

Kansas Public Health Workforce Assessment 2014-2015 Completed

Introduction

In 2003, the Institute of Medicine reinforced the call to train the public health workforce in core public health skills [1]. A number of organizations have pointed out that public health worker training is a critical component of a well-functioning public health system [2-5]. Workforce training is one of the 10 essential public health services [6].



Kansas has approximately 2,450 workers in public health. These employees range from administrative support staff to nurses, social workers, physicians, and epidemiologists. The last workforce assessment was 2003 for KDHE staff and 2005 for local health department staff [8]. A number of Kansas organizations formed the Kansas Public Health Workforce Development Coordinating Council (KPHWDCC). The council has been working on a number of approaches to training the workforce. The Kansas Public Health Workforce Assessment grew out of this collaboration.

Objective

The objective of the Kansas Public Health Workforce Assessment was to identify competency gaps and develop effective responses to support and build the capacity of the workforce.

Methods

The assessment was statewide in scope and designed to provide:

- An overall competency assessment of public health staff based at the state and local health departments (LHD),
- A data-driven approach to workforce development in Kansas,
- An accurate picture of the Kansas workforce with extensive demographic information, which will allow workforce development opportunities to be tailored,
- Comparisons of specific workforce segments including rural vs. urban; environmental vs. non-environmental; and small, medium and large local health departments,
- County-level reports for local health departments and bureau-level reports for the Kansas Department of Health and Environment (KDHE), which will support documentation required for accreditation through the Public Health Accreditation Board, and will allow organizations to target their workforce development efforts,

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- A unique identification of public health competencies perceived by some as not applicable to their positions,
- A tool for continuous quality improvement.

KPHWDCC members designed an assessment tool in consultation with other states and Kansas local health departments that had completed a workforce assessment. Assessment instrument statements were based on the “Council on Linkages Core Competencies for Public Health Professionals” [8-10] and were categorized into eight domains—Communication, Cultural Competency, Analytical/Assessment, Policy Development/Program Planning, Community Dimensions of Practice, Public Health Sciences, Financial Planning and Management, and Leadership and Systems Thinking.

For each competency statement, participants selected one of the following responses:

- Not at all proficient
- Some limited proficiency
- Proficient
- Very proficient
- This does not apply to my job
- I do not understand this question

The workforce was categorized into four tiers: Tier 1—staff who carry out day-to-day tasks; Tier 2—supervisory and/or program management level staff; Tier 3—senior management and leaders of a public health organization; and a newly created Tier A—administrative and facilities support staff.

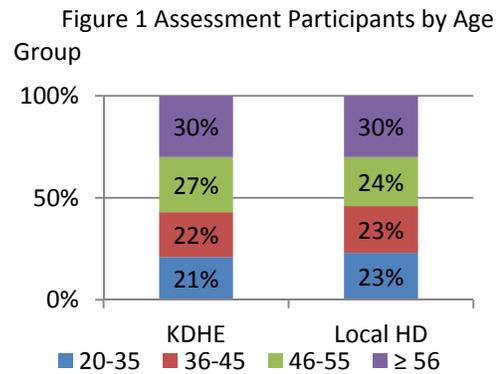
Extensive testing was conducted to ensure representation of the entire Kansas public health workforce, including broad geographic and cultural distribution. The assessment was promoted to all KDHE and local health department staff to ensure a high level of participation. Incentives, awarded through a random drawing, were offered to encourage participation.

For analysis, responses were grouped into two categories: 1) “not at all proficient” and “some limited proficiency” answers were combined to determine lowest proficiency for each domain; 2) “proficient” and “very proficient” were combined to determine highest proficiency and overall proficiency percentage for each domain. “This does not apply to my job” responses were analyzed separately. In order to protect confidentiality, analyses were not reported when there were fewer than six people in a category. In these cases, an effort was made to make the report as specific to the local health department as possible by matching on the basis of demographics and geographic region.

Results

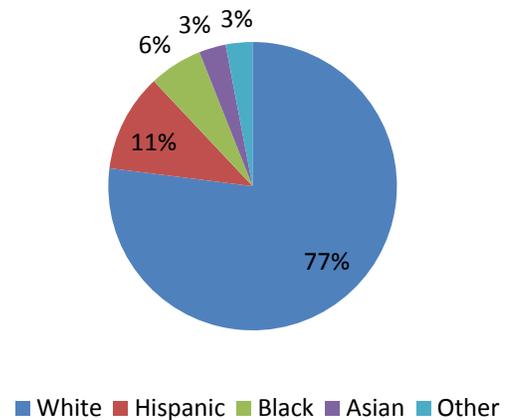
A total of 1,648 respondents completed the assessment with an overall participation rate of 67 percent. Seventy-six percent of KDHE employees and 61 percent (875 respondents out of a total of 1,429) of local health department employees participated in the assessment. Twenty-seven local health departments had a 100 percent participation rate. Additionally, 49 health departments had a participation rate of 75 percent or above, 69 health departments had a participation rate of 50 percent or above, and 96 percent of health departments had at least one participant.

Age composition of assessment participants varied little between KDHE and local Health Department sectors. There was a significant percentage of the workforce close to retirement age with a limited number of new, young staff entering the workforce (Figure 1). The majority of assessment participants were white in both sectors, 86 percent at local health departments and 90 percent at KDHE. Just over three out of four (77%) survey participants were white non-Hispanic (Figure 2).



The domain with the lowest proficiency rating across all tiers for both local health departments and KDHE was Public Health Science Skills (with the exception of KDHE Tier 3).

Figure 2. Assessment Participants by Race/Hispanic Origin



KDHE had significant percentages of people reporting that competencies in several domains did not apply to their jobs (significantly higher in comparison with local health departments):

- Cultural competence—43 percent for Tier 1; 33 percent for Tier 2; 20 percent for Tier 3
- Public Health Sciences—50 percent for Tier 1; 42 percent for Tier 2; 22 percent for Tier 3
- Community Dimensions of Practice—49 percent for Tier 1; 34 percent for Tier 2; 22 percent for Tier 3.

Significant percentages of local health department and KDHE staff reported that the competencies in the “Financial Planning and Management Skills” domain do not apply to their jobs; 64 percent of local health departments -Tier 1 and 51 percent of KDHE - Tier 1.

Domain Proficiency is summarized in Table 1. A table with the full percentage comparisons (appendix 1) is attached to the online PDF version of this issue

<http://www.kdheks.gov/phi/khsnews/khs65.pdf>.

Other key findings included

- Interest exists for a public health certificate program. For local health departments, 38 percent reported definite interest and 31 percent were unsure.
- Compared to other regions, the Northwest Kansas region had the lowest self-reported proficiency scores across all domains, especially for Tier 1.
- For Tier A respondents, the statement with the lowest percentage of agree/strongly agree responses was “Employees are continually developed through training, education, and opportunities for promotion;” KDHE—52 percent, local health departments—67 percent (lowest overall for both). Additionally, KDHE and local health departments had a low percentage of agree/strongly agree responses to “Training is implemented as part of an overall system of employee development;” KDHE—67 percent, local health departments—68 percent.

Table 1. Summary of Assessment Domains by Proficiency Category and Public Health Sector

Response Category	Kansas Department of Health and Environment	Local Health Departments
Domains with Highest Proficiency	Communication Skills Analytical and Assessment Skills Leadership and Systems Thinking Skills (Tiers 2 and 3)	Communication Skills (highest across tiers) Cultural Competency (Tier 1 only) Community Dimensions of Practice Skills (Tiers 1 and 2) Leadership and Systems Thinking Skills (Tiers 2 and 3) Financial Planning and Management Skills (Tier 3 only)
Domains with Lowest Proficiency	Public Health Sciences Skills Financial Planning and Management Skills Cultural Competency Leadership and Systems Thinking Skills (Tier 1 only)	Public Health Sciences Skills (lowest across tiers) Financial Planning and Management Skills (Tiers 1 and 2) Analytical and Assessment Skills (Tiers 2 and 3) Policy Development/Program Planning (Tiers 1 and 2) Cultural Competency (Tier 3 only)
Domains with High Percentages of Staff that Didn't Think Competencies Applied	Cultural Competency Public Health Sciences Skills Community Dimensions of Practice Skills Financial Planning and Management Skills (Tier 1 only)	Financial Planning and Management Skills (Tiers 1 and 2) Policy Development/Program Planning (Tier 1 only) Analytical and Assessment Skills (Tiers 1 and 2) Public Health Sciences Skills (Tiers 2 and 3)

Source: Bureau of Community Health Systems, KDHE

Discussion

Comparison of previous Kansas public health workforce assessments is difficult because of differences in assessment tools. The Council on Linkages Core Competencies assessment has undergone revision. Earlier tools had a bioterrorism preparedness component, not included in the latest assessment. Other differences included a new response option, “this competency does not apply to my job”, and a set of competencies/questions for staff not directly working in public health (e.g. clerical--Tier A).

Assessment results from 2003 and 2005 showed the top workforce development need was bioterrorism preparedness, an area not assessed in the current project. However, the prior assessments demonstrated a need for basic public health sciences skills training, a finding very similar to those of the current project. One major difference found was that Financial Planning and Management Skills was the domain with the lowest need in 2003 and 2005. The 2014 assessment showed that a high percentage of public health professionals do not perceive that competencies in this domain apply to their job, which indicates a high need. Another interesting comparison is related to the fast-paced technology world. In 2003 and 2005 assessments, CD-ROM was the preferred training medium; web-based training was preferred in the recent assessment.

Recommendations

- Develop training targeted to areas of lowest proficiency and applicability, a strategy that is already underway. A video, “Health in 3D”, is being developed that will ad-

dress cultural competence and diversity awareness. “Fundamentals in Kansas Public Health” is an online training that will be available soon and focuses on the 10 Essential Services, a deficiency in the Public Health Sciences domain.

- Retool existing training such as the “Evidence-Based Public Health Course” to include content that specifically addresses competency gaps. In order for staff to better understand the core competencies, it is important that KDHE and local health department staff become familiar with the Council on Linkages Core Competencies language through targeted communications.
- Expand communications to provide relevant examples to public health employees about how the competencies apply to their work.
- Explore recruitment strategies, including use of social media, in order to attract a younger, more diverse workforce, and increase interest/awareness of public health field among high school and college students. There may be opportunities emerging for additional education in public health to be offered at the bachelor’s and associate’s degree levels, which could result in a new population of public health workforce candidates.
- Establish a direction for public health workforce development built on assessment results. Training programs and resources can be offered, but in order to be effective, the workforce must see training tools as valuable. Public health workers should be encouraged to participate in training. Local health departments and KDHE should be supported in the creation of organizational workforce development plans that ensure the identified needs and gaps are addressed. The assessment should be repeated at least every three years to gauge workforce development progress and identify new needs and gaps.

Cristi Cain
Bureau of Community Health Systems

Acknowledgements

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References

- [1] Institute of Medicine. Who will keep the public healthy? Educating public health professionals in the 21st century. Washington: National Academies Press; 2003. Available at: <http://www.nap.edu/books/030908542X/html/>
- [2] Centers for Disease Control and Prevention (US) and Agency for Toxic Substances and Diseases Registry. Strategic plan for public health: workforce development summary. Washington: Department of Health and Human Services (US); 2001.
- [3] Department of Health and Human Services (US) The public health workforce: an agenda for the 21st century. Washington: Department of Health and Human Services; 1997.
- [4] Institute of Medicine. Committee on Assuring the Health of the Public in the 21st Century. The future of the public’s health in the 21st century. Washington: National Academies Press; 2003.
- [5] Centers for Disease Control and Prevention (US). The national public health performance standards. Atlanta: CDC; 2003. Available at: <http://www.phppo.cdc.gov/nphpsp/index.asp>.
- [6] Standards and Measures, Version 1.0 Public Health Accreditation Board 2011. Available at: <http://www.phaboard.org/wp-content/uploads/PHAB-Standards-and-Measures-Version-1.0.pdf>

[7] Scharff, D.P, Andrews, C., & Weimken, T. (2006). Kansas local health department workforce needs assessment, 2005. Available at: <https://ks.train.org/DesktopShell.aspx?tabId=5&documentCategoryId78=801&searchOrCat=category>.

[8] Core Competencies for Public Health Professionals .Council on Linkages, 2015. Available at: http://www.phf.org/resourcestools/pages/core_public_health_competencies.aspx.

[9] Council on Linkages Between Academia and Public Health Practice (2010). Core competencies for public health professionals. Available at: <http://www.phf.org/programs/corecompetencies>

[10] Council on Linkages Between Academia and Public Health Practice (2015). Core competencies for public health professionals overview. Available at: <http://www.phf.org/programs/council/Pages/default.aspx>.

Cognitive Impairment and Associated Functional Difficulties among Kansas Adults Aged 45 Years and Older, 2013 Behavioral Risk Factor Surveillance System

Background

Cognitive impairment is defined as difficulty in remembering, learning, concentrating, or making decisions that are important in everyday life [1]. More than 16 million people in the United States are living with cognitive impairment [1]; however, prevalence in Kansas has not been known. This information was collected in Kansas for the first time through 2013 Kansas Behavioral Risk Factor Surveillance System (BRFSS). The Kansas Department of Health and Environment (KDHE) has identified the need to assess the status of cognitive impairment among Kansans. KDHE included a cognitive impairment module comprised of eight questions in 2013.

Objective

The objective of this analysis is to examine the status of cognitive impairment and associated functional difficulties among Kansas adults aged 45 years and older.

Methods

The 2013 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 and/or cell phone service in Kansas. This analysis was limited to Kansas adults aged 45 years and older and in population subgroups. The question to determine cognitive impairment status was, "During the past 12 months, have you experienced confusion or memory loss that is happening more often or is getting worse?" Associated functional difficulties associated with cognitive impairment among these persons were determined if they responded, "always", "usually", or "sometimes" to one of two questions about whether confusion or memory loss interfered with their "ability to work, volunteer, or engage in social activities," or caused them to "give up household activities or chores" that they "used to do." Additional questions addressed the need for assistance, getting care or assistance from a family member or friend, and discussing increased confusion or memory loss with a health-care provider. Respondents who declined to answer, or who answered "don't know/not sure" were excluded from the analyses. Data from the 2013 Kansas BRFSS were analyzed to assess cognitive impairment in various population subgroups. Prevalence estimates and 95% confidence intervals (CI)

were calculated. Data were weighted using the new raking method [2]. SAS 9.3 software was used for analysis.

Results

In 2013, an estimated 108,600 (10.0%, 95% CI: 9.4% -10.6%) adults had cognitive impairment during the preceding 12 months, and an estimated 42,680 (39.3%, 95% CI: 36.1%-42.4%) of those persons had functional difficulties (Table 1 and Table 3). Higher percentages of adults with cognitive impairment were seen among adults with lower income, with lower education, and among adults that were unable to work (Table 1). Cognitive impairment was also high among adults with frequent mental distress or depression; adults with chronic conditions like; current asthma, diabetes, kidney disease or stroke; and those living with a disability (Table 2). Among persons with cognitive impairment, 50.3% reported needing help/assistance. Household activities and transportation were the area where those with cognitive impairment needed most assistance. Over twenty percent received help from a family member or friend. Among persons with cognitive impairment, 25.1% reported discussing their symptoms with a health-care provider. Among those that discussed their symptoms with a health-care provider, 41.4% reported receiving treatment such as therapy or medications (Table 3).

Conclusion

The percentage of adults with cognitive impairment and its associated functional difficulties is high in Kansas. Disparities in cognitive impairment and its associated functional difficulties are also seen with respect to various socio-demographic sub groups. Findings indicate the need for public health strategies to address issues related to cognitive impairment and associated functional difficulties among Kansas adults.

References

[1] CDC. Cognitive Decline Module — Behavioral Risk Factor Surveillance System (BRFSS). Available at: <http://www.cdc.gov/aging/pdf/2012-brfss-state-summary.pdf>. Accessed on May 15, 2015.

[2] CDC. Methodologic changes in the Behavioral Risk Factor Surveillance System in 2011 and potential effects on prevalence estimates. MMWR 2012;61:410–3

Pratik Pandya, MPH
Ghazala Perveen, MBBS, PhD, MPH
Bureau of Health Promotion

Table 1. Percentage of Adults 45 Years and Older with Cognitive Impairment by Sociodemographic Characteristics in Kansas, 2013 BRFSS

Sociodemographic Characteristics and Selected Indicators	Percentage of Adults 45 Years and Older with Cognitive Impairment			
	Unweighted Frequency	Weighted Percentage	Lower 95% Confidence Interval	Upper 95% Confidence Interval
Total	1488	10.0%	9.4%	10.6%
Age groups				
40-54 years	359	10.4%	9.2%	11.6%
55-64 years	456	10.1%	9.1%	11.1%
65-74 years	315	8.4%	7.4%	9.4%
75 years and older	358	10.8%	9.5%	12.0%
Gender				
Male	596	10.2%	9.3%	11.1%
Female	892	9.8%	9.1%	10.6%
Race				
White Only	1301	9.6%	9.0%	10.1%
Black or African American only	82	14.4%	10.6%	18.3%
Other Race Only	61	11.9%	8.4%	15.4%
More than one race	31	14.4%	8.8%	20.0%
Ethnicity				
Hispanic	35	8.4%	5.3%	11.5%
Non-Hispanic	1449	10.0%	9.5%	10.7%
Annual Household Income				
Less than \$15,000	256	23.4%	20.2%	26.5%
\$15,000 - \$24,999	322	14.8%	13.0%	16.6%
\$25,000 - \$34,999	176	10.9%	9.1%	12.8%
\$35,000 - \$49,999	191	9.4%	7.9%	11.0%
\$50,000 or higher	349	6.0%	5.3%	6.7%
Education				
Less than high school	166	17.5%	14.6%	20.4%
High school graduate or G.E.D	482	10.4%	9.4%	11.4%
Some college	461	10.2%	9.1%	11.2%
College graduate	379	6.6%	5.9%	7.3%
Marital Status				
Married or member of an unmarried couple	730	8.4%	7.8%	9.1%
Divorced or separated	382	16.3%	14.4%	18.2%
Widowed	285	10.6%	9.2%	12.0%
Never married	89	9.7%	7.3%	12.0%
Employment Status				
Employed for wages or Self-employed	418	6.3%	5.6%	7.0%
Out of work	74	15.7%	11.7%	19.7%
Homemaker or Student	66	8.8%	6.4%	11.2%
Retired	574	9.5%	8.6%	10.3%
Unable to work	350	35.0%	31.4%	38.6%

Source: 2013 Kansas Behavioral Risk Factor Surveillance System, Bureau of Health Promotion, KDHE

Table 2. Percentage of Adults 45 Years and Older with Cognitive Impairment by Co-morbid Conditions in Kansas, 2013 BRFSS

Co-Morbid Conditions	Percentage of Adults 45 Years and Older with Inadequate Sleep			
	Unweighted Frequency	Weighted Percentage	Lower 95% Confidence Interval	Upper 95% Confidence Interval
Disability Status				
Living with a disability	926	21.1%	19.6%	22.6%
Living without a disability	548	5.3%	4.8%	5.8%
Current Asthma Status				
Current Asthma	235	18.7%	15.9%	21.5%
No Current Asthma	1241	9.2%	8.6%	9.8%
Kidney Disease				
Kidney Disease	111	22.1%	17.5%	26.6%
No Kidney Disease	1397	9.6%	9.0%	10.1%
Diabetes Status				
Have Diabetes	367	15.7%	13.9%	17.5%
No Diabetes	1119	8.9%	8.3%	9.5%
Stroke				
Stroke	178	24.4%	20.8%	28.0%
No Stroke	1297	9.2%	8.6%	9.8%
Frequent Mental Distress				
14+ days mental health not good	431	35.7%	32.4%	39.0%
<14 days mental health not good	1017	7.4%	6.9%	7.9%
Depression Status				
Lifetime depression disorder	704	25.8%	23.8%	27.8%
No lifetime depression disorder	773	6.7%	5.8%	6.9%

Source: 2013 Kansas Behavioral Risk Factor Surveillance System, Bureau of Health Promotion, KDHE

Table 3. Selected Characteristics of Adults 45 Years and Older with Cognitive Impairment

Selected Characteristics	Unweighted Frequency	Weighted Percentage	Lower 95% Confidence Interval	Upper 95% Confidence Interval
Functional difficulties				
Yes	550	39.3%	36.1%	42.4%
No	932	60.6%	57.5%	63.7%
Needs help/assistance*				
Yes	706	50.3%	47.2%	53.5%
No	723	49.7%	46.5%	52.8%
Areas Needing Assistance				
Safety	72	3.5%	2.5%	4.4%
Transportation	168	8.6%	7.1%	10.2%
Household activities	319	19.7%	17.3%	22.0%
Personal Care	86	5.6%	4.1%	7.0%
Needs assistance, but not in those areas	221	12.6%	10.7%	14.5%
Doesn't need assistance in any area	878	50.1%	47.2%	53.1%
Receives help from family member or friend				
Always/Usually/Sometimes	330	22.8%	20.1%	25.5%
Rarely/Never	1136	77.2%	74.5%	79.8%
Discussed about cognitive impairment with health-care provider				
Yes	361	25.1%	22.4%	27.9%
No	1090	74.9%	72.1%	77.6%
Received treatment for cognitive impairment after discussing with health care professional				
Yes	143	41.4%	35.1%	64.9%
No	213	58.7%	35.1%	47.7%

Source: 2013 Kansas Behavioral Risk Factor Surveillance System, Bureau of Health Promotion, KDHE

* Needs help/assistance is defined as adults with cognitive impairment needing help in one of the following areas: safety, transportation, household activities, personal care, or needs assistance in some other area.

Stroke Mortality in Kansas, 2009-2013

Final US data for 2013 showed stroke (cerebrovascular disease) was the 5th leading cause of death, responsible for 128,978 deaths [1]. Stroke was also the 5th leading cause of death in Kansas in 2013, responsible for 1,306 deaths [2]. The Kansas age-adjusted stroke death rate for the year was 37.6 per 100,000 population, which was higher than the goal of 34.8 per 100,000 population set by the Healthy People 2020 project. [3]

Kansas stroke mortality rates have declined significantly since peaking at a crude rate of 137.0 stroke deaths per 100,000 population in 1958. National stroke death rates have also declined significantly since the 1950s, as have rates in many other industrialized countries. The reasons for these declines are still poorly understood. However, a long-running (since 1955) study of stroke mortality in Rochester, Minnesota, where stroke death rates

declined earlier and further than the rest of the United States, suggests that eventually the decline in stroke mortality will level off, and that additional research and effort in primary prevention will be required to attain further declines in stroke mortality [4].

Methods

All deaths of Kansas residents during the 2009-2013 period for which the underlying cause of death was cerebrovascular disease (underlying cause of death ICD-10 code in the range I60-I69) were selected from the Kansas Vital Records database. The individual codes in the group indicate the particular type of stroke of which the decedent died.

Analysis was performed on data from a five-year period to avoid overemphasizing annual fluctuations. The demographic categories selected for analysis included: population, sex, age-group, and KDHE service district of residence. US Census Bureau population estimates were used to calculate age-specific and age-adjusted rates based on the year 2000 standard US population.

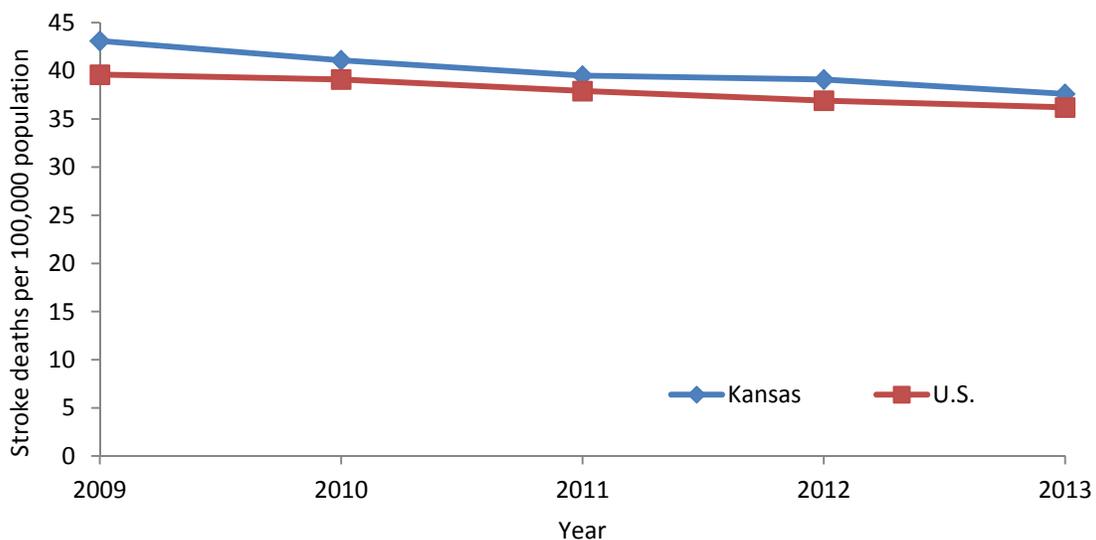
Differences in age-adjusted rates were considered to be statistically significant when the 95-percent confidence intervals did not overlap. In the rate comparisons in the rest of this report, statistical significance is assumed unless otherwise stated.

Results

There were 6,750 stroke (cerebrovascular disease) deaths in Kansas during the 2009-2013 period. The age-adjusted stroke death rate was 40.0 deaths per 100,000 US standard population. This was higher than the goal of 34.8 stroke deaths per 100,000 population set by the Healthy People 2020 project.

The Kansas stroke death rate was higher than the national rate during each year in the 2009-2013 period, but the difference was not statistically significant. In 2013, the Kansas age-adjusted stroke death rate (37.6 stroke deaths per 100,000) was 3.9 percent higher than the national rate (36.2 stroke deaths per 100,000 population) (Figure 1).

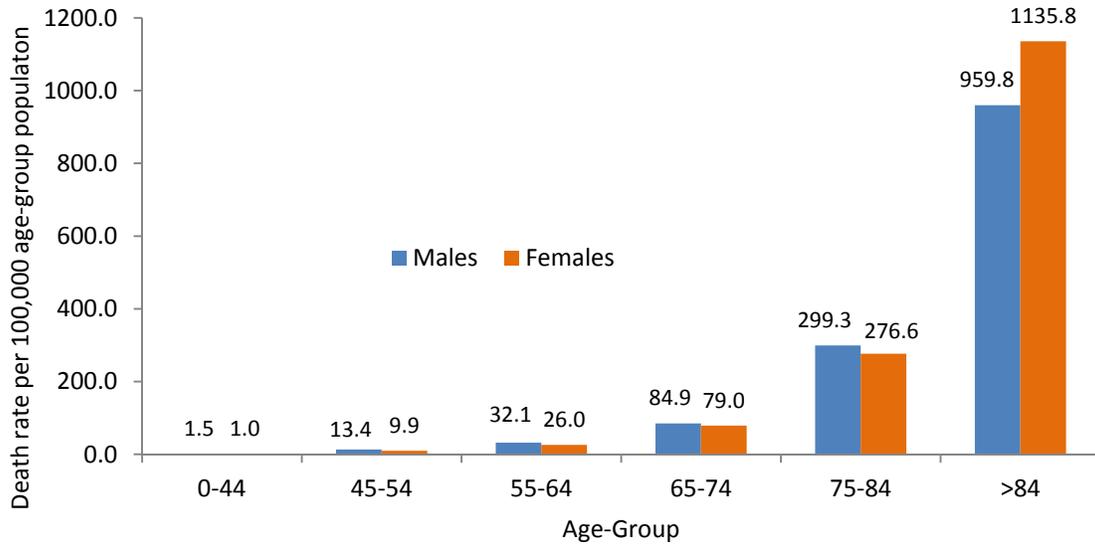
Figure 1. Age-Adjusted Stroke Death Rates, Kansas and US, 2009-2013



Source: Kansas Vital Records, Bureau of Epidemiology and Public Health informatics, KDHE

Almost half (49.0%, or 3,308 deaths) of Kansas resident who died of stroke in the 2009-2013 period were 85 years of age or older, and three quarters (75.6%, or 5,102 deaths) were 75 years of age or older (Figure 2). More women than men (4,126 women compared to 2,624 men) died of stroke, which is consistent with the fact that more women than men live past the age of 84. The age-adjusted stroke death rate (per 100,000 U.S. 2000 standard population) for the period was 39.7 for men and 39.6 for women (the difference was not statistically significant).

Figure 2. Age-Specific Stroke Death Rates, Kansas Residents, 2009-2013



Source: Kansas Vital Records, Bureau of Epidemiology and Public Health informatics, KDHE

White non-Hispanics accounted for 89.9 percent (6,058 deaths) of Kansas resident stroke deaths during the 2009-2013 period. The age-adjusted stroke death rate for the period for White non-Hispanics was 38.7 deaths per 100,000 group population. Black non-Hispanics had age-adjusted stroke death rates of 55.6 deaths per 100,000 group population, and Hispanics had age-adjusted stroke death rates of 29.1 deaths per 100,000 group population.

Stroke, not specified as hemorrhage or infarction, accounted for a majority (56.8%) of Kansas resident stroke deaths in the 2009-2013 period. More specific diagnoses, such as subarachnoid hemorrhage (3.5%), intracerebral hemorrhage (12.3%), other nontraumatic intracranial hemorrhage (7.2%) and cerebral infarction (3.4%) were much less common. An examination of place of death reveals that the more specific diagnoses were most common when the death occurred in a hospital (Table 1). Only 31.5 percent of decedents for whom the cause of death was stroke, not specified as hemorrhage or infarction, died in a hospital; most (52.5%) died where they lived – in a nursing home (38.7%), residence (11.6%), or assisted living (2.3%).

Kansas stroke deaths were normally not investigated by autopsy. During the 2009-2013 period, 2.4 percent of stroke deaths were autopsied. Autopsy rates were highest when the decedent was young (55.6 percent for 15-24 year olds), and lowest when the decedent was elderly (0.5 percent for ages 85 and higher) (Table 2).

Table 1. Stroke Deaths by Component, by Count, Percent, Age-Adjusted Death Rate and Place of Death
Kansas Residents, 2009-2013

Component	Count	Percent	Age-Adjusted Death Rate *	Percent in Hospital
I60 Subarachnoid hemorrhage	239	3.5%	1.5	75.7%
I61 Intracerebral hemorrhage	832	12.3%	5.2	72.8%
I62 Other non-traumatic intracranial hemorrhage	484	7.2%	3.0	69.6%
I63 Cerebral infarction	230	3.4%	1.4	51.3%
I64 Stroke, not specified as hemorrhage or infarction	3,836	56.8%	22.4	31.5%
I67 Other cerebrovascular diseases	579	8.6%	3.3	16.1%
I69 Sequelae of cerebrovascular disease	550	8.1%	3.2	20.9%

* per 100,000 US 2000 standard population

Source: Kansas Vital Records, Bureau of Epidemiology and Public Health Informatics, KDHE

KDHE’s North Central Kansas service district had the highest age-adjusted stroke death rate (43.7 deaths per 100,000 population) in the 2009-2013 period, while the Northwest Kansas service district had the lowest age-adjusted stroke death rate (33.4 deaths per 100,000 population). The Northwest Kansas service district was the only one with rates statistically distinct from all the other districts.

Limitations and Discussion

While stroke has been one of the top five leading causes of death in Kansas since the Kansas Annual Summary of Vital Statistics 1949 (the earliest preserved) was published, it has been declining both in number and in rate since it peaked in 1958 with a count of 2,878 deaths and a crude rate of 137.0 deaths per 100,000 population. The corresponding numbers for 2013, a count of 1,306 deaths and a crude rate of 45.1 deaths per 100,000, were the lowest since the centralization of Vital Records in Kansas in 1916 according to earlier tables. Stroke was for many years the third leading cause of death, but fell to fourth leading cause of death in 2006, 2008-2010 and 2012, and to fifth leading cause of death in 2011 and 2013.

Stroke has typically been a disease of the elderly; but in recent years, an increasing percentage of stroke victims have been very elderly (85 years of age or older). In 1965, slightly more than a quarter (27.0%) of stroke victims were 85 years of age or older, but in 2013 slightly over half (50.2%) were 85 years of age or older. In recent years, the increase is probably due to the aging of the population, since the age-specific stroke death rates for the 85 years of age or older cohort has fallen both for women (from 63.0 per 100,000 group population in 2009 to 53.9 per 100,000 group population in 2013) and for men (from 37.1 per 100,000 group population in 2009 to 36.3 per 100,000 group population in 2013).

Analysis of the individual types of stroke, such as hemorrhage or infarction, is essentially precluded by the large number of diagnoses of stroke not specified as hemorrhage or infarction. Furthermore, the 85 years of age or older cohort, which made up the largest single group of stroke deaths, was also the least likely to be autopsied.

Table 2. Stroke Death Autopsy Status, Kansas Residents 2009-2013

Age-group	% Autopsied
0-14	17.6%
15-24	55.6%
25-34	33.3%
35-44	25.0%
45-54	16.5%
55-64	7.7%
65-74	2.9%
75-84	1.0%
85 & older	0.5%

David W. Oakley, MA

References:

[1] Deaths: Final data for 2013. National Vital Statistics reports; vol 64 no 2 (forthcoming). Hyattsville, MD: National Center for Health Statistics. 2015. Available at http://www.cdc.gov/nchs/data/nvsr/nvsr64/nvsr64_02.pdf. Accessed January 14, 2015.

[2] Oakley D, Crawford G, Savage C. 2013 Kansas Annual Summary of Vital Statistics. Topeka, KS: Kansas Department of Health and Environment, 2014.

[3] Healthy People 2020 stroke targets available <http://www.healthypeople.gov/2020/topics-objectives/topic/heart-disease-and-stroke/objectives>. Accessed May 12, 2015.

[4] Bonita R, Beaglehole R. The Enigma of the Decline of Stroke Deaths in the United States: The Search for an Explanation. Stroke. 1996; 27:370–372. Available at <http://stroke.ahajournals.org/content/27/3/370.full>. Accessed June 15, 2015.

Announcements

Blue Green Algae Activity

KDHE has resumed publishing public health advisories on Blue-Green Algae blooms. KDHE may issue two levels of public health protection notifications: a Public Health Watch or Public Health Warning. These notification levels are determined by the concentration of a harmful toxin(s) or the concentration of cyanobacteria cell counts.

Public Health Watch–

- Notifies public that a hazardous condition may exist
- Signs may be posted at all public access locations
- Water may be unsafe for humans/animals
- Discourage water contact

Public Health Warning–

- Notifies public that conditions are unsafe
- Signs will be posted at all public access locations
- Water contact should not occur
- All conditions of Public Health Watch remain in effect

Advisories will be provided to the news media in Kansas and are also available at: <http://www.kdheks.gov/algae-illness/index.htm>.

Think Travel History

The Bureau of Epidemiology and Public Health Informatics has developed a new public health campaign titled #ThinkTravelHistory designed to foster open communications between clinicians and patients about travel. Kansas hospitals have been provided posters to encourage clinical staff to take part in an open dialog, via social media, using the hashtag #ThinkTravelHistory, on the importance of assessing travel histories as a part of their clinical routine and share information on the unique characteristics of specific diseases that are occurring in the world. Additional posters are available for download in various sizes at: <http://www.kdheks.gov/epi/thinktravelhistory.htm>. The 2015-2016 Pneumonia and Influenza season started September 1. Track the activity at <http://www.kdheks.gov/flu/surveillance.htm>.

KDHE Bureau of Epidemiology and Public Health Informatics

Kansas Health Statistics Report

2014 Kansas Vital Statistics*

County of Residence	Live Births	Deaths	Marriages	Marriage Dissolutions	County of Residence	Live Births	Deaths	Marriages	Marriage Dissolutions
Kansas	39,193	25,731	17,655	8,441					
Allen	157	179	64	32	Lyon	406	273	186	65
Anderson	104	79	53	30	McPherson	343	411	199	74
Atchison	205	183	84	34	Marion	130	169	60	18
Barber	63	66	39	22	Marshall	123	129	59	26
Barton	340	287	192	66	Meade	56	42	23	9
Bourbon	228	192	101	35	Miami	410	309	231	111
Brown	119	117	62	21	Mitchell	92	73	44	17
Butler	749	606	424	129	Montgomery	453	424	203	127
Chase	30	41	35	4	Morris	62	69	45	14
Chautauqua	32	49	21	3	Morton	40	37	12	10
Cherokee	239	269	85	73	Nemaha	157	130	98	9
Cheyenne	30	33	15	6	Neosho	218	215	115	29
Clark	18	38	13	1	Ness	38	51	11	17
Clay	108	110	46	13	Norton	57	63	36	28
Cloud	102	133	58	35	Osage	174	196	87	64
Coffey	87	78	53	75	Osborne	46	62	15	6
Comanche	24	39	8	2	Ottawa	50	60	20	11
Cowley	459	434	228	144	Pawnee	64	94	42	17
Crawford	560	422	209	96	Phillips	73	75	29	15
Decatur	36	37	18	4	Pottawatomie	345	199	104	47
Dickinson	222	219	139	82	Pratt	147	110	60	31
Doniphan	63	76	35	21	Rawlins	34	37	11	8
Douglas	1,216	699	899	212	Reno	737	762	392	213
Edwards	39	40	21	9	Republic	52	96	23	11
Elk	33	37	14	10	Rice	125	130	36	20
Ellis	336	237	170	57	Riley	1,073	324	731	228
Ellsworth	55	73	39	43	Rooks	59	73	20	15
Finney	690	199	242	62	Rush	21	50	18	10
Ford	663	229	256	94	Russell	82	90	50	20
Franklin	313	256	154	97	Saline	752	530	335	214
Geary	1,052	189	527	291	Scott	73	45	26	15
Gove	42	40	9	9	Sedgwick	7,358	4,299	3,207	2,247
Graham	24	35	10	9	Seward	444	143	178	91
Grant	132	54	42	21	Shawnee	2,340	1,865	1,066	367
Gray	81	47	38	14	Sheridan	24	37	13	4
Greeley	19	16	5	4	Sherman	82	64	40	26
Greenwood	66	96	31	13	Smith	28	76	24	11
Hamilton	43	23	14	7	Stafford	54	60	22	8
Harper	86	80	28	10	Stanton	26	25	8	3
Harvey	414	415	209	88	Stevens	67	58	23	23
Haskell	49	26	15	5	Sumner	252	251	186	75
Hodgeman	25	20	6	6	Thomas	138	75	58	36
Jackson	171	123	66	22	Trego	36	52	18	4
Jefferson	177	185	97	25	Wabaunsee	70	58	38	17
Jewell	33	45	19	13	Wallace	16	21	15	5
Johnson	7,394	3,649	2,588	1,229	Washington	66	60	36	13
Kearny	62	31	18	13	Wichita	28	23	12	5
Kingman	73	104	41	15	Wilson	109	127	59	32
Kiowa	28	32	24	3	Woodson	35	45	17	7
Labette	264	273	96	44	Wyandotte	2,785	1,352	1,119	297
Lane	19	24	4	11	n.s.	0	1	0	0
Leavenworth	987	556	465	261					
Lincoln	34	36	16	11					
Linn	111	105	41	28					
Logan	37	50	9	7					

*Residence data are presented for birth and deaths
Occurrence data are presented for marriage and marriage dissolutions n.s. = not stated
Source: Kansas Department of Health & Environment Bureau of Epidemiology and Public Health Informatics

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Bureau of Epidemiology and Public Health Informatics
Kansas Dept. of Health & Environment
1000 SW Jackson, Suite 130
Topeka, KS 66612-1354