KANSAS DEPARTMENT OF HEALTH AND ENVIRONMENT

KHSR

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Changes in Kansas Emergency Department Trends and Healthcare Seeking Behavior During the COVID-19 Pandemic

Background

On March 7, 2020, Kansas confirmed its first case of novel coronavirus (COVID-19), followed by its first disease related fatality on March 12, 2020 [1]. After being one of the first states to report a disease related fatality, and due to the high level of threat posed by COVID-19 globally, Kansas declared a state of emergency. [1]. On March 30, Governor's executive order 20-16, a stay-at-home-order took effect, and case counts began to recede. However, months into the pandemic, Kansas continues to see new cases. As a result, both our economic and healthcare landscape have been drastically altered.

The *Kansas Syndromic Surveillance Program* (KSSP) played an important role early in the outbreak to identify visits for respiratory illness with mention of foreign travel. Besides monitoring trends of COVID-like illness presenting to hospitals at both a statewide and regional level, syndromic surveillance also became useful to identify trends in healthcare seeking behavior for emergency conditions.

In a June 12 *Morbidity and Mortality Weekly Report*, it was noted that Emergency Department visits nationwide declined 42% in the early stages of the pandemic [2]. The initial transition to telemedicine combined with fears of the virus were blamed, and the report suggested that increasing the use of triage lines and telehealth along with advertising strict infection control guidelines might encourage individuals to seek medical care when needed [2]. Further exploration of these trends is warranted to better characterize the evolving pressures on our healthcare system during this unprecedented time.

Objective

To describe statewide trends in emergency department visits across a variety of health concerns during the COVID-19 stay-at-home order, and to compare these trends amongst different demographic groups.

Methods

Weekly ESSENCE data trends were examined for the year 2020. For comparison, visits for year 2019 were used to further characterize these changes. Raw counts for total ED visit numbers were used, and analysis was done to identify overall trends, as well as differences in healthcare seeking behavior by demographic group and by nature of complaint. Location of patient residence was the defining population parameter and only Emergency Department visits were analyzed. Medical subgrouping was used to categorize chief complaint. Variables of interest included sex, age group, and nature of complaint.

Results

In Kansas, emergency department visits began to decline in mid-March 2020 visits hit a low point in mid-April before gradually increasing again. From MMWR week 10 to week 15, emergency department visits had declined by

Inside

Emergency Room Trends During COVID-19 1
Kansas Lung and Bronchus Cancer Burden 4
Record Matching to Improve Perinatal Outcomes..... 9
Updates & Announcements 11
Vital Statistics Counts for 2019..... 15

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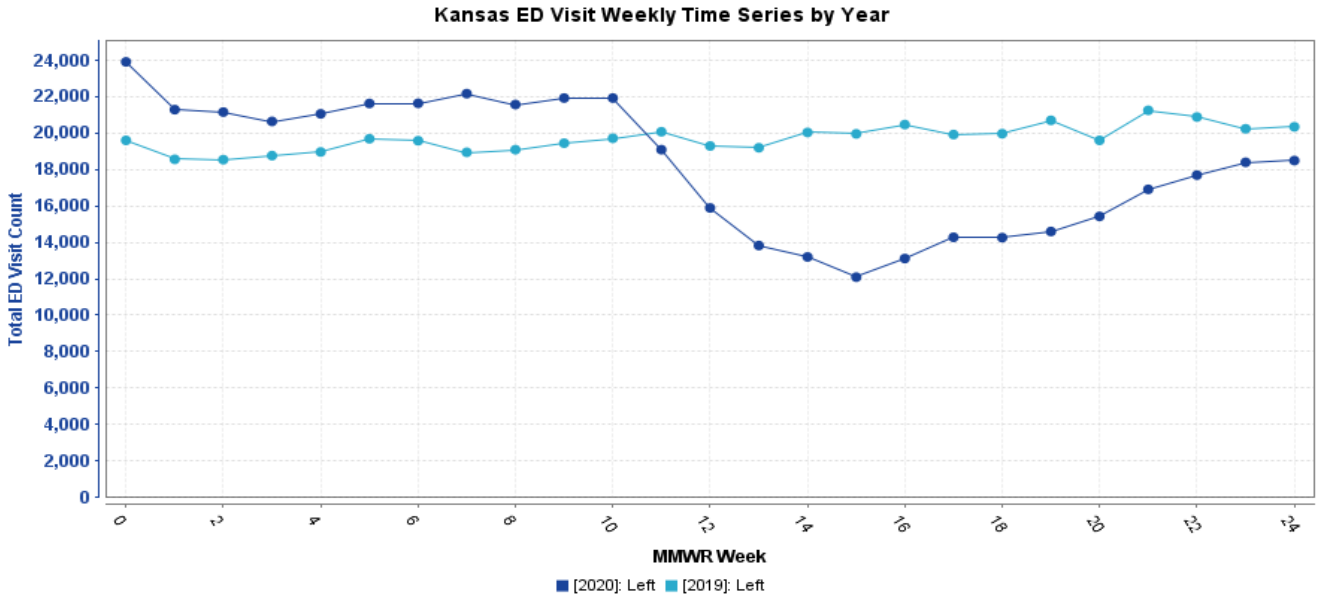
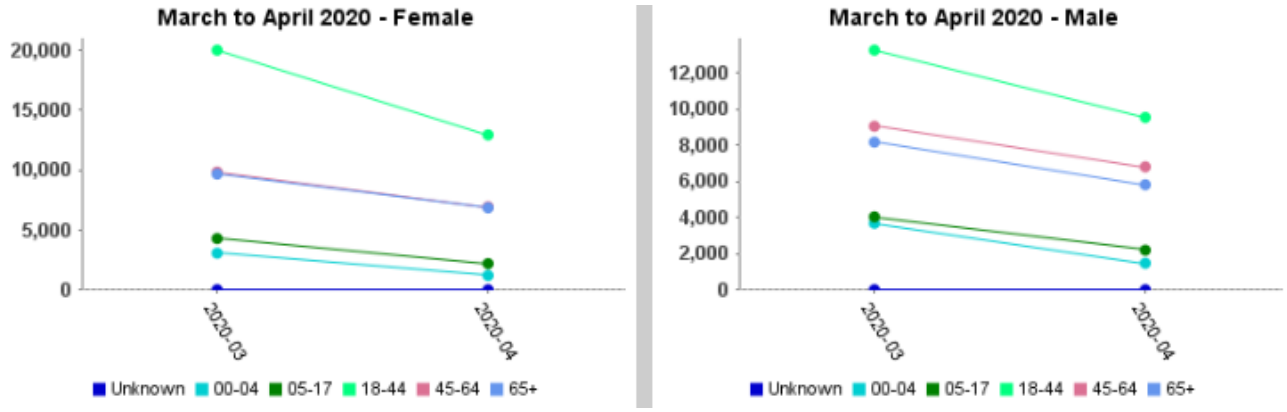
Figure 1. Weekly ED Visit Counts for KS Residents, 2019 vs. 2020 through MMWR week 25



roughly 44%. For weekly overall trend comparisons from 2019 to 2020 see Figure 1. During this month of decline from March to April 2020, the demographic group with the largest decline in ED visits was Females aged 18-44, dropping by approximately 53% (Figure 2).

Between the two periods, the top chief complaint shifted from Cough to Abdominal pain for all demographic groups (Figure 3). Injuries accounted for a higher proportion of visits in April than in

Figure 2. Comparing Change in Total ED Visits by Demographic Group from March to April, 2020



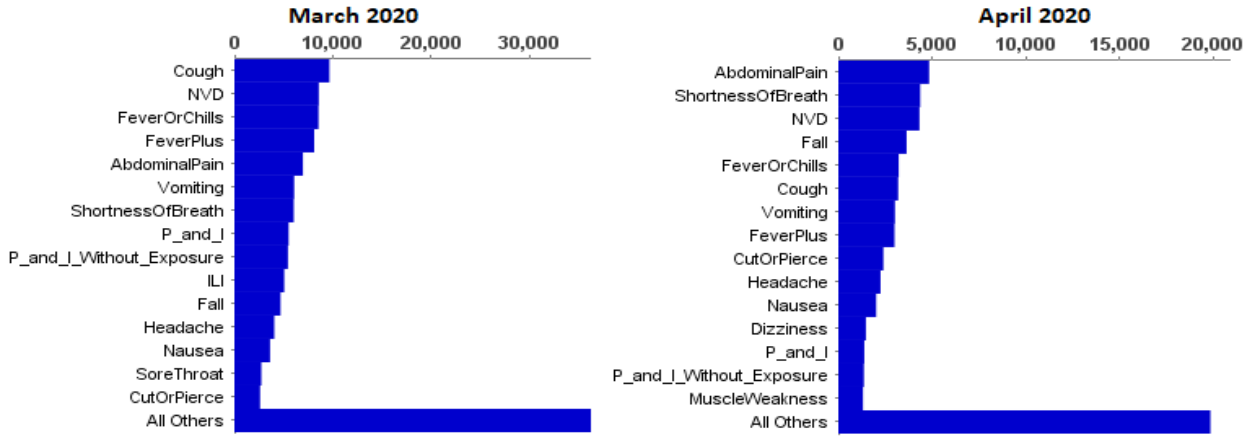
March. Respiratory and Fever complaints accounted for a lower percentage of visits in April, while other concerns remained proportionally steadier. Complaints not in the top 10 were not analyzed for this report.

Discussion

Overall emergency department trends in Kansas closely mirrored those seen nationwide decreasing substantially in the first month of the pandemic in the United States [2]. While females did show a greater decline in visits during the pandemic than males, it was the middle aged rather than the younger age group that showed a greater decrease in visits here in Kansas. This report also examined changing trends in the medical subgroupings of chief complaints.

From March to April, the proportion of visits for respiratory and fever complaints dropped, possibly reflecting a decrease in COVID-19 cases during the stay-at-home order. However, there may have been a drop in other respiratory illness as well. It would be interesting in a further analysis to extend this

Figure 3. Top 10 Complaints by Medical Sub Grouping from March to April 2020



*** NVD = nausea/vomiting/Diarrhea, P_and_I = Pneumonia and Influenza, and ILI = Influenza-like illness

comparison looking at later months when cases began to increase again, outside Influenza season. Another interesting observation was that the proportion of injuries from falls or lacerations increased during the stay-at-home order. Perhaps these numbers are influenced by boredom and a growing predilection for outdoor activities and home improvement projects. Other top complaints, such as those for abdominal pain, remained steady by comparison.

A limitation of this report is that only the top 10 medical subgroupings in ESSENCE are included. Although certain conditions such as motor vehicle accidents or heart attacks were not included in the analysis, it would be interesting to explore these trends too. A later *Morbidity and Mortality Weekly Report*, suggested a decline in visits for heart attack, stroke and blood sugar [3]. This is concerning because you would not expect a decline in raw counts for these conditions which should be similarly prevalent. The findings suggested patients may be hesitant to seek emergency care leading to excess mortality.

It is important to expand explorations into healthcare seeking behavior during COVID-19. Doing so in a timely manner can allow for quick identification of trends useful for healthcare practitioners and public health messaging. By characterizing these trends, public health can improve its situational awareness, enabling targeted messaging and a well-balanced response.

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Burden of Lung and Bronchus Cancer in Kansas

Background

Lung and bronchus cancer is by far the leading cause of cancer death in the USA; the American Cancer Society (ACS) estimates that 135,720 Americans will die from lung and bronchus cancer in 2020. This number of deaths constitutes about 25% of all cancer deaths and exceeds the number of Americans dies from colon, breast, and prostate cancers combined. [1] In addition, lung and bronchus cancer is the second most common cancer diagnosed among both men and women in the USA; ACS estimates that about 228,820 Americans will be diagnosed with lung and bronchus cancer in 2020.[1] Furthermore, The 5-year relative survival for lung and bronchus cancer in the United States is only 19.6%, which means that only one in five lung and bronchus cancer cases could live at least for five year. This percentage is even getting worse for the cases diagnosed in distant stage, where only 5.8% of them live for 5 years. [2]

Despite the high burden of lung and bronchus cancer on the American population, the prevalence of the screening of lung and bronchus cancer among the high-risk group is considerably low. In 2013, the U.S. Preventive Services Task Force (USPSTF) recommended annual screening for lung and bronchus cancer with low-dose computed tomography (LDCT) for adults aged 55–80 years who have a 30 pack-year smoking history and currently smoke or have quit within the past 15 years.[3] In a recent publication, CDC reported that overall, only 12.5% of those meeting USPSTF criteria reported they had received a LDCT scan to check for lung and bronchus cancer in the last 12 months.[4] However, this even better than the prevalence of the screening rate for lung and bronchus cancer according to USPSTF guidelines as estimated by the National Health Survey for 2015, which was 4.4%.[5]

In Kansas, the Comprehensive Cancer Control and Prevention (KS CCC) program in collaboration with the state and national partners works to promote prevention and control measures for lung and bronchus cancer. This include but not limited to encouraging lung and bronchus cancer screening, promoting Kansas Tobacco Quitline at locations where tobacco is sold, and collaborating with Tobacco Free Kansas Coalition to develop and implement a large-scale counter-marketing communication campaign to promote tobacco use prevention and control. The program specifically targets groups with higher lung and bronchus cancer incidence and mortality rates as the African American males in urban areas. The aim of this report was to present the most recent lung and bronchus cancer indicators in Kansas i.e., lung and bronchus cancer screening prevalence, 5-year incidence and mortality, trend of the annual incidence and mortality, and 5-year relative survival rates in Kansas.

Methods

The Kansas Behavioral Risk Factor Surveillance System (KS BRFSS) was employed to collect information about the prevalence of lung and bronchus cancer screening according to the USPSTF guidelines. BRFSS is a random digit dial population-based survey of non-institutionalized adults 18 years and older living in private residences and college housings with landline and/or cell phone service in Kansas. The lung and bronchus cancer screening module in 2017 and 2019 KS BRFSS collected information to determine the high-risk group for lung and bronchus cancer who would be eligible for lung and bronchus cancer screening, and if they received the recommended screening for lung and bronchus cancer. The collected information from the survey respondents was when they first started to smoke and last smoked cigarettes regularly, number of cigarettes they usually smoke daily, if they had a CT scan for lung and bronchus cancer, and if they have been recommended a CT scan for lung and bronchus cancer, only if they have not already had it. Prevalence estimates and 95 percent confidence intervals (95% CI) were calculated using weighted survey data analysis procedures in SAS 9.4.

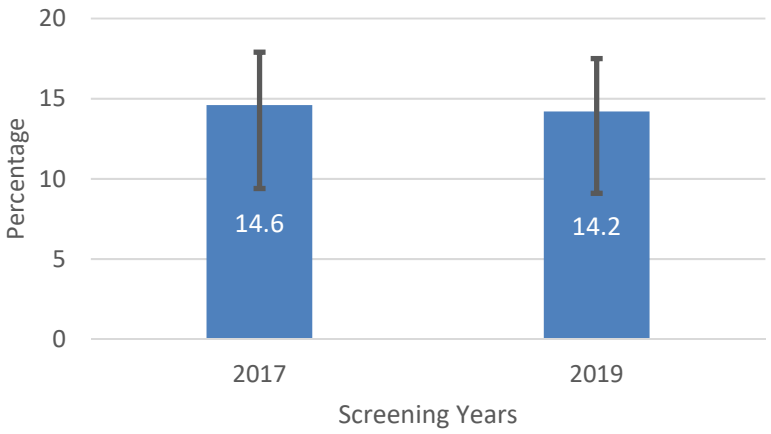
Death Registration data from the Kansas Department of Health and Environment (KDHE) Office of Vital Statistics was analyzed to assess cancer mortality. The International Classification of Diseases, 10th Revision (ICD-10) code, [6] was used to identify deaths from lung and bronchus cancer (C340-C349). 2013-2017 lung and bronchus cancer deaths were combined to calculate the 5-year mortality rates, while the annual 2005-2017 deaths were identified to calculate the mortality trend over the years. On the other hand, both incidence and survival indicators were calculated using the 1998-2016 Kansas Cancer Registry (KCR) database provided by the University of Kansas (KU) Medical Center. KCR received Vital Statistics for years of death 1998-2018 as of 10/30/2018 and merged it with the KCR database to identify the date of death and primary cause of death variables required for survival analysis. Lung and bronchus cancer cases were identified in the KCR database using 22030 code from the National Cancer Institute's Surveillance and Epidemiology End Results Program (NCI SEER).[7] 5-year incidence was calculated for 2012-2016, while the annual cases of 2005-2016 were used to examine the incidence trend over the years. For the relative survival analysis, all invasive lung and bronchus cancers diagnosed between 2009 and 2015, with follow-up through October 2018 (study cutoff date 10/31/2018) and known age at diagnosis (0-99 years old), sex, race, and date of diagnosis are included in the analysis.

The incidence and mortality rates were calculated using PROC STDRATE procedure in SAS 9.4 and adjusted to U.S. 2000 standard population using direct method based on 10 age groups: 0 to 4, 5 to 14, 15 to 24, 25 to 34, 35 to 44, 45 to 54, 55 to 64, 65 to 74, 75 to 84, and 85 years and older. 1990-2017 population estimates for Kansas were obtained from the NCI SEER program. The estimates represent a modification of the intercensal and Vintage 2018 annual time series of July 1, county population estimates by age, sex, race, and Hispanic origin produced by the U.S. Census Bureau's Population Estimates Program, in collaboration with the National Center for Health Statistics. The modifications made by the NCI to the Census Bureau estimates are documented elsewhere. [8] The modifications mainly affect population estimates for the state of Hawaii, where it reduces the estimated white population and increasing the estimated Asian and Pacific Islander population for the state.

A SAS program provided by Paul Dickman was modified and employed to calculate the cumulative 5-year relative survival.[9] Survival time in months for each case is calculated using date of diagnosis as the starting date and the end date being date of death (if the patient was deceased) or the study time cutoff date (10/31/2018) if the subjects have no evidence of death and are presumed alive.
Survivors that exceeded the maximum age (99 years) were considered as being censored at age 99. Life tables for expected all-cause survival for the general population were obtained from National Center for Health Statistics (NCHS).[10]

The trend in incidence and mortality rates over the years was calculated using the Joinpoint software. [11] The software takes cancer rates and fits the simplest Joinpoint model that the data allow. The software used Monte Carlo Permutation

Figure 1. Lung and Bronchus Cancer Screening, 2017 and 2019 KS BRFSS



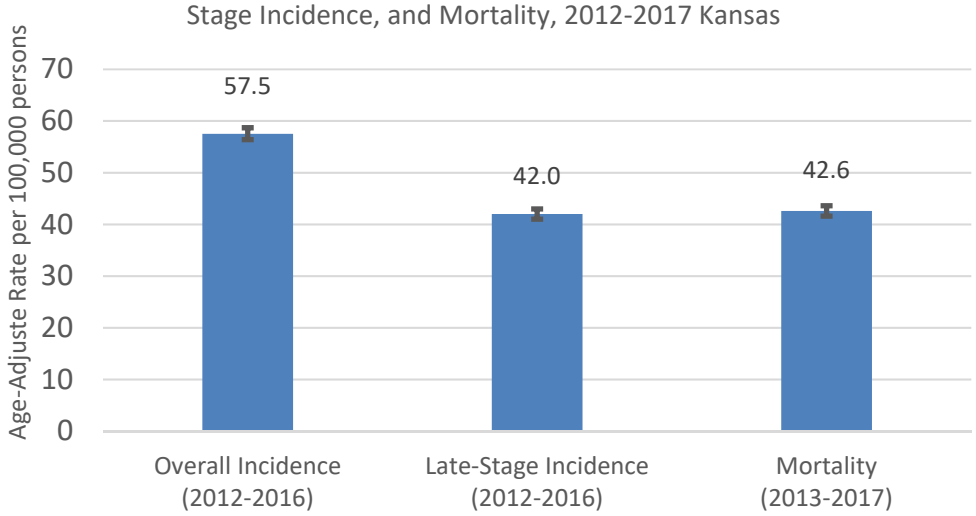
method to test the significance of an apparent change. It also tests the presence of joinpoints, according to the maximum joinpoints provided by the user, and models them if they are significant. Statistically significant differences in screening, incidence, mortality, and survival estimates were indicated by non-overlapping 95% confidence intervals.

Results:

Figure 1 presents the prevalence of lung and bronchus cancer screening in Kansas for 2017 and 2019 according to the USPSTF guidelines. The graph shows that the prevalence of lung and bronchus cancer screening in Kansas was 14.6% (95% CI: 11.3%-17.9%) and 14.2% (95% CI: 9.0%-19.3%), respectively, without a significant difference between the prevalence in the two years.

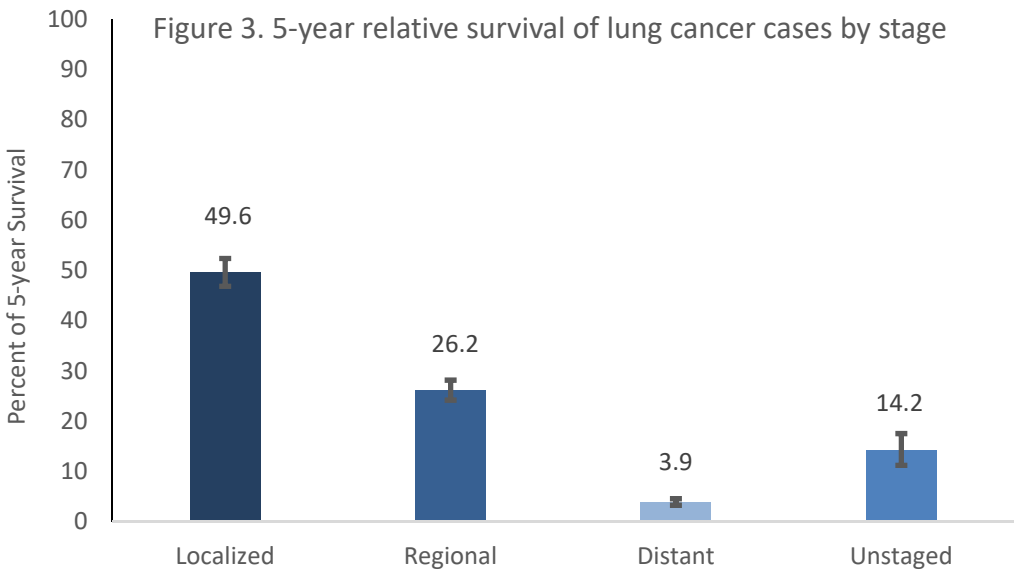
Figure 2 presents the most recent 5-year lung and bronchus cancer incidence (overall and late-stage) and mortality rates in Kansas. The graph shows that the 2012-2016 overall lung and bronchus cancer incidence was 57.5 cases (95% CI: 56.4-58.7) per 100,000 persons, the 2012-2016 late-stage lung and bronchus cancer incidence was 42.0 cases (95% CI: 41.0-43.0) per 100,000 persons, while the 2013-2017 lung and bronchus cancer mortality was 42.6 cases (95% CI: 41.6-43.6) per 100,000 persons.

Figure 2. 5-Year Lung and Bronchus Cancer Overall Incidence, Late-Stage Incidence, and Mortality, 2012-2017 Kansas



The trend analysis of the three annual lung and bronchus cancer indicators: overall incidence (2005-2015), late-stage incidence (2005-2015), and mortality (2005-2017) shows that the rates significantly decreased over the years. The average decrease was 1.38, 0.96, and 2.75 points every year for the overall incidence, late-stage incidence, and mortality, respectively (data not shown).

The 5-Year relative survival analysis showed that 18.7% (95% CI: 17.9%-19.6%) of persons diagnosed with lung and bronchus cancer have the probability to live for 5 years or more. When the 5-year relative survival rate was calculated for the different stages of lung and bronchus cancer, it shows that the rates were 49.6%, 26.2%, 3.9%, and 14.2% for the localized, regional, distant, and un-staged lung and bronchus cancer cases (Figure 3).



Discussion:

Although the USPSTF guidelines to screen the high-risk group for lung and bronchus cancer annually with low dose computed tomography (LDCT) were released in 2013, the screening rates in Kansas were only 14.6% and 14.2% in 2017 and 2019, respectively. This means that in Kansas it is only 1 in 7 of the high-risk individuals that meet the USPTF guidelines for lung and bronchus cancer screening received the required screening. This is clearly reflected in the ratio of lung and bronchus cancer late-stage incidence rate from the overall incidence rate. The late-stage incidence rate was about three quarters of the overall incidence, which indicates that the majority of lung and bronchus cancer cases are diagnosed in late stage. It is clearly obvious that early diagnosis of lung and bronchus cancer in early stages would help in increasing the survival of lung and bronchus cancer cases, where the rate of relative survival for localized cases was about 50%, while it drops to 26.2% and 3.9% of the regional and distant lung and bronchus cancer cases, respectively (Figure 3).

Interestingly, the lung and bronchus cancer screening, incidence, mortality, and survival rates are comparable to their national counterparts. Kansas data show that Kansas lung and bronchus cancer screening rates in 2017 (14.6% (95% CI: 11.3%-17.9%)) and 2019 (14.2% (95% CI: 9.0%-19.3%)) do not significantly differ from the rates all over the USA (12.5%, 95% CI: 10.4%-14.9%) as reported by an CDC MMWR report.[4] In addition, the national 5-Year lung and bronchus cancer incidence rate is 58.3 (95% CI: 58.2-58.4) cases per 100,000 persons,[2] and the national 5-Year lung and bronchus cancer mortality rate is 40.2 (95% CI: 40.1-40.3) deaths per 100,000 persons,[2] while those of Kansas were 57.5 cases (95% CI: 56.4-58.7), and 42.6 deaths (95% CI: 41.6-43.6) per 100,000 persons, respectively (Figure 2). Similarly, the 5-Year relative survival rate in Kansas (18.7% (95% CI: 17.9%-19.6%)) is in agreement with that of the USA (19.6% (95% CI: 19.5-19.7).[2]

Despite the low lung and bronchus cancer screening rates and the high percentage of late-stage incidence from the overall incidence, the lung and bronchus cancer incidence (overall and late-stage) and mortality rates decreased significantly over the years from 2005 to 2017. This may be attributed to the significant decrease in the prevalence of smoking rates from 22.0% in 2011 to 17.3% in 2018.[12] Although regular screening for lung and bronchus cancer is a vital secondary prevention health care strategy, preventing or stop smoking is still the most effective primary prevention measure for lung and bronchus cancer. The 2nd leading cause for lung and bronchus cancer is exposure to Radon gas.[13] KS CCC program is working with the Kansas

Radiation Control Program to prevent exposure to Radon among Kansans through increasing the percent of Kansas homes tested and mitigated for Radon during purchase or construction and promoting cities to adopt building codes requiring radon-resistant building techniques. Currently, only 26% of purchased homes were tested for radon during purchase, and 7 cities adopt building codes requiring radon-resistant building techniques.[14]

In conclusion, the high smoking prevalence rate and the low lung and bronchus cancer screening rate warrants the efforts of preventing and controlling lung and bronchus cancer in Kansas and nationwide. The continuous efforts of the KS CCC program, in collaboration with the state and national partners, have a great potential to decrease the burden of lung and bronchus cancer in Kansas through application of evidence-based tobacco cessation interventions e.g. advising patients to quit smoking, providing cessation counseling and medications, and connecting patients to cessation resources such as Quitline, as well as promoting lung and bronchus cancer screening by the LDCT among the high risk group.

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Improvement of select administrative data fields using vital statistics records: Kansas Perinatal Community Collaborative data improvement through birth record linkage and supplementation

Background

Evaluation of administrative data is dependent on complete and reliable information to make truly informed decisions about the impact of a public health program on the clients served. While information is likely more complete and reliable when clients are actively participating in a program, after the program ends the ability to gather follow-up information from those clients diminishes.[1] As part of the 2018 Kansas Perinatal Community Collaborative (KPCC) evaluation, clients that completed the program (with and without reported birth outcomes) were linked with 2018 birth records to capture five key outcome measures: gestational age, birthweight, induced delivery, cesarean delivery, and breastfeeding initiation to compare against reported KPCC information for quality improvement and supplement missing data to improve outcome information available for evaluation.

Methodology

For the 2018 KPCC evaluation, there were 1,039 unique mother records sent to the Office of Vital Statistics for possible linkage with 688 unique records for moms (692 total records) that had an outcome record reported and 351 had pre and post records but no outcomes information reported.

Records were linked using a multiple iterations approach. First, a match based on the mother's last name in both records followed by a match on mother's last name to mother's maiden name in the vital records. Following these first two iterations, there remained 232 unmatched records (22.3%) that required further attention. The third linkage iteration used SPEDIS matching, which compares the reported names and calculates how close (spelling distance) the names are to capture spelling errors or spelling differences between the birth records and the KPCC records. The final iteration (141 records) was completed manually, linking individual records between sets.

Of the original records sent, there were 1,025 linked records returned including plural births (1,011 unique mothers) and 26 records that could not be linked.* From the 1,025 records, 682 were returned for the outcome records and 343 for the pre and post records (with no outcomes records) with linked birth record information. From these records, additional records were removed due to duplicate records, births out of the report period parameters, and births that occurred over 200 days from estimated due date, leaving 664 linked outcomes records, and 333 linked pre-post records. Outcomes records not linked were added back to the linked records, yielding a total of 1,024 records (1,113 unique mothers) with outcomes data for analysis.

* Due to small participation numbers/site onboarding timing, records for two sites were removed from further analysis.

Results

After linkage of the KPCC data with birth records, the total number of possible outcomes records increased to 1,024 from 692 records, yielding a 48.0% increase in records available for analysis. The congruity between the available information reported in the KPCC data and the birth records varied across measures with 78% congruence for gestational age, 98% for birth weight, 80% for induction, 99% for cesarean section, 86% for breastfeeding initiation, and almost 100% for plural births (KPCC mothers may have had missing records for plural births).

After linkage, the induction rate significantly reduced for KPCC mothers from 43.5% (95% Confidence Interval (CI): 41.5%, 49.1%) to 37.5% (CI: 34.5%, 40.5%), preterm birth decreased

from 7.2% (CI: 5.3%, 9.5%) to 4.8% (CI: 3.5%, 6.3%), and breastfeeding initiation decreased from 93.5% (CI: 91.6%, 95.4%) to 90.9% (CI: 89.1%, 92.7%). The remaining measures did not change considerably.

Conclusion

These findings highlight the application of data linkage between administrative and vital records data for improvement for evaluation and reporting in public health data systems through supplementation of missing information as well as quality assessment of reported information.

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Updates & Announcements

Kansas PRAMS Data Used in CDC Prescription Drug Use Evaluation

Background

The Kansas Department of Health and Environment participates in the Pregnancy Risk Assessment Monitoring System (PRAMS) survey. The Centers for Disease Control and Prevention has presented national statistics from survey data in the Morbidity and Mortality Weekly Report Vital Signs series.

Prescription opioid use during pregnancy has been associated with poor outcomes for mothers and infants. Studies using administrative data have estimated that 14%–22% of women filled a prescription for opioids during pregnancy; however, data on self-reported prescription opioid use during pregnancy are limited.

Methods

CDC analyzed 2019 data from the Pregnancy Risk Assessment Monitoring System (PRAMS) survey in 32 jurisdictions and maternal and infant health surveys in two additional jurisdictions not participating in PRAMS to estimate self-reported prescription opioid pain reliever (prescription opioid) use during pregnancy overall and by maternal characteristics among women with a recent live birth. This study describes source of prescription opioids, reasons for use, want or need to cut down or stop use, and receipt of health care provider counseling on how use during pregnancy can affect an infant.

Results

An estimated 6.6% of respondents reported prescription opioid use during pregnancy. Among these women, 21.2% reported misuse (a source other than a health care provider or a reason for use other than pain), 27.1% indicated wanting or needing to cut down or stop using, and 68.1% received counseling from a provider on how prescription opioid use during pregnancy could affect an infant.

Discussion

Among respondents reporting opioid use during pregnancy, most indicated receiving prescription opioids from a health care provider and using for pain reasons; however, answers from one in five women indicated misuse. Improved screening for opioid misuse and treatment of opioid use disorder in pregnant patients might prevent adverse outcomes. Implementation of public health strategies (e.g., improving state prescription drug monitoring program use and enhancing provider training) can support delivery of evidence-based care for pregnant women.

For more information on the CDC results, visit: https://www.cdc.gov/mmwr/volumes/69/wr/mm6928a1.htm?s_cid=mm6928a1_e&deliveryName=USCDC_921-DM33056. For information on the KDHE PRAMS project, visit: https://www.kdheks.gov/phi/index.htm#.

Bureau of Epidemiology and Public Health Informatics

2018 Teen Pregnancy Report Issued

Pregnancies among adolescents and teens (10-19) accounted for 5.3 percent (2,324) of the 43,508 pregnancies in 2018. About 83.7 percent resulted in a live birth (n=1,945), 15.7 percent in abortion (n=366), and the remainder in stillbirths (n=13).

The information is contained in the 2018 Adolescent and Teen Pregnancy Report. The pregnancy rate for females aged 10-19 was 11.9 per 1,000 age group specific female population in 2018, down 6.3 percent from 2017 (12.7). Pregnancy rates among females 15-17 years of age, (9.8 per 1,000 female age group population) and females aged 18-19 (44.6 per 1,000 age group population) compared favorably with the Healthy People 2020 national targets of 36.2 and 72.2, respectively.

Table 1. Teen & Adolescent Pregnancy rates by Age-group by Year, 2004-2018

Year	Age Group					
	(10-19)	10-14	15-17	18-19	10-17	15-19
2004	26.1	0.8	25.8	86.8	10.3	50.3
2005	26.7	0.8	25.7	85.1	10.4	50.8
2006	27.1	0.9	25.5	87.1	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
2012	19.7	0.4	17.0	70.8	6.6	39.0
2013	17.1	0.4	14.6	62.4	5.7	34.0
2014	16.0	0.4	13.6	58.6	5.3	33.2
2015	14.8	0.2	11.5	55.9	4.5	29.3
2016	12.9	0.3	11.2	47.4	4.4	25.7
2017	12.7	0.2	9.8	48.9	3.7	25.3
2018	11.9	0.2	9.5	44.6	3.7	23.8

Rates per 1,000 female population

Residence Data

In 2018, pregnancy rates among Black non-Hispanics and Hispanics increased by 4.7 percent and 9.0 percent, respectively, while pregnancy rates among White Non-Hispanics decreased by 5.9 percent among teens 15-17 years of age from 2017.

The Kansas Department of Health and Environment (KDHE) prepares the report annually to provide data to support assessment and evaluation of teen pregnancies in Kansas. The 2018 Teen Pregnancy report can be found at https://www.kdheks.gov/data_reports_stats.htm.

Bureau of Epidemiology and Public Health Informatics

2018 Natality Report by Racial and Ethnic Population Groups

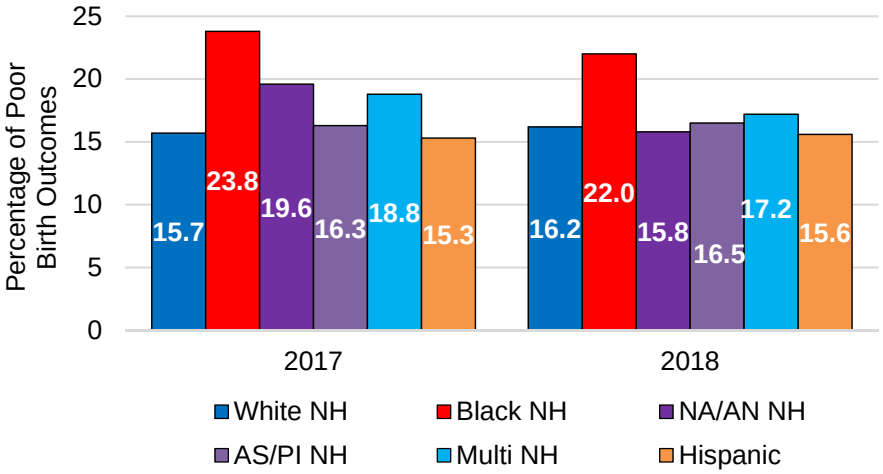
This annual report presents Kansas resident live birth statistics for 2018 by maternal population group based on race/Hispanic origin. Birth outcome indicators include maternal age, education level, marital status, adequacy of prenatal care, primary pay source, WIC service utilization, gestational age, weight of infant at birth and maternal prenatal risk factors. These indicators are examined among population groups by normal birth outcomes and by a summary measure of poor birth outcomes. The report tables may be used as source information in the determination of disparate outcomes and may also be used for program planning purposes.

Findings from the report include the following:

- Mothers experiencing poor birth outcomes such as low birth weight, prematurity, congenital anomalies, respiratory problems, etc., increases were found among White Non-Hispanics (3.2%), Hispanics (1.9%), and minimally among Asian/Pacific Islanders from 2017 to 2018. Decreases in poor birth outcomes were found among Black Non-Hispanics (7.6%), Native Americans/ Alaska Natives (19.4%) and 8.5 percent among Multiracial mothers from 2017 to 2018 (Figure 1).

- Among maternal risk factors occurring during pregnancy, no percentage changes were found among White Non-Hispanic mothers (14.1%) with pre-eclampsia and very minimal changes among Asian/Pacific Islanders (10.5% to 10.4%) from 2017 to 2018. Multiracial mothers had an 11 percent increase in pre-eclampsia, Hispanic mothers increased pre-eclampsia occurrence 5.6 percent. Native American/ Alaska Native and Black Non-Hispanic pregnant women had decreases in pre-eclampsia by 35% and 22.1%, respectively from 2017 to 2018.

Figure 1. Percentage of Resident Live Births With Poor Birth Outcomes, Kansas 2017-2018



- WIC participation decreased among White non-Hispanic (3.6%), Black non-Hispanic (5.1%) Multiracial (11.5%), Hispanic (8.5%) and Asian Pacific Islander (1.1%) pregnant women from 2017 to 2018. Native American/Alaska Native women increased participation in WIC programs by 0.6 percent.

The full report can be found at https://www.kdheks.gov/phi/AS_Tables/AS_2018_Tables_and_Figures/live_births/Natality_Report_2018.pdf.

Bureau of Epidemiology and Public Health Informatics

Editor's Notes:

The last few months have seen a number of changes. Issue 84 never made it to the state printer, a casualty of the COVID-19 outbreak. In this issue we have a story about its impact on hospital visits as evidenced by staff in the Kansas Syndromic Surveillance Program.

A major change within the Bureau of Epidemiology and Public Health Informatics was the retirement of Elizabeth "Lou" Saadi, a longtime advocate for public health statistics with 32 years of service to the Kansas Department of Health and Environment. She will be missed. Her role as State Registrar and Bureau Director has been filled by Kay Haug who previously headed the KDHE Office of Vital Statistics.

Greg Crawford, Editor

2019 Kansas Vital Statistics Counts

County	Live Births	Deaths	Marriages	Marriage Dissolutions		County	Live Births	Deaths	Marriages	Marriage Dissolutions
Kansas	35,395	27,312	15,403	6,398						
Allen	131	176	50	28		Linn	105	115	70	30
Anderson	88	99	51	116		Logan	31	27	14	11
Atchison	192	167	60	34		Lyon	362	302	154	62
Barber	47	58	32	8		McPherson	290	374	196	70
Barton	307	296	144	58		Marion	124	182	48	11
Bourbon	200	170	68	48		Marshall	116	144	50	17
Brown	113	145	46	20		Meade	61	42	17	2
Butler	708	671	415	99		Miami	325	300	196	115
Chase	24	25	37	3		Mitchell	78	96	24	18
Chautauqua	34	48	13	6		Montgomery	322	407	149	121
Cherokee	222	308	61	56		Morris	35	77	30	9
Cheyenne	31	41	6	4		Morton	53	52	9	6
Clark	28	29	6	2		Nemaha	126	145	62	16
Clay	75	93	60	11		Neosho	202	199	82	32
Cloud	110	134	51	31		Ness	28	48	12	5
Coffey	92	113	48	108		Norton	52	85	26	10
Comanche	15	31	13	6		Osage	163	197	91	39
Cowley	392	487	169	106		Osborne	44	50	9	6
Crawford	437	413	179	72		Ottawa	61	73	20	20
Decatur	24	54	9	6		Pawnee	65	81	27	24
Dickinson	199	237	108	57		Phillips	47	78	19	14
Doniphan	72	86	33	12		Pottawatomie	338	174	98	40
Douglas	1,088	704	655	174		Pratt	99	116	52	16
Edwards	30	38	19	9		Rawlins	22	42	17	7
Elk	19	32	10	7		Reno	630	746	368	166
Ellis	283	220	170	81		Republic	45	81	26	14
Ellsworth	62	59	33	23		Rice	98	127	47	13
Finney	576	255	201	80		Riley	796	374	642	142
Ford	628	267	203	87		Rooks	47	74	29	10
Franklin	261	286	161	36		Rush	29	47	8	5
Geary	911	219	404	318		Russell	69	100	39	15
Gove	37	41	9	3		Saline	677	593	278	187
Graham	18	28	12	9		Scott	75	59	34	13
Grant	106	63	25	13		Sedgwick	6,736	4,617	2,849	1,363
Gray	81	62	31	7		Seward	387	133	131	58
Greeley	18	19	8	5		Shawnee	2,113	1,908	801	302
Greenwood	53	97	31	15		Sheridan	35	31	14	5
Hamilton	41	24	8	4		Sherman	80	69	24	12
Harper	72	96	23	13		Smith	35	57	14	4
Harvey	389	414	251	63		Stafford	51	66	29	4
Haskell	67	28	19	5		Stanton	23	20	20	8
Hodgeman	15	32	10	5		Stevens	59	47	32	19
Jackson	166	128	53	18		Sumner	263	273	145	66
Jefferson	176	192	129	26		Thomas	97	94	58	28
Jewell	23	34	7	7		Trego	29	38	17	6
Johnson	6,949	4,252	2,313	799		Wabaunsee	92	70	45	9
Kearny	61	39	24	12		Wallace	14	13	4	5
Kingman	73	89	32	17		Washington	67	64	35	12
Kiowa	13	23	29	4		Wichita	27	17	6	3
Labette	257	292	83	32		Wilson	92	113	29	19
Lane	7	27	4	3		Woodson	34	43	12	7
Leavenworth	887	686	461	177		Wyandotte	2,612	1,363	1,102	249
Lincoln	24	38	15	10		n.s.	2	4	1	0

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