- Increased use of electronic health records among medical providers
- Increased focus on healthy behaviors and risk factors, including physical activity and healthy eating
- Increased interest in controlling costs driving the health care system toward improved prevention and management efforts

Programs and Initiatives

- Access to a growing number of evidence-based chronic disease prevention and control programs
  - State and Local Tobacco Use Prevention and Control Programs
  - KDHE Chronic Disease Risk Reduction Grant Program
  - Kansas Foundation for Medical Care and KDHE Quality of Care Initiatives
  - Healthy Kansas Schools Program
  - Chronic Disease/Diabetes Self-Management Program
  - Diabetes Primary Prevention Program

Electronic Health Records

- Capitalizing on the increasing number of medical providers adopting EHR's to strengthen care management and improve patient access to their own health information
- Using EHR's to promote, track and monitor delivery of clinical preventive services.
- Adopt and track meaningful indicators for chronic disease management
Access to Health Services

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<th>Improve access to comprehensive, quality health care services.</th>
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<th>HP 2020 Objectives</th>
<th>Increase the proportion of persons with a usual primary care provider. Target: 83.9%</th>
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Summary

Access to the health care is essential to obtain full benefits from the nation’s health care system.¹ The two factors, having a usual source of care by having a health care provider and having health insurance coverage, play an important role in facilitating individuals’ access to care.⁴ All individuals need a consistent and continuing relationship to the primary care system by way of a health care provider. Access to primary health care and having a personal doctor or nurse has shown to substantially improve health-related outcomes. Having health insurance coverage enables access to care by providing a medical care plan. Thus, health insurance facilitates entry into the health care system.¹ Individuals with no or limited insurance coverage are less likely to get needed medical attention and are more likely to have poor health status.¹,⁷

Only about 76 percent of Americans have a personal health care provider. Disparities are seen in various population subgroups as higher percentages of younger adults, uninsured persons, African Americans, Asians, Hispanics and those with lower income do not have a personal health care provider.¹,⁸ About 15.1 percent (46.3 million) of Americans do not have health insurance. In addition, disparities are also seen in the insurance coverage status among various population subgroups as higher percentages of younger adults, African Americans, Asians, Hispanics, those with lower income, and those with lower education do not have health insurance.⁹

In Kansas, about 1 in 7 (14.3%) Kansans 18 years old and older do not have a personal doctor or health care provider.¹⁰,¹¹ About 1 out of 10 Kansans 18 years old and older (12%)
do not have any kind of health care coverage, including health insurance, prepaid plans such as HMOs, or government plans such as Medicare. Disparities in the percentages of these two factors are also seen in various population subgroups in Kansas. In addition, there is a shortage of primary care health professionals in Kansas. Out of 105 counties in Kansas, 92 counties are considered partial or whole primary care health professional shortage areas. Similarly, there is a shortage of dental health professionals in Kansas with 95 counties considered partial or whole dental health professional shortage areas.

It is important to ensure access to health care services for all Kansans, which requires strategies directed toward increasing the number of Kansans with a personal health care provider and health insurance coverage.

**Definition and Introduction**

The U.S. health care system is designed to provide services that prevent, diagnose and treat disease, and improve the physical and mental well-being of all Americans. These services are essential to ensure that those without disease remain healthy and those with disease or disability receive prompt accurate diagnosis, appropriate treatment and improvement in quality of life. These services are required to be delivered in ways that are safe, timely, patient centered, efficient and equitable. Though many Americans receive the health care they need, some do not receive needed care or they do not receive quality care. Sometimes the health care is not delivered in a timely manner or without full consideration of a patient’s preferences and values. For many Americans lack of health care is a persistent barrier to good health. Many times, the health care system distributes services inefficiently and unevenly across populations. These disparities may be due to differences in access to care, provider biases, poor provider-patient communication or poor health literacy.

Access to the health care is essential to obtain full benefits from the nation’s health care system. The term “access to care” is frequently used to describe a broad set of concerns centering on the degree to which people are able to obtain needed services from the health care system. The United States Institute of Medicine (IOM) defined access as the timely use of personal health services to achieve the best possible health outcomes. An important characteristic of this definition is its reliance on both the use of health services and health outcomes when judging whether access has been achieved. Research has shown that racial and ethnic minorities and people of low socioeconomic status (SES) are disproportionately represented among those with access problems.

The two factors, having a usual source of care by having a health care provider and having health insurance coverage, play an important role in facilitating individuals’ access to care.
shown to substantially improve health-related outcomes. People who have a personal health care provider also indicate that they receive appropriate preventive care, have their problems identified, pay lower hospitalization costs due to timely diagnostic tests, have fewer prescriptions and have fewer emergency room visits. About 76 percent of Americans have a personal health care provider. Disparities are seen among various population subgroups as higher percentages of younger adults, uninsured persons, African Americans, Asians, Hispanics, and those with lower income do not have a personal health care provider.

Having health insurance coverage enables access to care by providing a medical care plan. Health insurance facilitates entry into the health care system. Individuals with no or limited insurance coverage are less likely to get needed medical attention and are more likely to have poor health status. Uninsured individuals report more problems getting care, are diagnosed at later disease stages and get less therapeutic care. They are sicker when hospitalized and more likely to die during their stay. About 15.1 percent (46.3 million) Americans do not have health insurance. Disparities are seen in various population subgroups as higher percentages of younger adults, African Americans, Asians, Hispanics, those with lower income, and those with lower education do not have health insurance.

Access to Health Care Services in Kansas

Having a Personal Health Care Provider

About 1 in 7 (14.3%) Kansans 18 years old and older does not have a personal doctor or health care provider.

Kansans Ages 18 Years and Older Who Do Not Have A Personal Health Care Provider

- **Have a personal health care provider**: 85.7%
- **Do not have a personal health care provider**: 14.3%

Source: 2010 Kansas Behavioral Risk Factor Surveillance System, Bureau of Health Promotion, KDHE.
Percentage of Kansans with a Personal Health Care Provider Among Socio-Demographic Groups

Disparities in the percentage of Kansans 18 years old and older who have a personal health care provider are seen among various socio-demographic sub groups. About 1 in 6 males does not have a personal health care provider as compared to 1 in 10 females. Higher percentages of the following Kansans do not have a personal health care provider:

- Younger adults (those 18-54 years old as compared to those 55 years old and older).
- Hispanics as compared to non-Hispanics, African Americans and other races as compared to whites.
- Unemployed and those who are unable to work as compared to employed and retired adults.
- Adults with lower education as compared to those with a college degree.
- Those with lower annual household income (<$35,000 income groups) as compared to those with higher annual household income (≥ $35,000 income groups).
- Uninsured adults as compared to adults who have health insurance.

No differences are seen among population density geographic peer groups (rural versus urban).

Percentage of Kansans with a Personal Health Care Provider by Chronic Disease Status, Chronic Disease Risk Factors Status and Disability Status

Disparities in the percentage of Kansans having a personal health care provider are seen among those without chronic diseases, those with chronic disease risk factors and among those living without a disability. Higher percentages of adults without diabetes or arthritis do not have a personal health care provider as compared to those with diabetes or with arthritis. Higher percentages of current cigarette smokers and those who do not participate in leisure time physical activity do not have personal health care provider as compared to nonsmokers and those who participate in leisure time physical activity. A higher percentage of adults living without a disability do not have a personal health care provider as compared to those living with a disability.

Health Care Coverage/Insurance

About 9 out of 10 Kansans 18 years old and older (88%) have some kind of health care coverage, including health insurance, prepaid plans such as HMOs or government plans such as Medicare. Thus, 12 percent of Kansans 18 years old and older do not have any kind of health care coverage. The percentage of adults having some type of health care coverage has remained constant for last several years.
In 2009 and 2010, about 54 percent of Kansans had employer-based health insurance coverage, 12 percent had Medicaid coverage, 14 percent had Medicare coverage and about 13 percent had no insurance.\textsuperscript{12}

Source: 2010 Kansas Behavioral Risk Factor Surveillance System, Bureau of Health Promotion, KDHE.

Source: The Henry J. Kaiser Family Foundation. www.statehealthfacts.org
Health Care Coverage/Insurance Status Among Socio-Demographic Groups

Disparities in the percentages of adults ages 18 years and older with health care coverage/insurance are seen among various socio-demographic sub groups.\textsuperscript{10,11} Higher percentages of the following Kansans do not have health care coverage/insurance:\textsuperscript{10,11}

- Younger adults as compared to older adults (those 18 to 24 years old as compared to older adults).
- Hispanics as compared to non-Hispanics, African Americans, other races and multi-racial adults as compared to whites.
- Unemployed (out of work) as compared to employed and retired adults.
- Those with lower education as compared to those with a college or higher degree.
- Those with lower annual household income (<$50,000 income groups) as compared to those with higher annual household income (≥ $50,000 income groups).

No differences in the health care coverage/insurance status are seen among population density geographic peer groups (rural versus urban).\textsuperscript{10}

Health Care Coverage/Insurance Status among Adults with Chronic Diseases, Chronic Disease Risk Factors and Those Living with a Disability

Few disparities are seen with regard to health care coverage/insurance status among adults with chronic diseases and those living with a disability.\textsuperscript{10} A higher percentage of adults without arthritis does not have health care coverage/insurance as compared to those with arthritis. Higher percentages of current cigarette smokers and those who do not participate in leisure time physical activity do not have health care coverage/insurance as compared to nonsmokers and those who participate in leisure time physical activity. No difference is seen in the health care coverage/insurance status among those living with and without a disability.\textsuperscript{10}

Other Measures

Medical Cost – A Barrier for Health Care Access

The Medical Expenditure Panel Survey (MEPS) results indicated that rising out-of-pocket expenses and stagnant incomes increased the financial burden of health spending for families during 2001 to 2004, especially for the privately insured.\textsuperscript{13} High increases in financial burden were seen among those with non-group coverage.\textsuperscript{13}

About 1 in 10 Kansans ages 18 years and older (11\%) are unable to see a doctor when needed because of cost. Higher percentages of females as compared to males, Hispanics as compared to non-Hispanics, African Americans as compared to whites, those with less than high school education as compared to college graduates, and those with low annual household income as compared to high income are unable to see a doctor when needed because of cost.\textsuperscript{11}
Primary Care Health Professional Shortage Areas in Kansas

Out of 105 counties in Kansas, 92 counties are considered partial or whole primary care health professional shortage areas.14
Dental Health Professional Shortage Areas in Kansas

Out of 105 counties in Kansas, 95 counties are considered partial or whole dental health professional shortage areas.14

References

Strengths and Assets

Strengths

Kansas has a history of developing multi-sector collaborations to address health. Hospitals, health departments, primary care providers and other stakeholders are working at the local level to define and plan for both county level and multi-jurisdictional public health accreditation. The Kansas Health Institute was recently selected by the Robert Wood Johnson Foundation to lead the Center for Sharing Public Health Services.

Electronic Health Records

The Kansas Health Information Exchange (K-HIE) moved into KDHE, which increased access to electronic medical records, making it more affordable for Kansas providers, and saving hundreds of thousands of dollars. The Electronic Health Records Medicaid Incentive program is providing funding to assist eligible providers and hospitals to implement the use of EHR. During the first six months of the program, $25,190,638 was paid to eligible hospitals and eligible professionals.

Health Care for Kansans with Low Incomes

KanCare, the Kansas Medicaid integrated care model, was implemented January 1, 2013. Kansas continues to develop resources for health service delivery to the medically underserved with a broad system of 15 Federally Qualified Health Centers, 23 Safety Net Clinics and 172 Rural Health Clinics serving 91 of the 105 counties.

The Sunflower Foundation offers bridge grants that help expand primary care services for uninsured and underserved populations. These grants are designed for primary care safety net providers working in community-based settings.

Critical Access Hospitals

Kansas is home to 83 Critical Access Hospitals (CAHs), more than any other state in the country. CAHs comprise two-thirds of the state’s 125 community hospitals. More than half of these facilities are government or publicly owned (compared to about 25% of rural hospitals nationally), and very few are part of larger health care systems. Of Kansas’ 105 counties, 71 contain CAHs and 65 (62%) have only a CAH or multiple CAHs in the county. Nine counties in Kansas already lack a hospital of any kind, and without these CAHs in those additional 65 counties, residents in 74 Kansas counties (71%) would be forced to travel to neighboring communities or hospitals for even routine diagnostic and laboratory services.

and surrounding region. The Foundations first goal is to increase the number of people in the Foundation’s service area who have access to quality, affordable health care services and health coverage. The second goal is to improve the quality of health services by promoting integration of services, supporting patient-centered care and advancing cultural competency.
Compared with many CAHs around the country, Kansas CAHs tend to be small and serve markedly rural and frontier communities. The average Kansas CAH staffs 23 beds and serves a county of 8,682 population (more than 25% are in counties with less than 6 residents per square mile). The median Average Daily Census (acute care) of Kansas CAHs is 2.61, far lower than the national CAH Average Daily Census of 4.43 (Flex Monitoring Team, Summer 2009).

**Level IV Trauma Centers**

In 2012, the Kansas trauma care network expanded to include four Kansas hospitals at a "Level IV" trauma center designation. This brings the total number of designated trauma centers (Level I-IV) in Kansas to 13.

**Assets**

- Federally Qualified Health Centers (FQHCs)
- Critical Access Hospitals (CAHs), rural health networks
- Health foundations in Kansas
- Developing system of electronic health records (EHRs)
- Strong medical professional education programs
- Increasing interest in patient centered medical home model
- Collaborative work
  - Progress in collaborative work and eliminating barriers at the local level, especially around community health assessments
  - History of working together at the state level (KMS, KHA, KDHE, EMS Board, etc.)
- Multiple efforts and key stakeholders across the state promoting quality
Lifestyle Behaviors

Chronic diseases, such as cancer, heart disease, stroke and diabetes, are among the most common and costly of all health problems. Fortunately, they are also among the most preventable. Tobacco use, obesity, physical inactivity and poor nutrition are responsible for much of the illness, suffering and premature death related to chronic diseases.¹

From 2000-2010, the prevalence of cigarette smoking among Kansas adults has decreased significantly, while the prevalence of adult obesity has increased. The prevalence of no leisure time physical activity and the percentage of adults who consume fruits and vegetables at least 5 times per day have remained relatively stable during this time period.²

Actual Causes of Death, United States 2000

![Graph showing actual causes of death.]

Source: The Henry J. Kaiser Family Foundation.
www.statehealthfacts.org
Prevalence of Selected Chronic Disease Risk and Protective Factors Among Adults 18 Years Old and Older, Kansas BRFSS, 2000-2010

<table>
<thead>
<tr>
<th></th>
<th>2000</th>
<th>2001</th>
<th>2002</th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current smoking</td>
<td>21.0%</td>
<td>22.2%</td>
<td>22.1%</td>
<td>20.4%</td>
<td>19.8%</td>
<td>17.8%</td>
<td>20.0%</td>
<td>17.9%</td>
<td>17.9%</td>
<td>17.8%</td>
<td>17.0%</td>
</tr>
<tr>
<td>No leisure time physical activity*</td>
<td>26.7%</td>
<td>22.5%</td>
<td>25.9%</td>
<td>23.2%</td>
<td>24.4%</td>
<td>22.6%</td>
<td>23.0%</td>
<td>25.5%</td>
<td>23.2%</td>
<td>24.0%</td>
<td></td>
</tr>
<tr>
<td>Consume F+V ≥5 times/day**</td>
<td>18.2%</td>
<td>18.8%</td>
<td></td>
<td>19.9%</td>
<td>18.8%</td>
<td>18.6%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Obese (BMI ≥30 kg/m^2)</td>
<td>20.8%</td>
<td>21.6%</td>
<td>22.8%</td>
<td>22.6%</td>
<td>23.2%</td>
<td>23.9%</td>
<td>25.9%</td>
<td>27.7%</td>
<td>28.1%</td>
<td>28.8%</td>
<td>30.1%</td>
</tr>
</tbody>
</table>

Source: 2000-2010 Kansas Behavioral Risk Factor Surveillance System, Bureau of Health Promotion, KDHE.
*Data not available in 2000.
**Data for nutrition indicators are collected in alternate years.

The following pages provide more detailed information on the burden of tobacco use, obesity, physical inactivity and unhealthy diet, as well as substance abuse, among Kansans.

References

Tobacco

<table>
<thead>
<tr>
<th>HP 2020 Objectives</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reduce tobacco use by adults</td>
</tr>
<tr>
<td>Target: 12%</td>
</tr>
<tr>
<td>Reduce tobacco use by adolescents</td>
</tr>
<tr>
<td>Target: 16%</td>
</tr>
</tbody>
</table>

Introduction

Nationally and in Kansas, tobacco use is the leading underlying cause of death, and is associated with heart disease, stroke, cancer, chronic lung diseases and other conditions. Cigarette smoking is the primary driver of tobacco-related morbidity and mortality, although other tobacco products are also associated with disease.¹

Summary

This section reviews tobacco surveillance data from the past decade for both youth and adults. Trends and demographic characteristics associated with cigarette smoking are used to articulate the burden of cigarette smoking throughout Kansas. Distribution of other types of tobacco use is also briefly discussed.

On state and national surveys of adults, current cigarette smoking status is usually defined as having smoked at least 100 cigarettes in one’s life and are now smoking cigarettes every day or on some days. Current use of other tobacco products such as cigars or smokeless tobacco, is defined as having used a given product in the past month. On surveys of youth, all types of current tobacco use, including cigarette smoking, are defined as past-month use.

¹ Other tobacco products include, but are not limited to, cigars, smokeless tobacco, chewing tobacco, and snuff.
Adult Tobacco Use

Time Trends
The prevalence of cigarette smoking among Kansas adults fell from 22.2 percent (95% CI: 20.9%-23.5%) in 2001 to 17.0 percent (95% CI: 15.8%-18.2%) in 2010. The majority of the reduction in smoking occurred between 2001 and 2005, with a flattening trend appearing between 2005 and 2010. This mirrors national trends in smoking prevalence, which demonstrate reductions in the first half of the decade followed by a flattening of progress in smoking reduction.²

Age, Gender and Geographic Variation
In 2010, adult current smoking prevalence in Kansas varied significantly by age group. Smoking prevalence appears to decline among older adult populations, ranging from 23.0 percent (95% CI: 16.5%-29.5%) among 18 and 24 year olds to 7.9 percent (95% CI: 6.8%-8.9%) among those 65 years old and older. In 2010, adult current smoking prevalence did not vary significantly by gender or county population density in Kansas.²
Table 1. Adult current smoking prevalence by age group, KS BRFSS, 2010

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Weighted Percentage</th>
<th>95% Confidence Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age 18-24</td>
<td>23.0%</td>
<td>16.5% - 29.5%</td>
</tr>
<tr>
<td>Age 25-34</td>
<td>20.8%</td>
<td>17.3% - 24.3%</td>
</tr>
<tr>
<td>Age 35-44</td>
<td>15.8%</td>
<td>13.4% - 18.3%</td>
</tr>
<tr>
<td>Age 45-54</td>
<td>19.7%</td>
<td>17.5% - 21.8%</td>
</tr>
<tr>
<td>Age 55-64</td>
<td>16.7%</td>
<td>14.8% - 18.5%</td>
</tr>
<tr>
<td>Age 65+</td>
<td>7.9%</td>
<td>6.8% - 8.9%</td>
</tr>
</tbody>
</table>

Race and Ethnicity

In 2010, the prevalence of cigarette smoking among white-only Kansas adults was significantly lower than the smoking prevalence among African-American-only Kansas adults. There was no significant variation in adult cigarette smoking prevalence by ethnicity.2

Table 2. Adult current smoking prevalence by race, KS BRFSS, 2010

<table>
<thead>
<tr>
<th>Race</th>
<th>Weighted Percentage</th>
<th>95% Confidence Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>White only</td>
<td>16.4%</td>
<td>15.1% - 17.6%</td>
</tr>
<tr>
<td>African American only</td>
<td>25.2%</td>
<td>18.8% - 31.5%</td>
</tr>
<tr>
<td>Other race only</td>
<td>18.3%</td>
<td>12.9% - 23.6%</td>
</tr>
<tr>
<td>More than One race</td>
<td>23.7%</td>
<td>15.0% - 32.3%</td>
</tr>
</tbody>
</table>

Economic and Social Factors

In 2010, the prevalence of adult cigarette smoking varied significantly by level of education in Kansas. The prevalence of cigarette smoking among adults who did not attend college (high school graduates or G.E.D. or did not graduate high school) is more than three times that of college graduates. A similar association exists with annual household income. Kansas adults with an annual household income less than $25,000 have a cigarette smoking prevalence nearly three times that of adults with an annual household income of $50,000 or more.2

Table 3. Adult current smoking prevalence by education, KS BRFSS, 2010

<table>
<thead>
<tr>
<th>Education</th>
<th>Weighted Percentage</th>
<th>95% Confidence Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>Did not graduate high school</td>
<td>30.9%</td>
<td>25.0% - 36.8%</td>
</tr>
<tr>
<td>High school graduate</td>
<td>24.8%</td>
<td>22.1% - 27.6%</td>
</tr>
<tr>
<td>Some college</td>
<td>18.6%</td>
<td>16.4% - 20.9%</td>
</tr>
<tr>
<td>College graduate</td>
<td>7.8%</td>
<td>6.5% - 9.1%</td>
</tr>
</tbody>
</table>
### Table 4. Adult current smoking prevalence by ethnicity, KS BRFSS, 2010

<table>
<thead>
<tr>
<th>Annual Household Income</th>
<th>Weighted Percentage</th>
<th>95% Confidence Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than $25,000 per year</td>
<td>29.0%</td>
<td>25.6% 32.5%</td>
</tr>
<tr>
<td>$25,000 to less than $50,000 per year</td>
<td>19.4%</td>
<td>16.8% 22.0%</td>
</tr>
<tr>
<td>$50,000 or more per year</td>
<td>11.2%</td>
<td>9.8% 12.7%</td>
</tr>
</tbody>
</table>

### Other Measures of Tobacco Use

Cigarette smoking is the most common form of tobacco use; however, there are a variety of other tobacco products on the market that contribute to tobacco morbidity and addiction.

In 2010, the overall prevalence of smokeless tobacco use among Kansas adults was 5.1 percent. Males, however, had a much higher prevalence of smokeless tobacco use (9.8%; 95% CI: 8.4%-11.3%) than female adults (0.6%; 95% CI: 0.3%-0.8%).

In 2010, 56.8 percent of Kansas adult smokers stopped smoking cigarettes for one or more days because they were trying to quit smoking.²

### Youth and Tobacco

Kansas estimates of high school smoking are generally lower than national estimates, but appear to follow a similar downward pattern. In 2005, 21 percent (95% CI: 17.2–25.5%), or about 1 in 5 high school students, reported smoking cigarettes on at least one day in the past 30 days. In 2011, the estimate was significantly lower at 14.4 percent (95% CI: 12.0–17.2%) of high school students.

**High School Current Smoking Prevalence, KS YRBS, 2005-2011**

[Graph showing high school current smoking prevalence from 2005 to 2011 with specific percentages for each year: 21.0% in 2005, 20.6% in 2006, 16.9% in 2009, and 14.4% in 2011.]
The prevalence of cigarette smoking among high school students does not vary significantly by gender. Non-Hispanic high school students who list multiple races have a significantly higher prevalence of cigarette smoking than black non-Hispanic, Hispanic or white non-Hispanic students.

In 2011, 52.1 percent of Kansas high school students who smoke cigarettes tried to quit smoking cigarettes in the past year.

In 2011, the prevalence of smokeless tobacco use (i.e., chewing tobacco, snuff or dip) was 8.8 percent among high school students. The percent of male high school students who use smokeless tobacco (14.1%; 95% CI: 11.0%-17.9%) was more than four times that of female high school students (3.0%; 95% CI: 1.7%-5.2%). Similarly, the prevalence of cigar smoking among high school students (10.7%; 95% CI: 8.9%-12.9%) was much higher in males (14.1%; 95% CI: 11.5%-17.2%) than females (7.1%, 95% CI: 5.3%-9.4%).

Table 5. High school current smoking prevalence by race, KS YRBS, 2011

<table>
<thead>
<tr>
<th>Race/Ethnicity</th>
<th>Weighted Percentage</th>
<th>95% Confidence Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>Black non-Hispanic</td>
<td>7.9%</td>
<td>4.0% 15.1%</td>
</tr>
<tr>
<td>Hispanic</td>
<td>11.7%</td>
<td>8.1% 16.5%</td>
</tr>
<tr>
<td>White non-Hispanic</td>
<td>15.5%</td>
<td>12.2% 19.5%</td>
</tr>
<tr>
<td>Multiple Races non-Hispanic</td>
<td>21.5%</td>
<td>21.5% 34.4%</td>
</tr>
</tbody>
</table>

In 2011, 52.1 percent of Kansas high school students who smoke cigarettes tried to quit smoking cigarettes in the past year.

References


Nutrition

# HP 2020 Objectives

<table>
<thead>
<tr>
<th>Objective</th>
<th>Target</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increase the contribution of fruits to the diets of the population aged 2</td>
<td>Target – 0.9 cup equivalent per 1,000</td>
</tr>
<tr>
<td>years and older.</td>
<td>calories</td>
</tr>
<tr>
<td>Increase the contribution of total vegetables to the diets of the</td>
<td>Target – 1.1 cup equivalent per 1,000</td>
</tr>
<tr>
<td>population aged 2 years and older.</td>
<td>calories</td>
</tr>
</tbody>
</table>

## Summary

This section reviews surveillance data on fruit and vegetable consumption from the past decade for both youth and adults. Time trends and demographic characteristics associated with fruit and vegetable are used to articulate the burden of an unhealthy diet throughout Kansas. Estimates of sugar-sweetened beverage consumption and frequency of eating breakfast among youth are also presented.

## Introduction

Fruit and vegetable intake (at least 2 ½ cups daily) is associated with reduced risk of many chronic diseases, including heart attack, stroke and certain types of cancer. Most fruits and vegetables, when prepared without added fats or sugars, are also relatively low in calories and can help adults and children achieve and maintain a healthy weight. In addition to its recommendation to increase fruit and vegetable intake, the 2010 Dietary Guidelines for Americans recommend consuming at least half of all grains as whole grains; increasing intake of fat-free or low-fat milk and milk products; and choosing a variety of protein foods, including seafood, lean meat and poultry, eggs, beans and peas, soy products and unsalted nuts and seeds. Additional recommendations include reducing daily intake of sodium, saturated fats and dietary cholesterol, and reducing the intake of calories from solid fats and added sugars, including sugar-sweetened beverages.1

### Adult Fruit and Vegetable Intake

#### Time Trends

The prevalence of consuming fruits or vegetables fewer than five times per day did not increase or decrease significantly among Kansas adults between 2002 and 2009.2

#### Geographic Variation

In 2009, there was no significant variation in the percentage of Kansas adults consuming fruits or vegetables fewer than five times per day by county population density.3

#### Age and Gender

In 2009, the percentage of Kansas adults consuming fruits or vegetables fewer than five times per day was significantly higher among persons 18 to 24 years old (85.6%; 95% CI: 82.2-88.9) compared to Kansans 55 to 64 years old (79.5%; 95% CI: 78.2-80.9) and 65 years old and older (75.7%; 95% CI: 74.5-76.9).3
Percentage of Adults Consuming Fruits or Vegetables Fewer Than 5 Times Per Day by Age Groups, Kansas 2009

- 18-24: 85.6%
- 25-34: 82.3%
- 35-44: 82.6%
- 45-54: 83.1%
- 55-64: 79.5%
- 65+: 75.7%

Percentage of Adults Consuming Fruits or Vegetables Fewer Than 5 Times Per Day by Gender, Kansas 2009

- Male: 85.6%
- Female: 77.4%
Race and Ethnicity

In 2009, the percentage of Kansas adults consuming fruits or vegetables fewer than five times per day did not differ significantly across race groups. However, a significantly higher percentage of Hispanic Kansas adults (85.8%; 95% CI: 82.6-89.0) consumed fruits and vegetables fewer than five times per day compared to non-Hispanics (81.1%; 95% CI: 80.3-81.9).³

**Percentage of Adults Consuming Fruits or Vegetables Fewer Than 5 Times Per Day by Race and Ethnicity, Kansas 2009**

Economic and Social Factors

In 2009, Kansas adults with college graduate education (77.5%, 95% CI: 76.3-78.7) had significantly lower prevalence of consuming fruits or vegetables fewer than five times per day as compared to those with lower levels of education.³ There was no significant difference in the percentage of Kansas adults who consumed fruits or vegetables fewer than five times per day by annual household income status in 2010.³

**Percentage of Adults Consuming Fruits or Vegetables Fewer Than 5 Times Per Day by Education Status, Kansas 2009**
Youth Nutrition

Similar to recommendations for adults, the 2010 Dietary Guidelines for Americans recommends that children and adolescents consume a diet rich in fruits and vegetables, whole grains, and fat-free and low-fat dairy products while limiting intake of solid fats, cholesterol, sodium, added sugars and refined grains. Individual recommendations specific to fruit and vegetable consumption are based on age, gender and activity level and can be calculated online using the Centers for Disease Control and Prevention (CDC) Fruit and Vegetable Calculator. Eating a healthy breakfast daily is also recommended due to its association with improved memory, reduced school absenteeism and improved mood.

During the 2010/2011 school year, about 17.0 percent (95% CI: 15.1% to 19.1%) of Kansas high school students in grades 9 through 12 ate fruits and vegetables five or more times per day in the past week. There were no significant differences in eating fruits and vegetables five or more times per day in the past week among gender, age or race/ethnicity groups, or across grade levels or by obesity status.

More than three-fourths (76.8%) of Kansas high school students in grades 9 through 12 drank a can, bottle or glass of soda or pop less than one time per day during the 2010/2011 school year. However, 8.6 percent (95% CI: 7.0% to 10.4%) drank a can, bottle or glass of soda one time per day in the past week and an additional 14.6 percent (95% CI: 12.2% to 17.3%) drank a can, bottle or glass of soda or pop two or more times per day in the past week. The percentage who drank a can, bottle or glass of soda or pop one or more times per day in the past week was significantly higher among males (26.5%; 95% CI: 23.5% to 29.7%) compared to females (19.6%; 95% CI: 16.6% to 23.1%).

During the 2010/2011 school year, 36.9 percent (95% CI: 33.3% to 40.7%) of Kansas high school students in grades 9 through 12 ate breakfast every day in the past week. However, 12.8 percent (95% CI: 10.6% to 15.3%) did not eat breakfast on any day in the past week. There were no significant differences in eating breakfast every day in the past week among gender, age, or race/ethnicity groups, across grade levels or by overweight/obesity status.

References

8. 2011 Kansas Youth Risk Behavior Survey, Kansas State Department of Education.
Obesity

**HP 2020 Objectives**

<table>
<thead>
<tr>
<th>Reduce the proportion of adults who are obese.</th>
<th>Target: 30.5%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reduce the proportion of adolescents aged 12 to 19 years who are considered obese.</td>
<td>Target: 16.1%</td>
</tr>
</tbody>
</table>

**Introduction**

Since 2000, overweight and obesity have reached epidemic proportions in the United States and in Kansas. Since 1995, the prevalence of obesity among Kansas adults has nearly doubled, and by 2010, approximately two-thirds of the state’s adult population was either overweight or obese.¹ Obesity increases the risk for several chronic diseases, including coronary heart disease, type 2 diabetes, certain cancers, stroke and osteoarthritis.² Such chronic diseases are increasingly burdensome to the health care system due to ongoing medical monitoring, intervention and hospitalization. Researchers have estimated that, in Kansas, $1.327 billion in medical expenditures are attributable to obesity, of which 29 percent is financed by Medicare ($286 million) and Medicaid ($99 million).³

Body mass index (BMI) is an inexpensive, convenient and reliable measure used to estimate body fatness. BMI is calculated as weight in kilograms divided by height in meters-squared. Categories and associated ranges for BMI among adults are as follows: underweight (BMI < 18.5), healthy weight (BMI 18.5-24.9), overweight (BMI 25.0-29.9) and obese (BMI ≥ 30.0).

**Adult Obesity**

**Time Trends**

The percentage of Kansas adults who are obese has increased significantly during the past decade from 20.8 percent (95% CI: 19.4% to 22.2%) in 2000 to 30.1 percent (95% CI: 28.8% to 31.5%) in 2010 (Figure 1). This increase mirrors national data. However, in 2010, the prevalence of obesity was higher among Kansas adults 18 years old and older as compared to the U.S. median prevalence (27.5%).⁴
Prevalence of Obesity Among Adults 18 Years Old and Older, Kansas and the U.S. 2000-2010.

Geographic Variation
In 2010, there was no significant variation in adult obesity prevalence by county population density (Table 1).5

Age and Gender
In 2010, the percentage of Kansans 18 years and older who were obese was significantly higher among persons in groups 25 years old and older compared to Kansans 18 to 24 years old. About 1 in 3 adults 35 to 44 years old, 45 to 54 years old and 55 to 64 years were obese, while 1 in 4 adults (25.7%) ages 65 years old and older was obese.5
In 2010, the prevalence of adult obesity did not differ significantly between genders. About, 32.0% (95% CI: 29.8-34.2) of males and 28.2% (95% CI: 26.6-29.8) of females were obese in 2010.5

**Race and Ethnicity**

In 2010, the prevalence of obesity was significantly higher among African-Americans (39.2%, 95% CI: 32.2-46.2) as compared to whites (29.7%, 95% CI: 28.2-31.1). About 1 in 3 (35.3%, 95% CI: 27.9-31.3) Hispanic adults and 1 in 4 (29.9%, 95% CI: 28.5-31.3) non-Hispanic adults were obese in 2010.5

**Prevalence of Adult Obesity by Race and Ethnicity, Kansas 2010**

<table>
<thead>
<tr>
<th>Race</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>White Only</td>
<td>29.7%</td>
</tr>
<tr>
<td>African-American Only</td>
<td>39.2%</td>
</tr>
<tr>
<td>Other Only</td>
<td>30.3%</td>
</tr>
<tr>
<td>Multiracial</td>
<td>33.4%</td>
</tr>
<tr>
<td>Hispanic</td>
<td>35.3%</td>
</tr>
<tr>
<td>Non-Hispanic</td>
<td>29.9%</td>
</tr>
</tbody>
</table>

**Economic and Social Factors**

In 2010, Kansas adults who were high school graduates (31.6%, 95% CI: 28.9-34.4); and some college education (33.3%, 95% CI: 30.6-36.0) had significantly higher prevalence of obesity as compared to college graduates (26.2%, 95% CI: 24.2-28.1).5

**Prevalence of Adult Obesity by Education Status, Kansas 2010**

<table>
<thead>
<tr>
<th>Education Status</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than high school</td>
<td>34.1%</td>
</tr>
<tr>
<td>High school graduate</td>
<td>31.6%</td>
</tr>
<tr>
<td>Some college</td>
<td>33.3%</td>
</tr>
<tr>
<td>College graduate</td>
<td>26.2%</td>
</tr>
</tbody>
</table>
In 2010, adults with an annual household income of $50,000 or more (26.8%, 95% CI: 24.9-28.7) had significantly lower prevalence of obesity as compared to those with lower incomes (less than $15,000: 36.0%, 95% CI: 30.0-42.1; $15,000-$24,999: 35.9%, 95% CI: 31.6-40.2; $25,000-$34,999: 34.6%, 95% CI: 30.3-39.0; and $35,000-$49,999: 35.3%, 95% CI: 31.5-39.1).5

**Prevalence of Adult Obesity by Annual Household Income, Kansas 2010**

![Prevalence of Adult Obesity by Annual Household Income, Kansas 2010](image)

**Youth Obesity**

In contrast to adults, BMI is age- and sex-specific for youth and is often referred to as BMI-for-age.6 For children and adolescents, BMI is plotted on Centers for Disease Control and Prevention (CDC) BMI-for-age growth charts for either boys or girls to obtain a percentile ranking. The percentile allows comparison of the child’s BMI to youth of the same sex and age. Categories and associated ranges for BMI percentiles among youth are as follows: underweight (< 5th percentile), healthy weight (5th to less than 85th percentile), overweight (85th to less than 95th percentile) and obese (95th percentile or greater).

During the 2010/2011 school year, 13.9 percent (95% CI: 12.2% to 15.7%) of Kansas high school students in grades 9-12 were overweight and 10.2 percent (95% CI: 8.8% to 11.8%) were obese. In total, 24.1 percent (95% CI: 21.9% to 26.5%) of Kansas high school students in grades 9-12 were overweight or obese during this time period. The percentage of Kansas high school students in grades 9-12 who were obese did not differ significantly among gender or age groups or across grade levels. However, the percentage of Kansans high school students in grades 9-12 who were obese during this time period was significantly higher among non-Hispanic African Americans (18.1%; 95% confidence interval: 11.4% to 27.6%) compared to non-Hispanic whites (9.1%; 95% confidence interval: 7.6% to 10.8%).7

**References**

Physical Activity

<table>
<thead>
<tr>
<th>HP 2020 Objectives</th>
<th>Target</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reduce the proportion of adults who engage in no leisure-time physical activity.</td>
<td>32.6%</td>
</tr>
<tr>
<td>Increase the proportion of adolescents who meet current Federal physical activity guidelines for aerobic physical activity.</td>
<td>20.2%</td>
</tr>
</tbody>
</table>

Summary

This section reviews physical activity surveillance data from the past decade for both youth and adults. Time trends and demographic characteristics associated with no leisure time physical activity are used to articulate the burden of physical inactivity throughout Kansas.

Introduction

Research has demonstrated strong evidence for a positive association between regular physical activity and several health benefits, including lower risks of coronary heart disease, stroke, high blood pressure, adverse blood lipid profile, type 2 diabetes, colon cancer and breast cancer. The U.S. Department of Health and Human Services’ 2008 Physical Activity Guidelines for Americans recommends that adults do at least 150 minutes a week of moderate-intensity aerobic activity, or 75 minutes a week of vigorous-intensity aerobic activity, or an equivalent combination of moderate- and vigorous-intensity aerobic activity plus muscle-strengthening activities that involve all major muscle groups two or more times per week.¹

Adult Physical Inactivity

The Kansas Behavioral Risk Factor Surveillance System (BRFSS) includes a question on leisure time physical activity that assesses participation in any physical activity or exercise other than regular job such as running, calisthenics, golf, gardening or walking for exercise.

Time Trends

Since 2001, the percentage of adult Kansans not participating in any leisure time physical activity has declined slightly from 27 percent (95%CI: 25.3-28.1) in 2001 to 24 percent (95%CI: 22.8-25.2) in 2010.²
Geographic Variation

In 2010, there was a significant variation in the percentage of adults in Kansas who do not participate in any leisure time physical activity by county population density (Table 1). County population density peer groups are based on the population for each county in 2010 and are defined as follows: frontier (fewer than 6 persons per square mile), rural (6 to 19.9 persons per square mile), densely-settled rural (20 to 39.9 persons per square mile), semi-urban (40 to 149.9 persons per square mile), and urban (150 or more persons per square mile). The percentage of Kansas adults who do not participate in any leisure time physical activity was significantly higher among those living in frontier, rural and densely-settled rural counties compared to those living in urban counties.³

Table 1. Percentage of adults not participating in leisure time physical activity by population density peer group, KS BRFSS, 2010

<table>
<thead>
<tr>
<th>Population Density</th>
<th>Weighted Percentage</th>
<th>95% Confidence Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frontier</td>
<td>30.7%</td>
<td>23.9%</td>
</tr>
<tr>
<td>Rural</td>
<td>28.6%</td>
<td>25.1%</td>
</tr>
<tr>
<td>Densely-settled Rural</td>
<td>28.4%</td>
<td>25.1%</td>
</tr>
<tr>
<td>Semi-urban</td>
<td>22.3%</td>
<td>19.4%</td>
</tr>
<tr>
<td>Urban</td>
<td>21.6%</td>
<td>20.0%</td>
</tr>
</tbody>
</table>
Age and Gender
In 2010, almost 1 in 3 Kansas adults 65 years old and older (31.0%) did not participate in leisure time physical activity. The percentage of adults not participating in leisure time physical activity was significantly higher for older adults (55-64 years: 29.1%, 95% CI: 26.9-31.2; 65+ years: 31.0%, 95% CI: 29.2-32.9) as compared to younger adults (18-24 years: 18.5%, 95% CI: 13.0-24.0; 25-34 years: 17.7%, 95% CI: 14.4-21.0).³

In 2010, about 1 in 4 adult males in Kansas (22.5%, 95% CI: 20.7-24.4) and 1 in 4 females (25.4%, 95% CI: 23.8-26.9) did not participate in any leisure time physical activity. The percentage of Kansas adults not participating in leisure time activity did not vary statistically by gender in 2010.³

Race and Ethnicity
In 2010, about 1 in 4 African-American (23.7%) and white (23.4%) Kansas adults did not participate in leisure time physical activity. More than 1 in 3 (37.5%) of Kansas Hispanic adults did not participate in leisure time physical activity in 2010.³
Economic and Social Factors

In 2010, nearly half of Kansas adults with less than high school education (44.8%) did not participate in leisure time physical activity. The percentage of Kansas adults not participating in leisure time activity was significantly higher among those with less than high school education (44.8%, 95% CI: 38.9-50.7) as compared to those with college or more education (15.8%, 95% CI: 14.1-17.4).³

### Percentage of Adults Not Participating in Leisure Time Physical Activity by Education Status, Kansas 2010

<table>
<thead>
<tr>
<th>Education Status</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than high school</td>
<td>44.8%</td>
</tr>
<tr>
<td>High school graduate</td>
<td>31.8%</td>
</tr>
<tr>
<td>Some college</td>
<td>22.6%</td>
</tr>
<tr>
<td>College graduate</td>
<td>15.8%</td>
</tr>
</tbody>
</table>

In 2010, the percentage of Kansas adults not participating in leisure time physical activity was higher among adults with a lower annual household income. About 2 in 5 Kansas adults (42.8%) with an annual household income less than $15,000 did not participate in leisure time physical activity in 2010.³

### Percentage of Adults Not Participating in Leisure Time Physical Activity by Annual Household Income, Kansas 2010

<table>
<thead>
<tr>
<th>Annual Household Income</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;$15,000</td>
<td>42.8%</td>
</tr>
<tr>
<td>$15,000-$24,999</td>
<td>33.7%</td>
</tr>
<tr>
<td>$25,000-$34,999</td>
<td>26.0%</td>
</tr>
<tr>
<td>$35,000-$49,999</td>
<td>24.6%</td>
</tr>
<tr>
<td>$50,000+</td>
<td>16.5%</td>
</tr>
</tbody>
</table>

Youth Physical Activity

As in adults, regular physical activity in youth promotes health and fitness. Compared to those who are inactive, physically active children and adolescents have higher levels of cardiorespiratory fitness, stronger muscles, lower body fat, stronger bones, and reduced symptoms of anxiety and depression. The U.S. Department of Health and Human Services’ 2008 Physical Activity Guidelines for Americans recommends that children and adolescents do 60 minutes or more of physical activity daily, including vigorous-intensity aerobic activity, muscle-strengthening activity and bone-strengthening activity on at least 3 days a week.¹

During the 2010/2011 school year, nearly one-third (30.2%; 95% CI: 27.7% to 32.7%) of Kansas high school students in grades 9-12 met physical activity guidelines (i.e. were physically active for at least 60 minutes daily). However, 11.6 percent (95% CI: 9.8% to 13.7%) did not participate in physical activity for at least 60 minutes on any day in the past week. The percentage of Kansas high school students who met physical activity guidelines did not differ significantly among age, race/ethnicity or weight groups or across grade levels. However, the percentage of Kansas high school students who met physical activity guidelines during this time period was significantly higher among males (40.5%; 95% CI: 37.0% to 44.1%) compared to females (19.5%; 95% CI: 16.9% to 22.3%).⁴
References


4. 2011 Kansas Youth Risk Behavior Survey, Kansas State Department of Education.
Substance Abuse

<table>
<thead>
<tr>
<th>HP 2020 Objectives</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reduce binge drinking in the past month by adults.</td>
</tr>
<tr>
<td>Reduce binge drinking in the past month by high school students.</td>
</tr>
</tbody>
</table>

Summary

This section reviews substance abuse surveillance data from the past decade for both youth and adults. Time trends and demographic characteristics associated with binge drinking are used to articulate the burden of excessive alcohol use throughout Kansas. The burden of heavy drinking among adults, as well as illicit drug use among adults and youth in Kansas, is also presented.

Introduction

Alcohol consumption is the third leading preventable cause of death in the United States.1 Binge drinking is defined as adult males having five or more drinks on one occasion and adult females having four or more drinks on one occasion in past 30 days. Binge drinking is associated with alcohol poisoning, unintentional injuries, suicide, hypertension, pancreatitis, sexually transmitted diseases and meningitis, among other disorders. The National Institute on Alcohol Abuse and Alcoholism reported that binge drinking underlies many negative social costs, including interpersonal violence, drunk driving and lost economic productivity.2

Adult Binge Drinking

Time Trends

In 2006, the Behavioral Risk Factor Surveillance System definition of binge drinking changed to males having five or more drinks on one occasion in the past month and females having four or more drinks on one occasion in the past month. The previous definition was consumption of five or more drinks on at least one occasion in the past month, without regard to gender. Despite the change in the definition of binge drinking in 2006, the prevalence of binge drinking among Kansas adults between 2001 and 2010 was relatively stable. The prevalence of binge drinking between 2006 and 2010 was consistently around 15 percent.3
Prevalence of Binge Drinking Among Adults, Kansas BRFSS 2001-2010

Note: The definition of binge drinking changed in 2006 to males having five or more drinks on one occasion in the past month, and females having four or more drinks on one occasion in the past month. The previous definition was consumption of five or more drinks on at least one occasion in the past month, without regard to gender.

Geographic Variation

In 2010, there was no significant difference in adult binge drinking prevalence by county population density in Kansas.4

Age and Gender

In 2010, the prevalence of binge drinking was 21.4 percent (95% CI: 19.3-21.6) among Kansas adult males and 9.0 percent (95% CI: 7.8-10.2) among females. A significantly higher percentage of males were binge drinkers than females. Binge drinking is also associated with age, falling from 27.8 percent among adults 18 to 24 years old to 2.1 percent among adults 65 years old and older.4

Binge Drinking by Age Groups, Kansas 2010, BRFSS
Race and Ethnicity
In 2010, there was no significant difference in adult binge drinking prevalence by race or ethnicity in Kansas.4

Economic and Social Factors
In 2010, the prevalence of adult binge drinking did not vary significantly by level of education or annual household income in Kansas. About 1 in 6 Kansas adults (16.6%; 95% CI: 14.0-19.2) with some college education reported engaging in binge drinking in 2010.4

Adult Heavy Drinking
Heavy drinking is associated with a number of chronic health conditions, including chronic liver disease and cirrhosis, gastrointestinal cancers, heart disease, stroke, pancreatitis, depression as well as a variety of social problems. Heavy alcohol consumption is defined as adult men having more than two drinks per day and adult women having more than one drink per day in the past 30 days. In 2010, the prevalence of heavy alcohol consumption among Kansas adults was 4 percent, remaining fairly consistent since 2001 (5%; 95% CI: 4.0-5.6).4

Youth and Alcohol
Kansas estimates of high school binge drinking appear to have declined since 2005. In 2005, 29 percent (95% CI: 25.2–33.1%) of high school students reported drinking five or more drinks of alcohol in a row within a couple hours on at least one day in the past 30 days. In 2011, the estimate was significantly lower at 20.7 percent (95% CI: 18.3–23.3%) of high school students.

The prevalence of binge drinking among high school students does not vary significantly by gender or race/ethnicity.6
**Illicit Drug Use**

The National Survey on Drug Use and Health (NSDUH) collects information on nine different categories of illicit drug use: marijuana/hashish, cocaine (including crack), heroin, hallucinogens, inhalants, and the nonmedical use of prescription-type pain relievers, tranquilizers, stimulants and sedatives. Estimates of illicit drug use reported from NSDUH reflect the use of any of the nine drug categories listed above. Use of alcohol and tobacco products is not included in these estimates.7

In 2009-2010, more than 1 in 6 (17.4%) Kansas adults 18 to 25 years old and nearly 1 in 20 (4.8%) adults 26 years old and older has used illicit drugs in the past month.7 In 2006, Kansas showed a one-day total of 10,470 residents in treatment for substance use disorders; of which 14 percent were under the age of 18 years. Between 1992 and 2006, drug-only admission to treatment centers doubled from 12 percent to 27 percent while alcohol-only admissions declined from 44 percent to 16 percent.8

During the 2010/2011 school year, nearly 1 in 3 Kansas high school students had ever used marijuana and nearly 1 in 6 had ever used prescription drugs without a doctor’s prescription.6

### Prevalence of Drug Use (Ever Use) Among High School Students in Grades 9-12, KS YRBS, 2011

<table>
<thead>
<tr>
<th>Drug</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marijuana</td>
<td>31.6%</td>
</tr>
<tr>
<td>Prescription drugs without doctor's prescription</td>
<td>15.0%</td>
</tr>
<tr>
<td>Glue/aerosol spray cans/paints</td>
<td>9.5%</td>
</tr>
<tr>
<td>Ecstasy</td>
<td>6.0%</td>
</tr>
<tr>
<td>Cocaine</td>
<td>5.3%</td>
</tr>
<tr>
<td>Methamphetamines</td>
<td>3.3%</td>
</tr>
<tr>
<td>Steroid pills/shots without doctor's prescription</td>
<td>2.7%</td>
</tr>
</tbody>
</table>

### References

6. 2011 Kansas Youth Risk Behavior Survey, Kansas State Department of Education.
7. 2009-2010 National Survey on Drug Use and Health, Substance Abuse and Mental Health Services Administration (SAMHSA), Center of Behavioral Health Statistics and Quality.
Strengths and Assets

Strengths

Obesity, Physical Activity and Nutrition

The Chronic Disease Risk Reduction Program provides guidance and funding to communities to address tobacco, physical activity and nutrition. Obesity reduction efforts focus on increasing access to healthy foods through farmers’ markets and building public/private partnerships to develop and enhance walking and biking trails. In 2011 there were at least 94 farmers’ markets held across the state with 1,175 farmers selling goods.

The Senior Farmers’ Market Nutrition Program is designed to provide fresh, nutritious, unprepared, locally grown fruits, vegetables and herbs from farmers’ markets, roadside stands and community-supported agriculture programs to low income seniors. More than 5,500 seniors received vouchers to purchase fruits and vegetables or received food bundles in 2011.

The Sunflower Foundation supports environmental changes that encourage increased physical activity. Specifically, the foundation’s priorities are school and community-based walking and multi-use trails. The Foundation has provided grants for more than 80 school and community-based walking and multi-use trails across Kansas.

United Health Ministry Fund Fit for Kansas Kids initiative provides grants to support families, communities and agencies in creating environments that encourage young children to be physically active and eat healthful, nutritious foods from birth onwards.

Blue Cross & Blue Shield of Kansas Healthy Habits for Life initiative provides funding to schools to implement programs aimed at youth to reduce cardiovascular risk, increase physical activity and teach healthy eating habits.

Tobacco Use

Kansas Tobacco Quitline provides telephone and online cessation counseling to Kansas tobacco users. The Quitline is promoted through advertising, community coalitions, and health and dental providers. During SFY 2012 more than 2,800 Kansas tobacco users registered for Quitline cessation support.

Seatbelt, Booster Seat and Helmet Use

Safe Kids Kansas provides reduced cost bicycle helmets through the Cycle Smart program and provides child safety and booster seats to low-income families through the Buckle Up Program. In 2011 Safe Kids Kansas distributed 8,452 bicycle helmets and 1,280 child safety and booster seats.

Healthy Communities

The Kansas Health Foundation’s Healthy Communities Initiative supports communities as they create a healthier environment for their citizens to promote physical activity, increase access to healthy foods and decrease use of and exposure to tobacco products.
Assets

- Strong Coalitions
  - Tobacco Free Kansas Coalition, Kansas Breastfeeding Coalition, Kansas Cancer Partnership, Safe Kids Kansas, Kansas Chronic Disease Alliance of Kansas, local wellness/health and prevention coalitions, etc.

- Knowledgeable and committed public health professionals working on these issues
  - KDHE, KSDE, KDADS, local agencies, communities, voluntary organizations

- Solid data to support work
  - Examples: BRFSS, YRBS, substance abuse data

- Natural and local resources for physical activity and nutrition

- Supportive policies on select issues
  - Examples: Good motor vehicle laws, Indoor Clean Air Act

- Emerging best practices and increasing attention on lifestyle behaviors at the community, state and national levels
  - CDC’s Winnable Battles, growing community infrastructure, Governor’s Council on Fitness Obesity Summit
Social Factors Affecting Health

**HP 2020 Goals**
Create social and physical environments that promote good health for all.

Achieve health equity, eliminate disparities and improve the health of all groups.

**HP 2020 Objective**

| Proportion of persons living in poverty. | Target: Not applicable (HP2020 guideline for this objective is to track this measure for informational purpose and that if warranted, HP2020 will set a target during the decade). |

**Summary**
In addition to genetic factors, health results from the choices that people are able to make in response to the options that are available to them in their social and physical environments. The current structure of our society leads to inequities that are seen in early childhood conditions, availability of educational and employment opportunities, quality of working conditions, as well as in the structure and quality of physical environment. Due to these inequities, differences are seen in the material conditions, psychosocial support and behavioral options for different subgroups of the population making them more or less vulnerable to poor health. These social inequities also affect access to timely and quality health care and its utilization, which lead to inequities in the health promotion, disease prevention, treatment and recovery from illness and survival. These complex, integrated and overlapping social structures and economic systems effecting health of the population are referred to as social determinants of health.

To achieve health equity it is important to address social determinants of health, which requires advances in education, childcare, housing, business, law, media, community planning, transportation and agriculture. To address social determinants of population health, the Department of Health and Human Services Secretary’s Advisory Committee on National Health Promotion and Disease Prevention Objectives for 2020 has recommended to use a health in all policies approach – a comprehensive approach where all parts of government work toward common goals to achieve improved health for all and reduce health inequities.
World Health Organization’s Commission on Social Determinants of Health has also called on all governments to address social determinants of health by taking the following steps: “improve the conditions of daily life,” “tackle the inequitable distribution of power, money, and resources,” and “measure and understand the problem and assess the impact of action.”

The goal for eliminating the health disparities has not been reached despite the public health efforts at the national and state level. Several Kansas health indicators show the presence of health disparities. This indicates a need for collaboration with all essential partners to develop strategies to address the inequities related to social determinants of health to improve the health of all Kansans.

**Definition and Introduction**

An extensive body of knowledge has established that protection, maintenance and improvement of health require more than just controlling disease. In addition to genetic factors, health results from the choices people are able to make in response to the options available to them. The options are determined by the conditions in their social and physical environments. The circumstances for living a prosperous and healthy life are unequally distributed between and within society. These societal inequities are seen in early childhood conditions, availability of educational and employment opportunities, quality of working conditions as well as in the structure and quality of the physical environment. Differences are seen in the material conditions, psychosocial support and behavioral options for different subgroups of the population, making them more or less vulnerable to poor health. These social inequities also affect access to timely and quality health care and its utilization, which lead to inequities in the health promotion, disease prevention, treatment and recovery from illness, and survival. These complex, integrated and overlapping social structures and economic systems effecting health of the population are referred to as social determinants of health. The World Health Organization (WHO) defines social determinants of health as “the circumstances in which people are born, grow up, live, work, and age, as well as the systems put in place to deal with illness. These circumstances are in turn shaped by a wider set of forces: economics, social policies, and politics.” In addition to health care, advances are needed in education, childcare, housing, business, law, media, community planning, transportation and agriculture.

To address social determinants of population health, the Department of Health and Human Services Secretary’s Advisory Committee on National Health Promotion and Disease Prevention Objectives for 2020 has recommended to use a health in all policies approach – a comprehensive approach where all parts of government work toward common goals to achieve improved health for all and reduce health inequities. The World Health Organization’s Commission on Social Determinants of Health has also called on all governments to address social determinants of health by taking the following steps: “improve the conditions of daily life,” “tackle the inequitable distribution of power, money, and resources” and “measure and understand the problem and assess the impact of action.”

The Healthy People 2020 has developed a “place-based” organizing framework of the following five key areas of social determinants of health: (1) Social and Community Context, (2) Economic Stability, (3) Education, (4) Neighborhood and Built Environment, and (5) Health and Health Care.
Status of Relationship Between Health and Social Determinants of Health in Kansas:

**Social and Community Context**

*Race and Ethnicity, Perceptions of Discrimination and Equity:*  
Race and ethnicity are important socio-cultural constructs that are linked to socio-economic factors. These constructs indicate the social classification of people and can capture the impact of racism.\(^8\) Racial discrimination leads to disparities in income, education, neighborhood poverty and access to health care.\(^9\) Scientific evidence has shown that racial and ethnic minority groups experience poorer health compared to the overall population of the United States.\(^10\) The differences in the health among racial and ethnic groups in the U.S. have been observed consistently across a large number of health indicators throughout the life span i.e., from birth through old age.\(^9\) Significant health disparities, including shorter life expectancy and higher rates of diabetes, cancer, heart disease, stroke, substance abuse, infant mortality and low birth weight are seen among African Americans, Hispanic Americans, American Indians, Asian Americans, and Native Hawaiians/Other Pacific Islanders. These racial and ethnic groups represent 25 percent of the nation’s population.\(^10\) Racial and ethnic health disparities associated with the multiple indicators of physical and mental health are believed to be the result of complex interaction among genetic variations, environmental factors, specific health behaviors, and social factors including racial discrimination.\(^10,11\)

In Kansas population is comprised of 78 percent non-Hispanic whites, 6 percent of non-Hispanic African Americans, 11 percent of Hispanics, and 5 percent of all other non-Hispanic races.

Kansas data mirror national findings on racial/ethnic health disparities. Kansas Native Americans die sooner than others from diabetes and report higher rates of risk behaviors related to injury and death. Kansas African Americans have a higher infant mortality rate, die sooner than others from cancer, stroke and diabetes, and die more often from homicide. Kansas Asians and Pacific Islanders may be reluctant to submit to certain health screening tests and are, therefore, at risk for late detection of some diseases. Kansas Hispanics have the lowest rate of seeking early prenatal care and have the lowest educational attainment rates, a known predictor for poor health outcomes later in life.\(^12\) Higher age-adjusted percentages of Kansas African Americans, American Indians/Alaskan Natives and Hispanics 18 years old and older have diabetes as compared to white Kansans.\(^13,14\) The age-adjusted stroke death rates are higher among African Americans as compared to whites during the last several decades. Although declining trends in stroke deaths are seen in both racial groups, the death rate is higher for African American Kansans than for white Kansans each year during the last several decades.\(^15\) Similarly, the age-adjusted prevalence of obesity is higher among African Americans and other races as compared to whites.\(^13,14\)
### Race/Ethnicity in Kansas, 2000 and 2010

<table>
<thead>
<tr>
<th>Race/Ethnicity</th>
<th>2000</th>
<th></th>
<th>2010</th>
<th></th>
<th>Percent Change</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>Percent</td>
<td>Number</td>
<td>Percent</td>
<td></td>
</tr>
<tr>
<td>White/Caucasian</td>
<td>2,233,997</td>
<td>83.1%</td>
<td>2,230,539</td>
<td>78.2%</td>
<td>-0.2%</td>
</tr>
<tr>
<td>Hispanic/Latino</td>
<td>188,252</td>
<td>7.0%</td>
<td>300,042</td>
<td>10.5%</td>
<td>59.4%</td>
</tr>
<tr>
<td>Black/African American</td>
<td>151,407</td>
<td>5.6%</td>
<td>165,700</td>
<td>5.7%</td>
<td>7.5%</td>
</tr>
<tr>
<td>Asian</td>
<td>46,301</td>
<td>7.1%</td>
<td>66,967</td>
<td>2.3%</td>
<td>52.7%</td>
</tr>
<tr>
<td>Two or More Races</td>
<td>42,508</td>
<td>1.6%</td>
<td>64,891</td>
<td>2.3%</td>
<td>52.7%</td>
</tr>
<tr>
<td>American Indian/Alaskan Native</td>
<td>22,322</td>
<td>0.8%</td>
<td>23,037</td>
<td>0.8%</td>
<td>3.2%</td>
</tr>
<tr>
<td>Native Hawaiian/Pacific Islander</td>
<td>1,154</td>
<td>0.0%</td>
<td>1,978</td>
<td>0.1%</td>
<td>71.4%</td>
</tr>
<tr>
<td>Other Race</td>
<td>2,477</td>
<td>0.1%</td>
<td>2,928</td>
<td>0.1%</td>
<td>18.2%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>2,688,418</strong></td>
<td><strong>100.0%</strong></td>
<td><strong>2,853,118</strong></td>
<td><strong>100.0%</strong></td>
<td><strong>6.1%</strong></td>
</tr>
</tbody>
</table>

Source: U.S. Census Bureau

### Age-Adjusted Prevalence of Diagnosed Diabetes Among Adults 18 Years Old and Older by Race and Ethnic Groups, Kansas 2006-2010

- **White, non-Hispanic**: 7.2%
- **Black/African American, non-Hispanic**: 13.3%
- **American Indian/Alaskan Native, non-Hispanic**: 18.7%
- **Asian/Native Hawaiian/Pacific Islander, non-Hispanic**: 7.3%
- **Other/Multiracial, non-Hispanic**: 10.1%
- **Hispanic**: 12.7%

Age-Adjusted Prevalence of Diabetes (%)

**Age-Adjusted Prevalence of Obesity Among Adults 18 Years Old and Older by Race/Ethnic Groups, Kansas 2009-2010.**

<table>
<thead>
<tr>
<th>Racial/ Ethnic Group</th>
<th>Percentage of Adults 18 Years and Older Who are Obese (Age-Adjusted)</th>
<th>95% Confidence Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-Hispanic White</td>
<td>29.2%</td>
<td>27.7% to 30.8%</td>
</tr>
<tr>
<td>Non-Hispanic African American</td>
<td>39.2%</td>
<td>32.2% to 46.1%</td>
</tr>
<tr>
<td>Non-Hispanic Other/Multi-Race</td>
<td>28.4%</td>
<td>22.5% to 34.4%</td>
</tr>
<tr>
<td>Hispanic</td>
<td>34.9%</td>
<td>28.6% to 41.1%</td>
</tr>
</tbody>
</table>

Obesity is defined as Body Mass Index 30 or higher.


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**Age-Adjusted Stroke Mortality Rates by Race Groups, Kansas 2000-2008**

![Graph showing age-adjusted stroke mortality rates by race groups from 2000 to 2008.](chart)

Economic Stability

The two key components of economic stability are poverty rate/household income and employment status.

Poverty and Household Income

The poverty rate is an economic indicator that measures the percentage of people with income below the poverty threshold. For estimating the percentage of people living in poverty, the U.S. Census Bureau compares annual income to a set of dollar values called poverty thresholds that vary by family size, number of children and age of householder. If a family’s before tax income is less than the dollar value of their threshold, then that family and every individual in it are considered to be in poverty. For people not living in families, poverty status is determined by comparing the individual’s income to his or her poverty threshold.¹⁶

About 15.3 percent Americans of all ages are living in poverty (below poverty level). Nationally, between 2000 and 2010, the percentage of people in poverty increased from 12.2 percent to 15.3 percent, while the number of people in poverty increased from 33.3 million to 46.2 million.¹⁶ Poverty is a critical indicator of the well-being of our nation’s children. The national estimates show that 1 in 5 children (21.6% children, i.e., 131,258 children) is living in poverty.¹⁷

In Kansas, 13.6 percent (377,530 people) of residents are living in poverty (below the poverty level),⁶ and about 18.4 percent of children (131,258 children) are living in poverty.¹⁷ Disparities are seen in the percentage of people living in poverty in racial and ethnic groups in Kansas with higher percentages of American Indians, African Americans and Hispanics living in poverty as compared to whites.¹⁸

An extensive body of evidence has shown that poor health is very strongly correlated with low income and poverty level. Poor people are less healthy than those who have more money, whether the benchmark is mortality, the prevalence of acute or chronic diseases, mental health or their associated risk behaviors and factors. Greater differences in health are seen when a greater gap exists between the richest and poorest people.²⁰,²¹

In Kansas, disparities are seen in the burden of diseases and their risk factors among income groups. The prevalence of arthritis, coronary heart disease, stroke and diabetes is significantly lower among Kansans 18 years old and older with an annual household income of $50,000 or more as compared to those with lower incomes.¹³,¹⁴

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Percentage of Kansans Living in Poverty by Race and Ethnic Groups, 2010

Source: American Community Survey, U.S. Census Bureau.
Prevalence of Diagnosed Diabetes Among Adults 18 Years Old and Older by Annual Household Income and Age, Kansas 2009-2010.

<table>
<thead>
<tr>
<th>Age-Specific Prevalence of Diabetes (%)</th>
<th>Below $15,000</th>
<th>$15,000 to $24,999</th>
<th>$25,000 to $34,999</th>
<th>$35,000 to $49,999</th>
<th>$50,000 or higher</th>
</tr>
</thead>
<tbody>
<tr>
<td>18 to 34 Years</td>
<td>5.9%</td>
<td>3.4%</td>
<td>2.1%</td>
<td>0.8%</td>
<td>0.7%</td>
</tr>
<tr>
<td>35 to 44 Years</td>
<td>8.9%</td>
<td>8.1%</td>
<td>5.4%</td>
<td>4.6%</td>
<td>3.2%</td>
</tr>
<tr>
<td>45 to 64 Years</td>
<td>21.1%</td>
<td>18.5%</td>
<td>13.3%</td>
<td>11.5%</td>
<td>8.5%</td>
</tr>
<tr>
<td>65 Years and Older</td>
<td>24.5%</td>
<td>21.6%</td>
<td>20.7%</td>
<td>18.1%</td>
<td>17.4%</td>
</tr>
<tr>
<td>Total</td>
<td>14.4%</td>
<td>13.6%</td>
<td>10.8%</td>
<td>8.4%</td>
<td>5.9%</td>
</tr>
</tbody>
</table>

Source: 2009-2010 Kansas Behavioral Risk Factor Surveillance System, Bureau of Health Promotion, Kansas Department of Health and Environment
The prevalence of several behavioral health risk factors, including smoking and not meeting current physical activity guidelines, is significantly higher among adults with annual household incomes less than $15,000 as compared to those with higher incomes.13

### Prevalence of Current Smoking Among Adults 18 Years Old and Older by Annual Household Income, Kansas 2010

![Bar graph showing the prevalence of current smoking among adults 18 years old and older by annual household income, Kansas 2010.](image)

Source: 2010 Kansas Behavioral Risk Factor Surveillance System, Bureau of Health Promotion, KDHE.

### Employment Status

Scientific evidence has shown that employment status affects health status. Unemployed adults have poorer mental and physical health than employed adults.21,22 In addition to having poorer health, unemployed adults are more likely to delay or not receive needed medical care and needed prescriptions due to cost than their employed counterparts.21,22 Thus, the unemployed adults have both worse health and less access to needed care and treatment than employed adults.21,22

In Kansas, a higher percentage of adults 18 years old and older who are out of work or are unable to work have diabetes as compared to those who are employed for wages or self-employed.13 The prevalence of several behavioral health risk factors, including smoking and not participating in any physical activity, is significantly higher among adults 18 years old and older who are out of work or are unable to work as compared to those who are employed for wages or self-employed.13

### Prevalence of Diagnosed Diabetes Among Adults 18 Years Old and Older by Employment Status, Kansas 2010

<table>
<thead>
<tr>
<th>Employment Status</th>
<th>Percentage of Adults Ages 18 Years and Older with Diagnosed Diabetes</th>
<th>95% Confidence Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employed for Wages/Self-Employed</td>
<td>5.3%</td>
<td>4.6%-6.0%</td>
</tr>
<tr>
<td>Out of Work</td>
<td>10.7%</td>
<td>6.7%-14.8%</td>
</tr>
<tr>
<td>Unable to Work</td>
<td>25%</td>
<td>20.2%-29.8%</td>
</tr>
</tbody>
</table>

Source: 2010 Kansas Behavioral Risk Factor Surveillance System, Bureau of Health Promotion, KDHE.
Prevalence of Current Cigarette Smoking Among Adults 18 Years Old and Older by Employment Status, Kansas 2010

<table>
<thead>
<tr>
<th>Employment Status</th>
<th>Percentage of Adults Ages 18 Years and Older Who are Current Cigarette Smokers</th>
<th>95% Confidence Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employed for Wages/Self-Employed</td>
<td>16.2%</td>
<td>14.6%-17.7%</td>
</tr>
<tr>
<td>Out of Work</td>
<td>34.8%</td>
<td>27.6%-42.1%</td>
</tr>
<tr>
<td>Unable to Work</td>
<td>41.3%</td>
<td>35.0%-47.5%</td>
</tr>
</tbody>
</table>

Source: 2010 Kansas Behavioral Risk Factor Surveillance System, Bureau of Health Promotion, KDHE.

Education

A strong body of evidence indicates that education level, one of the measures for assessing socio-economic status, is an important predictor of health status. Low education levels are linked with poor health, more stress and lower self-confidence, whereas higher education predicts good health.\(^{21, 23}\) Attainment of better education can increase incomes and empower individuals to more effectively promote their own health.\(^7\) Education is one of the factors for early childhood development that has a determining influence on subsequent life chances and health. Education and skills development during early childhood helps improve occupational opportunities and reduce risk of obesity, malnutrition, mental health problems, heart disease and criminality throughout one’s life span.\(^4\)

In Kansas, 38 percent of adults 25 years old and older have no education beyond high school, 24.4 percent have attended but not completed college, 7.5 percent have an associate’s degree, 19.6 percent have bachelor’s degree and 10.4 percent have graduate or professional degrees.\(^{24}\)

Educational Attainment Among Kansans 25 Years Old and Older. 2008-2012 American Community Survey 5-Year Estimates

Source: American Community Survey, U.S. Census Bureau.
In Kansas, disparities are seen in the burden of diseases and their risk factors among education status groups. The prevalence of arthritis, coronary heart disease, stroke and diabetes is significantly lower among Kansans 18 years old and older who are college graduates as compared to those with less education.\textsuperscript{13, 14}

### Prevalence of Diagnosed Diabetes Among Adults 18 Years Old and Older by Level of Education and Age, Kansas 2009-2010

<table>
<thead>
<tr>
<th>Level of Education</th>
<th>Did Not Graduate High School</th>
<th>High School Graduate</th>
<th>Some Technical Education or College</th>
<th>College or Technical Education Graduate</th>
</tr>
</thead>
<tbody>
<tr>
<td>18 to 34 Years</td>
<td>4.1%</td>
<td>2.4%</td>
<td>1.9%</td>
<td>1.4%</td>
</tr>
<tr>
<td>35 to 44 Years</td>
<td>9.9%</td>
<td>4.6%</td>
<td>4.9%</td>
<td>3.1%</td>
</tr>
<tr>
<td>45 to 64 Years</td>
<td>19.6%</td>
<td>11.4%</td>
<td>12.4%</td>
<td>8.8%</td>
</tr>
<tr>
<td>65 Years and Older</td>
<td>23.0%</td>
<td>19.7%</td>
<td>20.2%</td>
<td>15.7%</td>
</tr>
<tr>
<td>Total</td>
<td>13.2%</td>
<td>9.6%</td>
<td>8.9%</td>
<td>6.4%</td>
</tr>
</tbody>
</table>

The prevalence of several behavioral health risk factors, including smoking and not meeting current physical activity guidelines, is significantly higher among adults with less than high school education as compared to those with higher education.\textsuperscript{13}

### Prevalence of Current Smoking Among Adults 18 Years Old and Older by Level of Education, Kansas 2010

- Less than high school: 30.9%
- High school graduate: 24.8%
- Some college: 18.6%
- College graduate: 7.8%

Source: 2010 Kansas Behavioral Risk Factor Surveillance System, Bureau of Health Promotion, KDHE.
Neighborhood and Built Environment

The two key indicators reflecting characteristics of neighborhood and built environment are crime/violence and quality of housing.

Crime/Violence

Fear of crime has been associated with poorer mental health, reduced physical functioning and lower quality of life. In Kansas in 2011, a total of 10,091 violent crime offenses including murder, rape, robbery and aggravated assault/battery (3.4 offenses per 1,000 persons) and 86,505 property crime offenses including burglary, theft and motor vehicle theft (29.3 offenses per 1,000 persons) were reported to law enforcement agencies. The highest rates of violent crimes were seen in Sedgwick (6.6 offenses per 1,000 persons) and Wyandotte (6.1 offenses per 1,000 persons) Counties. The highest rates of property crimes were seen in Wyandotte (54.0 offenses per 1,000 persons) and Shawnee (50.0 offenses per 1,000 persons) counties.

Quality of Housing

Poor quality housing contributes to health problems. A shortage of affordable housing often relegates lower-income families to substandard housing in unsafe, overcrowded neighborhoods with higher poverty rates and fewer resources for health promotion. Neighborhoods may promote health by providing safe places for children and adults to exercise, as well as access to grocery stores and fresh produce.

Limited data on housing and health in Kansas are currently available. The City of Topeka Neighborhood Health 2011 Map provides an example of mapping social determinants of health to identify at risk areas of a city. This example combines data on crimes, poverty, property value, home ownership and boarded houses. While this does not cover all the social determinants of health, it does give a broad picture of the condition of the neighborhoods.
Health and Health Care

Access to health services including clinical, preventive services and primary care are important aspects of the health and health care area of the social determinants of health framework.

Health care services have not until recently been considered as a social determinant of health. However, inequities in access to health care are changing this view. These inequities include barriers faced by certain population groups at point of care, such as the lack of cultural competence of health care providers as well as factors related to their social and economic status. The barriers determine differential access to and utilization of health care, which results in inequitable promotion of health and wellbeing, disease prevention, provision of treatment for the illness, recovery from the illness as well as subsequent survival. It has been established through an extensive body of evidence that health care services that prevent, diagnose, and treat disease and improve the physical and mental well-being of individuals are essential to ensure that those without disease remain healthy and those with disease or disability receive prompt accurate diagnosis, appropriate treatment and improvement in quality of life. These services are required to be delivered in ways that are safe, timely, patient centered, efficient and equitable.

The two important indicators for the examining the access to health services – health insurance coverage and access to primary care, are described in detail in the chapter on Access to Health Services in this document (section 1.5).
References


Strengths and Assets

Strengths

Local Coalitions and Community Foundations

There are a number of local coalitions and foundations across the state making an impact on their communities. For example, Thrive Allen County works collaboratively across organizations and sectors to find ways to improve conditions that impact quality of life in Allen County (from building trails to recruiting health providers to engaging local decision makers in discussions on poverty causes and solutions).

The Heartland Healthy Neighborhoods coalition in Topeka created a Neighborhood Health Map of factors related to overall health status, including crime, poverty, property values and boarded-up houses. This map serves as a model for other communities.

Health in All Policies Approach Through Health Impact Assessments (HIAs)

A HIA is an informational tool designed to help decision-makers consider the health implications of proposed policies, especially those that don’t appear to have direct connections to health. These assessments are being conducted in several communities in the state.

Kansas Department of Transportation Safe Routes to School

This program provides funding and technical assistance for infrastructural projects such as improvements to sidewalks, traffic calming, pedestrian and bicycle crossing, on- and off-street bicycle facilities, secure bicycle parking, and traffic diversions. Additional support available for non-infrastructural activities such as public awareness campaigns and outreach to press and community leaders, establishing walking school buses and bike trains, traffic education and enforcement, student training on bicycle and pedestrian safety, and funding for training volunteers and staff. Funding is also be provided for applicants to develop safe routes to schools plans, with the possibility of future funding to implement the plan.

Kansas State Department of Education (KSDE)

KSDE is working to implement key recommendations from the Kansas Education Commission, U.S. Department of Education Blueprint for Reform, the Governor’s Commission on Graduation and Dropout Prevention and Recovery and the Kansas P-20 Education Council. The new strategic agenda is centered on a flexible delivery system, effective educators, visionary leaders and collaboration with families, communities, constituent groups and policy partners.

Kansas African Affairs Commission (KAAAC)

The State of African Americans in Kansas Report released March 2012 centered on social determinants of health and equity and their impacts. Sectors in report: schools and educational opportunity, economic opportunity and asset building, criminalization and social justice, health and safe communities, and civic leadership and advocacy. KAAAC and more than
335 Kansans are working to improve equity for African Americans using the State of African Americans in Kansas Report as a baseline measurement tool.

KAAAC District Town Halls, known as 3 D Events, were held across Kansas with Commission representatives and community leaders, inviting attendees to discover the data, dream about what they would like their community to look like, design a plan to address the equity and to issue a call to action. 3D events held in Commission Districts (March - December 2012) facilitated a community planning process to address a priority issue based on report findings.

Rosedale Healthy Kids Initiative
The Healthy Kids Initiative (HKI) was formed in 2009 as a partnership between Rosedale Development Association, the Rosedale Ministerial Alliance, KC Healthy Kids and the University of Kansas Medical Center. HKI is a community effort to reduce childhood obesity in Rosedale by promoting healthy, active lifestyles for all residents.

Kansas Department of Commerce Office of Minority and Women Business Development
This office promotes business development with a focus on minority- and women-owned businesses. Information and referrals are provided in the areas of procurement, contracting and subcontracting, financing, and business management. The office also partners with other business advocates to sponsor business education workshops and seminars.

Assets
- Strong spirit of independence and self-sufficiency among Kansans
- Relatively tight-knit communities across the state that can be very effective when they choose to mobilize around an issue
- Data resources are continuing to improve, including those related to disparities, social determinants and community health data (e.g., Kansas Health Matters website)
- Increase in effective community and grassroots coalitions
- Strong, supportive health foundations committed to addressing these and related health issues through grant opportunities and technical assistance (including Kansas Health Foundation, Sunflower Foundation and United Methodist Health Ministry Fund)
- Physical environment in Kansas offers many opportunities to be physically active, including an expanding trail system
- Committed, knowledgeable, well-intentioned professionals
Childhood Blood Lead Poisoning

<table>
<thead>
<tr>
<th>HP 2020 Goal</th>
<th>HP 2020 Objective</th>
</tr>
</thead>
<tbody>
<tr>
<td>Promote health for all through a healthy environment.</td>
<td>According to the National Health and Nutrition Examination Survey (NHANES), the geometric mean of blood lead levels of children 1 to 5 years old was 1.5 µg/dL (2005-2008). Target: µg/dL</td>
</tr>
</tbody>
</table>

Brief Overview

Lead is found throughout our environment. It is a naturally occurring bluish-gray metal found in small amounts in the earth’s crust. A good amount of lead in our environment comes from human activities including burning fossil fuels, mining, and manufacturing. In the United States, the most common source of exposure for lead-poisoned children is lead-based paint while the majority of adult cases are workplace related.

The health effects of lead exposure include intellectual and behavioral deficit in children and hypertension and kidney disease in adults.¹ The health effects of lead are the same whether it enters the body through breathing or swallowing.

According to the Centers for Disease Control and Prevention (CDC), approximately 250,000 U.S. children 1 to 5 years old have blood lead levels (BLL) greater than 10 micrograms of lead per deciliter (µg/dL) of blood.² The CDC has recommended that public health actions take place when a child is diagnosed with a blood lead level greater than or equal to 10 µg/dL or a blood lead level of 25 µg/dL or greater is found in an adult. However, several studies have shown that there is no safe level for blood lead poisoning.³⁴

Lead poisoning is a preventable public health problem, especially in children. Since 1978, federal and state governments have put in place regulations designed to reduce exposure to lead. A steep decline in blood lead levels has followed throughout the country, including in Kansas. The overall geometric mean (GM) of blood lead levels in the US population has declined from 2.3 µg/dL between 1991 and 1994 to 1.6 µg/dL between
1999 and 2002. The highest levels from 1999-2002 were among children 1 to 5 years old (1.9 µg/dL) and adults 60 years old and older (2.2 µg/dL).5

Recognizing that there is no level of exposure to lead that is safe for children, the Healthy Kansans 2020 goal is to reduce the average blood lead levels of children in Kansas 1 to 5 years old to 1.4 µg/dL.

**Key Discussion Points**

The mean blood lead levels among Kansas children 1 to 5 years old have steadily declined over the years. However, more work aimed at preventing exposure to lead and managing blood lead poisoning cases must be done to reduce the mean levels from a baseline of 2.5 µg/dL (2005-2012)8 to the target goal of 1.4 µg/dL.

<table>
<thead>
<tr>
<th>Year</th>
<th>Number of test results</th>
<th>Geometric Mean</th>
<th>95% Confidence Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005</td>
<td>21,784</td>
<td>3.47</td>
<td>3.44 - 3.50</td>
</tr>
<tr>
<td>2006</td>
<td>19,083</td>
<td>3.40</td>
<td>3.38 - 3.43</td>
</tr>
<tr>
<td>2007</td>
<td>21,567</td>
<td>2.80</td>
<td>2.78 - 2.83</td>
</tr>
<tr>
<td>2008</td>
<td>20,046</td>
<td>2.68</td>
<td>2.66 - 2.71</td>
</tr>
<tr>
<td>2009</td>
<td>26,470</td>
<td>2.61</td>
<td>2.59 - 2.63</td>
</tr>
<tr>
<td>2010</td>
<td>27,278</td>
<td>2.08</td>
<td>2.06 - 2.09</td>
</tr>
<tr>
<td>2011</td>
<td>30,214</td>
<td>2.08</td>
<td>2.07 - 2.10</td>
</tr>
<tr>
<td>2012</td>
<td>24,829</td>
<td>2.09</td>
<td>2.08 - 2.11</td>
</tr>
</tbody>
</table>

The most common exposure for lead poisoning in children is lead-based paint. According to the 2012 American Community Survey, 62.6 percent of houses in Kansas were built before 1980.6 This information can be used to direct scarce resources for environmental testing and evaluation of homes where lead hazards are more likely to be found.

The number of children tested for blood lead poisoning has increased over the years, while the funding for testing has steadily decreased. In September 2012, the Centers for Disease Control and Prevention cut all funding to states for childhood blood lead surveillance. However, prevention of blood lead poisoning and the management of blood lead poisoning cases remains a public health priority for Kansas.

There are a number of recommendations for when children should be tested for blood lead. For example, blood lead testing is currently required at 12 and 24 months for all Medicaid-enrolled children, regardless of known lead-exposure risk.7 Because almost all children have behaviors that put them at risk for ingesting lead from the environment, namely the tendency to put objects in their mouths, it is a good practice to test all children for blood lead by the age of 3.
Summary

Protecting children from exposure to lead is important to a lifetime of good health. Though resources for prevention and case management activities are scarce, the few resources that are available can be maximized by strong relationships and partnership between state and local public health staff. Kansas can meet the Healthy Kansans 2020 goal for reducing blood lead levels in children by targeting screening in areas of the state that have a large percentage of homes built before 1978 or have past or current industry that may contaminate the environment, and on families with one or more children with elevated blood lead levels, on families with a parent who works in an industry where they are exposed to lead and may bring the lead contamination home, and on pregnant women.
References


# Carbon Monoxide-Related Morbidity and Mortality

<table>
<thead>
<tr>
<th>HP 2020 Goal</th>
<th>HP 2020 Objective</th>
</tr>
</thead>
<tbody>
<tr>
<td>Promote health for all through a healthy environment.</td>
<td>Increase the number of States, Territories, Tribes, and the District of Columbia that monitor diseases or conditions that can be caused by exposure to environmental hazards.</td>
</tr>
<tr>
<td>Target: monitor diseases or conditions that can be caused by exposure to carbon monoxide poisoning</td>
<td></td>
</tr>
</tbody>
</table>

## Brief Overview

Carbon monoxide is a colorless, odorless, tasteless gas that is found in both indoor and outdoor air. It is made when carbon fuel is not burned completely and is produced from both human-made and natural sources.

An important source of outdoor carbon monoxide is the exhaust from cars. Carbon monoxide levels in indoor air vary depending on the presence of appliances such as kerosene and gas space heaters, furnaces, wood stoves, generators and other gasoline-powered equipment. Tobacco smoke also contributes to indoor air levels of carbon monoxide.

Exposures to high levels of carbon monoxide can be life-threatening. Carbon monoxide poisoning is the leading cause of death from poisonings in the United States. Symptoms of carbon monoxide poisoning include headache, nausea, vomiting, dizziness, blurred vision, confusion, chest pain, weakness, heart failure, difficulty breathing, seizures and even coma. People who have heart or lung disease are more vulnerable to the toxic effects of carbon monoxide.

Recognizing that carbon monoxide exposure constitutes a substantial health risk, the Healthy People 2020 goal is to increase the number of states that monitor carbon monoxide-related health conditions. In Kansas, carbon monoxide-related morbidity and mortality are currently tracked using hospital discharge and death certificate records. The Healthy Kansans 2020 goal is to expand this surveillance to include carbon monoxide poisoning to the list of conditions reportable to the State by health care providers and to also expand surveillance to include additional data sources like emergency department data.

## Key Discussion Points

- Between 2002 and 2009, there was an average of 31 hospitalizations per year due to non-fire related carbon monoxide poisoning.
- Between 2000 and 2012, there was an average of 5.4 deaths per year due to non-fire related carbon monoxide poisoning.
### Age-adjusted hospitalization rate from carbon monoxide poisoning per 100,000 population, Kansas 2002-2009

<table>
<thead>
<tr>
<th>Year</th>
<th>Frequency</th>
<th>Rate (per 100,000 population)</th>
<th>Confidence Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>2002</td>
<td>42</td>
<td>1.6</td>
<td>1.08 2.02</td>
</tr>
<tr>
<td>2003</td>
<td>37</td>
<td>1.4</td>
<td>0.92 1.81</td>
</tr>
<tr>
<td>2004</td>
<td>24</td>
<td>0.83</td>
<td>0.50 1.16</td>
</tr>
<tr>
<td>2005</td>
<td>31</td>
<td>1.11</td>
<td>0.72 1.50</td>
</tr>
<tr>
<td>2006</td>
<td>33</td>
<td>1.20</td>
<td>0.79 1.61</td>
</tr>
<tr>
<td>2007</td>
<td>31</td>
<td>1.09</td>
<td>0.71 1.48</td>
</tr>
<tr>
<td>2008</td>
<td>27</td>
<td>0.92</td>
<td>0.58 1.28</td>
</tr>
<tr>
<td>2009</td>
<td>22</td>
<td>0.76</td>
<td>0.44 1.08</td>
</tr>
</tbody>
</table>

### Deaths due to non-fire related carbon monoxide poisoning by year, Kansas 2000-2012

<table>
<thead>
<tr>
<th>Year</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000</td>
<td>7</td>
</tr>
<tr>
<td>2001</td>
<td>7</td>
</tr>
<tr>
<td>2002</td>
<td>3</td>
</tr>
<tr>
<td>2003</td>
<td>4</td>
</tr>
<tr>
<td>2004</td>
<td>9</td>
</tr>
<tr>
<td>2005</td>
<td>3</td>
</tr>
<tr>
<td>2006</td>
<td>2</td>
</tr>
<tr>
<td>2007</td>
<td>9</td>
</tr>
<tr>
<td>2008</td>
<td>2</td>
</tr>
<tr>
<td>2009</td>
<td>5</td>
</tr>
<tr>
<td>2010</td>
<td>8</td>
</tr>
<tr>
<td>2011</td>
<td>7</td>
</tr>
<tr>
<td>2012</td>
<td>4</td>
</tr>
<tr>
<td>Total</td>
<td>70</td>
</tr>
</tbody>
</table>

### Next Steps

The first step to ensure successful tracking of carbon monoxide poisonings is to utilize Emergency Department data in addition to hospital discharge data and reports to the Kansas Poison Control Center. Prevention efforts can focus on increasing awareness, education and increasing distribution of carbon monoxide detectors, particularly among vulnerable populations. Prevention efforts would be most successful in partnership with state-level programs such as the KDHE Safe Kids Kansas program and the KDHE Child Care Licensing program and partnerships with other government agencies such as the Kansas Department for Aging and Disability, the Kansas Fire Marshall’s Office, the Kansas Department of Agriculture’s Lodging Inspection Program and local health departments.
Community Water Systems

HP 2020 Goal
Promote health for all through a healthy environment.

HP 2020 Objective
Increase the proportion of persons in the U.S. served by community water systems that received a supply of drinking water that meets the regulations of the 2008 Safe Drinking Water Act. Target: 91%

Brief Overview
In Kansas, a Public Water Supply (PWS) system is defined as a “system for delivery to the public of PIPED water for human consumption that has at least 10 service connections or regularly serves at least 25 individuals daily at least 60 days out of the year.” These systems are regulated by the State to assure the citizenry safe and pathogen-free drinking water. Private domestic/residential groundwater wells are not considered community water supply systems and are not regulated by the State.

Drinking water quality is primarily assessed by comparing the measured quality to maximum contaminant level (MCL) using National Primary Drinking Water Standards. The standards contain contaminants that are typically of concern based on long term (chronic) exposure; however, there are other contaminants that are of concern based on short term (acute) exposure to bacteria or viruses.

Recognizing that access to a drinking water supply that meets the regulations of the Safe Drinking Water Act is important to protecting the health of Kansans, the goal is to maintain that at least 91 percent of the Kansas population has access to safe drinking water.
Key Discussion Points

- In 2012, 96% of the Kansas PWS system customers received water that did not violate any maximum contaminant level.

- During that same time period, only 75% of the Kansas PWS systems (670 systems) did not have an MCL violation.

- In other words, 25% of Kansas systems (218) had MCL violations; however, they only served 4% of the total community system population.

- Most MCL violations occur in what is defined federally as “very small systems” – those serving a population of 3,300 or fewer. More than 95% of the Kansas systems with MCL violations are classified as very small systems.

### Public Water Supply System and Population Compliance with Recommended Maximum Contaminant Levels, Kansas 2008-2012

<table>
<thead>
<tr>
<th>Year</th>
<th>Community systems (Total)</th>
<th>Community systems with violations</th>
<th>Community systems without violations (%)</th>
<th>Population served by community system with violations</th>
<th>Total population served by community system</th>
<th>Population served by community system without violations (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008</td>
<td>895</td>
<td>89</td>
<td>90%</td>
<td>238,999</td>
<td>2,714,519</td>
<td>91%</td>
</tr>
<tr>
<td>2009</td>
<td>895</td>
<td>113</td>
<td>87%</td>
<td>169,597</td>
<td>2,597,916</td>
<td>93%</td>
</tr>
<tr>
<td>2010</td>
<td>896</td>
<td>119</td>
<td>87%</td>
<td>603,258</td>
<td>2,664,935</td>
<td>77%</td>
</tr>
<tr>
<td>2011</td>
<td>888</td>
<td>209</td>
<td>76%</td>
<td>357,966</td>
<td>2,678,276</td>
<td>87%</td>
</tr>
<tr>
<td>2012</td>
<td>886</td>
<td>218</td>
<td>75%</td>
<td>106,685</td>
<td>2,689,858</td>
<td>96%</td>
</tr>
</tbody>
</table>

Key Disparities

For most public utilities, system size and ability pay are closely linked. This is especially true for PWSs. The economy of scale in water systems is significant – the larger the system, the lower the cost per gallon to treat water, thus more affordable drinking water. As discussed above, very small systems often find themselves struggling to produce safe water at rates their customers can afford. Compounding the issue of affordability is the fact that many of the small systems are in towns that are aging and declining in population. It is difficult to assume 20 years of debt to pay for system improvements when it is projected that the population paying for that debt will be decreasing. For each decrease in population, the remaining residents must pay even more per person to retire the debt. The retirement of debt becomes even more of a burden in small towns with aging populations dependent on fixed incomes.
While there are some programs like the United States Department of Agriculture’s Rural Development and Community Development Block Grants available to make grants to these communities, those programs are insufficiently funded to address all needs. Therefore, this small portion of the population continues to receive substandard water quality.

Summary
While the vast majority of Kansans enjoy plentiful clean drinking water, a small percentage of the population either cannot, or will not pay exorbitant costs for drinking water.

References
Brief Overview

One of the most widespread surface water quality problems in the nation is nutrient enrichment and its manifestation in algal blooms. Kansas is no exception to the nationwide trend. Nutrients, primarily nitrogen and phosphorus, are present in all of the state’s surface waters to varying degrees. The quantity of nutrients is largely dependent on human activities in watersheds above a particular waterbody.

One of the prime examples of nutrient enrichment is the Gulf of Mexico “Dead Zone.” The Dead Zone is so named because nutrients cause excessive algal growth that ultimately dies, sinks to the bottom of the Gulf, and causes hypoxia (low oxygen) when other organisms feed on the algae. Low oxygen content in the water makes it unsuitable for desirable aquatic life like fish and shellfish. Since all surface waters in Kansas ultimately drain to the Gulf, nutrients in that water are also transported to the Gulf.

While the Gulf is a good example of how upstream watersheds contribute to large downstream problems, more localized problems exist within Kansas. Excess nutrients have caused blooms of blue green algae in the state’s lakes and streams. Those blooms can produce natural toxins that in high enough concentrations are harmful to both humans and livestock. Due to concerns over algal toxins, blooms have caused numerous Kansas drinking water supplies to cease using affected water as a source for drinking water during blooms as well as closing lakes and reservoirs to recreational activities. For some, the restrictions are an inconvenience, for others it affects their livelihood and well-being.

Recognizing the need to ensure the continued safe use of Kansas water bodies, Kansas will be establishing a chlorophyll-a criterion of 10 ug/L for all drinking water reservoirs in Kansas by December 2015. Establishing chlorophyll-a criteria will set a standard against which to assess the quality of raw drinking water. Numerous studies have shown that when chlorophyll-a concentration exceeds 10 ug/L, undesirable algal species are present and are likely to cause taste, odor and potential health concerns. Once the criterion is established, measures can be taken to reduce the causal pollutants, nitrogen and phosphorus.

Key Discussion Points

The control of human activities in our watersheds is imperative to lessening the impact of nutrient pollution. However, control can be expensive. The two most prevalent sources of nutrients in Kansas are row crop agriculture (fertilizer runoff) and wastewater treatment plants.

In 2004, Kansas produced the Surface Water Nutrient Reduction Plan to focus efforts on nutrient reduction. The plan focuses on reducing nitrogen and phosphorus leaving the state by...
a minimum of 30 percent. The estimated cost to reduce nitrogen and phosphorus from the largest point sources (wastewater dischargers) in Kansas is estimated at nearly $1 billion. Of the 60 facilities targeted, nearly one-third are meeting the phosphorus reduction target and almost 60 percent are meeting the nitrogen reduction target.

Similarly, efforts are being made to reduce nonpoint source nutrient pollution. Using a combination of state and federal funding, local watershed groups (Watershed Restoration and Protection Strategy) are identifying key areas in need of reduction and are working with landowners to cost share on installation of best management practices. With a large agricultural state like Kansas, addressing nonpoint sources is a daunting challenge. However, by focusing resources in the appropriate watersheds, larger achievements can be seen in shorter timeframes. An example of a successful WRAPS project that dealt with nutrients is Banner Creek Reservoir. Due to numerous nonpoint source control projects, the Reservoir is now meeting acceptable nutrient levels and fulfilling its uses as a water supply source and recreation site.

**Key Disparities**

As stated above, the quantity of nutrient pollution is a function of human activities in watersheds above a particular waterbody. Watersheds with large urban impacts, such as those that lie below the Wichita/Derby/Arkansas City area, typically have a larger population base to absorb the cost of nutrient reduction (Figure 1). Primarily rural/agriculture watersheds (Figure 2) have fewer persons to distribute costs as is the case in this North Central Kansas watershed (Milford Reservoir).
Some disparity also exists in the fact that point sources of pollution are regulated under the Federal Clean Water Act, while nonpoint source remains largely unregulated. Thus, wastewater treatment facilities could ultimately be forced to provide treatment disproportional to their overall contribution. That treatment would be paid for by customers of those point sources.

**Summary**

Nutrients are one of the largest categories of surface water pollutants in Kansas and the entire U.S. The solutions to nutrient pollution are neither easy nor inexpensive. Continued adherence to the Kansas Surface Water Nutrient Reduction Plan will, however, continue to reduce nutrient concentrations in a manner that is both progressive and reasonable.

**References**


# HP 2020 Objectives

<table>
<thead>
<tr>
<th>Objective</th>
<th>Kansas Baseline: A total of 1,821 mitigations were reported between 10/1/2012 and 6/30/2013. Based on incomplete mitigation reported data, there have been approximately 12,000 homes mitigated since 2005. This represents approximately 6.0% of homes with radon levels of 4 pCi/L or more prior to mitigation.</th>
<th>Target: 30% of homes with radon levels at or above 4 pCi/L prior to mitigation installed with a radon mitigation system.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increase the proportion of homes with an operating radon mitigation system for persons living in homes at risk for radon exposure.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Increase the proportion of new single-family homes constructed with radon reducing features, especially in high-radon potential areas.</td>
<td>Kansas Baseline: A total of 399 new single-family homes were built using radon reducing features between 10/1/2012 and 9/30/2013. Census data for 2012 show approximately 4,500 new single family attached and detached housing starts in that year. This represents approximately 9.0% of new single-family homes built during this time period.</td>
<td>Target: 100% of homes in high radon potential areas built to include radon reducing features.</td>
</tr>
</tbody>
</table>

**Note:** The Kansans baseline data for the first objective represents data submitted by licensed radon mitigators in Kansas to the Kansas Department of Health and Environment. The Kansans baseline data for the second objective represents reports of new housing starts in Manhattan, Lawrence, Topeka and Salina, Kansas. These cities have building codes requiring Radon-Resistant New Construction be incorporated into the construction of single or two-family dwellings.
**Brief Overview**

Radon is a naturally occurring, tasteless, odorless, radioactive gas produced from the decay of uranium found in nearly all soils. Radon gas moves from the ground under and around buildings through cracks and other holes in the foundation. Current data indicates that 1 in 4 houses in Kansas may have elevated indoor radon levels. With approximately 858,000 single family detached and attached homes in Kansas, there could be more than 214,000 houses with elevated radon concentrations.¹

Radon is the leading cause of lung cancer among nonsmokers and the second leading cause of lung cancer after smoking. Nationally, radon contributes to about 20,000 deaths per year from lung cancer.² The risk of developing lung cancer increases as the concentration and length of exposure to radon increases. Many scientists believe radon exposure may pose an even greater risk to children, and smokers are at greater risk than nonsmokers.

Recognizing that indoor radon potentially constitutes a substantial health risk, all Kansas homes should be tested and homes with elevated radon levels should be mitigated. The Healthy Kansans 2020 goals aim to increase the proportion of homes with an operating radon mitigation system and increase the proportion of new single-family homes constructed with radon reducing features.

**Key Discussion Points**

- Many parts of the United States have a high potential for radon exposure.
- Indoor air sampling data indicate that most areas of Kansas have documented indoor radon levels above the recommended mitigation action level of 4 pCi/L.
- 10% of lung cancers occur in non-smokers and radon is the #1 cause of lung cancer in non-smokers.
Testing followed by mitigation has been shown to be an effective strategy for reducing potential exposure. Of the 1,821 mitigations that were reported between October 1, 2012 and June 30, 2013, the average pre-mitigation test result was 10.8 pCi/L and the average post-mitigation result was 1.3 pCi/L.

Mitigation Information

Action should be taken to reduce radon levels in a home if the average annual level is higher than 4 picocuries per liter (pCi/L). In most cases, people can reduce radon levels to 2 pCi/L or lower. Radon levels in homes are reduced by preventing radon entry, increasing ventilation, and removing radon and its decay products from the air.

In most cases, homes can be fixed for $800 to $2,000. A list of Kansas certified contractors is available at www.kansasradonprogram.org or from the Kansas Radon Program at 800.693.5343.
References


Weather-Related Morbidity, Mortality and Property Damage

Brief Overview

Kansas experiences a wide variety of severe weather. Extreme heat events, or heat waves, are one of the most common causes of weather-related deaths in Kansas.\(^1\) Deaths due to hypothermia, the lowering of the core body temperature, are more rare but disproportionately affects vulnerable populations.\(^2,3\) Floods, tornadoes, windstorms, winter storms and hailstorms are also considered among the top hazards to potentially impact property and the public's health in Kansas.\(^4\)

Key Discussion Points

Between 2002 and 2010, Kansas averaged 94 heat-related hospitalizations a year.\(^1\)

Between 2002 and 2011, there were 106 resident deaths reported on death certificates due to exposure to heat. This was an average of 10.6 deaths per year.\(^1\)

| Heat-related hospitalizations by year, Kansas 2002-2010 |
|-----------------|-------------|
| Year | Frequency |
| 2002 | 83 |
| 2003 | 104 |
| 2004 | 56 |
| 2005 | 104 |
| 2006 | 135 |
| 2007 | 77 |
| 2008 | 73 |
| 2009 | 98 |
| 2010 | 116 |
| Total | 846 |

| Heat-related deaths by year, Kansas 2002-2010 |
|-----------------|-------------|
| Year | Frequency |
| 2002 | 3 |
| 2003 | 5 |
| 2004 | 4 |
| 2005 | 6 |
| 2006 | 21 |
| 2007 | 11 |
| 2008 | 9 |
| 2009 | 10 |
| 2010 | 4 |
| 2011 | 33 |
| Total | 106 |

In Kansas, from 2005 to 2010, there were 33 resident deaths reported on death certificates due to exposure to natural cold. This was an average of 5.5 deaths per year.\(^2,3\)

Between 1957 and 2012, there were 34 Major Presidential Disaster Declarations and one Emergency Declaration that included flooding in Kansas.\(^4\)

According to the National Climatic Data Center’s (NCDC) Storm Events database, there were 8,539 hail events and 21 hail-related injuries, when hail was at least one inch in diameter, between 2006 and 2012. The events between 2006 and 2012 caused approximately $304 million in property damages.\(^4\)
In 2013, only Texas experienced more tornado, wind and hail events than Kansas according to the National Oceanic and Atmospheric Administration (NOAA). Kansas had 1,085 events compared to Texas’ 1,411 events. The next highest was Oklahoma with 876 events. Historically, Kansas averages 96 tornados per year, again second to only Texas; however, if adjusted by land area, Kansas has twice as many tornados per square mile as Texas and more than any other state.\(^5\)

All regions of Kansas are subject to drought of varying levels of severity and duration. According to the United States Drought Monitor, a maximum of 50 percent of the state experienced severe, extreme or exceptional drought in the summer of 2011. This sharply increased to 100 percent of the state in 2012 and decreased to 60 percent in 2013.\(^6\)
Summary

Individuals and communities can minimize weather-related impacts by planning, preparing and staying aware of developing dangerous weather conditions. For example, every person should know where to go in the case of a tornado warning, even young children. Everyone should understand the dangers that result from a loss of power, downed power lines, and wind-blown structural debris that may contain nails or splintered wood. Many other individual safety behaviors should be understood and followed to minimize injury and protect life.

Communities can minimize secondary impacts of severe weather by having plans, resources and properly trained personnel to facilitate prompt responses to events. Ongoing good communications with citizens is very important to minimize secondary impacts. Communities and businesses can also minimize direct impacts by ensuring that structures are properly constructed, that trees are trimmed around power lines, that storm sewers are properly sized and free of obstructions, and back-up power supplies are available for key functions. Potential secondary impacts include the need for emotional and spiritual support and care for vulnerable populations including the sick, the elderly and citizens without family support. Communities should also understand impacts to infrastructure may increase the potential for injury or disease. For example, the water supply may be impacted, debris may present hazards simply walking around, food may be spoiling, flood waters may be contaminated, dust and mold may aggravate health conditions, and many other dangerous situations may exist.

It is clear that weather emergencies can cause major impacts to public health and to property that require a coordinated response effort of local and state officials working in cooperation with assigned emergency response personnel and public and private volunteers.

References

Strengths and Assets

Strengths

Through a grant from the U.S. Centers for Disease Control and Prevention (CDC) the Kansas Environmental Public Health Tracking Program is developing applications to collect, analyze, interpret and publish environmental health data indicators as part of the National Environmental Public Health Tacking Network. The Network will help identify environmental hazards and risks that can be remediated or avoided to create a better quality of life for Kansas families.

Effective partnerships and coalition activities have made KDHE the national model for Harmful Algae Bloom (HAB) response. In 2010, KDHE established a policy and plan for responding to Cyanobacterial blooms to protect public health, pets and livestock in public waters. This plan outlines the implementation of the interaction, responsibilities and activities of KDHE and KDHE’s coordination with other stakeholders to respond to HAB concerns in a rapid and effective manner.

KDHE is partnering with cities and counties to establish installation of passive radon mitigation systems into new construction and to promote in-home testing by residents. The Kansas cities of Topeka, Manhattan and Lawrence have building codes that require new homes to be built using radon-resistant techniques. During the 2008 Kansas Legislative session, a law was passed (KSA 58-3078a) that requires information about radon and a recommendation to test for radon be provided to all homebuyers on their residential real estate contract.

KDHE continually assesses extreme weather impacts upon the state population (e.g., heat, cold, storms) to better understand the true effects and to better prepare for future incidents (e.g., weather radios, emergency kits, etc.).

KDHE continues to study carbon monoxide poisoning in the state to determine the leading risks and how to minimize them (e.g., faulty heating systems, improperly vented fireplaces, combustion gases, exhaust fumes in homes, etc.).

Low cost blood lead screening (using filter paper, finger stick methodology) through KDHE is accessible through local health departments and physicians statewide to monitor and detect lead poisoning cases.

Assets

- Clean air, good water quality protection programs in Kansas
- Dedicated and knowledgeable KDHE environmental health staff
- Expertise within and collaboration among KDHE bureaus, other state agencies, conservation districts, EPA, etc.
- Creation of Environmental Public Health Tracking Program
- Kansas Indoor Clean Air Law – prohibits smoking in most public places
Immunization and Infectious Diseases

Brief Overview

All-cause mortality in the United States decreased dramatically during most of the twentieth century through current times. In the year 1900, the crude death rate for all causes was 1,719.1 per 100,000 population; by 1980 the rate had fallen to 878.3 per 100,000.1 Nearly all of that decrease can be attributed to reductions in deaths due to infectious diseases.

Figure 1: Crude Mortality Rates for All Causes, Noninfectious Causes, and Infectious Diseases ²
Although these reductions represent tremendous successes for public health, infectious diseases remain serious threats to the health of the population. From 1980 to 1992, deaths due to infectious diseases increased by 58 percent in the U.S. Even after adjusting for age, the infectious disease death rate increased by 39 percent during this time period.\(^3\) Taken together, pneumonia and influenza have remained among the top 10 leading causes of death in the U.S. and in Kansas.

Emerging infectious diseases are of global concern, as high-speed travel makes it possible to get from one inhabited place on the earth to just about any other in less time than the incubation period for most diseases, and pathogens are not impeded by international borders. In the U.S., poliovirus was estimated to cause between 13,000 and 20,000 cases of paralytic polio prior to the availability of polio vaccine. Through successful vaccination campaigns, wild poliovirus transmission was eliminated from the U.S. in 1979, but remains endemic in Afghanistan, Nigeria, and Pakistan.\(^4\) West Nile virus (WNV), which is transmitted by mosquitoes, was first discovered in Uganda in 1937.\(^5\) It was not until 1999 that WNV first appeared as an indigenous disease in the U.S., in New York City.\(^6\) Since that time, WNV has become endemic and enzootic throughout the 48 contiguous United States and first appeared in Kansas in 2002.

Other global threats have included highly pathogenic influenza, such as avian influenza A strains H5N1 and, most recently, H7N9; the influenza A H1N1 pandemic of 2009; two unique novel coronavirus infections causing severe acute respiratory syndrome (SARS) and Middle East Respiratory Syndrome (MERS-CoV); the ongoing cholera epidemic in Haiti that began in 2010 following a massive earthquake earlier that year; and chikungunya virus, another mosquito-borne disease found mainly in Africa and Asia that has recently spread to Europe and the Americas.\(^7\)

Chronic infection with hepatitis B virus or hepatitis C virus is one of the most common causes of primary liver cancer, which causes approximately 23,000 deaths each year in the U.S. The most common risk factor cervical cancer, one of the most common cancers among women and which caused nearly 4,000 deaths among U.S. women in 2010,\(^8\) is infection with certain types of human papilloma virus (HPV).

Persons with chronic conditions such as asthma, diabetes and obesity are at higher risk of complications and death from influenza. This interplay between infectious agents and chronic diseases has important implications for public health; immunization and other prevention strategies will help to not only reduce the incidence and prevalence of infections in the near term, but will also reduce complications and mortality in the long term.

This section will focus on:

- Influenza and other vaccine-preventable diseases
- Health care-associated infections
- Human immunodeficiency virus (HIV) and acquired immune deficiency syndrome (AIDS)
- Sexually transmitted infections
From 2002 through 2011, influenza and pneumonia, as underlying cause of death, accounted for 2.3 percent to 3.0 percent of all deaths in Kansas (range 555 to 740 deaths). For 2011, 2.6 percent of all deaths in Kansas were due to influenza and pneumonia. As shown in Figure 3, the age-adjusted mortality rate for influenza and pneumonia (as underlying cause of death) ranged from a low of 16.5 per 100,000 to a high of 22.4 per 100,000.10

Figure 2: Percentage of Visits for Influenza-like Illness (ILI) Reported by ILINet Sites, Kansas, October 2011-September 2012 and the Previous Two Surveillance Periods

From 2002 through 2011, influenza and pneumonia, as underlying cause of death, accounted for 2.3 percent to 3.0 percent of all deaths in Kansas (range 555 to 740 deaths). For 2011, 2.6 percent of all deaths in Kansas were due to influenza and pneumonia. As shown in Figure 3, the age-adjusted mortality rate for influenza and pneumonia (as underlying cause of death) ranged from a low of 16.5 per 100,000 to a high of 22.4 per 100,000.10
Many other infectious diseases that were once common, particularly among young children, have been greatly reduced through successful immunization programs in the United States and elsewhere. However, threats from these diseases remain. The U.S. and other developed countries have experienced resurgences of diseases such as measles, pertussis (whooping cough) and mumps.

Despite the benefits of immunization against influenza and other vaccine-preventable diseases, immunization rates often fall short of optimal rates to reduce disease transmission or prevent outbreaks. In some respects, the very triumphs of public health immunization campaigns, which have made many vaccine-preventable diseases very rare in the U.S., have led to concerns about complacency. The ever-increasing complexity of recommended immunization schedules and stories – most often unfounded – of adverse effects of vaccines have led many parents to question whether or not to vaccinate their children. Like infectious diseases themselves, these concerns tend to cluster in communities, thereby increasing the risks of outbreaks. The public health and health care systems must work together to ensure high vaccination rates to help prevent and control such diseases.

In addition to annual influenza immunization, the United States Advisory Committee on Immunization Practices (ACIP) recommends routine vaccination against 15 diseases from birth through 18 years of age on a specified schedule. Data from the Retrospective Kansas Immunization School Survey conducted during the 2011-2012 school year, which assessed immunization coverage levels among kindergartners at school entry and retrospectively when they were 24 months of age, indicated that the Healthy People 2020 target of 90 percent was being met for only three vaccines: hepatitis B, polio, and measles-mumps-rubella. (Figure 4)
Figure 4: Immunization Coverage Levels at 24 Months of Age by Vaccine, Kansas 2000 - 2007

- DTaP4: 4 doses of diphtheria and tetanus toxoids and acellular pertussis vaccines including diphtheria and tetanus toxoids (DTaP/DT) vaccine
- HepB3: 3 doses of hepatitis B vaccine
- Hib3: 3 doses of Haemophilus influenzae type b vaccine
- MMR1: 1 doses of measles, mumps, and rubella vaccine
- PCV4: 4 doses of pneumococcal conjugate vaccine
- Polio3: 3 doses of polio vaccine
- Var1: 1 dose of varicella vaccine
- 4-3-1-3-3: DTaP4-Polio3-MMR1-Hib3-HepB3
- 4-3-1-3-3-1-4: DTaP4-Polio3-MMR1-Hib3-HepB3-Var1-PCV4
Health Care-Associated Infections

Health care-associated infections (HAI) are infections that patients acquire when receiving health care for other conditions. They can occur in any setting of care – hospitals, long-term care settings, outpatient or ambulatory care clinics, and others. The U.S. Centers for Disease Control and Prevention estimates that approximately 1 in 20 hospitalized patients acquires an infection from receiving medical care, and in 2002 more than 98,000 deaths were caused by HAIs in hospital settings. Depending on the method of consumer price adjustment used, in the U.S. direct medical costs for HAIs in hospitals alone range from $28.4 billion to $45 billion annually. Prevention of HAIs has been identified as one of CDC’s Winnable Battles for improving the nation’s health.

Two of the most costly and preventable types of HAIs can occur when a person has a central-line or urinary catheter. A central line is a tube placed in a large vein to access the bloodstream. A urinary catheter is a tube placed in the bladder to drain urine. Patients with these devices have a much higher chance of getting an infection, yet in many circumstances the devices are essential in the course of treatments. These infections are largely preventable when healthcare providers use CDC-recommended infection prevention steps.

Using a statistical measure called the standardized infection ration (SIR), participating Kansas hospitals reported approximately 67 percent fewer central line-associated bloodstream infections (CLABSI) in 2011 among patients in adult intensive care units than would be expected based on national baseline data (SIR = 0.329). For catheter-associated urinary tract infections (CAUTI), participating Kansas hospitals reported 26 percent fewer infections in 2011 among patients in adult intensive care units than would be expected based on national baseline data (SIR = 0.744).

Human Immunodeficiency Virus (HIV) and Acquired Immune Deficiency Syndrome (AIDS)

The CDC estimates that there are approximately 1.1 million people living with HIV infection in the U.S., with 50,000 new infections occurring each year. Since the recognition and emergence of HIV and AIDS in the late 1970’s and early 1980’s in the U.S., treatment advances have helped substantially improve life expectancy and quality of life among people living with HIV infection. However, almost 1 in 6 Americans living with HIV is unaware of their infection, thereby increasing the risk of further transmission and delaying effective care and management of their infection.

The National HIV/AIDS Strategy in the U.S. has three major goals:

- Reducing new HIV infections
- Increasing access to care and improving health outcomes for people living with HIV
- Reducing HIV-related health disparities

The total number of newly diagnosed HIV/AIDS cases in Kansas increased by 33 percent from 132 cases in 2000 to 169 cases in 2010. Among the 169 newly diagnosed cases of HIV/AIDS in 2010, 49 percent (84) were new AIDS cases and 51 percent (85) were new HIV (non-AIDS) cases.
Sexually Transmitted Infections

Among the most commonly transmitted infections (STI) in the U.S. are those that are sexually transmitted. CDC estimates there are approximately 19 million new sexually transmitted infections each year in the U.S.\(^{21}\) Serious complications from STIs include reproductive health problems, fetal and perinatal health problems, and cancer. In addition, STIs can facilitate transmission of HIV. The annual direct medical costs of STIs in the U.S. have been estimated at $15.6 billion.\(^{22}\)

In addition to cross-cutting prevention and education activities for all STIs, public health surveillance, investigation, and partner outreach services are targeted to reduce the burden of chlamydia, gonorrhea, syphilis and, through an integrated approach, HIV. Unfortunately, current prevention efforts have been unable to produce significant decreases in chlamydia morbidity. Overall, rates have increased since 2007 to 1,433 per 100,000 in 2011. Women 15 to 44 years old accounted for 76 percent of all reported chlamydia cases in Kansas in 2011.\(^{23}\)
Figure 8: Rate of Reported Chlamydia Cases by Race and Ethnicity, Kansas, 2011

Figure 9: Early Syphilis Case Rates/100,000 Population in Kansas, 2007-2011
Key Disparities

The epidemiology of myriad infectious diseases varies substantially. The burden of specific diseases among subgroups within the population is dependent on a wide range of factors, such as the characteristics of the causative agent, modes of transmission, environmental and social factors, and population characteristics.

Over time, the epidemiology of a given disease can also vary to some degree. In general, the incidence of influenza infection is highest among children, who serve as a major source of transmission within the community. Hospitalization and complication rates are highest among young children, adults 65 years old and older, pregnant women, and persons with chronic conditions such as asthma, neurological and developmental conditions, chronic lung disease, heart disease, blood disorders, endocrine disorders (including diabetes), kidney disorders, liver disorders, metabolic disorders, weakened immune system due to medication or disease, morbid obesity (body mass index of 40 or greater), and people 19 years old and younger on long-term aspirin therapy. However, the 2009 influenza A (H1N1) virus that caused the 2009 pandemic – and has re-emerged as the dominant strain for the 2013/2014 influenza season – seems to disproportionately affect young and middle-aged adults.

Although the risk of HIV infection is linked to sexual contact or sharing drug injection equipment, some groups within the population are affected more than others. Almost 3 in 4 new infections are among men, and more than half of new infections are among men who have sex with men. New HIV infections are disproportionately high among adolescents and young adults. In 2009, 39 percent of all new infections occurred among people 13 to 29 years old. Among racial and ethnic subgroups, the incidence rate of new infections and the prevalence of living with HIV are highest among blacks / African Americans in the U.S. compared to whites, the incidence of new infections is eight times higher among blacks / African Americans. The incidence of new infections among Hispanics / Latinos is more than three times higher than among non-Hispanic whites.
Rates of sexually transmitted infections are also higher among communities of color compared to whites. For example, nearly 70 percent of reported cases of gonorrhea in 2010 occurred among Blacks in the U.S., corresponding to an incidence rate that was more than 18 times higher than among whites. Among Hispanics/Latinos, the incidence of chlamydia was almost three times that of non-Hispanic Whites in 2010.28

Figure 11: Rate of Reported Gonorrhea Cases by Race and Ethnicity, Kansas, 2011

<table>
<thead>
<tr>
<th>Race / Ethnicity</th>
<th>Rate per 100,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-Hispanic White</td>
<td>23.1</td>
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<tr>
<td>Non-Hispanic Black</td>
<td>513.8</td>
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<tr>
<td>Hispanic</td>
<td>43</td>
</tr>
<tr>
<td>Asian / Pacific Islander</td>
<td>7.7</td>
</tr>
<tr>
<td>American Indian / Alaska Native</td>
<td>24.6</td>
</tr>
</tbody>
</table>

Summary

Despite the tremendous public health successes that have led to overall decreases in morbidity and mortality from infectious diseases, threats remain. There is considerable variability in the epidemiology of, and the measures of prevention, and control for, the myriad infectious diseases with which public health must contend. Regardless of those differences, successful efforts to reduce the burden of infectious disease will depend on successful partnerships between public health, health care systems, and a broad range of other stakeholders.
References


Strengths and Assets

Strengths

Immunization and Vaccination

Immunization and vaccination strengths include the following Kansas initiatives: Immunize Kansas Kids, Kansas WebIZ, Vaccines For Children (VFC) program and the Pertussis Cocoon Pilot Project. The Immunize Kansas Kids project is a unique partnership between KDHE, the Kansas Health Institute and dozens of stakeholder organizations. The goal is to protect every Kansas child from vaccine-preventable diseases.

Kansas WebIZ is the statewide immunization registry. The purpose of Kansas WebIZ is to consolidate immunization information among health care professionals, assure adequate immunization levels and avoid unnecessary immunizations.

The Vaccines For Children (VFC) program is a federally funded program that provides vaccines at no cost to children who might not otherwise be vaccinated because of inability to pay.

For the Pertussis Cocoon Pilot Project KDHE partnered with four hospitals and their associated county health departments in eastern Kansas to vaccinate close contacts of newborn infants, including postpartum mothers. As part of the Cocoon Pilot Program, KDHE encouraged all hospitals to include on their standing orders Tdap vaccination of postpartum women prior to discharge. Studies have shown when hospitals have standing orders, vaccination rates of eligible women increase to more than 80 percent.

In addition to offering postpartum mothers Tdap vaccine, one family member (a primary caregiver to the infant) has the opportunity receive a Tdap vaccination at the local health department. The pilot program has provided vaccine at no cost to the participating hospitals and local health departments. The goal is to reduce barriers for Tdap vaccination, thus enabling the mother and one family member to be vaccinated.

Infectious Disease

KDHE has several programs related to infectious disease reduction, surveillance and investigation including the Healthcare-associated Infections Program, Infectious Disease Surveillance and Investigation, the Kansas Ryan White Program and Foodborne Illness Outbreak Investigation. The Healthcare-associated Infections Program provides state level support to the infection prevention community. The program is charged with quantifying and subsequently reducing the occurrence of hospital acquired infections. Currently 70 facilities are reporting data.

The federal Ryan White HIV/AIDS Treatment Modernization Act is the primary funder for HIV/AIDS health and social services including primary medical care, medication assistance, health insurance assistance, mental health counseling, substance use treatment, home health care, dental care and medical case management. Ryan White CARE funding and administration are managed by the Health Resources and Services Administration (HRSA), which is part of the U.S. Department of Health and Human Services. The Kansas Department of Health and Environment (KDHE) is the state-level agency within Kansas that distributes and manages Ryan White Part B and the AIDS Drug Assistance Program (ADAP) as mandated by the Ryan White HIV/AIDS Treatment Modernization Act.
Assets

- WebIZ Immunization Registry
- Immunize Kansas Kids (IKK) – coalition that supports innovative, collaborative and sustainable methods to increase age-appropriate immunization for Kansas children 0 to 5 years old
- Mobilizing Office Based Immunizations (MOBI) – tool for increasing number of primary care physicians who offer immunizations in their office
- Funding for immunizations through Vaccines for Children (VFC) program
  - People and organizations including:
  - Seasoned infection preventionists within acute care
  - Informed, helpful professionals at the state level in multiple programs
  - Immunization advocates within provider offices and schools
  - Local health departments
  - Good collaboration and networking for infection prevention and immunizations
- Ability to detect and prevent spread of diseases through surveillance and laboratory testing
- School and licensed day care regulations
- Development of surveillance program for health care-associated infections
Maternal, Infant and Child Health

Summary

Maternal and Child Health (MCH) addresses the health and lives of pregnant and reproductive-age women, infants, children and adolescents, including children and youth with special health care needs. MCH programs take a broad approach to disease prevention and health promotion to provide benefits across the lifespan. Healthy women give birth to healthier babies who grow to be healthier children, adolescents and adults.1

Many factors influence the health of the maternal and child population including income, family support, access to health care and health-related behaviors. Women and children are more likely than others to use public health, education, social and health care services. MCH programs in Kansas work with health care providers, educators, social workers and others to promote access to quality preventive and treatment services such as immunizations and prenatal care. MCH programs work to promote healthy behaviors including good nutrition, physical activity, safe sexual activity, and lifestyles free of tobacco and substance use. Improving and promoting maternal and child health includes supporting the development of healthy relationships and optimal mental health. Many efforts focus on creating systems and policies that contribute to safe communities to ensure the healthy development of infants and children.1

Maternal and child public health aims to provide the opportunity for children and families to reach their full potentials. An important part of this effort is working to ensure a healthy start and access to care for those who need it.1

The topics in this focus area provide a glimpse of some of the health issues faced by women, infants, children, adolescents, and their families. The selected topic, infant mortality, shows trends and demographic and other risk factors. While we have made strides in improving pregnancy outcomes and creating systems to care for those
most in need, the data presented here show that for specific populations and certain issues, we have much work ahead to reverse worrisome trends and see improvement in the health of mothers and children.¹

**Brief Overview**

This focus area addresses selected topics primarily on pregnancy and infant health outcomes. An additional topic highlights children and youth with special health care needs, whose service needs are greater than those of other children and youth. Topics in this focus area are:

- Infant mortality
- Preterm birth
- Prenatal care in the first trimester
- Smoking during pregnancy
- Breastfeeding at least 6 months
- Children and youth with special health care needs (CYSHCN) achieving national outcome measures

**Major Highlights and Key Discussion Points**

Nationally and in Kansas, progress on maternal and child health outcomes during the past 10 years has been mixed. This is likely due to the complex set of factors underlying most maternal and infant health outcomes. While some behaviors, such as smoking during pregnancy and placing infants to sleep on their backs have improved, poverty and the cost of living have increased, and health insurance and access to care for adults has become more challenging. For most maternal and child health outcomes, rates of adverse events in Kansas are similar to or lower than national rates.¹

During the past decade (2001-2010), the infant mortality rate (IMR) has statistically remained the same. However, between 2007 and 2010, there was a significant decrease in trend detected. For many years, the rate of non-Hispanic black infant mortality has been more than twice that of the non-Hispanic white infant mortality rate. Decreases in IMRs were observed for non-Hispanic white and non-Hispanic black infants from 2001 to 2010. However, no change was observed for Hispanic infants.²

In recent years (2004-2010), the Kansas preterm and late preterm birth rates have declined significantly. In 2010, the rate for preterm births, those occurring before 37 weeks gestational age, was 8.8 percent. The non-Hispanic black prematurity rate was 41.9 percent higher than the non-Hispanic white rate (12.2% and 8.6%, respectively). Hispanic premature births (7.5%) were lower than the state average (8.8%). In 2010, approximately one-third (30.5%) of Kansas births were delivered by cesarean section, a 35.6 percent increase from 22.5 percent in 2001. There was an increase in cesareans among all gestational age groups. The induction rate increased 43.9 percent from 19.6 percent in 2001 to 28.2 percent in 2010. An increasing trend was observed in inductions among all gestational age groups.²

In 2010, a total of 40,439 live births occurred to Kansas residents and 75.1 percent of infants were born to pregnant women receiving prenatal care in the first trimester, a slight increase from 2009
The U.S. data for 2010 on this measure was 73.1 percent. While Kansas exceeded the U.S. on this measure by 2.7 percent, this was below the Healthy People 2020 goal of 77.9 percent. Between 2005 and 2010, Joinpoint regression analysis showed a significantly decreasing trend during the interval 2005 to 2007 followed by a significantly increasing trend from 2007 to 2010.

The rate of smoking during pregnancy has declined significantly during the past six years (2005-2010), but was still nearly 1.5 times the national rate. In 2010, the percent of pregnant Kansas women reporting smoking during pregnancy was 15.0 percent. The smoking rate was highest for non-Hispanic Native American women (29.8%) followed by non-Hispanic white women (17.5%) and non-Hispanic black women (15.7%). Rates for Hispanic (4.8%) and non-Hispanic Asian women (2.5%) were substantially lower. Female teenagers 18-19 years and women in their early twenties had the highest smoking rates (23.4% and 21.9%, respectively). Smoking rates for women in their thirties and older were sharply lower, approximately 9 percent.

The percent of Kansas WIC infants (Special Supplemental Nutrition Program for Women, Infants, and Children) ever breastfed has increased by 11.0 percent in the last 10 years from 61.0 percent in 2001 to 67.7 percent in 2010. However, the percent breastfed at least 6 months and 12 months have decreased.

Effective promotion of health and health services for children and youth with special health care needs (CYSHCN) requires a system of care that is integrated, comprehensive, coordinated, family centered and consistent across the life course (or lifespan). The six core outcomes that the Federal Maternal and Child Health Bureau established to facilitate integrated systems of care for CYSHCN are:

1. Partners in Decision-Making,
2. Medical Home,
3. Adequate Health Insurance,
4. Early and Continuous Screening,
5. Ease of Community-Based Service Use, and
6. Transition to Adulthood (age 12-17 years only).

The 2009/10 National Survey of Children with Special Health Care Needs (NS-CSHCN) estimates that 25.0 percent of Kansas CYSHCN age 0-11 met all five core outcomes, compared to 20.2 percent of the U.S., and Kansas ranked 7th in the nation. For CYSHCN age 12-17, 19.9 percent met all six core outcomes compared to 13.6 percent of the U.S., and Kansas ranked fourth in the nation. In Kansas, 52.7 percent of youth with special health care needs received services necessary to transition to all aspects of adult life compared to the national average of 40.0 percent. Kansas ranked first in the nation.

**Key Disparities**

While Kansas’ rates of prenatal care, breastfeeding and preterm births compare favorably to national rates, the persistence of disparities indicates we have more work to do. Most commonly, adverse maternal and infant health outcomes are more prevalent among those with lower socioeconomic status and among some race and ethnic groups. Similar to long-standing national data, black non-Hispanic
infants in Kansas are more than twice as likely to be born low birthweight and twice as likely to die in their first year as white non-Hispanic infants. Mothers with lower socioeconomic status who receive Medicaid payment for prenatal care or delivery are more likely than mothers who do not receive Medicaid to report their birth was from an unintended pregnancy, and their infants are more likely to be born low birthweight or to die in their first year of life. Moreover, mothers and infants who receive welfare (Temporary Assistance for Needy Families—TANF) in addition to Medicaid are more likely to suffer adverse outcomes than mothers and infants who receive only Medicaid. Non-citizens, though, who are largely of Hispanic origin and have incomes generally less than women who receive TANF, have more favorable maternal and infant health outcomes, suggesting that non-economic factors such as family and community support also play a role in healthy birth outcomes.1

Similar to national data, Kansas data show disparities related to socioeconomic factors among children with special health care needs. CYSHCN in higher-income families were more likely to meet the core outcomes than CYSHCN in poverty. The prevalence of special health care needs also varies by the child’s race and ethnicity. Black non-Hispanic children were the most likely to have special health care needs. Fewer children of Hispanic origin have special health care needs than white or black non-Hispanic children. This difference might be due to under-diagnosis among children of Hispanic origin due to poor access to health services.1,2 Many factors influence maternal and child health outcomes and it is not clear which interventions are most effective in reducing racial and ethnic disparities. Understanding the factors that contribute to health across the lifespan is important for developing systems that promote healthy behaviors and access to care for all ages, and ultimately, to reduce disparities.1

**Infant Mortality**

**Summary**

Infant mortality is associated with poor maternal health, poor quality of and access to medical care and preventive services, and low socioeconomic position.1 In 2010, 253 Kansas infants died in their first year of life. The state infant mortality rate (IMR) for that year was 6.26 per 1,000 live births, compared to a 2010 national rate of 6.14 per 1,000.2 The IMR among non-Hispanic black infants was 2.4 times higher than that of non-Hispanic white infants in 2010. Decreases in IMRs were observed for non-Hispanic white and non-Hispanic black infants from 2001 to 2010. However, no change was observed for Hispanic infants.2 The national Healthy People 2020 objective is to reduce infant mortality to no more than 6.0 deaths per 1,000 live births. This goal was set at 10 percent lower than the 2006 U.S. infant mortality rate. Kansas did not meet the national objective.

No single intervention reduces all infant mortality. Prenatal care, participation in the Women, Infants and Children nutrition program (WIC), and receipt of high-risk neonatal care help to reduce deaths. Other proven strategies to reduce infant death include folic acid supplementation to prevent some types of birth defects, smoking cessation, use of infant car seats and placing infants to sleep on their backs. Reducing births before 39 weeks in women without medical conditions requiring early delivery also lowers risk of infant death.1
Infant Mortality Rate Trends
Kansas and U.S., 2001-2010

Time Trends
During the 2001-2010 decade, the IMR has statistically remained the same. However, for 2007-2010, there was a significant decrease in the trend detected with the annual percent change of -7.16.

Geographic Variation
The counties with the highest number of infant deaths (2006-2010) included Sedgwick (317, 21.5% of the total), Johnson (227, 15.4% of the total), Wyandotte (121, 8.2% of the total) and Shawnee (106, 7.2% of the total). These four counties accounted for 52.4 percent of the infant deaths and account for approximately 49.8 percent of the state’s population. However, the counties with the highest infant mortality rates and a relative standard error of 30 percent or lower included Marion (22.2), Neosho (15.5), Cowley (10.9), Geary (10.4) and Reno (8.9). While the counties with the lowest rates were Leavenworth (5.0), Douglas (5.2), Finney (5.2), Riley (5.8), Johnson (5.9) and Butler (5.9). Since the number of deaths was too small for analysis in many counties, counties were combined into the Public Health Regions. The region with the highest infant mortality rate and a relative standard error of 30 percent or lower was the Northwest Bioterrorism Region at 9.1 per 1,000 live births and the region with the lowest infant mortality rate was the South Central Coalition at 5.0 per 1,000. None of the rates by region were statistically significantly different from the state infant mortality rate.

Several zip codes had enough deaths to allow analysis for 2006-2010. The zip codes with the highest mortality rates and a relative standard error of 30 percent or lower included 66605 (Shawnee County, 16.2), 66720 (Neosho County, 14.9), 67156 (Cowley County, 13.1), 67218 (Sedgwick County, 12.7), and 67214 (Sedgwick County, 12.4). The zip codes with the lowest rates were 67212 (Sedgwick County, 3.6), 66030 (Johnson County, 5.0), 66062 (Johnson County, 5.3), 66106 (Wyandotte County, 5.5), and 67846 (Finney County, 5.6).
Timing of infant deaths is categorized as occurring in the neonatal period (first 27 days of life) and the post-neonatal period (28 to 364 days). The neonatal period is further sub-divided into early days or hebdomadal deaths (0-6 days) and post-hebdomadal deaths (7-27 days). Perinatal period III includes stillbirths and hebdomadal deaths.\(^3\)

**Neonatal/Post-Neonatal Period Deaths:** For Kansas, between 2006 and 2010, there were 926 neonatal deaths (4.5/1,000 live births) and 546 post-neonatal deaths (2.7/1,000 live births) with 62.9 percent of deaths occurring in the neonatal age period. Congenital anomalies were the leading cause of neonatal deaths, while SIDS was the leading cause of post-neonatal deaths.\(^3\)

**Perinatal Period III Deaths:** For Kansas, between 2006 and 2010, there were 1,688 perinatal deaths (8.1/1,000 live births and stillbirths) including 941 stillbirths and 747 hebdomadal deaths. Maternal factors (ICD-10 codes P00-P04) was the leading cause of stillbirths (51.8%), while prematurity or low birthweight was the leading cause of death for hebdomadal period deaths (32.4%).\(^3\)

**Economic and Social Factors**

Research continues to associate lower maternal income with higher infant mortality rates.\(^1\) Medicaid delivery can be used as an indicator of low income. In 2010, in Kansas, where payment source was known, the infant mortality rate was highest for the Medicaid service population (7.3 per 1,000 live births) and lowest for the non-Medicaid population (5.5). The overall infant mortality rate for Kansas was 6.2.\(^4\)

The MCH program has collaborated with the
Kansas City federal Healthy Start Program to conduct Fetal-Infant Mortality Review (FIMR) recommended by the American College of Obstetricians and Gynecologists (ACOG) and the American Academy of Pediatrics (AAP) as a best practice strategy in helping communities identify the systems issues that need to be addressed to prevent infant deaths.4

Race and Hispanic Origin

The IMR among non-Hispanic black infants was 2.4 times higher than that of non-Hispanic white infants in 2010. Decreases in IMRs were observed for non-Hispanic white and non-Hispanic black infants from 2001 to 2010. However, no change was observed for Hispanic infants.2

![Infant Mortality Rate Trends By Non-Hispanic Black, Non-Hispanic White and Hispanic Kansas and U.S., 2001-2010](image)

Source: Bureau of Epidemiology and Public Health Informatics, KDHE

Other Measures of importance

For Kansas, between 2006 and 2010, the leading cause of infant mortality was congenital anomalies. The most frequent congenital anomaly was congenital malformations of the circulatory system (22.7%, ICD-10 codes Q20-Q28), followed by chromosomal abnormalities (19.8%, ICD-10 codes Q90-Q99). Seventy-four percent (74.1) of deaths due to congenital anomalies occurred in the neonatal (under 28 day) time period. The category “other causes” includes respiratory distress of the newborn, primary atelectasis, cardiac failure/dysrhythmia, necrotizing enterocolitis, etc. Analysis of underlying cause of death by population group (2006-2010) shows that prematurity was the leading cause of death among black non-Hispanic infants. Congenital anomalies was the leading cause of death among white non-Hispanic and Hispanic infants.3
References


Strengths and Assets

Strengths

Fetal Infant Mortality Review (FIMR) Projects
Sedgwick and Geary counties are developing and implementing a FIMR process, which is a case review process that assists communities in identifying risk factors associated with the incidence of infant mortality and implementing a set of interventions to reduce infant mortality. Examples of interventions include programs addressing maternal smoking cessation, preconception peer education and safe sleep.

High 5 for Mom and Baby – Breastfeeding Friendly Hospital Campaign
The goal of the Breastfeeding Friendly Hospital campaign is to recognize hospitals and maternity centers that provide an optimal environment for breastfeeding mothers by fulfilling the standards outlined in the Ten Steps to Successful Breastfeeding, as laid out by WHO and UNICEF. Seven Kansas hospitals are enrolled and more are being contacted about the program. The program has been endorsed by Papa Murphy’s Pizza, Wesley Medical Center, Kansas Action for Children, M-C Industries, Kansas Breastfeeding Coalition, KDHE, March of Dimes, Stormont-Vail HealthCare and the Kansas American Academy of Pediatrics.

Kansas Perinatal Quality Collaborative (KPQC)
The Kansas Chapter of the March of Dimes is coordinating the formation of KPQC, which will be dedicated to improving perinatal health for moms and babies in Kansas. Hospital quality improvement projects related to preterm and early term births are likely to be among the KPQC’s top priorities.

Preconception Peer Educator Training
Research has shown that preconception health is one of the most important and less emphasized aspects influencing birth outcomes and maternal and infant health. KDHE is working with other partners in the state to facilitate preconception peer educator training using a federal Office of Minority Health curriculum. The training has the following three goals:

- Reach the college-age population with targeted health messages emphasizing preconception health and health care.
- Train minority college students as peer educators.
- Arm the peer educators with materials, activities and exercises to train their peers in college and in the community at large.

Maternal, Infant & Early Childhood Home Visiting Program
There are approximately 140 families currently enrolled in the Home Visiting Program in Montgomery and Wyandotte Counties. The program uses evidence-based programs (Early Head Start, Healthy Families America and Parents
as Teachers), includes a centralized outreach and referral system, and implements a comprehensive benchmarks plan to assess improvement with common, cross-program measures and data reporting systems. Currently a promising approach is being evaluated in Kansas City, KS, called Team for Infants Endangered by Substance Abuse (TIES).

**Kansas Kids Fitness Challenge Program**

This incentive program is designed to enhance the educational and health benefits of Kansas Kids Fitness Day by providing a chance to be active prior to the actual event. Third grade classes that reach the determined physical activity goal will be awarded a class certificate, a class prize, prizes for all students in the class and recognition at a local Kansas Kids Fitness Day event.

**Assets**

- Existing infrastructure for working on health issues affecting mothers, infants and children
- History of solid public health presence
- Collaboration is strong
  - Ongoing partnerships on common causes (e.g., legislation to create Kansas Indoor Clean Air Act)
  - Collaborative groups like Kansas Blue Ribbon Panel on Infant Mortality
  - Private groups and community-based groups work well together
- Strong, active organizations/groups supporting maternal and child health issues (e.g., March of Dimes, Kansas Action for Children, SIDS Network of Kansas, Healthy Kansas Schools)
- Strong public health foundation support
- Dedicated, diverse workforce; great individual programs filled with knowledgeable, passionate people
### Mental Health Issues

#### HP 2020 Goal
Improve mental health through prevention and by ensuring access to appropriate, quality mental health services.

#### HP 2020 Objectives

<table>
<thead>
<tr>
<th>Objective</th>
<th>Targets</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reduce the proportion of persons who experience major depressive episodes (MDEs).</td>
<td>7.4% among adolescents 12 to 17 years old; 5.8% among adults 18 years old and older.</td>
</tr>
<tr>
<td>Increase the proportion of adults 18 years old and older with major depressive episodes who receive treatment.</td>
<td>Target: 78.2%</td>
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</table>

**Summary**

Mental health and mental illness, terms that describe the continuum of mental function, constitute an integral part of overall health. Thus, to attain status of overall health, improvement of the mental health of individuals is essential.

Mental disorders are responsible for a high degree of burden due to illness. According to the 1999 Surgeon General's report on mental health, only about 17 percent of U.S. adults are considered to be in a state of optimal mental health. Owing to this growing burden of mental disorders, it is essential that effective preventive and promotional measures be taken in mental health to reduce the impact of mental disorders on the individual and society.

In 2010, about 8.5 percent of adults 18 years old and older had 14 or more days of poor mental health in the previous 30 days. In 2011 about 22 percent of Kansas high school students in grade 9-12 felt so sad or hopeless almost every day for two weeks or more in a row during the previous 12 months that they stopped doing some usual activities. Depression and anxiety, the two
leading mental health issues, are prevalent conditions in Kansas. Disparities are also seen in the burden of these mental health issues in the population sub-groups. Out of 105 counties in Kansas, 99 counties are considered partial or whole mental health professional shortage areas.

To improve the overall health of Kansans, it is important to address leading mental health issues and associated disparities through prevention and by ensuring access to appropriate, quality mental health services.

Definition and Introduction

Mental health and mental illness, terms that describe the continuum of mental function, constitute an integral part of overall health, which is defined as “a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity.” Mental health is “a state of well-being in which the individual realizes his or her own abilities, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to his or her community.” According to the 1999 Surgeon General’s report on mental health, only about 17 percent of U.S. adults are considered to be in a state of optimal mental health. The emerging knowledge through research in this field is indicating that positive mental health is related to improved health outcomes. Mental illness is defined as “collectively all diagnosable mental disorders” or “health conditions that are characterized by alterations in thinking, mood, or behavior (or some combination thereof) associated with distress and/or impaired functioning.” Mental disorders are among the most common causes of disability and resulting disease burden and mental illness is among the highest of all diseases. In any given year, an estimated 13 million American adults (about 1 in 17) have a seriously debilitating mental illness. Mental health disorders are the leading cause of disability in the United States, accounting for 25 percent of all years of life lost to disability and premature mortality. Also, suicide is the 11th leading cause of death in the United States, causing about 30,000 deaths each year. Depression is the most common type of mental illness, affecting more than 26 percent of the U.S. adult population. It is associated with increased risk of morbidity, mortality and impaired quality of life. Depressive and related depressive disorders are the cause of more than two-thirds of suicides each year. Depression is a risk factor for noncompliance of medical treatment and may increase severity of a disease. It is also a costly disease; an estimated $83 billion were spent on direct and indirect cost in the United States. Studies indicate that mental disorders, especially depressive disorders, are strongly related to the occurrence, treatment outcomes, and course of many chronic diseases including diabetes, cancer, cardiovascular disease, asthma, and obesity and associated risk behaviors such as physical inactivity, smoking, excessive drinking, and insufficient sleep. The Healthy People 2010 plan had included Mental Health as one of the 10 leading indicators for monitoring health status of the nation and has recommended increasing the proportion of adults with recognized depression who receive treatment.
Mental Health and Illness Status in Kansas

Diagnosed Depression, Current Depression and Anxiety

Depression and anxiety, the two leading mental health issues, are prevalent conditions in Kansas. Disparities are seen in the burden of these conditions among various socio-demographic subgroups and among those with other chronic diseases and disability.\textsuperscript{15}

The types of depression include major depression disorder (MDD), minor depression, dysthymia and bipolar disorder. Depression symptoms include persistent sad, anxious or “empty” mood; feelings of hopelessness, pessimism, guilt, worthlessness, or helplessness; loss of interest or pleasure in hobbies and activities that were once enjoyed, including sex; decreased energy, fatigue or being “slowed down”; difficulty concentrating, remembering or making decisions; insomnia, early-morning awakening or oversleeping; appetite and/or weight loss or overeating and weight gain; thoughts of death or suicide, or suicide attempts; restlessness or irritability; persistent physical symptoms that do not respond to treatment, such as headaches, digestive disorders and chronic pain.\textsuperscript{16}

In Kansas, a population-based health surveillance system\textsuperscript{17} – the Behavioral Risk Factor Surveillance System (BRFSS) collects information on ever being diagnosed with depression (includes major depression, dysthymia, or minor depression). In addition, Kansas BRFSS also uses eight questions to collect information on mood status and depressive symptoms of the individuals. These questions are adapted and modified from the Patient Health Questionnaire - Version 9 (PHQ)\textsuperscript{11,18} and include eight of the nine criteria’s for the diagnosis of depression listed in the Diagnostic and Statistical Manual disorders, Fourth Edition Text Revision (DSM-IV-TR). This adapted set of PHQ questions are referred as PHQ-8. The population-based mental health information obtained through the application of this PHQ-8 tool is used to develop a scoring system to define different levels of severity of depression. Based on this scoring system, different levels of severity of depression are defined as no depression (score 0-4), mild (score 5-9), moderate (score 10-14), moderately severe (score 15-19), and severe depression (score ≥ 20). In addition, based on this scoring system, depression is classified into two groups - current depression (score ≥ 14) and no current depression (score < 14).

Anxiety disorders are considered the most prevalent mental disorder among adults in the United States.\textsuperscript{19,20} In a given year, an estimated 40 million or 18.1 percent of adults are affected with an anxiety disorder.\textsuperscript{19,20} It is estimated that half of American adults diagnosed with major depression are also diagnosed with a type of anxiety disorder.\textsuperscript{21} Individuals with an anxiety disorder tend to make more frequent trips to the doctors, and are six times more likely to be hospitalized for psychiatric disorders.\textsuperscript{20} Despite being in the presence of health care professionals, the symptoms of an anxiety disorder can easily
be masked with physical illnesses therefore proper treatment of the disorder is difficult.\textsuperscript{14,20} Scientific literature shows that people suffering from both a major depression and general anxiety disorder have significantly greater disability as opposed to those suffering from just one of the disorders.\textsuperscript{22} The type of anxiety disorders include acute stress disorder (ASD), generalized anxiety disorders (GAD), obsessive-compulsive disorder (OCD), panic disorder (PD), post-traumatic stress disorder (PTSD), social anxiety disorder (also known as social phobia), and specific phobias such as fear of heights and spiders.\textsuperscript{23} Kansas BRFSS also collected population-based information on ever being diagnosed with anxiety.\textsuperscript{17}

About 1 in 7 (14.7\%) Kansans 18 years old and older have ever been diagnosed with depression and about 1 in 14 (7.6\%) have current depression (Score ≥ 14 based on PHQ-8 tool). About 1 in 10 (10.3\%) Kansans 18 years old and older have ever been diagnosed with anxiety.\textsuperscript{15,17}

Prevalence of Ever Being Diagnosed With Depression, Current Depression and Ever Being Diagnosed With Anxiety among Adults Ages 18 Years and Older, Kansas 2006, 2008 & 2010

It is important to note that based on PHQ-8 scores, about 24 percent of Kansas adults 18 years old and older have mild to severe depression as compared to 14.7 percent of Kansas adults who have doctor diagnosed depression.\textsuperscript{15} Thus, a considerable percentage of adults has some degree of depression without being diagnosed by a physician.

Diagnosed Depression, Current Depression and Anxiety Among Kansas Socio-Demographic Groups

Disparities in the prevalence of ever being diagnosed with depression are seen among various socio-demographic sub groups in Kansas.\textsuperscript{15} About 1 in 5 females has ever been diagnosed with depression as compared to 1 in 10 males.\textsuperscript{15,17} Higher prevalence of ever being diagnosed with depression is seen among adults 35 to 64 years old, those who are divorced or separated, unemployed, unable to work, and with lower education and income status.\textsuperscript{15,17} A higher prevalence of ever being diagnosed with depression is seen among adults without health care coverage as compared to adults with health care coverage.\textsuperscript{15,17} About 1 in 3 adults who needed to see a doctor in the previous 12 months but did not because of the cost has depression.\textsuperscript{15,17}
Disparities are also seen in the prevalence of current depression in Kansas.\textsuperscript{15} About 1 in 10 females are currently depressed as compared to 1 in 17 males.\textsuperscript{15,17} The prevalence of current depression is also higher among adults who are divorced or separated as compared to adults who are married; among adults with less than high school education as compared to adults who are college graduates; among adults 35 to 54 years old; those with lower income; and those who are unable to work.\textsuperscript{15,17} A higher prevalence of current depression is seen among adults without health care coverage as compared to adults who have health care coverage.\textsuperscript{15,17} In Kansas 1 in 4 adults who needed to see a doctor in the previous 12 months but could not because of the cost has current depression.\textsuperscript{15,17}

Similar disparity patterns are seen for the prevalence of ever being diagnosed with anxiety; however, there is no statistical difference in the prevalence of ever being diagnosed with anxiety among adults with different educational levels. About 1 in 8 Kansas females have ever been diagnosed with anxiety as compared to 1 in 13 males.\textsuperscript{15,17} The prevalence of ever being diagnosed with anxiety is higher among adults who have lower annual household income (< $15,000) and are unable to work as compared to adults with higher annual household income (\geq $50,000) and who are employed.\textsuperscript{15,17} The prevalence of ever being diagnosed with anxiety is also higher among adults who are divorced or separated and who are never married as compared to adults who are married; and among those who reside in an urban region of the state as compared to adults who reside in a frontier region.\textsuperscript{15,17} In Kansas 1 in 5 adults who needed to see a doctor in the previous 12 months but did not because of the cost has anxiety.\textsuperscript{15,17}
Diagnosed Depression, Current Depression and Anxiety Among Kansas Adults with Chronic Diseases, Chronic Disease Risk Factors and Those Living with a Disability

Disparities in the prevalence of ever being diagnosed with depression, current depression and ever being diagnosed with anxiety are seen among those with other chronic diseases, chronic disease risk factors and among those living with a disability.\textsuperscript{15}

The prevalence of being ever diagnosed with depression is higher among those with chronic diseases such as current asthma and stroke.\textsuperscript{15,17} The higher prevalence is also seen among obese adults, current cigarette smokers and those who do not participate in leisure time physical activity.\textsuperscript{15} In Kansas 1 in 3 adults who rate their health as fair or poor has ever been diagnosed with depression as compared to 1 in 8 who rate their health as excellent, very good or good.\textsuperscript{15,17}

The prevalence of ever being diagnosed with depression is also higher among adults living with disability as compared to adults living without a disability.\textsuperscript{15}

The prevalence of current depression is higher among those with chronic diseases such as stroke and current asthma.\textsuperscript{15,17} The prevalence is also higher among current cigarette smokers, obese adults and those who do not participate in leisure time physical activity.\textsuperscript{15,17} In Kansas 1 in 4 adults who rate their health as fair or poor has current depression as compared to 1 in 20 who rate their health as excellent, very good or good. The prevalence of current depression is also higher among adults living with disability as compared to adults living without a disability.\textsuperscript{15}

Higher prevalence of ever being diagnosed with anxiety is seen among those with chronic disease such as current asthma, coronary heart disease, and stroke. Higher prevalence of ever being diagnosed with anxiety is also seen among current smokers.\textsuperscript{15,17} In Kansas 1 in 5 adults who rate their health as fair or poor are ever been diagnosed with anxiety as compared to 1 in 12 who rate their health as excellent, very good or good.\textsuperscript{15,17}

The prevalence of ever being diagnosed with anxiety is also higher among adults living with disability as compared to adults living without a disability.\textsuperscript{15}

Depression Treatment in Kansas

About 2 in 5 (43.5\%) Kansas adults ages 18 years and older who have symptoms of depression during a period of two weeks and longer in the previous 12 months receive treatment for depression (any treatment or hospitalization for sadness, discouragement or lack of interest at any time in the past 12 months).\textsuperscript{15} The top three reasons for not receiving treatment are no reason for not seeking treatment (27.5\%), inability to afford the treatment (23.0\%), and not feeling the need or feeling symptoms are not severe enough to receive the treatment (21.1\%).\textsuperscript{15}

One of the 10 leading health indicators for Healthy People 2010 was to increase the proportion of adults with recognized depression who receive treatment to 64 percent. Further efforts are needed in Kansas to meet this objective.
Prevalence of Serious Psychological Distress in Kansas

Serious Psychological Distress (SPD) is a nonspecific measure of psychological distress that has been psychometrically validated and shown to be able to distinguish community DSM-IV cases from non-cases. SPD is determined using Kessler 6 (K6) scale. This scale is widely used nationally and internationally in epidemiological studies and surveys assessing mental illness. Another measure of mental illness is Frequent Mental Distress (FMD). FMD is calculated by number of days reported as mental health was not good in past 30 days by respondents and categorized as positive for 14 or more days. Kansas BRFSS has provided information on the population level prevalence of SPD and FMD among adults ages 18 years and older. About 2.5 percent of Kansans 18 years old and older have SPD and about 8.6 percent have FMD.

Serious Psychological Distress Among Socio-Demographic Groups in Kansas

Prevalence of serious psychological distress is higher among adults who have less than high school education as compared to those who are college graduates; among those with annual household income less than $15,000 as compared to those with higher annual household income; among adults who are unable to work as compared to adults who were self-employed or employed for wages, retired, homemakers or students; and among divorced or separated individuals as compared to married, members of unmarried couple and never married individuals. Higher prevalence of SPD is seen among adults without health insurance or coverage as compared to those with health insurance or coverage.

Serious Psychological Distress Among Adults with Chronic Diseases, Chronic Disease Risk Factors and Those Living with a Disability in Kansas

Higher prevalence of SPD is seen among adults with arthritis as compared to adults without arthritis; among adults with diabetes as compared to adults without diabetes; among adults with hypertension as compared to adults without hypertension; among adults with current asthma as compared to adults without current asthma; among adults with coronary heart disease as compared to those who did not have coronary heart disease; and among adults who have had a stroke as compared to those who did not have a stroke. Higher prevalence of SPD is observed in current smokers as compared to non-smokers; among those who do not participate in any physical activity or exercise other than their regular job (leisure time physical activity) as compared to those who participate in leisure time physical activity; and among those who are inactive as compared to those who participate in recommended level of physical activity and in insufficient physical activity. Higher prevalence of SPD is observed among people living with a disability as compared to people living without a disability.
Serious Psychological Distress Treatment in Kansas

Only about half of adults with SPD (49.7%) receive medicine or treatment from a doctor or other health professional. Fewer than half of adults with FMD (41.5%) receive medicine or treatment from a doctor or other health professional.28

Other Measures

Mental Health and Youth in Kansas

In 2011 1 in 5 (21.9%) Kansas high school students in grade 9-12 felt so sad or hopeless almost every day for two weeks or more in a row during the previous 12 months that they stopped doing some usual activities.29 The prevalence of feeling sad or hopeless is higher among female students as compared to male students.29

Kansas Mental Health Professional Shortage Areas

Out of 105 counties in Kansas, 99 counties are considered partial or whole mental health professional shortage areas.30
References


Strengths and Assets

Strengths

There are several promising practices that are in the early stages, but the work needs additional support to continue and be successful. These programs include Mental Health First Aid, Psychological First Aid, Crisis Intervention Training, and Strategic Brief Intervention and Referral to Treatment. There is strong movement toward integration between primary care and behavioral health with at least 11 community mental health centers and 10 safety net clinics in 13 communities. Substance use disorder providers are also working on integration and collaboration.

Assets

- Values of Kansans – compassionate and hardworking, resulting in caring, concern, and action that happens one-on-one and among families, friends, faith communities, and organizations
- Widespread belief that recovery is possible
- Consumer involvement in policy development and planning, consumer-run organizations, National Alliance on Mental Illness - Kansas
- Comprehensive Community Mental Health Center system - though under-funded, it is an ultimate safety net because every county is covered
- Strong Association of Community Mental Health Centers in Kansas
- Integration of mental health and substance abuse programs at the state level
- Multiple promising practices and programs currently under development, including primary care-behavioral health integration initiative; community education programs like mental health first aid, psychological first aid, and crisis intervention training; and strategic brief intervention and referral to treatment (SBIRT)
Health Issues Among Kansans Living with Disabilities

Introduction
Disabilities can affect a person’s hearing, vision, movement, thinking, memory, learning, communicating, mental health and/or social relationships. In the U.S., an estimated 37 to 56 million people live with a disability.\textsuperscript{1,2} The chance of having a disability increases with age, from less than 10 percent for people 15 years old or younger, to almost 75 percent for people 80 years old or older.\textsuperscript{3} Many disabilities can be delayed or even prevented through healthy lifestyle behaviors and access to health care.

The Kansas Behavioral Risk Factor Surveillance System (BRFSS) defines persons living with a disability as those who report an activity limitation due to physical, mental or emotional problems,

<table>
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<th>HP 2020 Goals</th>
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<td>Increase the number of population-based data systems used to monitor Healthy People 2020 objectives that include in their core a standardized set of questions that identify people with disabilities.</td>
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<tr>
<td>Increase the number of tribes, states and the District of Columbia that have public health surveillance and health promotion programs for people with disabilities and caregivers.</td>
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<tr>
<td>Reduce the proportion of people with disabilities who report delays in receiving primary and periodic preventive care due to specific barriers.</td>
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Summary
This section reviews disability surveillance data and articulates the prevalence of living with a disability in Kansas.
or who report a health problem that requires them to use special equipment such as a cane, a wheelchair, a special bed or a special telephone.

Disability

Age and Gender
In 2010, 1 in 5 (22.7%) adult Kansans was living with a disability. There was a higher prevalence of disability among Kansans 65 years old and older (40.1%, 95% CI: 38.1%-42.0%) as compared to those 18 to 24 years old (12.2%, 95% CI: 7.4%-17.1%). The prevalence of disability was higher among Kansas females (24.7%, 95% CI: 23.3%-26.2%) as compared to males (20.5%, 95% CI: 18.8%-22.2%).

Race and Ethnicity
In 2010, the prevalence of disability was significantly higher among non-Hispanics (23.1%, 95% CI: 22.0%-24.2%) as compared to Hispanics in Kansas (15.8%, 10.6%-21.0%); this difference remained statistically significant even after age-adjustment. Whites and African Americans in Kansas had a similar prevalence of disability (22.5%, 95% CI: 21.4%-23.7% vs. 28.2%, 95% CI: 22.1%-34.3%, respectively).

Economic and Social Factors
The prevalence of disability in Kansas was more than three times higher among adults with an annual household income of less than $15,000 (46.8%, 95% CI: 40.5%-53.1%) as compared to those with an annual household income of $50,000 or greater (14.4%, 95% CI: 13.0%-15.7%). Among adults with less than a high school education, the prevalence of disability was 30.8 percent (95% CI: 25.3%-36.4%) compared to 17.0 percent (95% CI: 15.6% - 18.5%) among adults with a college degree.

Overall Health
In 2010, the percentage of adult Kansans living with a disability who perceived their health status as either fair or poor was six times higher than adults living without a disability (37.8%, 95% CI: 35.3%-40.4% vs. 6.2%, 95% CI: 5.4%-7.0%, respectively).

Mental Health
The prevalence of ever being diagnosed with depression was nearly three times higher among adults living with a disability (28.6%, 95% CI: 25.4%-31.8%) as compared to adults living without a disability (10.1%, 95% CI: 8.8%-11.4%).

Chronic Conditions and Risk Behaviors
The prevalence of diagnosed diabetes was almost three times higher among those living with a disability (17.1%, 95% CI: 15.4%-18.9%) compared to those living without a disability (5.9%, 95% CI: 5.3%-6.5%).

The prevalence of ever being told they had a heart attack by a health professional was nearly five times higher among adults living with a disability (10.4%, 95% CI: 9.0%-11.8%) compared to adults living without a disability (2.3%, 95% CI: 2.0%-2.7%).
The prevalence of obesity (defined as BMI ≥ 30) was significantly higher among adults living with a disability (41.8%, 95% CI: 39.1%-44.5%) compared to adults living without a disability (26.7%, 95% CI: 25.2%-28.3%).

The percentage of adults who currently smoke was significantly higher among those living with a disability (23.7%; 95% CI: 21.2-26.3) compared to those living without a disability (15.1%; 13.8-16.4%).

Strengths and Assets

Strengths

KDHE provides an online continuing education course about disability competency for health care providers. This course is designed for physicians, nurses, social workers, other healthcare professionals, and medical office staff. It includes tips for delivering culturally sensitive, high quality care to adults and children with physical and sensory disabilities and find solutions to problems in serving patients with disabilities.

Assets

- Waiver programs that promote community living (e.g. Working Healthy)
- Employment First: Program to improve employment opportunities for people with disabilities
- Strong special education programs in some school districts
- Advocacy by independent living centers and other community organizations
- Past disability infrastructure and inclusion efforts (no longer funded)
  - Disability and Health program at KDHE
  - Living Well with a Disability
- Health services researchers in Kansas with expertise in disability and health

References

1. 2011 American Community Survey. U.S. Census Bureau
Homicide

### HP 2020 Objectives

<table>
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<th>Objective</th>
<th>Target: 5.5 homicide deaths per 100,000 population</th>
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**Summary**

This section reviews homicide mortality data from the past decade. Time trends, demographic characteristics and causes are presented to articulate the burden of homicides in Kansas. The burden of non-fatal assault injury is also presented.

**Introduction**

Violence is a significant problem in the U.S., with millions of Americans experiencing the physical, mental and economic consequences of violence – including child maltreatment, elder abuse, intimate partner violence, sexual violence, youth violence and suicide – each year. The public health approach to violence prevention includes defining the problem; identifying risk and protective factors; developing and testing violence prevention strategies; and assuring widespread adoption of effective strategies.¹
Homicide Deaths

Time Trends
From 2002-2011, the age-adjusted homicide rate in Kansas remained relatively stable at around 4 deaths per 100,000 population.2

![Homicide Rates by Year, Kansas 2002-2011](image)


Age and Gender
Between 2007 and 2011, the homicide rate per 100,000 population in Kansas was highest among children less than 1 year old (9.7; 95% CI 6.0-15.1), young adults 15 to 24 years old (7.8; 95% CI: 6.6-9.1) and those 25 to 34 years old (8.4; 95% CI: 7.1-9.8). During this time period, the age-adjusted homicide rate per 100,000 population was significantly higher among males (6.1; 95% CI: 5.6-6.7) as compared to females (2.2; 95% CI: 1.8-2.6).3

![Homicide Rates by Gender, Kansas 2007-2011](image)

Race and Ethnicity

Between 2007 and 2011, the age-adjusted homicide rate per 100,000 population was significantly higher among non-Hispanic African Americans (19.6; 95% CI: 16.8-22.8) in Kansas as compared to other race/ethnic groups.³

![Homicide Rates by Race/Ethnic Groups, Kansas 2007-2011](image)

**Race/Ethnic Group**

From 2007-2011, two-thirds (67%) of homicides in Kansas were caused by firearms.³

**Cause**

From 2007-2011, two-thirds (67%) of homicides in Kansas were caused by firearms.³

**Assault**

From 2007-2011, two-thirds (67%) of homicides in Kansas were caused by firearms.³

During a five year period from 2006 to 2010, there were 3,256 assault hospital discharges (HD) in Kansas (age-adjusted rate: 23.5 assault HD per 100,000 population). The age-adjusted assault HD rate was significantly higher among males than females (37.8 vs. 8.7 assault HD per 100,000 population, respectively). The assault HD rate was highest among children less than 1 year old (85.5; 95% CI 73.3-99.2) as compared to all other age groups.⁴

During a three year period from 2007 to 2009, there were 18,242 assault emergency department visits (EDV) in Kansas (age-adjusted rate: 220.5 assault EDV per 100,000 population). The age-adjusted assault EDV rate among males was significantly higher than females (246.2 vs. 193.3 assault EDV per 100,000 population, respectively). The assault EDV rate was highest among those 15 to 24 years old (586.3 per 100,000 population) as compared to all other age groups.⁵
Youth Violence

During the 2010/2011 school year, 5.5 percent (9.9%; 95% CI: 4.3-7.1%) of Kansas high school students in grades 9 through 12 had been threatened or injured with a weapon such as a gun, knife or club on school property in the past year, and 4.6 percent (95% CI: 3.3-6.3) did not go to school on one or more days in the past month because they felt they would be unsafe at school or on their way to or from school. Nearly 1 in 4 (22.4%; 95% CI: 19.6-25.4) Kansas high school students reported being in a physical fight one or more times during the past year, and 7.8 percent (95% CI: 6.2-9.7) reported being in a physical fight on school property at least once in the past year.\(^6\)

References


2. 2002-2011 Kansas Vital Statistics, Bureau of Epidemiology and Public Health Informatics, KDHE.


4. 2006-2010 Kansas Hospital Discharge Database, Kansas Hospital Association.

5. 2007-2011 Kansas Emergency Department Database, Kansas Hospital Association.

6. 2011 Kansas Youth Risk Behavior Survey, Kansas State Department of Education.
Sexual Violence

HP 2020 Goals

Reduce sexual violence by current or former intimate partners.
Reduce abusive sexual contact other than rape or attempted rape.

Summary
This section reviews the prevalence of sexual violence among Kansas women overall and by various social demographics and health factors. Although men experience unwanted sex, they were excluded from analyses due to relatively small numbers.

Introduction
Sexual violence is a public health problem impacting Kansans. The problem not only affects the victim but also affects friends, families and communities. Sexual violence does not discriminate; it impacts individuals of various ages, genders, race and ethnicities, and socioeconomic statuses. Although police reports can provide some information about the prevalence of sexual violence, it is estimated that two-thirds of cases of rape go unreported.

Definitions of sexual violence include interpretations of harassment, molestation, rape, voyeurism and non-consensual exposure. The Centers for Disease Control and Prevention (CDC) define sexual violence as "any sexual act that is perpetrated against someone’s will. Sexual violence encompasses a range of offenses, including a completed nonconsensual sex act (i.e., rape), an attempted nonconsensual sex act, abusive sexual contact (i.e., unwanted touching), and non-contact sexual abuse (e.g., threatened sexual violence, exhibitionism, verbal sexual harassment). All types involve victims who do not consent, or who are unable to consent or refuse to allow the act."

The Kansas Behavioral Risk Factor Surveillance System (BRFSS) survey is a useful method for collecting self-reported data on prevalence of sexual assault because it looks at any lifetime experience and evaluates current health conditions and risk behaviors. The 2011 BRFSS provided, for the first time, population-based data on the percentage of Kansans who ever experienced unwanted sex at the age of 18 or older.

Sexual Violence

Age
Among Kansas women, 8.6 percent reported ever experiencing unwanted sex. Women 65 years and older had the lowest prevalence of ever experiencing unwanted sex (3.7%) compared to all other age groups.

Race and Ethnicity
The prevalence of ever experiencing unwanted sex did not differ across race/ethnicity groups. The prevalence of experiencing unwanted sex among non-Hispanics as compared to Hispanics did not differ significantly even after age-adjustment.
Economic and Social Factors

The percentage of women who ever experienced unwanted sex was more than twice as high among those who were unable to work (19.6%) as compared to women who were employed for wages/self-employed (8.1%). The percentage of women who ever experienced unwanted sex was more than three times higher among those living with a disability (16.3%) compared to those living without a disability (5.9%).

Overall Health

The percentage of Kansas women who self-reported fair/poor health was nearly twice as high among those who ever experienced unwanted sex (26.4%) as compared to those who did not experience unwanted sex (14.2%).

Mental Health

The percentage of Kansas women who reported 14 or more days of poor mental health was nearly three times higher among women who ever experienced unwanted sex (29.9%) as compared to those who did not experience unwanted sex (10.8%).

In Kansas, 1 in 3 women who experienced unwanted sex were ever diagnosed with an anxiety disorder (33.9%), which is nearly three times higher than the percentage of women who did not experience unwanted sex (12.8%). Nearly half of Kansas women who experienced unwanted sex were ever diagnosed with depression (47.3%), which is almost three times higher as compared to those who never experienced unwanted sex (16.7%).

Chronic Conditions and Risk Behaviors

Kansas women who ever experienced unwanted sex had more than twice the prevalence of currently having asthma (22.4%) as compared to women who never experienced unwanted sex (9.1%).

Prevalence of chronic obstructive pulmonary disorder (COPD), which can make it difficult to breath, was more than twice as high among women who ever experienced unwanted sex (16.9%) as compared to women who never experienced unwanted sex (6.3%).

Prevalence of current smoking was much higher among women who experienced unwanted sex (41.2%) as compared to women who did not experience unwanted sex (16.8%).

References


Strengths and Assets

Strengths

Suicide

Headquarters Counseling Center in Lawrence was recently awarded a three-year federal grant to engage in a statewide collaborative process to reduce the frequency of suicide attempts and deaths among 10 to 24 year old Kansans. This funding represents the first major investment in suicide prevention in Kansas. This project is funded through the SAMHSA “Garrett Lee Smith” award for suicide prevention.

Bullying

Steps to Respect is a national bullying prevention program developed by the Committee for Children. The program relies on a comprehensive approach to bullying prevention impacting students, parents and staff in K-6 schools. In 2012, 18 schools in Kansas implemented the program.

Kansas schools participating in the program experienced a decline in the number of 3rd and 4th grade students who reported experiencing physical bullying. Participating schools experienced a significant decrease in the number of students’ who reported feeling unprepared to help victims of bullying. (Making sure children feel empowered to help victims of bullying can be a great strength in bullying prevention efforts.)

Sexual and Domestic Violence

In 2011 the first state plan for Sexual and Domestic Violence Primary Prevention in Kansas was released. The plan was the result of a collaborative effort between KDHE, the Kansas Coalition Against Sexual and Domestic Violence, and a committee of state and local stakeholders.

In 2012, the Kansas Legislature passed legislation requiring batterer intervention programs to meet minimum standards, use a standardized assessment and be certified by the Office of the Attorney General. Outcome evaluations by court services regarding several certified programs indicate 12 percent to 23 percent recidivism. Currently, there are 26 certified programs in Kansas. An additional eight programs are in the process of becoming certified. There are four judicial districts that do not have a batterer intervention program.

“The Outrage,” an interactive theater piece developed by Johnson County SAFEHOME, is performed by teen actors to educate youth about teen dating violence and sexual assault. As of 2012, the “The Outrage” had been performed 110 times for over 20,000 people. In April of 2010 the Safe States Alliance honored “The Outrage” with their Innovative Initiative of the Year Award. In 2011, “The Outrage” was selected to perform in
Washington, DC at the first National Summit on Gender Based Violence Among Young People organized by the U.S. Department of Education and the U.S. Department of Justice. Currently, “The Outrage” Program is being replicated in six communities across Kansas.

Child Abuse or Neglect
The Period of PURPLE Crying was developed by the National Center on Shaken Baby Syndrome. The Kansas Children’s Cabinet and Trust Fund works with the Kansas Children’s Service League to provide outreach to Kansas hospitals on the program. As of 2012, 65 hospitals and 200 community agencies across Kansas had implemented the program.

Assets
- People and professionals working on this issue: teachers, parents, students, mental health professionals, violence prevention professionals
- Stakeholder and community groups: Court Appointed Special Advocates, faith community, civic community groups, Child Death Review Board, Human Trafficking Advisory Board, Batterer Intervention Program Advisory Board, law enforcement, National Alliance on Mental Illness Kansas
- Policies and programs in Kansas that are addressing violence issues
  - Bullying hotline managed by Kansas Children’s Service League
  - National Suicide Prevention hotline
  - Kansas anti-bullying statute
  - Kansas certification of batterer intervention programs
  - Garrett Lee Smith grant funding for suicide prevention efforts
  - Kansas State Department of Education released social/emotional developmental standards that schools can use (just one of two states that have done this)
  - Engaging men in current work on sexual and domestic violence prevention
### Oral Health

<table>
<thead>
<tr>
<th>Healthy People 2020 Objective</th>
<th>Target</th>
<th>U.S. Baseline</th>
<th>Kansas Baseline</th>
</tr>
</thead>
</table>
| **OH-1** Reduce the proportion of children who have dental caries experience  
• Children, ages 6-9 | 49.0% | 54.4% | 48.0%<sup>5</sup> |
| **OH-2** Reduce the proportion of children who have untreated caries  
• Children, ages 6-9 | 25.9% | 28.8% | 9.5%<sup>5</sup> |
| • Adolescents, ages 13-15 | 15.3% | 17.0% | 12.8%<sup>17</sup> |
| **OH-4** Reduce the proportion of adults that have ever had a permanent tooth extracted because of caries or periodontal disease  
• Ages 45-64 | 68.8% | 76.4% | 45-54: 45.5%<sup>15</sup> |
| | | | 55-64: 61.0%<sup>15</sup> |
| • Adults ages 65-74 who have lost all of their natural teeth | 21.6% | 24.0% | 65+: 17.4%<sup>15</sup> |
| **OH-6** Increase the proportion of oral and pharyngeal cancers diagnosed at the localized stage | 35.8% | 32.5% | 44.0%<sup>21</sup> |
| **OH-12** Increase the proportion of children who have received dental sealants on one or more molar teeth  
• Children ages 6-9 years – Permanent first molar teeth | 28.1% | 25.5% | 35.7%<sup>17</sup> |
| • Adolescents ages 13-15 years – Permanent second molar teeth | 21.9% | 19.9% | 41.7%<sup>17</sup> |
| **OH-13** Increase the proportion of U.S./State Population served by community water systems that received optimally fluoridated water | 79.6% | 72.4% | 63.8%<sup>22</sup> |
Oral health is an important facet of overall physical health and an important part of community health assessment. Oral health is more than just healthy teeth. Oral health includes the health of teeth, gingiva (gums), the hard and soft palate, the lining of the mouth and throat, lips, salivary glands, upper and lower jaws, and all muscles and ligaments associated with these structures. The mouth is also connected to overall physical health and can be an indicator for chronic diseases. Current research suggests links between periodontal (gum) disease and poor blood-glucose management, cardiovascular disease, respiratory disease, and poor pregnancy outcomes. Good oral health requires a comprehensive approach that includes access to oral health professionals, proper daily home-care, a healthy diet, and access to an optimally fluoridated community water source or appropriate fluoride supplementation. To improve oral health in Kansas, a comprehensive effort is needed on the part of all individuals, professionals, communities and governing bodies.

Dental caries, commonly known as dental decay, presents a serious problem for individuals of all ages in the United States. Dental caries is an infectious disease process that occurs when intraoral bacteria feeding on carbohydrates produce acid. This acid causes the demineralization of teeth, leading to tooth destruction, infection and pain. Caries can occur on both the crowns and roots of teeth.

Kansas continues to improve in the reduction of third graders with caries experience since the first Smiles Across Kansas survey in 2004. The 2012 data indicate that Kansas has met the Healthy People 2020 target of 49 percent (Figure 1). Although the state has made significant improvement in reducing both the amount of untreated decay and treating the existing decay in third graders, the prevalence of caries experience indicates that dental caries continues to be an issue for children in Kansas. Breaking out the indicator by race/ethnicity, it is concerning that there is a significantly higher prevalence of caries experience among Hispanics when compared to non-Hispanics (Figure 3). South central Kansas has the highest prevalence of caries experience among third graders at 58 percent, which is a full 10 percent higher than the state as a whole.

Figure 1: Percent of Kansas 3rd Graders with Dental Caries Experience, 2004, 2012

Source: 2004, 2012 Smiles Across Kansas
Kansas has made progress in child and adolescent oral health. Kansas measures children’s oral health through the basic screening survey, Smiles Across Kansas. The 2012 Smiles Across Kansas oral health survey reported untreated dental caries in 9.4 percent of Kansas third graders. This is a significant improvement from the 2004 Smiles Across Kansas survey, and is well below the Healthy People 2020 target of 25.9 percent (Figure 4). These data were collected through voluntary participation and parental consent to participate, thereby creating a convenience sample. National data suggests that dental caries are more prevalent in certain minority groups. That is true in Kansas as well, but all population groups were still below the Healthy People 2020 targets (Figure 5 and 6).

Source: 2012 Smiles Across Kansas
* American Indian / Alaskan Native, † Sample considered unreliable, numerator less than 20
Figure 4: Percent of Kansas 3rd Graders with Untreated Dental Caries, 2004, 2012

Source: 2004, 2012 Smiles Across Kansas

Figure 5: Percent of Kansas 3rd Graders with Untreated Dental Caries by Race

Source: 2012 Smiles Across Kansas
* American Indian / Alaskan Native, † Sample considered unreliable, numerator less than 20

Figure 6: Percent of Kansas 3rd Graders with Untreated Dental Caries by Ethnicity

Source: 2012 Smiles Across Kansas
Disparities in oral health status are seen when comparing populations in high-income schools versus low-income schools, with income status derived from the percentage of children enrolled at a school that are eligible for the National School Lunch Program. Children in poorer schools were approximately 66 percent more likely to have untreated dental decay than those in wealthier schools (Figure 7). Rural/Frontier counties also suffer in terms of excess untreated dental decay. Southwest Kansas has the highest prevalence of untreated dental decay among third grade students (19%).

**Figure 7: Oral Health Care Status among Kansas 3rd Graders with Respect to Eligibility for the National School Lunch Program**

People experience oral disease throughout their lifespan. Although children and adolescents are the most common focus of oral public health interventions, oral disease in adults and seniors is common. In the U.S., employed adults lose more than 164 million hours of work each year due to oral health problems or dental visits. In addition to dental caries, periodontal disease and oral cancers are more frequently seen in adults.

Senior populations are at high risk for oral disease. Financial barriers, mobility and dexterity issues, and complicated medical histories often put them at increased risk for dental problems. This is especially true for nursing facility residents. In a 2012 survey of Kansas nursing facilities, 34 percent of residents 65 years old and older had untreated decay with 51.9 percent between 65 and 74 years old having untreated decay (Table 1). Periodontal disease is the inflammation and infection that destroys the tissues that support the teeth, including the gingiva, ligaments, and supporting bone structure. Two indicators of periodontal disease are tooth mobility, and gingival inflammation. Among the Kansas nursing home population sampled, 14.9 percent experienced tooth mobility while 25.7 percent had significant gingival inflammation (Table 2).
Older Kansans are keeping their teeth longer and the percentage of adults without any natural teeth (edentulism) is on the decline. The prevalence of edentulism among individuals 65 to 74 years old in Kansas falls short of the national average noted in NHANES (15.0%), but reaches the Healthy People 2020 goal (21.6%). The number of edentulous adults in nursing facilities is much higher than both of the national indicators, with one third of all of the Kansas nursing facility residents being edentulous (Table 3).

### Table 1: Oral Health Status of Elderly Kansans Living in Nursing Facilities

<table>
<thead>
<tr>
<th>Oral Health Indicator</th>
<th>Age Group</th>
<th>KS Statistic</th>
</tr>
</thead>
<tbody>
<tr>
<td>% of Adults with Untreated Caries</td>
<td>65-74 years</td>
<td>51.9%</td>
</tr>
<tr>
<td>% of Adults with Untreated Caries</td>
<td>65+ years</td>
<td>34.0%</td>
</tr>
<tr>
<td>% of Adults with Loss/Extraction of a Permanent Tooth</td>
<td>65-74 years</td>
<td>62.0%</td>
</tr>
<tr>
<td>% of Adults Who Have Lost All of Their Permanent Teeth</td>
<td>65-74 years</td>
<td>23.9%</td>
</tr>
</tbody>
</table>

Source: Elder Smiles, 2012

### Table 2: Oral Health Indicators among Kansas Nursing Home Residents 65 Years Old and Older

<table>
<thead>
<tr>
<th>Oral Health Indicator</th>
<th>Untreated Dental Decay</th>
<th>Root Fragments</th>
<th>Gingival Inflammation</th>
<th>Tooth Mobility</th>
<th>Oral Debris</th>
</tr>
</thead>
<tbody>
<tr>
<td># No % No</td>
<td>239 66.0%</td>
<td>336 82.8%</td>
<td>269 74.3%</td>
<td>308 85.1%</td>
<td>256 70.7%</td>
</tr>
<tr>
<td># Yes % Yes</td>
<td>123 34.0%</td>
<td>70 17.2%</td>
<td>93 25.7%</td>
<td>54 14.9%</td>
<td>106 29.2%</td>
</tr>
</tbody>
</table>

Source: Elder Smiles, 2012

### Table 3: Edentulism Oral Health Indicator, Target Level, and Current Status among United States and Kansas Residents Ages 65-74

<table>
<thead>
<tr>
<th>Source</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elder Smiles, 2012 – Nursing Facility Residents</td>
<td>23.9%</td>
</tr>
<tr>
<td>Kansas Average (BRFSS), 2010</td>
<td>17.4%</td>
</tr>
<tr>
<td>National Average (NHANES), 2009-10</td>
<td>15.0%</td>
</tr>
<tr>
<td>Healthy People 2020 Target</td>
<td>21.6%</td>
</tr>
</tbody>
</table>

Cancer of the oral cavity and pharynx is the 10th most common cancer in black males and the eighth most common cancer in white males in the United States.\textsuperscript{8} Nationally an estimated 40,250 new cases of oral cancer were diagnosed in 2012 and 7,850 oral cancer-related deaths were reported. These accounted for 2.5 percent of all new cancer cases and 1.4 percent of all cancer deaths in the U.S. in 2012.\textsuperscript{9} Healthy People 2020 objectives focus on early cancer detection. The national objective regarding oral and pharyngeal cancer is to increase the proportion of oral and pharyngeal cancers detected at the earliest stage.\textsuperscript{8} Of all cancers diagnosed between 2000 and 2009, 2.2 percent were in the oral cavity or pharynx and, of the cancers that were able to be classified by stage at diagnosis, 43.5 percent were either in situ or localized (Table 4).\textsuperscript{10}

**Table 4: Number of Cancer Cases by Primary Site and Stage, Kansas Residents, 2000-09**

<table>
<thead>
<tr>
<th></th>
<th>All Cases</th>
<th>In Situ</th>
<th>Local</th>
<th>Regional</th>
<th>Distant</th>
<th>Unstaged</th>
</tr>
</thead>
<tbody>
<tr>
<td>All Sites</td>
<td>143,030</td>
<td>11,125</td>
<td>61,594</td>
<td>27,906</td>
<td>28,558</td>
<td>13,847</td>
</tr>
<tr>
<td>Oral &amp; Pharyngeal Cancer</td>
<td>3,087</td>
<td>84</td>
<td>1,171</td>
<td>1,315</td>
<td>314</td>
<td>203</td>
</tr>
</tbody>
</table>

Source: Kansas Cancer Registry

Access to oral health care can be problematic for some Kansans.\textsuperscript{11} Dental professionals tend to practice in urban areas, and the population per primary care dentist (general practitioners and pediatric dentists) ratio increases as the county’s population decreases.\textsuperscript{12} Of Kansas’ 39 frontier counties, 12 (30.8%) do not have any primary care dentists at all. Dentists can be especially sparse in the western part of the state. At least four areas in western Kansas do not have access to a primary case dentist within a drive time of 30 minutes, and are referred to as “dental care service deserts” (Figure 8). According to the 2010 study of the rural oral health workforce, 57,811 individuals in western Kansas do not live within 30 minutes of an oral health care provider.\textsuperscript{11} This equates to roughly 11.2% of the western Kansas population assessed in this report.\textsuperscript{11}

**Figure 8: Western Kansas Drive Time Buffers Around Primary Care Dentist’s Office With Four Dental Care Service Deserts, 2011**

Source: Kansas Bureau of Oral Health
National and state data indicate that not all people see a dentist on a regular basis. Nationally, only 64.9 percent of Americans have been to a dentist or dental clinic in the past year and 11.4 percent reported that they had not been to a dentist or dental clinic in 5 or more years.\textsuperscript{13} Kansas reported 67.3 percent of individuals visiting a dentist or dental clinic in the last year and 13 percent of individuals not having been in 5 or more years.\textsuperscript{14} Reports of having a teeth cleaning were slightly higher with 67.9 percent of Americans and 72.8 percent of Kansans having a teeth cleaning in the last year.\textsuperscript{15} Utilization of the oral health care system is dependent upon an individual’s ability to pay for services. In Kansas, 36.3 percent of all adults 18 years old and older and 58 percent of adults 65 years old and older reported not having dental insurance.\textsuperscript{14} In recent years, the percentage of Kansans not seeking needed oral health care has increased (Table 5) with financial reasons cited as the most common reason why individuals did not seek care (Table 6). To provide care to individuals who are financially burdened and cannot afford oral health care, 18 Safety Net Clinics in Kansas provide dental services, operating as Federally Qualified Health Centers (FQHCs). At the Kansas Mission of Mercy events in 2012 hosted by Safety Net Clinics, these oral health care providers were able to treat 2,144 individuals.

\textbf{Table 5: During the Past 12 Months, Was There Any Time When You Needed Dental Care But Did Not Get It?}

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>% Yes</td>
<td>11.0%</td>
<td>9.4%</td>
<td>11.3%</td>
<td>11.4%</td>
<td>13.4%</td>
<td>11.3%</td>
<td>17.2%</td>
<td>14.1%</td>
</tr>
<tr>
<td>% No</td>
<td>89.0%</td>
<td>90.6%</td>
<td>88.7%</td>
<td>88.6%</td>
<td>86.6%</td>
<td>88.7%</td>
<td>82.8%</td>
<td>85.9%</td>
</tr>
<tr>
<td>Standard Error</td>
<td>1</td>
<td>1.2</td>
<td>1.2</td>
<td>1.4</td>
<td>1</td>
<td>1.4</td>
<td>1.6</td>
<td>0.7</td>
</tr>
<tr>
<td>N=</td>
<td>4333</td>
<td>4052</td>
<td>4114</td>
<td>4193</td>
<td>9477</td>
<td>4183</td>
<td>8150</td>
<td>5693</td>
</tr>
</tbody>
</table>

Source: Behavioral Risk Factor Surveillance System, 2001-2011

\textbf{Table 6: What was the Main Reason You Did Not Receive the Dental Care You Needed?}

<table>
<thead>
<tr>
<th>Reason</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fear, apprehension, nervousness, pain, dislike going</td>
<td>4.3%</td>
<td>3.9%</td>
<td>6.2%</td>
<td>4.7%</td>
</tr>
<tr>
<td>Could not afford/cost/too expensive</td>
<td>74.8%</td>
<td>78.7%</td>
<td>78.2%</td>
<td>81.8%</td>
</tr>
<tr>
<td>Dentist would not accept my insurance, including Medicaid</td>
<td>6.5%</td>
<td>2.6%</td>
<td>4.7%</td>
<td>2.7%</td>
</tr>
<tr>
<td>Do not have/know a dentist</td>
<td>1.4%</td>
<td>1.3%</td>
<td>0.2%</td>
<td>1.9%</td>
</tr>
<tr>
<td>Lack transportation / too far away</td>
<td>0.2%</td>
<td>1.3%</td>
<td>1.6%</td>
<td>0.5%</td>
</tr>
<tr>
<td>Hours are not convenient</td>
<td>6.3%</td>
<td>4.6%</td>
<td>3.5%</td>
<td>3.3%</td>
</tr>
<tr>
<td>Do not have time</td>
<td>1.2%</td>
<td>1.8%</td>
<td>1.7%</td>
<td>1.5%</td>
</tr>
<tr>
<td>Other ailments prevent dental care</td>
<td>1.3%</td>
<td>0.3%</td>
<td>0.1%</td>
<td>0.6%</td>
</tr>
<tr>
<td>Could not get into dentist/clinic</td>
<td>0.2%</td>
<td>0.8%</td>
<td>1.0%</td>
<td>0.1%</td>
</tr>
<tr>
<td>Other</td>
<td>3.9%</td>
<td>4.6%</td>
<td>2.7%</td>
<td>2.9%</td>
</tr>
</tbody>
</table>

Source: Behavioral Risk Factor Surveillance System, 2001-2011
In the U.S., 9 out of 10 individuals 20 years old and older have some degree of dental caries. Dental caries are almost entirely preventable with appropriate evidence-based strategies. Dental sealants are thin plastic coatings applied to the pits and fissures of teeth, which protect against dental caries. Sealants create a barrier between the tooth and the oral environment, protecting these difficult to clean parts of teeth from dental caries. Sealants are an oral public health best practice for all children with newly erupted molars at risk of dental caries. Kansas is improving in the prevalence of dental sealants on molar teeth in children. In 2004, 33.1 percent of Kansas third graders had dental sealants on their first permanent molars. The 2012 Smiles Across Kansas Survey indicates that the percentage of third graders with dental sealants has increased to 35.7 percent. Sealant data is also collected by the Kansas School Screening Program, which shows similar sealant prevalence (34.9%) for the 2011/2012 school year.

The school screening program collects data through passive consent, rather than active consent. This allows the Kansas School Screening Program to collect more data and provide greater representation of oral health status than the Smiles Across Kansas survey. Both the 2012 Smiles Across Kansas Survey and the 2011/2012 Kansas School Screening Program data surpass the Healthy People 2020 objective for dental sealants on third grade children (28.1%).

Among Kansas third graders, white students had the highest percentage with dental sealants (36.9%), followed closely by multi-racial students (36.6%) (Figure 9). While almost all of the races reported similar prevalence of dental sealants ranging from 33.3 percent to 36.9 percent of third graders, the prevalence among black third graders (23.4%) was significantly lower than the prevalence among white third grade students (36.9%) and falls short of the Healthy People 2020 objective for 6 to 9 year olds (28.1%). There was no significant difference in the prevalence of dental sealants on permanent molars between Hispanic and non-Hispanic third graders.

**Figure 9: Percent of Kansas 3rd Graders With a Dental Sealant on a Permanent Molar by Race, 2012**

<table>
<thead>
<tr>
<th>Race</th>
<th>Percent of 3rd Graders</th>
</tr>
</thead>
<tbody>
<tr>
<td>Whites</td>
<td>36.9%</td>
</tr>
<tr>
<td>Asians</td>
<td>33.3%</td>
</tr>
<tr>
<td>Blacks</td>
<td>23.4%</td>
</tr>
<tr>
<td>AI/AN*</td>
<td>33.3%</td>
</tr>
<tr>
<td>Multi-Racial</td>
<td>36.6%</td>
</tr>
<tr>
<td>Unknown†</td>
<td>13.3%</td>
</tr>
<tr>
<td>Data Not Available</td>
<td>34.0%</td>
</tr>
</tbody>
</table>

Source: 2012 Smiles Across Kansas
* - American Indian / Alaskan Native
† - Sample considered unreliable, numerator less than 20
For more than half a century, American communities have adjusted the natural levels of fluoride in community drinking water to a recommended level to reduce dental caries. Healthy People 2020 includes a national goal for 75 percent of citizens on public water systems to receive optimally fluoridated water. Kansas has 938 public water systems with 330 systems (35.2%) at optimal fluoridation. Not all systems are adjusted; some systems have naturally fluoridated water. Fluoridated systems serve 63.8 percent of the state’s population served by public water sources (Figure 12). This falls short of the statewide Healthy People 2020 objectives on water fluoridation (79.6%). Sedgwick county is home to the Wichita metro area, the largest city in Kansas (and the sixth largest city in the country) that does not fluoridate its community water supply. Considering that Sedgwick County has roughly 17.5 percent of the Kansas population, it will be very difficult for Kansas to achieve the Healthy People 2020 objective for water fluoridation if not all of Sedgwick County fluoridates its water supply.

Figure 10: Percent of Kansans (n= 2,853,118) Who Have Access to Optimally Fluoridated Water, 2013

- Population on public water with fluoride
- Population on public water without fluoride
- Population not on public water*

Source: Water Fluoridation Reporting System, U.S. Census
* - Fluoridation status unknown
References

Strengths and Assets

Strengths

The Kansas Dental Charitable Foundation (KDCF) was established in 2002 to provide funding and resources to improve oral health in Kansas. Since their inception, the foundation has provided $100,000 in grants targeted to small, community-based projects that focus on collaboration between community organizations. Each year, dentists in Kansas donate approximately $50,000 to the foundation’s annual campaign, which is used to grow the KDCF Endowment, a fund that now exceeds $300,000. The income generated from that trust, as well as other restricted gifts, are used to fund grants and scholarships to improve dental access in Kansas. Additionally, the KDCF has donated more than $7.5 million in dental care through its signature event, the Kansas Mission of Mercy. To date, more than 17,000 patients have been served thanks to the generous contributions of Kansas dentists, hygienists and dental assistants.

KDHE’s Bureau of Oral Health provides the following programs to improve oral health in Kansas: Fluoride Varnish Program, School Oral Health Screening Initiative, School Sealant Program and the Dental Club. The Fluoride Varnish Program encourages medical offices treating young children to promote good oral health to their patients. Kansas Medicaid reimburses medical providers who apply fluoride varnish to children during their well child exams. To help physicians integrate oral health screening, parent education and fluoride varnish into their office’s services to young children, this project is dedicated to medical office outreach and oral health education.

As part of the School Oral Health Screening Initiative dentists and dental hygienists in Kansas are providing dental screenings in their own local communities with school nurses sending the results home to parents and guardians. Thousands of children are being screened annually across Kansas. School nurses send the aggregated data to the Bureau of Oral Health and it is included in annual reports. School nurses express much appreciation and are thrilled the children are being screened, parents are being informed of obvious dental concerns, and children are referred to dental professionals for obvious care needed.

KDHE recently launched a state-wide public health program designed to reduce dental disease in Kansas children. The Kansas School Sealant Program partners with local dental professionals and schools to bring preventive oral health services to children that may have limited access to dental care. These school-based oral health programs treat low income and Medicaid enrolled children that have documented dental needs.

KDHE created a Dental Club for adolescent students from across Kansas to encourage them to pursue dentistry as a career and remain in Kansas to practice. Through this program students have an excellent opportunity to explore the professional responsibilities of dentists, dental hygienists, dental assistants and other dental related careers. As a result of being exposed to the dentistry world through this career catalyst program, the result should be a significant increase in the quantity and diversity of dental professionals from across the state.
Assets

- Dental Hubs – 18 Safety Net Clinics
  Across the State, with Dental Outreach
  Sites in Schools, Head Starts and Care
  Facilities

- KDHE Bureau Of Oral Health
  - School Sealant Program – 26% of
    high risk schools have a preventive
    dental program with in-school services
  - School Screening Program – 140,000
    children received an oral health
    screening in 2012
  - Research – coordination with Kansas
    University Medical Center to provide
    oral health data and analysis for public
    policy making

- Oral Health Kansas – statewide oral
  health coalition for advocacy

- Extended Care Permits – allow hygienists
  to work in community sites on those most
  in need
Injury and Violence

Injury and violence are among the leading causes of death and hospitalization in Kansas. Each year, about 1,600 Kansans die as a result of injury.\(^1\) Motor vehicle crashes, unintentional falls, firearms and unintentional poisonings are the leading causes of injury mortality in Kansas. Injury is responsible for more years of potential life lost in Kansas than cancer, heart disease or stroke. In fact, for people 1 to 44 years old, injury is the leading cause of death in Kansas.\(^1\) In the U.S., violence and injuries cost more than $406 billion in medical care and lost productivity each year.\(^2\)

It is common to consider injuries or accidents as random events. However, this implies that injuries are unpredictable and unpreventable. Injuries are preventable and, at the community level, are also predictable. Although injuries can be categorized in multiple ways—for example, where or how they occur—it is typical to categorize injuries in terms of mechanism and intent. Mechanism (or cause) typifies how the injury occurred—for instance, by motor vehicle, firearm, struck by an object or by falling. Intent is classified as unintentional or intentional (or, unknown or undetermined intent). While unintentional injuries often result as a form of rapid transfer of energy from object to person (e.g. being struck by a motor vehicle), intentional injuries are the result of intentional harm imposed upon one person by another (e.g. homicide), or upon oneself (e.g. suicide).

The public health approach to injury prevention is a process that involves identifying and defining the problem, identifying risk and protective factors, developing and testing prevention strategies, and assuring widespread adoption of effective
strategies. Rather than address single types of injury that occur to individuals on a one to one basis, broad causes and prevention solutions are the focus of injury prevention in public health. Instead of focusing on individuals and the treatment of individual injuries as they arise, it is the whole community, the community’s whole health, and community-level prevention that defines the public health approach. Sometimes, prevention at the community level involves changing the environment in which injuries occur—for example, installing traffic signals at intersections or requiring certain products to be fire safe. At other times, prevention at the community level involves education—such as informing school programs about preventing brain injuries, or providing information to guide changes in health policies or laws. Although the public health workforce may not always directly provide prevention services, public health agencies identify the important conditions and patterns that contribute to injury at the community level, and identify and leverage solutions through community partnerships to promote prevention.

References

Motor Vehicle Crashes

<table>
<thead>
<tr>
<th>HP 2020 Objective</th>
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<tbody>
<tr>
<td>Reduce motor vehicle crash-related deaths per 100,000 population</td>
</tr>
</tbody>
</table>

Introduction

Motor vehicle crash injuries and deaths and their associated costs are preventable. The Centers for Disease Control and Prevention (CDC) Injury Center supports proven, effective strategies for prevention such as graduated driver licensing (GDL) policies; child passenger safety laws, safety seat distribution and education programs; primary seat belt laws; enhanced seat belt enforcement programs; motorcycle and bicycle helmet laws; sobriety checkpoints; interlock ignition laws; and texting while driving laws.

During the 2000s, Kansas lawmakers and safety advocates focused on passing safety legislation targeting child passengers and young drivers. The major laws passed were the Child Passenger Safety Act, which went into effect in July 2006; Graduated Driver’s Licensing, which went into effect in January 2010; and the Primary Seat Belt Law, which went into effect June 2010. These legislative efforts, improvements to vehicle safety by manufacturers, and improvements to roadway safety by Kansas Department of Transportation (KDOT) may have contributed to noticeable changes in health measures during the this period.
Motor Vehicle Crash-Related Deaths

Trends

Between 2002 and 2011, the unintentional MVC age-adjusted death rate in Kansas decreased significantly from 19.5 deaths per 100,000 people (95% CI: 17.9-21.1) in 2002 to 13.4 deaths per 100,000 people (95% CI: 12.1-14.8) in 2011.\(^1\)

Unintentional Motor Vehicle Crash Death Rates by Year, Kansas 2002-2011

Source: 2002-2011 Kansas Vital Statistics, Bureau of Epidemiology and Public Health Informatics, KDHE.
Note: Rates are age-adjusted to the 2000 U.S. Standard population using the direct method.

Age and Gender

Between 2007 and 2011, the unintentional MVC death rate per 100,000 people in Kansas was highest among young adults between 15 and 24 years old (23.2; 95% CI 21.2-25.4) and adults 75 years old and older (75-84 years: 22.2; 95% CI: 18.7-26.2; 85+ years: 28.9; 95% CI: 23.2-35.6). During this period, the unintentional MVC age-adjusted death rate per 100,000 people was significantly higher among males (20.3; 95% CI: 17.9-21.1) compared with females (8.7; 95% CI: 8.0-9.4).\(^2\)

Unintentional Motor Vehicle Crash Death Rates by Gender, Kansas 2007-2011

Source: 2002-2011 Kansas Vital Statistics, Bureau of Epidemiology and Public Health Informatics, KDHE.
Note: Rates are age-adjusted to the 2000 U.S. Standard population using the direct method.

Race and Ethnicity

Between 2007 and 2011, the unintentional MVC age-adjusted death rate per 100,000 people was significantly lower among non-Hispanic Asians/Pacific Islanders (4.5; 95% CI: 2.3-9.3) in Kansas compared with other racial and ethnic groups.\(^2\)
Other measures

Non-fatal Motor Vehicle Crash Injuries

Between 2006 and 2010, there were 10,022 unintentional MVC hospital discharges (HD) in Kansas (age-adjusted rate: 71.1 MVC hospital discharges per 100,000 people). The age-adjusted MVC HD rate among males was significantly higher than females (87.6 vs. 54.5 MVC HD per 100,000 people, respectively). The MVC HD rate was highest among those between 15 and 24 years old (125.2 MVC HD per 100,000 people) compared with all other age groups.3

Between 2007 and 2009, there were 44,725 unintentional MVC emergency department visits (EDV) in Kansas (age-adjusted rate: 534.1 MVC EDV per 100,000 people). The age-adjusted MVC EDV rate among females was significantly higher than males (590.7 vs. 480.4 MVC EDV per 100,000 people, respectively). The MVC EDV rate was highest among those between 15 and 24 years old (1,156.3 per 100,000 people) compared with all other age groups.4

Seat Belt Use

Seat belt use is an effective and simple way to save lives while driving or riding in a car. The prevalence of Kansas adults 18 years old and older who always wear a seatbelt increased from 62.5 percent (95% CI: 60.7%-64.4%) in 1999 to 76.1 percent (95% CI: 74.7%-77.4%) in 2010.5 In 2010, the prevalence of people always using a seatbelt when driving or riding in a car was higher among Kansas females compared with males; lower among those between 18 and 24 years old compared with those between 35 and 44 years old; higher among college graduates compared with those with lower levels of educational attainment; and much lower among adults living in frontier counties compared with those living in urban counties.6

During the 2010/2011 school year, 8.1 percent of Kansas high school students in grades 9 through 12 never or rarely wore a seat belt when riding in a car driven by someone else.7

Drinking and Driving

Alcohol-impaired driving accounts for nearly one-third (31%) of all traffic-related deaths in the U.S..8 In 2010, 2.2% of all Kansans 18 years old and older reported that they had driven drunk during the past 30 days. The prevalence of drinking and driving during the past 30 days was four times higher among Kansas men compared with women; more than four times higher among those between 18 and 24 years old compared with those between 55 and 64 years old; and more than two times higher among those living in urban counties compared with semi-urban counties.6

During the 2010/2011 school year, nearly 1 in 4 (23.8%) Kansas high school students in grades 9 through 12 rode one or more times during the past 30 days in a car or other vehicle driven by someone who had been drinking alcohol and nearly 1 in 10 (8.7%) drove a car or other vehicle one or more times during the past 30 days when they had been drinking alcohol.7
Prevalence of Drunk Driving in the Past 30 Days and Always Using Seat Belt when Driving or Riding Among Kansans 18 years and older, Kansas 1999-2010


References

Older Adult Falls

<table>
<thead>
<tr>
<th>HP 2020 Objective</th>
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<tbody>
<tr>
<td>Prevent an increase in fall-related deaths among adults aged 65 years old and older</td>
</tr>
<tr>
<td>Target: 45.3 deaths per 100,000 population</td>
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</tbody>
</table>

**Introduction**

Falls happen throughout an individual's life. For example, falling is a part of the process that toddlers experience while learning to stand. However, some fall-related injuries can impact individuals' lives for the worse. A child who falls and suffers a traumatic brain injury (TBI) may unfortunately live with a resulting physical and/or mental impairment for the rest of his or her life. A senior citizen who falls may break a hip, a medical event from which he or she may never be able to fully recover. In 2010, fall-related deaths among Kansans 65 years old and older cost more than $34 million in medical and work loss expenses. Fortunately, fall injuries and deaths and their associated costs are preventable. The Centers for Disease Control and Prevention (CDC) Injury Center supports proven, effective strategies for fall-related injury prevention such as comprehensive, community-based fall prevention programs; motorcycle and bicycle helmet laws; playground safety; and use of window guards.

**Unintentional Older Adult Fall Deaths**

**Time Trends**

Between 2002 and 2011, the unintentional older adult fall death rate in Kansas increased significantly from 40.3 deaths (95% CI: 33.9-47.4 per 100,000 people) in 2002 to 70.3 deaths (95% CI: 62.1-79.2 per 100,000 people) in 2011.

![Unintentional Older Adult Fall Death Rates by Year, Kansas 2002-2011](chart)

Gender, Race and Ethnicity

Between 2007 and 2011, the unintentional older adult fall death rate per 100,000 people in Kansas did not differ significantly by gender or across racial and ethnic groups.²

Other Measures

Non-fatal Unintentional Older Adult Falls

Between 2006 and 2010, there were 29,515 unintentional fall hospital discharges (HD) among Kansans 65 years old and older (rate: 1,614.3 fall HD per 100,000 people). The unintentional older adult fall HD rate was significantly higher among Kansas females than males (2,015.8 vs. 1,064.5 fall HD per 100,000 people).²

Between 2007 and 2009, there were 38,645 unintentional fall emergency department visits (EDV) among adults 65 years old and older in Kansas (rate: 3,530.9 fall EDV per 100,000 people). The unintentional older adult fall EDV rate was significantly higher among females than males (4,169.9 vs. 2,648.6 fall EDV per 100,000 people).³

Prevalence of Adult Falls

In 2010, 17.2 percent of those 45 years old and older reported experiencing at least one fall in the past three months. Among those who reported experiencing at least one fall during the past three months, 29 percent reported an injury that limited regular activities for a day or necessitated a visit to a doctor. Among Kansans 45 years old and older, the prevalence of having at least one fall-related injury within the past three months was significantly higher among males (78.8%) compared with females (65.4%); Hispanics (86.8%) compared with non-Hispanics (70.6%); whites (71.7%) compared with African-Americans (47.8%); those with an annual household income of $50,000 or more (73.7%) compared with those with an annual household income less than $15,000 (49.8%); those who were unable to work (50.4%) compared with those who were employed for wages (74.5%); and those living with a disability (65.1%) compared with those living without a disability (77.3%).

References

2. 2006-2010 Kansas Hospital Discharge Database. Kansas Hospital Association.
Poisonings

<table>
<thead>
<tr>
<th>HP 2020 Objective</th>
<th>Target: 13.1 deaths per 100,000 population</th>
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<tbody>
<tr>
<td>Prevent an increase in poisoning deaths</td>
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</table>

**Introduction**

A poisoning is defined as an exposure to any extrinsic substance (solids, liquids or gases and natural or synthetic chemicals) by ingestion, inhalation, injection or absorption through the skin or mucous membranes that results in at least one related adverse clinical effect (sign, symptom or laboratory abnormality). Today, in Kansas and the broader U.S., the majority of fatal and non-fatal poisonings are drug-related. A drug is defined as any chemical compound that is chiefly used by or administered to humans or animals as an aid in the diagnosis, treatment or prevention of disease or injury; for the relief of pain or suffering; to control or improve any physiologic or pathologic condition; or for the feeling it causes. Drugs include prescription drugs and illicit drugs such as nonopioid analgesics (e.g., ibuprofen, acetaminophen and aspirin) and narcotics (e.g., morphine, heroin and hydrocodone).

**Poisoning Deaths**

**Time Trends**

Between 2002 and 2011, the age-adjusted poisoning death rate in Kansas increased significantly from 7.7 deaths (95% CI: 6.7-8.8 per 100,000 people) in 2002 to 11.7 deaths (95% CI: 10.4-13.1 per 100,000 people) in 2011.¹

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**Poisoning Death Rates by Year, Kansas 2002-2011**

![Graph showing poisoning death rates by year, Kansas 2002-2011]

Source: 2002-2011 Kansas Vital Statistics, Bureau of Epidemiology and Public Health Informatics, KDHE.

Note: Rates are age-adjusted to the 2000 U.S. Standard population using the direct method.
Age and Gender

Between 2007 and 2011, the poisoning death rate per 100,000 people in Kansas was highest among those between 45 and 54 years old (27.3; 95% CI 25.1-29.7). During this period, the age-adjusted poisoning death rate per 100,000 people was significantly higher among males (13.5; 95% CI: 12.7-14.4) compared with females (9.7; 95% CI: 9.0-10.5).²

Race and Ethnicity

Between 2007 and 2011, the age-adjusted poisoning death rate per 100,000 people was significantly lower among Hispanics in Kansas (5.7; 95% CI: 4.2-7.7) compared with other racial and ethnic groups.²
Non-Fatal Poisonings

Between 2006 and 2010, there were 12,967 poisoning hospital discharges (HD) in Kansas (age-adjusted rate: 93.6 poisoning HD per 100,000 people). The age-adjusted poisoning HD rate was significantly higher among Kansas females than males (108.4 vs. 79.1 poisoning HD per 100,000 people, respectively). The poisoning HD rate was highest among those between 35 and 44 years old (137.2 per 100,000 people) compared with all other age groups.3

Between 2007 and 2009, there were 13,668 poisoning emergency department visits (EDV) in Kansas (age-adjusted rate: 163.0 poisoning EDV per 100,000 people). The age-adjusted poisoning EDV rate was significantly higher among females than males (177.7 vs. 148.9 poisoning EDV per 100,000 people, respectively). The poisoning EDV rate was highest among those between 1 and 4 years old (568.7 poisoning EDV per 100,000 people) compared with all other age groups.4

References

Suicide

**HP 2020 Objective**

| Reduce the suicide rate | Target: 10.2 deaths per 100,000 population |

**Summary**

This section reviews suicide mortality data from the past decade. Time trends, demographic characteristics and causes are presented to articulate the burden of suicide in Kansas. The burden of non-fatal self-harm injury is also presented.

**Introduction**

In 2010, suicide was the 10th leading cause of death among Kansans of all ages. Aside from the emotional burden on families and communities, the cost of suicide in Kansas was nearly $500 million.\(^1\) Many believe that suicides are due to singular events or circumstances in a person’s life, but it is a complex issue and multiple approaches are needed to prevent suicide, including reducing risk factors and increasing protective factors that promote resilience. Risk factors for suicide include family history of suicide or child maltreatment, previous suicide attempts, history of mental disorders including clinical depression, history of alcohol and substance abuse and feelings of hopelessness.\(^2\) Protective factors include effective clinical care for mental, physical and substance abuse disorders; easy access to a variety of clinical intervention and support for help seeking; family and community support; and skills in problem solving, conflict resolution and nonviolent ways of handling disputes.\(^2\)

**Suicide Deaths**

**Time Trends**

Between 2002 and 2011, the age-adjusted suicide rate in Kansas remained relatively stable at around 13 deaths per 100,000 population.\(^3\)

![Suicide Rates by Year, Kansas 2002-2011](image)

Source: 2002-2011 Kansas Vital Statistics, Bureau of Epidemiology and Public Health Informatics, KDHE.

Note: Rates are age-adjusted to the 2000 U.S. Standard population using the direct method.
Age and Gender

Between 2007 and 2011, the suicide rate per 100,000 population in Kansas was highest among middle-aged adults 45 to 54 years old (20.9; 95% CI 19.0-23.0). During this time period, the age-adjusted suicide rate per 100,000 population was significantly higher among males (22.3; 95% CI: 21.2-23.5) as compared to females (5.1; 95% CI: 4.5-5.6).4

Race and Ethnicity

Between 2007 and 2011, the age-adjusted suicide rate per 100,000 population was significantly higher among non-Hispanic whites (14.5; 95% CI: 13.8-15.2) in Kansas as compared to other race/ethnic groups.4

Cause
Between 2007 and 2011, more than half (55%) of suicides in Kansas were caused by firearms; nearly 1 in 4 (22%) were caused by suffocation.4

Suicide Attempts
During a five year period from 2006 to 2010, there were 7,952 attempted suicide hospital discharges (HD) in Kansas (age-adjusted rate: 58.3 attempted suicide HD per 100,000 population). The age-adjusted attempted suicide HD rate was significantly higher among females than males (69.7 vs. 47.3 attempted suicide HD per 100,000 population, respectively). The attempted suicide HD rate was highest among those 15 to 44 years old (nearly 100 attempted suicide HD per 100,000 population) as compared to all other age groups.5

During a three year period from 2007 to 2009, there were 5,869 attempted suicide emergency department visits (EDV) in Kansas (age-adjusted rate: 70.8 attempted suicide EDV per 100,000 population). The age-adjusted attempted suicide EDV rate among females was significantly higher than males (83.1 vs. 59.2 attempted suicide EDV per 100,000 population, respectively). The attempted suicide EDV rate was highest among those 15 to 24 years old (200.3 per 100,000 population) as compared to all other age groups.

Suicide and Youth
During the 2010/2011 school year, slightly more than 1 in 10 (11.8%; 95% CI: 10.3-13.5%) Kansas high school students seriously considered attempting suicide during the previous year, and approximately 1 in 10 (9.9%; 95% CI: 8.2-11.9%) made a plan about how they would attempt suicide. Approximately 6 percent (5.9%; 95% CI: 4.6-7.6) reported actually attempting suicide one or more times during the past year.7

References
5. 2006-2010 Kansas Hospital Discharge Database. Kansas Hospital Association.
Traumatic Brain Injury

<table>
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<th>HP 2020 Objective</th>
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<tbody>
<tr>
<td>Reduce fatal traumatic brain injuries</td>
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<tr>
<td>Target: 15.6 deaths per 100,000 population</td>
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Introduction

Traumatic brain injury (TBI) is caused by a bump, blow or jolt to the head or a penetrating head injury that disrupts the normal function of the brain. Each year, TBIs contribute to a substantial number of deaths and cases of permanent disability in the U.S.\(^1\) On average, approximately 1.7 million people sustain a TBI each year in the U.S.\(^1\) In addition, TBI is a contributing factor to nearly 1 in 3 injury-related deaths. Although the majority of TBIs aren’t fatal, they can cause long-term health complications such as loss of function or permanent disability. Short-term effects of TBI include loss of consciousness, retrograde amnesia and changes in mental state. Long-term effects can include neurological/physical effects, including post-traumatic epilepsy, sensory deficit, impaired strength and coordination and pain; cognitive effects such as memory impairment, slowed processing speed, decreased intelligence and impaired executive functioning; and psychosocial/emotional effects, including rapid shifts in outward emotional expressions, social inappropriateness, mood swings, stress/anxiety and depression.

TBI-Related Deaths

Trends

Between 2002 and 2011, the age-adjusted TBI-related death rate in Kansas remained relatively stable around 18 deaths per 100,000 people.\(^2\)

Age and Gender

Between 2007 and 2011, the TBI-related death rate per 100,000 people in Kansas was highest among those 85 years old and older (107.1; 95% CI: 95.8-119.4). During this period, the age-adjusted TBI-related death rate per 100,000 people was significantly higher among males (29.2; 95% CI: 27.9-30.6) compared with females (9.5; 95% CI: 8.8-10.2).\(^3\)
Race and Ethnicity
Between 2007 and 2011, there were no significant differences in age-adjusted TBI-related death rates across racial and ethnic groups.³

Cause and Intent
Between 2007 and 2011, more than one-third (36%) of TBI-related deaths in Kansas were caused by firearms. An additional one-quarter were caused by suffocation (27%) and poisoning (26%), respectively.³

Between 2007 and 2011, more than half (61%) of TBI-related deaths in Kansas were unintentional. An additional one-third (31%) were suicides.³
Non-Fatal TBI

Between 2006 and 2010, there were 13,683 TBI-related hospital discharges (HD) in Kansas (age-adjusted rate: 93.6 TBI-related HD per 100,000 people). The age-adjusted TBI-related HD rate among males was significantly higher than females (120.9 vs. 66.8 TBI-related HD per 100,000 people, respectively). The TBI-related HD rate was highest among those 85 years old and older (582.1 TBI-related HD per 100,000 people) compared with all other age groups.4

Between 2007 and 2009, there were 34,406 TBI-related emergency department visits (EDV) in Kansas (age-adjusted rate: 405.5 TBI-related EDV per 100,000 people). The age-adjusted TBI-related EDV rate among males was significantly higher than females (454.1 vs. 352.8 TBI-related EDV per 100,000 people, respectively). The TBI-related EDV rate was highest among those less than 1 year old (1,006.8 per 100,000 people) compared with all other age groups.5

References

Unintentional Injury

HP 2020 Objective

| Reduce unintentional injury deaths | Target: 36 deaths per 100,000 population |

Introduction

Injury is the fifth leading cause of death in Kansas, and is also among the leading causes of hospitalization. About 1,600 Kansans die each year as the result of injury; about 1,100 of which are unintentional injuries. Although injuries can be categorized in multiple ways—for example, where or how they occur—it is typical to categorize injuries in terms of their mechanism and intent. Mechanism (or cause) typifies how the injury occurred—for instance, by motor vehicle, firearm, struck by an object or by falling. Intent is classified as unintentional or intentional (or unknown or undetermined intent). While unintentional injuries often result as a form of rapid transfer of energy from object to person (e.g. being struck by a motor vehicle), intentional injuries are the result of intentional harm imposed by one person upon another (e.g. homicide) or upon oneself (e.g. suicide).

Unintentional Injury Deaths

Trends

Between 2002 and 2011, the age-adjusted unintentional injury death rate in Kansas remained relatively stable around 40 deaths per 100,000 people.1

Unintentional Injury Death Rates by Year, Kansas 2002-2011

Note: Rates are age-adjusted to the 2000 U.S. Standard population using the direct method.
Age and Gender

Between 2001 and 2011, the unintentional injury death rate per 100,000 people in Kansas was highest among those 85 years old and older (362.9; 95% CI: 341.8-384.9). During this period, the age-adjusted unintentional injury death rate per 100,000 people was significantly higher among males (57.1; 95% CI: 55.3-58.9) compared with females (29.1; 95% CI: 27.9-30.3).2

Race and Ethnicity

Between 2007 and 2011, the age-adjusted unintentional injury death rate per 100,000 people was significantly lower among non-Hispanic Asians/Pacific Islanders (13.1; 95% CI: 8.4-20.3) in Kansas compared with other racial/ethnic groups.2
Non-Fatal Unintentional Injuries

Between 2006 and 2010, there were 67,803 unintentional injury hospital discharges (HD) in Kansas (age-adjusted rate: 451.6 unintentional injury HD per 100,000 people). The rate among males was significantly higher than females (453.8 vs. 430.5 injury HD per 100,000 people, respectively). The unintentional injury HD rate was highest among those 85 years old and older (4,798.8 per 100,000 people) compared with all other age groups.3

Between 2007 to 2009, there were 498,389 unintentional injury emergency department visits (EDV) in Kansas (age-adjusted rate: 5,941.9 unintentional injury EDV per 100,000 people). The rate among males was significantly higher than females (6,321.0 vs. 5,519.5 unintentional injury EDV per 100,000 people, respectively). The unintentional injury EDV rate was highest among those between 1 and 4 years old (10,235.0 per 100,000 people) compared with all other age groups.4

References

Strengths and Assets

Strengths

Motor Vehicle

Seatbelts Are For Everyone (SAFE) is a cooperative effort to increase teen restraint compliance through positive rewards and enforcement. SAFE works to raise awareness of the importance of wearing a seatbelt to reduce the number of motor vehicle related injuries and fatalities among Kansas teens. Currently, 88 schools (nearly 32,000 students) in 38 counties participate in the SAFE program. In 2012, average seatbelt usage across all participating schools increased by 8.3 percent.

Falls Prevention

To increase fall prevention KDHE works through partnerships to incorporate fall prevention messaging and interventions into existing programs. Thirty-five locations in Kansas are implementing the Arthritis Foundation’s Tai Chi for Health program, which is an evidence-based fall prevention strategy. In addition KDHE coordinates the Stepping On program that offers older adults a way of reducing falls by incorporating and discussing a range of issues that include falls and risks, strength and balance exercises, initiating a medication review, vision exams, home safety, safe footwear and what to do and how to cope after a fall. The Stepping On course consists of seven weekly classes that are each approximately two-hours in length, followed by a home assessment at three months, and a six month follow-up. The Stepping On course is offered regularly throughout Kansas.

Drowning Prevention

Safe Kids Kansas and its local coalitions have collaborated with the U.S. Army Corp of Engineers to construct and maintain personal flotation device (PFD) loaner boards at lakes across the state. The loaner boards display water safety tips and hold multiple sizes of PFDs that can be borrowed by the public. Safe Kids Kansas distributed 229 PFDs to individual children in 2011.

Traumatic Brain Injury

Kansas has several initiatives to reduce traumatic brain injuries including Cycle SMART, the School Sports Head Injury Prevention Act, the Kansas Sports Concussion Partnership and the Youth Sports Safety Campaign.

The Injury Prevention Program at KDHE and Safe Kids Kansas receive funding from the Kansas Department of Transportation (KDOT) and State Farm to support a bike helmet fitting/distribution program called Cycle SMART. This program has distributed more than 127,000 bike helmets since its inception and has been credited with saving 13 lives.

The Kansas Legislature passed the School Sports Head Injury Prevention Act in 2011 requiring an MD or DO to authorize a student athlete’s return to practice and play following a suspected concussion.

The Kansas Medical Society supports the Kansas Sports Concussion Partnership (KSCP) to make sports in Kansas safer. The partnership provides tools and guidelines outlining the signs and symptoms of a concussion and provides answers to specific questions for managing a student athlete’s recovery from a mild traumatic brain injury.

Safe Kids Kansas works with the KSCP to implement the Youth Sports Safety Campaign that educates stakeholders on hydration,
concentration prevention and detection, overuse injury prevention and pre-participation physical examinations. Safe Kids Kansas and two local coalitions held 10 clinics in Kansas in 2011 training nearly 300 participants.

**Poison Control**

The Poison Control Center hotline is available 24/7 anywhere in the state of Kansas and throughout the Kansas City metropolitan area. Toll free 1-800-222-1222.

Kansas Prescription Drug Monitoring Program (K-TRACS) was started to support the appropriate use of prescription drugs. The information is intended to help people work with their health care providers and pharmacists to determine what medications are best for them.

**Assets**

- Partners, coalitions and communities - Those working in injury prevention are very passionate and committed to the work
- Child passenger safety: Multi-sector approach has made a difference – excellent laws, good messaging, requiring car seats before going home from hospital, car seat safety checks, etc.
- Improved traffic safety laws, education and enforcement are reducing rates: Includes primary seat belt law, “Click It or Ticket,” improved graduated driver licensing system, and model enforcement by Kansas Highway Patrol and some police/sheriff departments
- Poison Control Center: Covers the entire state and has expertise in multiple areas (agricultural chemicals, drugs, spider bites, bioterrorism, etc.)
- Safe Kids Kansas
The Kansas Public Health System

The Kansas Public Health System represents a sophisticated network of state and local agencies, organizations and coalitions working to increase training opportunities for public health professionals, expand access to reliable data and deliver quality programs and services. These entities focus their efforts on issues that span the public health continuum, ranging from access to safe and affordable housing to implementation of electronic health records. While this decentralized system relies on a robust network of partnerships and assets to ensure a timely and adequate response to public health challenges, it’s critical the system undergoes routine assessment to review workforce capacity and readiness, levels of collaboration and gaps in critical services and programs.

Assessing System Readiness: The Kansas Public Health System Performance Assessment

Understanding the current limitations and opportunities inherent to the Kansas public health system is critical to the successful implementation of the state’s health improvement plan. To better understand the state of the current system, KDHE and seventy other system partners participated in the National Public Health Performance Standards Program (NPHPSP) State Assessment in 2012. The NPHPSP assessment is designed to evaluate the state’s current performance against a set of optimal standards. The assessment addresses the activities of all public, private and voluntary entities that contribute to the overall system. The process helps to identify strengths and weaknesses and determine opportunities for improvement.

Key Kansas public health system strengths identified through the assessment include the ability of the system to monitor health status to identify community health problems, diagnose and investigate health problems and health hazards and inform, educate and empower people about health issues. Areas for improvement include assuring a competent public and personal health care workforce, evaluating effectiveness, accessibility and quality of personal and population-based health services, and research for new insights and innovative solutions to health problems. For additional information about the NPHPSP and to access a copy of the Kansas report, visit the KDHE Center for Performance Management’s webpage at http://www.kdheks.gov/cpm/index.htm.
Ensuring an Adequate and Skilled Work Force: The Kansas Public Health Workforce Assessment

Beginning in the late spring 2014, Kansas will distribute and administer a Public Health Workforce Competency Assessment which is based on the “Council on Linkages Core Competencies for Public Health Professionals.” The process will assess skills desirable for the broad practice of public health in delivery of the Essential Public Health Services. One cohort of the assessment will be the state agency staff (Kansas Department of Health and Environment), with a second cohort of all staff members of all local public health agencies. Participation will be strongly encouraged but voluntary. Results will be distributed to participating agencies and will be used by academic and practice organizations to understand, quantify, assess and respond to training and workforce needs.

Linking System Partners to Improve Health: Kansas Public Health Systems Group

The Kansas Public Health System Group (PHSG) is a committee made up of senior-level representatives from non-profit, government and academic public health organizations. The Kansas Health Foundation began convening the committee more than a decade ago to provide a forum to improve communication among the organizations. The PHSG currently works to develop, coordinate and implement an integrated strategic plan that protects and promotes the health of Kansans. Recommendations stemming from this plan are presented to the Foundation annually to guide funding for the Foundation’s Public Health Practice program (PHPP). Grants from this program support public health workforce development and projects intended to improve system capacity to achieve PHAB Accreditation.

PHSG member organizations are also organized in several strategic public health initiatives: providing recommendations related to public health workforce, data and resources to support community health assessment and public health research and practice.

Kansas Public Health Workforce Development Coordinating Council

The Kansas Public Health Workforce Development Coordinating Council was formed in October 2003 and is a collaboration of public health professionals representing local public health agencies, KDHE, Kansas Association of Local Health Departments (KALHD), Kansas Public Health Association (KPHA), University of Kansas, Kansas State University, Wichita State University and others. The work of the group has focused on assessing the professional development and training needs of the state and local public health workforce, recruiting, and developing and delivering educational
strategies to support attainment of national public health standards. The Council is tasked with recommending and implementing workforce development recommendations for the Kansas Health Foundation Public Health Practice program.

**Kansas Health Matters/Kansas Partnership for Improving Community Health (Kan-PICH)**

Kan-PICH began in March 2011 as a public-private partnership to explore the value of creating a central site to house critical public health data and resources. Eight agencies representing multiple sectors convened to create and provide the vision and leadership for what would become Kansas’ most comprehensive online source of state-specific data and relevant health improvement resources (www.kansashealthmatters.org). As the partnership evolved and new partners were added, a strategic plan was developed, outlining new goals and objectives in the areas of governance, maintenance, sustainability, marketing and communication, and the partnership changed its name to Kansas Health Matters: A Partnership to Improve Community Health.

Nearly four years later, Kansas Health Matters is empowering communities, public health practitioners and health care providers to improve health by providing data, supporting assessment and identifying best practices through partnerships and collaboration.

**Kansas Practice Based Research Network (K-PBRN)**

The K-PBRN brings public health agencies together with academic research partners to identify pressing research questions of interest, design rigorous and relevant studies, execute research effectively and translate findings rapidly into practice. The network is coordinated by a lead agency and an executive committee which includes the Kansas Association of Local Health Departments, University of Kansas, Kansas State University, KDHE, Kansas Public Health Association and Kansas Health Institute.

While the K-PBRN is relatively young, its partners have a long history of working together through multiple shared projects. The goals of the K-PBRN include:

1. Identifying practice questions of interest to members.
2. Identifying and seeking funds to answer practice questions.
3. Conducting applied research to answer practice questions.
4. Translating research into practice (through active dissemination of research findings).
5. Adopting effective evidence-based practices.
6. Linking research activities and results with other accountability, performance management and quality improvement activities.
Overview of the Process

Promoting, protecting and ensuring the health of the public requires collective investment, action and state and broad community effort. As far back as the Roman Empire, public health measures involved the community-at-large and were a concern of the state as well as other institutions (e.g., churches, early medical facilities).

Through the ages and today, that tradition has lived on through the involvement of voluntary health organizations, foundations, academic institutions, civic organizations, health systems, schools, elected officials and an array of other public and private establishments in public health vision, planning, implementation and assessment. Each has an important role in public health, whether it is in: conducting research; developing, implementing and evaluating programs; educating the public; mobilizing individuals and groups to action; advocating for issues; reaching those at risk; monitoring trends; providing funding; and/or assessing policy decisions.

Public health practitioners have long recognized that optimizing impact truly relies on substantial investment in and ownership of a shared vision and plan for optimal health and well-being of a population. Public health at its very essence is what society as a whole can do to assure the health of its people (Institute of Medicine, 2003).

The Kansas Department of Health and Environment (KDHE) works with local public health systems, agencies and organizations across the state daily in fulfilling its role to promote and protect Kansans’ health. We are deeply sensitive to the importance of engaging our stakeholders and constituents in thoughtful deliberation and participatory planning to create and refine the Kansas Health Improvement Plan (KHIP) and to keep it on course with very clear destinations. We believe this inclusive process is our state’s guide for determining:

- What is most important to achieve to have the greatest impact on those most vulnerable (establishing priorities)
- How best to leverage resources; and
- Visible accountability in the form of measurable objectives – defining and committing to clearly understood roles and responsibilities in implementation and tracking progress toward accomplishing objectives.
The KHIP is our state’s road map, the collectively defined means and end to achieving measurable outcomes and targets for health outcomes that will have the greatest positive impact on Kansans in the next six years. The KHIP has been built upon our community assessment and Healthy Kansans 2020 themes and priorities, Kansas health assets and resources and evidence-based strategies to guide strategies, objectives and activities across the state. The measurable objectives are our targets and reaching them will mean that indeed the health of Kansans has improved. These objectives build upon current momentum and efforts across the state. The KHIP aligns with existing strategic plans and is designed to inspire partners to adopt agreed upon and clearly defined objectives and implement the evidence-based strategies to ensure the full positive impact of such objectives.

The KHIP is our state’s public health roadmap to our best near future – building on our successes, learning from what hasn’t worked well, tackling our biggest challenges and obstacles, especially those affecting Kansans who are among the most vulnerable, and effectively leveraging federal, state and local resources. KHIP reflects the hard work, focus and commitment of thousands of stakeholders who are dedicated to improving the health of all Kansans.
The Healthy Kansans HK 2020 Framework

Working together, working smarter to routinely connect state and local partners across disciplines and sectors to enhance implementation of innovative systems and strategies and improve individual and community well-being in Kansas by 2020.

Following the successful Healthy Kansans 2010 effort, the Healthy Kansans 2020 (HK 2020) process (see KHIP process section) engaged a group of stakeholders from across Kansas between August and November 2012 to produce the themes and priorities for the 2020 framework. Like all states, Kansas is experiencing a significantly changing landscape in health and health care and is benefiting from growing evidence about what is effective and efficient, which is even more necessary at a time when competition grows for increasingly scarcer resources.

The HK 2020 Steering Committee identified three cross-cutting themes -- Healthy Living, Healthy Communities and Access to Services. Healthy Living is focused on equipping Kansans to take an active role in improving their own health and supporting their families and friends in making healthy choices. Healthy Communities speaks to community members and their institutions working together to positively impact the natural as well as human-formed conditions that influence health and/or risk for injury. The Access to Services theme addresses Kansans' access to information and health and social services that can help them achieve better if not the best health outcomes possible.

Many factors impact morbidity and mortality. However, among the greatest opportunities for improving health outcomes is through the implementation of targeted strategies to address modifiable behaviors that are risk factors for many diseases – particularly with respect to physical activity, food choices and tobacco use. Thus, three of the five priority strategies for Healthy Living (HL) are to promote physical activity, healthy eating and tobacco use prevention and control. Another HL priority relates to equipping and incentivizing Kansans to participate in culturally appropriate health and wellness programs and health care. The final HL strategic priority focuses on improving supports for the social and emotional development of children and families, which are critical elements of health and wellness.
The Healthy Communities (HC) priority strategies build upon the HL priorities recognizing that environmental context impacts individual lifestyle choices and behaviors. Thus, the three HC priorities relate to norms, policies and environmental changes that support safe and healthy lifestyles. The first strategy relates to promoting access to healthy foods and supporting policies that promote healthy food choices. The second strategy more broadly supports policies and focuses on making the default choice the healthy choice; that is, choices requiring less effort are more likely to be the healthier choices. The third strategy relates to community design and environments that positively impact health and support healthy behaviors.

The social determinants of health are addressed in the first strategy in the Access to Health (AH) cross-cutting theme which is to improve access to services that address the root causes of poor health. The second AH strategy addresses technology and the opportunity to support population health improvement through effective and efficient use of health information technology. And, finally the third strategy concerns another important underlying issue in health – promoting integrated health care, including integrated behavioral health, social services and medical care.
Using the HK 2020 Framework

The Healthy Kansans 2020 Framework provides organizations a common set of strategies on which to develop or enhance their existing efforts to address critical public health issues. The Kansas Medicaid Program and the ongoing work of the tribal nations in Kansas to complete health assessments and improvement plans provide two examples of how organizations are using the framework to drive health improvement initiatives.

The KanCare Experience

The Kansas Medicaid Program (KanCare) engaged the HK 2020 Steering Committee and other key partners to explore opportunities to align a Medicaid demonstration project, the Delivery System Reform Incentive Payment Pool (DSRIP), with the strategies identified through the HK 2020 process. Created through the approval of a Section 1115 Demonstration Waiver for KanCare, the DSRIP pool allows certain hospitals to receive special payments from KanCare for participating in reform projects that widely benefit the health care delivery system. The payments are tied to meeting specific project milestones during a five-year demonstration period, which contributes to better care for individuals, better health for the population and lower cost through improvement.

An early step in the process to implementing DSRIP required KanCare to identify project focus areas for the DSRIP Pool, which then required approval by the federal Centers for Medicare and Medicaid Services (CMS). To develop DSRIP focus areas, the DSRIP project team (which includes state and hospital staff) collaborated with the HK 2020 Steering Committee to utilize the Healthy Kansans process and framework. As a result, each of the proposed focus areas of DSRIP is a translation of the HK 2020 priority strategies. Although not every priority strategy is reflected as a focus area, KanCare worked to include as many of these priority strategies as possible and practical.

The Tribal Health Summit

In 2013, the Healthy Kansas Tribes 2020 Summit was held at the Prairie Band Casino & Resort in Mayetta, Kansas. The Summit was attended by approximately 50 participants representing the four tribes of Kansas, including tribal chairpersons.
Steve Ortiz, Prairie Band of Potawatomi Nation; Steve Cadue, Kickapoo Tribe in Kansas; Tim Rhodd, Iowa Tribe of Kansas; Sam Brownback, Governor of Kansas; Dr. Robert Moser, Secretary of KDHE; Stephene Moore, Director of the Region VII U.S. Department of Health and Human Services; Diddy Nelson, Executive Director at the Oklahoma City Area Inter-Tribal Health Board (OCAITHB); and Tom Anderson, Tribal Epidemiology Center Manager, OCAITHB. The summit provided tribal leaders an opportunity to discuss critical health issues, challenges and opportunities that exist within their individual nations and together as four tribal nations.

Summit participants were introduced to the HK 2020 Framework and learned about the state’s health assessment and improvement process. The framework provided a foundation on which tribes could begin their discussions and work to identify their own health priorities. Tribes left the summit ready to begin the health assessment process within their own communities and knowledgeable of how their efforts could align with the work of other tribal nations and the state.
The Plan

In 2014, the HK 2020 steering committee and state and local stakeholders completed a nearly three-year process to conduct a state health assessment and develop a state health improvement plan. The plan that follows is the result of countless in-person and virtual meetings by hundreds of participants from across the state who sorted and analyzed data, researched best practices and evidence-based strategies and reviewed current assets and strengths in addressing the leading public health challenges in Kansas. The improvement plan is organized around three common themes: Healthy Living, Healthy Communities and Access to Services. With five priority strategies, 15 objectives and more than 50 partner driven activities, the state health improvement plan positions the state to make measurable gains in improving the health of Kansans by 2020.

Healthy Living

Many of the leading causes of morbidity and mortality in Kansas relate to chronic diseases in which individual lifestyles impact risk factors – particularly tobacco use, insufficient physical activity and unhealthy food choices, and the combination thereof.

The Expert Workgroup on Lifestyle Behaviors made several recommendations to the HK 2020 Steering Committee to equip Kansans to take an active role in improving their (individual) health and supporting their families and friends in making healthy choices. Key recommendations were to implement evidence-based and promising interventions that address lifestyle behaviors in a coordinated and systematic fashion, and to build on the exceptional coalitions and councils in Kansas that focus on tobacco use, healthy eating and physical activity. The Expert Workgroup further acknowledged that individuals do not make choices in isolation of the environments in which they live, thus the Healthy Living strategies are closely aligned and link to the Healthy Community strategies.

Priority Strategy One - Promote Physical Activity and Health Eating

Physical inactivity and poor nutrition are the 2nd leading causes of premature death in Kansas. These modifiable risk behaviors have led to the doubling of the rates of obesity in Kansas since 1980 and a significantly higher prevalence of certain chronic conditions such as diabetes,
coronary artery disease and hypertension. Currently, 2 out of every 3 Kansas adults and 1 in 4 youth are overweight or obese, accounting for more than $1.3 billion in annual medical expenditures in Kansas of which $385 million is paid by Medicaid and Medicare.²,³,⁴

Physical activity and healthy eating are known to be protective factors against obesity and many chronic conditions. However, only 16.5 percent of Kansas adults met the physical activity guidelines for aerobic and strengthening activity.² Rates of physical activity are also low in Kansas youth with only about 30 percent of 9th to 12th grade students meeting the physical activity guidelines of 60 minutes of physical activity per day, 7 days a week.³

Individuals with access to healthy foods-farmers’ markets, produce stands and/or stores with a high level of healthy selections-had a greater odds of consuming at least one serving of vegetables per day.⁵ Research has found a positive association between eating out and body weight/percentage of body fat.⁶ Fast-food consumers consistently underestimate the calories, and overestimate the healthfulness of menu items. A study by Burton et al. found that 9 out of 10 people underestimated the number of calories of less-healthy menu items by an average of more than 600 calories.⁷ If patrons consumed 600 more calories than they realized for only 1 restaurant meal per week, an extra 30,000 calories a year would be added to their diets. These extra calories could cause a weight gain of approximately 9 pounds annually.

The following table summarizes the goals, objectives and activities proposed by Healthy Kansans 2020 stakeholders to promote healthy eating and physical activity in Kansas. Performance indicators are included to monitor progress toward stated objectives. Examples of activity outputs are also included to guide partners in evaluating activity implementation at the local level.
<table>
<thead>
<tr>
<th><strong>Goal</strong></th>
<th>Increase access to healthy foods</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Objective</strong></td>
<td>Increase local food sourcing</td>
</tr>
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</table>

<table>
<thead>
<tr>
<th><strong>Performance Indicators</strong></th>
<th><strong>Outputs</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>By 2020, increase the number of farmers’ markets per 100,000 state residents to 5. (Baseline: 3.4 in 2012; Source: USDA Farmers Market Directory)</td>
<td>Number of new farmers’ markets established, number of farmers’ markets that have expanded their operating hours and/or reach via satellite markets</td>
</tr>
<tr>
<td>By 2020, increase the number of state and local food policy councils to 40. (Baseline: 0 state, 1 local in 2011; Source: Johns Hopkins Bloomberg School of Public Health, Food Policy Network, Food Policy Council Directory)</td>
<td>Number of EBTs in use at farmers’ markets, proportion of EBT users who shop at farmers’ markets</td>
</tr>
<tr>
<td>By 2020, increase the percent of Kansas middle schools and high schools that have planted a school food or vegetable garden to 22%. (Baseline: 13% in 2012; Source: School Health Profiles, Principal Survey Q35 in 2012 and 2014)</td>
<td>Number of farmers’ markets promoting safe food handling practices through signage and handouts</td>
</tr>
</tbody>
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<table>
<thead>
<tr>
<th><strong>Activities</strong></th>
<th><strong>Outputs</strong></th>
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</thead>
<tbody>
<tr>
<td>Establish new and expand existing farmers’ markets</td>
<td>Number of new state and local food policy councils established</td>
</tr>
<tr>
<td>Promote and support access to and use of Electronic Benefits Transfers (EBT) in farmers’ markets</td>
<td>Number of new farm-to-school and farm-to-institution programs and policies</td>
</tr>
<tr>
<td>Promote safe food handling practices (focus on fruits and vegetables) at farmers’ markets</td>
<td>Number of new school and community garden initiatives</td>
</tr>
<tr>
<td>Establish and support state and local food policy councils</td>
<td>Number of eligible individuals enrolled in food programs</td>
</tr>
<tr>
<td>Promote and support farm-to-school and farm-to-institution programs and policies</td>
<td>Number of communities that have conducted a local food assessment</td>
</tr>
<tr>
<td>Promote and support school and community garden initiatives</td>
<td>Communication campaign materials developed, number of media impressions</td>
</tr>
<tr>
<td>Expand enrollment in the Senior Farmers’ Market Nutrition Program</td>
<td>Number of nutrition surveillance reports created, number of partners to whom surveillance reports are disseminated</td>
</tr>
<tr>
<td>Conduct local food assessments</td>
<td></td>
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<tr>
<td>Develop and implement a large-scale communication campaign to promote healthy food choices</td>
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<tr>
<td>Monitor consumption patterns by demographics to inform education efforts</td>
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<tr>
<td>Goal</td>
<td>Increase access to healthy foods (continued)</td>
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<tr>
<td>------------------------------------------</td>
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</tr>
<tr>
<td><strong>Objective</strong></td>
<td>Increase the number of school districts that implement “modeling level” policies for nutrition and nutrition education promotion</td>
</tr>
<tr>
<td><strong>Performance Indicators</strong></td>
<td>By 2020, increase the number of public and private school districts that achieve “modeling level” for at least 1 component of the 6 nutrition wellness guidelines categories to 150. (Baseline: TBD; Source: KSDE School Wellness Policy Tracker)</td>
</tr>
<tr>
<td></td>
<td>By 2020, increase the number of public and private school districts that achieve “modeling level” for at least 1 of the 3 nutrition promotion, nutrition education and integrated school wellness guidelines categories to 150. (Baseline: TBD; Source: KSDE School Wellness Policy Tracker)</td>
</tr>
<tr>
<td><strong>Outputs</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Activities</strong></td>
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</tr>
<tr>
<td>Implement and promote the online school wellness policy tracker</td>
<td>Policy tracker implemented, training opportunities and technical assistance to using the policy tracker provided, number of schools using KSDE online wellness policy tracker</td>
</tr>
<tr>
<td>Promote use of the new model school wellness policy guidelines in all Kansas schools</td>
<td>Number of schools receiving technical assistance and professional development on new wellness policy guidelines</td>
</tr>
<tr>
<td>Develop and implement district wellness councils</td>
<td>Number of districts receiving technical assistance and professional development on developing new or recharging existing district wellness councils</td>
</tr>
<tr>
<td>Adopt district wellness policy guidelines for planned implementation around nutrition and nutrition education and promotion</td>
<td>Number of districts who have adopted wellness policy guidelines to support nutrition and nutrition education and promotion</td>
</tr>
</tbody>
</table>
### Goal
Increase access to healthy foods (continued)

<table>
<thead>
<tr>
<th>Objective</th>
<th>Increase support for policies and programs that expand access to healthy foods in worksites, and early childcare settings</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Performance Indicators</th>
<th>By 2020, increase the number of worksites that develop and/or adopt healthy food as part of their food service guidelines in cafeterias, vending and/or snack bars to 60. (Baseline: 10 in 2013; Source: WorkWell KS Worksite Wellness Assessment)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>By 2020, increase the percentage of early childcare providers that have developed written policies on child nutrition to 20%. (Baseline: TBD; Source: Child Care Aware of Kansas - Nutrition and Physical Activity Self-Assessment for Child Care (NAPSACC))</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Outputs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Promote nutrition standards and guidelines for foods served in public places</td>
</tr>
<tr>
<td>Implement healthy food procurement policies at worksites</td>
</tr>
<tr>
<td>Implement best practices and evidence-based approaches to increasing access to healthy foods in early childcare settings</td>
</tr>
<tr>
<td>Promote safe food handling practices at worksites</td>
</tr>
<tr>
<td>Educate decision makers on evidence-based interventions to increase access to healthy foods</td>
</tr>
<tr>
<td>Expand enrollment in the Commodity Supplemental Food Programs (CSFP)</td>
</tr>
<tr>
<td>Increase access to the Summer Food Service Program for children</td>
</tr>
<tr>
<td>Promote practices supportive of breastfeeding in worksites and early childcare and education settings</td>
</tr>
</tbody>
</table>
### Promote Healthy Eating and Physical Activity

<table>
<thead>
<tr>
<th>Goal</th>
<th>Increase access to healthy foods (continued)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Objective</td>
<td>Reduce infections caused by key pathogens transmitted commonly through food</td>
</tr>
<tr>
<td>Performance Indicators</td>
<td>By 2020, increase the number of establishments that have a fulltime certified food protection manager on staff to TBD. (Baseline: TBD; Source: Kansas Department of Agriculture, Division of Food Safety and Lodging)</td>
</tr>
<tr>
<td></td>
<td>By 2020, increase the number of local jurisdictions that require food establishments to have a fulltime certified food protection manager on staff to TBD. (Baseline TBD; Source: Kansas Department of Agriculture, Division of Food Safety and Lodging)</td>
</tr>
<tr>
<td></td>
<td>By 2020, reduce the incidence of Shiga-toxin Escherichia coli (STEC) to 0.6 per 100,000, and the incidence of infections caused by Salmonella to 11.4. These infections are commonly transmitted through food. (Baseline: TBD; Source: Kansas Department of Health and Environment, Infectious Disease Surveillance)</td>
</tr>
<tr>
<td>Outputs</td>
<td>Enhance education and outreach to improve food-handling practices</td>
</tr>
<tr>
<td>Activities</td>
<td>Number of food establishments that have a certified food protection manager on staff that have completed an accredited or approved program</td>
</tr>
<tr>
<td></td>
<td>Strengthen collaboration among internal and external stakeholders to prevent foodborne illness</td>
</tr>
<tr>
<td></td>
<td>Number of local health jurisdictions that require food establishments to maintain a fulltime certified food protection manager on staff</td>
</tr>
<tr>
<td></td>
<td>Implement effective policies to respond to existing and emerging risks</td>
</tr>
<tr>
<td></td>
<td>Incidence per 100,000 infections with Salmonella and STEC</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Goal</th>
<th>Increase opportunities for physical activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Objective</td>
<td>Increase number of school districts that implement “modeling level” wellness policies for physical activity</td>
</tr>
<tr>
<td>Performance Indicator</td>
<td>By 2020, increase the number of public and private school districts that achieve the “modeling level” for a minimum of at least 1 of each of the 5 physical activity wellness guidelines categories to 150. (Baseline: TBD; Source: KSDE School Wellness Policy Tracker)</td>
</tr>
<tr>
<td>Outputs</td>
<td>Promote and support schools in adopting practices to incorporate fitness testing into physical education programs.</td>
</tr>
<tr>
<td>Activities</td>
<td>Number of schools trained on and actively participating in K-FIT (through June 2015)</td>
</tr>
<tr>
<td></td>
<td>Promote and support schools in adopting practices to implement opportunities for physical activity before, during and after school.</td>
</tr>
<tr>
<td></td>
<td>Number of schools trained on and actively participating in LMAKS (through June 2015)</td>
</tr>
<tr>
<td>Goal</td>
<td>Increase opportunities for physical activity (continued)</td>
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</tr>
<tr>
<td>Activities continued</td>
<td>Promote and support school district adoption of wellness policy guidelines for planned implementation around physical activity</td>
</tr>
<tr>
<td></td>
<td>Promote and support active transport policies and programs, including walk to school, walking school bus, and Safe Routes to Schools, etc.</td>
</tr>
<tr>
<td>Objective</td>
<td>Increase opportunities for physical activity in worksites, early childcare settings and communities</td>
</tr>
<tr>
<td>Performance Indicators</td>
<td>By 2020, increase the percentage of early childcare providers that have developed written policies on physical activity to 20%. (Baseline: TBD; Source: Child Care Aware of Kansas - Nutrition and Physical Activity Self-Assessment for Child Care (NAPSACC))</td>
</tr>
<tr>
<td></td>
<td>By 2020, increase the number of worksites that implement strategies to increase physical activity to 250. (Baseline: 59; Source: 2013 WorkWell Kansas Assessment)</td>
</tr>
<tr>
<td>Outputs</td>
<td>Promote physical activity through worksite initiatives and incentives</td>
</tr>
<tr>
<td>Activities</td>
<td>Implement best practices and evidence-based approaches to increasing physical activity in early childcare settings</td>
</tr>
</tbody>
</table>

References

Priority Strategy Two - Promote Prevention and Control of Tobacco Use

Nationally and in Kansas, tobacco use is the leading underlying cause of death and is associated with heart disease, stroke, cancer, chronic lung diseases and other conditions. Cigarette smoking is the primary driver of tobacco-related morbidity and mortality, although other tobacco products are also associated with disease. About 3,900 Kansans die each year from cigarette smoking and smoking costs the state Medicaid program approximately $196 million per year.\(^1\) The state spends nearly $1 million each year to prevent smoking, but this is dwarfed by the estimated $70.7 million spent each year by the tobacco industry to market their products in Kansas.\(^2\)

Commensurate with its long history and prominence as the primary driver of chronic disease and death for the past few decades, there are a variety of evidence-based strategies available to reduce tobacco use. The Surgeon General’s 2014 report, The Health Consequences of Smoking – 50 Years of Progress, celebrates and summarizes this history. It ends with a call to end the tobacco epidemic by extending proven programs and policies to make smoking less accessible, less affordable and less attractive, while also offering support to everyone who wants to quit by providing affordable cessation resources. A comprehensive state tobacco control program does all these things.

All the facets of a state comprehensive tobacco control program are authoritatively defined by the Centers for Disease Control and Prevention’s (CDC) Best Practices for Comprehensive Tobacco Control Programs (2014). The components of a comprehensive tobacco control program are:

1. State and community programs and policies that contribute to changing social norms
2. Mass-reach health communication interventions
3. Cessation interventions
4. Surveillance and evaluation
5. Infrastructure, administration and management

The degree to which a comprehensive tobacco control program is funded is strongly associated with its effectiveness. That is, states that have made larger investments in comprehensive tobacco control programs have seen larger declines in cigarette sales, and the prevalence of smoking among adults and youth has declined faster as spending for tobacco control programs has increased.\(^3,4,5\)

To end the tobacco epidemic, Kansas will follow the example set by the Surgeon General and implement a comprehensive tobacco control program to the extent possible with available funding while seeking to demonstrate its value to decision-makers. Successful implementation will rely on engaging a broad base of state and local partners and stakeholders, including local health departments, medical providers (primary care, dental, mental health, etc.), the American Heart Association and American Cancer Society, city and county planners and housing boards, state and local school boards, college and universities.

The following table summarizes the goals, objectives and activities proposed by Healthy Kansans 2020 stakeholders to promote tobacco use prevention and control in Kansas. Performance indicators are included to monitor progress toward stated objectives. Examples of activity outputs are also included to guide partners in evaluating activity implementation at the local level.
## Promote Prevention and Control of Tobacco Use

<table>
<thead>
<tr>
<th>Goal</th>
<th>Implement a comprehensive state tobacco control program with extensive evidence-based programming at the local and regional levels</th>
</tr>
</thead>
<tbody>
<tr>
<td>Objective</td>
<td>Prevent initiation of tobacco use among young people</td>
</tr>
</tbody>
</table>

### Performance Indicators

| By 2020, increase the percentage of schools that prohibit all tobacco use at all times in all locations to 75%. *(Baseline: 48%; Source: 2012 SHP)* |
| By 2020, decrease the percentage of high school students that smoked a whole cigarette for the first time before age 13 to 7%. *(Baseline: 9.7%; Source: 2011 YRBS)* |
| By 2020, decrease the percentage of high school students that have ever tried smoking a cigarette, even one or two puffs to 20%. *(Baseline: 41.3%; Source: 2011 YRBS)* |

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<th>Outputs</th>
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<tbody>
<tr>
<td>Activities</td>
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<tr>
<td>Implement comprehensive tobacco-free grounds policies in Kansas schools, colleges and universities</td>
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</table>

### Objective

| Protect Kansans from exposure to secondhand smoke |
| By 2020, maintain the proportion of population covered by laws that protect Kansans from secondhand smoke in public places. *(Baseline: 100%; Source: 2010 KICAA)* |
| By 2020, increase the number of CDRR grantees pursuing expanded smoke-free housing in their jurisdiction to 5. *(Baseline: 1; Source: 2011 CDRR Grant Reporting)* |

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<th>Outputs</th>
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<tr>
<td>Activities</td>
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### Objective

<p>| Promote and facilitate tobacco use cessation |
| By 2020, increase the percentage of Kansas adult smokers that quit smoking cigarettes for one day or longer because they were trying to quit smoking to 65%. <em>(Baseline: 55.5%; Source: 2011 BRFSS)</em> |
| By 2020, increase the number of Kansas Tobacco Quitline registrations by tobacco users who heard about the Quitline from a health care provider to 1,500. <em>(Baseline 713; Source: CY 2011 Alere QEE)</em> |</p>
<table>
<thead>
<tr>
<th>Goal</th>
<th>Implement a comprehensive state tobacco control program with extensive evidence-based programming at the local and regional levels (continued)</th>
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<tbody>
<tr>
<td><strong>Outputs</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Activities</strong></td>
<td>Implement quality improvement processes related to tobacco use and cessation</td>
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<tr>
<td></td>
<td>Develop and implement a large scale, counter marketing communication campaign to promote tobacco cessation.</td>
</tr>
<tr>
<td><strong>Objective</strong></td>
<td>Implement tobacco surveillance and evaluation activities to demonstrate program value</td>
</tr>
<tr>
<td><strong>Performance Indicators</strong></td>
<td>By 2020, increase tobacco control funding for implementing strategies from CDC’s Best Practices for Tobacco Control. (Baseline: $1 million; Source: 2011 State budget)</td>
</tr>
<tr>
<td></td>
<td>By 2020, maintain and expand use of the surveillance instruments supported by KDHE that assess statewide population tobacco and nicotine use behavior (Baseline: 4 (BRFSS, YTS, YRBS, Birth Records) in 2011; Source: KDHE)</td>
</tr>
<tr>
<td><strong>Outputs</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Activities</strong></td>
<td>Educate decision makers on the true health benefits of decreased tobacco use (e.g. uptake by youth, cessation, reduced emergency room visits for asthma, reduction in cancer, heart attacks)</td>
</tr>
<tr>
<td></td>
<td>Educate decision makers on the economic impact of reduced use of tobacco at the population level (e.g. impact of price increase, savings from uncompensated care, revenue change)</td>
</tr>
<tr>
<td></td>
<td>Monitor usage trends and health impact of tobacco use by demographics (including age, geographic location, income, education, race, ethnicity)</td>
</tr>
</tbody>
</table>

**References**

Healthy Communities

The environments in which Kansans’ live, work, study, socialize, worship, and play all impact their health and well-being each and every day. Improving features of the built environment that normalize physically active lifestyles and healthful diets is an integral component of any public health initiative geared towards slowing the rise of obesity and chronic conditions associated with unhealthy lifestyles and improving quality of life. When healthy foods are close at hand, fluoridated water comes out of the faucet, or trails or sidewalks allow safe and convenient walking, there is little effort on the part of the individual to make healthy choices or engage in healthy behaviors.

The health improvement plan’s Healthy Communities strategies, objectives, activities and outputs address environmental health and community design models that support healthy behaviors to positively impact health. The Healthy Communities strategies, objectives, activities and outputs specifically address such matters as clean air, access to quality drinking water, recycling, and use of best practices to address safe housing and community design (e.g., trails, roadways). A focus on healthy communities embraces a broad spectrum of stakeholders including families, faith-based organizations, schools, parks and recreation, law enforcement, businesses, philanthropy, health care, academia, and many others. Implementation of these strategies requires multiple sectors and a diverse partnership to change policies, norms, messages and behavior leading to environmental changes.

Priority Strategy Three - Promote Environments and Community Design that Impact Health and Support Healthy Behaviors

The World Health Organization defines environment as: “all the physical, chemical, and biological factors external to a person, and all the related behaviors.” The built environment and how communities are designed impacts levels of physical activity, access to resources and social networks. A study published in the American Journal of Public Health showed that using active forms of transportation for just 20 minutes per day reduced the burden of cardiovascular disease and diabetes and reduced greenhouse gas emissions by 14 percent.

Poor outdoor and indoor air quality can impact cardiovascular and/or respiratory health and has been linked to premature death and cancer. Contaminated water supplies can lead to mild to severe illness. Therefore establishing standards and monitoring both air and water quality is critical to prevent disease and improve health.

Regulations on pollution, in particular particulate matter, may provide the greatest benefit to public health. Near roadway pollution from particulate matter and gases may enhance systemic vascular toxicity. During the 1996 Olympics in Atlanta, Georgia, traffic counts decreased by 22.5 percent and as a result, peak daily ozone concentrations decreased by 28 percent and daily asthmatic “events” decreased by 42 percent.

A strong correlation also exists between indoor air pollution and respiratory illnesses and increased risk for asthma. LEED Platinum Certified buildings (also referred to as “green housing”) positively impacts human health by decreasing daily respiratory symptoms and asthma episodes that can impact work and school. Healthy Homes initiatives have also been shown to be effective at decreasing asthma symptoms and urgent care visits.
Community design features that promote active living and healthy eating - wide sidewalks with buffer zones, bike lanes, narrower streets with fewer lanes, walking and biking destinations, farmers’ markets, corner produce markets, attractive stairways, accessible recreation areas, trail systems that connect with urban pathways – can normalize daily healthy behaviors. Healthy community design also impacts the economic viability of a community. Recent studies on the millennial generation (born between 1982 and 2003), a group that is currently driving trends, show that this group is highly multimodal and choose to live in places where they can drive, use public transit, bike or walk, based on the trip.11

The Institute of Medicine (IOM) recommends enhancing the physical and built environment as a key strategy for obesity prevention.12 When active forms of transportation are used on a regular basis, physical activity levels and energy expenditure increase and fitness measures are improved.13,14,15 Active transport to school, in particular, has the potential for preventing obesity, is a low-cost strategy for increasing daily moderate to vigorous physical activity (MVPA) and has been shown to lead to reduced adiposity.15

In 2007, the Kansas Department of Health and Environment partnered with the Kansas Recreation and Parks Association and the Kansas Department of Wildlife and Parks to host the first Built Environment and the Outdoors Summit. The original goal of this conference, now in its 8th year, was to connect trails systems with urban and rural pedestrian and bicycling infrastructure and to highlight the importance of community design for active living. Since 2007 the summit committee has expanded its partnership and the focus area to include community design that supports access to healthy food and address disparate populations. Local community members were able to attend these summits and as a result began incorporating healthy community design concepts into grant applications available through the KDHE CDRR program and the KHF Healthy Communities Initiative.

The following table summarizes the goals, objectives and activities proposed by Healthy Kansans 2020 stakeholders to promote healthy environments and community design that support healthy behaviors. Performance indicators are included to monitor progress toward stated objectives. Examples of activity outputs are also included to guide partners in evaluating activity implementation at the local level.
## Promote Healthy Environments and Community Design to Support Healthy Behaviors

<table>
<thead>
<tr>
<th>Goal</th>
<th>Promote healthy environments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Objective</td>
<td>Increase the number of communities that are meeting environmental performance measures.</td>
</tr>
</tbody>
</table>

### Performance Indicators

<table>
<thead>
<tr>
<th>Year</th>
<th>Indicator</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>2020</td>
<td>By 2020, decrease the incidence of confirmed elevated blood lead levels (at or above 10 µg/dL) among children born in the same year and tested before age 3 by half. (Baseline: 6.3/1,000; Source: Kansas Environmental Public Health Tracking Program 2008 cohort)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>By 2020, increase the number of public water supplies that do not exceed MCL (maximum contaminant level) set by EPA for arsenic, uranium and nitrate by 10%. (Baseline is 75%; percent; Source: KDHE water program)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>By 2020, increase the percentage of Kansas homeowners who report that they have installed a mitigation system in their home as a result of radon levels being at or above 4 pCi/L to 90%. (Baseline: 77.8, 95% CI (70.6-84.9). percent; Source: 2013 Kansas Behavioral Risk Factor Surveillance System)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>By 2020, increase the percentage of Kansas adults aware of radon by 10%. (Baseline 73.8, 95% CI (72.7-75.0). percent; Source: 2013 Kansas Behavioral Risk Factor Surveillance System)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>By 2020, increase the tons of municipal solid waste recycled by 10%. (Baseline: 1,012,200 tons; Source: KDHE Bureau of Waste Management)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>By 2020, decrease the per capita municipal solid waste disposal rate by 10%. (Baseline: 4.3 lbs/person/day; Source: KDHE Bureau of Waste Management)</td>
<td></td>
</tr>
</tbody>
</table>

### Outputs

<table>
<thead>
<tr>
<th>Activities</th>
<th>Number of clean public water supplies in Kansas with adequate capacity to meet minimum sanitary and human health needs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximize clean public water supplies with adequate capacity to meet minimum sanitary and human health needs</td>
<td>Number of community-driven recycling initiatives</td>
</tr>
<tr>
<td>Promote broader use of existing educational resources to assist private on-site water well owners in efforts to ensure safety, detect changes over time and document safe water quality</td>
<td>Number of local communities with comprehensive healthy homes activities implemented</td>
</tr>
<tr>
<td>Promote broader use of community-driven recycling initiatives</td>
<td>Number of new and revised indicators collected and/or reported by EPHT; number of environmental health indicators available at state and local level</td>
</tr>
<tr>
<td>Promote comprehensive healthy homes activities in local communities</td>
<td>Distribution of credible information to local practitioners and the public to promote private water supply safety</td>
</tr>
<tr>
<td>Improve and expand environmental health data, including the Environmental Public Health Tracking Program and incorporation of local level data</td>
<td></td>
</tr>
</tbody>
</table>

*Numbers and sources provided vary.*
Goal: Promote community design to support healthy behaviors

Objective: Increase the number of communities that adopt healthy community design principles

Performance Indicator: By 2020, increase the percentage of the population covered by a Complete Streets policy or resolution to 53%. (Baseline: 33% (957,417); Source: Complete Streets)

<table>
<thead>
<tr>
<th>Outputs</th>
<th>Activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of community or state Complete Streets policies or resolutions</td>
<td>Implement Complete Streets</td>
</tr>
<tr>
<td>Miles of trails; proportion of trails connected to community resources</td>
<td>Increase the number of trails and connectivity</td>
</tr>
<tr>
<td>Number of educational reports created, number of decision makers to whom educational reports are disseminated</td>
<td>Educate local boards of health and planning commissions on the evidence-base and opportunities to impact health (e.g. health impact assessments)</td>
</tr>
<tr>
<td>Number of surveillance systems tracking development, adoption and implementation of healthy community design policies</td>
<td>Track development, adoption and implementation of healthy community design policies</td>
</tr>
</tbody>
</table>

References:

Access to Services

Access to Services is made possible or enhanced through many variables—such as literacy, coverage, availability, scope, quality and timeliness of services, adequateness of the appropriate workforce, and transportation. Ensuring access to services is a priority for stakeholders vested in the health and well-being of Kansans. Although in 2010, 9 out of 10 Kansans had health care coverage (e.g., employment-based, Medicare, Medicaid) there were identifiable inequities among racial/ethnic groups (Hispanics/African-Americans) and adults with lower incomes and less than a high school education. The Expert Workgroup focused on Access to Care recommended to the HK 2020 Steering Committee that it consider the following in developing its cross-cutting themes and strategies: health literacy, Kansas’ rural demographics, solutions that break down silos, increasing access points and support coordination and integrated care (including health information technology and patient-centered medical care), incentives for patient behavior change, and ways to develop and retain skilled workforce.

Based on these recommendations and the development of the KHIP, there are multiple opportunities for stakeholders across the state to increase access to services and reduce health inequities by 2020. These include: increased focus on improving health literacy; establishing more direct linkages between health efforts and initiatives and those focused on decreasing the number of Kansans living in and impacted by poverty, specifically addressing the root causes of health; promoting integrated health care through effective models of care; increasing the use of telemedicine; and expanding the number of providers who adopt or expand electronic health record systems and capacity and connect to health information exchanges.

Priority Strategy Four - Improve Access to Services that Address the Root Causes of Poor Health

Health literacy is defined as the “capacity to obtain, process, and understand basic health information and services needed to make appropriate health decisions.” Adequate health literacy is necessary for individuals to understand how to communicate with their physician, read drug labels, provide informed consent, describe patient history and understand their diagnosis. Research has demonstrated that individuals with low health literacy receive fewer preventive services, do not follow medication instructions appropriately and have worse health outcomes.

In 2012, approximately 1 in 20 Kansas adults had low health literacy as measured by their ability to fill out medical forms unassisted, difficulty in understanding written information and needing assistance reading medical materials. The prevalence of low health literacy was significantly higher among non-Hispanic blacks, those with less than a high school education, those whose annual household income was less than $15,000, those who were unable to work, those who were widowed and those living with a disability.

The following table summarizes the goals, objectives and activities proposed to address the root causes of poor health in Kansas. Performance indicators are included to monitor progress toward the stated objective. Examples of activity outputs are also included to guide partners in evaluating activity implementation at the local level.
<table>
<thead>
<tr>
<th><strong>Goal</strong></th>
<th><strong>Address the Root Causes of Poor Health</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Goal</strong></td>
<td>Improve capacity to make informed and appropriate health care decisions</td>
</tr>
<tr>
<td><strong>Objective</strong></td>
<td>Increase health literacy among Kansans</td>
</tr>
<tr>
<td><strong>Performance Indicator</strong></td>
<td>By 2020, decrease the percentage of low-income adults with low health literacy to 16%. (Baseline: 18%; Source: 2012 BRFSS)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Outputs</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of home visitors trained on health literacy, financial literacy and dental health literacy curriculum; number of families who receive health literacy, financial literacy and dental health literacy education</td>
</tr>
<tr>
<td>Number of safety net clinics and MCOs that implement quality improvement initiatives to increase health literacy</td>
</tr>
<tr>
<td>Number of providers who use health information technology to provide targeted information to consumers</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Activities</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Expand health literacy, financial literacy and dental health literacy trainings within home visiting programs</td>
</tr>
<tr>
<td>Implement clinical quality measures to increase health literacy</td>
</tr>
<tr>
<td>Use health information technology to provide targeted information to consumers</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Goal</strong></th>
<th>Reduce poverty</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Objective</strong></td>
<td>Integrate public health planning and efforts to reduce poverty</td>
</tr>
<tr>
<td><strong>Performance Indicator</strong></td>
<td>By 2020, all state health plans will integrate priorities to address poverty (Baseline: TBD; Source: Kansas Health and Human Services Agencies)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Outputs</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of conferences with tracks that focus on poverty and related health issues</td>
</tr>
<tr>
<td>Number of health initiatives that incorporate evidence-based strategies to impact poverty</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Activities</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Include a focus on poverty and related issues at state health conferences</td>
</tr>
<tr>
<td>Incorporate evidence-based strategies to impact poverty when planning and implementing public health initiatives</td>
</tr>
</tbody>
</table>
References


Priority Strategy Five - Promote Integrated Health Care Delivery, Including Integrated Behavioral Health, Social Services and Medical Care

Fragmented systems of care pose challenges for both the health care provider and the patient. These challenges are further exacerbated by the growing number of patients with mental and substance abuse disorders who also suffer from complex chronic conditions. Untreated, these chronic conditions can lead to premature death or a reduced quality of life. Integrated care models provide an opportunity to address some of these challenges. Successfully implemented under a number of different models (certified patient-centered medical home, care and services that are co-located, integrated service plans, health home) this systematic coordination of general and behavioral health care has the ability to improve care and outcomes for those patients with multiple health care needs, prevent illness and disease progression, and equip the patient to be a more active participant in his or her own care.

The following table summarizes the goals, objectives and activities proposed to promote integrated health care delivery in Kansas. Performance indicators are included to monitor progress toward the stated objectives. Examples of activity outputs are also included to guide partners in evaluating activity implementation at the local level.
<table>
<thead>
<tr>
<th>Goal</th>
<th>Promote integrated health care delivery</th>
</tr>
</thead>
<tbody>
<tr>
<td>Objective</td>
<td>Increase the number of providers who adopt integrated models of care</td>
</tr>
<tr>
<td>Performance Indicators</td>
<td>By 2020, increase the percentage of Kansas primary care providers achieving Patient-Centered Medical Home (PCMH) recognition to 20%. (Baseline: 316; Source: 2011-National Committee for Quality Assurance Recognition Directory)</td>
</tr>
<tr>
<td></td>
<td>By 2020, maintain an adequate number of Health Home Partners serving KanCare clients with severe mental illness (SMI) and/or chronic conditions. (Baseline: TBD; Source: KDHE-KanCare)</td>
</tr>
<tr>
<td></td>
<td>By 2020, maintain the number of KanCare clients initially assigned to a health home. (Baseline: 74,000; Source: KDHE-KanCare)</td>
</tr>
</tbody>
</table>

### Outputs

<table>
<thead>
<tr>
<th>Activities</th>
<th>Outputs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Provide technical assistance and education to increase providers understanding of integrated health care delivery models</td>
<td>Number of providers receiving technical assistance and professional development on integrated health care models</td>
</tr>
<tr>
<td>Promote completion of the health home preparedness and planning tool (KanCare) among providers</td>
<td>Number of providers who complete tool</td>
</tr>
<tr>
<td>Promote and support the Governor’s Mental Health Taskforce recommendations for primary and behavioral health care</td>
<td>Number of primary and behavioral health care recommendations implemented</td>
</tr>
<tr>
<td>Develop and implement alternative reimbursement models for nutrition counseling, care coordination and patient navigation</td>
<td>Alternative reimbursement models implemented</td>
</tr>
<tr>
<td>Conduct an environmental scan to shed light on the current barriers and best practices to coordinating care and better understand the challenges and successes of working with the reimbursement models that support this work</td>
<td>Assessment and report to highlight barriers and strengths</td>
</tr>
<tr>
<td>Goal</td>
<td>Increase access to health care</td>
</tr>
<tr>
<td>------</td>
<td>--------------------------------</td>
</tr>
<tr>
<td>Objective</td>
<td>Increase the number of Kansans who have access to quality health care</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Performance Indicators</th>
<th>Increase access to health care</th>
</tr>
</thead>
<tbody>
<tr>
<td>By 2020, decrease the percentage of adults who lack health care coverage to 14%. (Baseline: 16.7%; Source: 2011 BRFSS)</td>
<td></td>
</tr>
<tr>
<td>By 2020, decrease the percentage of adults with no personal doctor or health care provider to 17%. (Baseline: 19.7%; Source: 2011 BRFSS)</td>
<td></td>
</tr>
<tr>
<td>By 2020, decrease the percentage of adults who could not see a doctor because of cost in the past 12 months to 13%. (Baseline: 14.3%; Source: 2011 BRFSS)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Outputs</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Activities</td>
<td></td>
</tr>
<tr>
<td>Develop/Expand community hubs and navigators to assist individuals in connecting with available services based on need, income and/or eligibility</td>
<td>Number of hub like programs, number of communities with hubs, number of navigators, number of referred patients</td>
</tr>
<tr>
<td>Increase access points for health care services</td>
<td>Number of access points</td>
</tr>
<tr>
<td>Assess how organizations across the state are increasing access to quality care</td>
<td>Assessment or scan, assessment report</td>
</tr>
<tr>
<td>Increase the number of primary care and dental providers, nurse practitioners and allied health professionals practicing in rural areas</td>
<td>Number of providers per capita</td>
</tr>
</tbody>
</table>

<p>| Objective | Increase the number of providers who use telehealth, telemedicine and telemonitoring |</p>
<table>
<thead>
<tr>
<th>Performance Indicators</th>
<th>Increase the number of providers who use telehealth, telemedicine and telemonitoring</th>
</tr>
</thead>
<tbody>
<tr>
<td>By 2020, increase the number of health providers (physicians and non-physicians) who provide Telemedicine and Telehealth options to their patients by 20%. (Baseline: TBD; Source: KU Center for Telemedicine and Telehealth, other health care systems providing Telemedicine and Telehealth options)</td>
<td></td>
</tr>
<tr>
<td>By 2020, increase the number of Telemedicine and Telehealth encounters provided by health providers (physicians and non-physicians) to their patients by 10%. (Baseline: TBD; Source: KU Center for Telemedicine and Telehealth, other health care systems providing Telemedicine and Telehealth options)</td>
<td></td>
</tr>
<tr>
<td>By 2020, increase the number of Telemedicine and Telehealth services available that health providers (physicians and non-physicians) can provide to their patients by 10%. (Baseline: TBD; Source: KU Center for Telemedicine and Telehealth, other health care systems providing Telemedicine and Telehealth options)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Outputs</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Activities</td>
<td></td>
</tr>
<tr>
<td>Support development of a work group to provide guidance for statewide telehealth expansion</td>
<td>Work group members identified, recommendations made for statewide telehealth expansion. Meeting minutes, work group accomplishments, work group recommendations</td>
</tr>
<tr>
<td>Engage physicians and other non-physician providers on the value of telehealth, telemedicine and telemonitoring</td>
<td>Number of webinars, conference sessions, targeted reports provided to providers</td>
</tr>
<tr>
<td>Goal</td>
<td>Increase access to health care (continued)</td>
</tr>
<tr>
<td>------</td>
<td>-----------------------------------------</td>
</tr>
<tr>
<td></td>
<td>Engage payers on the benefits/value of covering telehealth services for non-physician providers</td>
</tr>
<tr>
<td></td>
<td>Conduct an environmental scan to assess the use and better understand the challenges associated with telehealth, telemedicine and telemonitoring. (Better understand payment options and other opportunities available to providers to increase expansion and long term sustainability for provider participation, assess technology needs of providers and systems to support telehealth, telemedicine and telemonitoring, especially in rural areas.)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Goal</th>
<th>Increase use of electronic health records and health information exchanges</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Increase the number of providers that adopt electronic health record systems, use system analytics to drive health improvement and connect to a health information exchange</td>
</tr>
<tr>
<td>Objective</td>
<td>Increase the number of providers that adopt electronic health record systems, use system analytics to drive health improvement and connect to a health information exchange</td>
</tr>
<tr>
<td>Performance Indicators</td>
<td>By 2020, increase the percentage of Kansas clinics and hospitals who are using electronic health records to 95%. (Baseline: 907; Source: Office of the National Coordinator for Health IT, April 2013)</td>
</tr>
<tr>
<td></td>
<td>By 2020, increase the percentage of Kansas clinics and hospitals connected to a health information exchange to 95%. (Baseline: 757 + 381 = 1,138; Source: Kansas Health Information Network, Lewis and Clark Information Exchange)</td>
</tr>
<tr>
<td>Outputs</td>
<td></td>
</tr>
<tr>
<td>Activities</td>
<td>Promote the value and efficiencies gained through the use of EHRs and health information exchanges</td>
</tr>
<tr>
<td></td>
<td>Number of webinars, conference sessions, conference calls. Number of providers receiving technical assistance and professional development on EHR adoption and use of health information exchanges</td>
</tr>
<tr>
<td></td>
<td>Provide technical assistance and tools to providers to achieve Meaningful Use</td>
</tr>
<tr>
<td></td>
<td>Number of webinars, conference sessions, conference calls. Number of providers meeting meaningful use</td>
</tr>
<tr>
<td></td>
<td>Promote use of analytic tools to achieve quality indicators for assessing population and health management improvements</td>
</tr>
<tr>
<td></td>
<td>Number of webinars, conference sessions, conference calls on the use of analytic tools</td>
</tr>
<tr>
<td></td>
<td>Develop a reliable method for determining baseline and monitoring the number of providers who are using electronic health record systems.</td>
</tr>
<tr>
<td></td>
<td>Data source to accurately measure the number of providers using an electronic health record system is developed</td>
</tr>
</tbody>
</table>
Public Health Workforce

To effectively implement the objectives and activities outlined in the health improvement plan, a well-trained and adequate (number and placement) public health workforce is required. Local public health agencies in Kansas play a critical role in protecting the health of Kansans through prevention of chronic disease, monitoring and mitigating the impact of emerging infections and responding to bioterrorism and natural disasters. The role of staff at local health departments (LHDs) has expanded and become more diverse, requiring new and different skills for the workforce. At the same time, LHDs are expected to enhance their performance in terms of efficiency and effectiveness. Thus, the public health system is being challenged to increase the production, recruitment and retention of the workforce. Focus needs to be aimed at staff development in the areas of quality improvement, population education, upstream health intervention and leadership. Workforce capabilities and staffing needs to be aligned with the goals and outcomes that will support the readiness of an agency. And finally, there is opportunity for further efficiencies and effectiveness to the entire system through the preventative approach taken by public health professionals and implementation of the growing evidence base around prevention.

The following table summarizes the goal, objective and activities proposed to enhance the public health workforce in Kansas. Performance indicators are included to monitor progress toward the stated objective. Examples of activity outputs are also included to guide partners in evaluating activity implementation at the local level.
**Strategy - Train and Equip the Public Health Workforces**

<table>
<thead>
<tr>
<th>Goal</th>
<th>A public health workforce that is well-prepared, adequate in number and distributed according to the needs of both rural and urban Kansans.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Objective</td>
<td>Strengthen public health workforce training in Kansas</td>
</tr>
<tr>
<td>Performance Indicators</td>
<td>By 2020, increase the percentage of the public health workforce with Core Competency Tier level, subject-based and/or individual training plans to 75% (Baseline: 57%; Source: KDHE KS-TRAIN)</td>
</tr>
<tr>
<td></td>
<td>By 2015, increase the percentage of the public health workforce who have completed a competency assessment to 60%. (Baseline: TBD; Source: KDHE)</td>
</tr>
</tbody>
</table>

**Outputs**

<table>
<thead>
<tr>
<th>Activities</th>
<th>Conduct and analyze a workforce core competency assessment and distribute results</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Workforce core competency assessment conducted, results analyzed and distributed</td>
</tr>
<tr>
<td></td>
<td>Develop workforce training plan templates and review protocols for a minimum of 3 common &quot;job associated&quot; positions for the three Council on Linkages &quot;Tier&quot; areas.</td>
</tr>
<tr>
<td></td>
<td>Number of training plan templates for common job associated positions completed</td>
</tr>
<tr>
<td></td>
<td>Identify priority workforce training areas based on gaps and the needs of high risk populations</td>
</tr>
<tr>
<td></td>
<td>List of workforce training priorities identified</td>
</tr>
<tr>
<td></td>
<td>Develop processes through KS-TRAIN to organize and monitor workforce completion of approved trainings</td>
</tr>
<tr>
<td></td>
<td>KS-TRAIN process developed</td>
</tr>
<tr>
<td></td>
<td>Vet 15 existing courses according to standards and assure proper notation of PHAB accreditation standard linkages and core competency areas</td>
</tr>
<tr>
<td></td>
<td>Number of courses vetted</td>
</tr>
<tr>
<td></td>
<td>Deliver workforce training to identified priority workforce populations (Core Public Health, Evidence-based Public Health, Instructional Design, Grand Rounds)</td>
</tr>
<tr>
<td></td>
<td>Number of trainings and attendees</td>
</tr>
<tr>
<td></td>
<td>Enhance coordination among public health partners (academic institutions, state and local public health, local boards of health) to address critical workforce issues</td>
</tr>
<tr>
<td></td>
<td>Strategic plan and formal MOU for the Public Health Workforce Development Coordinating Council</td>
</tr>
<tr>
<td></td>
<td>Statewide public health focused conferences (KPHA Conference, Governor’s Public Health Conference, KEHA Conference)</td>
</tr>
<tr>
<td></td>
<td>Attendance at conference session identified with links to core competencies and accreditation domains and standards as outcomes</td>
</tr>
</tbody>
</table>
Aligning with the Plan

Population Health Regional Meetings

Local health departments (LHD) play a central role in orchestrating the partners and identifying the resources required to impact local public health priorities. It is critically important that the work of state and local public health entities be coordinated to ensure the best use of limited resources and to provide timely response to public health challenges. In 2014, KDHE hosted a series of seven regional population health meetings (Chanute, Hutchinson, Oakley, Garden City, Beloit, Topeka, Kansas City/Olathe) with LHD’s and other local partners to review the priorities of the Kansas Health Improvement Plan (KHIP). Partners identified areas where local priorities aligned with proposed objectives and engaged in group discussions regarding the strengths, assets and challenges to addressing these issues locally.

State Health Coalitions - Partners in Improving Health

The HK2020/KHIP Framework has proven to be an effective guide for state level coalitions in developing categorical and/or chronic disease state plans. Kansas has a successful record of developing state plans through stakeholder engagement. Participants in categorical state planning processes typically include representatives from public and private agencies and organizations with expertise in clinical care, communications, surveillance and epidemiology, community outreach, program development, health disparities, evaluation and fiscal accountability as well as individuals with the condition and their families.

Two examples of recent efforts of categorical state plans that built from HK2020/KHIP include development of the state’s first Chronic Disease State Plan and the Kansas Cancer Prevention and Control Plan.

Development of the Kansas Chronic Disease State Plan (http://www.kdheks.gov/bhp/download/CD_State_Plan_2014_Reduced.pdf) capitalized upon the HK2020 Framework, with leadership from several categorical state coalitions participating, including the Heart Disease and Stroke Alliance of Kansas, Kansas Cancer partnership, Kansas
Diabetes Action Council and Tobacco Free Kansas Coalition, representing a combined membership of more than 250 state and local public health professionals and advocates. The partners convened in 2013 to review the burden of chronic disease more broadly and to look for cross cutting chronic disease issues that aligned with the high level priorities outlined in the HK2020 Framework. Objectives and activities related to community-clinical linkages, community health promotion, health systems, surveillance, epidemiology and evaluation were developed in alignment with the three cross-cutting themes of HK2020. Incorporating the HK2020 themes has already resulted in streamlined efforts toward chronic disease reduction and control in Kansas. For example, the Heart and Stroke Alliance of Kansas and the Kansas Diabetes Action Council decided to combine all their efforts, becoming the Chronic Disease Alliance of Kansas to maximize their collective efforts focused sharply on achieving state health objectives for healthy living, healthy communities and access to care.

Similarly, the Kansas Cancer Partnership (KCP) updated its State Cancer Prevention and Control Plan (http://www.cancerkansas.org/cancer_plan.htm) with objectives for 2016 to serve as a roadmap to reduce the burden and suffering of cancer and to enhance the lives of all Kansas cancer survivors and their families. Representatives of KCP leadership were actively engaged at multiple levels of the HK2020 planning process, providing expertise in the continuum of cancer prevention, early detection and diagnosis, treatment, survivorship and quality of life. As a result, the state cancer prevention and control plan also is aligned with the three cross-cutting themes of HK2020 and provides a robust and integrated approach to achieving state health objectives. For example, the 200+ members of the KCP mobilized to actively engage in efforts to reduce exposure to secondhand smoke, leading to environmental protection from a known set of carcinogens, as called for in the Healthy Kansans 2020/KHIP.
Communication

In preparation for communications to promote and provide updates related to the Healthy Kansans 2020/KHIP, the KDHE Communications Office commissioned a population-based telephone survey in 2013 to examine and understand the preferred sources and mediums for receiving information about health and environmental issues and to gauge public opinion of health and environment programs in Kansas. The results were used to formulate a comprehensive KDHE Communications Plan that is based upon strategies and activities outlined in the HK2020/KHIP. The agency will use the most productive mediums identified through the survey process to broadly disseminate the plan and provide periodic updates of progress to internal and external partners. Information about the HK2020/KHIP will be distributed through:

- Newsletters
- Public Health Grand Rounds
- Statewide Population Health Call
- Website
- Social Media
- Video Messages
- Reports

Additionally, the agency and its partners will be proactive in including HK2020/SHIP priorities on conference agendas, statewide meetings and through the public health regional meetings described earlier in this document.

Launching the Plan

The Healthy Kansans 2020/Kansas Health Assessment and Improvement Plan will launch in May, 2014 with a roll out to an established Public Health partners distribution list, which includes over 300 local health departments and other external partner organizations, and will be disseminated through program specific distribution lists maintained by agency programs. The KDHE Communication office will deploy strategies outlined in its External Communications Plan, including press events and featured presentations during annual state and regional meetings of public health organizations, civic organizations, medical providers, and state and local government officials throughout the year.
Evaluation

Evaluation of the Kansas Health Improvement Plan will be undertaken to measure its effectiveness, demonstrate accountability to stakeholders, share lessons learned among partners and, ultimately, ensure sustainability of efforts beyond the lifespan of the plan. This section provides an overview of the approach to evaluating the Health Improvement Plan; specific evaluation activities, data sources and timelines are detailed separately.

Selected long-term and intermediate outcome indicators will be monitored to demonstrate effectiveness of Health Improvement Plan implementation with regard to impacting health outcomes. Long-term indicators align with Health Improvement Plan Priority Areas and are adapted from Healthy People 2020 Leading Health Indicators. Healthy People 2020 provide a comprehensive set of more than 1,200 national goals and objectives from 42 topic areas for improving the health of all Americans. A smaller set of Healthy People 2020 objectives, called Leading Health Indicators, highlight high-priority health issues and actions that can be taken to address them. Examples of Leading Health Indicators that align with Healthy Kansans 2020 priority areas are outlined in Table 1.

It is important to note that Leading Health Indicators reflect national goals and objectives and, consequently, their data sources rely on national surveillance systems. Modifications to long-term indicators in the current Plan will be made to leverage existing state-level data surveillance systems, such as the Kansas Behavioral Risk Factor Surveillance System (BRFSS) and the Kansas Youth Risk Behavior Survey (YRBS). In addition to monitoring long-term outcome indicators related to Plan priority areas, intermediate performance indicators that reflect progress toward meeting specific Plan objectives will also be tracked using existing state-level surveillance systems, including BRFSS and YRBS. When available, operationalized, Kansas-specific performance indicators were integrated into the Health Improvement Plan along with baselines and data sources.

The implementation of Kansas Health Improvement Plan activities relies on the contributions of numerous states, regional and local partners. Although effectiveness of Plan implementation will primarily be demonstrated through progress toward meeting long-term and intermediate objectives, contributing partners will demonstrate accountability by periodically
reporting on the status of activity outputs. Suggested activities for implementation are included throughout the Plan, along with proposed outputs to assist state, regional and local partners with setting evaluation benchmarks for their work. Collectively, measuring and reporting activity outputs will provide quantitative examples of what partners are actually doing to implement the State Health Improvement Plan. Additionally, qualitative process measures collected from key informant interviews will provide important context for activity implementation. Success stories and lessons learned from the field will further highlight the accomplishments and challenges of State Health Improvement Plan implementation.

Periodically, evaluation findings will be shared with decision makers and contributing partners to aid quality improvement, leverage existing resources and generate support for new resources for activity implementation as well as celebrate successes along the way. This multifaceted approach to evaluating the implementation and effectiveness of the Kansas State Health Improvement Plan ensures sustainability of proposed activities for years to come.
<table>
<thead>
<tr>
<th>Priority Areas</th>
<th>Leading Health Indicators</th>
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<tbody>
<tr>
<td>1. Improve access to services that address the root causes of poor health</td>
<td>AH-5.1: Increase the proportion of students who graduate with a regular diploma 4 years after starting 9th grade</td>
</tr>
<tr>
<td>2. Promote environments and community design that impact health and support</td>
<td>EH-1: Reduce the number of days the Air Quality Index (AQI) exceeds 100, weight by population and AQI</td>
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<tr>
<td>healthy behaviors</td>
<td>PA-2.4: Increase the proportion of adults who meet the objectives for aerobic physical activity and for muscle-strengthening activity</td>
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<tr>
<td>3. Promote integrated health care delivery, including integrated behavioral</td>
<td>AHS-1.1: Increase the proportion of persons with medical insurance.</td>
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<tr>
<td>health, social service and medical care</td>
<td>AHS-3: Increase the proportion of persons with a usual primary care provider</td>
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<td></td>
<td>OH-7: Increase the proportion of children, adolescents, and adults who used the oral health care system in the past year</td>
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<tr>
<td>4. Promote tobacco use prevention and control</td>
<td>TU-1.1: Reduce cigarette smoking by adults</td>
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<tr>
<td></td>
<td>TU-2.2: Reduce use of cigarettes by adolescents (past month)</td>
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<tr>
<td>5. Promote healthy eating and physical activity</td>
<td>NWS-15.1: Increase the contribution of total vegetables to the diets of the population aged 2 years and older.</td>
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<td></td>
<td>PA-2.4: Increase the proportion of adults who meet the objectives for aerobic physical activity and for muscle-strengthening activity</td>
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<td></td>
<td>NWS-9: Reduce the proportion of adults who are obese</td>
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<tr>
<td></td>
<td>NWS-10.4: Reduce the proportion of children and adolescents aged 2 to 19 years who are considered obese</td>
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</table>
## Content Matter Experts

<table>
<thead>
<tr>
<th>Name</th>
<th>Organization</th>
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<tbody>
<tr>
<td>Matt Allen</td>
<td>City of Garden City</td>
</tr>
<tr>
<td>Lori Alvarado</td>
<td>Head Start</td>
</tr>
<tr>
<td>Bill Art</td>
<td>Johnson County Mental Health Center</td>
</tr>
<tr>
<td>Claudia Blackburn</td>
<td>Sedgwick County Health Department</td>
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<tr>
<td>Holly Blick</td>
<td>Registered Dental Hygienist</td>
</tr>
<tr>
<td>Pete Bodyk</td>
<td>Kansas Department of Transportation</td>
</tr>
<tr>
<td>Eric Bowles</td>
<td>Johnson County Emergency Management</td>
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<tr>
<td>Lindy Childs</td>
<td>Kansas Diabetes Action Council</td>
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<tr>
<td>Vicki Collie-Akers</td>
<td>KU Work Group for Community Health and Development</td>
</tr>
<tr>
<td>Dennis Cooley</td>
<td>Kansas Blue Ribbon Panel</td>
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<tr>
<td>Cathy Cordova</td>
<td>Kansas Foundation for Medical Care</td>
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<tr>
<td>Shannon Cotsoradis</td>
<td>Kansas Action for Children</td>
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<tr>
<td>Diane Daldrup</td>
<td>March of Dimes</td>
</tr>
<tr>
<td>John Fales</td>
<td>Pediatric dentist</td>
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<tr>
<td>Doug Farmer</td>
<td>Sunflower Foundation</td>
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<tr>
<td>Sarah Fischer</td>
<td>Kansas Department for Aging and Disability Services</td>
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<tr>
<td>Donna Garwood</td>
<td>Kansas Foundation for Medical Care</td>
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<td>Angela Hagan</td>
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<td>Sue Hall</td>
<td>Stormont-Vail Regional Health Center</td>
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<tr>
<td>Sarah Hampl</td>
<td>University of Missouri-Kansas City School of Medicine</td>
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<tr>
<td>Jim Hanni</td>
<td>AAA of Kansas</td>
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<tr>
<td>Cathy Harding</td>
<td>Kansas Association for the Medically Underserved</td>
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<tr>
<td>Katie Heinrich</td>
<td>Kansas State University</td>
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<tr>
<td>Mary Jayne Hellebust</td>
<td>Tobacco Free Kansas Coalition</td>
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<tr>
<td>Mark Herzog</td>
<td>Private practice dentist</td>
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<tr>
<td>Name</td>
<td>Organization</td>
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<tr>
<td>Mary Hess</td>
<td>KU Institute for Educational Research and Public Service</td>
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<tr>
<td>Holly Higgins</td>
<td>Farm Bureau</td>
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<tr>
<td>Rhonda Holt</td>
<td>Kansas Governor's Council on Fitness</td>
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<tr>
<td>Julia Hulsey</td>
<td>Reno County Health Department</td>
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<tr>
<td>Mary Lou Jaramillo</td>
<td>El Centro (retired)</td>
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<tr>
<td>Elaine Johannes</td>
<td>Kansas State Research &amp; Extension</td>
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<tr>
<td>Peggy Johnson</td>
<td>Kansas Cancer Partnership</td>
</tr>
<tr>
<td>Judy Johnston</td>
<td>KU School of Medicine</td>
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<tr>
<td>Kim Kimminau</td>
<td>KU School of Medicine</td>
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<tr>
<td>Seth Konkel</td>
<td>Sedgwick County Health Department</td>
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<tr>
<td>Barb LaClair</td>
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<tr>
<td>Myron Leinwetter</td>
<td>Blue Cross and Blue Shield of Kansas</td>
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<tr>
<td>Rhonda Lewis</td>
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<td>Tatiana Lin</td>
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<tr>
<td>Marcia Manter</td>
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<td>Beth Marolf</td>
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<tr>
<td>J'Vonnah Maryman</td>
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<tr>
<td>Sondra Mayfield</td>
<td>Marion County Health Department</td>
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<tr>
<td>Jason McKenney</td>
<td>Urban League of Kansas</td>
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<tr>
<td>Susan McLoughlin</td>
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<tr>
<td>Jerry McNamer</td>
<td>Barber County Community Health Department</td>
</tr>
<tr>
<td>Christina Morris</td>
<td>Dept of Pharmacy</td>
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<tr>
<td>Dot Nary</td>
<td>KU Research Group on Rehabilitation and Independent Living</td>
</tr>
<tr>
<td>Lore Nelson</td>
<td>Kansas University Medical Center</td>
</tr>
<tr>
<td>Brenda Nickel</td>
<td>Riley County Health Department</td>
</tr>
<tr>
<td>Angie Nordhus</td>
<td>Child Death Review Board</td>
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<tr>
<td>Gianfranco Pezzino</td>
<td>Kansas Health Institute</td>
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<tr>
<td>Janice Powers</td>
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<tr>
<td>Curtis Redington</td>
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<tr>
<td>Jim Redmond</td>
<td>Kansas Children’s Cabinet</td>
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<tr>
<td>Amanda Reichard</td>
<td>KU Research Group on Rehabilitation and Independent Living</td>
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<tr>
<td>Kevin Robertson</td>
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<tr>
<td>Mallory Rousseau</td>
<td>Kansas Coalition Against Sexual and Domestic Violence</td>
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<tr>
<td>Richelle Rumford</td>
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<tr>
<td>Dave Sanford</td>
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<tr>
<td>Tama Sawyer</td>
<td>Poison Control Center</td>
</tr>
<tr>
<td>Jodi Schmidt</td>
<td>Labette Health</td>
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<tr>
<td>Christy Schunn</td>
<td>SIDS Network of Kansas</td>
</tr>
<tr>
<td>Amber Sellers</td>
<td>United Methodist Mexican-American Ministries Community Care Centers and Health Clinics</td>
</tr>
<tr>
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<td>Organization</td>
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<tr>
<td>Deb Sellers</td>
<td>Kansas State University</td>
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<tr>
<td>Catherine Shoults</td>
<td>Kansas Health Institute</td>
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<tr>
<td>Jamie Simpson</td>
<td>KU Office of Institutional Opportunity &amp; Access</td>
</tr>
<tr>
<td>Tom Simpson</td>
<td>Physician</td>
</tr>
<tr>
<td>Tawny Stottlemire</td>
<td>Kansas Association of Community Action Programs</td>
</tr>
<tr>
<td>Dorthy Stucky-Halley</td>
<td>Kansas Attorney General’s Office</td>
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<tr>
<td>Nancy Tausz</td>
<td>Johnson County Health Department</td>
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<tr>
<td>Mark Thompson</td>
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<tr>
<td>David Toland</td>
<td>Allen County Thrive</td>
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<tr>
<td>Michelle Voth</td>
<td>Kansas Family Partnership</td>
</tr>
<tr>
<td>Kevin Walker</td>
<td>Kansas Heart and Stroke Alliance</td>
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<tr>
<td>Kim Walker</td>
<td>Sedgwick County Health Department</td>
</tr>
<tr>
<td>Gary Warner</td>
<td>Kansas Highway Patrol</td>
</tr>
<tr>
<td>Darlene Whitlock</td>
<td>Emergency Nurses Association</td>
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<tr>
<td>Jeff Willet</td>
<td>Kansas Health Foundation</td>
</tr>
<tr>
<td>George Williams</td>
<td>Kansas Department of Children and Families</td>
</tr>
<tr>
<td>Norraine Wingfield</td>
<td>Kansas Traffic Safety Resource Office</td>
</tr>
<tr>
<td>Polly Witt</td>
<td>Garden City Schools</td>
</tr>
<tr>
<td>Kathy Wood</td>
<td>Kansas Coalition Against Sexual and Domestic Violence</td>
</tr>
<tr>
<td>Sally Zellers</td>
<td>Safe Streets</td>
</tr>
</tbody>
</table>

**KDHE Content Matter Experts**

<p>| Robert Moser                | Jennifer Ferguson                               | Janet Neff                        | Brandon Skidmore               |
| Farah Ahmed                 | Martha Froetschner                               | Ginger Park                      | Miranda Steele                 |
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| Virginia Barnes             | Martha Hagan                                     | Ghazala Perveen                  | Tom Stiles                      |
| Rachel Berroth              | Laurie Harrison                                  | Sara Roberts                     | Jane Stueve                     |
| Bill Bider                  | Laurie Hart                                      | Aimee Rosenow                    | Cyndi Treaster                  |
| Ryan Burns                  | Lori Haskett                                     | Rebecca Ross                     | Jennifer VandeVelde             |
| Trevor Christensen          | Charlie Hunt                                     | Lou Saddi                        | Dee Vernberg                    |
| Jennifer Church             | Barbara Huske                                    | Cherie Sage                      | Brenda Walker                   |
| Paula Clayton               | Jamie Kim                                        | Stacey Sandstrom                 | Kate Watson                     |
| Charles Cohlmia             | Joe Kotsch                                       | Joey Scaletta                    | Ericka Welsh                    |
| Carol Cramer                | Tom Langer                                       | Jennifer Schwartz                | Kathy Weno                      |
| Greg Crawford               | Henri Menager                                    | Julie Sergeant                   | Ruth Werner                     |
| Dan Dao                     | Susan Mosier                                     | Jane Shirley                     | Ralph Wilmoth                   |</p>
<table>
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<tr>
<td>Hope Adame</td>
<td>Prairie Band Potawatomi Nation</td>
</tr>
<tr>
<td>Ashley Adorante</td>
<td>University of Kansas</td>
</tr>
<tr>
<td>Sandra Akpovona</td>
<td>Medicaid SME</td>
</tr>
<tr>
<td>Allison Alejos</td>
<td>Shawnee County Health Agency</td>
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<td>Ellen Avertt</td>
<td>Kansas Public Health Association</td>
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<tr>
<td>Virginia Barnes</td>
<td>KDHE</td>
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<tr>
<td>Col. Paul Benne</td>
<td>Fort Riley</td>
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<td>Claudia Blackburn</td>
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<td>Crys Bohn</td>
<td>KDHE</td>
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<td>Chan Brown</td>
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<tr>
<td>Melanie Burnett</td>
<td>William Newton Hospital</td>
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<tr>
<td>Ariel Capes</td>
<td>KDHE</td>
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<tr>
<td>Joe Caputo</td>
<td>Orthopedic Specialists of the Four States</td>
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<tr>
<td>Jena Chacko</td>
<td>KDHE</td>
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<tr>
<td>Jennifer Church</td>
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<td>Julie Cox-Kain</td>
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<td>Daniel Craig</td>
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<td>Carol Cramer</td>
<td>KDHE</td>
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<tr>
<td>Carolyn Crawford</td>
<td>WorkWell Lawrence</td>
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<tr>
<td>Rita Davenport</td>
<td>KDHE</td>
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<tr>
<td>Linda DeCoursey</td>
<td>Tobacco Free Kansas Coalition</td>
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<tr>
<td>Aaron Dunkel</td>
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<tr>
<td>Leadell Ediger</td>
<td>Child Care Aware</td>
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<tr>
<td>Mildred Edwards</td>
<td>Kansas African-American Affairs Commission</td>
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<tr>
<td>Paul Endacott</td>
<td>Medicaid SME</td>
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<tr>
<td>Adrienne Foster</td>
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<td>Holly Frye</td>
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<tr>
<td>Martha Gabehart</td>
<td>Kansas Commission on Disability Concerns</td>
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<td>Angela German</td>
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<td>Sarah Good</td>
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<td>Janet Hamous</td>
<td>Wichita Business Coalition on Health Care</td>
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<td>Mary Jayne Hellebust</td>
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<td>Rick Hoffmeister</td>
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<td>Misty Jimerson</td>
<td>Tobacco Free Kansas Coalition</td>
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