Exploring Rural and Urban Mortality Differences

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RHRPRC is a consortium of:

• University of North Dakota Center for Rural Health
• NORC Walsh Center for Rural Health Analysis

Research conducted by the RHRPRC informs policy makers and rural providers to:

• Increase access to health care services
• Improve overall health status of rural residents
• Assist rural communities in securing adequate, affordable, high-quality health care services
Social Determinants

World Health Organization definition:

"the circumstances in which people are born, grow up, live, work and age, and the systems put in place to deal with illness. These circumstances are in turn shaped by a wider set of forces: economics, social policies, and politics."
### Social Determinants of Health

1) Economic stability  
   - Poverty, employment, food security, housing stability

2) Education  
   - High school graduation, enrollment in higher education, language and literacy, early childhood education and development

3) Social and community context  
   - Social cohesion, civic participation, perceptions of discrimination and equity, incarceration/institutionalization

4) Health and health care  
   - Access to health care, access to primary care, health literacy

5) Neighborhood and built environment  
   - Access to healthy foods, quality of housing, crime and violence, environmental conditions

Population: Poverty

Population in poverty by rurality

Source: The 2014 Update of the Rural-Urban Chartbook, RHRPRC, 2014
Risk Factors: Adolescent Smoking

Cigarette smoking in the past month among adolescents 12-17 years of age by rurality

Source: The 2014 Update of the Rural-Urban Chartbook, RHRPRC, 2014
Risk Factors: Adult Smoking

Cigarette smoking among persons 18 years of age and older by rurality

Source: The 2014 Update of the Rural-Urban Chartbook, RHRPRC, 2014
Risk Factors: Obesity

Obesity among persons 18 years of age and older by rurality

Source: The 2014 Update of the Rural-Urban Chartbook, RHRPRC, 2014
Mortality

- Cause-specific mortality is often higher in rural counties than urban counties
- Risk factors contribute to high mortality rates in rural areas
  - Smoking
  - Obesity
  - Physical inactivity
- High mortality rates and risk factors are a reflection of the physical and social environment in which people live and work
Methods

Source of Mortality data:
National Vital Statistics System (NVSS)
  – Years 2011-2013

Data are grouped by:
  – 2013 NCHS Urban-Rural Classification Scheme for Counties
    • (Large Central, Large Fringe, Small/Medium Metro, Micropolitan, Non-core)
  – HHS Regions
  – Age
  – Gender
  – Cause of Death
    • Top 10 Nation-wide causes of death for each age group
## 2013 NCHS Urban-Rural Classification Scheme for Counties

<table>
<thead>
<tr>
<th>2013 NCHS Urban-Rural Classification</th>
<th>Definition</th>
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</thead>
<tbody>
<tr>
<td><strong>Large central</strong> (inner cities)</td>
<td>Counties in MSA of 1 million or more population that: contain the entire population of the largest principal city of the MSA; are completely contained in the largest principal city of the MSA; or contain at least 250,000 residents of any principal city of the MSA</td>
</tr>
<tr>
<td><strong>Large Fringe</strong> (suburban)</td>
<td>Counties in MSAs with a population of at least 1 million residents</td>
</tr>
<tr>
<td><strong>Small Metro</strong></td>
<td>Counties in MSAs with a population of less than 1 million residents</td>
</tr>
<tr>
<td><strong>Micropolitan</strong> (large rural)</td>
<td>Counties with populations of 10,000 to 49,999 residents</td>
</tr>
<tr>
<td><strong>Non-core</strong> (small rural)</td>
<td>Remaining nonmetropolitan counties that are not in a micropolitan statistical area</td>
</tr>
</tbody>
</table>
HHS Regions

Source: U.S. Department of Health & Human Services
HHS Regions

Region 1: Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont
Region 2: New York, New Jersey
Region 3: Delaware, District of Columbia, Maryland, Pennsylvania, Virginia, West Virginia
Region 4: Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee
Region 5: Illinois, Indiana, Michigan, Minnesota, Ohio, Wisconsin
Region 6: Arkansas, Louisiana, New Mexico, Oklahoma, Texas
Region 7: Iowa, Kansas, Missouri, Nebraska
Region 8: Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming
Region 9: Arizona, California, Hawaii, Nevada
Region 10: Alaska, Idaho, Oregon, Washington
The Appalachian Region is 205,000-square-mile and spans the Appalachian Mountains from southern New York to northern Mississippi. It includes all of West Virginia and parts of 12 other states: Alabama, Georgia, Kentucky, Maryland, Mississippi, New York, North Carolina, Ohio, Pennsylvania, South Carolina, Tennessee, and Virginia.

The Region includes 420 counties in 13 states and has a population of 25 million people. Forty-two percent of the Region's population is rural, compared with 20 percent of the national population.

Source: Appalachian Regional Commission, [http://www.arc.gov/](http://www.arc.gov/).
The Delta region is comprised of 10 million people who reside in the 252 counties and parishes within eight different states: Alabama, Arkansas, Illinois, Kentucky, Louisiana, Mississippi, Missouri, and Tennessee.

Established in 2000 by Congress, the Delta Regional Authority makes strategic investments of federal appropriations into the physical and human infrastructure of Delta communities. The 252 counties and parishes served by the Delta Regional Authority make up the most distressed area of the country.

Exploring Rural and Urban Mortality Differences

https://ruralhealth.und.edu/projects/health-reform-policy-research-center/rural-urban-mortality
Exploring Rural and Urban Mortality Differences

Exploring Rural and Urban Mortality Differences examines the impact of rurality on mortality and explores regional differences in mortality rates. This study used a quantitative analysis approach drawing upon the data available from the National Vital Statistics System (NVSS) at CDC WONDER. This project builds off of the recently developed 2014 Update of the Rural-Urban Chartbook (Rural Health Reform Policy Research Center, The Rural-Urban Chartbook, October, 2014) which examined health status by level of rurality (five rural-urban statuses), sex, and region (four regions). Exploring Rural and Urban Mortality Differences contains visual aids which display indicators of mortality rates by age group, rural-urban status, region, and sex (for populations 15 years of age and older) cross-referenced to tables and statistical results. Individual data tables are available, as well as online tools which allow you to interact with the data and select variables of interest. Data and visuals are presented for 10 leading causes of death for each age group as reported by the Centers of Disease Control and Prevention.

Products

- **Excel Workbook Tables: Mortality Rates among Persons by Cause of Death, Age, Region, and Rural-Urban Status: United States, 2011-2013**
  Contains 5 tables that describe mortality rates for five different age groups: Infants (under 1 year of age), children (1-14 years of age), adolescents and young adults (15-24 years of age), working-age adults (25-64 years of age), and seniors (65 years of age or older). Data are presented on 10 leading causes of death for each age group as reported by the Centers of Disease Control and Prevention. Results draw upon the data available from the National Vital Statistics System (NVSS) at CDC WONDER.

- **Online Tool: Index for Mortality Rates by Cause Related to the National Rate among Persons by Age, Region, and Rural-Urban Status: United States, 2011-2013**
  An interactive data visualization Tableau dashboard that displays the mortality rate index by age group, rural-urban status, sex (only for populations 15 years of age and older), and region (Health and Human Services Regions, Appalachia, Delta). These charts compare mortality rates in subgroups to the national average. Data are presented for the 10 leading causes of death (as reported by the Centers of Disease Control and Prevention) and figures display standardized differences between urban, rural, and national death rates. Results draw upon the data available from the National Vital Statistics System (NVSS) at CDC WONDER.

- **Online Tool: Mortality Rates among Persons by Cause of Death, Age, and Rural-Urban Status: United States, 2011-2013**
  An interactive data visualization Tableau dashboard that maps mortality rates by age group, rural-urban status, HHS region, and sex (only for populations 15 years of age and older). These maps compare mortality rates in the 10 HHS regions to one another based on rural-urban status. Data are presented for the top 10 leading causes of death as reported by the Centers of Disease Control and Prevention. Results draw upon the data available from the National Vital Statistics System (NVSS) at CDC WONDER.
• Exploring Rural and Urban Mortality Differences by HHS Region | (color) | (black & white)
  A slide deck that serves as an offline and printable version of the Online Tool: Index for Mortality Rates. It contains 81 figures from the Online Tool displaying mortality rate indices by age group, rural-urban status, HHS region, and sex (only for populations 15 years of age and older). Data are presented for the top 10 leading causes of death as reported by the Centers of Disease Control and Prevention. Figures display standardized differences between urban, rural, and national death rates. Results draw upon the data available from the National Vital Statistics System (NVSS) at CDC WONDER.

• Mapping Rural and Urban Mortality Differences by HHS Region | (color) | (black & white)
  A slide deck that serves as an offline and printable version of the Online Tool: Mortality Rates among Persons. It contains 80 figures from the Online Tool mapping mortality rates by age group, rural-urban status, HHS region, and sex (only for populations 15 years of age and older). Data are presented for the top 10 leading causes of death as reported by the Centers of Disease Control and Prevention. Results draw upon the data available from the National Vital Statistics System (NVSS) at CDC WONDER.

• Exploring Rural and Urban Mortality Differences in the Appalachian Region | (color) | (black & white)
  A slide deck that serves as an offline and printable version of the Online Tool: Index for Mortality Rates in the Appalachian Region. It contains 9 figures from the Online Tool displaying mortality rate indices by age group, rural-urban status, and sex (only for populations 15 years of age and older) within the Appalachian Region. Data are presented for the top 10 national leading causes of death as reported by the Centers of Disease Control and Prevention. Figures display standardized differences between urban, rural, and national death rates. Results draw upon the data available from the National Vital Statistics System (NVSS) at CDC WONDER.

• Exploring Rural and Urban Mortality Differences in the Delta Region | (color) | (black & white)
  A slide deck that serves as an offline and printable version of the Online Tool: Index for Mortality Rates in the Delta Region. It contains 9 figures from the Online Tool displaying mortality rate indices by age group, rural-urban status, and sex (only for populations 15 years of age and older) within the Delta Region. Data are presented for the top 10 national leading causes of death as reported by the Centers of Disease Control and Prevention. Figures display standardized differences between urban, rural, and national death rates. Results draw upon the data available from the National Vital Statistics System (NVSS) at CDC WONDER.
User Guides and Technical Notes

- **Users Guide for Graph Interaction**
  *Index for Mortality Rates by Cause Related to the National Rate among Persons by Age, Region, and Rural-Urban Status: United States, 2011-2013 Online Tool*
  This user’s guide demonstrates ways to display graphs of mortality rate indices by Health and Human Services (HHS) region, cause of death, age, and rural-urban status. Graphs can be created dynamically for 10 mortalities or for a single mortality. Figures display standardized differences between urban, rural, and national death rates. Results draw upon the data available from the National Vital Statistics System (NVSS) at CDC WONDER based on the top 10 leading causes of death as reported by the Centers of Disease Control and Prevention.

- **Users Guide for Map Interaction**
  *Mortality Rates among Persons by Cause of Death, Age, and Rural-Urban Status: United States, 2011-2013 Online Tool*
  This user’s guide demonstrates ways to view maps of mortality rates from the Top 10 Causes of Mortality as reported by the Centers of Disease Control and Prevention. This document guides users to create dynamic maps for a single cause of mortality by Health and Human Services (HHS) region, cause of death, age, and rural-urban status. Results draw upon the data available from the National Vital Statistics System (NVSS) at CDC WONDER.

- **Technical Notes: Exploring Rural and Urban Mortality Differences**
  Review technical notes related to the study’s methods and data analyses. This study examines the impact of rurality on mortality and explores regional differences in mortality rates. The study used a quantitative analysis approach drawing upon the data available from the National Vital Statistics System (NVSS) at CDC WONDER for the top 10 leading causes of death as reported by the Centers of Disease Control and Prevention.
## Table 1. Mortality rates among persons under 1 year of age by cause of death, region, and rural/urban status category, 2011-2013

| Region          | Rural/Urban Status | Congenital malformations Rate | SE | Short gestation and low birth weight Rate | SE | Sudden infant death syndrome Rate | SE | Maternal complications of pregnancy Rate | SE | Unintentional injuries Rate | SE | Placenta, cord and membrane complications Rate | SE | Bacterial sepsis Rate | SE | Respiratory distress diseases Rate | SE | Circulatory system diseases Rate | SE | Neonatal hemorrhage Rate | SE |
|-----------------|--------------------|-----------------------------|----|--------------------------------|-----|--------------------------------|-----|--------------------------------|-----|--------------------------------|-----|--------------------------------|-----|----------------|-----|----------------|-----|----------------|-----|
| National        |                    | 123.8                       | 1.0| 105.3                          | 0.9| 43.4                          | 0.8| 39.5                          | 0.6| 28.4                          | 0.5| 25.9                          | 0.5| 14.1                        | 0.3| 13.0                        | 0.3| 12.2                        | 0.3| 10.7                        | 0.3|
| HHS Region 1    | Rural              | 116.3                       | 1.1| 136.2                          | 1.1| 39.8                          | 0.6| 54.6                          | 0.5| 27.4                          | 0.5| 24.6                          | 0.5| 14.0                        | 0.4| 12.8                        | 0.4| 11.9                        | 0.3| 10.7                        | 0.3|
| HHS Region 2    | Rural              | 152.5                       | 3.1| 94.9                          | 2.4| 38.5                          | 2.3| 50.4                          | 2.0| 39.1                          | 1.9| 34.7                          | 1.8| 27.8                        | 1.7| 14.3                        | 0.9| 14.1                        | 0.9| 10.6                        | 0.8|
| HHS Region 3    | Rural              | 115.4                       | 3.5| 149.9                          | 3.9| 60.2                          | 3.2| 85.3                          | 2.9| 81.8                          | 2.7| 38.1                          | 2.6| 28.9                        | 2.5| 14.9                        | 1.8| 14.3                        | 1.8| 10.9                        | 1.9|
| HHS Region 4    | Rural              | 166.7                       | 6.2| 118.8                          | 5.4| 70.9                          | 4.8| 47.5                          | 3.8| 38.1                          | 3.1| 29.6                          | 2.8| 17.3                        | 2.2| 15.8                        | 2.1| 13.4                        | 2.0|
| HHS Region 5    | Rural              | 162.7                       | 7.0| 58.1                          | 3.5| 50.4                          | 3.1| 42.0                          | 2.8| 36.4                          | 2.5| 30.1                          | 2.4| 15.7                        | 1.9| 13.8                        | 1.9| 10.7                        | 1.8|
| HHS Region 6    | Rural              | 136.9                       | 3.1| 152.7                          | 2.7| 50.9                          | 1.9| 35.9                          | 1.6| 27.1                          | 1.4| 21.9                          | 1.2| 15.6                        | 1.0| 12.8                        | 0.9| 11.8                        | 0.9| 10.8                        | 0.8|
| HHS Region 7    | Rural              | 145.2                       | 7.2| 81.6                          | 5.5| 40.0                          | 3.3| 35.3                          | 2.9| 25.3                          | 2.5| 20.8                          | 2.3| 15.7                        | 2.1| 13.6                        | 2.0| 10.6                        | 1.9|
| HHS Region 8    | Rural              | 168.1                       | 6.2| 86.2                          | 5.3| 84.2                          | 4.1| 29.3                          | 3.6| 19.7                          | 3.1| 17.6                        | 2.8| 11.9                        | 2.1| 12.2                        | 2.0| 10.2                        | 1.9|
| HHS Region 9    | Rural              | 158.0                       | 12.1| 63.2                          | 8.8| 60.1                          | 7.5| 34.5                          | 6.3| 24.4                          | 6.4| 36.1                          | 5.8| 13.8                        | 1.3| 13.6                        | 1.3| 10.3                        | 1.2|
| HHS Region 10   | Rural              | 119.0                       | 2.3| 61.9                          | 1.7| 30.3                          | 1.4| 24.7                          | 1.4| 12.7                          | 1.2| 12.3                        | 1.0| 8.9                        | 0.7| 8.7                        | 0.6| 11.6                        | 0.8|
| Other Areas     | Rural              | 173.4                       | 14.6| 55.9                          | 8.7| 39.2                          | 3.3| 26.9                          | 2.7| 20.9                          | 2.3| 20.9                          | 2.1| 14.5                        | 2.0| 13.9                        | 2.0| 11.0                        | 2.0|

Rates are represented as deaths per 100,000 population.

** indicates the rural/urban status- and region-specific rate is significantly different from the national rate for that age group and sex, 0.01 < p < 0.05

*** indicates the rural/urban status- and region-specific rate is significantly different from the national rate for that age group and sex, p < 0.01

SE: Standard error

- "Not applicable" indicates the rural/urban status- and region-specific rate is not applicable.

- "Unrecorded rate" is marked as "unrecorded" when the death count is less than 50 (10-15).

- "Suppressed rate" is marked as "suppressed" when the death count is less than 10 (0-9).

Source: Mortality Rates and Standard Errors provided by Centers for Disease Control and Prevention, National Center for Health Statistics.

# Excel Workbook Tables

## Table 3. Mortality rates among persons 15-24 years of age by cause of death, region, sex, and rural/urban status category, 2011-2013

<table>
<thead>
<tr>
<th>Region</th>
<th>Rural Urban Status</th>
<th>Sex</th>
<th>Infant/child</th>
<th>Suicide</th>
<th>Homicide</th>
<th>Unintentional Injury</th>
<th>Baby mortality</th>
<th>Heart disease</th>
<th>Congenital anomaly</th>
<th>Pneumonia</th>
<th>Diabetes</th>
<th>Stroke/Cerebrovascular disease</th>
<th>Pregnancy or childbirth</th>
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<tbody>
<tr>
<td>National</td>
<td>Male</td>
<td>3.1%</td>
<td>7.5%</td>
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<td>National</td>
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<td>7.5%</td>
<td>0.2</td>
<td>1.2%</td>
<td>0.2</td>
<td>7.2%</td>
<td>0.2</td>
<td>0.4</td>
<td>0.1</td>
<td>0.5%</td>
<td>0.4%</td>
<td>0.1%</td>
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<tr>
<td>HHS Region 9</td>
<td>Rural Male</td>
<td>1.5%</td>
<td>2.2%</td>
<td>0.1</td>
<td>1.2%</td>
<td>0.1</td>
<td>7.2%</td>
<td>0.1</td>
<td>0.4</td>
<td>0.1</td>
<td>0.5%</td>
<td>0.4%</td>
<td>0.1%</td>
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<tr>
<td>HHS Region 10</td>
<td>Urban Male</td>
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<td>7.5%</td>
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<td>1.2%</td>
<td>0.2</td>
<td>7.2%</td>
<td>0.2</td>
<td>0.4</td>
<td>0.1</td>
<td>0.5%</td>
<td>0.4%</td>
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<tr>
<td>Other Areas</td>
<td>Urban Male</td>
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<td>7.5%</td>
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<td>1.2%</td>
<td>0.2</td>
<td>7.2%</td>
<td>0.2</td>
<td>0.4</td>
<td>0.1</td>
<td>0.5%</td>
<td>0.4%</td>
<td>0.1%</td>
</tr>
<tr>
<td>Other Areas</td>
<td>Rural Male</td>
<td>1.5%</td>
<td>2.2%</td>
<td>0.1</td>
<td>1.2%</td>
<td>0.1</td>
<td>7.2%</td>
<td>0.1</td>
<td>0.4</td>
<td>0.1</td>
<td>0.5%</td>
<td>0.4%</td>
<td>0.1%</td>
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</table>
Exploring Rural and Urban Mortality Differences by Region
10 HHS Regions
Appalachia
Delta
Index for Mortality Rates for Cause Related to the National Mortality Rate among Persons (Both Sexes) Age Under 1 Year, in HHS Region 10 (AK, ID, OR, WA), by Rural-Urban Status: United States, 2011-2013

Objects above the horizontal line where index=100 indicates mortality rates higher than the national average, below the line are values below the average.

SOURCES: Centers for Disease Control and Prevention, National Center for Health Statistics, Multiple Cause of Death.
Index for Mortality Rates for Cause Related to the National Mortality Rate among Persons (Both Sexes) Age Under 1 Year, in Appalachia Region, by Rural-Urban Status: United States, 2011-2013

Objects above the horizontal line where index=100 indicates mortality rates higher than the national average, below the line are values below the average.

SOURCES: Centers for Disease Control and Prevention, National Center for Health Statistics, Multiple Cause of Death.
Index for Mortality Rates for Cause Related to the National Mortality Rate among Persons (Both Sexes) Age Under 1 Year, in Delta Region, by Rural-Urban Status: United States, 2011-2013

Objects above the horizontal line where index=100 indicates mortality rates higher than the national average, below the line are values below the average.

Sources: Centers for Disease Control and Prevention, National Center for Health Statistics, Multiple Cause of Death.
Suggested Citation: Rural Health Reform Policy Research Center. Exploring Rural and Urban Mortality Differences, August 2015 Bethesda, MD. 2015.
Online Tool – Top 10 Causes of Death

<table>
<thead>
<tr>
<th>Rural Urban Status</th>
<th>Large Central</th>
<th>Large Fringe</th>
<th>Medium/Small Metro</th>
<th>Metropolitan</th>
<th>Noncore</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>25 to 64 Years</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Sex</td>
<td>Males</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Region</td>
<td>HHS Region 6 (AR, LA, NM, OK, TX)</td>
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<td></td>
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<td></td>
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</tbody>
</table>

Index for Mortality Rates for Cause Related to the National Mortality Rate among Persons (Males) Age 25 to 64 Years, in HHS Region 6 (AR, LA, NM, OK, TX), by Rural-Urban Status: United States, 2011-2013

*NOTES: These graphics show estimates for the top ten causes of death. A missing dot indicates either 1) a suppressed rate or 2) identical values between an urban and rural estimate (where more urban cases cover the more rural cases). Suppressed data points occur when there are fewer than 10 deaths within that population sub-group (e.g., sex, rural-urban status, region). Refer to the single-cause mortality charts to further investigate whether the point is suppressed or of equal value to another estimate. If a cause is not listed on the graph, then all data points for that cause are suppressed. A graph with fewer than 10 causes of death indicates that all points are suppressed for the missing causes. Rates are age-adjusted for ages 1-74 years, 75-84 years, and 85 years and over, and represent deaths per 100,000 population. Index is calculated as (local mortality rate / national mortality rate) * 100 where the national mortality rate is calculated using age-specific and age-specific (over 15 years) death rates. See Data Tables and Technical Notes from the main Exploring Rural and Urban Mortality Differences page for explicit details including explanation of mortality index, age adjustment, cause of death, etc.

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, Multiple Cause of Death.

RETURN TO PROGRAM PAGE: To return to the Exploring Rural and Urban Mortality Differences page, see the Rural Health Research Gateway website at http://www.ruralhealthresearch.org/
Online Tool – Single Cause of Death

Mortality Index and Rates for Cause Related to the National Mortality Rate among Persons (Male) Age 15 to 24 Years, in HHS Region #10 (AK, ID, OR, WA), by Rural-Urban Status: United States, 2011-2013

- Please select:
  - Age: 16 to 24 years
  - Cause of Death: Suicide
  - Sex: Male
  - Region: HHS Region #10 (AK, ID, OR, WA)

Rural-Urban Status
- Urban
- Rural

*NOTES: These graphics show estimates for a single cause of death. Suppressed data points occur when there are fewer than 10 deaths within that population sub-group (age, sex, rural-urban status, region). Rates are age-adjusted for ages 1-14 years, 15-34 years, and 65 years and over, and represent deaths per 100,000 population. Index is calculated as (local mortality rate / national mortality rate) * 100 where the national mortality rate is calculated using age-specific and sex-specific (over 15 years) death rates. See Data Tables and Technical Notes from the main Exploring Rural and Urban Mortality Differences page for explicit details including explanation of mortality index, age-adjustment, cause of death, etc.

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, Multiple Cause of Death.

Index for Mortality Rates for Cause Related to the National Mortality Rate among Persons (Males) Age 25 to 64 Years, in Appalachia Region, by Rural-Urban Status: United States, 2011-2013

Objects above the horizontal line where index=100 indicates mortality rates higher than the national average, below the line are values below the average.

SOURCES: Centers for Disease Control and Prevention, National Center for Health Statistics, Multiple Cause of Death.
Index for Mortality Rates for Cause Related to the National Mortality Rate among Persons (Females) Age 25 to 64 Years, in Appalachia Region, by Rural-Urban Status: United States, 2011-2013

Objects above the horizontal line where index=100 indicates mortality rates higher than the national average, below the line are values below the average.

SOURCES: Centers for Disease Control and Prevention, National Center for Health Statistics, Multiple Cause of Death.
Mortality Index and Rates for Cause Related to the National Mortality Rate among Persons (Female) Age 25 to 64 Years, in Appalachia, by Rural-Urban Status: United States, 2011-2013*

*NOTES: These graphics show estimates for a single cause of death. Suppressed data points occur when there are fewer than 10 deaths within that population sub-group (age, sex, rural-urban status, region). Rates are age-adjusted for ages 1-14 years, 15-64 years, and 65 years and over, and represent deaths per 100,000 population. Index is calculated as: (local mortality rate / national mortality rate) x 100 where the national mortality rate is calculated using age-specific and sex-specific (over 15 years) death rates. See Data Tables and Technical Notes from the main Exploring Rural and Urban Mortality Differences page for explicit details including explanation of mortality index, age-adjustment, cause of death, etc.

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, Multiple Cause of Death.

Mapping Rural and Urban Mortality by Regions
10 HHS Regions
Appalachia
Delta
Mortality Rates by HHS Region and Urban-Rural Status: United States, 2011-2013; Age: Under 1; Cause of Death: Congenital malformations; Sex: Combined Sexes

Age
Under 1

Cause of Death
Congenital malformations

Mortality Rate (per 100,000 pop)
80.4
168.1
(Numbers indicate HHS Regions)

URBAN (Large Fringe, Large Central, Small/Medium Metro)

RURAL (Micropolitan, Non-Core)

SOURCES: Centers for Disease Control and Prevention, National Center for Health Statistics, Multiple Cause of Death.
Mortality Rates by HHS Region and Urban-Rural Status: United States, 2011-2013; Age: Under 1; Cause of Death: Short gestation and low birth weight; Sex: Combined Sexes

**Age**
- Under 1

**Cause of Death**
- Short gestation and low birth weight

**Mortality Rate (per 100,000 pop)**
- 55.9
- 149.0

(Numbers indicate HHS Regions)

**URBAN (Large Fringe, Large Central, Small/Medium Metro)**

**RURAL (Micropolitan, Non-Core)**

**Sources:** Centers for Disease Control and Prevention, National Center for Health Statistics, Multiple Cause of Death.

**Suggested Citation:** Rural Health Reform Policy Research Center. Exploring Rural and Urban Mortality Differences, August 2015 Bethesda, MD. 2015.
Mortality Rates by HHS Region and Urban-Rural Status: United States, 2011-2013; Age: 1 to 14; Cause of Death: Unintentional injuries; Sex: Combined Sexes

Age
1 to 14

Cause of Death
Unintentional injuries

Mortality Rate (per 100,000 pop)

URBAN (Large Fringe, Large Central, Small/Medium Metro)

RURAL (Micropolitan, Non-Core)

SOURCES: Centers for Disease Control and Prevention, National Center for Health Statistics, Multiple Cause of Death.
Mortality Rates by HHS Region and Urban-Rural Status: United States, 2011-2013; Age: 1 to 14; Cause of Death: Malignant neoplasms; Sex: Combined Sexes

Age
1 to 14

Cause of Death
Malignant neoplasms

Mortality Rate (per 100,000 pop)

1.7

2.6

(Numbers indicate HHS Regions)

URBAN (Large Fringe, Large Central, Small/Medium Metro)

RURAL (Micropolitan, Non-Core)

SOURCES: Centers for Disease Control and Prevention, National Center for Health Statistics, Multiple Cause of Death.
Mortality Rates by HHS Region and Urban-Rural Status: United States, 2011-2013; Age: 15 to 24; Cause of Death: Unintentional injuries; Sex: Male

**Sex**  
Male

**Cause of Death**  
Unintentional injuries

**Mortality Rate (per 100,000 pop)**  
30.5 - 70.0

(Numbers indicate HHS Regions)

**URBAN (Large Fringe, Large Central, Small/Medium Metro)**

**RURAL (Micropolitan, Non-Core)**

**SOURCES:** Centers for Disease Control and Prevention, National Center for Health Statistics, Multiple Cause of Death.  
Mortality Rates by HHS Region and Urban-Rural Status: United States, 2011-2013; Age: 15 to 24; Cause of Death: Unintentional injuries; Sex: Female

sex
Female

Cause of Death
Unintentional injuries

Mortality Rate (per 100,000 pop)

9.7
31.7

(Numbers indicate HHS Regions)

URBAN (Large Fringe, Large Central, Small/Medium Metro)

RURAL (Micropolitan, Non-Core)

SOURCES: Centers for Disease Control and Prevention, National Center for Health Statistics, Multiple Cause of Death.
Mortality Rates by HHS Region and Urban-Rural Status: United States, 2011-2013; Age: 15 to 24; Cause of Death: Suicide; Sex: Female

URBAN (Large Fringe, Large Central, Small/Medium Metro)

RURAL (Micropolitan, Non-Core)

SOURCES: Centers for Disease Control and Prevention, National Center for Health Statistics, Multiple Cause of Death.
Mortality Rates by HHS Region and Urban-Rural Status: United States, 2011-2013; Age: 25 to 64; Cause of Death: Malignant neoplasms; Sex: Male

**Mortality Rate** (per 100,000 pop)

65.1

(Numbers indicate HHS Regions)

141.6

**SOURCES:** Centers for Disease Control and Prevention, National Center for Health Statistics, Multiple Cause of Death.

Mortality Rates by HHS Region and Urban-Rural Status: United States, 2011-2013; Age: 25 to 64; Cause of Death: Malignant neoplasms; Sex: Female

<table>
<thead>
<tr>
<th>Age</th>
<th>Cause of Death</th>
<th>Sex</th>
<th>Mortality Rate (per 100,000 pop)</th>
</tr>
</thead>
<tbody>
<tr>
<td>25 to 64</td>
<td>Malignant neoplasms</td>
<td>Female</td>
<td>63.8 to 113.4</td>
</tr>
</tbody>
</table>

(Sources: Centers for Disease Control and Prevention, National Center for Health Statistics, Multiple Cause of Death. Suggested Citation: Rural Health Reform Policy Research Center. Exploring Rural and Urban Mortality Differences, August 2015 Bethesda, MD. 2015.)
Mortality Rates by HHS Region and Urban-Rural Status: United States, 2011-2013; Age: 25 to 64; Cause of Death: Heart disease; Sex: Male

LARGE CENTRAL

LARGE FRINGE

SMALL/MEDIUM METROPOLITAN

MICROPOLITAN

NON-CORE

Mortality Rate (per 100,000 pop)

53.3

154.2

(Numbers indicate HHS Regions)

SOURCES: Centers for Disease Control and Prevention, National Center for Health Statistics, Multiple Cause of Death.
Mortality Rates by HHS Region and Urban-Rural Status: United States, 2011-2013; Age: 25 to 64; Cause of Death: Heart disease; Sex: Female

SOURCES: Centers for Disease Control and Prevention, National Center for Health Statistics, Multiple Cause of Death.
Mortality Rates by HHS Region and Urban-Rural Status: United States, 2011-2013; Age: 25 to 64; Cause of Death: Unintentional injuries; Sex: Male

LARGE CENTRAL

LARGE FRINGE

SMALL/MEDIUM METROPOLITAN

MICROPOLITAN

NON-CORE

SOURCES: Centers for Disease Control and Prevention, National Center for Health Statistics, Multiple Cause of Death.
Mortality Rates by HHS Region and Urban-Rural Status: United States, 2011-2013; Age: 25 to 64; Cause of Death: Unintentional injuries; Sex: Female

Age 25 to 64
Cause of Death
Unintentional injuries
Sex
Female

Mortality Rate (per 100,000 pop)
12.5
50.7
(Numbers indicate HHS Regions)

LARGE CENTRAL

LARGE FRINGE

SMALL/MEDIUM METROPOLITAN

MICROPOLITAN

NON-CORE

SOURCES: Centers for Disease Control and Prevention, National Center for Health Statistics, Multiple Cause of Death.
Mortality Rates by HHS Region and Urban-Rural Status: United States, 2011-2013; Age: 25 to 64; Cause of Death: Suicide; Sex: Male

LARGE CENTRAL

LARGE FRINGE

SMALL/MEDIUM METROPOLITAN

MICROPOLITAN

NON-CORE

SOURCES: Centers for Disease Control and Prevention, National Center for Health Statistics, Multiple Cause of Death.
Mortality Rates by HHS Region and Urban-Rural Status: United States, 2011-2013; Age: 25 to 64; Cause of Death: Suicide; Sex: Female

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, Multiple Cause of Death.
Mortality Rates by HHS Region and Urban-Rural Status: United States, 2011-2013; Age: 65 and older; Cause of Death: Heart disease; Sex: Male

SOURCES: Centers for Disease Control and Prevention, National Center for Health Statistics, Multiple Cause of Death.
Mortality Rates by HHS Region and Urban-Rural Status: United States, 2011-2013; Age: 65 and older; Cause of Death: Malignant neoplasms; Sex: Male

Age
65 and older

Cause of Death
Malignant neoplasms

Sex
Male

LARGE CENTRAL

LARGE FRINGE

SMALL/MEDIUM METROPOLITAN

MICROPOLITAN

NON-CORE

SOURCES: Centers for Disease Control and Prevention, National Center for Health Statistics, Multiple Cause of Death.
RHI Hub’s Community Health Gateway

Rural Health Models and Innovations

Browse Rural Project Examples
- Browse by Level of Evidence
- Browse by Topic
- Browse by State
- Browse by Source

Recently Added
- Total HEALTH
- The Maryland Faith Community Health Network (MFCHN)
- Naloxone Education Empowerment Distribution Program

More Resources
Many organizations, including federal agencies and national organizations, curate lists of effective programs. Some may have sections specific to rural and many have approaches that could be adapted to rural:
- Other Collections of Program Examples

Share Your Story
RHIhub is looking for project examples to share with rural service providers. Tell us about:
- Your program’s successes
- Program results demonstrated in formal program evaluations or research studies

ABOUT RURAL HEALTH MODELS AND INNOVATIONS
The Rural Health Information Hub collects and shares stories about rural health programs and interventions. This collection includes approaches that have demonstrated success in research studies and program evaluations, as well as anecdotal accounts.

Read about the criteria and evidence-base for programs included in Rural Health Models and Innovations.

USING AND ADAPTING PROGRAM EXAMPLES
Each rural community should consider whether a particular project or approach is a good match for their community’s needs and capacity. While it is sometimes possible to adapt program components to match your resources, keep in mind that changes to the program design may impact results. Programs listed in this section are not endorsed by the Rural Health Information Hub or the Federal Office of Rural Health Policy.

SHARE THIS PAGE
Building the Evidence…

Evidence-Based Toolkits for Rural Community Health

Step-by-step guides to help you build effective community health. Resources and examples are drawn from evidence-based and promising programs. By learning from programs that are known to be effective, you can make the best use of limited funding and resources.

- Care Coordination Toolkit
- Community Health Workers Toolkit
- Health Promotion and Disease Prevention Toolkit
- Mental Health and Substance Abuse Toolkit
- Obesity Prevention Toolkit
- Oral Health Toolkit
- Services Integration Toolkit

About the Evidence-Based Toolkits

The Rural Community Health Gateway’s evidence-based toolkits showcase program approaches that you can adapt to fit your community and the people you serve, allowing you to:

- Research approaches to community health programs
- Discover what works and why
- Learn about common obstacles
- Connect with program experts
- Evaluate your program to show impact

These toolkits are made available through the NORC Walsh Center for Rural Health Analysis and the University of Minnesota Rural Health Research Center in collaboration with the Rural Health Information Hub. Funding is provided by the Federal Office of Rural Health Policy (FORHP), Health Resources and Services Administration.
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