

A lush green forest with a stream flowing through it, featuring a waterfall in the foreground. The water is white and frothy as it cascades over rocks. The surrounding vegetation is dense and vibrant green.

*Understanding and Improving Health :  
Lessons from Appalachia and America's Poorest State*

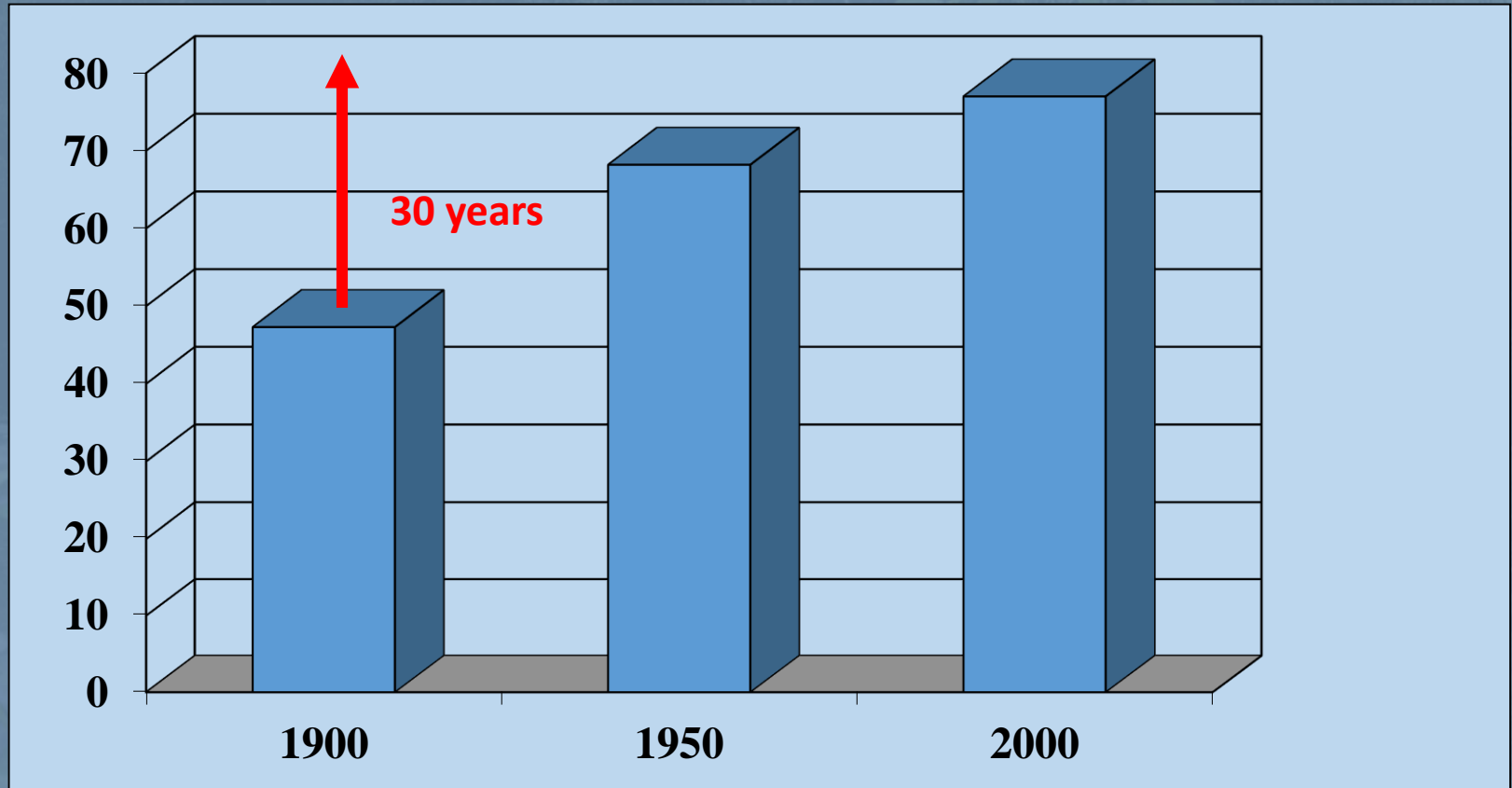
Randy Wykoff, MD, MPH & TM  
Professor and Dean,  
ETSU College of Public Health



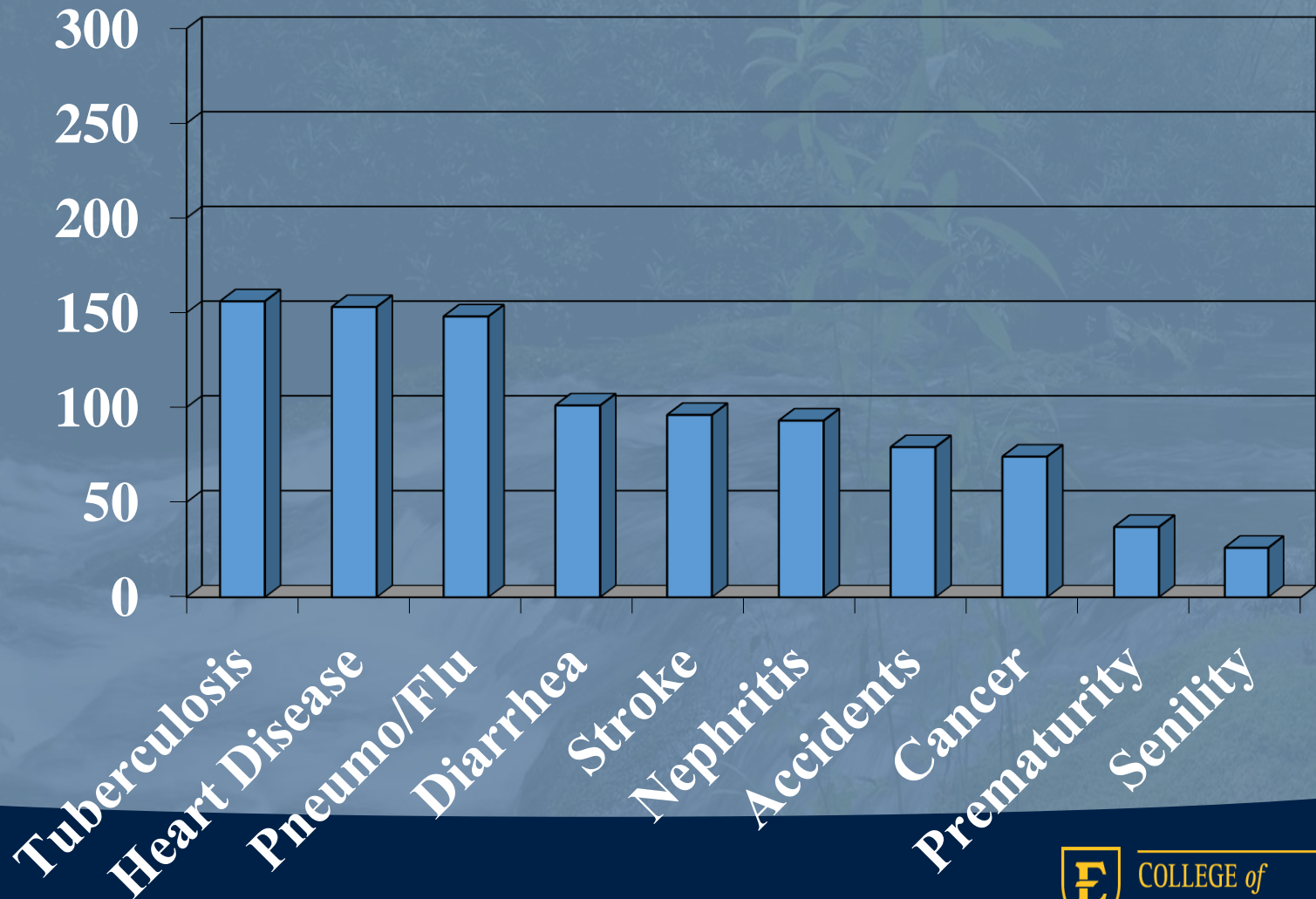
# *Life Expectancy*

Estimated Average Life Expectancy  
in 2014:  
**79.56 Years**

# *Life Expectancy Change in the 20<sup>th</sup> Century*

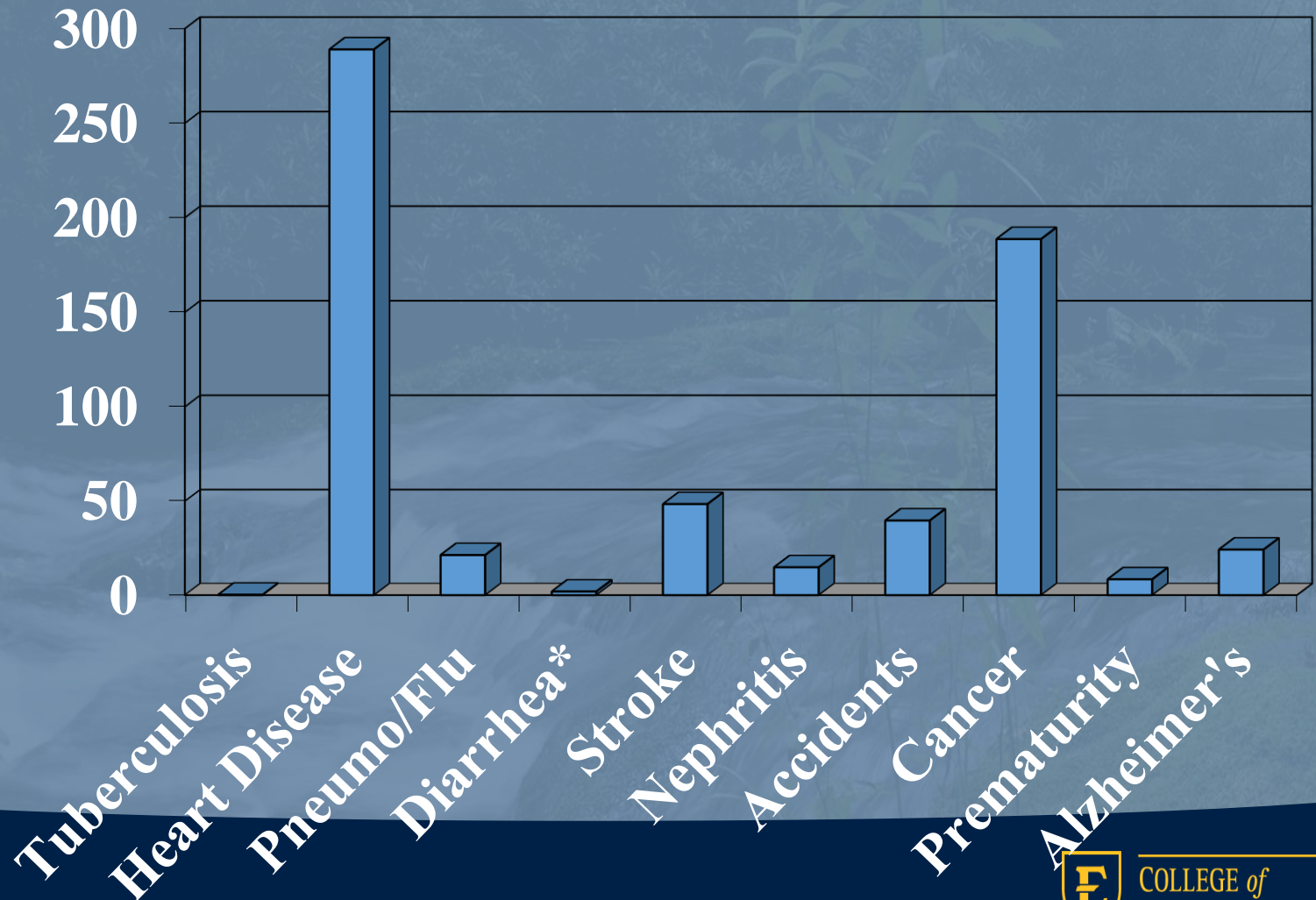


# *Cause of Deaths—United States 1909*





# *Cause of Deaths—United States 2005*



# *Life Expectancy*

In 2014, for Life Expectancy  
the United States Ranks:

**33<sup>rd</sup>**

Behind---

Monaco, Japan, Singapore, San Marino, Andorra, Switzerland, Guernsey, Australia, Italy, Sweden, Liechtenstein, Canada, France, Jersey, Norway, Spain, Israel, Iceland, Netherlands, Isle of Man, New Zealand, Ireland, Germany, United Kingdom, Greece, Austria, Malta, {European Union} Luxembourg, Belgium, Taiwan, South Korea, and Finland

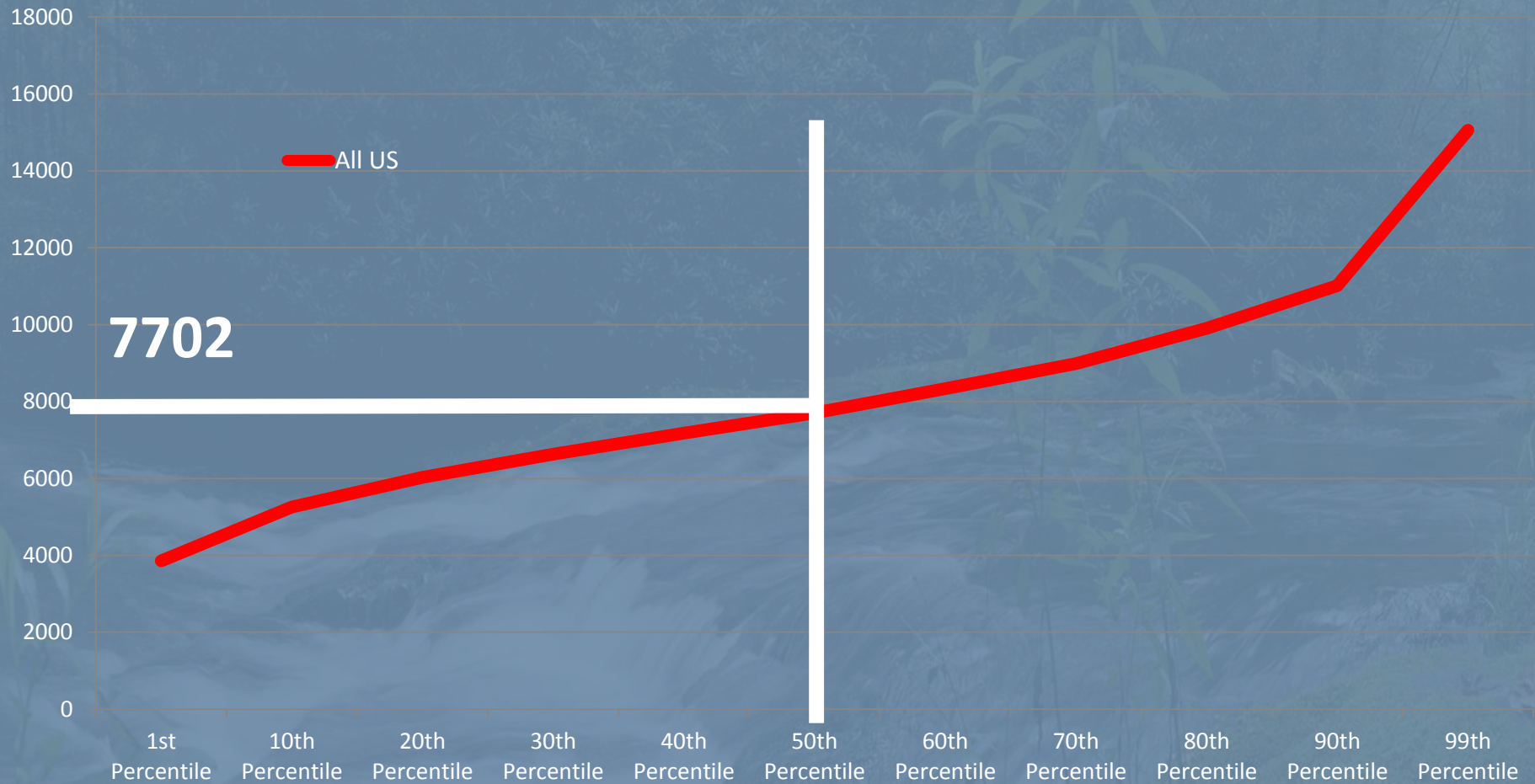


# Premature Death Rates: United States 2015

|    |               |      |    |                      |             |    |                |       |
|----|---------------|------|----|----------------------|-------------|----|----------------|-------|
| 1  | Minnesota     | 5414 | 18 | Virginia             | 6435        | 34 | Michigan       | 7618  |
| 2  | Massachusetts | 5468 | 19 | Illinois             | 6555        | 35 | Montana        | 7673  |
| 3  | Connecticut   | 5573 | 20 | Maine                | 6729        | 36 | Alaska         | 7758  |
| 4  | California    | 5609 | 21 | Idaho                | 6747        | 37 | Georgia        | 7880  |
| 5  | New York      | 5714 | 22 | Maryland             | 6780        | 38 | Ohio           | 7991  |
| 6  | New Hampshire | 5809 | 23 | South Dakota         | 6913        | 39 | Missouri       | 8117  |
| 7  | New Jersey    | 5819 |    | <b>UNITED STATES</b> | <b>6997</b> | 40 | Indiana        | 8129  |
| 8  | Washington    | 5835 | 24 | Florida              | 7059        | 41 | New Mexico     | 8190  |
| 9  | Vermont       | 5958 | 25 | Texas                | 7084        | 42 | South Carolina | 8592  |
| 10 | Colorado      | 5982 | 26 | North Dakota         | 7098        | 43 | Tennessee      | 9088  |
| 11 | Hawaii        | 6047 | 27 | Kansas               | 7110        | 44 | Kentucky       | 9110  |
| 12 | Nebraska      | 6125 | 28 | Arizona              | 7164        | 45 | Arkansas       | 9586  |
| 13 | Utah          | 6157 | 29 | Pennsylvania         | 7204        | 46 | Oklahoma       | 9799  |
| 14 | Iowa          | 6252 | 30 | Wyoming              | 7320        | 47 | Louisiana      | 9957  |
| 15 | Rhode Island  | 6308 | 31 | Nevada               | 7497        | 48 | Alabama        | 10095 |
| 16 | Oregon        | 6319 | 32 | Delaware             | 7509        | 49 | West Virginia  | 10129 |
| 17 | Wisconsin     | 6365 | 33 | North Carolina       | 7604        | 50 | Mississippi    | 10744 |

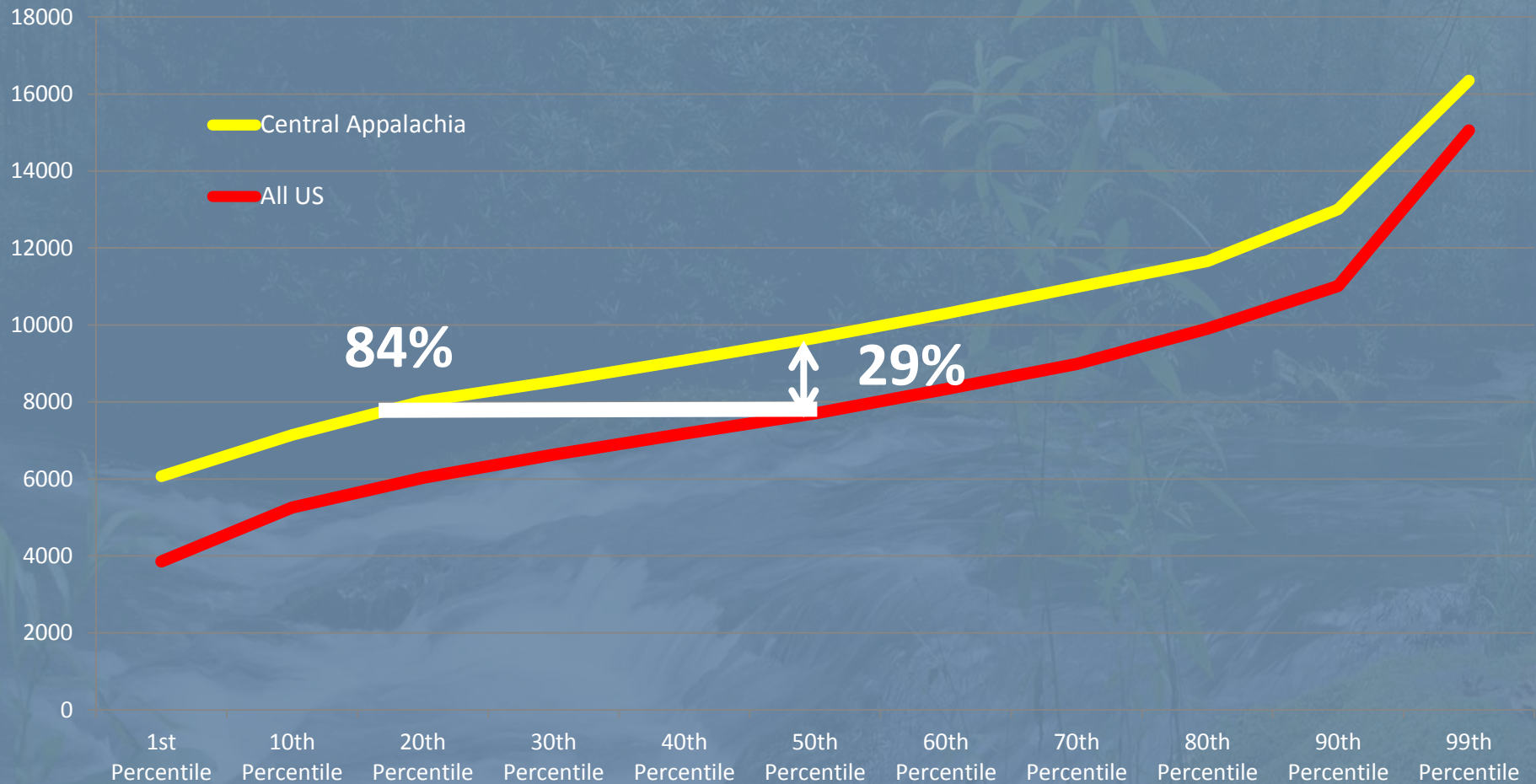


# Premature Mortality (YPLL): All Counties in the United States

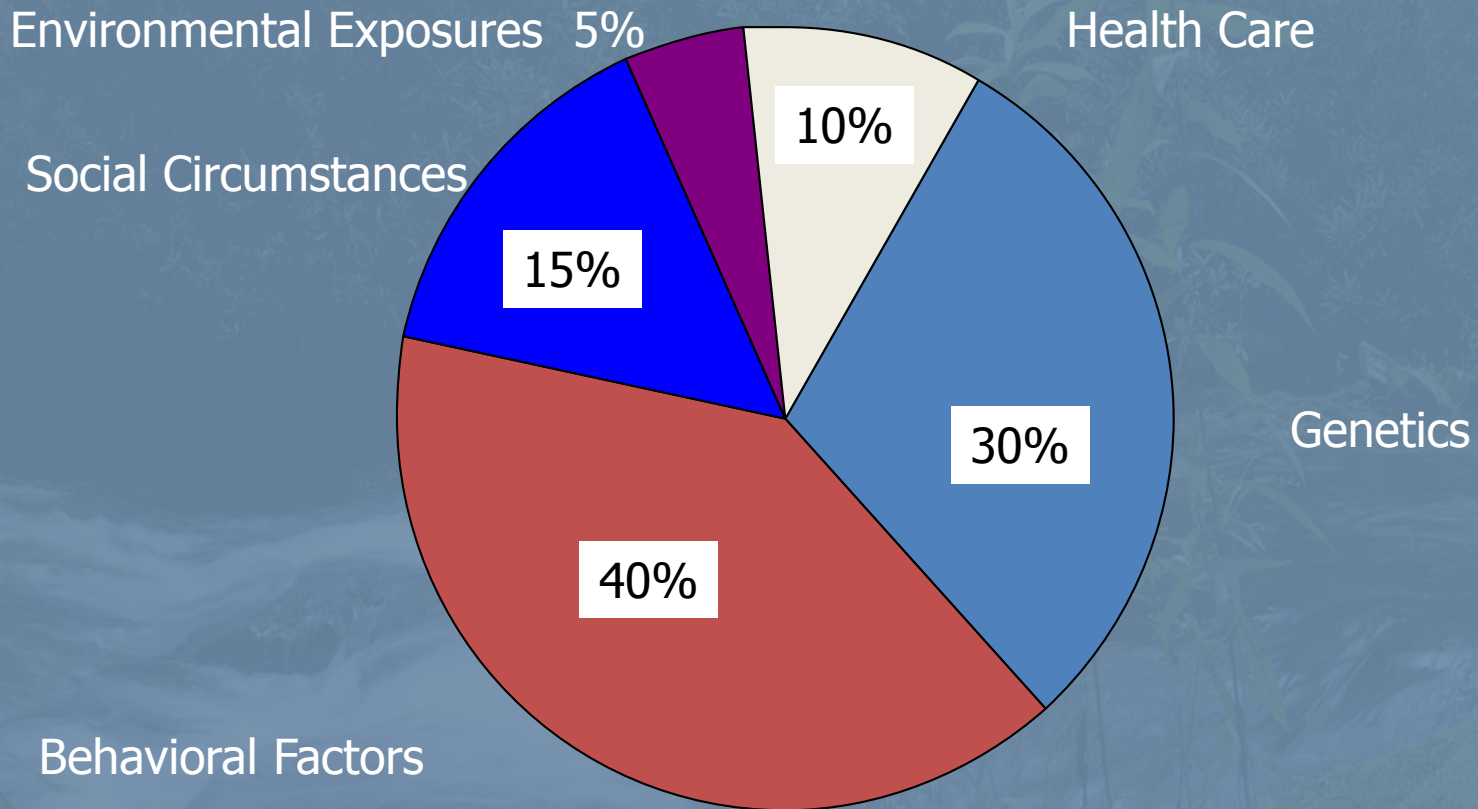




# Premature Mortality (YPLL): All 2989 Counties in US vs 238 Counties in Central Appalachia



# *Factors Contributing to Premature Death*





# *Actual Leading Causes of Death*

- Tobacco 18.1% of all deaths
- Diet/activity patterns 15.2% of all deaths
- Alcohol 3.5% of all deaths
- Microbial agents 3.1% of all deaths
- Toxic agents 2.3% of all deaths
- Motor vehicles 1.8% of all deaths
- Firearms 1.1% of all deaths
- Sexual behavior 0.8% of all deaths
- Illicit Drug Use 0.7% of all deaths

Actual Causes of Death in the United States, 2000 Mokdad et al

JAMA 291: 1238-1245

<http://jama.ama-assn.org/cgi/content/abstract/291/10/1238> and erratum:

<http://jama.ama-assn.org/cgi/content/full/293/3/298>



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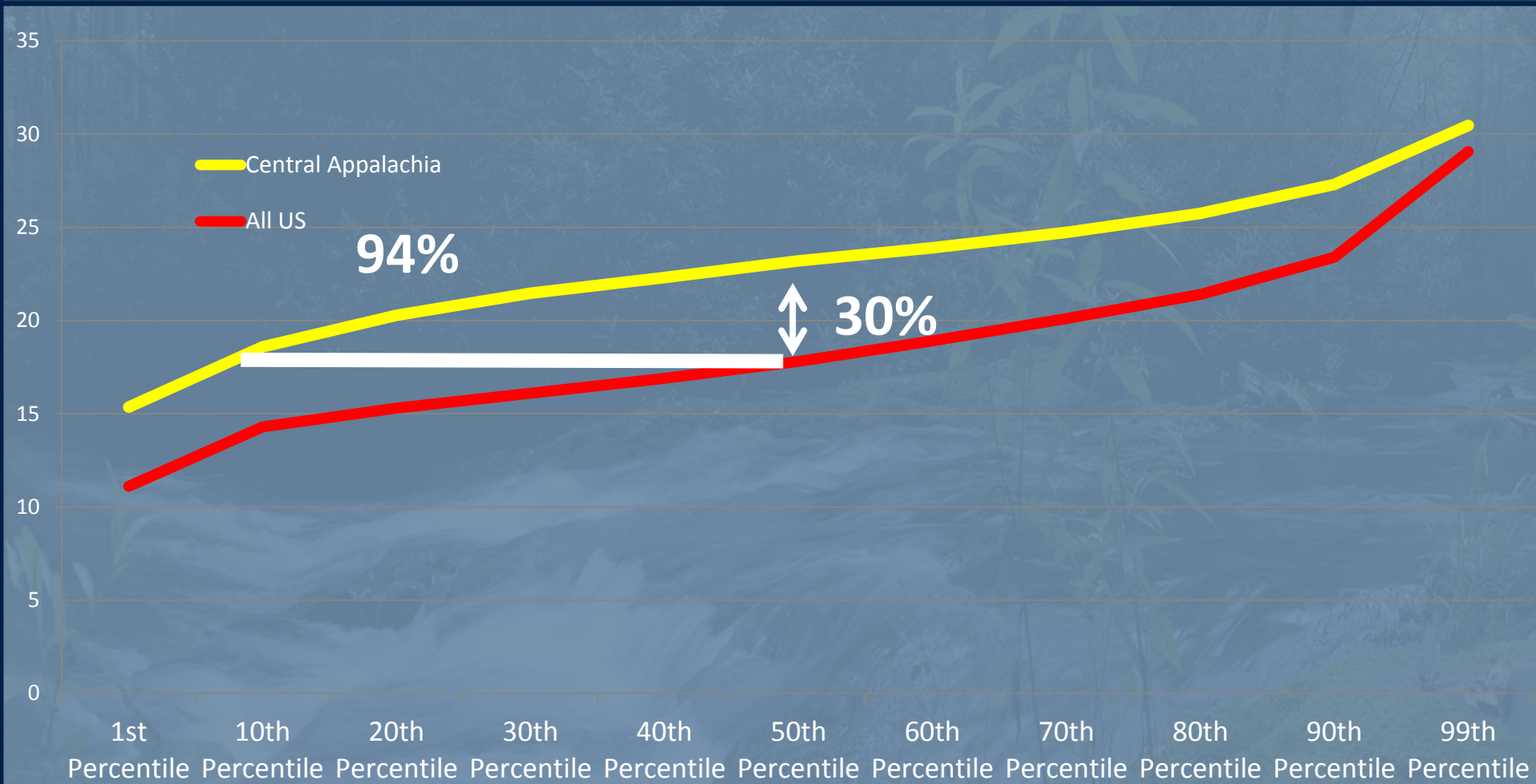
# Prevalence of Smoking: Adults

|                 |      |                      |             |                   |      |
|-----------------|------|----------------------|-------------|-------------------|------|
| 1 Utah          | 9.7  | 18=Nevada            | 17.0        | 33=Delaware       | 19.9 |
| 2 California    | 12.8 | 18=Oregon            | 17.0        | 33=Montana        | 19.9 |
| 3 Hawaii        | 14.1 | 20 Nebraska          | 17.3        | 33=North Dakota   | 19.9 |
| 4 New York      | 14.4 | 21=Georgia           | 17.4        | 33=Pennsylvania   | 19.9 |
| 5 Texas         | 14.5 | 21=Wisconsin         | 17.4        | 38 Missouri       | 20.6 |
| 6 Maryland      | 14.6 | 23 New Hampshire     | 17.5        | 39 Ohio           | 21.0 |
| 7 Massachusetts | 14.7 | 24 Florida           | 17.6        | 40=Alabama        | 21.1 |
| 8 New Jersey    | 15.1 | <b>UNITED STATES</b> | <b>18.1</b> | 40=Oklahoma       | 21.1 |
| 9 Washington    | 15.3 | 25 Kansas            | 18.1        | 42 Michigan       | 21.2 |
| 10 Connecticut  | 15.4 | 26 Iowa              | 18.5        | 43 South Carolina | 21.5 |
| 11 Colorado     | 15.7 | 27 South Dakota      | 18.6        | 44 Indiana        | 22.9 |
| 12 Idaho        | 15.9 | 28=New Mexico        | 19.1        | 45 Mississippi    | 23.0 |
| 13=Minnesota    | 16.3 | 28=North Carolina    | 19.1        | 46 Louisiana      | 24.0 |
| 13=Rhode Island | 16.3 | 30 Maine             | 19.3        | 47 Tennessee      | 24.2 |
| 15 Vermont      | 16.4 | 31=Virginia          | 19.5        | 48 Arkansas       | 24.7 |
| 16=Arizona      | 16.5 | 31=Wyoming           | 19.5        | 49 Kentucky       | 26.2 |
| 16=Illinois     | 16.5 | 33=Alaska            | 19.9        | 50 West Virginia  | 26.7 |





# Adult Smoking: All 3140 Counties in US vs 238 Counties in Central Appalachia



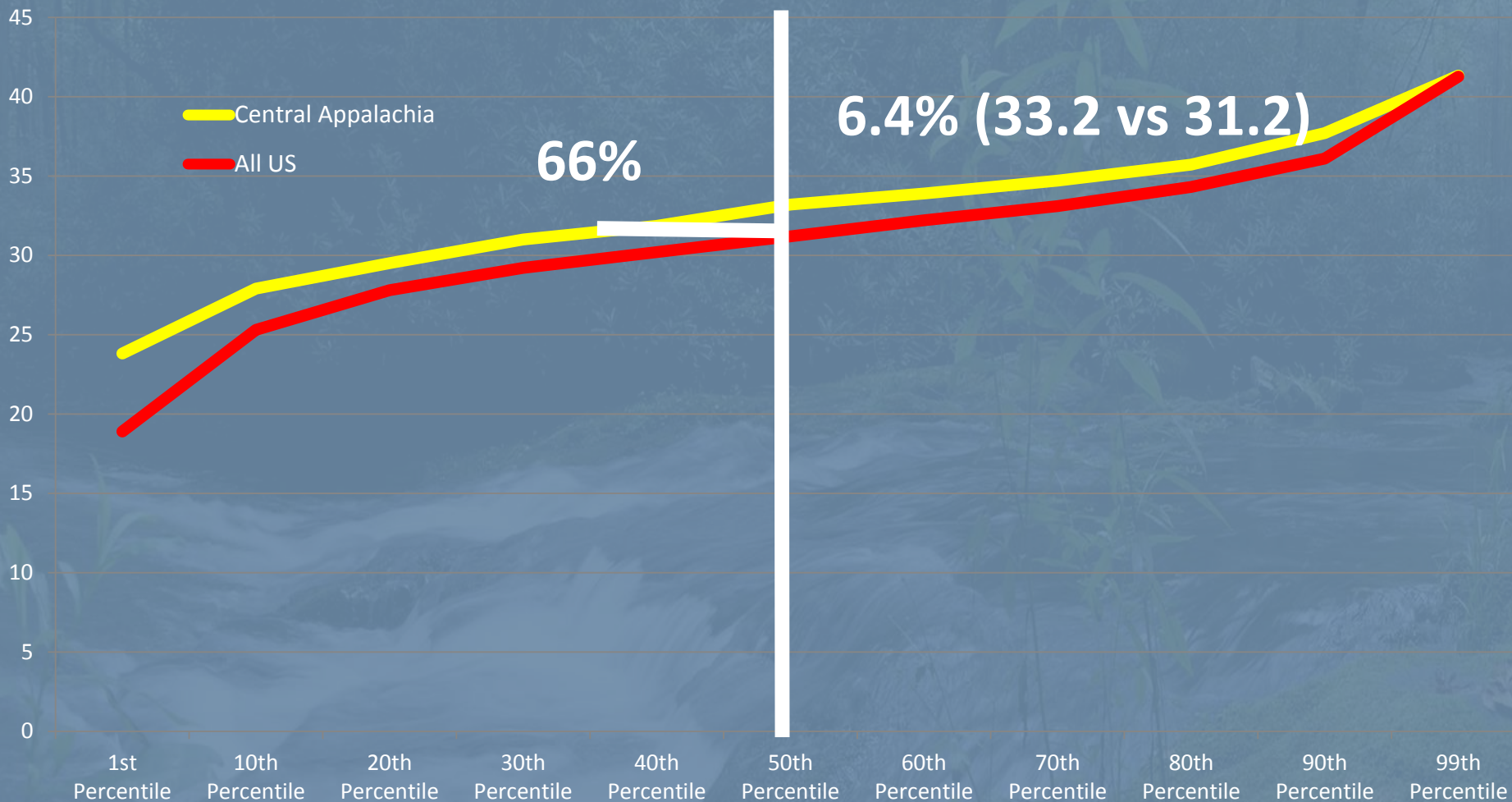
# Prevalence of Obesity: Adults

|     |               |      |     |                      |             |     |                |      |
|-----|---------------|------|-----|----------------------|-------------|-----|----------------|------|
| 1   | Colorado      | 21.3 | 18  | Maine                | 28.2        | 33= | Michigan       | 30.7 |
| 2   | Hawaii        | 22.1 | 19  | New Mexico           | 28.4        | 35  | Iowa           | 30.9 |
| 3   | Massachusetts | 23.3 | 20  | Virginia             | 28.5        | 36= | Tennessee      | 31.2 |
| 4   | California    | 24.7 | 21= | Arizona              | 28.9        | 36= | Wisconsin      | 31.2 |
| 5   | Vermont       | 24.8 | 21= | Idaho                | 28.9        | 38  | Kansas         | 31.3 |
| 6   | Utah          | 25.7 | 23  | Illinois             | 29.3        | 39  | Kentucky       | 31.6 |
| 7   | Florida       | 26.2 | 24  | Wyoming              | 29.5        | 40  | Texas          | 31.9 |
| 8   | Connecticut   | 26.3 |     | <b>UNITED STATES</b> | <b>29.6</b> | 41  | South Carolina | 32.1 |
| 9   | Montana       | 26.4 | 25  | Maryland             | 29.6        | 42  | North Dakota   | 32.2 |
| 10  | New Jersey    | 26.9 | 26= | Alaska               | 29.7        | 43  | Ohio           | 32.6 |
| 11= | New York      | 27.0 | 26= | North Carolina       | 29.7        | 44  | Indiana        | 32.7 |
| 11= | Rhode Island  | 27.0 | 28  | South Dakota         | 29.8        | 45  | Oklahoma       | 33.0 |
| 13  | Washington    | 27.3 | 29= | Missouri             | 30.2        | 46  | Alabama        | 33.5 |
| 14  | New Hampshire | 27.4 | 29= | Nebraska             | 30.2        | 47  | Louisiana      | 34.9 |
| 15  | Minnesota     | 27.6 | 29= | Pennsylvania         | 30.2        | 48  | Mississippi    | 35.5 |
| 16  | Nevada        | 27.7 | 32  | Georgia              | 30.5        | 49  | West Virginia  | 35.7 |
| 17  | Oregon        | 27.9 | 33= | Delaware             | 30.7        | 50  | Arkansas       | 35.9 |

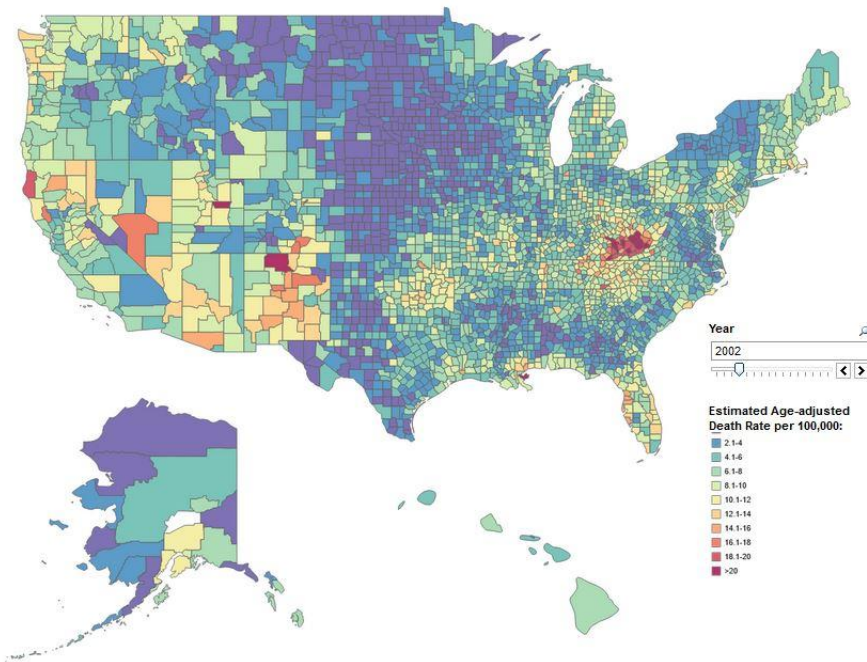




# Adult Obesity: All 3141 Counties in US vs 238 Counties in Central Appalachia



Estimated Age-adjusted Death Rates§ for Drug Poisoning by County, United States: 2002



Designed by L. Rossen, B. Bastian & Y. Chong. SOURCE: CDC/NCHS, National Vital Statistics System.



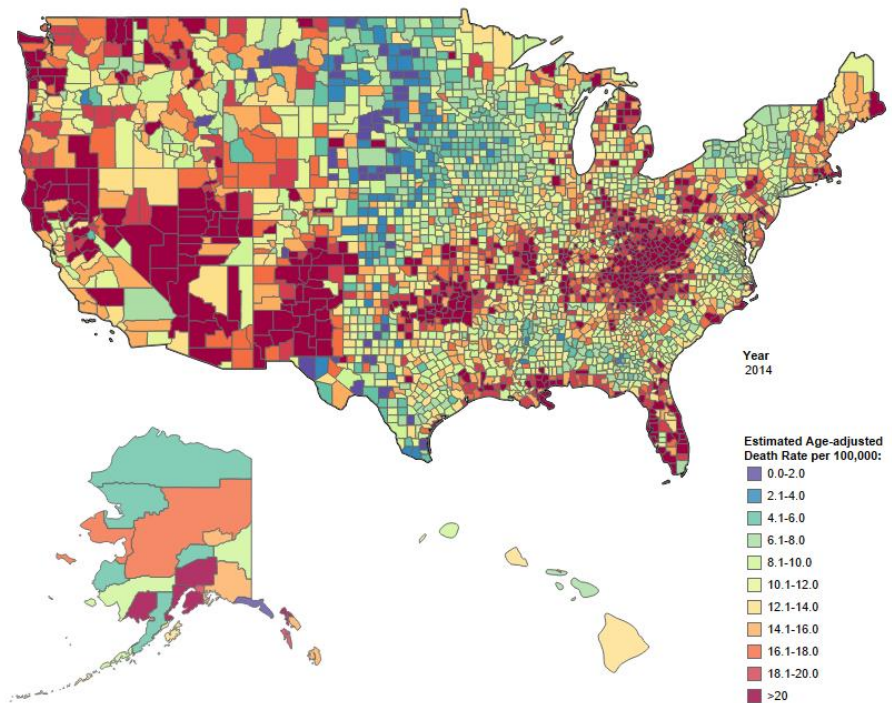
Drug Poisoning Mortality†: United States, 2002–2014

U.S. Trends: 2002–2014

State Trends: 2002–2014

County Estimates: 2002–2014

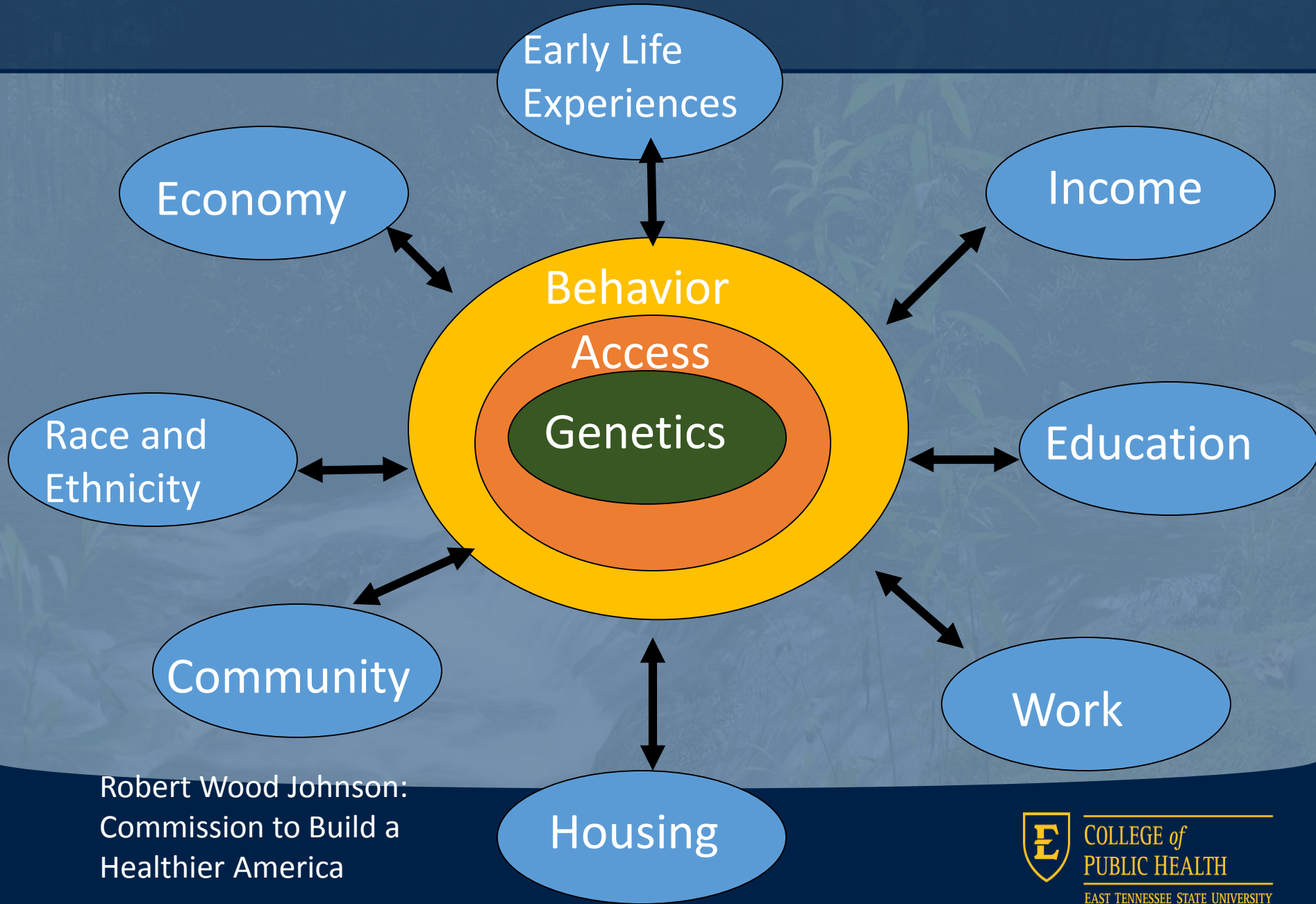
Estimated Age-adjusted Death Rates§ for Drug Poisoning by County, United States: 2014



Designed by L. Rossen, B. Bastian & Y. Chong. SOURCE: CDC/NCHS, National Vital Statistics System.



# *The Social Determinants of Health*



Robert Wood Johnson:  
Commission to Build a  
Healthier America



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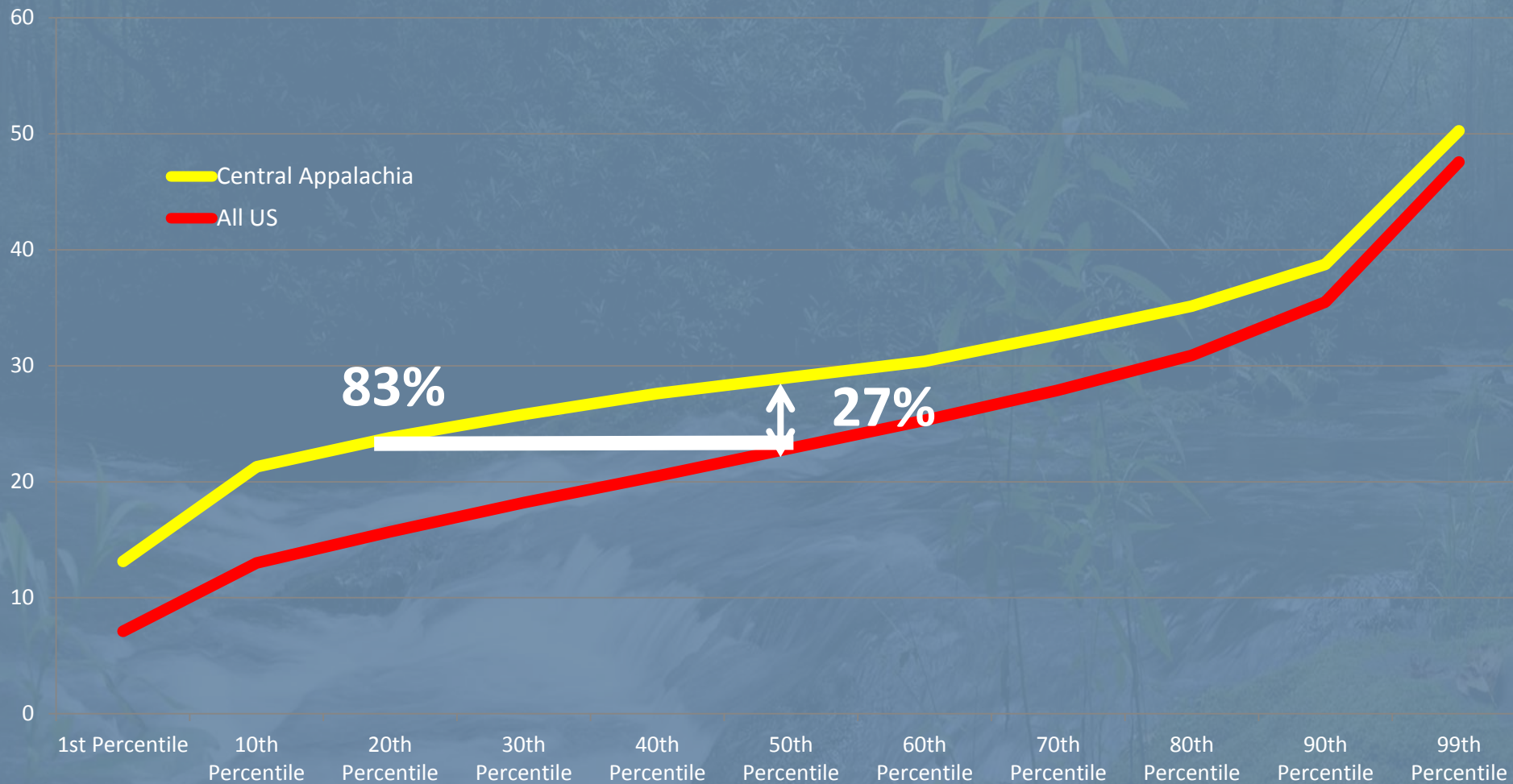
# Children Living in Poverty

|                 |      |                      |             |                   |      |
|-----------------|------|----------------------|-------------|-------------------|------|
| 1 Wyoming       | 10.6 | 18=Montana           | 16.8        | 34 California     | 22.9 |
| 2 New Hampshire | 11.1 | 18=Washington        | 16.8        | 35 Indiana        | 23.3 |
| 3 Virginia      | 11.3 | 20 Hawaii            | 16.9        | 36 Texas          | 23.8 |
| 4 Vermont       | 11.5 | 21 Colorado          | 17.2        | 37 Nevada         | 23.9 |
| 5 Minnesota     | 11.9 | 22 Massachusetts     | 17.6        | 38 Florida        | 24.2 |
| 6=North Dakota  | 12.0 | 23=Rhode Island      | 17.7        | 39 North Carolina | 24.4 |
| 6=Utah          | 12.0 | 23=South Dakota      | 17.7        | 40 Oklahoma       | 25.0 |
| 8 Connecticut   | 12.3 | 25 Nebraska          | 18.3        | 41 Alabama        | 25.2 |
| 9 Maryland      | 13.4 | 26 Oregon            | 18.8        | 42 Georgia        | 25.6 |
| 10 Missouri     | 14.2 | 27 New York          | 19.1        | 43=New Mexico     | 25.7 |
| 11 Iowa         | 14.3 | 28 Pennsylvania      | 19.4        | 43=West Virginia  | 25.7 |
| 12 Idaho        | 14.6 | 29 Illinois          | 20.5        | 45 Tennessee      | 26.2 |
| 13 Alaska       | 15.6 | 30=Maine             | 20.8        | 46 Arizona        | 28.5 |
| 14 New Jersey   | 16.1 | 30=Michigan          | 20.8        | 47 Mississippi    | 29.4 |
| 15 Wisconsin    | 16.2 | <b>UNITED STATES</b> | <b>21.1</b> | 48 Arkansas       | 29.7 |
| 16=Delaware     | 16.6 | 32 Ohio              | 22.1        | 49 Kentucky       | 30.3 |
| 16=Kansas       | 16.6 | 33 South Carolina    | 22.5        | 50 Louisiana      | 33.7 |

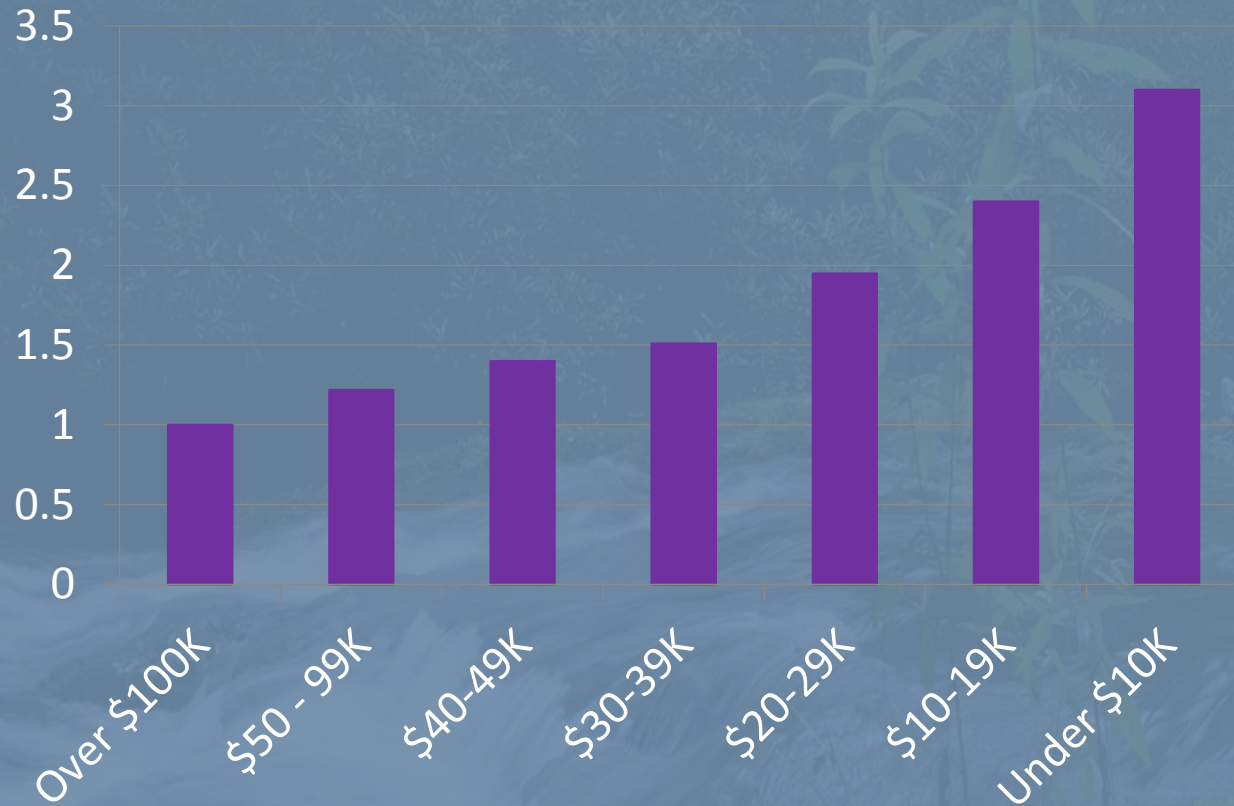




# Children Living in Poverty: All 3139 Counties in US vs 238 Counties in Central Appalachia

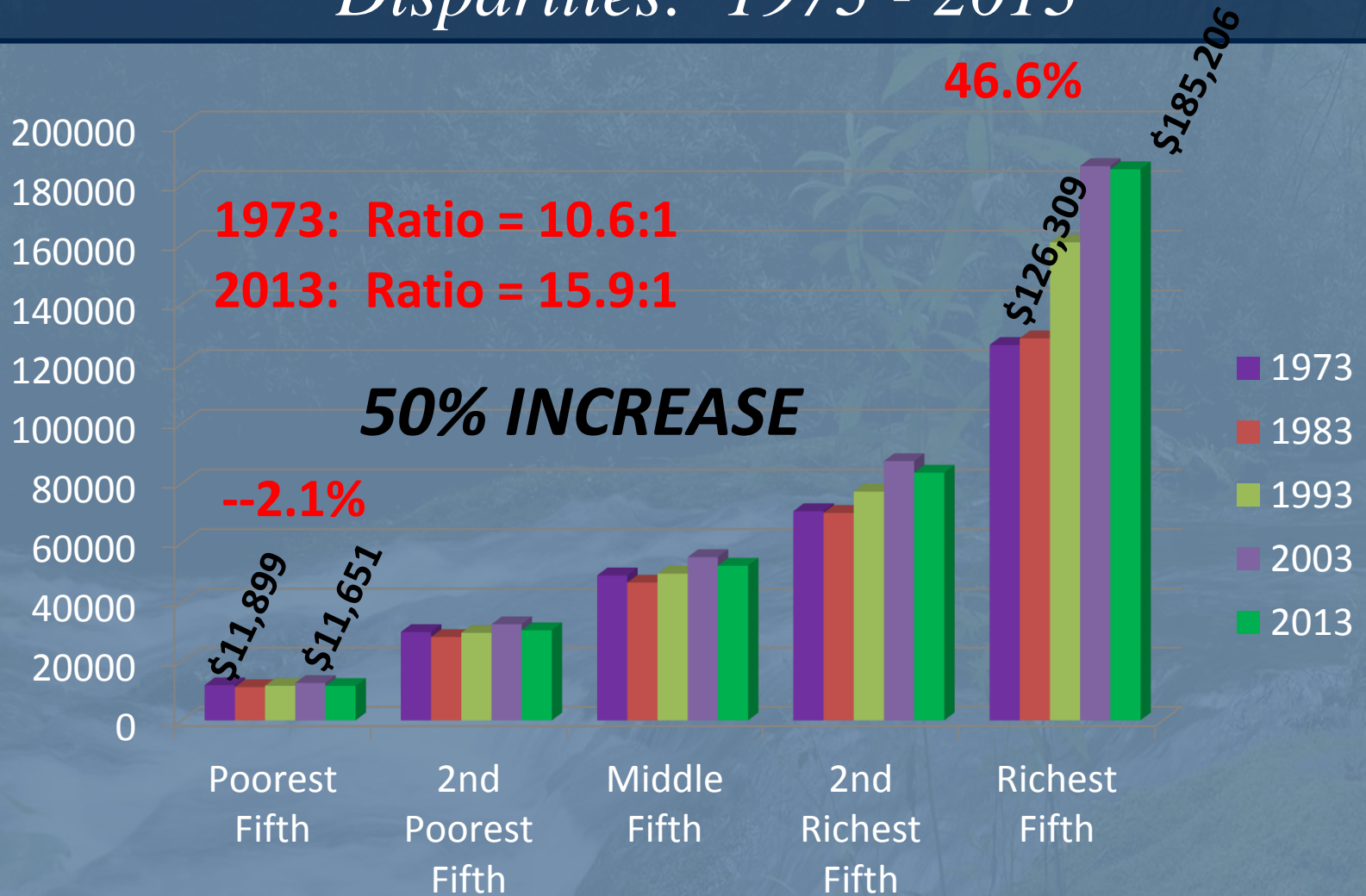


# *Relative Risk of Dying Before the Age of 65 By Income: United States*

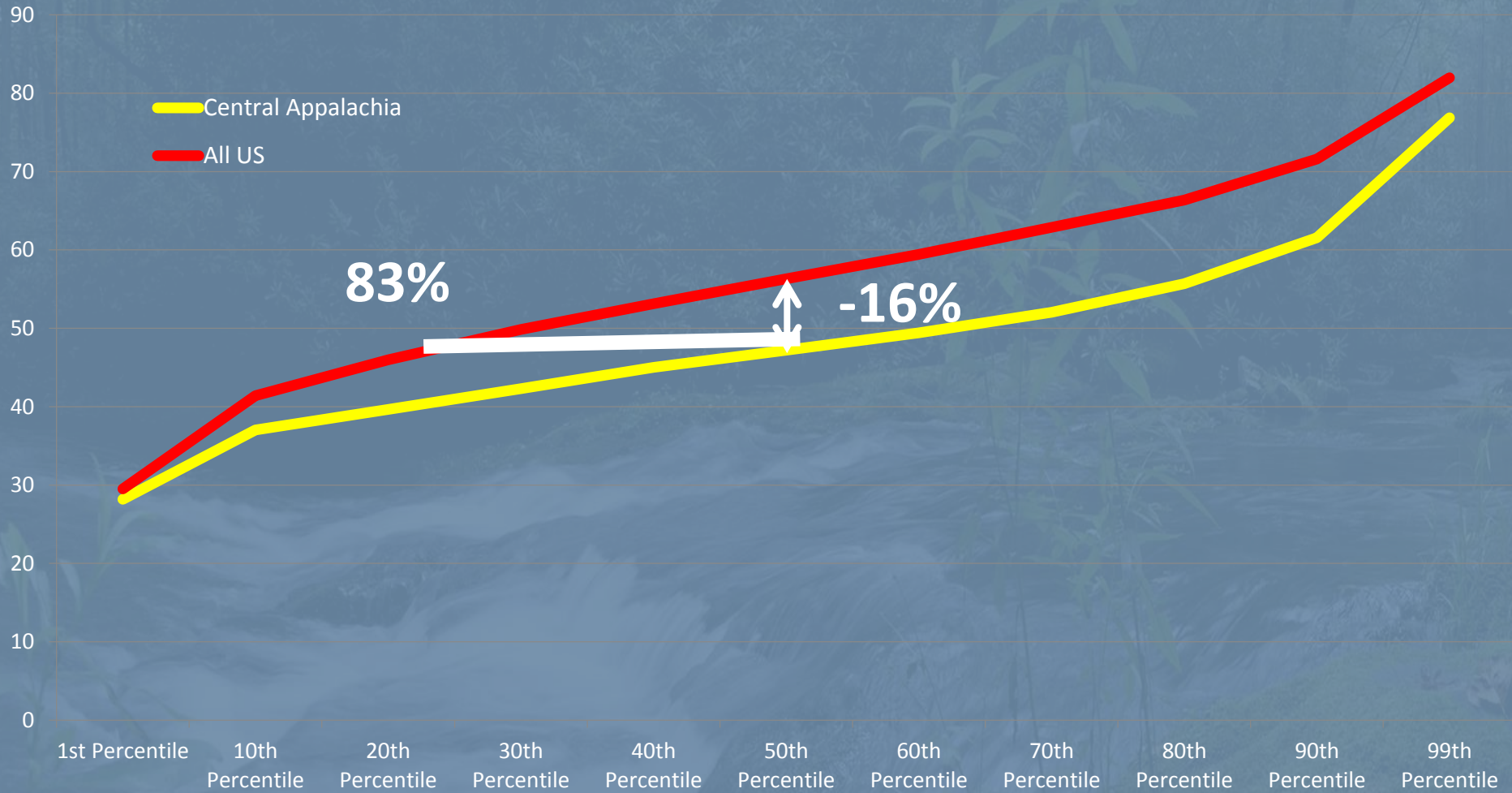




# Selected Measures of Household Income Disparities: 1973 - 2013

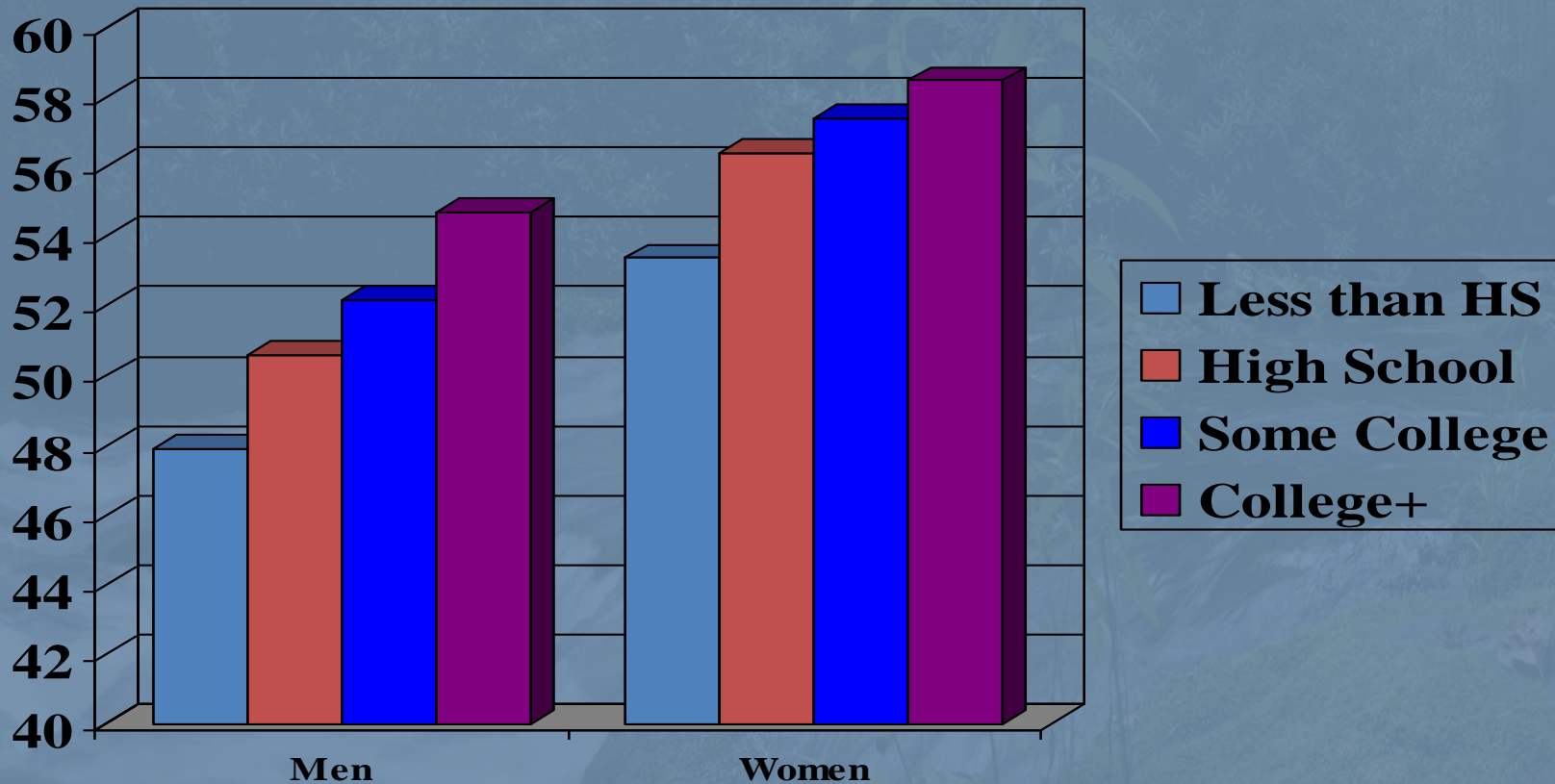


# Adults with Some College: All 3140 Counties in US vs 238 Counties in Central Appalachia





# *Life Expectancy at Age 25 by Educational Achievement*



# *Percent of High School Sophomores Who Complete College in Ten Years Based on Parents' Education Level*



Education Matters for Health: Robert Wood Johnson Foundation. September, 2009

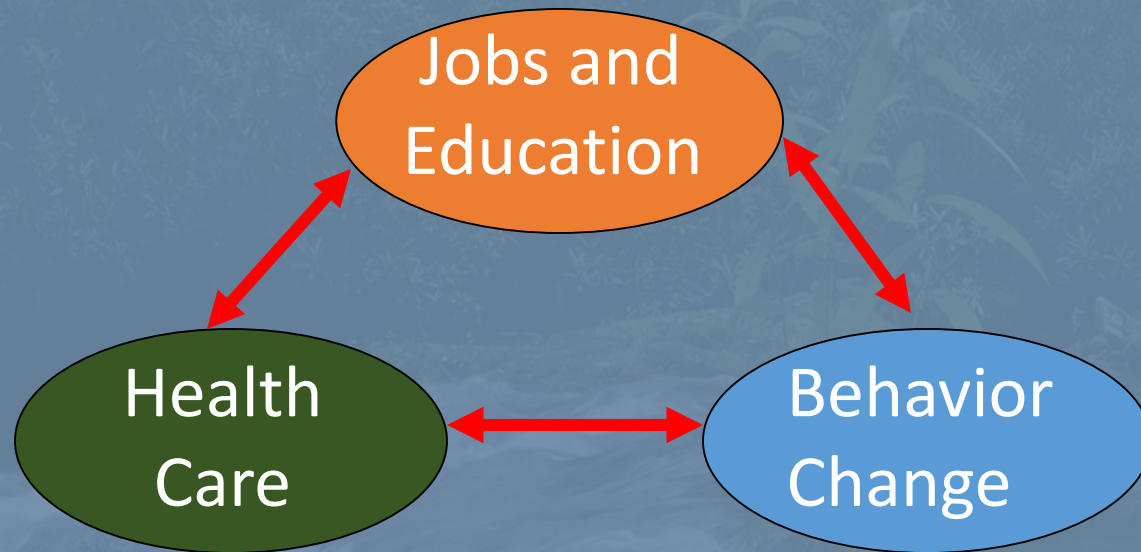


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# *What Can We Do To Improve Health in the United States?*



# *What Can We Do To Improve Health in the United States?*

***We need to work together*** to assure access to health care, especially preventive services;

***We need to work together*** to encourage healthier behaviors;

***We need to work together*** to enhance economic opportunity and improve educational achievement;

