Mapping Rural and Urban Mortality Differences by HHS Region
RHRPRC is a consortium that combines the resources of two premier institutions:

- The 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
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Where you live should not determine whether you live, or whether you die

— Bono
Introduction

- 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
Study Purpose

- To examine the impact of rurality on mortality and to explore the regional differences in causes of death
Research Question

- What are the geographical differences in rural and urban mortality rates?
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>
</tr>
</thead>
<tbody>
<tr>
<td>Large central (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>Large Fringe (suburban)</td>
<td>Counties in MSAs with a population of at least 1 million residents</td>
</tr>
<tr>
<td>Small Metro</td>
<td>Counties in MSAs with a population of less than 1 million residents</td>
</tr>
<tr>
<td>Micropolitan (large rural)</td>
<td>Counties with populations of 10,000 to 49,999 residents</td>
</tr>
<tr>
<td>Non-core (small rural)</td>
<td>Remaining nonmetropolitan counties that are not in a micropolitan statistical area</td>
</tr>
</tbody>
</table>
Additional Notes on Maps

The HHS regions are as follows:
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
Additional Notes on the Maps

• Rates are age-adjusted for the children, working-age adult, and senior age groups.

• Data Tables and Technical Notes are available via electronic access with explicit details including mortality rates, explanation of mortality index, age-adjustment, cause of death, etc.

• Rates represent deaths per 100,000 population.
Additional Notes on the Maps

- Each set of maps has a legend. The legend is divided into five uniform color bins. For example, if you had a range of values from 0 to 100, the color range would represent every 20 units. That means that all points between 0 and 20 would have the lightest color, all points between 21 and 40 would be a shade darker, and so on and so forth.
- Any rate that falls within the range for the bin color will display as the same color, even though the two values may not be identical.
- Suppressed and unreliable rates are not shown within each map and display as a white region.
- Mortality rates for those under 25 years of age are lower thus, more suppressed and unreliable rates exist, limiting the visuals for all but the top causes of death.
Additional Notes on the Maps

- Light to dark colors represent lower to higher mortality rates.
- Although large differences may be present between one HHS region’s mortality rate and another region’s mortality rate, presentation of color variations does not imply that the differences in rates are statistically significant.
- Rates are colored by HHS region (not by individual state).
- The numbers on each state represent their corresponding HHS region.
- Maps are available for up to 10 causes of death for each age, sex, and region grouping.
Deaths of nonresidents are excluded, as are residents of:

- American Samoa
- Commonwealth of the Northern Mariana Islands
- Federated States of Micronesia
- Guam
- Marshall Islands
- Puerto Rico
- Republic of Palau
- U.S. Virgin Islands
Additional Notes on the Maps

• The graphs and accompanying text are part of a group of available information including Technical Notes and data tables corresponding to the graphed data. The Technical Notes provide information about data sources and methods.

• All data tables include the mortality rates underlying the graphics. The tables also include related data not included in the chart, as well as standard errors of estimates and results of statistical comparisons.

Electronic access:

Exploring Rural and Urban Mortality Differences by HHS Region may be accessed from the Rural Health Research Gateway website at:

http://www.ruralhealthresearch.org/.

The graphs from this presentation may be accessed at: https://viz.norc.org/views/On-LineToolMortalityRates/Introduction?:embed=y&:display_count=no
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Under 1 Year Mortality Rates by HHS Region and Urban-Rural Status: United States, 2011-2013; Age: Under 1 Year

Cause of Death¹:

- **Figure 2**: Congenital malformations
- **Figure 3**: Short gestation and low birth weight
- **Figure 4**: Sudden infant death syndrome
- **Figure 5**: Maternal complications of pregnancy
- **Figure 6**: Unintentional injuries
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- **Figure 9**: Respiratory distress
- **Figure 10**: Circulatory system diseases
- **Figure 11**: Neonatal hemorrhage

¹Cause of death of top 10 rankable causes of death in order from leading cause of death to 10ᵗʰ leading cause of death for this age group. Source: http://webappa.cdc.gov/sasweb/ncipc/leadcaus10_us.html
Figure 2

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

<table>
<thead>
<tr>
<th>Age</th>
<th>Cause of Death</th>
<th>Mortality Rate (per 100,000 pop)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under 1</td>
<td>Congenital malformations</td>
<td>80.4 - 168.1</td>
</tr>
</tbody>
</table>

(Sources 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: Under 1; Cause of Death: Short gestation and low birth weight; Sex: Combined Sexes

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

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

SOURCES: Centers for Disease Control and Prevention, National Center for Health Statistics, Multiple Cause of Death.
Figure 4

Mortality Rates by HHS Region and Urban-Rural Status: United States, 2011-2013; Age: Under 1; Cause of Death: Sudden infant death syndrome; Sex: Combined Sexes

<table>
<thead>
<tr>
<th>Age</th>
<th>Cause of Death</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under 1</td>
<td>Sudden infant death syndrome</td>
</tr>
</tbody>
</table>

Mortality Rate (per 100,000 pop)

(Sources indicate HHS Regions)

19.4 - 83.0

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.
Figure 5

Mortality Rates by HHS Region and Urban-Rural Status: United States, 2011-2013; Age: Under 1; Cause of Death: Maternal complications of pregnancy; Sex: Combined Sexes

Age
Under 1

Cause of Death
Maternal complications of pregnancy

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: Unintentional injuries; Sex: Combined Sexes

Figure 6

Mortality Rates by HHS Region and Urban-Rural Status: United States, 2011-2013; Age: Under 1; Cause of Death: Placenta, cord and membrane complications; Sex: Combined Sexes

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: Under 1; Cause of Death: Bacterial sepsis; Sex: Combined Sexes

Figure 8

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: Respiratory distress; Sex: Combined Sexes

**Figure 9**

<table>
<thead>
<tr>
<th>Age</th>
<th>Cause of Death</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under 1</td>
<td>Respiratory distress</td>
</tr>
</tbody>
</table>

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

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

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

<table>
<thead>
<tr>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.3</td>
</tr>
<tr>
<td>23.2</td>
</tr>
</tbody>
</table>

(Numbers indicate HHS Regions)

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

Figure 10

Mortality Rates by HHS Region and Urban-Rural Status: United States, 2011-2013; Age: Under 1; Cause of Death: Circulatory system diseases; Sex: Combined Sexes

<table>
<thead>
<tr>
<th>Age</th>
<th>Cause of Death</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under 1</td>
<td>Circulatory system diseases</td>
</tr>
</tbody>
</table>

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

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

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

(Numbers indicate HHS Regions)

6.6 - 17.8

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

Figure 11

Mortality Rates by HHS Region and Urban-Rural Status: United States, 2011-2013; Age: Under 1; Cause of Death: Neonatal hemorrhage; Sex: Combined Sexes

**Age**
Under 1

**Cause of Death**
Neonatal hemorrhage

**Mortality Rate (per 100,000 pop)**
Numbers indicate HHS Regions
6.9 - 12.7

SOURCES: Centers for Disease Control and Prevention, National Center for Health Statistics, Multiple Cause of Death.
Children
Ages 1 to 14 Years Mortality Rates by HHS Region and Urban-Rural Status United States, 2011-2013;

Cause of Death²:
- **Figure 12:** Unintentional injuries, Both Sexes
- **Figure 13:** Malignant Neoplasms, Both Sexes
- **Figure 14:** Congenital Malformations, Both Sexes
- **Figure 15:** Homicide, Both Sexes
- **Figure 16:** Heart Disease, Both Sexes
- **Figure 17:** Suicide, Both Sexes
- **Figure 18:** Flu & Pneumonia, Both Sexes
- **Figure 19:** Lower Respiratory Disease, Both Sexes
- **Figure 20:** Benign neoplasms, Both Sexes
- **Figure 21:** Cerebrovascular Disease, Both Sexes

²Cause of death of top 10 rankable causes of death in order from leading cause of death to 10th leading cause of death for this age group. Source: http://webappa.cdc.gov/sasweb/ncipc/leadcaus10_us.html
Figure 12: 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

Source: 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: Malignant neoplasms; Sex: Combined Sexes

Source: 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: Congenital malformations; Sex: Combined Sexes

**Figure 14**

**Age**
1 to 14

**Cause of Death**
Congenital malformations

**Mortality Rate (per 100,000 pop)**
0.8 to 2.2

(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.
Figure 16

Mortality Rates by HHS Region and Urban-Rural Status: United States, 2011-2013; Age: 1 to 14; Cause of Death: Heart disease; Sex: Combined Sexes

Age
1 to 14

Cause of Death
Heart disease

Mortality Rate (per 100,000 pop)
0.5
0.9
(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: 1 to 14; Cause of Death: Suicide; Sex: Combined Sexes

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: Flu & pneumonia; Sex: Combined Sexes

**Age**
1 to 14

**Cause of Death**
Flu & pneumonia

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

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

**Mortality Rate (per 100,000 pop)**
0.3 to 0.4

(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: 1 to 14; Cause of Death: Lower respiratory; Sex: Combined Sexes

**Age**
1 to 14

**Cause of Death**
Lower respiratory

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

0.2
0.6

(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.
Figure 21

Mortality Rates by HHS Region and Urban-Rural Status: United States, 2011-2013; Age: 1 to 14; Cause of Death: Cerebrovascular diseases; Sex: Combined Sexes

<table>
<thead>
<tr>
<th>Age</th>
<th>Cause of Death</th>
<th>Mortality Rate (per 100,000 pop)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 to 14</td>
<td>Cerebrovascular diseases</td>
<td></td>
</tr>
</tbody>
</table>

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.  
Adolescents and Young Adults
Ages 15 to 24 Years Mortality Rates by HHS Region and Urban-Rural Status: United States, 2011-2013; Age: 15 to 24

Cause of Death:

- Figure 22: Unintentional injury, Male
- Figure 23: Unintentional injury, Female
- Figure 24: Suicide, Male
- Figure 25: Suicide, Female
- Figure 26: Homicide, Male
- Figure 27: Homicide, Female
- Figure 28: Malignant neoplasms, Male
- Figure 29: Malignant neoplasms, Female
- Figure 30: Heart disease, Male
- Figure 31: Heart disease, Female
- Figure 32: Congenital malformations, Male
- Figure 33: Congenital malformations, Female
- Figure 34: Diabetes, Male
- Figure 35: Diabetes, Female
- Figure 36: Cerebrovascular diseases, Male
- Figure 37: Cerebrovascular diseases, Female
- Figure 38: Pregnancy or childbirth, Female
- Figure 39: Flu & Pneumonia, Male
- Figure 40: Flu & Pneumonia, Female
Mortality Rates by HHS Region and Urban-Rural Status: United States, 2011-2013; Age: 15 to 24; Cause of Death: Unintentional injuries; Sex: Male

Figure 22

Mortality Rates by HHS Region and Urban-Rural Status: United States, 2011-2013; Age: 15 to 24; Cause of Death: Unintentional injuries; 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: 15 to 24; Cause of Death: Suicide; Sex: Male

Figure 24

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

Figure 25

SOURCES: Centers for Disease Control and Prevention, National Center for Health Statistics, Multiple Cause of Death.
Figure 26

Mortality Rates by HHS Region and Urban-Rural Status: United States, 2011-2013; Age: 15 to 24; Cause of Death: Homicide; Sex: Male

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: Homicide; Sex: Female

SOURCES: Centers for Disease Control and Prevention, National Center for Health Statistics, Multiple Cause of Death.
Figure 28

Mortality Rates by HHS Region and Urban-Rural Status: United States, 2011-2013; Age: 15 to 24; Cause of Death: Malignant neoplasms; Sex: Male

Sex
Male

Cause of Death
Malignant neoplasms

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

RURAL (Micropolitan, Non-Core)

Mortality Rate (per 100,000 pop)
2.9
4.9
(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: 15 to 24; Cause of Death: Malignant neoplasms; Sex: Female

SOURCES: Centers for Disease Control and Prevention, National Center for Health Statistics, Multiple Cause of Death.
Figure 30

Mortality Rates by HHS Region and Urban-Rural Status: United States, 2011-2013; Age: 15 to 24; Cause of Death: Heart disease; Sex: Male

Sex
Male

Cause of Death
Heart disease

Mortality Rate (per 100,000 pop)

1.7

(Numbers indicate HHS Regions)

4.2

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.
Figure 31: Mortality Rates by HHS Region and Urban-Rural Status: United States, 2011-2013; Age: 15 to 24; Cause of Death: Heart disease; Sex: Female

Sex: Female

Cause of Death: Heart disease

Mortality Rate (per 100,000 pop)

1.0 - 2.8

(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: Congenital malformations; 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: 15 to 24; Cause of Death: Congenital malformations; 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: 15 to 24; Cause of Death: Diabetes; Sex: Male

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: 15 to 24; Cause of Death: Diabetes; 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: 15 to 24; Cause of Death: Cerebrovascular diseases; Sex: Male

Sex
Male

Cause of Death
Cerebrovascular diseases

Mortality Rate (per 100,000 pop)

0.4
0.6
(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.
Figure 37

Mortality Rates by HHS Region and Urban-Rural Status: United States, 2011-2013; Age: 15 to 24; Cause of Death: Cerebrovascular diseases; Sex: Female

Sex
Female

Cause of Death
Cerebrovascular diseases

Mortality Rate (per 100,000 pop)
0.4
0.5
(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: Pregnancy or childbirth; Sex: Female

Figure 38

Sex
Female

Cause of Death
Pregnancy or childbirth

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

0.5
1.4

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: Flu & pneumonia; Sex: Male

Figure 39

Mortality Rates by HHS Region and Urban-Rural Status: United States, 2011-2013; Age: 15 to 24; Cause of Death: Flu & pneumonia; Sex: Female

Sex
Female

Cause of Death
Flu & pneumonia

Mortality Rate (per 100,000 pop)

0.3
0.4

(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.
Working-Age Adults
Age 25 to 64 Years Mortality Rates by HHS Region and Urban-Rural Status: United States, 2011-2013

Cause of Death:

- Figure 41: Malignant neoplasms, Male
- Figure 42: Malignant neoplasms, Female
- Figure 43: Heart disease, Males
- Figure 44: Heart disease, Females
- Figure 45: Unintentional injuries, Males
- Figure 46: Unintentional injuries, Females
- Figure 47: Suicide, Male
- Figure 48: Suicide, Female
- Figure 49: Liver disease, Male
- Figure 50: Liver disease, Female
- Figure 51: Diabetes, Male
- Figure 52: Diabetes, Female
- Figure 53: Lower respiratory, Male
- Figure 54: Lower respiratory, Female
- Figure 55: Cerebrovascular diseases, Male
- Figure 56: Cerebrovascular diseases, Female
- Figure 57: Homicide, Male
- Figure 58: Homicide, Female
- Figure 59: Septicemia, Male
- Figure 60: Septicemia, Female
Mortality Rates by HHS Region and Urban-Rural Status: United States, 2011-2013; Age: 25 to 64; Cause of Death: Malignant neoplasms; Sex: Male

**LARGE CENTRAL**

**LARGE FRINGE**

**SMALL/MEDIUM METROPOLITAN**

**MICROPOLITAN**

**NON-CORE**

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

65.1 - 141.6

Numbers indicate HHS Regions

**SOURCES:** Centers for Disease Control and Prevention, National Center for Health Statistics, Multiple Cause of Death.
Figure 42

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

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

Figure 45

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

Figure 46

Mortality Rate (per 100,000 pop)  
12.5  
50.7  
(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: Suicide; Sex: Male

Figure 47

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

Figure 48

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: Liver disease; Sex: Female

Fig. 50: Mortality rates for liver disease among females aged 25 to 64 in the United States by HHS region and urban-rural status, 2011-2013.

_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.
Figure 51

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

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

Figure 54

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: Cerebrovascular diseases; Sex: Male

Figure 55

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: 25 to 64; Cause of Death: Cerebrovascular diseases; Sex: Female

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: Homicide; Sex: Male

Figure 57

LARGE CENTRAL

LARGE FRINGE

SMALL/MEDIUM METROPOLITAN

MICROPOLITAN

NON-CORE

Mortality Rate
(per 100,000 pop)

2.4

40.9

(Numbers indicate HHS Regions)

SOURCES: Centers for Disease Control and Prevention, National Center for Health Statistics, Multiple Cause of Death.
Figure 58

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

[Sources and Suggested Citation]

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: Septicemia; Sex: Male

Figure 59

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: Septicemia; Sex: Female

Figure 60

LARGE CENTRAL

LARGE FRINGE

SMALL/MEDIUM METROPOLITAN

MICROPOLITAN

NON-CORE

Mortality Rate (per 100,000 pop)

0.9

8.4

Numbers indicate HHS Regions

Seniors
Ages 65 Years and Older Mortality Rates by HHS Region and Urban-Rural Status: United States, 2011-2013

Cause of Death:

- Figure 61: Heart disease, Male
- Figure 62: Heart disease, Female
- Figure 63: Malignant neoplasms, Male
- Figure 64: Malignant neoplasms, Female
- Figure 65: Lower respiratory, Male
- Figure 66: Lower respiratory, Female
- Figure 67: Cerebrovascular diseases, Male
- Figure 68: Cerebrovascular diseases, Female
- Figure 69: Alzheimer's, Male
- Figure 70: Alzheimer's, Female
- Figure 71: Diabetes, Male
- Figure 72: Diabetes, Female
- Figure 73: Unintentional injuries, Male
- Figure 74: Unintentional injuries, Female
- Figure 75: Flu & pneumonia, Male
- Figure 76: Flu & pneumonia, Female
- Figure 77: Nephritis, Male
- Figure 78: Nephritis, Female
- Figure 79: Septicemia, Male
- Figure 80: Septicemia, Female
Figure 61

Mortality Rates by HHS Region and Urban-Rural Status: United States, 2011-2013; Age: 65 and older; Cause of Death: Heart disease; Sex: Male

LARGE CENTRAL

LARGE FRINGE

SMALL/MEDIUM METROPOLITAN

MICROPOLITAN

NON-CORE

Mortality Rate (per 100,000 pop)

938.5

1,665.6

Numbers indicate HHS Regions

Figure 62

Mortality Rates by HHS Region and Urban-Rural Status: United States, 2011-2013; Age: 65 and older; Cause of Death: Heart disease; Sex: Female

LARGE CENTRAL  LARGRE FRINGE  SMALL/MEDIUM METROPOLITAN

MICROPOLITAN  NON-CORE

SOURCES: Centers for Disease Control and Prevention, National Center for Health Statistics, Multiple Cause of Death.
Figure 64

Mortality Rates by HHS Region and Urban-Rural Status: United States, 2011-2013; Age: 65 and older; Cause of Death: Malignant neoplasms; Sex: Female

Mortality Rates by HHS Region and Urban-Rural Status: United States, 2011-2013; Age: 65 and older; Cause of Death: Lower respiratory; Sex: Male

SOURCES: Centers for Disease Control and Prevention, National Center for Health Statistics, Multiple Cause of Death.
Figure 68

Mortality Rates by HHS Region and Urban-Rural Status: United States, 2011-2013; Age: 65 and older; Cause of Death: Cerebrovascular diseases; 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: 65 and older; Cause of Death: Alzheimer’s; Sex: Male

Figure 69

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.
Suggested Citation: Rural Health Reform Policy Research Center. Exploring Rural and Urban Mortality Differences, August 2015 Bethesda, MD. 2015.
Figure 70

Mortality Rates by HHS Region and Urban-Rural Status: United States, 2011-2013; Age: 65 and older; Cause of Death: Alzheimer's; 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: 65 and older; Cause of Death: Diabetes; 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: 65 and older; Cause of Death: Unintentional injuries; 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: 65 and older; Cause of Death: Flu & pneumonia; Sex: Male

Figure 75

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: Flu & pneumonia; Sex: Female

Figure 76
Mortality Rates by HHS Region and Urban-Rural Status: United States, 2011-2013; Age: 65 and older; Cause of Death: Nephritis; Sex: Male

Figure 77

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.
Figure 78

Mortality Rates by HHS Region and Urban-Rural Status: United States, 2011-2013; Age: 65 and older; Cause of Death: Nephritis; Sex: Female

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.
Figure 80

Mortality Rates by HHS Region and Urban-Rural Status: United States, 2011-2013; Age: 65 and older; Cause of Death: Septicemia; Sex: Female

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

• Cause-specific, rural mortality rates worse than the nation in:
  – Congenital malformations, Regions 3, 4, 6, 7, 8 (Mid-Atlantic, South, Plains, and Rockies)
  – Sudden infant death syndrome, Regions 3, 4, 6, 7, 8, 10 (Mid-Atlantic, South, Plains, Rockies, and Northwest)
  – Unintentional Injuries, Region 5, 7, 8 (Midwest, Plains, and Rockies)
  – Respiratory distress, Region 4
Summary: Children (Age 1 to 14)

- Cause-specific, rural mortality rates worse than the nation in:
  - Unintentional injuries, Regions 2, 3, 4, 5 6, 7, 8, 9, 10 (New England, Mid-Atlantic, Midwest, South, Plains, Rockies, and the West)
  - Congenital malformation, Region 3
  - Homicide, Region 3, 6
  - Heart disease, Region 4
  - Lower respiratory, Region 6
Summary: Children (Age 15 to 24)

- Cause-specific, rural mortality rates worse than the nation in:
  - Unintentional injuries, Region 3, 4, 5, 6, 7, 8, 9, 10
  - Suicide, Region 6, 8, 9, 10
  - Heart disease, Region 4
Summary: Working Adults (Age 25 to 64)

- Cause-specific, rural mortality rates worse than the nation in:
  - All top-ten causes of death, Region 4, 6 (the South)
  - Malignant neoplasms, Region 3, 4, 5, 6, 7 (Mid-Atlantic, South, Mid-west, Plains)
  - Heart disease, Region 3, 4, 6, 7 (Mid-Atlantic, South, Plains)
  - Unintentional injuries, Region 3, 4, 5, 6, 7, 8, 9 (Mid-Atlantic, South, Midwest, Plains, Rockies, Southwest)
  - Suicide, Region 3, 4, 6, 7, 8, 9, 10 (Mid-Atlantic, South, Plains, Rockies, West)
  - Liver disease, Region 4, 6, 8, 9, 10 (South, Rockies, West)
  - Diabetes, Region 3, 4, 6 (Mid-Atlantic, South)
  - Lower respiratory disease, Region 2, 3, 4, 5, 6, 7, 10 (New England, Mid-Atlantic, South, Midwest, Plains, Northwest)
Summary: Seniors (Age 65+)

- Cause-specific, rural mortality rates worse than the nation in:
  - All top-ten causes of death, Region 4, 6 (the South)
  - Heart disease, Region 4, 6, 7 (South, Plains)
  - Malignant neoplasms, Region 4, 6, 7 (South, Plains)
  - Lower respiratory, Region 4, 6, 7, 8, 9, 10 (South, Plains, Rockies, West)
  - Cerebrovascular disease & Alzheimer’s, Region 4, 6, 7, 8, 10 (South, Plains, Rockies, Northwest)
  - Flu & pneumonia, Region 4, 6, 7 (South, Plains)
  - Unintentional injuries, Region 4, 6, 7, 8 (South, Plains, Rockies)
  - Nephritis, Region 4, 6, 7 (South, Plains)
Summary

• Place matters
  • Cause-specific mortality varies by region
  • Regional differences that may impact mortality include:
    • Culture
    • Demographics
    • Health behaviors
    • Morbidity
• Sparsely populated areas have high mortality rates
For state specific mortality rates, contact the state health department’s vital records department.