Chronic Disease Burden & Disparities in Kansas

Belle Federman, ScD
Advanced Epidemiologist

Ghazala Perveen, MBBS, MPH, PhD
Health Officer /Director of Science & Surveillance
KDHE Bureau of Health Promotion

Community Health Promotion Summit
January 26, 2017

Our Mission: To protect and improve the health and environment of all Kansans.
Purpose

Provide a resource/context for understanding the leading *preventable* causes of death & disability in Kansas and related health disparities

1. Starting at the end: Leading causes of death
2. Burden of chronic disease
3. Ending with prevention: Reducing the preventable burden of chronic disease
Kansas Demographics

- **105** Counties (shaded counties represent SFY2017 CDRR grantees)
  - 36 Frontier
  - 33 Rural
  - 20 Densely-settled Rural
  - 10 Semi Urban
  - 6 Urban

Source:

2015 Kansas Annual Summary of Vital Statistics. Bureau of Epidemiology and Public Health Informatics, KDHE
Kansas Demographics

• **2,911,641** = Total Population

• **Race/ethnic composition**
  - 76.4% non-Hispanic Whites
  - 5.9% non-Hispanic African Americans
  - 11.6% Hispanics
  - 6.1% non-Hispanic Native Americans/Asians/Pacific Islanders/Multi Race groups

• **Age**
  - 36.1 years=Median age
  - 24.7%: Kansas population percent under age 18 years
  - 14.6%: Kansas population percent age 65 years and over
  - Increase in older age groups

Source:
LEADING CAUSES OF DEATH IN KANSAS
Chronic diseases are the leading causes of death in Kansas, 2015

Source: 2015 Kansas Vital Statistics, Bureau of Epidemiology and Public Health Informatics, KDHE
Chronic diseases are the leading causes of death in Kansas, 2015

In 2015 in Kansas

• 26,612 total deaths

• 7 of the top 10 causes of death were chronic diseases

• Heart disease and cancer accounted for 42% of all deaths

Source: 2015 Kansas Vital Statistics, Bureau of Epidemiology and Public Health Informatics, KDHE

Note: Rates were age-adjusted to the U.S. 2000 standard population using direct method based on NCHS 11 age categories. Cancer was defined as ICD-10 codes C00-C97. Heart disease was defined as ICD-10 codes I00-I09, I11, I13, I20-I51. Chronic lower respiratory disease was defined as ICD-10 codes J40-J47. Stroke was defined as ICD-10 codes I60-I69.
Gender and race/ethnicity disparities in cancer mortality, Kansas 2006-2015

Note: NH=Non-Hispanic; Rates were age-adjusted to the U.S. 2000 standard population using direct method based on NCHS 11 age categories. Cancer was defined as ICD-10 codes C00-C97.
Gender and race/ethnicity disparities in heart disease mortality, Kansas 2006-2015

Note: NH=Non-Hispanic. Rates were age-adjusted to the U.S. 2000 standard population using direct method based on NCHS 11 age categories. Heart disease was defined as ICD-10 codes I00-I09, I11, I13, I20-I51.
Gender and race/ethnicity disparities in chronic lower respiratory disease mortality, Kansas 2006-2015

Note: NH=Non-Hispanic. Rates were age-adjusted to the U.S. 2000 standard population using direct method based on NCHS 11 age categories. Chronic lower respiratory disease was defined as ICD-10 codes J40-J47.
Gender and race/ethnicity disparities in stroke mortality, Kansas 2006-2015

Note: NH=Non-Hispanic. Rates were age-adjusted to the U.S. 2000 standard population using direct method based on NCHS 11 age categories. Stroke was defined as ICD-10 codes I60-I69.
Gender and race/ethnicity disparities in diabetes mortality, Kansas 2006-2015

Note: NH=Non-Hispanic. Rates were age-adjusted to the U.S. 2000 standard population using direct method based on NCHS 11 age categories. Diabetes was defined as ICD-10 codes E10-E14.
<table>
<thead>
<tr>
<th>Cause of Death</th>
<th>Gender Disparities</th>
<th>Race/Ethnicity Disparities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cancer</td>
<td>↑ Males</td>
<td>↑ NH African Americans</td>
</tr>
<tr>
<td>Heart Disease</td>
<td>↑ Males</td>
<td>↑ NH African Americans</td>
</tr>
<tr>
<td>Chronic Lower Respiratory Disease</td>
<td>↑ Males</td>
<td>↑ NH Whites</td>
</tr>
<tr>
<td>Stroke</td>
<td>--</td>
<td>↑ NH African Americans</td>
</tr>
<tr>
<td>Diabetes</td>
<td>↑ Females</td>
<td>↑ NH African Americans</td>
</tr>
</tbody>
</table>

Note: NH=Non-Hispanic. Rates were age-adjusted to the U.S. 2000 standard population using direct method based on NCHS 11 age categories.
BURDEN OF CHRONIC DISEASE IN KANSAS
Prevalence of chronic disease among adults 18 years and older in Kansas, 2011-2015

![Graph showing prevalence of various chronic diseases from 2011 to 2015.]

Notes: Prevalence estimates were adjusted to the U.S. 2000 standard population using direct method based on five age groups. Prevalence of Heart Disease includes coronary heart disease (angina) and heart attack (myocardial infarct). Cancer is all cancers other than skin cancer. COPD=Chronic Obstructive Pulmonary Disease (COPD), emphysema or chronic bronchities.
Greater than 1 in 5 Kansas adults have been diagnosed with one or more leading chronic disease*, 2015

495,497

Kansas adults have been diagnosed with one or more leading chronic disease

Source: 2015 Kansas Behavioral Risk Factor Surveillance System, Bureau of Health Promotion, KDHE.

*Leading chronic disease includes heart disease, stroke, cancer, COPD, diabetes

Notes: Prevalence of Heart Disease includes coronary heart disease (angina) and heart attack (myocardial infarct). Cancer is all cancers other than skin cancer.
## Disparities in the prevalence of chronic diseases, Kansas 2015

<table>
<thead>
<tr>
<th>Condition</th>
<th>Gender</th>
<th>Race/Ethnicity (comparison NH Whites)*</th>
<th>Education</th>
<th>Annual household Income</th>
<th>Mental Health (MH) Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cancer</td>
<td>↑Females</td>
<td>↑ NH Multi Race</td>
<td>--</td>
<td>↑ Lower</td>
<td>↑ Poor MH</td>
</tr>
<tr>
<td>Heart Disease</td>
<td>↑ Males</td>
<td>↑ NH Multi Race</td>
<td>↑ Lower</td>
<td>↑ Lower</td>
<td>↑ Poor MH</td>
</tr>
<tr>
<td>Stroke</td>
<td>--</td>
<td>↑ NH African American, NH Multi Race</td>
<td>↑ Lower</td>
<td>↑ Lower</td>
<td>↑ Poor MH</td>
</tr>
<tr>
<td>COPD</td>
<td>↑Females</td>
<td>↑ NH Multi Race</td>
<td>↑ Lower</td>
<td>↑ Lower</td>
<td>↑ Poor MH</td>
</tr>
<tr>
<td>Diabetes</td>
<td>--</td>
<td>↑ NH African American, NH Multi Race, Hispanic</td>
<td>↑ Lower</td>
<td>↑ Lower</td>
<td>↑ Poor MH</td>
</tr>
</tbody>
</table>

Source: 2015 Kansas Behavioral Risk Factor Surveillance System, Bureau of Health Promotion, KDHE.

*Prevalence estimates for race/ethnicity were age-adjusted to the U.S. 2000 standard population using direct method based on five age groups. Non-Hispanic whites used as the reference for comparison.

Notes: NH=non-Hispanic; MH=Mental Health; Categories: Gender (male/female); Race/Ethnicity (non-Hispanic white, non-Hispanic African American, Hispanic, non-Hispanic multi-race, non-Hispanic other), Education (<high school, =high school, some college, college graduate), Annual Household income (<$15,000, $24,999, $25,000-$34,999, $35,000-$49,000, $50,000+); Mental Health Status (14+ days mental health not good, <14 days mental health not good during past month)
Health starts where we live, learn, work and play

ENDING WITH PREVENTION: REDUCING THE PREVENTABLE BURDEN OF CHRONIC DISEASE
Leading versus Actual Cause of Death

Leading Causes of Death* - KS, 2010

<table>
<thead>
<tr>
<th>Cause of Death</th>
<th>Number of Deaths</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heart disease</td>
<td>5,402</td>
</tr>
<tr>
<td>Cancer</td>
<td>5,357</td>
</tr>
<tr>
<td>Chr. lower respiratory...</td>
<td>1,581</td>
</tr>
<tr>
<td>Stroke</td>
<td>1,367</td>
</tr>
<tr>
<td>Unintentional injuries</td>
<td>1,308</td>
</tr>
<tr>
<td>Alzheimer's disease</td>
<td>816</td>
</tr>
<tr>
<td>Diabetes</td>
<td>655</td>
</tr>
<tr>
<td>Other digestive diseases</td>
<td>600</td>
</tr>
<tr>
<td>Kidney disease</td>
<td>581</td>
</tr>
<tr>
<td>Pneumonia &amp; influenza</td>
<td>555</td>
</tr>
</tbody>
</table>

Actual Causes of Death† - KS, 2010

<table>
<thead>
<tr>
<th>Cause of Death</th>
<th>Percentage (of all deaths)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tobacco</td>
<td>20%</td>
</tr>
<tr>
<td>Diet / Physical Inactivity</td>
<td>15%</td>
</tr>
<tr>
<td>Alcohol consumption</td>
<td>10%</td>
</tr>
<tr>
<td>Microbial agents (influenza, pneumonia)</td>
<td>5%</td>
</tr>
<tr>
<td>Toxic agents (pollutants, asbestos)</td>
<td>5%</td>
</tr>
<tr>
<td>Motor vehicles</td>
<td>2%</td>
</tr>
<tr>
<td>Firearms</td>
<td>1%</td>
</tr>
<tr>
<td>Sexual behavior</td>
<td>1%</td>
</tr>
<tr>
<td>Illicit drug use</td>
<td>1%</td>
</tr>
</tbody>
</table>

Source: 2013 Kansas Information for Communities, Bureau of Epidemiology and Public Health Informatics, KDHE; † Adapted from McGinnis Foege, updated by Mokdad A, et. al.

- Current smoking of combustible cigarettes has declined
- But smoking remains the leading cause of preventable death

Disparities in current smoking among Kansas adults, 2015

Source: 2015 Kansas Behavioral Risk Factor Surveillance System, Bureau of Health Promotion, KDHE.
Percent of maternal cigarette use during pregnancy by county of residence, Kansas 2015

Legend

- Under 7.5%
- 7.5% - 14.9%
- 15% - 22.4%
- 22.5% and Over

Source: 2015 Annual Summary of Vital Statistics, Bureau of Epidemiology and Public Health Informatics, KDHE
More than half of current adult smokers recently tried to **quit smoking**, Kansas 2011-2015

Source: 2015 Kansas Behavioral Risk Factor Surveillance System, Bureau of Health Promotion, KDHE.
Prevalence of current use of other tobacco products among Kansas adults, 2015

- 1 in 20 Kansas adults uses smokeless tobacco (1 in 10 among males)
- 1 in 20 Kansas adults currently use e-cigarettes
- 1 in 6 has tried e-cigarettes

Source: 2015 Kansas Behavioral Risk Factor Surveillance System, Bureau of Health Promotion, KDHE.
Note: Smokeless tobacco includes: chewing tobacco, snuff and snus
Dual Use: Current use of e-cigarettes is highest among Kansas adults who smoke, 2015

Source: 2015 Kansas Behavioral Risk Factor Surveillance System, Bureau of Health Promotion, KDHE.
Disparities of current smoking and other key indicators of tobacco use (compared to State overall*), Kansas 2015

<table>
<thead>
<tr>
<th>Disparity Characteristic</th>
<th>Current Smoking</th>
<th>Quit attempts among smokers</th>
<th>Current Smokeless Tobacco use</th>
<th>Current E-cigarette Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>--</td>
<td>--</td>
<td>↑ Males</td>
<td>--</td>
</tr>
<tr>
<td>Age</td>
<td>↑ 25-54 years</td>
<td>↑ &lt;35 years</td>
<td>↑ 35-44 years</td>
<td>↑ &lt;35 years</td>
</tr>
<tr>
<td>Race</td>
<td>↑ African American, multi-race</td>
<td>↑ Multi-race</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Ethnicity</td>
<td>--</td>
<td>↑ Hispanic</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Education</td>
<td>↑ ≤High School</td>
<td>--</td>
<td>↑ High-school</td>
<td>--</td>
</tr>
<tr>
<td>Annual household income</td>
<td>↑ &lt;$35,000</td>
<td>--</td>
<td>--</td>
<td>↑ 15,000-24,999</td>
</tr>
<tr>
<td>Disability status</td>
<td>↑ Living with</td>
<td>↑Living with</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Population Density</td>
<td>--</td>
<td>--</td>
<td>↑ Frontier, rural &amp; densely rural</td>
<td>--</td>
</tr>
<tr>
<td>Home ownership</td>
<td>↑ Rent</td>
<td>--</td>
<td>--</td>
<td>↑ Rent</td>
</tr>
<tr>
<td>Mental health status</td>
<td>↑ Poor MH</td>
<td>--</td>
<td>--</td>
<td>↑ Poor MH</td>
</tr>
</tbody>
</table>

Source: 2015 Kansas Behavioral Risk Factor Surveillance System, Bureau of Health Promotion, KDHE.
Note: -- = No Disparity, NH=non-Hispanic, Poor MH= 14+ days mental health not good
*Disparities identified as significantly higher prevalence compared to overall State estimate

- Overweight prevalence has increased significantly.
- 68.0% of Kansas adults are overweight or obese.

Disparities in Obesity, Kansas 2015

Source: 2015 Kansas Behavioral Risk Factor Surveillance System, Bureau of Health Promotion, KDHE.
Prevalence of key risk factors for obesity: **physical activity**, Kansas 2015

![Bar chart showing prevalence of not meeting physical activity guidelines and no leisure time physical activity.](chart)

- **80.7%** did not meet physical activity guidelines.
- **26.5%** had no leisure time physical activity.

*Source: 2015 Kansas Behavioral Risk Factor Surveillance System, Bureau of Health Promotion, KDHE.*
## Disparities: **obesity** & **physical activity** (compared to State overall*), Kansas 2015

<table>
<thead>
<tr>
<th>Disparity Characteristic</th>
<th>Obesity</th>
<th>Not Meeting Physical Activity Recommendations</th>
<th>No Leisure Physical Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>--</td>
<td>↑ Female</td>
<td>--</td>
</tr>
<tr>
<td>Age</td>
<td>↑ 45-64 years</td>
<td>↑ 55+ years</td>
<td>↑ 55+ years</td>
</tr>
<tr>
<td>Race</td>
<td>↑ African American, multi-race</td>
<td>--</td>
<td>↑ African American</td>
</tr>
<tr>
<td>Ethnicity</td>
<td>↑ Hispanic</td>
<td>--</td>
<td>↑ Hispanic</td>
</tr>
<tr>
<td>Education</td>
<td>↑ &lt; High School</td>
<td>↑ ≤ High School</td>
<td>↑ ≤ High School</td>
</tr>
<tr>
<td>Annual household income</td>
<td>↑ $15,000-$49,000</td>
<td>↑ &lt;$25,000</td>
<td>↑ &lt;$35,000</td>
</tr>
<tr>
<td>Disability status</td>
<td>↑ Living with</td>
<td>↑ Living with</td>
<td>↑ Living with</td>
</tr>
<tr>
<td>Population Density</td>
<td>--</td>
<td>↑ Frontier &amp; rural</td>
<td>↑ Frontier &amp; rural &amp; densely settled rural</td>
</tr>
<tr>
<td>Mental health status</td>
<td>↑ Poor MH</td>
<td>↑ Poor MH</td>
<td>↑ Poor MH</td>
</tr>
</tbody>
</table>

Source: 2015 Kansas Behavioral Risk Factor Surveillance System, Bureau of Health Promotion, KDHE.
Note: -- = No Disparity, NH=non-Hispanic, Poor MH= 14+ days mental health not good
Prevalence of key risk factors for obesity: nutrition, Kansas

- **Vegetable consumption < once per day among adults**: 22.3%
- **Fruit consumption < once per day among adults**: 43.7%
- **Drank any sugar drink among adults**: 73.8%
- **Drank any sugar drink among children**: 89.0%

## Disparities in obesity & nutrition among Kansas adults (compared to State overall*)

<table>
<thead>
<tr>
<th>Disparity Characteristic</th>
<th>Obesity</th>
<th>Vegetable Consumption &lt; once /day</th>
<th>Fruit Consumption &lt; once/day</th>
<th>2013 Sugar-sweetened Beverage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>--</td>
<td>↑ Males</td>
<td>↑ Males</td>
<td>↑ Males</td>
</tr>
<tr>
<td>Age</td>
<td>↑ 45-64 years</td>
<td>↑ 18-24 years</td>
<td>↑ 18-24 years</td>
<td>↑ &lt;45 years</td>
</tr>
<tr>
<td>Race</td>
<td>↑ African American, multi-race</td>
<td>↑ African American</td>
<td>--</td>
<td>↑ African-American, other, multi-race</td>
</tr>
<tr>
<td>Ethnicity</td>
<td>↑ Hispanic</td>
<td>--</td>
<td>--</td>
<td>↑ Hispanic</td>
</tr>
<tr>
<td>Education</td>
<td>↑ &lt; High School</td>
<td>↑ ≤ High School</td>
<td>↑ &lt; High School</td>
<td>↑ &lt; High School</td>
</tr>
<tr>
<td>Annual household income</td>
<td>↑ $15,000-$49,000</td>
<td>↑ &lt;$25,000</td>
<td>↑ &lt;$15,000</td>
<td>↑ &lt;$25,000</td>
</tr>
<tr>
<td>Disability status</td>
<td>↑ Living with</td>
<td>↑ Living with</td>
<td>↑ Living with</td>
<td>--</td>
</tr>
<tr>
<td>Population Density</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Mental health status</td>
<td>↑ Poor MH</td>
<td>↑ Poor MH</td>
<td>↑ Poor MH</td>
<td>--</td>
</tr>
</tbody>
</table>

Source: Obesity, vegetable consumption, fruit consumption: 2015 Kansas Behavioral Risk Factor Surveillance System, Bureau of Health Promotion, KDHE
Sugar-sweetened beverage: 2013 Kansas Behavioral Risk Factor Surveillance System, Bureau of Health Promotion, KDHE.
Note: -- = No Disparity, NH=non-Hispanic, Poor MH= 14+ days mental health not good
Use of farmers markets to purchase fruits and vegetables, Kansas 2015

- **82.0%** of Kansas adults did not buy fruits and vegetables from a farmers market in the past 12 months.
- **No disparities** by gender, age, race, ethnicity, education, income, population density and disability and mental health status.
- Top 3 reasons for not purchasing fruits & vegetables from Farmers markets
  - There is not one in the area (21.5%)
  - Prefer grocery/health food store (21.1%)
  - Hours are not convenient (16.6%)

Source: 2015 Kansas Behavioral Risk Factor Surveillance System, Bureau of Health Promotion, KDHE.
Kansas population is diverse – age, race/ethnicity, gender, income, education, rural/urban

Highly prevalent underlying risk factors

7 out of 10 top causes of death in KS are chronic diseases with high mortality & prevalence rates – similar to national data

Disparities seen in chronic disease & risk factors’ mortality, incidence & prevalence rates

Health disparities seen in: age groups, males, non-Hispanic African Americans & other/multi races, Hispanics, those with lower education, lower household income, living with disability & poor mental health
Conclusion

- Complex burden of chronic diseases & their risk factors in KS
- Overall burden further complicated by disparities

- Population level strategies needed in addition to individual level strategies
- CDC’s HI-5 List:
  - Improves health & well-being in as early as 5 years
  - Cost effectiveness or savings over the lifetime of the population or earlier
  - 14 Evidence-based, community-wide interventions – 3 of which align directly with reducing leading risk factors for chronic disease
Questions

Contact Information:
Belle Federman
Advanced Epidemiologist
Community Health Promotion Section
Bureau of Health Promotion
Kansas Department of Health & Environment
Belle.Federman@ks.gov
785-296-1152