CHRONIC DISEASE IN WYOMING

Joseph Grandpre, PhD, MPH
Wyoming Department of Health
## Leading Causes of Death in WY

<table>
<thead>
<tr>
<th>Cause</th>
<th>2017</th>
<th>2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heart Disease</td>
<td>994</td>
<td>1,040</td>
</tr>
<tr>
<td>Cancer</td>
<td>939</td>
<td>955</td>
</tr>
<tr>
<td>Chronic Resp.</td>
<td>366</td>
<td>408</td>
</tr>
<tr>
<td><strong>Accidents/Adverse</strong></td>
<td>343</td>
<td>349</td>
</tr>
<tr>
<td>Alzheimer’s</td>
<td>209</td>
<td>262</td>
</tr>
<tr>
<td>Stroke</td>
<td>188</td>
<td>217</td>
</tr>
<tr>
<td><strong>Suicide</strong></td>
<td>155</td>
<td>148</td>
</tr>
<tr>
<td>Diabetes</td>
<td>121</td>
<td>145</td>
</tr>
<tr>
<td>Chronic Disease</td>
<td>59%</td>
<td>54%</td>
</tr>
</tbody>
</table>

Wyoming Vital Records
WELL YOU'RE JUST A HUGE
RAY OF SUNSHINE AREN'T YOU?
WY 2017 Cancer Incidence:

Prostate = 469
Breast = 362 (358 Female, 4 male)
Lung = 279
Colorectal = 230
Melanoma = 158 (3 <30 years of age)
Bladder = 151

TOTAL = 2,788
WY 2017 Cancer Mortality:

- Lung = 214
- ill-Defined = 84
- Pancreas = 73
- Colorectal = 71
- Breast = 59 (58 women, 1 man)

TOTAL = 939
An estimated 92.1 Million Americans have some form of Cardiovascular disease (CVD) - (e.g., hypertension, CHD, stroke, etc...)

CVD kills someone in the U.S. about once every 38 seconds. (2,300/day)
Heart Disease & Stroke

- On average someone has a stroke in the U.S. every 40 seconds.

- Stroke kills someone in the U.S. about once every 3 minutes 45 seconds.

- From 2005 to 2015 the number of stroke deaths declined by 2.3%
Heart Disease & Stroke

According to the 2018 BRFSS

- 78.5% of Wyoming adults don’t lead a healthy lifestyle (BMI 25 or above, current smoker, no physical activity).

- 5.9% Wyoming Adults have been told they have had a heart attack, angina, or CHD

- 3.3% Wyoming Adults have been told they have had a Stroke
2018 BRFSS
- 6.4% of Wyoming Adults had COPD
- 6.0% Males & 6.9% Female
- Mean number of years smoked = 26.7%
- Been told they have other CVD’s = 26.1%
Prevalence of Chronic Obstructive Pulmonary Disease (COPD) for Adults Aged ≥18 Years by State, United States, BRFSS 2014

Data source: CDC Behavioral Risk Factor Surveillance System (BRFSS), 2014.
COPD based on an affirmative response to the question, "Has a doctor, nurse or other health professional ever told you that you have COPD, emphysema, or chronic bronchitis?"
Prevalence age-adjusted to the 2000 US standard population.

Date: 8/12/2016
Age-Standardized Death Rate (Per 100,000 US Population) for Chronic Obstructive Pulmonary Disease (COPD) by State, United States, 2014

Data source: CDC National Vital Statistics System data obtained from http://wonder.cdc.gov. COPD as underlying cause of death was defined by ICD-10 codes J40-J44. Death rates (per 100,000 US population) were age-adjusted to the 2000 US standard population.
Diabetes

- As of 2015 - 30.3 million with diabetes
  - 23.1 Million diagnosed
  - 7.2 Million undiagnosed
  - 84.1 Million have prediabetes

2018 BRFSS

- 8.7% of Wyoming adults had diabetes (39K)
- 7.8% have pre-diabetes (35K)
Diabetes by Year, WY BRFSS

Percent


5.6 | 5.8 | 6.0 | 6.5 | 6.4 | 7.0 | 7.4 | 7.0 | 7.2 | 8.2 | 9.1 | 8.6 | 8.4 | 8.4 | 8.3 | 9.0 | 10.5

http://wdh.state.wy.us/brfss/brfssdata.aspx
Wyoming adults with body mass index (weight in kg/height in meters squared) ≥ 30.0.
Diabetes

- About 193,000 people under 20 years of age have Diabetes
- 18,000 are diagnosed with Type 1 annually
- 5,000 are diagnosed with Type 2 annually
Diabetes

- End Stage Renal Disease (ERSD) Network #15 2016 Annual Report
  - 95 new cases of end-stage renal disease
    - 51 (53.7%) of these cases directly linked to diabetes
  - 328 Wyoming residents on dialysis because of end stage renal disease
    - 164 (50.0%) due directly to diabetes
AOR for highest # of RFs in composite measure (6 or 7) vs. 0 (Diabetes, HBP, HCh, ever smoked, sedentary, obesity, eat<5)

Source: 2017 BRFSS.
## Table of PARs

<table>
<thead>
<tr>
<th>Risk factor</th>
<th>Outcome</th>
<th>Diabetes</th>
<th>HBP</th>
<th>Hi chol</th>
<th>Ever smoked</th>
<th>Sedentary</th>
<th>Obese</th>
<th>Eat &lt;5</th>
</tr>
</thead>
<tbody>
<tr>
<td>CVD</td>
<td>6.7%</td>
<td>29.3%</td>
<td>19.9%</td>
<td>19.9%</td>
<td>5.1%</td>
<td>b</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cognitive imp</td>
<td>4.6%</td>
<td>14.7%</td>
<td></td>
<td>24.9%</td>
<td>10.7%</td>
<td>5.6%</td>
<td>7.7%</td>
<td></td>
</tr>
<tr>
<td>Diabetes</td>
<td>3.7%</td>
<td></td>
<td></td>
<td>6.7%</td>
<td>37.8%</td>
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<td></td>
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<tr>
<td>HBP</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>5.1%</td>
<td>30.9%</td>
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<tr>
<td>COPD</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>50.9%</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Kidney dis</td>
<td>14.0%</td>
<td>35.2%</td>
<td></td>
<td>6.8%</td>
<td>b</td>
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</tr>
<tr>
<td>Hi chol</td>
<td>15.1%</td>
<td></td>
<td></td>
<td>7.4%</td>
<td>1.9%</td>
<td>11.5%</td>
<td>11.4%</td>
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</tr>
<tr>
<td>Arthritis</td>
<td></td>
<td></td>
<td></td>
<td>8.1%</td>
<td>20.5%</td>
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<tr>
<td>Asthma</td>
<td></td>
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<td></td>
<td></td>
<td>16.4%</td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

b: AOR not >1.0 although other studies show causality
SMILE BREAK
Risk Factors

- Several risk factors associated with CD
  - Physical Activity (too little)
  - Poor Nutrition
  - Tobacco (smoking, smokeless)
  - Age
Obesity Trends* Among U.S. Adults
BRFSS, 2000
(*BMI ≥30, or ~ 30 lbs overweight for 5’ 4” woman)

Source: Behavioral Risk Factor Surveillance System, CDC
Obesity Trends* Among U.S. Adults

BRFSS, 2001

(*BMI ≥30, or ~ 30 lbs overweight for 5’ 4” woman)

Source: Behavioral Risk Factor Surveillance System, CDC
Obesity Trends* Among U.S. Adults

BRFSS, 2002

(*BMI ≥30, or ~ 30 lbs overweight for 5’ 4” woman)

Source: Behavioral Risk Factor Surveillance System, CDC
Obesity Trends* Among U.S. Adults

BRFSS, 2003

(*BMI ≥30, or ~ 30 lbs overweight for 5’ 4” person)

Source: Behavioral Risk Factor Surveillance System, CDC
Obesity Trends* Among U.S. Adults

BRFSS, 2004

(*BMI ≥30, or ~ 30 lbs overweight for 5’ 4” person)

Source: Behavioral Risk Factor Surveillance System, CDC
Obesity Trends* Among U.S. Adults

BRFSS, 2005

(*BMI ≥30, or ~ 30 lbs overweight for 5’ 4” person)
Obesity Trends* Among U.S. Adults
BRFSS, 2006
(*BMI ≥30, or ~ 30 lbs. overweight for 5’ 4” person)
Obesity Trends* Among U.S. Adults

BRFSS, 2007

(*BMI ≥30, or ~ 30 lbs. overweight for 5’ 4” person)
Obesity Trends* Among U.S. Adults

BRFSS, 2008

(*BMI ≥30, or ~ 30 lbs. overweight for 5’ 4” person)
Obesity Trends* Among U.S. Adults

BRFSS, 2009

(*BMI ≥30, or ~ 30 lbs. overweight for 5’ 4” person)
Obesity Trends* Among U.S. Adults

BRFSS, 2010

(*BMI ≥30, or ~ 30 lbs. overweight for 5’ 4” person)
PREVALENCE† OF SELF-REPORTED OBESITY AMONG U.S. ADULTS BY STATE AND TERRITORY, BRFSS, 2011

† Prevalence estimates reflect BRFSS methodological changes started in 2011. These estimates should not be compared to prevalence estimates before 2011.

*Sample size <50 or the relative standard error (dividing the standard error by the prevalence) ≥ 30%.
PREVALENCE\textsuperscript{\dagger} OF SELF-REPORTED OBESITY AMONG U.S. ADULTS BY STATE AND TERRITORY, BRFSS, 2012

\textsuperscript{\dagger} Prevalence estimates reflect BRFSS methodological changes started in 2011. These estimates should not be compared to prevalence estimates before 2011.

*Sample size <50 or the relative standard error (dividing the standard error by the prevalence) ≥ 30%.
PREVALENCE® OF SELF-REPORTED OBESITY AMONG U.S. ADULTS BY STATE AND TERRITORY, BRFSS, 2013

*Prevalence estimates reflect BRFSS methodological changes started in 2011. These estimates should not be compared to prevalence estimates before 2011.

*Sample size <50 or the relative standard error (dividing the standard error by the prevalence) ≥ 30%.
PREVALENCE of self-reported obesity among U.S. adults by state and territory, BRFSS, 2014

† Prevalence estimates reflect BRFSS methodological changes started in 2011. These estimates should not be compared to prevalence estimates before 2011.

*Sample size <50 or the relative standard error (dividing the standard error by the prevalence) ≥ 30%.
Prevalence estimates reflect BRFSS methodological changes started in 2011. These estimates should not be compared to prevalence estimates before 2011.

*Sample size <50 or the relative standard error (dividing the standard error by the prevalence) ≥ 30%.
PREVALENCE\(^1\) OF SELF-REPORTED OBESITY AMONG U.S. ADULTS BY STATE AND TERRITORY, BRFSS, 2016

\(^1\) Prevalence estimates reflect BRFSS methodological changes started in 2011. These estimates should not be compared to prevalence estimates before 2011.

*Sample size <50 or the relative standard error (dividing the standard error by the prevalence) ≥ 30%.
Prevalence of Self-Reported Obesity Among U.S. Adults by State and Territory, BRFSS, 2017
NON-HISPANIC, BLACK ADULTS
HISPANIC ADULTS
Prevalence of Self-Reported Obesity Among U.S. Adults by State and Territory, BRFSS, 2018

Prevalence estimates reflect BRFSS methodological changes started in 2011. These estimates should not be compared to prevalence estimates before 2011.

*Sample size <50 or the relative standard error (dividing the standard error by the prevalence) ≥ 30%.

† Prevalence estimates reflect BRFSS methodological changes started in 2011. These estimates should not be compared to prevalence estimates before 2011.
America Is Fatter Than Ever

Obesity prevalence among adults and youths in the U.S.*

- **Adults**
  - 1999-2000: 30.5%
  - 2001-2002: 30%
  - 2003-2004: 31.3%
  - 2005-2006: 32%
  - 2007-2008: 33%
  - 2009-2010: 35%
  - 2011-2012: 36.5%
  - 2013-2014: 37.5%
  - 2015-2016: 39.6%

- **Youth**
  - 1999-2000: 13.9%
  - 2001-2002: 14%
  - 2003-2004: 15.4%
  - 2005-2006: 15.6%
  - 2007-2008: 15%
  - 2009-2010: 15.8%
  - 2011-2012: 17%
  - 2013-2014: 17.5%
  - 2015-2016: 18.5%

*Adults aged 20 and over and youth aged 2-19 years.

Source: Centers For Disease Control And Prevention

[Forbes](https://www.forbes.com) [Statista](https://www.statista.com)
Wyoming adults with body mass index (weight in kg/height in meters squared) ≥ 30.0.
Overweight or Obese by Year, WY BRFSS

Percent


Percent Changes:

- 1994: 48.6%
- 1995: 48.9%
- 1996: 48.5%
- 1997: 49.3%
- 1998: 55.1%
- 1999: 55.4%
- 2000: 55.1%
- 2001: 55.7%
- 2002: 55.9%
- 2003: 57.1%
- 2004: 57.8%
- 2005: 61.6%
- 2006: 61.3%
- 2007: 62.2%
- 2008: 62.2%
- 2009: 63.8%
- 2010: 61.3%
- 2011: 64.6%
- 2012: 65.4%
- 2013: 64.2%
- 2014: 65.4%
- 2015: 65.4%
- 2016: 65.4%
- 2017: 65.4%
No Leisure Time Physical Activity by Year, WY BRFSS

2016 US Median = 23.1%
Portion Distortion

<table>
<thead>
<tr>
<th>20 YEARS AGO</th>
<th>TODAY</th>
<th>DIFFERENCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>333 Calories</td>
<td>590 Calories</td>
<td><strong>257 MORE CALORIES</strong></td>
</tr>
<tr>
<td>Lifting weights for 1 HOUR AND 30 MINUTES burns approximately 257 calories*</td>
<td>*Based on 130-pound person</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>20 YEARS AGO</th>
<th>TODAY</th>
<th>DIFFERENCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coffee, 8 oz (with whole milk and sugar)</td>
<td>Mocha Coffee, 16 oz (with steamed whole milk and mocha syrup)</td>
<td><strong>305 MORE CALORIES</strong></td>
</tr>
<tr>
<td>45 Calories</td>
<td>350 Calories</td>
<td>Walking 1 HOUR AND 20 MINUTES burns approximately 305 calories*</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>20 YEARS AGO</th>
<th>TODAY</th>
<th>DIFFERENCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>500 Calories</td>
<td>850 Calories</td>
<td><strong>350 MORE CALORIES</strong></td>
</tr>
<tr>
<td>Playing golf (while walking and carrying your clubs) for 1 HOUR burns approximately 350 calories*</td>
<td>*Based on 160-pound person</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>20 YEARS AGO</th>
<th>TODAY</th>
<th>DIFFERENCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>210 Calories</td>
<td>500 Calories</td>
<td><strong>290 MORE CALORIES</strong></td>
</tr>
<tr>
<td>Vacuuming for 1 HOUR AND 30 MINUTES burns approximately 290 calories*</td>
<td>*Based on 130-pound person</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>20 YEARS AGO</th>
<th>TODAY</th>
<th>DIFFERENCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>500 Calories</td>
<td>1,025 Calories</td>
<td><strong>525 MORE CALORIES</strong></td>
</tr>
<tr>
<td>Housecleaning for 2 HOURS AND 35 MINUTES burns approximately 525 calories*</td>
<td>*Based on 130-pound person</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>20 YEARS AGO</th>
<th>TODAY</th>
<th>DIFFERENCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>55 Calories</td>
<td>275 Calories</td>
<td><strong>220 MORE CALORIES</strong></td>
</tr>
<tr>
<td>Washing a car for 1 HOUR AND 15 MINUTES burns approximately 220 calories*</td>
<td>*Based on 130-pound person</td>
<td></td>
</tr>
</tbody>
</table>
PORTION SIZE

The History of Dinner Plate Sizes Corresponds to the Increase in Obesity

8.5-inch
1960’s. Dinner Plate size = 8.5-9-inch. Holds about 800 calories

10-inch
1980’s. Dinner Plate size = 10-inch. Holds about 1000 calories (20% kcal increase)

11-inch
2000’s. Dinner Plate size = 11-inch. Holds about 1600 calories (35% kcal increase)

12-inch
2009. Dinner Plate size = 12-inch. Holds about 1900 calories (15% kcal increase)
The Portion Size Illusion

Which plate contains the most food?

Think about it before looking at the answer below.

There is exactly the same amount of food on each plate.
UNITED STATES
GERMANY
MEXICO
EGYPT
United States – GA – 1947 Family of Four
UNITED STATES
"That’s what I like best about smoking—it gets me out in the fresh air a couple times a day."
Male Smokeless Tobacco Use by Year,
WY BRFSS

Percent

Year
Use (%) 14.7 13.6 16.0 14.3 16.0 16.8 14.8 17.7 14.8 17.0 17.6 14.9 16.9 14.8 17.9 15.0 16.0 16.3 16.3 17.0 16.5
# FY2018 Hospital Discharge

<table>
<thead>
<tr>
<th></th>
<th>INPATIENT</th>
<th>ER or URGENT</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td># Discharges</td>
<td>Charges</td>
</tr>
<tr>
<td>HEART DISEASE</td>
<td>6,090</td>
<td>$259,915,754.88</td>
</tr>
<tr>
<td>CANCER</td>
<td>2,194</td>
<td>$79,201,519.23</td>
</tr>
<tr>
<td>COPD</td>
<td>7,465</td>
<td>$260,562,141.04</td>
</tr>
<tr>
<td>DIABETES</td>
<td>7,901</td>
<td>$295,025,147.52</td>
</tr>
<tr>
<td>STROKE</td>
<td>1,497</td>
<td>$61,788,592.84</td>
</tr>
<tr>
<td>ALZHEIMER'S</td>
<td>451</td>
<td>$13,540,622.30</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>25,598</strong></td>
<td><strong>$970,033,777.81</strong></td>
</tr>
</tbody>
</table>
QUESTIONS?
“You can enjoy diabetes, high cholesterol and hypertension or you can suffer from good health.”