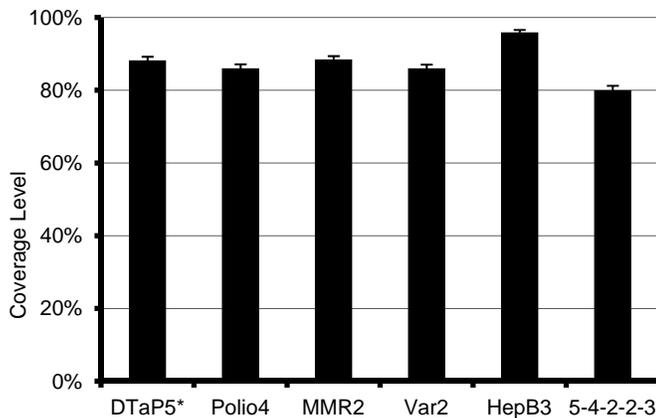


Kindergarten Immunization Coverage Survey

The Kansas Certificate of Immunizations (KCI) and other immunization records for children enrolled in a kindergarten class in Kansas public and private schools during the 2011-2012 school year were collected and evaluated for immunization coverage. Vaccination coverage levels were calculated for children at the time of school entry and 30 days following school entry. Children who were between the ages of five and seven years on the first day of the school year were included in the study. In total, there were 793 schools, 689 public and 104 private, included in the analysis, which consisted of a representative sample of 16,127 children from both public and private schools.

The immunization coverage levels at school entry of all the vaccinations required for school entry [five doses of the DTaP vaccine (DTaP5)¹, four doses of the polio vaccine (Polio4), two doses of the MMR vaccine (MMR2), 2 doses of the varicella vaccine (Var2), and three doses of the hepatitis B vaccine (HepB3)] were at or above 86 percent, with HepB3 having the highest coverage of any vaccination (Figure 1). The complete series for all five required vaccinations (5-4-2-2-3) had a coverage level of 80 percent at school entry. Healthy People 2020 (HP2020) goals for kindergarten vaccination coverage levels are greater than or equal to 95 percent for all vaccines required by Kansas for school entry. Hepatitis B vaccination was the only immunization that reached this goal.

Figure 1. Immunization Coverage Levels of Kindergarten Students at School Entry, Kansas 2011-2012



*Five doses of DTaP or four doses if the fourth is administered on or after the fourth birthday.

The immunization coverage levels of kindergartners were significantly greater at 30 days following the first day of school for most required vaccinations (DTaP5, Polio4, MMR2, Var2) when comparing coverage levels at school entry (Table 1). The percentage of kindergartners up to date for all required vaccinations [5-4-2-2-3: DTaP5, Polio4, MMR2, Var2, HepB3] was significantly higher 30 days after school entry than at the first day of school. The only required vaccination that did not have a significantly increased coverage level was HepB3.

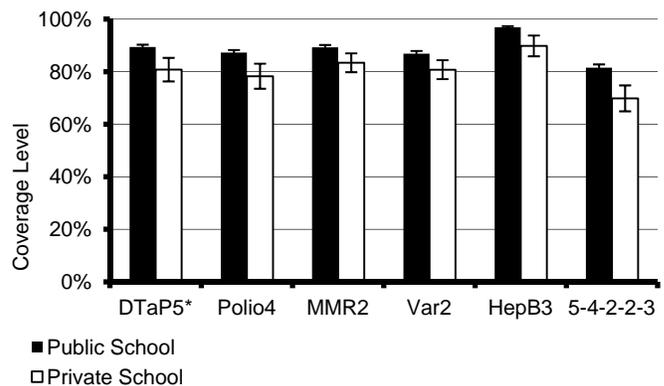
Table 1: Immunization coverage levels of kindergarten students at school entry and 30 days following school entry, Kansas 2011-2012.

	At School Entry % (95% CI)	30 Days After School Entry % (95% CI)
DTaP5*	88.2 (87.2 - 89.2)	90.7 (89.7 - 91.6)
Polio4	86.0 (85.0 - 87.1)	88.3 (87.3 - 89.4)
MMR2	88.5 (87.5 - 89.4)	91.0 (90.1 - 91.8)
Var2	86.0 (85.0 - 87.1)	88.6 (87.7 - 89.6)
HepB3	95.9 (95.3 - 96.6)	96.0 (95.3 - 96.7)
5-4-2-2-3	80.0 (78.7 - 81.3)	82.7 (81.5 - 84.0)

*Five doses of DTaP or four doses if the fourth is administered on or after the fourth birthday

There was significant variation in the immunization coverage levels for kindergartners enrolled in public and private schools (Figure 2). Children enrolled in public schools had significantly higher immunization coverage for all required vaccinations as well as the 5-4-2-2-3 series than children enrolled in private schools. However, there was no significant difference in immunization coverage levels for the non-required vaccinations between public school and private school enrollees.

Figure 2. Immunization Coverage Levels of Public and Private School Kindergartners at School Entry, Kansas 2011-2012



*Five doses of DTaP or four doses if the fourth is administered on or after the fourth birthday.

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¹ 5 doses of DTaP or 4 doses if the fourth is administered on or after the fourth birthday.

school entry exist: medical exemption and religious exemption. To receive a medical exemption, a physician must sign a form on an annual basis stating the reason for exemption and from which vaccine(s) the child is exempt. To receive a religious exemption a parent or guardian must write a statement explaining that the child is an adherent of a religious denomination whose religious teachings are opposed to such tests or inoculations.

During the 2011-2012 kindergarten study, 494 children were reported as having an exemption, which correlates to 1.3 percent of the kindergarten population. Of the exemptions, 364 were categorized as religious, while the remaining 130 were medical. Exemptions occur throughout the state; however, counties with the greatest percentage of students with an exemption on file were found in the eastern half of the state. Unified school districts (USDs) with the greatest percentage of students with an exemption are clustered in high population areas, including the areas surrounding Wichita, Kansas City, and Topeka; additionally, there is a cluster of USDs with a high percentage of students with an exemption in the north-central region of the state. Of the 283 school districts that submitted data, 153 (54%) reported no exemptions, while five (2%) reported 10 percent or more students with an exemption.

The full report can be found at http://www.kdheks.gov/immunize/download/Kindergarten_2011-12.pdf

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Arthritis Management: Clinician Counseling for Weight Loss and Exercise for Kansas Adults with Arthritis

Background

Arthritis is the leading cause of disability in the United States [1]. Arthritis and other rheumatic conditions include more than 100 diseases and conditions, most of which are characterized by pain, aching, stiffness and swelling in or around joints or elsewhere in the musculoskeletal system. Arthritis affects quality of life including work, household chores and engaging in social and recreational activities. The Centers for Disease Control and Prevention (CDC) estimated that by 2030, the state-specific prevalence of arthritis in Kansas will increase by 121,000 adults [2]. Furthermore, health care expenditures related to arthritis are enormous. In 2003, the estimated total medical expenditures and lost wages in Kansas were \$1.1 billion: \$700 million in direct costs and \$405 million in indirect costs [3]. In order to help manage the pain and stiffness of arthritis, physical activity and weight management are important factors [4].

The CDC recommends physical activity, maintenance of a healthy weight, and learning self-management techniques as the best ways to address arthritis [5]. For people with arthritis, physical activities such as walking, bicycling, and swimming have been shown to have significant benefits, including reducing pain and improving physical function, mental health, and quality of life [6]. Weight control and injury prevention measures can lower a person's risk of developing osteoarthritis and can reduce symptoms for overweight or obese people with knee osteoarthritis. The Healthy People 2020 (HP2020) objectives are that by 2020, the proportion of adults with doctor-diagnosed arthritis receiving counseling for physical activity reach 57.4 percent and receiving weight counseling (among those overweight or obese) reach 45.3 percent [7]. These targets are important because clinicians' advice is important to impact behavior change in their patients, which translates into "significant benefits to the health of the population" [8].

Objective

This report aims to describe the status of a clinician ever suggesting physical activity or losing weight to help with the management of arthritis or joint symptoms among adult Kansans ages 18 years and older with doctor diagnosed arthritis.

Method

The 2011 Kansas Behavioral Risk Factor Surveillance Symptom (BRFSS) data were used for this report. Kansas BRFSS is an ongoing, annual, population based random digit dial survey of non-institutionalized adults ages 18 years and older living in a private residence with landline or cell phone service in Kansas. Kansas BRFSS 2011 included the Centers for Disease Control and Prevention (CDC) Arthritis Management Module. A total of 8,529 respondents were randomly assigned to questionnaire version B of the survey, which included the Arthritis Management Module. If respondents answered "yes," to ever being diagnosed with arthritis in the core section of the survey, which was a total of 6,493 respondents, then these respondents would proceed to the Arthritis Management Module. The module included four questions. Two questions were "Has a doctor or other health professional ever suggested losing weight to help your arthritis or joint symptoms?" and "Has a doctor or other health professional ever suggested physical activity to help your arthritis or joint symptoms?" The response options "yes" and "no" were analyzed to get a better understanding of who was getting this counseling from a clinician.

2011 Kansas BRFSS data were analyzed to examine the prevalence of arthritis in Kansas. The Kansas BRFSS data were also analyzed to examine the prevalence of a clinician ever suggesting physical activity or losing weight to help with the management of arthritis or joint symptoms. All prevalence estimates and 95 percent confidence intervals (CI) are presented as weighted estimates, calculated using SAS software version 9.3 to account for the Kansas BRFSS survey design.

Results

In 2011, the percentage of adults 18 years and older that had ever been told by a health care provider that they had arthritis was 23.1 percent (95% CI: 22.4-23.8).

The percentage of adults ages 18 years and older with arthritis that had a clinician ever suggest losing weight to help manage their arthritis was 33.9 percent (95% CI: 31.6 to 36.2). Among adults with arthritis who were overweight or obese, 21.1 percent (95% CI: 18.0-24.3) and 62.3 percent (95% CI: 58.3-66.2), respectively, received a suggestion to lose weight. About 7 percent (95% CI: 4.3-9.8) of adults with arthritis who were neither overweight nor obese received a suggestion to lose weight, which is significantly different as compared to those who are overweight or obese and have arthritis (Table 1).

The percentage of adults ages 18 years and older with arthritis that had a clinician ever suggest physical activity or exercise to help with their arthritis or joint symptoms was 53.5 percent (95% CI: 50.8 to 56.1). Only 50.2 percent (95% CI: 46.1-54.3) of adults with arthritis who were not physically active received a suggestion to be physically active as compared to 55.1 percent (95% CI: 51.6-58.6) of adults with arthritis who were already physically active, which is not significantly different (Table 1).

Table 1. Proportion Receiving Specified Arthritis Intervention (Among Those with Doctor-Diagnosed Arthritis)

	Weight management counseling to help arthritis/joint symptoms by a clinician		Physical activity counseling to help arthritis/joint symptoms by a clinician	
	Counseling Received	Counseling Not Received	Counseling Received	Counseling Not Received
	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)
Overall	33.9 (31.6-36.2)	66.1 (63.8-68.4)	53.5 (50.8-56.2)	46.5 (43.8-49.2)
Physically Active	33.0 (30.0-36.0)	67.0 (64.0-70.0)	55.1 (55.1-58.6)	44.9 (41.3-78.4)
Not Physically Active	35.6 (31.9-39.3)	64.4 (60.7-68.1)	50.2 (46.1-54.3)	49.8 (45.7-53.9)
Neither overweight nor obese	7.1 (4.3-9.8)	92.9 (90.2-95.7)	47.5 (41.2-53.7)	52.5 (46.3-58.7)
Overweight	21.1 (18.0-24.3)	78.9 (75.7-82.0)	48.5 (44.2-52.8)	51.5 (47.2-55.8)
Obese	62.3 (58.3-66.2)	37.7 (33.8-41.7)	62.2 (58.1-66.2)	37.8 (33.8-41.9)

Among adults who were overweight or obese 48.5 percent (95% CI: 44.2-52.8 95% CI) and 62.2 percent (95% CI: 58.1-66.2), respectively, received a suggestion to do physical activity for management of arthritis and joint symptoms. About 48 percent (95% CI: 41.2-53.7) of adults with arthritis who were neither overweight nor obese received a suggestion to be physically active, which is not significantly different as compared to adults who were overweight.

Discussion

Some obese and overweight adults with arthritis were getting a clinician's advice to lose weight to manage their arthritis. Weight loss is an important factor to help manage arthritis symptoms because every one pound of weight loss results in four pounds of pressure taken off each knee [4]. In addition, studies support that overweight and obese respondents were significantly more likely to report trying to lose weight if they had received weight-loss advice from a clinician than if they had not [9, 10]. This large gap in clinician counseling needs to be addressed in Kansas in order to better patients' symptoms.

Physical activity is well documented to reduce joint pain. Physical activity counseling by clinicians was shown to be one of the strongest predictors of higher physical activity levels of adults with arthritis [11], yet not all adults with arthritis were receiving their clinician's advice to be physically active for the management of their arthritis. In addition, only some of those who were overweight or obese and were physically not active, were receiving advice to increase physical activity to help with their arthritis and joint symptoms.

The Kansas BRFSS 2011 data indicated that the proportions of adults with arthritis 18 years and older who were receiving suggestions to lower weight were very low as compared to HP2020 objectives among those who are overweight, and the proportions of adults with arthritis 18 years and older who were receiving suggestions to increase physical activity were very low as compared to HP2020 objectives.

In addition, there was no statistically significant difference between those who were overweight and those who were neither overweight nor obese and between those who were physically active as compared to those who were not physically active in to receiving weight loss suggestions. Basically, this is demonstrating that people who are overweight and those who are not are getting very similar weight loss counseling. As is indicated by the research, clinicians' counseling is a powerful tool for behavior modification among patients. Therefore, increased public health efforts are needed to encourage clinicians, with patients with arthritis, to provide counseling for physical activity and weight management. In addition, efforts should be made to understand any obstacles that clinicians are facing in provision of counseling to their patients regarding participation in physical activity or weight management.

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Prevalence and Disparities in Chronic Obstructive Pulmonary Disease

Background

Chronic obstructive pulmonary disease, or COPD, refers to a group of lung diseases, such as emphysema and chronic bronchitis, that cause airflow blockage and make it difficult to breathe. According to the American Lung Association, more than 13 million Americans suffer from COPD. [1] It is one of the leading causes of death in Kansas. [2] Before 2011, data on COPD related health-care utilization among those with COPD were not available. This information was collected for the first time in Kansas as a part of the 2011 Kansas Behavioral Risk Factor Surveillance System (BRFSS).

Objective

To provide status of COPD and its related health-care utilization in Kansas.

Methods

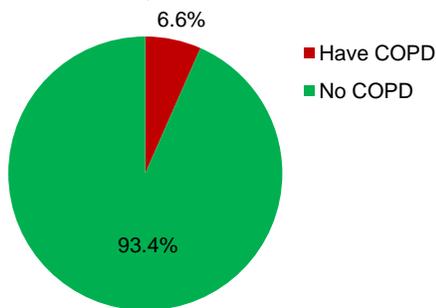
The 2011 Kansas BRFSS data were used for this report. Kansas BRFSS is an ongoing, annual, population-based, random, digit-dial survey of non-institutionalized adults ages 18 years and older living in a private residence with landline or cell phone service in Kansas. Kansas BRFSS uses a split questionnaire design. The core section is asked of all respondents and the survey then splits into two "branches" (version A or version B) consisting of state-selected optional modules/state-added modules. Approximately half of the respondents that are asked core questions are randomly assigned to either questionnaire version A or questionnaire version B of the survey. The determination of COPD question was among core section questions and the remaining questions related to COPD were part of questionnaire version A of the survey. The question to determine COPD status was, "Have you ever been told by a doctor or health professional that you have COPD, emphysema, or chronic bronchitis?" Those who

responded “yes” were asked additional COPD related questions: "Have you ever been given a breathing test to diagnose your COPD, chronic bronchitis, or emphysema?"; "Would you say that shortness of breath affects the quality of your life?"; "Other than a routine visit, have you had to see a doctor in the past 12 months for symptoms related to shortness of breath, bronchitis, or other COPD, or emphysema flare?"; "Did you have to visit an emergency room or be admitted to a hospital in the past 12 months because of your COPD, chronic bronchitis, or emphysema?"; and "How many different medications do you currently take each day to help with your COPD, chronic bronchitis, or emphysema?" Data from the 2011 Kansas BRFSS were analyzed to assess burden of COPD in various population subgroups. Also, the percentage of Kansans utilizing health care for COPD was examined. Prevalence estimates and 95% confidence intervals (CI) were calculated. Data were weighted using the new raking method. [3] SAS 9.3 software was used for analysis.

Results

In 2011, an estimated 141,747 (6.6%, 95% CI: 6.2 -7.0) Kansas adults had COPD (Figure 1).

Figure 1. Percentage of Adults 18 Years and Older With COPD, Kansas 2011



Higher prevalence of COPD was seen among older adults; females; those who were divorced or separated, or widowed; those who had lower income; those who had lower education; and adults who were unable to work. COPD was also relatively higher among current cigarette smokers; adults with current asthma and diabetes; those who did not participate in any physical activity; and those living with a disability (Table 1). About one in five adults (20.9%) who had COPD were not diagnosed with a breathing test. About half of the adults with COPD (56.9%) take at least one medication daily. More than one in three adults (39.8%) had seen a physician due to COPD symptoms in the last 12 months. About 14.5 percent visited a hospital or emergency department for COPD in the last 12 months. About 73 percent of adults with COPD felt that COPD symptoms negatively affected their quality of life (Table 2).

Table 1. Percentage of adults 18 years and older with COPD by sociodemographic characteristics and comorbid conditions in Kansas, 2011 BRFSS

Sociodemographic Characteristics and Comorbid conditions	Percentage of Adults 18 Years and Older with COPD			
	Unweighted Frequency	Weighted Percentage	Lower 95% Confidence Interval	Upper 95% Confidence Interval
Total	1658	6.6	6.2	7.0
<i>Age groups</i>				
18 - 24 years	19	2.0	0.9	3.0
25 - 34 years	60	3.6	2.6	4.7
35 - 44 years	89	4.0	3.1	5.0
45 - 54 years	276	7.3	6.3	8.2
55 - 64 years	446	10.0	8.9	11.0
65 years and older	768	11.9	11.0	12.8
<i>Gender</i>				
Male	575	5.8	5.2	6.5
Female	1083	7.3	6.8	7.9
<i>Race</i>				
White Only	1496	6.8	6.4	7.2
Black or African American only	59	6.4	3.7	9.1
Other Race Only	51	3.9	2.6	5.1
More than one race	47	12.9	8.5	17.3
<i>Ethnicity</i>				
Hispanic	46	4.1	2.6	5.5
Non-Hispanic	1608	6.8	6.4	7.3
<i>Annual Household Income</i>				
Less than \$15,000	312	14.5	12.3	16.6
\$15,000 - \$24,999	368	9.5	8.3	10.7
\$25,000 - \$34,999	232	8.3	7.0	9.6
\$35,000 - \$49,999	211	6.4	5.3	7.5
\$50,000 or higher	307	3.6	3.2	4.1
<i>Education</i>				
Less than high school	199	11.8	9.8	13.9
High school graduate or G.E.D	634	8.0	7.3	8.8
Some college	505	6.3	5.7	7.0
College graduate	319	3.2	2.8	3.6
<i>Marital Status</i>				
Married or member of an unmarried couple	759	5.8	5.3	6.3
Divorced or separated	425	12.2	10.7	13.6
Widowed	359	12.4	11	13.9
Never married	113	3.6	2.6	4.5
<i>Employment Status</i>				
Employed for wages or Self-employed	459	3.9	3.5	4.4
Out of work	87	7.7	5.5	10
Homemaker or Student	67	2.9	2.1	3.7
Retired	705	11.8	10.8	12.8
Unable to work	337	27.9	24.6	31.2
<i>Disability Status</i>				
Living with a disability	1068	16.5	15.4	17.7
Living without a disability	543	3.4	3	3.8
<i>Smoking Status</i>				
Current smoker	606	13.7	12.4	15.1
Non-smoker	1043	4.6	4.2	4.9
<i>Current Asthma Status</i>				
Current asthma	519	23.6	21.2	26
No current asthma	1109	4.8	4.4	5.2
<i>Physical Activity Status</i>				
Met Both Aerobic and Strengthening Guidelines	123	3.6	2.7	4.5
Did Not Meet Both Aerobic and Strengthening Guidelines	1444	7.2	6.7	7.7

Source: 2011 Kansas Behavioral Risk Factor Surveillance System, Bureau of Health Promotion, KDHE.

Table 2. Percentage of adults 18 years and older with COPD by selected COPD related health care utilization

Selected COPD related health care utilization	Percentage of adults 18 years and older with COPD			
	Unweighted Frequency	Weighted Percentage	Lower 95% Confidence Interval	Upper 95% Confidence Interval
Had COPD diagnosed with breathing test				
Yes	515	79.1	74.9	83.4
No	136	20.9	16.6	25.1
COPD negatively affect quality of life				
Yes	474	73.0	68.5	77.5
No	185	27.0	22.5	31.5
Use at least one daily COPD medication				
Yes	385	56.9	51.3	62.5
No	261	43.1	37.6	48.7
Seen by physician for COPD in last 12 months				
Yes	288	39.8	34.8	44.8
No	375	60.2	55.2	65.2
Visited hospital/ED for COPD in last 12 months				
Yes	94	14.5	10.9	18.0
No	571	85.5	82.0	89.1

Source: 2011 Kansas Behavioral Risk Factor Surveillance System, Bureau of Health Promotion, KDHE.

Conclusions

COPD is a prevalent health condition in Kansas. Disparities in COPD prevalence were seen with respect to various socio-demographic sub groups and among those with certain health conditions and behaviors. About one-fifth of adults with COPD were not diagnosed with an easy to perform breathing test. Three out of four adults with COPD felt that COPD symptoms negatively affected their quality of life. About half of the adults with COPD took daily medication, about one third visited a physician and one in seven visited a hospital/ER due to COPD symptoms in the past 12 months. These population-based survey results indicate the need for public health strategies to address issues related to COPD and its treatment among Kansas adults.

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Maternal and Child Health Trends in Kansas

The Kansas Department of Health and Environment's Bureaus of Family Health and Epidemiology and Public Health Informatics has issued the 2012 Maternal and Child Health Biennial Summary for the State of Kansas. This report provides an overall picture of the health of Kansas mothers and children and increases understanding of the important role the information plays in assessing key indicators of population health. The Summary provides information specific to: women of reproductive age and infants, children and adolescents, and children and youth with special health care needs. Updates related to the Kansas Maternal and Child Health 5-Year Needs Assessment (MCH2015) and other special projects are also included.

Women of Reproductive Age and Infants

In Kansas, 2001-2010, there was an increasing trend in the percent of women ages 18-44 who lack health insurance, with 18.7 percent of women lacking health insurance in 2010. In 2010, women at greatest risk of being uninsured were Hispanic, had less than a high school education, earned less than \$25,000, resided in a rural county, or were widowed, divorced, or separated. The percent of Hispanic women ages 18-44 with no health insurance increased from 28.4 percent in 2001 to 48.3 percent in 2010.

The rate of smoking during pregnancy declined significantly over the six years from 2005 to 2010, but remained nearly 1.5 times the national rate. In 2010,

15.0 percent of Kansas women reporting smoking during pregnancy. The smoking rate was highest for non-Hispanic Native American women, 29.8 percent, followed by non-Hispanic white women, 17.5 percent, and non-Hispanic black women, 15.7 percent. Rates for Hispanic (4.8%) and non-Hispanic Asian women (2.5%) were substantially lower. Among the different age groups examined, teenagers 18-19 years and women in their early twenties (ages 20-24) had the highest smoking rates (23.4% and 21.9%, respectively). Smoking rates for women in their thirties and older were sharply lower, approximately nine percent.

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.

For the period of 2001-2010, the percent of low birthweight (LBW) births in Kansas remained unchanged. The LBW rate in Kansas has remained consistently lower than the nation. LBW and very low birthweight (VLBW) infants contribute heavily to the total infant mortality rate. During 2008-2010, almost two thirds (61.7%) of infant deaths occurred among the 7.2 percent of infants who were born at LBW. Similarly, 45.5 percent of infant deaths occurred among the 1.3 percent of infants born at VLBW. The risk of delivering a LBW infant was greater among non-Hispanic black mothers and differed by maternal age, with the highest risk for the youngest and oldest mothers regardless of race.

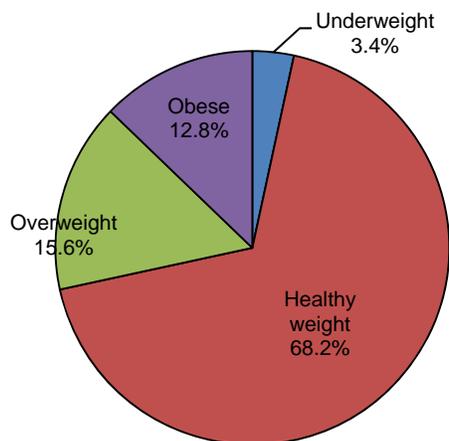
Over the past decade (2001-2010), the infant mortality rate (IMR) has statistically remained the same. However, for 2007-2010, there was a significant decrease in trend detected. For many years, the non-Hispanic black infant mortality rate has been more than two times the non-Hispanic white infant mortality 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.

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

Children and Adolescents

The percent of Kansas WIC children (ages 24-59 months) who are overweight or obese decreased significantly from 31.1 percent in 2004 to 28.4 percent in 2011. In 2011, 32.4 percent of Hispanic children and 35.0 percent of American Indian/Alaskan Native children participating in WIC were overweight or obese.

Figure 1. Percent of Weight Distribution of WIC Children (24-59 months) Kansas, 2011

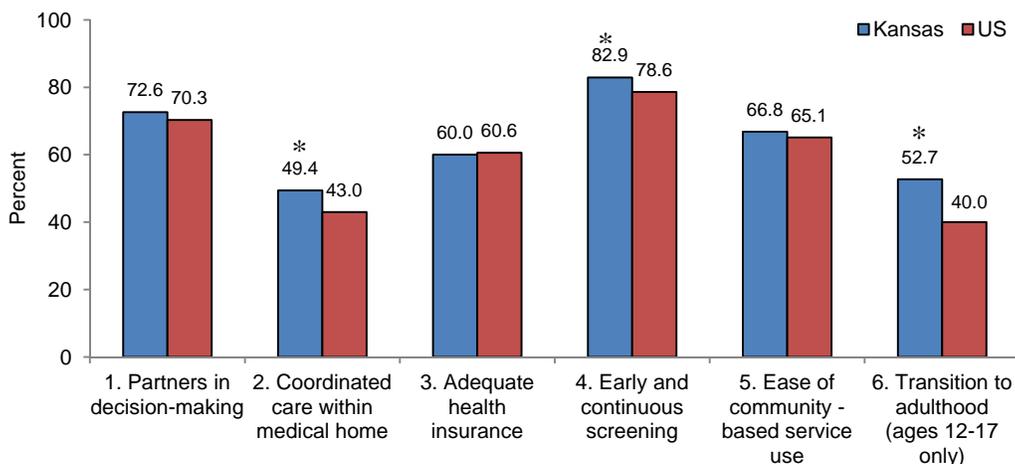


n=37,523

Source: Pediatric Nutrition Surveillance System

In Kansas, for adolescents and young adults ages 15-24 (2008-2010), 69.6 percent of unintentional injury deaths were caused by motor vehicle crashes, 15.7 percent were caused by poisonings, and 3.0 percent were caused by drowning. In non-Hispanic white and Hispanic adolescents and young adults, unintentional injury caused the highest percent of injury deaths. However, in non-Hispanic black adolescents and young adults, homicides caused more deaths than unintentional injuries.

Figure 2. Percent of CYSHCN Achieving National Outcome Measures, 2009-2010



*Significantly higher than U.S.

CYSHCN: Children and Youth with Special Health Care Needs

Source: National Survey of Children with Special Health Care Needs, 2009-2010

Children and Youth with Special Health Care Needs

Systems of Care for children and youth with special health care needs (CYSHCN): Effective promotion of health and health services for 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). [1]

The 2009/2010 National Survey of Children with Special Health Care Needs (NS-CSHCN) estimates that 25.0 percent of Kansas CYSHCN ages 0-11 met all five core outcomes, compared to 20.2 percent for the U.S., and that Kansas ranked 7th in the nation. For Kansas CYSHCN ages 12-17, 19.9 percent met all six core outcomes compared to 13.6 percent for the U.S., and Kansas ranked 4th 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 1st in the nation.

For comments or questions about this summary, contact Jamie Kim at jkim@kdehks.gov. The summary can be viewed at www.kdehks.gov/bfh/download/MCH_2012_Biennial_Summary.pdf

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Reference

1. National Survey of Children with Special Health Care Needs. NS-CSHCN 2009/10. Data query from the Child and Adolescent Health Measurement Initiative, Data Resource Center for Child and Adolescent Health website. www.childhealthdata.org

Preliminary Analysis of Kansas Resident Deaths Due to Exposure to Excessive Natural Heat, Summer 2012

Background

In the United States, heat waves cause more deaths each year than floods, hurricanes, and tornadoes combined [1]. In Kansas in 2012, during the months of May through September, there were at least 24 days where the average maximum temperature was above 100° F. In addition, there was a cluster of nine consecutive days where the temperature was above 100 degrees – July 18 to July 26. Excessive high temperatures constitute a serious health hazard -- particularly for vulnerable populations -- and is associated with high death-to-case ratio [2]. From May 1 to October 31, there were ten heat-related deaths in Kansas, based on death certificates received by the Office of Vital Statistics (OVS) of the Kansas Department of Health and Environment (KDHE). Concurrently, most Kansas

hospitals and their emergency departments collaborated with KDHE to establish a temporary surveillance system for heat-related illnesses, injuries, and deaths. The following summarizes the demographic characteristics of the decedents and provides a geographic distribution of heat-related illnesses and injuries reported by the Kansas hospitals.

Methods

From May 1 to October 31, 2012, death certificates submitted to the OVS with heat exposure or high ambient temperature listed as the underlying or contributing cause of death were collected for surveillance purposes. The selection of the death certificates was made by KDHE nosologists and was based on information listed by the coroners or physicians in sections 22 through 28 of the Kansas death certificate (VS 231 Rev. 05/30/2009). In addition, through the EMResource, an Internet-based communication and resource management system, most Kansas hospitals voluntarily reported on a weekly basis the number of cases of heat-related illnesses, injuries, and deaths that they received. Each week, participating Kansas hospitals received a query prompting them to submit a count of the following heat-related conditions:

ICD-9 - Conditions

- 992.0 - Heat stroke and sunstroke
- 992.1 - Heat syncope
- 992.2 - Heat cramps
- 992.3 - Heat exhaustion from water depletion
- 992.4 - Heat exhaustion from salt depletion
- 992.5 - Heat exhaustion unspecified
- 992.6 - Heat fatigue transient
- 992.7 - Heat edema
- 992.8 - Other specified heat effects
- 992.9 - Unspecified effects on heat and light
- E900.0 - Health effect caused by excessive heat due to weather (i.e. sunstroke, ictus solaris/heatstroke)
- E900.9 - Effect from unknown cause of excessive heat

The reporting period for the hospitals was from May 24 to September 12. SAS 9.2 was used to calculate the descriptive statistics presented below.

Results

From May 1 to October 31, 2012, ten Kansas residents died with underlying or contributing cause of death reported as heat exposure or high ambient temperature. There were seven males (70%) and three females (30%) (Table 1). The mean age for the decedents was 60.9 years. More than half (60.0%) were not married (Table 2) and more than half (60%) graduated from high school (Table 3). All decedents were white non-Hispanic and lived either in the northwest (NW=40%), southwest (SW=20%), northeast (NE=10%) or south central (SC=30%) regions of the KDHE district offices (see map below). Two of the decedents died at home (20%); the others died in a hospital setting (emergency department [ER]: 30%, In-patient: 30%) or in a hospice or assisted living facility (20%) (Table 4). Finally, there was one work-related fatality.

Table 1. Distribution of Decedents by Sex

Sex	Frequency	Percent
F	3	30.0%
M	7	70.0%
Total	10	100.0%

Table 2. Distribution of Decedents by Marital Status

Marital Status	Frequency	Percent
Divorced	4	40.0%
Married	3	30.0%
Widowed	1	10.0%
Never Married	1	10.0%
Unknown	1	10.0%
Total	10	100.0%

Table 3. Distribution of Decedents by Education Level

Education	Frequency	Percent
8 th grade or less	1	10.0%
9-12 grade - No diploma	3	30.0%
Associate degree	2	20.0%
Some college credits - No degree	3	30.0%
High school graduate or GED	1	10.0%
Total	10	100.0%

Table 4. Distribution of Decedents by Place of Death

Place of Death	Frequency	Percent
Assisted Living Facility	1	10.0%
ER/Outpatient	3	30.0%
Hospice Facility	1	10.0%
Inpatient	3	30.0%
Own Residence	2	20.0%
Total	10	100.0%

From the Kansas hospitals and emergency departments reports, there were 516 injuries or illnesses treated during the reporting period of May 24 to September 12. The cases, within the areas of KDHE district offices, were distributed as follows: north central, 81 (15.7%); northeast, 168 (32.6%); northwest, 38 (7.4%); south central, 209 (40.5%); southeast, 9 (1.7%); and southwest, 11 (2.1%) (See map) (Table 5).

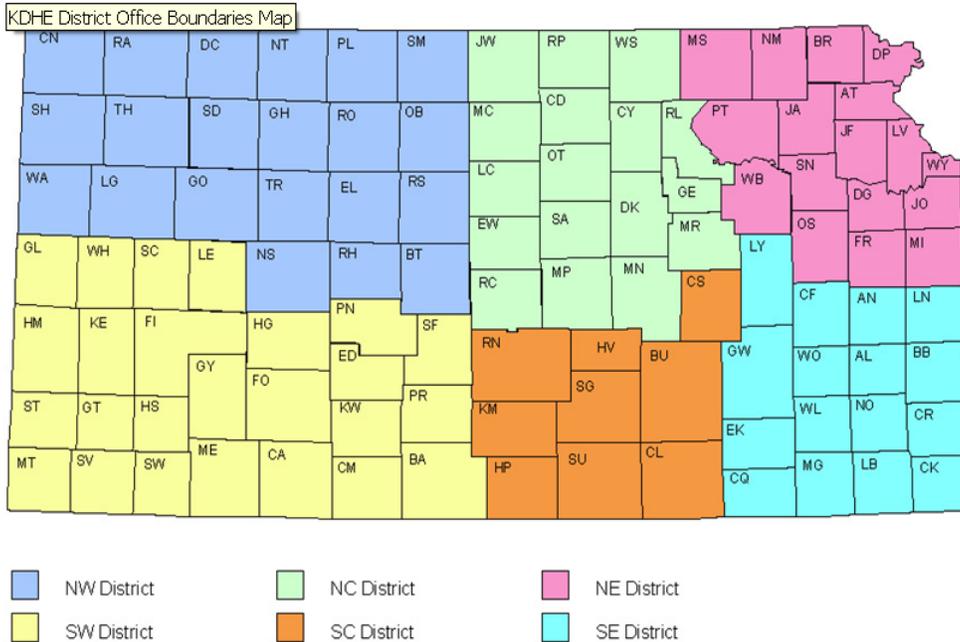
Table 5. Distribution of Injuries and Illnesses Reported by Kansas Preparedness Hospitals, by Region

Preparedness Region	Injuries/Illnesses	Percent
North Central Kansas	81	15.7%
Northeast Kansas	168	32.6%
Northwest Kansas	38	7.4%
South Central Kansas	209	40.5%
Southeast Kansas	9	1.7%
Southwest Kansas	11	2.1%
Total	516	100.0%

Discussion and Conclusion

As of November 1, 2012, there were ten confirmed cases of heat related death in Kansas for the year 2012. This count is based on death certificates received by the Office of Vital Statistics and may not be final, as some death certificates are still pending. It represents a reduction of 69.7% in the number of fatalities due to heat exposure compared to the year 2011, when 33 heat-related deaths occurred in the state. Based on weather data from the National Climatic Data Center, 2012 was as hot as or even hotter than 2011, yet fewer deaths occurred in 2012. Because of the small number of deaths, it is difficult to draw reliable conclusions; however, some patterns are consistent with the scientific literature. In general, the elderly, the poor and disenfranchised individuals [3] are at higher risk than others of dying during heat waves. Widows and widowers as well as unmarried subjects [4] are particularly vulnerable to high summer temperatures [5], and increasing social contact was associated with favorable health outcomes following exposure to high ambient temperatures [6, 7]. The heightened awareness regarding the risks of heat-related illness that followed the 2011 heat wave in Kansas and that was reinforced by numerous public announcements throughout the summer might have helped prevent some deaths in 2012. It is therefore recommended heat efforts be sustained to keep the population informed and educated about the dangers of exposure to high ambient heat and that data collection be continued in order to better understand the risk factors associated with heat-related morbidity and mortality in the state. In addition, data collected from Kansas hospitals and emergency departments showed that the 2012 heat waves have injured and sickened a significant number of people in the state, increasing the level of concern regarding the additional burden that hot summers may put on the healthcare infrastructure in Kansas.

KDHE District Office Boundaries



Acknowledgements

Aubrey Myer, Nosologist, Office of Vital Statistics, KDHE
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Prevalence of Extreme Obesity among Kansas Adults, 2011

Background

Obesity continues to be recognized as a major public health concern due to its relatively high prevalence and its associated increased risk for several chronic health conditions, including coronary heart disease, type 2 diabetes, certain cancers, stroke and osteoarthritis [1, 2]. The prevalence of obesity among Kansas adults has been well-documented for more than a decade due to the on-going surveillance of body mass index (BMI) by the Kan-

sas Behavioral Risk Factor Surveillance System. According to most recent estimates, in 2011, 29.6 percent (95% CI: 28.7% to 30.4%) of Kansas adults 18 years and older were obese, defined as having a BMI equal to or greater than 30.0 kg/m² [3]. However, the prevalence of extreme (severe) obesity, defined as having a BMI equal to or greater than 40.0 kg/m², which corresponds to approximately 100 pounds of excess body weight, has not been previously examined in Kansas. Extreme obesity is important to monitor due to its even greater association with adverse health outcomes [4].

Objectives

The purpose of this study is to describe the prevalence of extreme obesity among Kansas adults overall and among selected demographic characteristic subgroups.

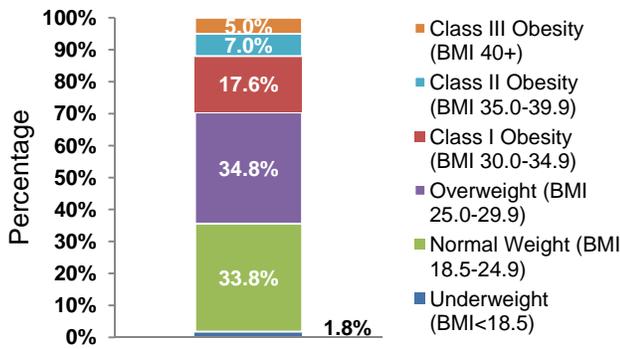
Methods

In 2011, the Kansas Behavioral Risk Factor Surveillance System (BRFSS) measured self-reported weight and height, which were used to compute individuals' BMI. Weight was measured by the question, "How much do you weigh without shoes?" and height was measured by the question, "About how tall are you without shoes?" BMI was then calculated as weight in kilograms divided by height in meters-squared (kg/m²). Weight status was categorized as follows: underweight (BMI less than 18.5 kg/m²), healthy weight (BMI 18.5 to 24.9 kg/m²), overweight (BMI 25.0 to 29.9 kg/m²) and obese (BMI 30.0 kg/m² or greater). Obesity status was further categorized into three classes: class I obese (BMI 30.0 to 34.9 kg/m²), class II obese (BMI 35.0 to 39.9 kg/m²), and class III obese (BMI 40.0 kg/m² or greater). Class III obesity is also referred to in the literature as extreme, severe or morbid obesity. Demographic characteristics measured include gender, age, race/ethnicity, educational level, annual household income, residential county population density and disability status. Weighted prevalence estimates and 95 percent confidence intervals for extreme obesity were computed overall and among demographic characteristic subgroups. Prevalence estimates were considered statistically significantly different among subgroups if 95 percent confidence intervals did not overlap.

Results

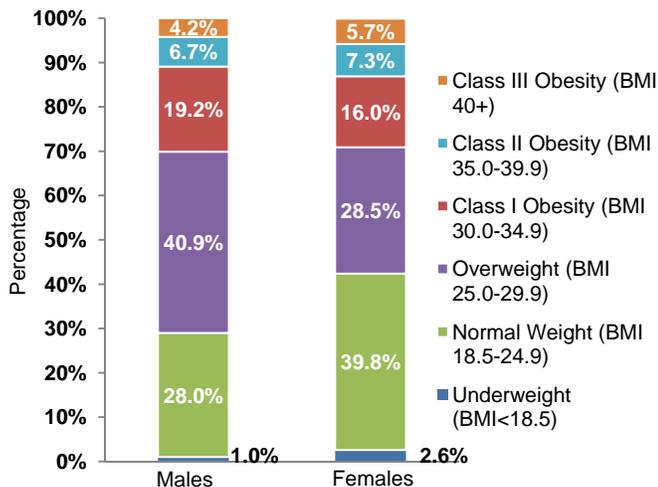
In 2011, the prevalence of class I obesity among Kansas adults 18 years and older was 17.6 percent (95% CI: 16.9% to 18.3%); class II obesity was 7.0 percent (95% CI: 6.5% to 7.4%); and class III, or extreme, obesity was 5.0 percent (95% CI: 4.6% to 5.4%) (Figure 1).

Figure 1. Prevalence of Class I, Class II and Class III obesity among Adults 18 Years and Older, Kansas 2011



The prevalence of class I obesity among Kansas adults 18 years and older was significantly lower among females (16.0%; 95% CI: 15.2% to 16.8%) compared to males (19.2%; 18.1% to 20.2%) (Figure 2). However, the prevalence of class III, or extreme, obesity was significantly higher among females (5.7%; 95% CI: 5.2% to 6.3%) compared to males (4.2%; 95% CI: 3.6% to 4.8%).

Figure 2. Prevalence of Class I, Class II and Class III obesity among Males and Females 18 years and Older, Kansas 2011



In addition, the prevalence of extreme obesity was significantly higher among (Table 1):

- Adults in age groups 25-64 years old compared to adults aged 18-24 years (2.2%; 95% CI: 1.3% to 3.2%) and adults aged 65 years and older (2.9%; 95% CI: 2.4% to 3.4%);
- Non-Hispanic African American adults (11.1%; 95% CI: 7.8% to 14.3%) compared to non-Hispanic whites (4.7%; 95% CI: 4.3% to 5.2%) and non-Hispanic persons of other or multiple races (3.6%; 95% CI: 2.0% to 5.1%);
- Adults with less than high school education (6.9%; 95% CI: 5.1% to 8.7%) compared to high school graduates (4.4%; 95% CI: 3.7% to 5.0%) and college graduates (3.7%; 95% CI: 3.1% to 4.3%);
- Adults whose annual household income was less than \$15,000 (10.2%; 95% CI: 8.0% to 12.4%) compared to those whose annual household income was greater than \$15,000; and
- Adults living with a disability (10.2%; 95% CI: 9.1% to 11.3%) compared to those living without a disability (3.3%; 95% CI: 2.9% to 3.7%).

There were no statistically significant differences in the prevalence of extreme obesity among population density peer subgroups.

Table 1. Prevalence of extreme obesity (BMI > 40.0 kg/m²) among adults 18 years and older, Kansas 2011

Characteristic	Weighted Prevalence	95% Confidence Interval	
Total	5.0%	4.6%	to 5.4%
Gender			
Male	4.2%	3.6%	to 4.8%
Female	5.7%	5.2%	to 6.3%
Age group			
18-24	2.2%	1.3%	to 3.2%
25-34	5.2%	4.0%	to 6.4%
35-44	7.2%	5.9%	to 8.5%
45-64	6.0%	5.4%	to 6.6%
65 and older	2.9%	2.4%	to 3.4%
Race and Ethnicity (age-adjusted)			
White, Non-Hispanic	4.7%	4.3%	to 5.2%
African American, Non-Hispanic	11.1%	7.8%	to 14.3%
Other/Multi-Race, Non-Hispanic	3.6%	2.0%	to 5.1%
Hispanic	6.0%	4.0%	to 7.9%
Education			
Less than high school	6.9%	5.1%	to 8.7%
High school graduate or G.E.D.	4.4%	3.7%	to 5.0%
Some college	5.9%	5.1%	to 6.6%
College graduate	3.7%	3.1%	to 4.3%
Annual Household Income			
Less than \$15,000	10.2%	8.0%	to 12.4%
\$15,000 to \$24,999	6.1%	5.0%	to 7.2%
\$25,000 to \$34,999	4.8%	3.6%	to 5.9%
\$35,000 to \$49,999	4.8%	3.8%	to 5.8%
\$50,000 or higher	3.8%	3.2%	to 4.3%
County Population Density			
Frontier	4.1%	2.5%	to 5.6%
Rural	4.9%	3.8%	to 5.9%
Densely-settled rural	5.0%	4.0%	to 5.9%
Semi-urban	5.4%	4.4%	to 6.4%
Urban	4.9%	4.3%	to 5.5%
Disability Status			
Living with a disability	10.2%	9.1%	to 11.3%
Living without a disability	3.3%	2.9%	to 3.7%

Source: 2011 Kansas Behavioral Risk Factor Surveillance System, Bureau of Health Promotion, KDHE. Prevalence estimates for race and ethnicity were age-adjusted to the U.S. 2000 standard population. County population density peer groups are based on the population for each county in the 2010 population 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).

Discussion

Although the prevalence of extreme obesity in Kansas in 2011 was relatively low (5.0%), prevalence estimates differed significantly among several demographic characteristic subgroups. Specifically, the prevalence of extreme obesity in Kansas was significantly higher among women; adults aged 25-64 years; non-Hispanic African Americans; those with less than a high school education; those whose annual household income was less than \$15,000; and those living with a disability. Nationally, the prevalence of extreme obesity has increased substantially since 2000 and was estimated at 6.3 percent in 2009-2010 [5,6].

There are certain limitations to this study worth noting. Survey results do not apply to individuals without telephone service, those who reside on military bases or within institutions, or those who are unable to complete a telephone survey. In addition, due to new survey methodology beginning in 2011, including dual-frame sampling and iterative proportional fitting (or raking) weighting methodology, 2011 BRFSS data cannot be compared to previous years [7].

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Changes in Kansas Autopsy Practices, 1956-2011

Introduction

An autopsy is a medical examination of a deceased person, used to confirm clinical findings or to establish cause of death. Autopsies may be performed by a hospital or clinic, usually at the request of family, or by a coroner as a part of a legal investigation into the circumstances of the death. Before 1971, hospitals were required to perform autopsies for twenty to twenty-five percent of deaths occurring onsite as a requirement for accreditation with the Joint Commission on Accreditation of Hospitals. The requirement was eliminated in 1971, and autopsy rates nationwide have declined from 19.3 percent in 1972 to 8.5 percent in 2007 [1]. Kansas autopsy rates declined from 14.6 percent in 1972 to 6.9 percent in 1997 before beginning a mild recovery that brought them back 8.6 percent in 2007, slightly above the national level.

During the years since 1971, the character of Kansas autopsies have changed as much as the rates. Most autopsies are now for deaths from external causes, where once they were for deaths from disease. Autopsy rates for younger age groups have risen sharply, while those for decedents over 55 have fallen. Autopsies are more likely to be performed for deaths due to suicide or accident than was once the case, and less likely to be performed for deaths due to natural causes.

Methods

A death longitudinal file confined to the fields of interest for this study was constructed using the annual Death History files from

1956 to 2011 (the most recent year available). History files from earlier years were not complete enough for use in this study.

Autopsy-related fields have been added gradually to the annual history files since 1956. Fact of autopsy was recorded for the entire period, but a field indicating whether the autopsy results were used to determine cause of death was not added until 1968, and a field indicating whether there had been a referral to a coroner was not added until 1978. A separate field for manner of death was not added to the history file until 1989. As a result, the starting year varies on several of the figures in the result section.

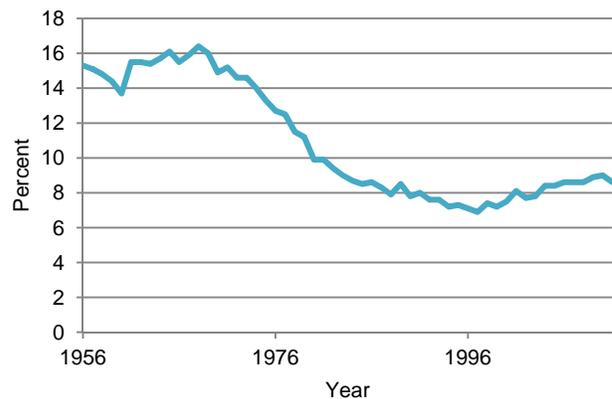
Cause of death can only be tracked precisely for high level groupings over the period covered by this study. In 1956, Vital Records used ICD-6 codes for cause of death; since 2005 ICD-10 codes have been used, and every revision between has been used at one time or another [2]. For this study, the only cause-of-death groups used were death due to disease, death due to external causes, and death due to ill-defined causes. [3]

An analysis of geographic variations in autopsy rates was based on the six KDHE districts, as currently configured. [4] Other groupings of Kansas counties into regions are possible, but there are no obvious reasons for choosing one over another.

Results

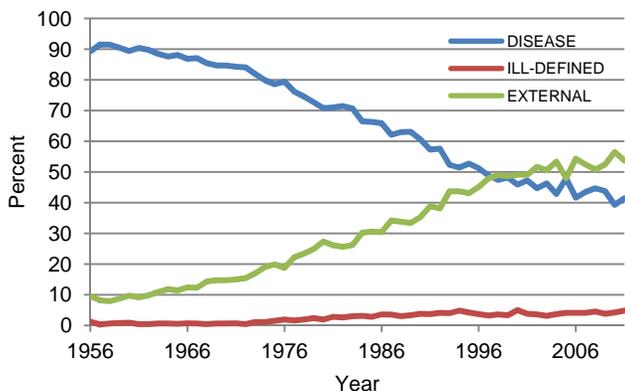
In the 1956-2011 periods, Kansas autopsy rates peaked in 1968, at 16.4 autopsies per 100 Kansas occurrence deaths. The autopsy rate declined to 6.9 percent in 1997 before beginning a slow recovery that brought it back to 9.0 percent in 2010 before dropping back to 8.6 percent in 2011 (Figure 1).

Figure 1. Autopsy Rates for Kansas Occurrence Deaths, 1956-2011



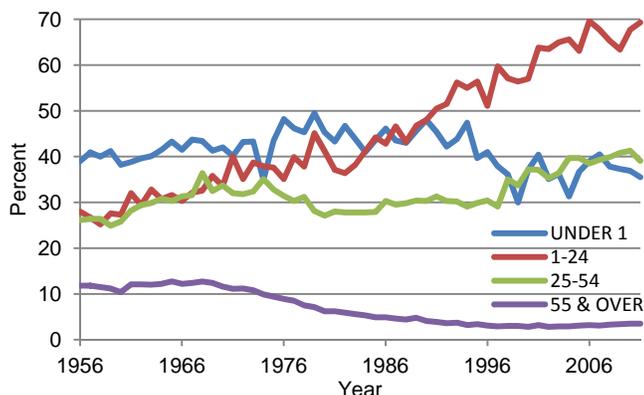
In 1956, most (89.3%) autopsies were for deaths due to disease (whether chronic or infectious), and fewer than ten percent (9.5%) were deaths due to external causes. In the years since, autopsies for deaths due to external causes have steadily increased as a percentage of all autopsies, while autopsies for disease deaths have steadily decreased as a share of all autopsies. In 2011, most (53.7%) of all autopsies were for deaths due to external causes, while slightly over forty percent (41.4%) of all autopsies were for deaths due to disease. There has always been a residue of autopsies for deaths due to ill-defined causes (Figure 2).

Figure 2. Autopsies for Three Causes of Death categories, as a Percent of all Autopsies, 1956-2011



The age composition of decedents selected for autopsy has also changed significantly over the years from 1956 to 2011. Autopsy rates have always been higher for younger decedents than for the elderly. However, since 1956, the autopsy rate for decedents fifty-five years of age or older has declined from 11.8 percent to 3.5 percent, and the rate for infants has declined from 39.0 percent to 35.5 percent, while the autopsy rate for decedents between one and twenty-four years of age has increased from 28.0 percent to 69.3 percent, and the rate for decedents between twenty-five and fifty-four years of age has increased from 26.1 percent to 39.1 percent (Figure 3).

Figure 3. Autopsy Rates for Four Age Groups, 1956-2011



In 1989, an additional field indicating manner of death was added to the death history file. Since 1989, the autopsy rate for homicides has been above 95 percent for all but two years, and in those years the rate was still above 90 percent. The autopsy rate for suicides has risen sharply, from approximately 50 percent in 1989 to approximately 80 percent in 2011. The autopsy rate for accidental deaths has risen from approximately 44 percent in 1989 to approximately 54 percent in 2011. On the other hand, the autopsy rate for natural deaths has declined from 8.4 percent in 1989 to 3.8 percent in 2011.

An analysis of autopsy rates by KDHE district shows that before 1971, autopsy rates were highest in the Northeast Kansas district, peaking at 23.7 percent, and the South Central Kansas district, peaking at 20.8 percent, while the peak rates for the other four regions of the state clustered between nine and fourteen percent. After 1971, autopsy rates declined in all regions of the state, but the decline was most severe for the Northwest Kansas district, with a peak-to-trough ratio of 3.47 and no firm indication that this is the true trough, and least severe in the Southwest Kansas district, with a peak-to-trough ratio of 1.45. The other four regions of the state had peak-to-trough ratios between 2.70 and 3.16. Starting in the mid-1990s, autopsy rates started to rise again for all regions except the Northwest Kansas district.

From most years from 1968 to 1988, autopsy findings were used to determine underlying cause of death in slightly less than eighty percent of the cases for which an autopsy was performed. Since 1988, the rate at which autopsy findings have been used to determine underlying cause of death has drifted higher, and was greater than ninety percent in two years (2004 and 2008). Any reasons why autopsy findings would not be used to determine cause of death are not captured on the death certificate.

In 1978, an additional field indicating a referral to a coroner was added to the death history file. Since that year, autopsy rates for cases referred to a coroner have varied between 34.2 percent and 54.5 percent, with a pronounced drop in the rate (from 54.5% to 41.7%) in 2005 that may be associated with the implementation of a revised version of the death certificate in that year. Autopsies that did not involve a referral to a coroner were still fairly common in 1978, when fifteen percent of deaths without a referral to a coroner were autopsied. By 2011, such autopsies had become rare, with autopsies performed for less than one percent of deaths without a referral to a coroner.

Discussion and Conclusions

Since the abolition of the autopsy requirement in the hospital accreditation standards in 1971, Kansas autopsy rates declined by more than half before recovering to national levels starting from the late 1990s. This recovery is remarkable because Kansas autopsy rates in the preceding years were below the national rate. Autopsy rates remain highest for the most populous regions of the state (Northeast and South Central Kansas).

Autopsies without a referral to a coroner are currently rare, and even when there is a referral to a coroner, an autopsy follows for fewer than half of the referrals. Autopsy rates are highest for deaths due to external causes (homicide, suicide and accidents), and autopsy rates for deaths due to natural causes appear to have stabilized at a low level.

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References and Notes

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- Cause of death code groups, ICD-6 to ICD-10:

Classification System	Disease	Ill-Defined Causes	External Causes
ICD-6	001-779	780-795	E800-E999
ICD-7	001-779	780-795	E800-E999
ICD-8	001-779	780-796	E800-E999
ICD-9	001-779	780-799	E800-E999
ICD-10	A00-Q00	R00-R99	U00-Y99

The disease category includes both infectious diseases and chronic conditions such as cancer and heart disease. External causes of death include homicide, suicide, and unintentional injury. SIDS is probably the best-known example of a death due to ill-defined causes.

[4] For KDHE district office boundaries in effect in late 2012, see http://www.kdheks.gov/befs/dist_office.html.

Prevention of Nosocomial Infections and Cost Effectiveness Refined Study

Introduction

Hospital associated infections (HAIs) are a major cause of morbidity, mortality, and excess healthcare costs (\$28-33 billion nationally per year) [1]. Approximately 1.7 million infections and 100,000 deaths each year are attributed to HAIs [2]. Many of the HAIs are associated with the insertion of invasive devices and often occur to elderly patients in ICUs [3].

The preliminary results of the “Prevention of Nosocomial Infections and Cost Effectiveness Refined” (PNICER) study were recently published [3]. A team of researchers at the Columbia University School of Nursing set out to improve infection control efforts by providing evidence based knowledge to the infection prevention community. Phase I was a qualitative study, interviewing hospital personnel at twelve hospitals. Phase II included a web based study of eligible National Healthcare Safety Network (NHSN) hospitals.

The aims of the three year project were 1) to assess infection prevention, surveillance, and control in hospitals; 2) to determine the impact of infection control processes on HAI rates in intensive care units (ICUs) nationwide; and 3) to research the impact of mandatory reporting on infection control processes and HAI rates.

The PNICER study provides information about infection preventionist roles, organization, and infection prevention activities. The study shows that a greater use of processes such as central line and ventilator bundles (i.e., checklists) leads to the reduction of HAIs in patients most at risk.

Background

The research team used the results of the “Prevention of Nosocomial Infections and Cost Effectiveness Analysis” (PNICE) study done in August 2007 to guide the PNICER study [4]. The PNICE study researched staffing ratios at infection control departments and targeted interventions at ICUs in the United States. Decreased HAI rates were seen in ICUs with 95 percent or greater compliance with infection prevention processes (i.e., central line bundle).

The U.S. Department of Health and Human Services Action Plan to Prevent HAI identified priority HAI reduction metrics; the implementation of this plan is evidenced in the Centers for Medicare and Medicaid Services (CMS) recent “de facto” mandate linking HAI reporting via NHSN to reimbursement. In addition, reporting on select HAI rates is now mandated in 31 states (not including Kansas) [5]; 2,198 acute care hospitals (including 80 acute care hospitals from Kansas in 2011) are included in the NHSN dataset.

Methods

For Phase I of the PNICER study, personnel (e.g., infection professionals, epidemiologists, and nurses) at 12 hospitals in the PNICE study were interviewed in the summer and fall of 2010. Narrative data from the interviews were qualitatively analyzed to identify patterns in infection prevention, surveillance, and control in hospitals.

For Phase II, the survey was then refined using the results from Phase I and prior work. In 2011, eligible NHSN hospitals across the United States were surveyed on-line on the strength of infection control processes in ICUs, including reporting HAI data to NHSN. NHSN is a secure web-based electronic data repository, supported by the Centers for Disease Control and Prevention, for collection of data on HAI. In the fall of 2012, NHSN ICU HAI data from 2006 to 2011 were obtained. Multivariate methods to minimize potential bias and address clustering of data were used to analyze the data.

Results

Over 1,000 hospitals (n=1,092) in the United States participated in the survey, and the average bed size of participating hospitals was 238. In participating infection control departments, greater than half had a medical doctor epidemiologists, with 29 percent working full-time in infection prevention programs. An average of 50 percent of infection preventionists were certified in infection control.

Typically, 47 percent of an infection preventionist’s time was spent on surveillance. The same amount of time was spent on

daily isolation issues as on educational issues (12%). The least amount of time (6%) was spent on outbreak management. Twenty-four percent of time was dedicated to other activities such as having meetings, developing policies, consulting, researching, and addressing occupational health. Infection preventionists’ staff spent a greater number of hours at infection control departments and inpatient wards and a lesser amount of time at outpatient clinics and long-term care facilities.

Infection control departments are more visible and influential with the increase in mandatory reporting. Mandatory reporting resulted in less time for routine infection control activities (e.g. rounding, staff education, etc.). On average, 17 hours per week was dedicated to state regulated mandatory reporting requirements.

The number of hospitals using electronic surveillance systems (ESS) increased. Thirty-five percent of hospitals used ESS to track HAIs, and those who did were satisfied with the systems. Most of the systems (86%) are commercially available. ESS were used for functions such as automatic alerts, reviewing data, improving infection control, and creating and sharing reports.

Device-associated-infection prevention continues to be an issue. Checklists to monitor central line bundle compliance (i.e., evaluation of line necessity, site selection, use of chlorhexidine gluconate, barrier precautions, hand hygiene) are available at 91 percent of hospitals; 69% of hospitals have checklists to monitor ventilator bundle compliance (i.e., oral cavity cleansing with chlorhexidine gluconate, deep venous thrombosis prophylaxis, stomach ulcer prophylaxis, sedation vacation, raising head of bed). Hospitals using the central line bundle checklists (47.9%) and ventilator bundle checklists (46.8%) reported proper implementation greater than or equal to 95 percent of the time.

Discussion

Most of the participating infection control programs staffed a clinically trained healthcare epidemiologist and one or more infection preventionists. Infection preventionists may or may not be certified in infection control; spent time on surveillance, isolation, education, and outbreaks; and worked throughout the healthcare system (e.g. inpatient wards, outpatient clinics, and long-term care facilities).

The visibility and influence of infection control departments increased with mandatory reporting, and more time was dedicated to mandatory reporting requirements. Increasingly, hospitals used ESS to improve efficiency, communication, and patient data review.

Device-associated infections remained problematic. Prevention activities such as the use of checklists to monitor central line and ventilator compliance were used in infection control departments; hospitals that used those checklists reported proper implementation.

Infection prevention and control programs are effective in preventing and controlling the spread of infections in healthcare settings. KDHE has developed a statewide plan to quantify and subsequently reduce the occurrence of HAIs in Kansas. The plan focuses on HAI surveillance and reporting and is consistent with national guidelines and recommendations. All Kansas hospitals have been asked to voluntarily use the NHSN database and report data on the following priority prevention targets: central line associated bloodstream infections, catheter associated urinary tract infections, *C. difficile* infections, and surgical site infections for abdominal hysterectomy and colon surgeries. One additional metric is anticipated to be added in 2013: methicillin-resistant *Staphylococcus aureus* (MRSA) bacteremia. Currently 80 acute care facilities report HAI data to KDHE; KDHE will publish state-specific HAI data in 2013.

Acknowledgments

Further information about the PNICER study can be obtained from the Principal Investigator, Patricia Stone (ps2024@columbia.edu), or Project Director, Carolyn Herzig (cth2115@columbia.edu). To learn more about the Kansas HAI Program, contact Joseph Scaletta at (785) 296-4090.

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ANNOUNCEMENTS

Kansas Disparities in Natality by Racial and Ethnic Population Groups Report Released

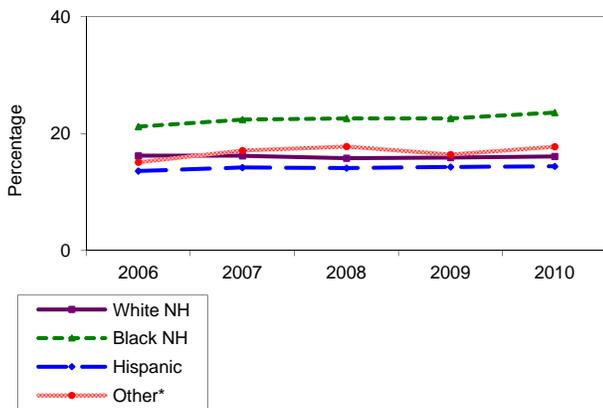
“Health disparities” refers to differences in disease risk, incidence, prevalence, morbidity, mortality and other adverse conditions, such as unequal access to quality health care, that exist among population groups. A growing body of research has been conducted in recent years into the causes of prenatal health and birth outcome disparities among racial and ethnic population groups when compared with the White non-Hispanic population. The persistent causes of disparities in birth outcomes by maternal race/ethnicity have remained a mystery in epidemiologic research.

The Natality Disparities report presents 2010 Kansas birth data by maternal population group, characterizing disparities in prenatal risks, prenatal care, WIC service utilization, mother’s education level, age, and birth outcomes. A relative measure of disparity was employed by using the following calculation: $((\text{percent of interest} - \text{percent of reference}) \div \text{percent of reference}) \times 100$, where the percent of interest is the percentage of a population group with a health indicator of interest for each minority population group, and the percent of reference is the percentage of the White non-Hispanic population with the corresponding health indicator. Disparity was not calculated for less than six occurrences within an indicator for any population group. The White non-Hispanic population represents the largest proportion of the population and therefore, the most stable group, as well as having more favorable health outcomes in the majority of cases.

The following is a summary of findings from the report:

- In Kansas, 2006-2010, the percentage of poor birth outcomes by population group based on race and ethnicity showed that disparities in birth outcomes remained fairly constant. Black non-Hispanics continued to have higher percentages of poor birth outcomes than other population groups, while Hispanics had the lowest percentages (Figure 1).

Figure 1. Poor Infant Health/birth Outcomes by Population Group, Kansas, 2006-2010



* Other includes Native American/Alaska Native, Asian/Pacific Islander, Multi-race, other non-Hispanic, and not-stated population groups.

- Overall, in 2010, the greatest disparity in poor birth outcomes was among Black non-Hispanic mothers with 46.6 percent more poor birth outcomes compared to White non-Hispanic mothers, followed by multi-race mothers with a disparity of 36.3 percent and Native American/Alaska Native mothers by 29.1 percent. Hispanic mothers had a lower percentage of poor birth outcomes than White non-Hispanics.

- Hispanic adolescent/teen mothers without a high school diploma had 9.3 times as many infants with poor outcomes, and Asian/Pacific Islanders had 4.7 times as many infants with poor outcomes as White non-Hispanic mothers with the same level of education.
- Black non-Hispanic mothers had the greatest disparity in private insurance coverage, followed by Native American/Alaska Native non-Hispanic, Hispanics, multi-race non-Hispanic and other non-Hispanics, when compared with White non-Hispanic mothers. However, all mothers of minority populations with private insurance, (with the exception of Asian/Pacific Islanders), had lower percentages of poor birth outcomes than White non-Hispanic mothers with private insurance.
- Black non-Hispanic mothers with Medicaid coverage had the greatest disparity in poor birth outcomes, followed by multi-race non-Hispanic and Native American/Alaska Native non-Hispanic compared to White non-Hispanic mothers.
- Mothers of all racial and ethnic population groups had disparities in percentages receiving adequate prenatal care with the greatest disparities among non-Hispanic others, Hispanics and Black non-Hispanics. The smallest disparity was among Asian/Pacific Islander non-Hispanics compared with White non-Hispanics.
- Large disparities in percentage of mothers with no prenatal care were observed for Black non-Hispanic and Hispanics compared to White non-Hispanics.
- The greatest disparities in the percentages of premature births were found for Black non-Hispanics, followed by multi-race and Native American/ANs compared to White non-Hispanics. Hispanics and other non-Hispanics had lower percentages of premature births than White non-Hispanics.
- Disparities in prenatal risk factors existed among Native American/ Alaska Native non-Hispanic, multi-race non-Hispanic mothers and Black non-Hispanics compared with White non-Hispanics. Hispanic, other non-Hispanic and Asian/ Pacific Islander non-Hispanic mothers had lower percentages of prenatal risks compared to White non-Hispanics. Black non-Hispanics and Native American/ Alaska Native non-Hispanic had the greatest number of prenatal risks.

The full report is available at <http://www.kdheks.gov/bphi/index.html>.

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Teen Pregnancy Report Issued

Teen pregnancy accounts for a sizable burden on society. However, according to the Centers for Disease Control and Prevention (CDC), it is a “winnable battle.” The Kansas Department of Health and Environment (KDHE) prepares the Teen Pregnancy report annually to provide data to support assessment and evaluation of teen pregnancies in Kansas. KDHE has a number of programs directed at reducing teen pregnancy. The report contains a series of summary tables detailing pregnancy outcomes (live births, abortions, and stillbirths) for females 10-19 years of age. Pregnancies among adolescents and teens accounted for 9.4 percent of the 43,692 pregnancies in 2011. About 87 percent resulted in a live birth (n=3,545), 13.0 percent in abortion (n=534), and the remainder in stillbirths (n=16). Other findings include:

- The pregnancy rate for females aged 10-19 was 20.9 per 1,000 age group specific female population in 2011, down 9.5 percent from 2010 (23.1).

- Pregnancy rates among females 15-17 years of age, (18.4 per 1,000 female age group population) and females aged 18-19 (72.2 per 1,000 age group population) were the lowest rates in five years for both age-groups, with a steady decline from 2008-2011, comparing favorably with the Healthy People 2020 national targets of 36.2 and 72.2, respectively.
- In 2011, Black non-Hispanic and Hispanic teen pregnancy rates decreased by 26.6 percent and 3.3 percent, respectively. Black non-Hispanic and Hispanic pregnancy rates were about twice the pregnancy rate of White non-Hispanic adolescents and teens.

The 2011 Teen Pregnancy report can be found at <http://www.kdheks.gov/phi/index.htm>.

Table 1..Teen pregnancy rates per 1,000 female age group population for Kansas resident females by age group and year, 2000-2011

Year	Age Groups					
	(10-19)	10-14	15-17	18-19	10-17	15-19
2000	30.3	0.9	30.1	101.4	12.0	58.7
2001	28.8	0.8	30.2	96.0	11.9	56.0
2002	28.3	0.9	28.3	92.9	11.3	54.7
2003	26.4	0.8	26.6	86.8	10.5	51.3
2004	26.1	0.8	25.8	85.1	10.3	50.3
2005	26.7	0.8	25.7	87.1	10.4	50.8
2006	27.1	0.9	25.5	93.1	10.4	52.2
2007	27.8	0.8	26.8	93.1	10.9	53.2
2008	28.6	0.7	27.1	95.7	10.9	55.0
2009	26.8	0.6	25.2	88.5	10.0	51.6
2010	23.1	0.6	22.4	77.6	8.8	45.1
2011	20.9	0.7	18.4	72.2	7.3	40.8

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Adequacy of Prenatal Care Reported

Facilitating healthy pregnancies and positive birth outcomes pays dividends to Kansas society in the form of reduced maternal and infant mortality and children capable of learning and growing into productive members of society. It is in this role that the Kansas Department of Health and environment (KDHE), through the Division of Public Health's Bureau of Epidemiology and Public Health Informatics (BEPHI), provides this report, in order that progress in the provision of adequate prenatal care can be monitored [1]. Prenatal care is a flexible package of services for pregnant women up to the delivery of an infant. Inadequate prenatal care has been associated with pre-term delivery, low birth weight, and small-for-gestation infants [2, 3]. It has also been linked with a higher overall net cost per pregnancy for mother and newborn care combined [4].

Using birth certificate information, KDHE calculates the Adequacy of Prenatal Care Utilization (APNCU) using methods developed by Dr. Milton Kotelchuck. In 2011 the APNCU index was calculated for 37,773 Kansas resident live births, representing 95.0 percent of the 39,628 births reported. About 82 percent of mothers received adequate or better prenatal care, including 32.3 percent with adequate-plus care. This level of adequate or better prenatal care meets the target established by Healthy People 2020 (77.6%). Approximately eighteen percent (18.2%) received less than adequate prenatal care, 12.9 percent inadequate care and 5.3 percent intermediate care.

Other findings:

- Among mothers whose prenatal care utilization was classified as inadequate (4,858), the vast majority (4,643) were due to late initiation of care. Only a minority of women (216) who initiated their care within the first four months of pregnancy received inadequate care.

- Among mothers of infants with low birth weight, 82.9 percent received adequate or better care, while 13.9 percent experienced inadequate care.
- The proportion of mothers who received adequate or better prenatal care was highest among White non-Hispanics (86.2%), followed by Asian/Pacific Islander non-Hispanics (80.4%) and Other non-Hispanics (76.4%). The population group with the lowest percent was Hispanics, with 66.4 percent receiving adequate or better prenatal care.
- The proportion of mothers reporting inadequate care was highest among Hispanics (24.8%), Black non-Hispanics (22.3%), and Native American non-Hispanics (20.5%). These rates are more than twice that of White non-Hispanic women, who experienced inadequate care at a rate of 9.3 percent.
- The payor with the highest proportion of mothers who received adequate or adequate plus prenatal care was private insurance (91.4%), followed by Champus/TRICARE (82.1%). Self payors had the highest proportion of mothers with inadequate prenatal care (30.6%).
- Among first births, the percent of mothers with adequate or adequate plus prenatal care (84.4%) was 5.1 percent greater than among second or higher live births (80.3%).

The full report can be found at: <http://www.kdheks.gov/phi/index.htm>.

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