Preventable Hospitalizations from Urinary Tract Infections Improve in Kansas

Background
A May 2007 Kansas Health Statistics Report article assessing Prevention Quality Indicators (PQIs) noted that preventable hospitalizations from urinary tract infections were one of a few measures where increasing rates in Kansas, 36 percent from 2000-2005, needed additional consideration[1]. This is a summary of an analysis of Kansas hospital discharges in the years since, from 2006-2014, to assess the status of this indicator. The PQIs, developed by The Agency for Healthcare Research and Quality (AHRQ), are a set of measures that can be used with hospital inpatient discharge data to identify quality of care for "ambulatory care sensitive conditions"[2]. These are conditions for which good outpatient care can potentially prevent the need for hospitalization or for which early intervention can prevent complications or more severe disease.

Methods
Using the Kansas hospital discharge dataset, Federal Information Processing Standard (FIPS) codes, were appropriately assigned to county codes. Using SAS 9.3 to perform the analysis, a set of programs provided by AHRQ was used to assess PQIs for Kansas. The results are population based and adjusted for covariates [3].

Results
Discharge rates on urinary tract infections have decreased in Kansas 21 percent from 2006-2014 (Figure 1). The trend appears to diverge from the overall US trend over time and by as much as 21 percent in 2012.

Discussion
Even though these indicators are based on hospital inpatient data, they provide insight into the community health care systems or services outside the hospital setting. The trend from 2006-2014 demonstrates a decrease in the hospital admission rate. There are many possible reasons for this trend including prevention-specific activities by community health care systems, awareness among healthcare providers and awareness in communities that help direct patient care for this condition, when

Inside
Preventable Hospitalizations from Urinary Tract Infections..............1
Cancer Survivors in Kansas.................................................................2
Kansas Health Department Accreditation Status Reviewed............7
Extreme Weather Related Injuries Spring 2016.................................8
KDHE Receives PRAMS Grant..............................................................9
New Data Briefs Posted......................................................................11
Kansas Health Matters Updated.........................................................11
Infectious Disease Case Counts Posted...........................................12
New HIV Epidemiological Profile Available.................................13
Fast Stats Independence Day Fireworks Injuries, 2016.....................14
appropriate, to outpatient settings. Additionally, in recent years, there have been national
and state activities focused on the prevention and treatment of hospital-associated
infections (HAIs) from catheter-associated urinary tract infections.

While HAIs may account for only a very small sub-set of the urinary tract infection
discharges, the education from this activity has been far reaching across healthcare
settings.

Robert Geist, MPH, CIC
Advanced Epidemiologist, Healthcare-Associated Infections Program

References
3. Agency for Healthcare Research and Quality, Prevention Quality Indicators #12 (PQI #12), Urinary Tract
   Infection Admission Rate Technical Specifications.

Cancer Survivors in Kansas

Background
Given the advancements in early detection and treatment, the number of cancer
survivors in the United States is estimated to exceed 18 million by 2020 [1]. Despite these
encouraging projections, cancer survivors are at an increased risk for recurrence,
secondary cancers, late effects of treatment, and engage in unhealthy behaviors, such as
smoking, that can adversely affect their quality of life [2]. From 2003 to 2012,
approximately 129,000 Kansans were diagnosed with invasive (malignant) cancer.
Currently, many cancer survivors are seeking information about how lifestyle factors, such
as physical activity and nutrients consumption, may impact their prognosis [3]. Very few
studies are available about the current demographic, diagnostic, and lifestyle behaviors of cancer survivors in Kansas.

**Objective**

In this report, we examine the demographic and diagnostic characteristics among cancer survivors and non-survivors in Kansas who were diagnosed between 2003 and 2012. In addition, we compare health risk behaviors, health status, and health care access between Kansans diagnosed and never diagnosed with cancer in Kansas in 2014.

**Methods**

The University of Kansas Medical Center’s, Kansas Cancer Registry (KCR) database is used for this report. The KCR is the only population-based source of information on cancer incidence in Kansas, which operates on behalf of the Kansas Department of Health and Environment. Cancer survivors were defined as Kansas residents diagnosed with invasive cancer between 2003 and 2012 and whom did not have a date of death indicated in KCR database as of May 25, 2015. Duplicate records were removed; patients with multiple records were counted as single record containing their first malignant tumor diagnosis. Descriptive statistics were performed to characterize the distribution of age at diagnosis, sex, race, and ethnicity of cancer survivors. The statistical significance between-group differences in selected characteristics by cancer survivor status were evaluated by t-tests and chi-square tests. In addition, a logistic regression was applied to assess the odds of being a survivor based on cancer stage at diagnosis. The age at diagnosis was controlled as a confounder.

The 2014 Kansas Behavioral Risk Factor Surveillance System (BRFSS) data were also 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 private residences or college housing with landline or cell phone service in Kansas. The cancer survivors were defined as those who have ever been diagnosed with cancer. Persons with a history of cancer diagnosis were defined as respondents who indicated they had ever been told by a health professional that they had cancer, excluding melanoma or other skin cancers. Descriptive statistics were computed for those who had ever and never been diagnosed with cancer. Comparison of health risk behaviors, health status, and health care access by history of cancer diagnosis as if both groups had similar distributions in demographic profiles were evaluated by linear and logistic regression models to produce adjusted percentages (i.e., predicted population margins). The unadjusted prevalence estimates were also produced to describe the burden within a particular population subgroup. Statistical significance between-group differences were evaluated by t-tests and Wald chi-square tests at the α<0.05 level.
**Results**

During 2003 to 2012, there were 128,927 Kansans diagnosed with invasive cancer, about 50 percent (n=69,116) of them were still alive at the end of the study period. We observed significant differences between cancer survivors and non-survivors at the end of the study period for mean age at diagnosis, as well as sex, race, ethnicity, stage at diagnosis, and type of cancer (Table 1; Figures 1 and 2).

At the end of the study period, the odds of being a non-survivor for those whose tumor was diagnosed at a distant stage were 11.6 (95% CI: 11.2-12.0) times the odds of those whose tumor was diagnosed at a localized stage.

Results from BRFSS 2014 showed that persons who had ever been diagnosed with cancer were significantly more likely to be older, female, and retired, less likely to be uninsured and Hispanic as compared to those who did not report ever being diagnosed with cancer. In addition, persons who had ever been diagnosed with cancer were

<table>
<thead>
<tr>
<th>Table 1. Demographic characteristics of persons diagnosed with cancer, by survivor status, Kansas, 2003-2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>Demographic</td>
</tr>
<tr>
<td>-----------------</td>
</tr>
<tr>
<td>Mean age at diagnosis, yrs</td>
</tr>
<tr>
<td>Mean survival time, yrs</td>
</tr>
<tr>
<td>Sex</td>
</tr>
<tr>
<td>Male</td>
</tr>
<tr>
<td>Female</td>
</tr>
<tr>
<td>Race</td>
</tr>
<tr>
<td>White</td>
</tr>
<tr>
<td>Black</td>
</tr>
<tr>
<td>Asian &amp; Pacific Islanders</td>
</tr>
<tr>
<td>American Indian/Native Alaskan</td>
</tr>
<tr>
<td>Ethnicity</td>
</tr>
<tr>
<td>Hispanic</td>
</tr>
<tr>
<td>Non-Hispanic</td>
</tr>
<tr>
<td>Stage at Diagnosis</td>
</tr>
<tr>
<td>Localized</td>
</tr>
<tr>
<td>Regional</td>
</tr>
<tr>
<td>Distant</td>
</tr>
<tr>
<td>Unstaged</td>
</tr>
</tbody>
</table>

Note: For cancer survivors, mean survival time is difference between date of diagnosis and end of study period (May 25, 2015). For non-cancer survivors, mean survival time is difference between date of diagnosis and date of death. P-values <0.05 indicate statistically significant between-group differences.

Source: 2003-2012 Kansas Cancer Registry
significantly more likely to be current smokers, to self-report fair/poor health, to report limited access in any activities due to physical/mental and emotional problems, to report more physically and emotionally unhealthy days in the past month, and to report more days where poor health interfered with usual activities (Table 2).

### Table 2. Unadjusted and adjusted prevalence of health risk behaviors, health status, and health care access indicators among adults 18 years and older, by history of cancer diagnosis, Kansas, 2014

<table>
<thead>
<tr>
<th>Health Risk Behaviors</th>
<th>Unadjusted Prevalence</th>
<th>Adjusted Prevalence*</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Cancer % ± SE</td>
<td>No cancer % ± SE</td>
</tr>
<tr>
<td>Current smoker</td>
<td>18.2 ± 1.5</td>
<td>18.1 ± 0.5</td>
</tr>
<tr>
<td>Drank alcohol in past 30 days</td>
<td>41 ± 1.7</td>
<td>52.5 ± 0.6</td>
</tr>
<tr>
<td>No leisure time physical activity</td>
<td>32.5 ± 1.6</td>
<td>23.0 ± 0.5</td>
</tr>
<tr>
<td>Overweight/obese (BMI≥25kg/m²)</td>
<td>66.9 ± 1.6</td>
<td>65.9 ± 0.6</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Health Status</th>
<th>Unadjusted Prevalence</th>
<th>Adjusted Prevalence*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-reported fair/poor health</td>
<td>31.2 ± 1.6</td>
<td>14.2 ± 0.4</td>
</tr>
<tr>
<td>Limited in any way in any activities because of physical, mental, or emotional problems</td>
<td>37.2 ± 1.6</td>
<td>18.9 ± 0.4</td>
</tr>
<tr>
<td>Physically unhealthy days in past 30 days, no.</td>
<td>7.0 ± 0.4</td>
<td>3.0 ± 0.1</td>
</tr>
<tr>
<td>Emotionally unhealthy days in past 30 days, no.</td>
<td>3.7 ± 0.3</td>
<td>3.0 ± 0.1</td>
</tr>
<tr>
<td>Days poor health interfered with usual activities in past 30 days, no.</td>
<td>7.2 ± 0.5</td>
<td>4.1 ± 0.1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Health Care Access</th>
<th>Unadjusted Prevalence</th>
<th>Adjusted Prevalence*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Uninsured</td>
<td>4.7 ± 0.9</td>
<td>15.1 ± 0.5</td>
</tr>
<tr>
<td>Do not have health care provider</td>
<td>6.3 ± 1.0</td>
<td>20.4 ± 0.5</td>
</tr>
<tr>
<td>Could not see doctor because of cost</td>
<td>12.9 ± 1.3</td>
<td>12.5 ± 0.4</td>
</tr>
</tbody>
</table>

* Predicted population margins; adjusted for age, sex, race/ethnicity, employment status, and education level. SE= standard error. P-values <0.05 indicate statistically significant between-group differences.

Source: 2014 Kansas Behavioral Risk Factor Surveillance System, Bureau of Health Promotion, KDHE.

**Discussion**

This study provides a population-based benchmark approximations regarding health risk behaviors that are associated with cancer. The population-based survival is an important measure of the cancer burden because it measures the actually achieved survival for all patients in the general population regardless of age, health status, stage of diagnosis and access to care [4]. In this report, the demographic profile among cancer survivors in Kansas are consistent with the national BRFSS Program data [5]. Approximately 70,000 cancer survivors in Kansas were diagnosed with their first primary invasive tumor between 2003 and 2012, and more than half of whom were diagnosed with either prostate,
female breast, or colorectal cancer. Similar to many literature reviews [6], Kansas cancer survivors engage in a number of unhealthy risk behaviors, such as current smoking, lack of physical activity, and being overweight or obese.

A limitation of this study is that cancer survivors were identified from the KCR database, which only include persons diagnosed with invasive cancer between 2003 and 2012. This results in a delay of reported cases and does not allow for more recent incidence data analysis. Furthermore, cancer non-survivors may be underreported due to inability to identify those who died after May 25, 2015. Finally, BRFSS data are self-reported and may be subject to recall bias and how the questions are interpreted [7].

As larger collective efforts of health promotion continue to improve, cancer survivors are now living longer and represent a rapidly growing population, especially in coming years as the baby boomer generation ages. It is critical for health care providers to play an influential role in providing knowledge for survivors to maintain positive health behaviors, while offering guidance and appropriate referrals for managing unhealthy risk behaviors. In addition, it is important for Kansas to continue the surveillance for assessing public health development and to evaluate progress. The Cancer Survivorship Module is currently being implemented in the 2016 Kansas BRFSS Survey. Future studies are recommended to add to the information regarding cancer survivorship.

Mickey Wu, MPH
Ghazala Perveen, MBBS, PhD, MPH
Bureau of Health Promotion

References
Kansas Health Department Accreditation Status Reviewed

Introduction
Accreditation of public health agencies ensures health departments are meeting national standards for essential services provided to the community [1]. The Kansas Department of Health and Environment (KDHE) has been working with local health departments (LHDs) to prepare them for accreditation. Each year, as part of the department’s Aid-to-Local survey, the Bureau of Community Health Systems asks the 100 Kansas LHDs to assess their readiness for accreditation.

Methods
Each local health department receiving grant funds through KDHE was required to respond to the 2016 Aid-to-Local Survey. One question asked a LHD’s accreditation status. A follow-up question for non-accredited LHDs solicited information on accreditation plans. Survey response was 100 percent, with two LHDs not responding to the follow up question. Results were analyzed in SAS 9.4.

Figure 1. Accreditation Status by County, March 2016

Legend:
- **Green**: Accredited
- **Yellow**: Plan to apply in 2017
- **Blue**: Plan to apply in 2018
- **Light Blue**: Plan to apply but not sure about date
- **White**: No intention to apply at present
- **Red**: Undecided about applying
Results

Kansas has three LHDs that are accredited (Figure 1). Two health departments plan to seek accreditation in 2017, with another two in 2018. Thirty-two LHDs stated they plan to apply but have not set a date. Almost three out of five (59) LHDs have no intention to apply for accreditation at present. The remaining two non-responses were considered undecided about applying.

Discussion

Nationally, the public health accreditation program began in September 2011, with the first health departments accredited in February 2013. While the survey did not ask LHDs for their reasons for not pursuing accreditation, an Indiana accreditation study found that one key factor is technical assistance [2]. Those findings indicated technical assistance was statistically associated with accreditation progress. KDHE and its public health partners plan to continue to work with LHDs in support of their efforts to seek accreditation. Additional study is needed to determine the factors causing LHDs to not pursue accreditation and adjust technical assistance to better facilitate LHD progress.

Greg Crawford, Bureau of Epidemiology and Public Health Informatics
Cristi Cain, Bureau of Community Health Systems

References

Extreme Weather Related Injuries Spring 2016

Kansas storms can approach without warning and can cause a multitude of health issues. The Kansas Department of Health and Environment Bureau of Epidemiology and Public Health Informatics (BEPHI) is continuously developing and modifying syndrome definitions to analyze emergency room visits related to Kansas events. Particular events of interest are the recent storms and the general storm activity common in Kansas. Syndrome definitions are run against the data provided through the National Syndromic Surveillance Program (NSSP) and compiled by the Office of Vital Statistics (OVS).

Data was pulled from Kansas emergency rooms sending data to the NSSP platform regarding visits February 29th, 2016 to present to capture intense weather activity. Data was processed and chief complaint and triage notes fields are searched for terms related to storm, rain, tornadoes, wind, and flood. The returned results contained the expected injuries directly related to the storm such as wind- and flooding-related trauma. However, the storm syndrome definition returned multiple unexpected results. Results are summarized below.
84 total emergency department visits contained one or more of the syndrome definition terms,

45 percent of these captured injuries were related to wind on storm doors, car doors, and other high wind accidents,

26 percent of these 84 ED visits were related to injuries and strains related to preparation for storms and floods,

15 percent of visits mentioned stress and anxiety related to tornado sirens and active tornadoes in the surrounding areas, and

13 percent of these visits were results of physical injuries and trauma related to taking shelter from the storm.

These findings are provisional; KDHE syndromic surveillance will continue to monitor emergency room data for future analysis. Due to the nature of Kansas weather, KDHE Syndromic Surveillance would like to remind everyone that it is imperative that individuals have a storm preparedness plan and take extra care when storms and high winds are in their region.

Data collection was supported by the Grant 1 U50 OE000069-01, funded by the Centers for Disease Control and Prevention. These contents are solely the responsibility of the authors and do not necessarily represent the official views of the Centers for Disease Control and Prevention or Department of Health and Human Services.

Zach Stein, MPH
Bureau of Epidemiology and Public Health Informatics

Announcements

KDHE Receives Five Year Pregnancy Risk Assessment Monitoring System Grant

The Pregnancy Risk Assessment Monitoring System or PRAMS, is a surveillance project of the Centers for Disease Control and Prevention (CDC) and state health departments. PRAMS collects state-specific, population-based data on maternal attitudes and experiences before, during, and shortly after pregnancy. PRAMS provides data not available from other sources, including the Birth Record. These data can be used to identify groups of women and infants at high risk for health problems, to monitor changes in health status, and to measure progress towards goals in improving the health of mothers and infants. Forty-seven states, New York City, Puerto Rico, the District of Columbia, and the Great Plains Tribal Chairman’s Health Board currently participate in PRAMS, representing approximately 83 percent of all U.S. live births.

The major goals of Kansas PRAMS are to reduce infant morbidity, mortality and low birth weight (LBW), and to promote maternal health by influencing maternal and child health programs, policies, and maternal behaviors during pregnancy and early infancy. The
Kansas infant mortality rate, 6.3 deaths per 1,000 live births, exceeds the Healthy People 2020 objective of 6.0 deaths per 1,000 live births. LBW is the second leading cause of infant mortality (19.8%) behind congenital anomalies (23.3%). The risk of delivering a LBW infant is greater among non-Hispanic black mothers and differs by maternal age, with the highest risk for the youngest and oldest mothers regardless of race.

Who are the partners in Kansas PRAMS?

The PRAMS steering committee is a multidisciplinary team of professionals with expertise in maternal and child health. The Kansas Maternal & Child Health (MCH) Council meets at least quarterly and consists of four subcommittees, in line with the Health Resources and Services Administration Title V MCH population health domains: Women/Maternal, Perinatal/Infant, Child, and Adolescent (Children and Youth with Special Health Care Needs and Cross-cutting are integrated across all four domain groups). The steering committee includes members from two of the four standing MCH Council subcommittees, Women/Maternal and Perinatal/Infant. The steering committee advises PRAMS staff on the development and selection of state specific questions and an analysis plan, data dissemination, application of findings, and emerging issues.

Starting on January 1, 2017, a sample of women who are Kansas residents and have had a recent live birth in Kansas, will be randomly drawn from the birth certificate file each month. Mothers from this sample are mailed a questionnaire covering a number of questions related to prenatal and postnatal behaviors and experiences. Questionnaires may be mailed up to three times depending on response. If there is no response, mothers may be contacted and interviewed by telephone.

The PRAMS questionnaire contains core questions that are asked by all states. The core portion of the questionnaire includes questions about the following:

- Attitudes and feelings about the most recent pregnancy
- Content and source of prenatal care
- Maternal alcohol and tobacco consumption
- Physical abuse before and during pregnancy
- Pregnancy-related morbidity
- Infant health care
- Contraceptive use
- Mother’s knowledge of pregnancy-related health issues, such as adverse effects of tobacco and alcohol; benefits of folic acid; and risks of HIV

The remaining questions on the questionnaire are chosen from a pretested list of standard questions developed by CDC or developed by states on their own. As a result, each state’s PRAMS questionnaire is unique.

PRAMS Data may be used by policy makers and health care groups across the state to develop prevention and control measures, plan research and policies to improve the health of women, infants and families, as well as evaluate current programs and policies. Findings from analyses of PRAMS population-based data can be generalized to an entire state’s
population of women whose pregnancies resulted in a live birth. Findings from PRAMS data have been used in many important ways:

- To increase understanding of maternal behaviors and experiences and their relationship to adverse pregnancy outcomes.
- To develop new maternal and child health programs and to modify existing programs.
- To influence public health policy.
- To help health professionals incorporate the latest research findings into their standards of practice.
- To monitor progress toward local, state, and national health objectives and goals.

Julia Soap, MPH
Bureau of Epidemiology and Public Health Informatics

References


New Data Briefs Posted

Three new maternal and child health data briefs have been made available by the Bureau of Epidemiology and Public Health Informatics. Data brief topics are: Adequacy of Prenatal Care in Kansas 2014, Prematurity in Kansas Births, 2014, and Adolescent and Teen Pregnancies, 2014. All three are available at http://www.kdheks.gov/phi/brief.htm. Data briefs are short summaries of statistics and information on selected Kansas health outcomes.

Kansas Health Matters Indicator Update

Each quarter a select group of Kansas Health Matters indicators (KHM) are updated with the most current data available by the KHM Partners. For the 2nd quarter of CY2016, the indicators below were updated as follows:

- Uninsured Adult Population Rate
- Public Water Supply Nitrate Compliance
- Public Water Supply Coliform Compliance
- Ratio of Population to Dentist
- Injury Hospital Admission Rate
- Heart Disease Hospital Admission Rate
- Chronic Obstructive Pulmonary Disease (COPD) Hospital Admission Rate
- Congestive Heart Failure (CHF) Hospital Admission Rate
Infectious Disease Case Counts Posted to Agency Web Page

Notifiable diseases are routinely reported to the Kansas Department of Health and Environment and local health departments. This information is reported to the Centers for Disease Control and Prevention. Tracking these diseases is an essential activity of public health, preventing the spread of infectious organisms and reducing the impact on the health of Kansas residents. These data, formerly reported in the EPI Updates newsletter from the Bureau of Epidemiology and Public Health Informatics, are now available online at the Bureau's web. The link to the cumulative case reports is http://www.kdheks.gov/epi/case_reports_by_county.htm. There are tables that show counts for each county in the state. And information from the past year is available. Be sure to read the documentation about the KDHE Case Count data. It provides important insight on the disease reporting and interpretation.

Bureau of Epidemiology and Public Health Informatics
New HIV Epidemiological Profile Available

On average, approximately 150 people are newly diagnosed with HIV in Kansas each year. As of December 31, 2014 there were a total of 2,827 persons known to be living with HIV in the state of Kansas. Approximately 76 percent of the 105 counties in Kansas have residents living with HIV. The three metropolitan areas represent 65 percent of the Kansas HIV epidemic.

The majority of people living with HIV in Kansas are male, Non-Hispanic men who have sex with men (MSM), between the ages of 25-44 years of age. However, men of color continue to be disproportionately affected by HIV.

In Kansas between the years 2010 and 2014, 28 percent of new HIV diagnoses were simultaneously diagnosed as Stage 3. During this same time period, 11 percent of new diagnoses had a Stage 3 classification within twelve months. Collectively, this indicates that on average, 39 percent of new HIV diagnoses during this time tested later in their infection, which may contribute to further spread of the virus among the Kansas population, as well as decreased quality and length of life for those infected.

Fast Stats

Independence Day Fireworks Injuries, 2016

At least 20 persons were injured by fireworks associated with the July 4th holiday in Kansas. Using the Kansas Syndromic Surveillance Program, the Bureau of Epidemiology and Public Health Informatics tracked Emergency Department visits to Kansas Hospitals. The first injuries were reported on June 25 with the last visit reported on July 6. Two regions of the state, Southwest and North Central had no reports of injuries. Seven of the injuries occurred to persons under the age of 18.
The Public Health Informatics Unit (PHI) of the Kansas Department of Health and Environment's Bureau of Epidemiology and Public Health Informatics produces Kansas Health Statistics Report to inform the public about availability and uses of health data. Material in this publication may be reproduced without permission; citation as to source, however, is appreciated. Send comments, questions, address changes, and articles on health data intended for publication to: PHI, 1000 SW Jackson, Suite 130 Topeka, KS, 66612-1354, Kansas.Health.Statistics@kdheks.gov, or 785-296-1531. Susan Mosier, MD, Secretary KDHE; D. Charles Hunt, MPH, State Epidemiologist and Director, BEPHI; Elizabeth W. Saadi, PhD, State Registrar, Deputy Director, BEPHI; Greg Crawford, BEPHI, Editor.