

# Social Determinates of Health: Rural Inequalities and Health Disparities

*A Consortium of*



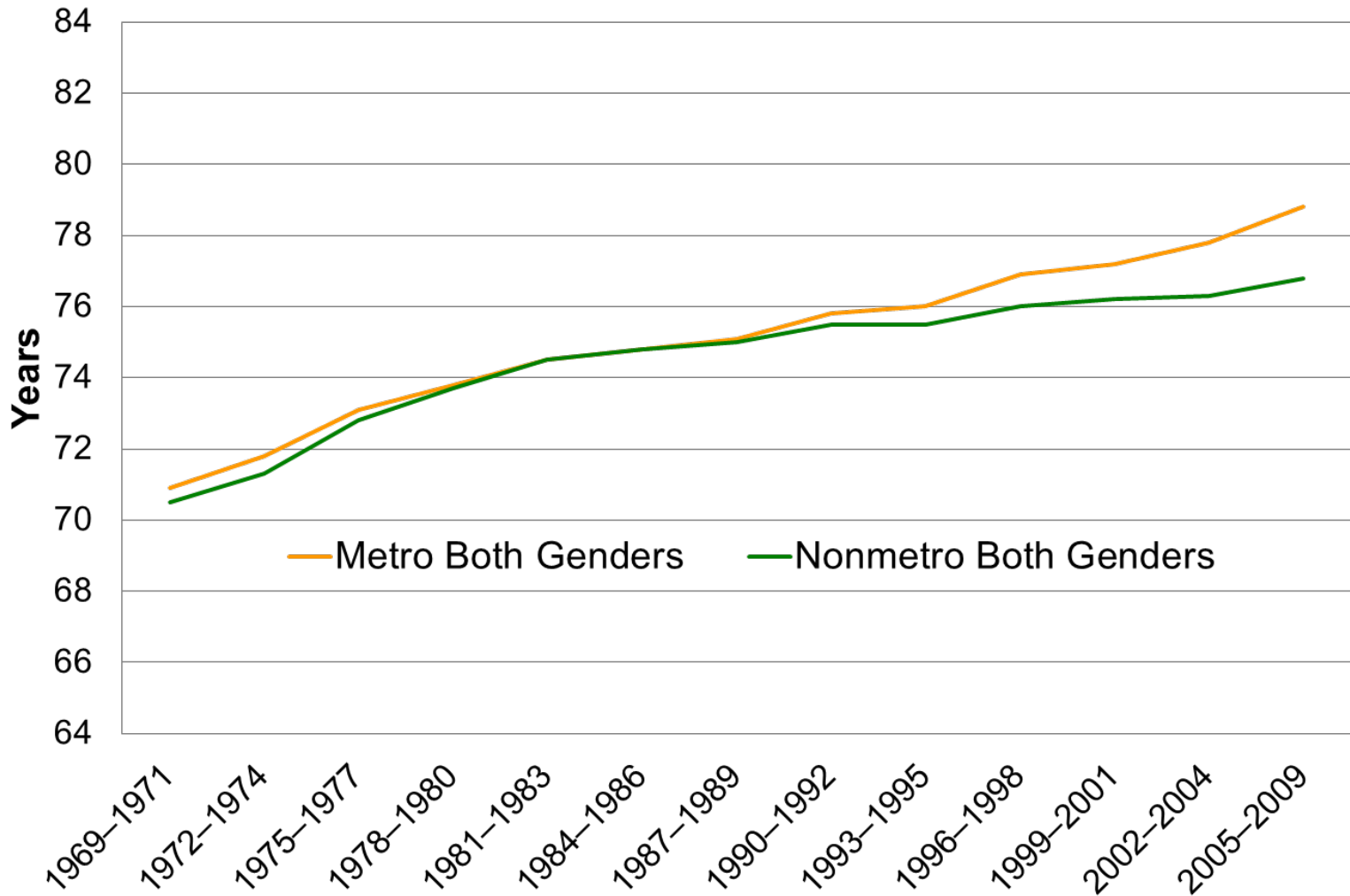
Center *for*  
Rural Health

The University of North Dakota  
School of Medicine & Health Sciences

The Walsh Center   
for Rural Health Analysis

NORC AT THE UNIVERSITY OF CHICAGO

## Life Expectancy at Birth in Metro and Nonmetro Areas, 1969-2009



# Social Determinants of Rural Health

- Socio-economic determinants
  - Poverty and education
  - Economics
- Psychosocial risk factors
  - Culture
  - Isolation
- Community and societal characteristics
  - Rural attitudes and culture
  - Access to healthcare and public health services

## Socio-economic determinants

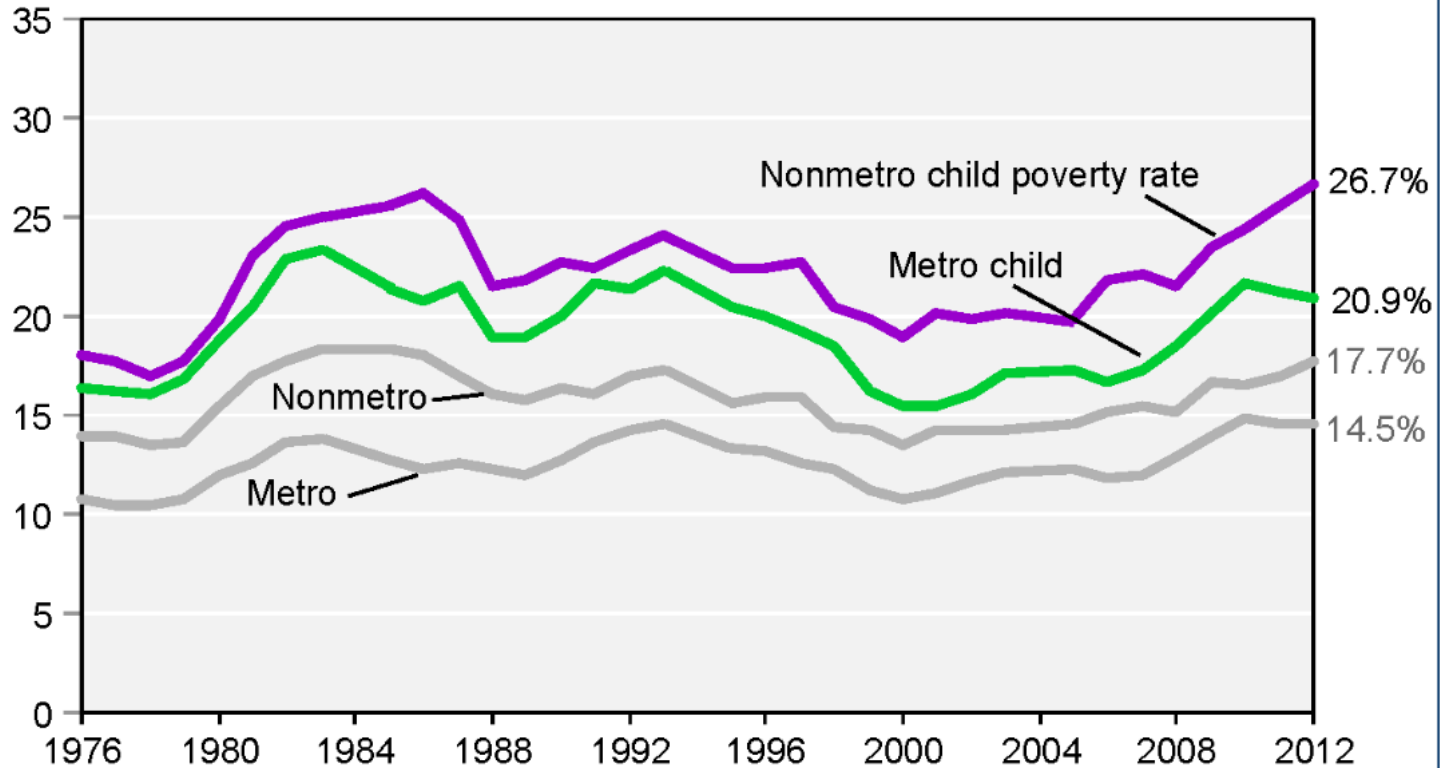
- Rural residents tend to be poorer than urban residents
  - Per capita income is \$9,864 less for rural (2012)
  - 21% of food stamp beneficiaries are rural (2014)
  - 27% of rural children live in poverty (21% urban)
- Rural residents' educational attainment
  - 16.6% have < high school education (13.9% urban)
  - 17.6% have a Bachelor's degree or higher (30.5% urban)

<http://www.ers.usda.gov/statefacts/US.HTM>

Source: [http://www.ers.usda.gov/data-products/state-fact-sheets/state-data.aspx#.VFpOS\\_nF91Y](http://www.ers.usda.gov/data-products/state-fact-sheets/state-data.aspx#.VFpOS_nF91Y)

## Child (and overall) poverty rates by metro/nonmetro residence, 1976-2012

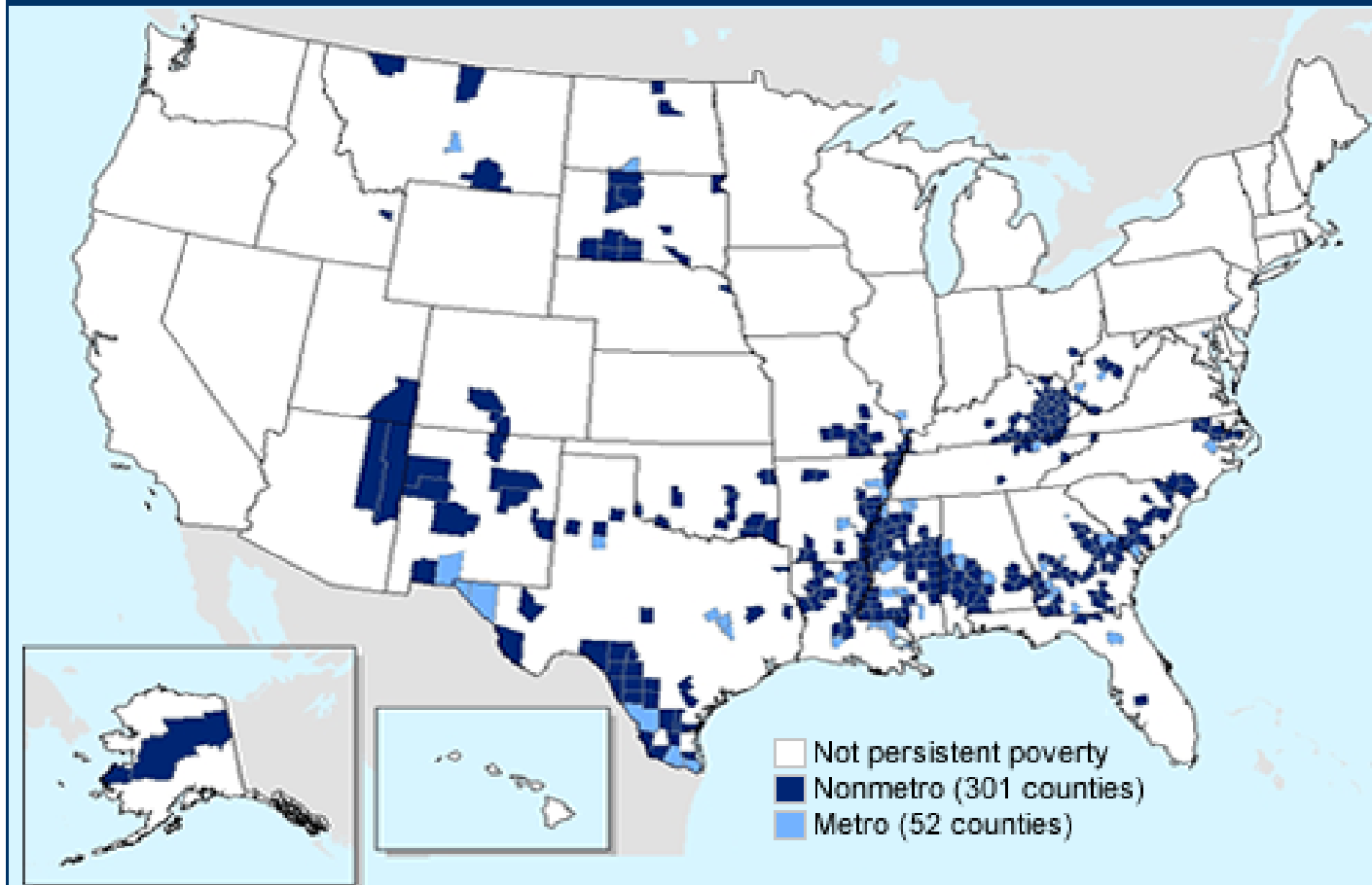
Percent poor



Note: Metro status of some counties changed in 1984, 1994, and 2004. Metro and nonmetro rates are imputed for those years.

Source: USDA, Economic Research Service using data from U.S. Census Bureau and U.S. Department of Labor, Bureau of Labor Statistics, Current Population Survey (March Supplements and 2013 Annual Social and Economic Supplements).

## Persistent poverty counties



Source: USDA, Economic Research Service. Persistent poverty counties had poverty rates of at least 20 percent in each U.S. Census 1980, 1990, and 2000, and American Community Survey 5-year estimates, 2007-11.

## Examination of Trends in Rural and Urban Health: Establishing a Baseline for Health Reform

- CDC published *Health United States, 2001 With Urban and Rural Health Chartbook*
  - No urban/rural data update since 2001
- Purpose of this study:
  - Update of rural health status ten years later to understand trends
  - Provide baseline of rural/urban differences in health status and access to care prior to ACA implementation

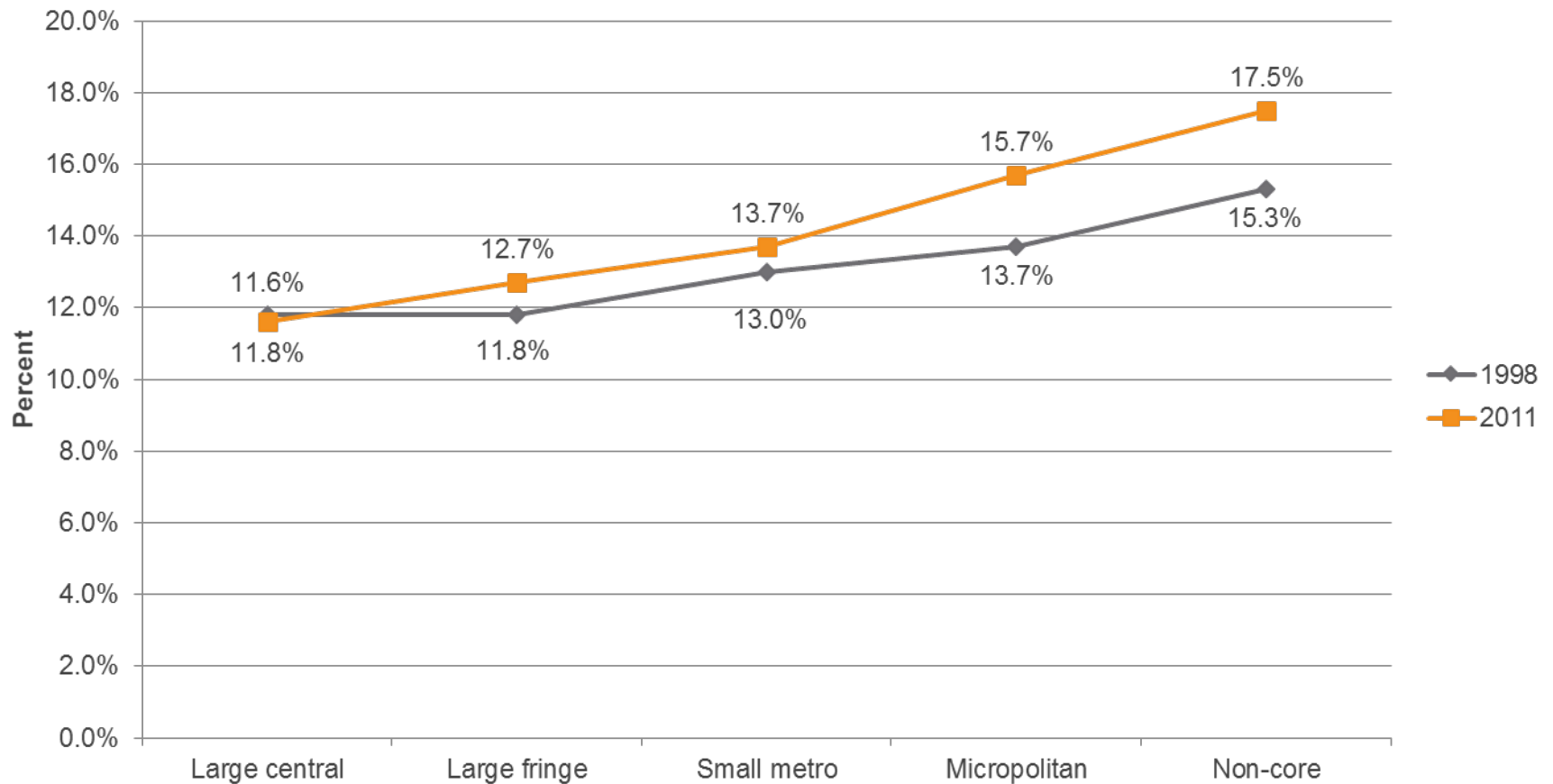
## Methods

- Replicated analyses conducted in 2001 using most recent data available (2006-2011)
- Used same data source, when possible:
  - National Vital Statistics System
  - Area Resource File (HRSA)
  - U.S. Census Bureau
  - National Health Interview Survey (NCHS)
  - National Hospital Discharge Survey (NCHS)
  - National Survey on Drug Use and Health (SAMHSA)
  - Treatment Episode Data Set (SAMHSA)
- Applied same geographic definitions, although classifications may have changed since 2001:
  - **Metropolitan Counties:** large central, large fringe, small
  - **Nonmetropolitan Counties:** with a city  $\geq$  10,000 population, without a city  $\geq$  10,000 population



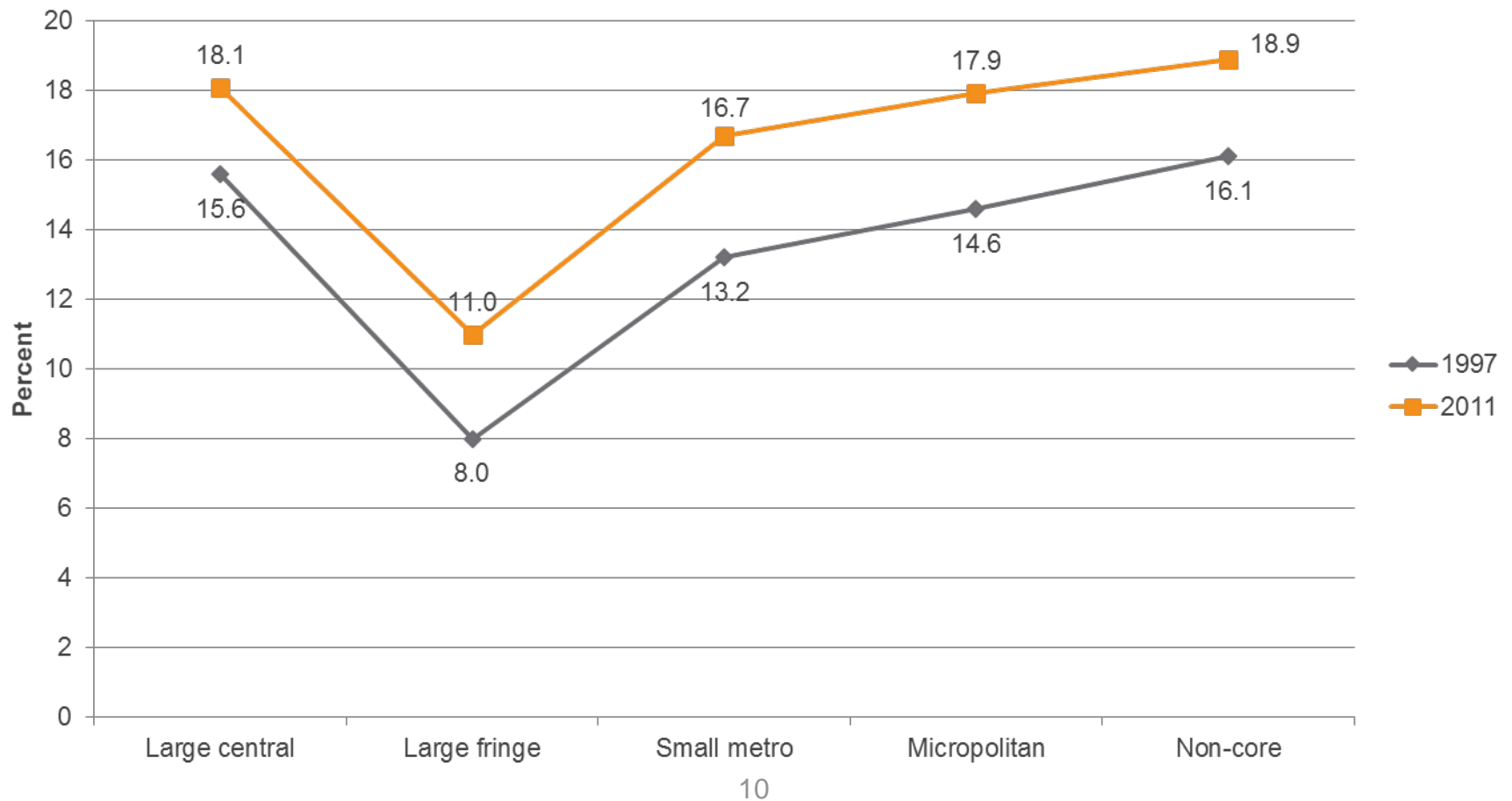
# Population: Age

## Population 65 years of age and over by rurality



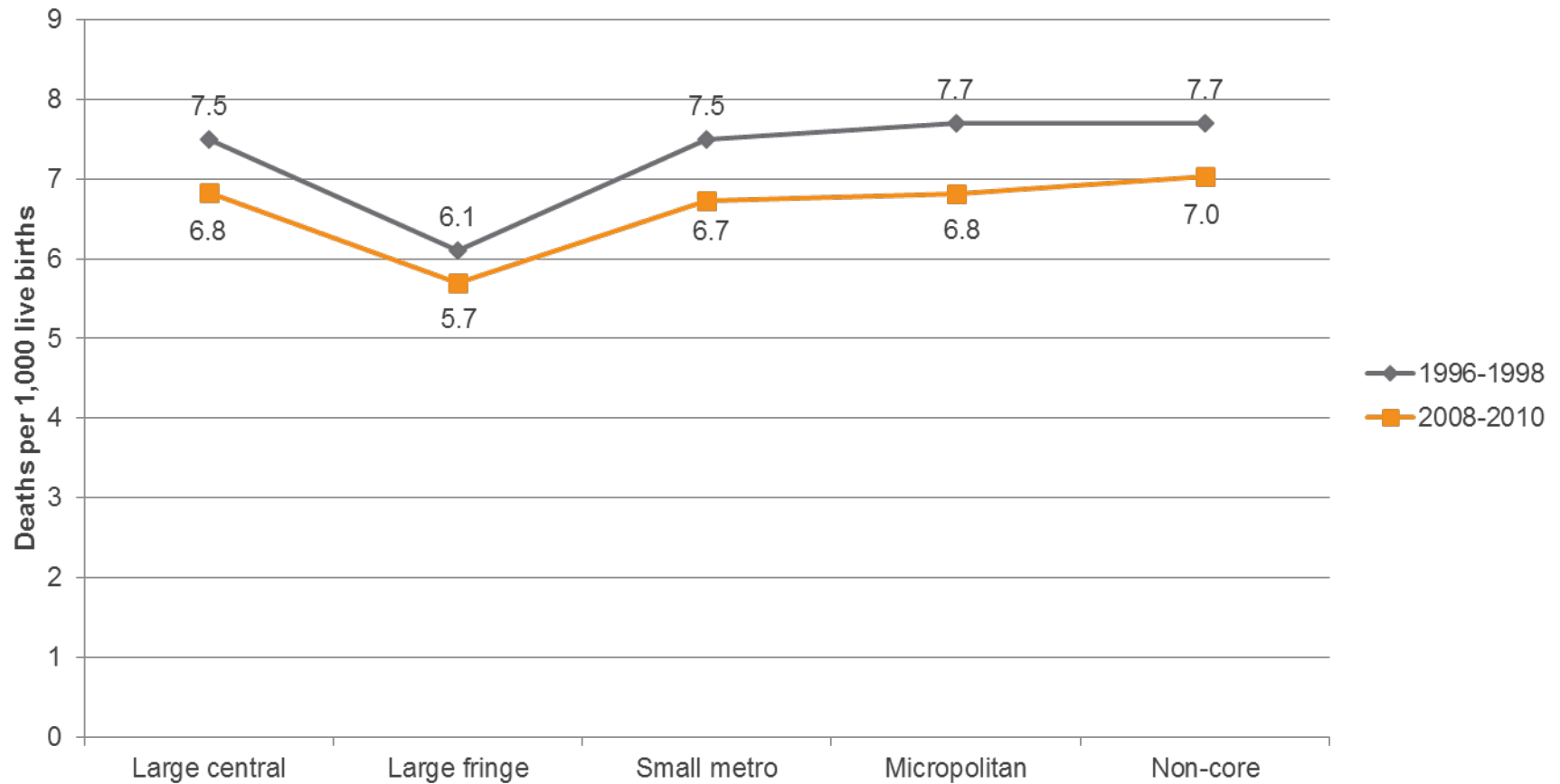
# Population: Poverty

## Population in poverty by rurality



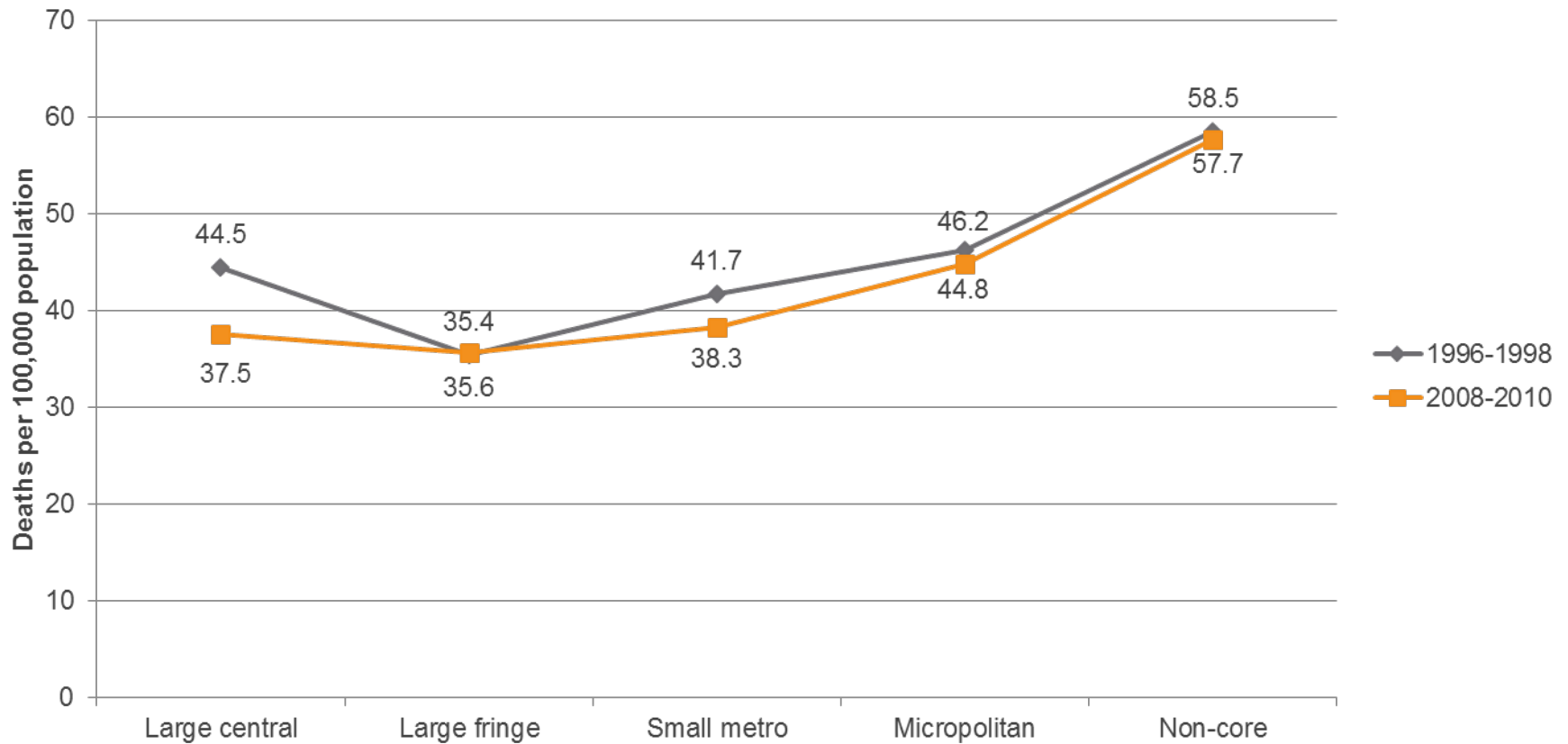
# Mortality: Infants

## Infant mortality by rurality



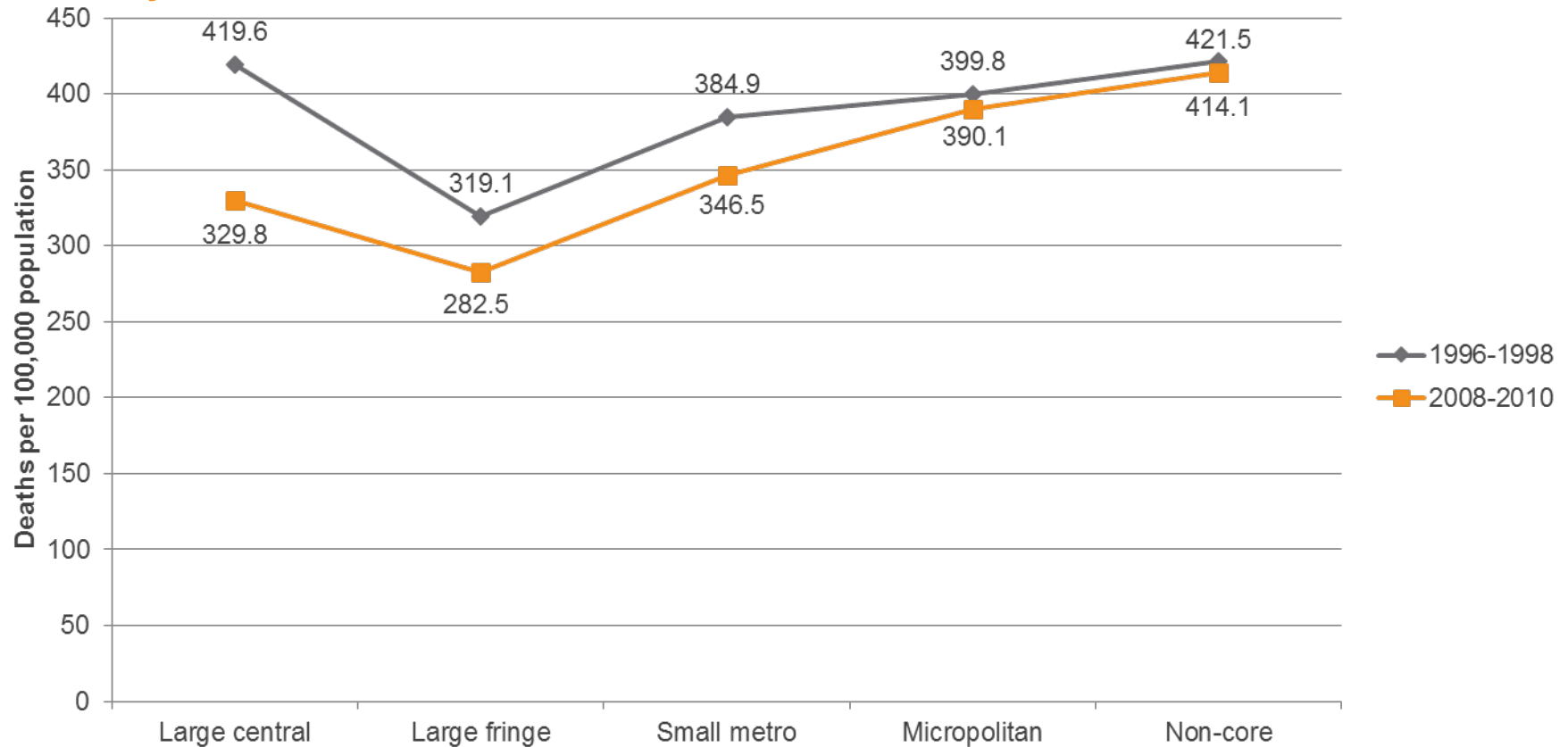
# Mortality: Children and Young Adults

Death rates for all causes among persons 1–24 years of age by rurality



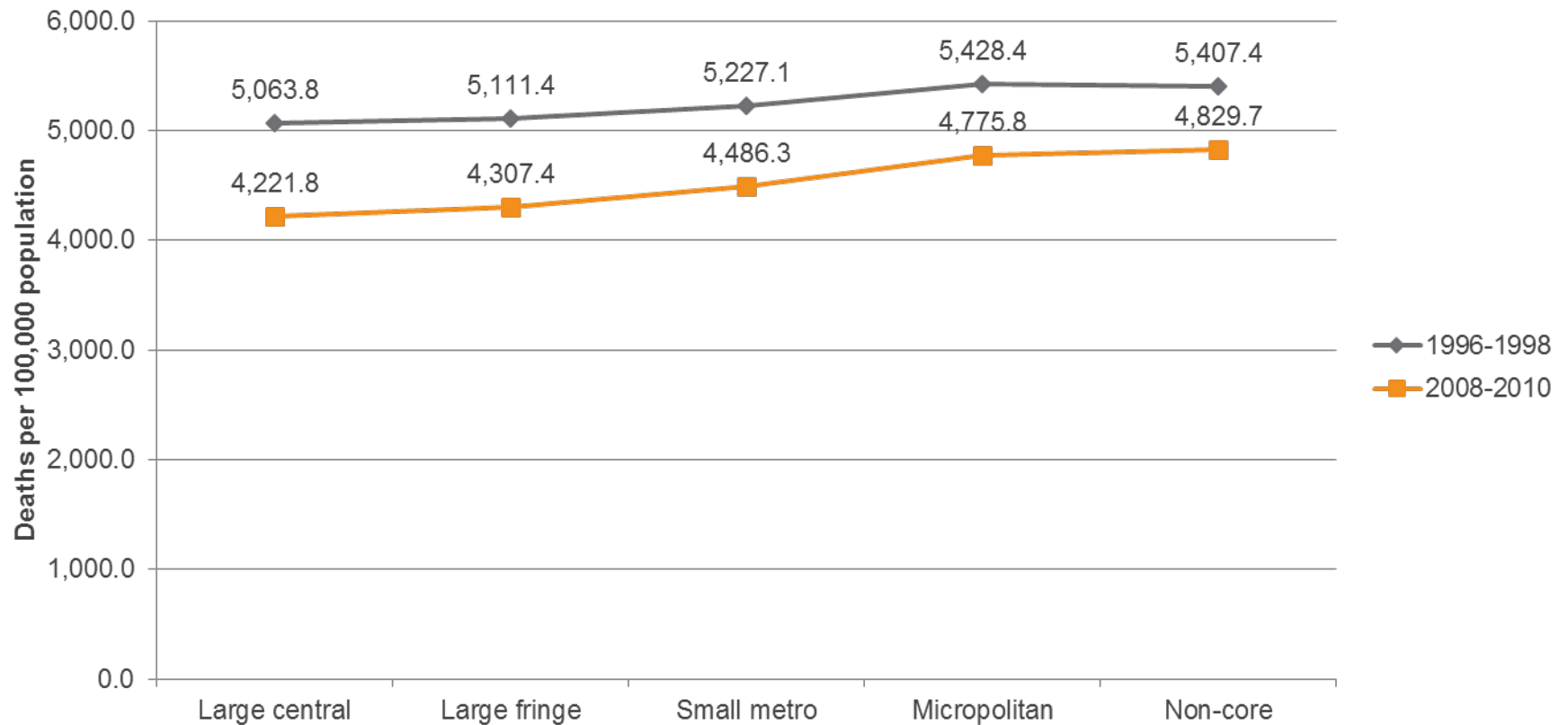
# Mortality: Working-Age Adults

Death rates for all causes among persons 25-64 years of age by rurality



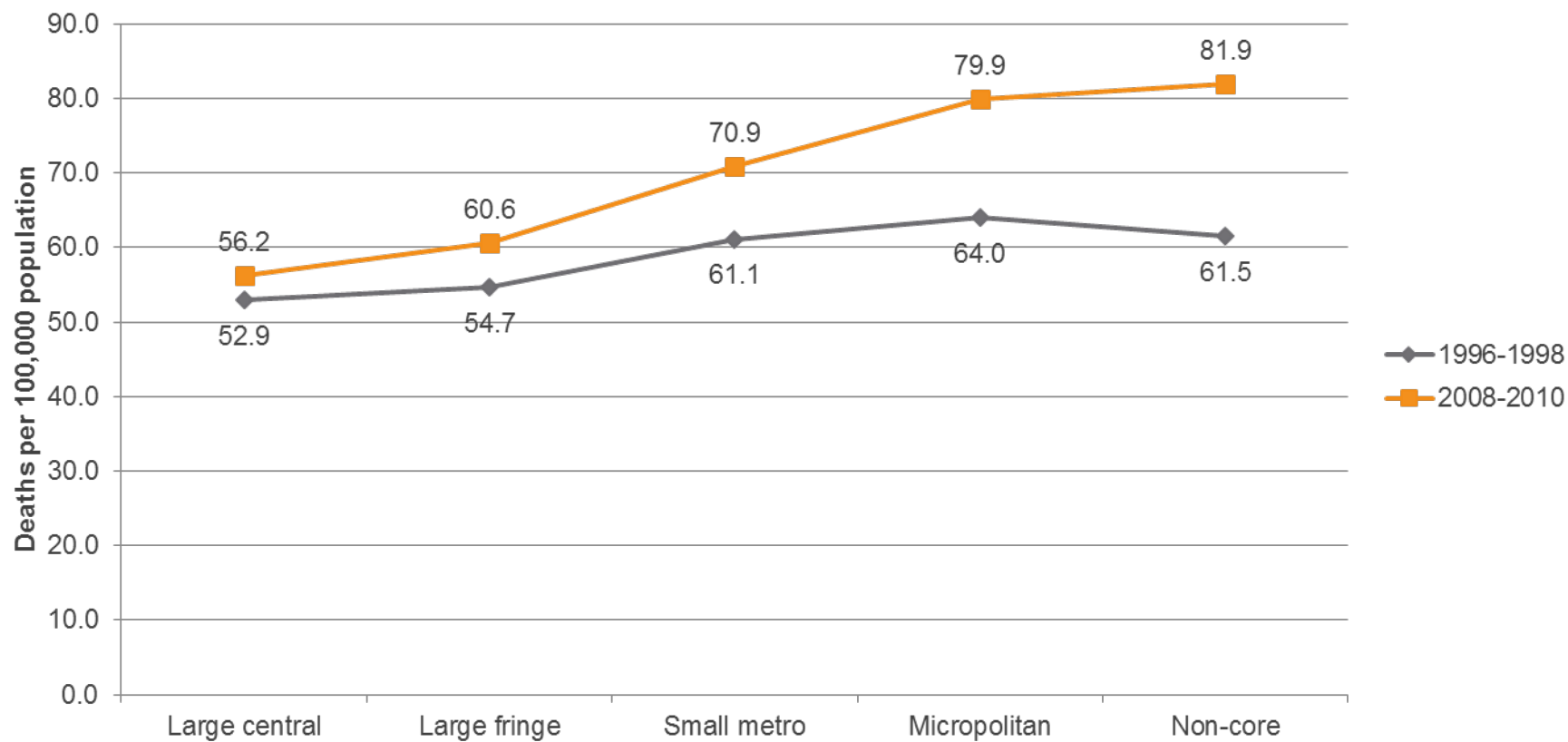
# Mortality: Seniors

Death rates for all causes among persons 65 years of age and over by rurality



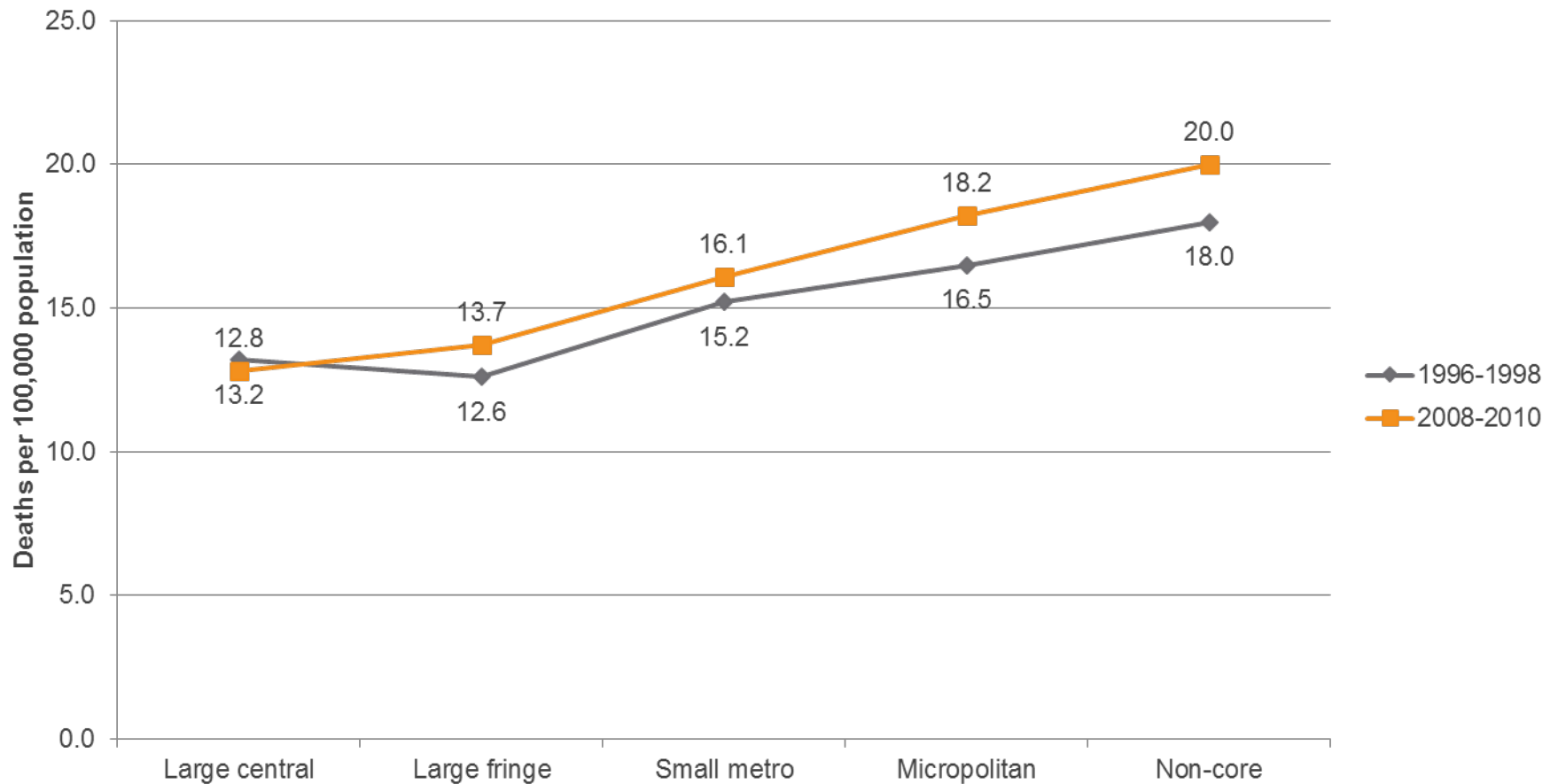
# Mortality: Chronic Obstructive Pulmonary Diseases

Death rates for chronic obstructive pulmonary diseases among persons 20 years of age and over by rurality



# Mortality: Suicide

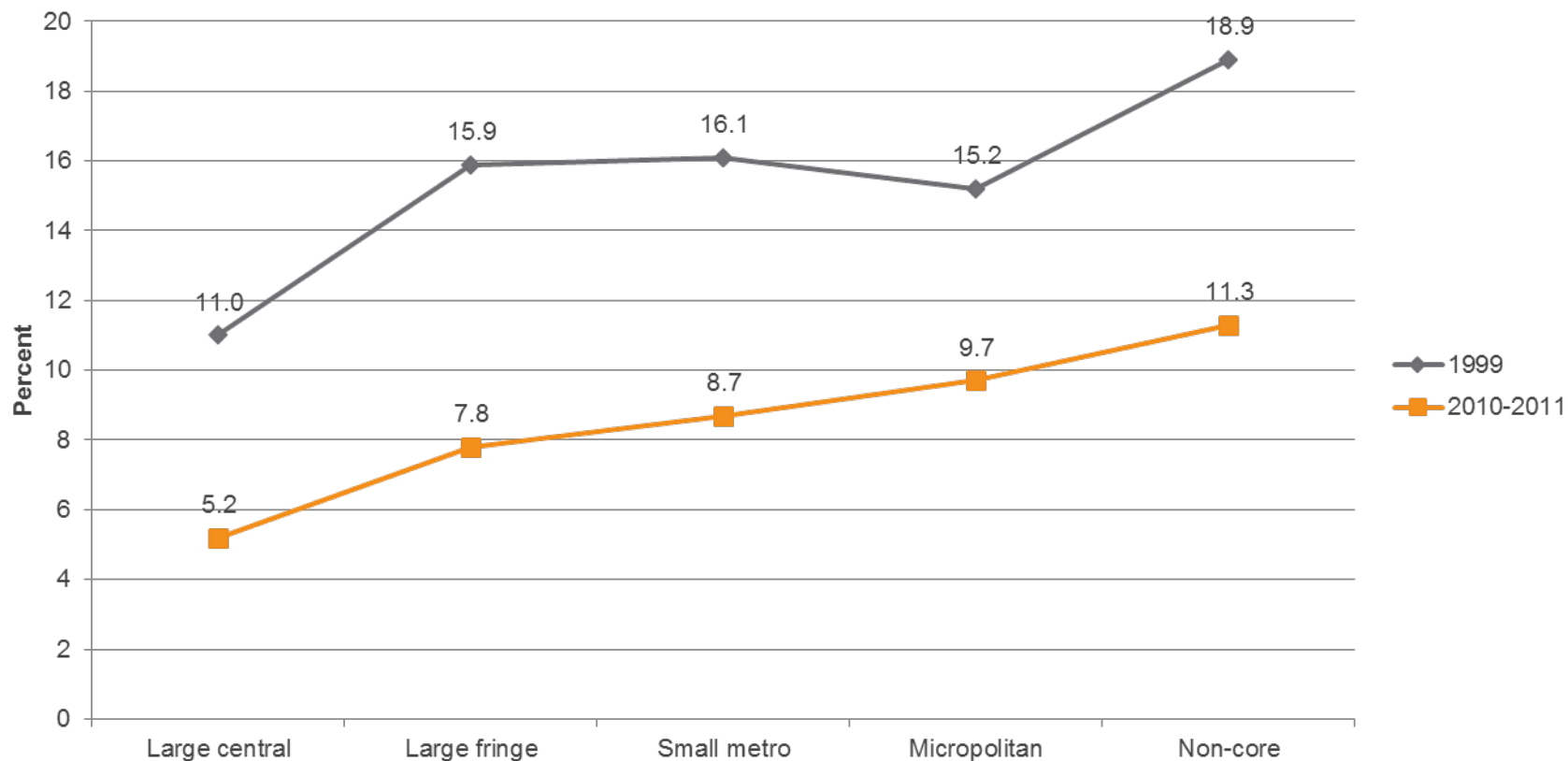
## Suicide rates among persons 15 years of age and over by rurality





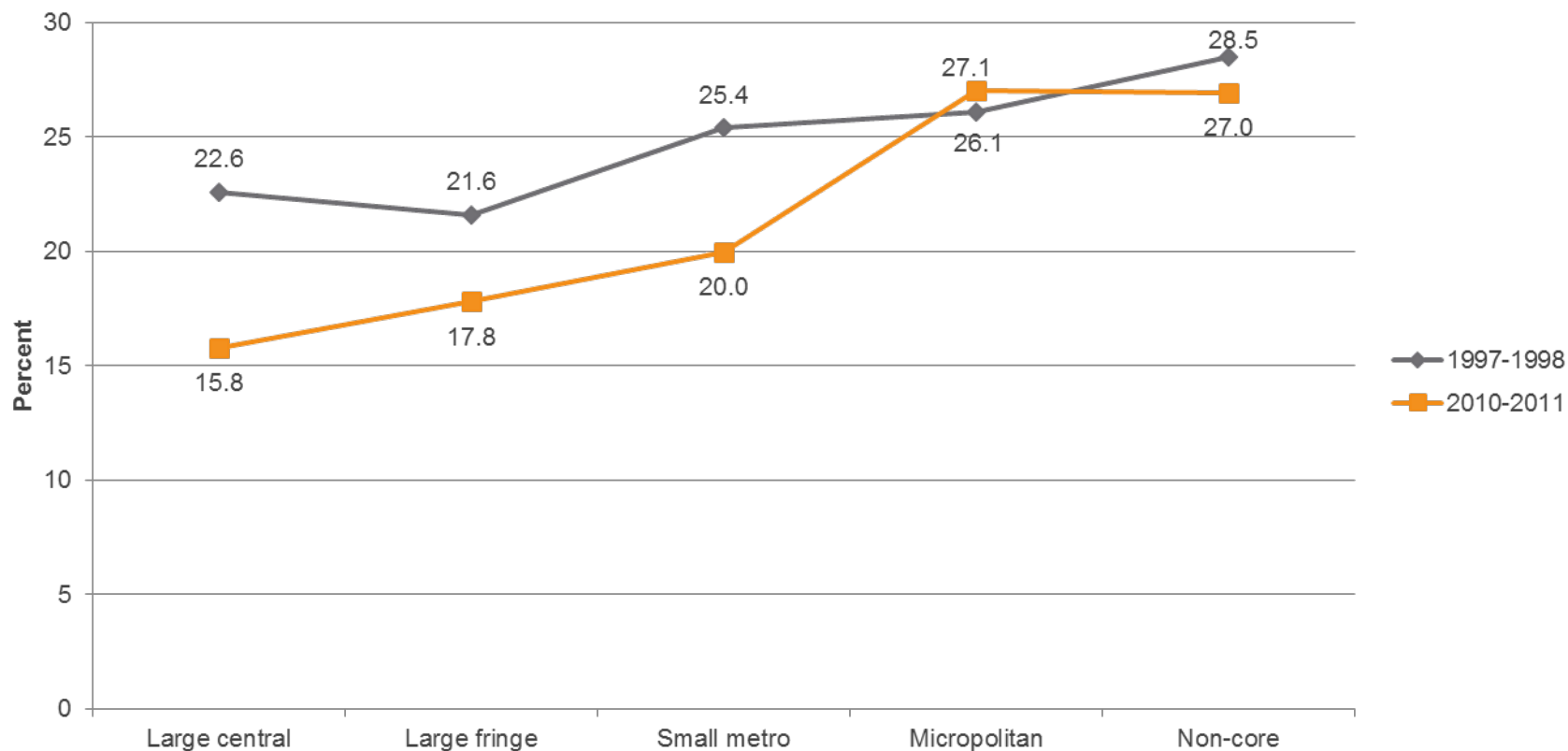
# Risk Factors: Adolescent Smoking

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



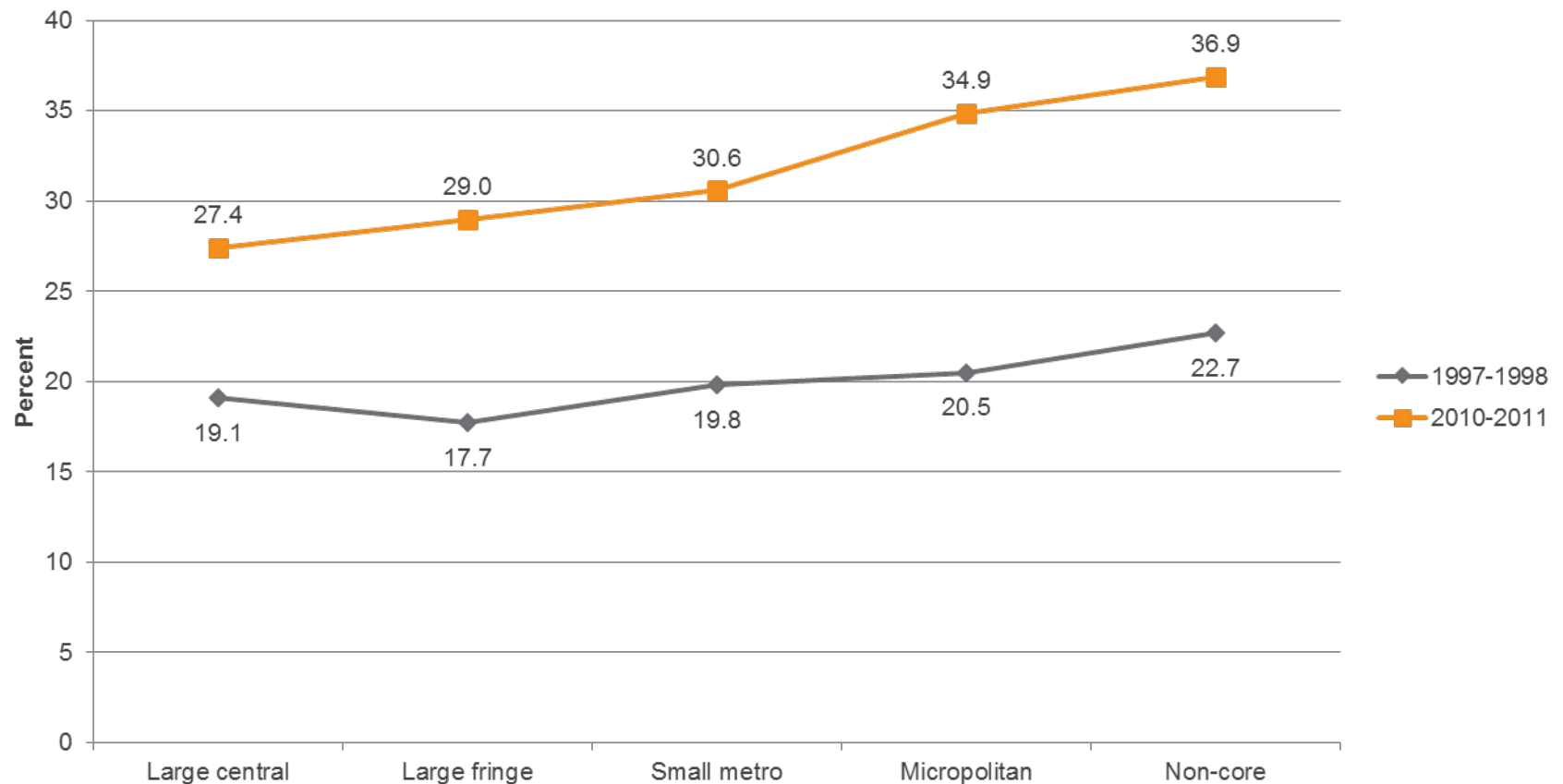
# Risk Factors: Adult Smoking

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



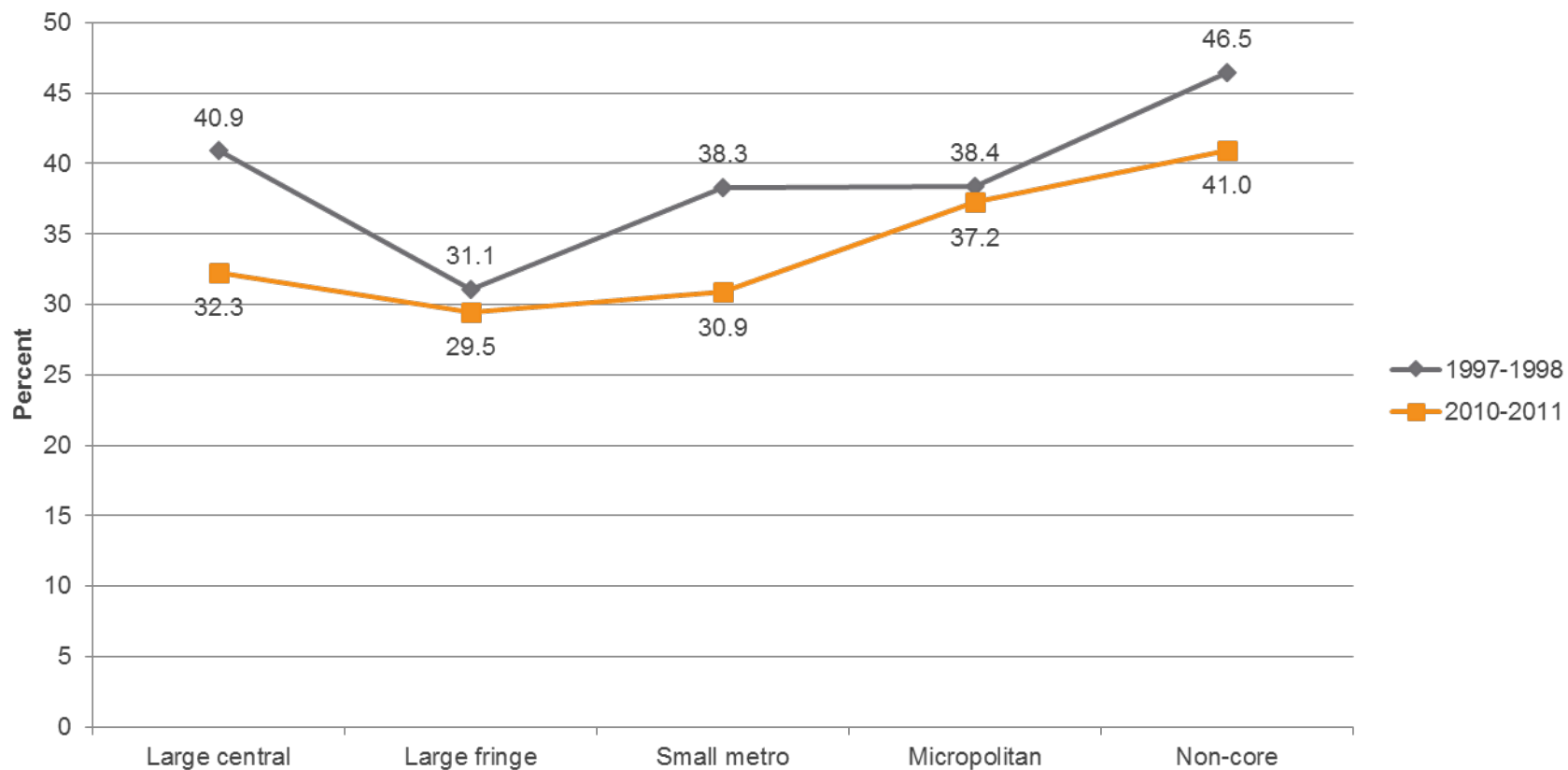
# Risk Factors: Obesity

## Obesity among persons 18 years of age and older by rurality



# Risk Factors: Physical Inactivity

Physical inactivity among persons 18 years of age and older by rurality



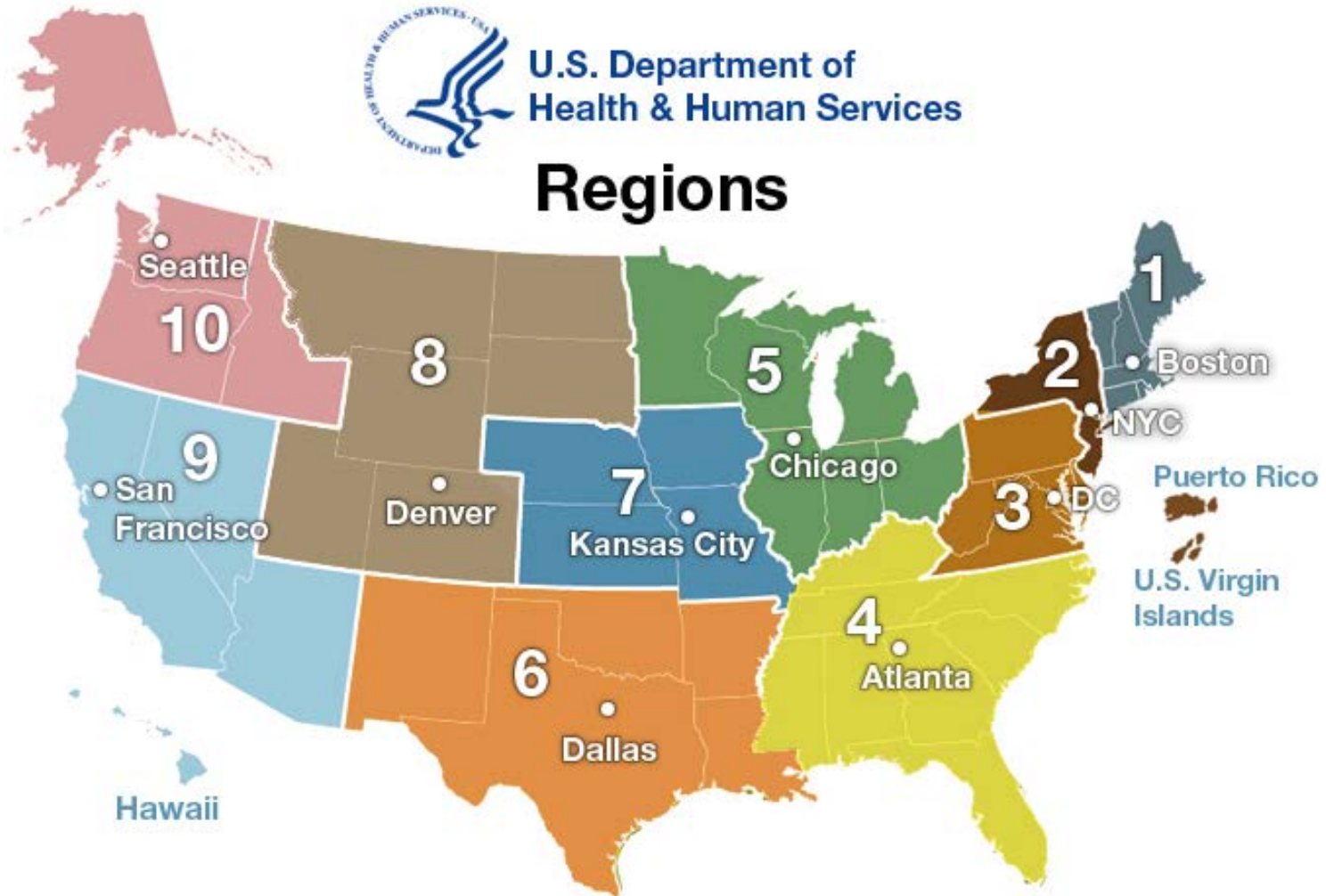
## Regional Mortality Study

- Purpose: To examine the impact of rurality on mortality and to explore the regional differences in the primary and underlying causes of death.

# Methods

- Mortality data pulled from 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

# HHS Regions



# Mortality: Short Gestation/Low birth weight – Infants (<1yr)

Mortality Rates (per 100,000 pop) by Age, Sex, HHS Region, Rural-Urban Status, and Cause

NOTE: Rates are age-adjusted for the 1 to 14 age group; Areas of the US map without a color indicate that the data for that region are either unreliable or suppressed.

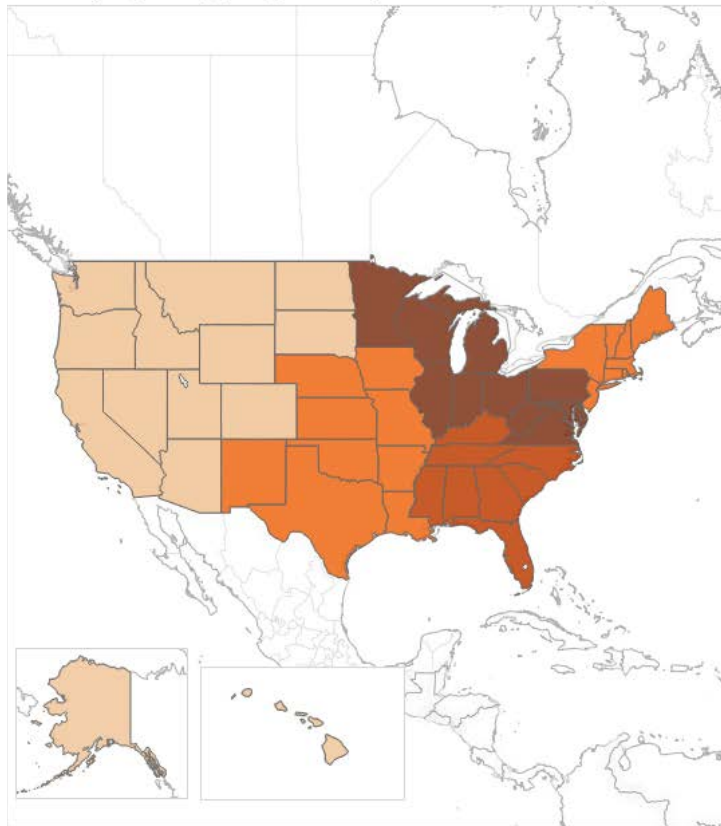
Age  
Under 1

Gender  
Both

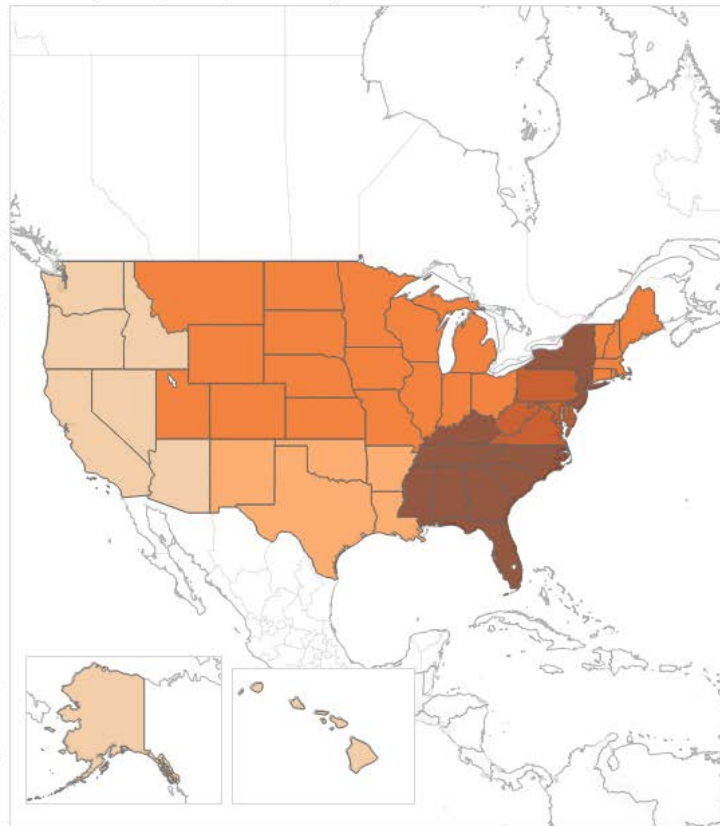
Cause of Death  
Short gestation and low birth weight



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



RURAL (Micropolitan, Non-Core)





# Mortality: Unintentional Injuries – Males, 15-24 yrs

## Mortality Rates (per 100,000 pop) by Age, Sex, HHS Region, Rural-Urban Status, and Cause

*NOTE: Rates are age-adjusted for the 1 to 14 age group; Areas of the US map without a color indicate that the data for that region are either unreliable or suppressed.*

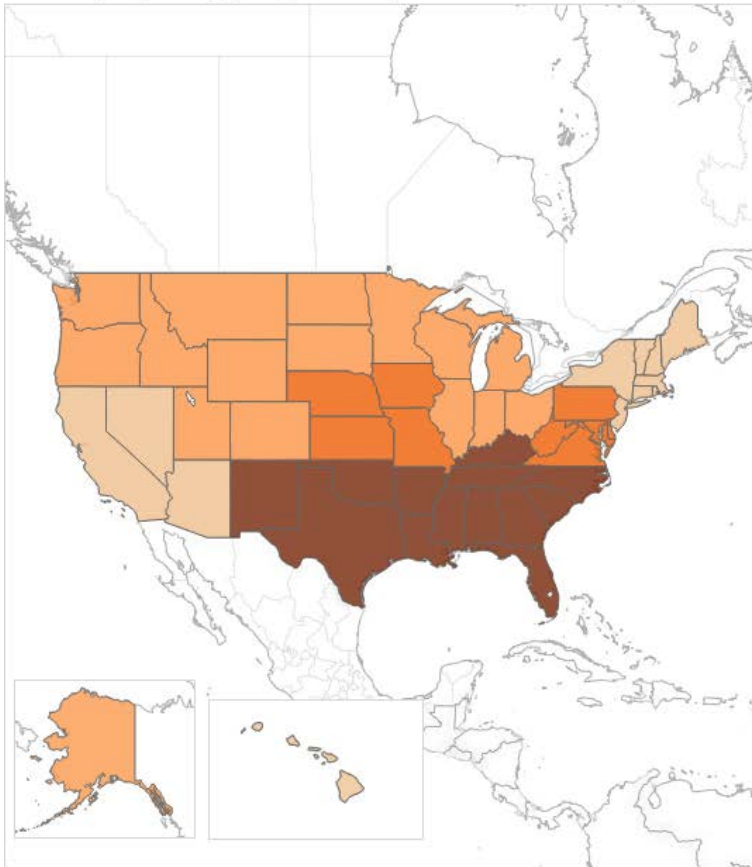
Age  
15 to 24

Gender  
Male

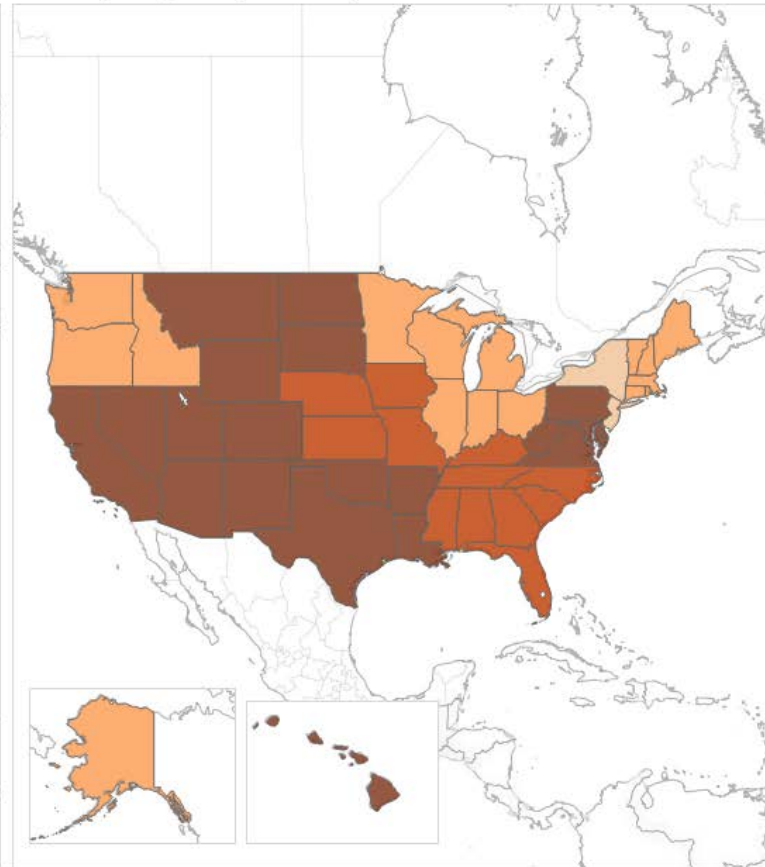
Cause of Death  
Unintentional injuries



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



RURAL (Micropolitan, Non-Core)



# Mortality: Unintentional Injuries – Females, 15-24 yrs

## Mortality Rates (per 100,000 pop) by Age, Sex, HHS Region, Rural-Urban Status, and Cause

NOTE: Rates are age-adjusted for the 1 to 14 age group; Areas of the US map without a color indicate that the data for that region are either unreliable or suppressed.

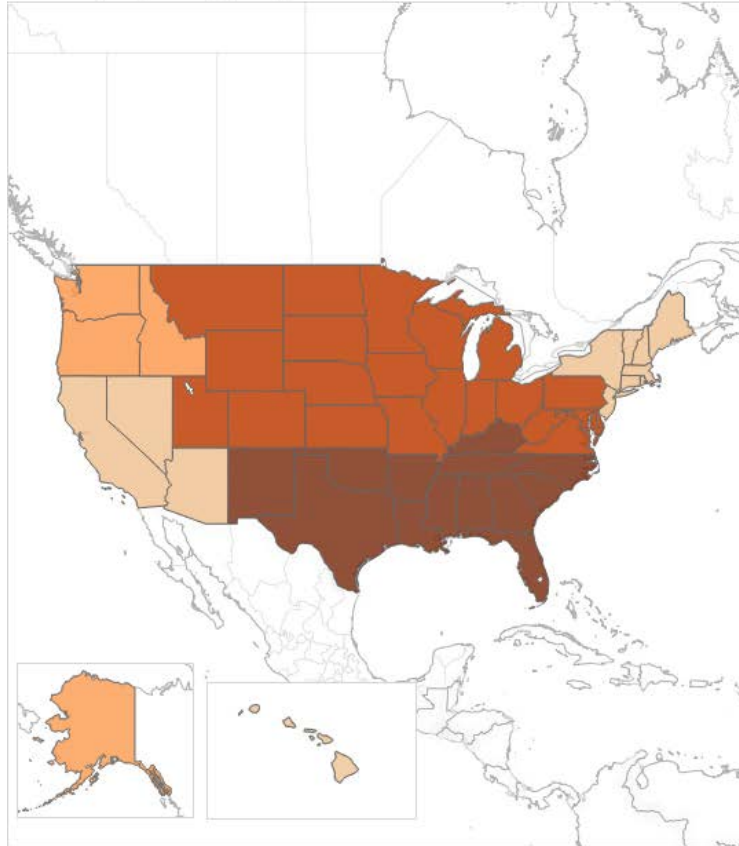
Age  
15 to 24

Gender  
Female

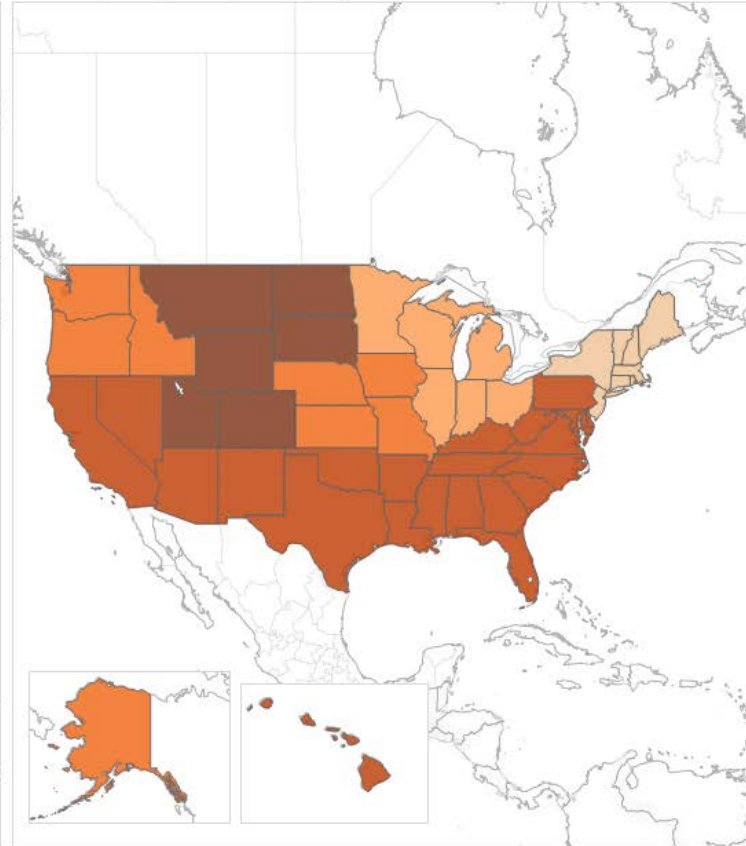
Cause of Death  
Unintentional injuries



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



RURAL (Micropolitan, Non-Core)



# Mortality: Unintentional Injuries – Males, 25-64 yrs

**Mortality Rates (per 100,000 pop) by Age, Sex, HHS Region, Rural-Urban Status, and Cause**

*NOTE: Rates are age-adjusted; Areas of the US map without a color indicate that the data for that region are either unreliable or suppressed.*

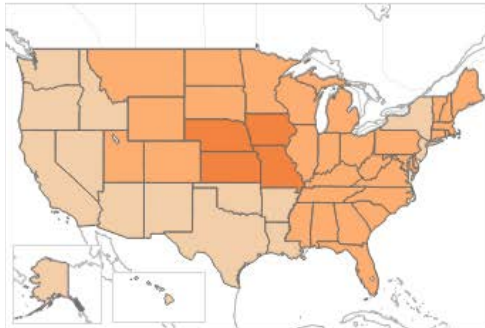
Age  
25 to 64

Gender  
Male

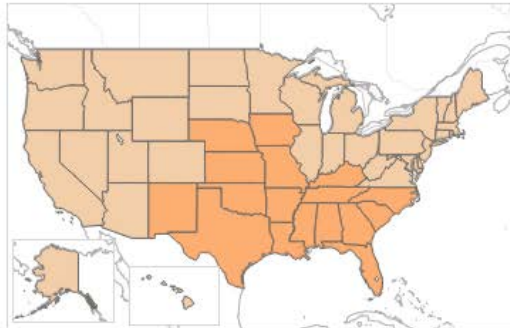
Cause of Death  
Unintentional injuries



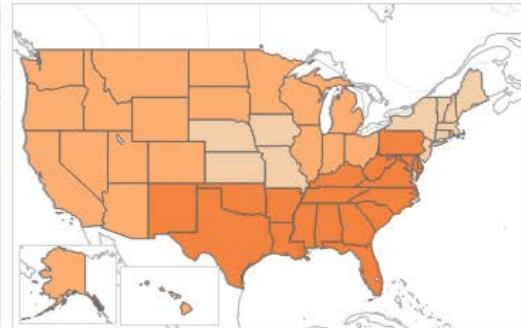
**LARGE CENTRAL**



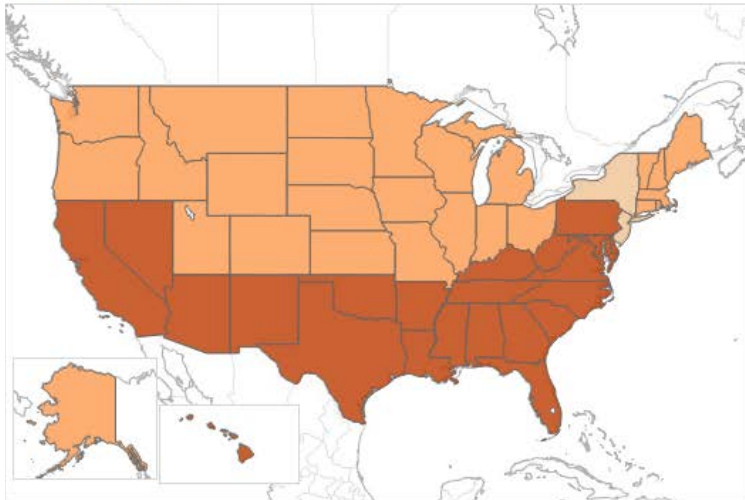
**LARGE FRINGE**



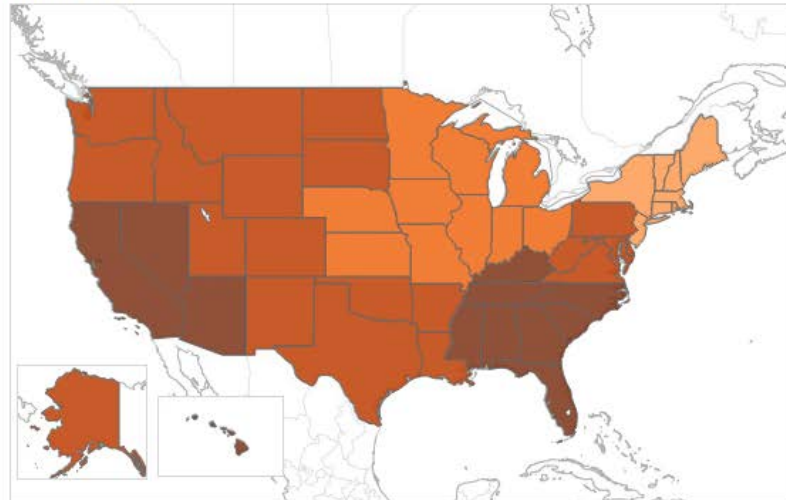
**SMALL/MEDIUM METROPOLITAN**



**MICROPOLITAN**



**NON-CORE**





# Mortality: Unintentional Injuries – Females, 25-64 yrs

**Mortality Rates (per 100,000 pop) by Age, Sex, HHS Region, Rural-Urban Status, and Cause**

*NOTE: Rates are age-adjusted; Areas of the US map without a color indicate that the data for that region are either unreliable or suppressed.*

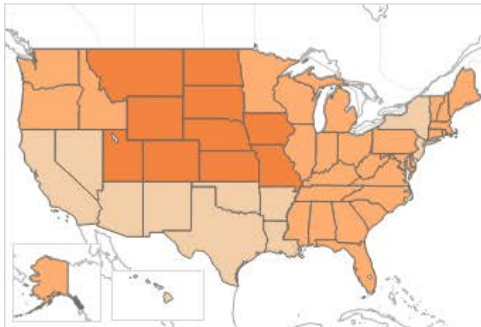
Age  
25 to 64

Gender  
Female

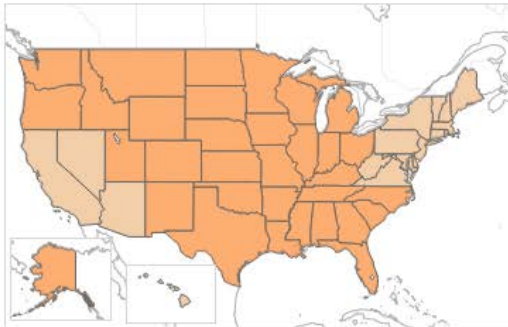
Cause of Death  
Unintentional injuries



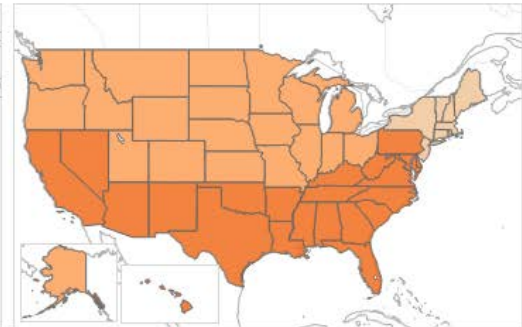
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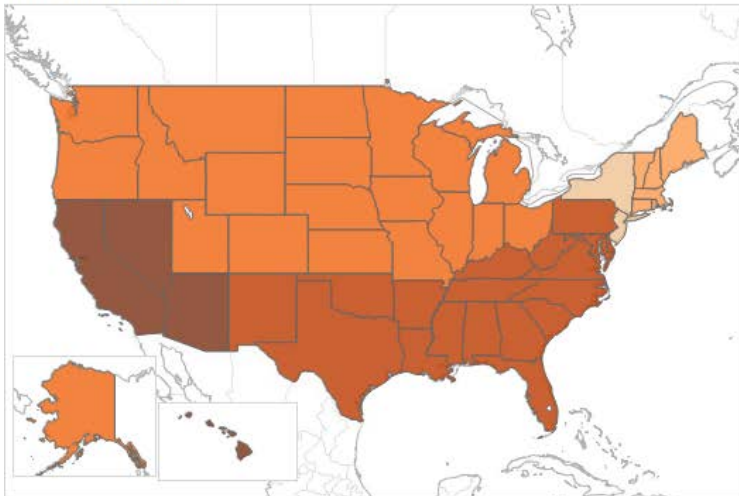
**LARGE FRINGE**



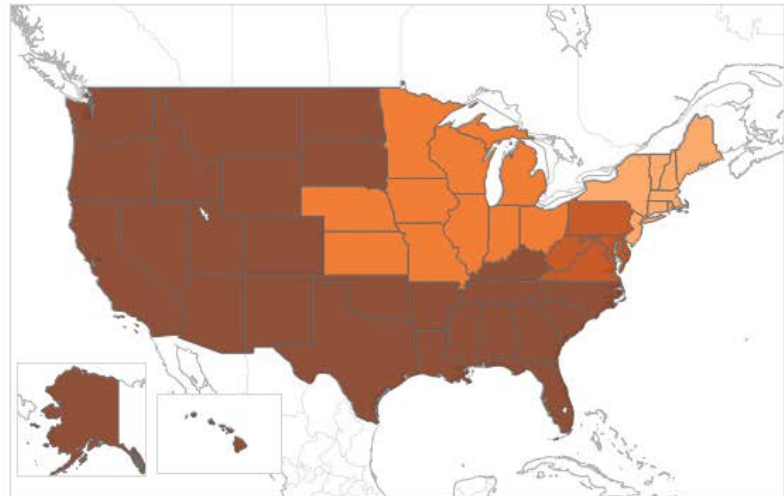
**SMALL/MEDIUM METROPOLITAN**



**MICROPOLITAN**



**NON-CORE**



# Mortality: Suicide— Males, 15-24 yrs

**Mortality Rates (per 100,000 pop) by Age, Sex, HHS Region, Rural-Urban Status, and Cause**

*NOTE: Rates are age-adjusted for the 1 to 14 age group; Areas of the US map without a color indicate that the data for that region are either unreliable or suppressed.*

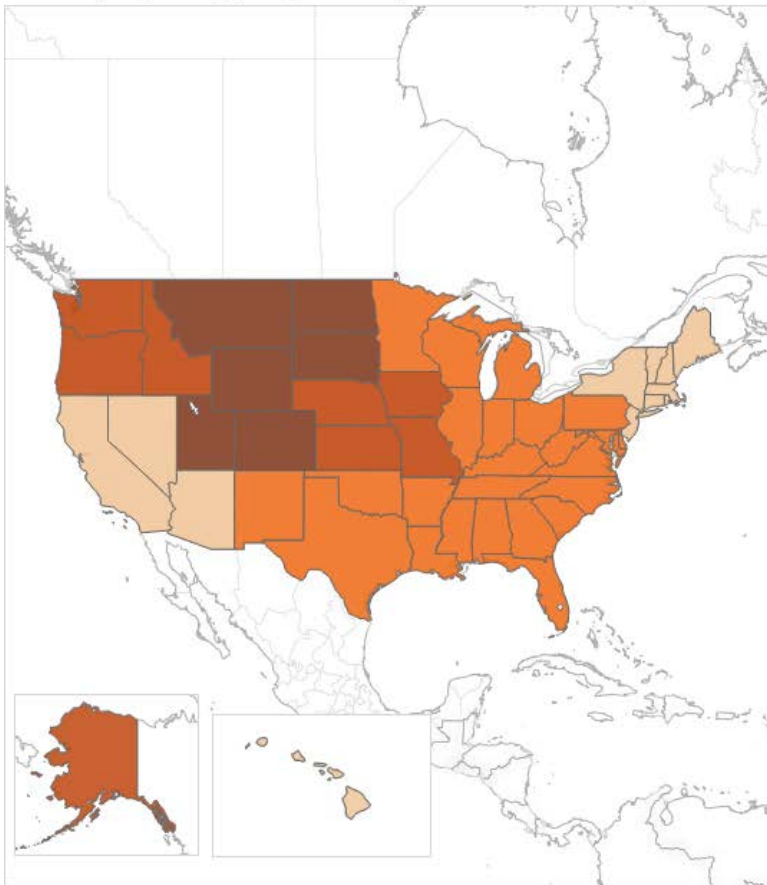
Age  
15 to 24

Gender  
Male

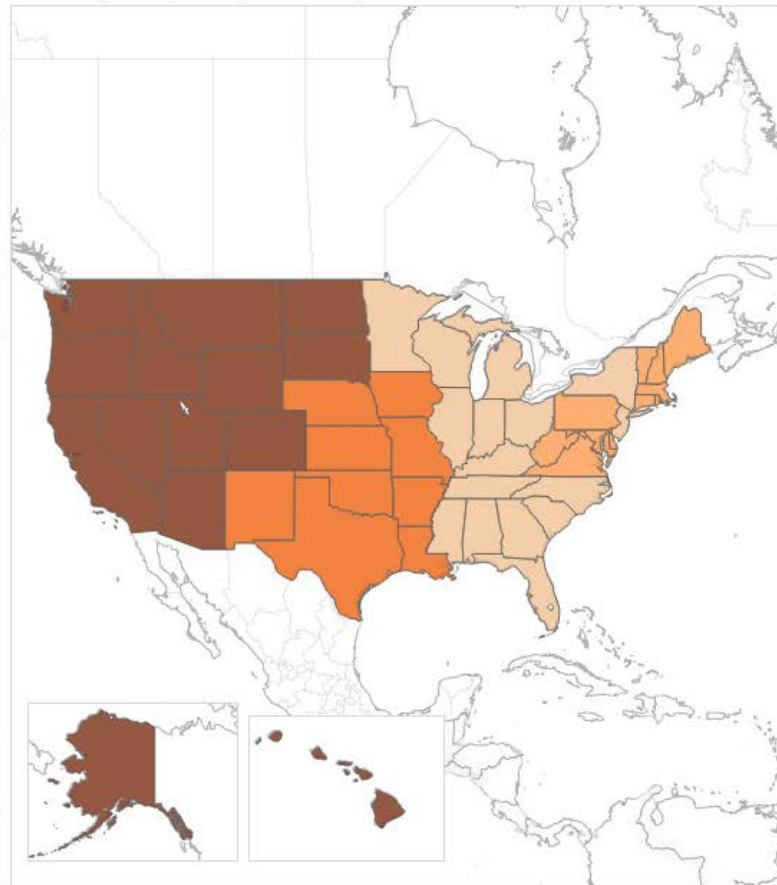
Cause of Death  
Suicide



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



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



# Mortality: Suicide— Females, 15-24 yrs

**Mortality Rates (per 100,000 pop) by Age, Sex, HHS Region, Rural-Urban Status, and Cause**

*NOTE: Rates are age-adjusted for the 1 to 14 age group; Areas of the US map without a color indicate that the data for that region are either unreliable or suppressed.*

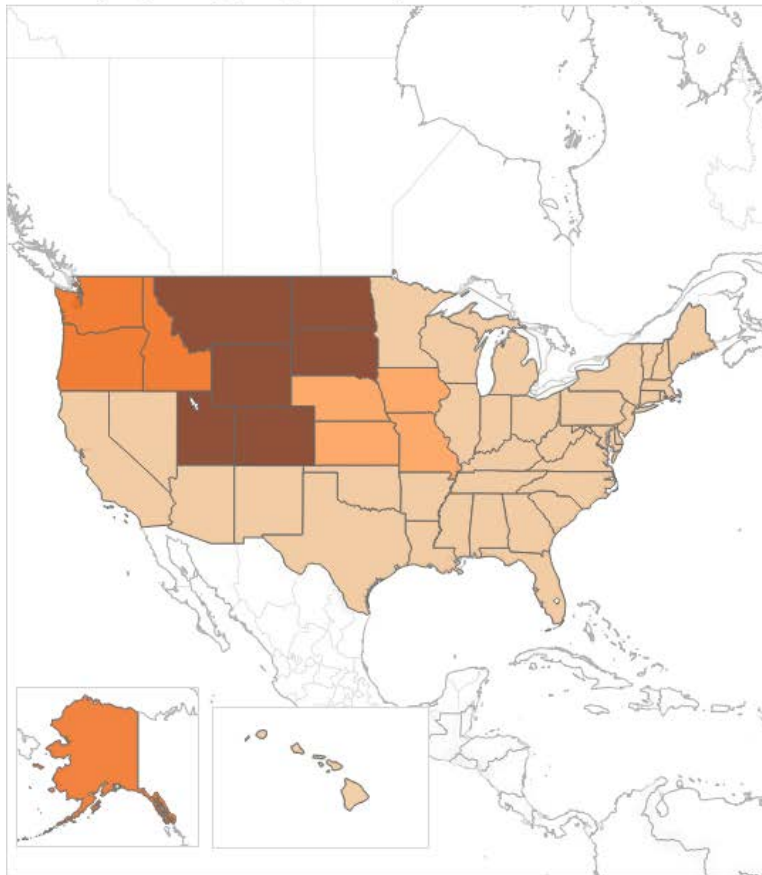
Age  
15 to 24

Gender  
Female

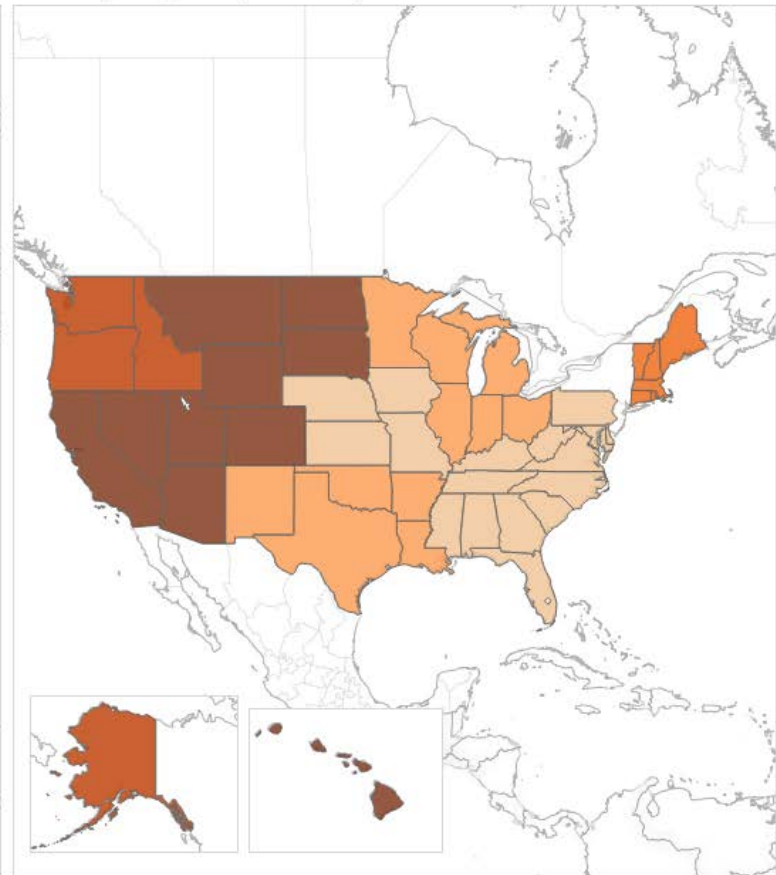
Cause of Death  
Suicide



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



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





# Mortality: Diabetes – Males, 25 – 64 yrs

## Mortality Rates (per 100,000 pop) by Age, Sex, HHS Region, Rural-Urban Status, and Cause

NOTE: Rates are age-adjusted; Areas of the US map without a color indicate that the data for that region are either unreliable or suppressed.

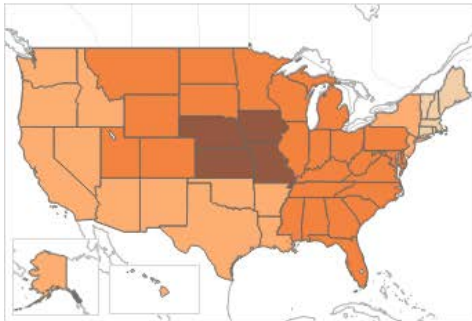
Age  
25 to 64

Gender  
Male

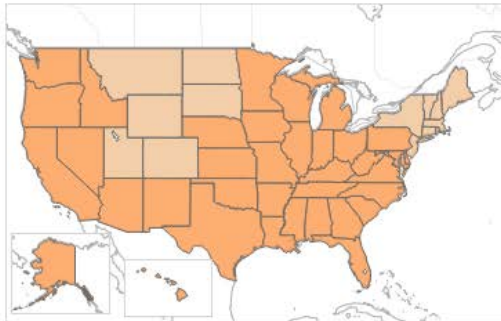
Cause of Death  
Diabetes



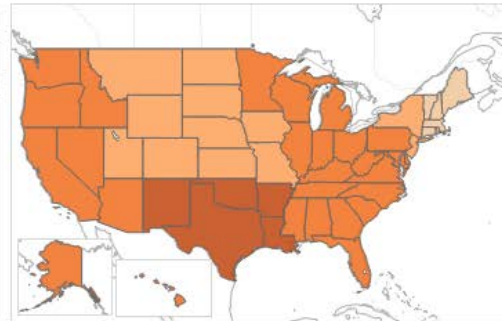
LARGE CENTRAL



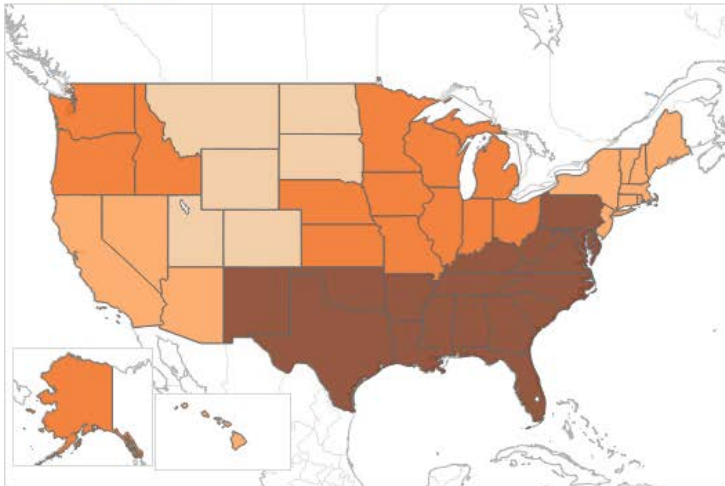
LARGE FRINGE



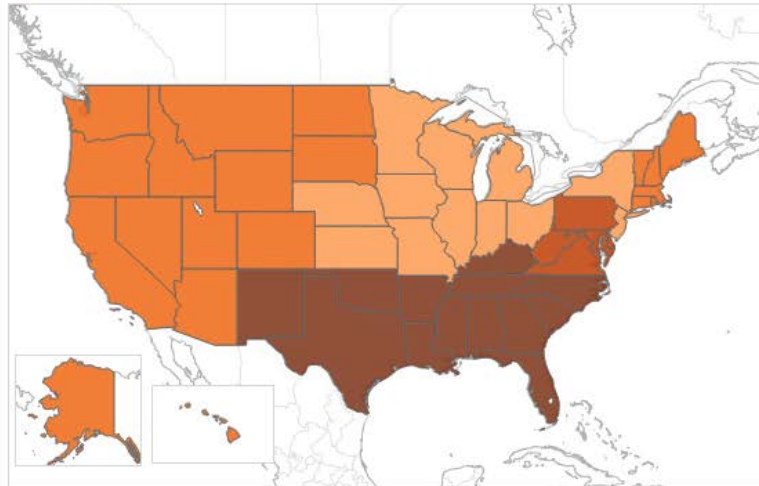
SMALL/MEDIUM METROPOLITAN



MICROPOLITAN



NON-CORE



# Mortality Index: Diabetes – Males, 25 – 64 yrs; HHS Region 4

Age  
25 to 64

Male

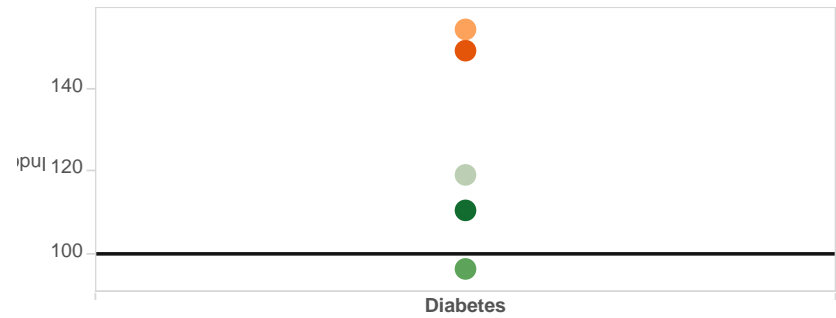
Diabetes

HHS Region #4 AL, FL, GA, KY, MS, NC, SC, TN

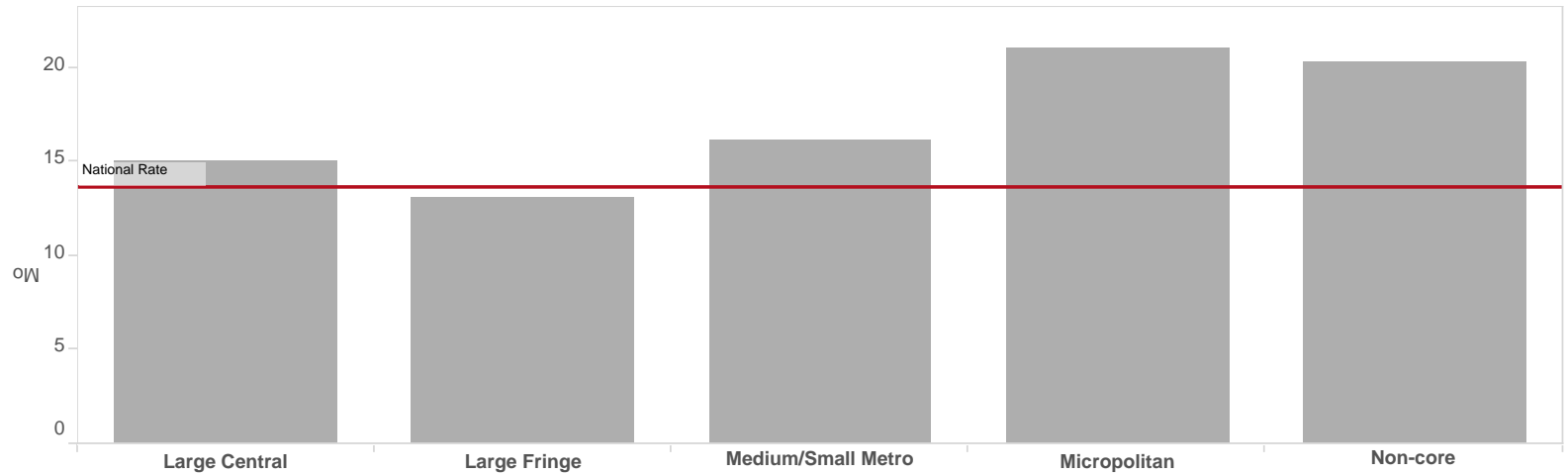
Mortality Index: Male; 25 to 64; Diabetes; HHS Region #4 AL, FL, GA, KY, MS, NC, SC, TN  
\*The line where Index=100 indicates the point at which the Regional and National rates are equal.

**Rural-Urban Status**

- Large Central
- Large Fringe
- Medium/Small Metro
- Micropolitan
- Non-core



Mortality Rates: Male; 25 to 64; Diabetes; HHS Region #4 AL, FL, GA, KY, MS, NC, SC, TN





# Mortality: Diabetes – Females, 25-64 yrs

**Mortality Rates (per 100,000 pop) by Age, Sex, HHS Region, Rural-Urban Status, and Cause**

*NOTE: Rates are age-adjusted; Areas of the US map without a color indicate that the data for that region are either unreliable or suppressed.*

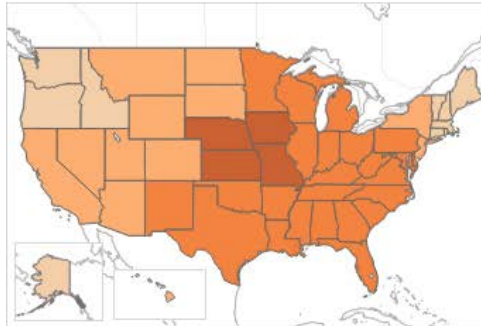
Age  
25 to 64

Gender  
Female

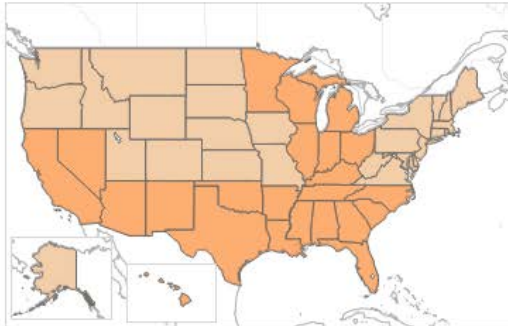
Cause of Death  
Diabetes



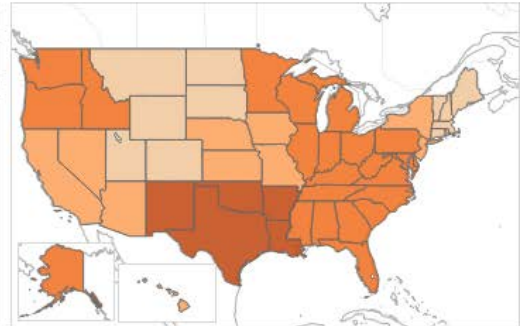
**LARGE CENTRAL**



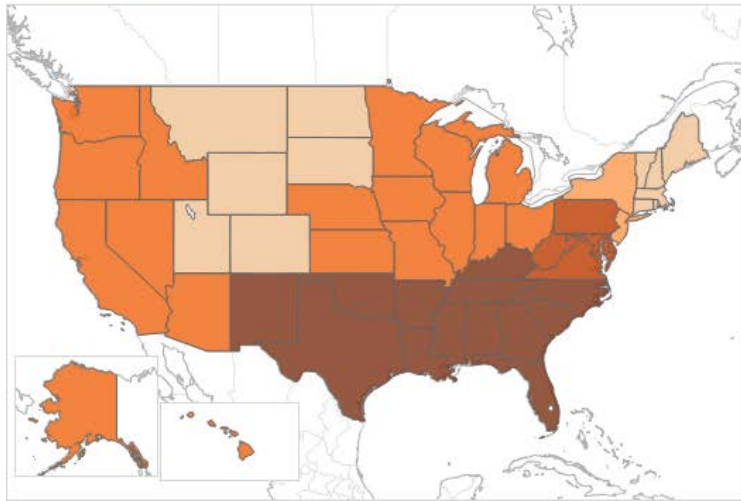
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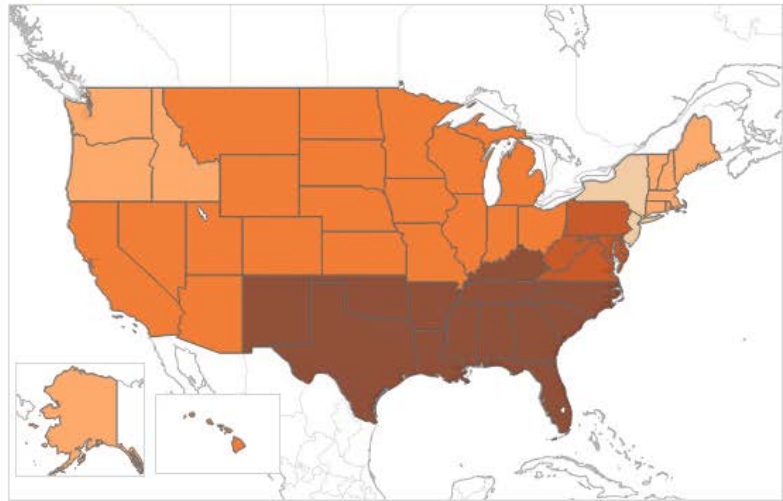
**SMALL/MEDIUM METROPOLITAN**



**MICROPOLITAN**



**NON-CORE**



# Mortality: Heart Disease – Males, 25-64 yrs

## Mortality Rates (per 100,000 pop) by Age, Sex, HHS Region, Rural-Urban Status, and Cause

NOTE: Rates are age-adjusted; Areas of the US map without a color indicate that the data for that region are either unreliable or suppressed.

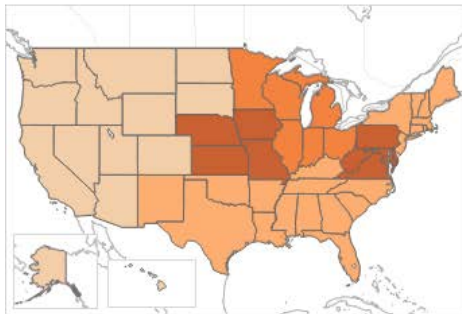
Age  
25 to 64

Gender  
Male

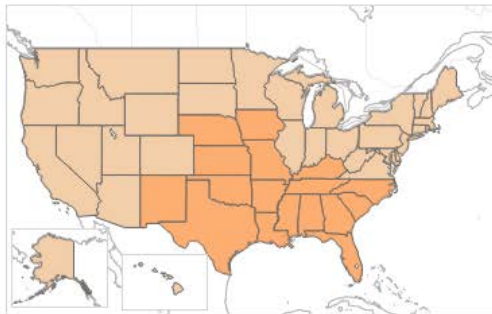
Cause of Death  
Heart disease



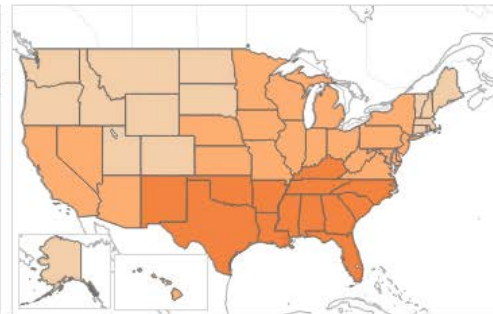
LARGE CENTRAL



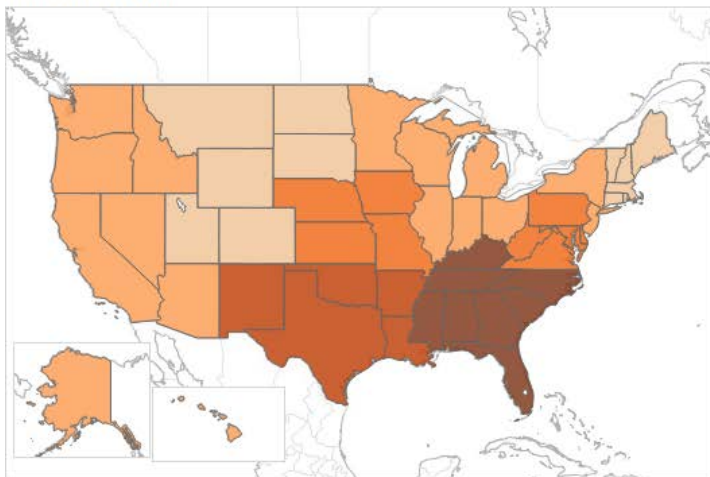
LARGE FRINGE



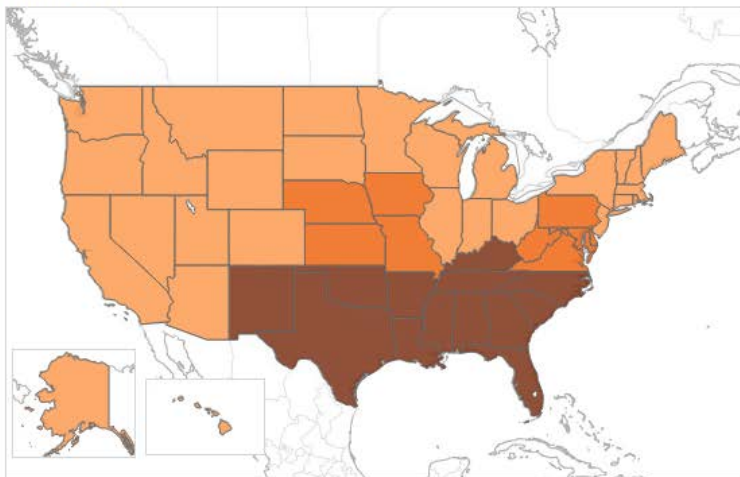
SMALL/MEDIUM METROPOLITAN



MICROPOLITAN



NON-CORE



# Mortality: Heart Disease – Females, 25-64 yrs

## Mortality Rates (per 100,000 pop) by Age, Sex, HHS Region, Rural-Urban Status, and Cause

NOTE: Rates are age-adjusted; Areas of the US map without a color indicate that the data for that region are either unreliable or suppressed.

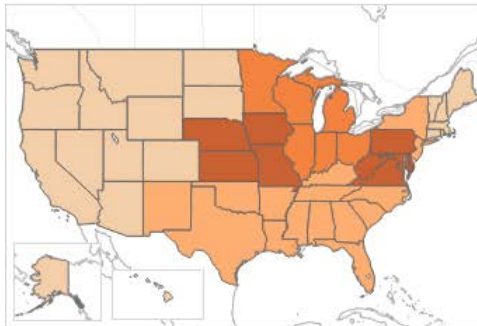
Age  
25 to 64

Gender  
Female

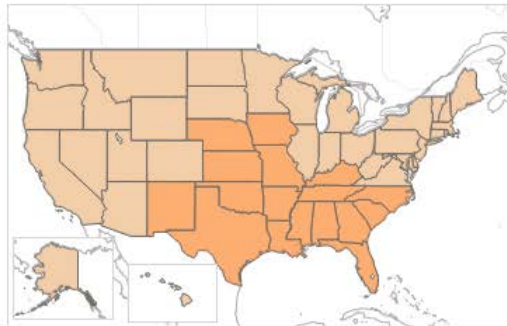
Cause of Death  
Heart disease



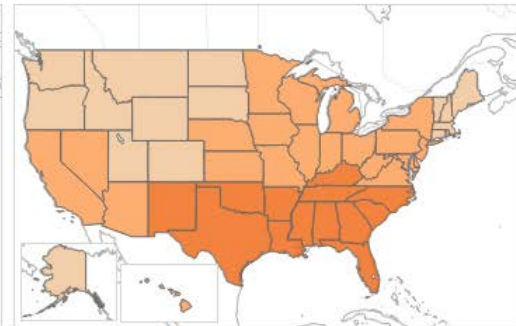
LARGE CENTRAL



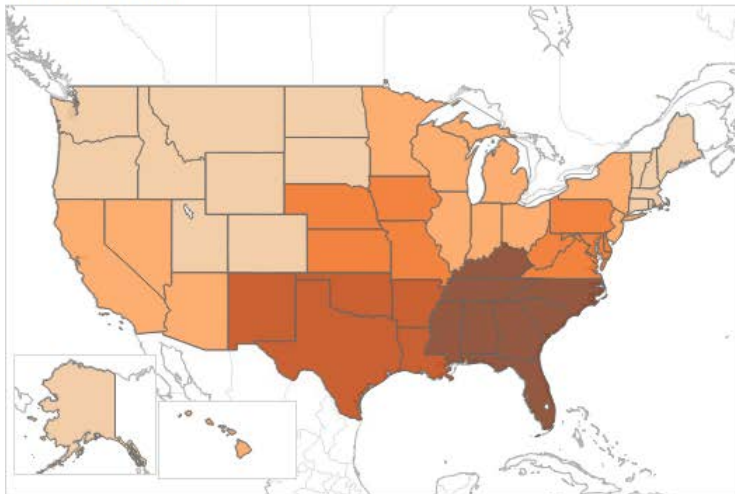
LARGE FRINGE



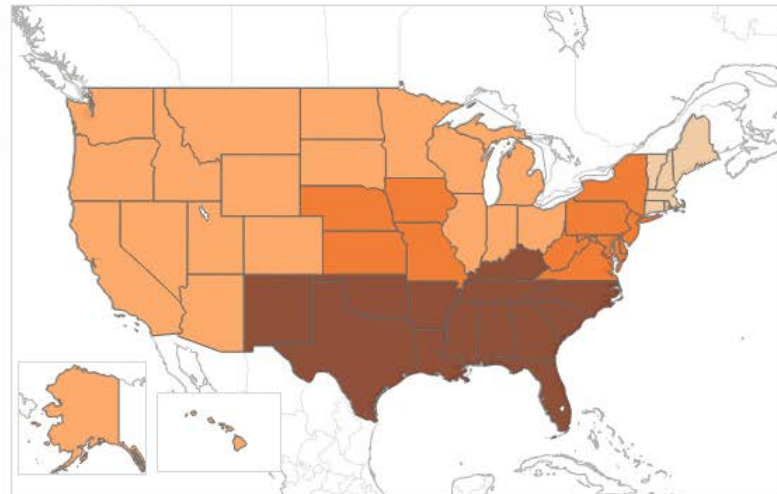
SMALL/MEDIUM METROPOLITAN



MICROPOLITAN



NON-CORE



# Mortality Index: Heart Disease – Females, 25-64 yrs, HHS Region 4

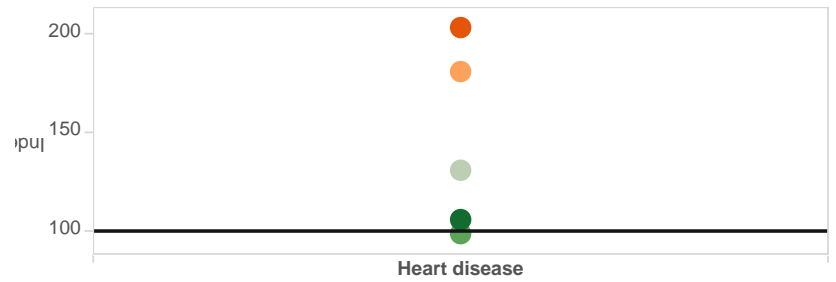
Age  
25 to 64

Female

Heart disease

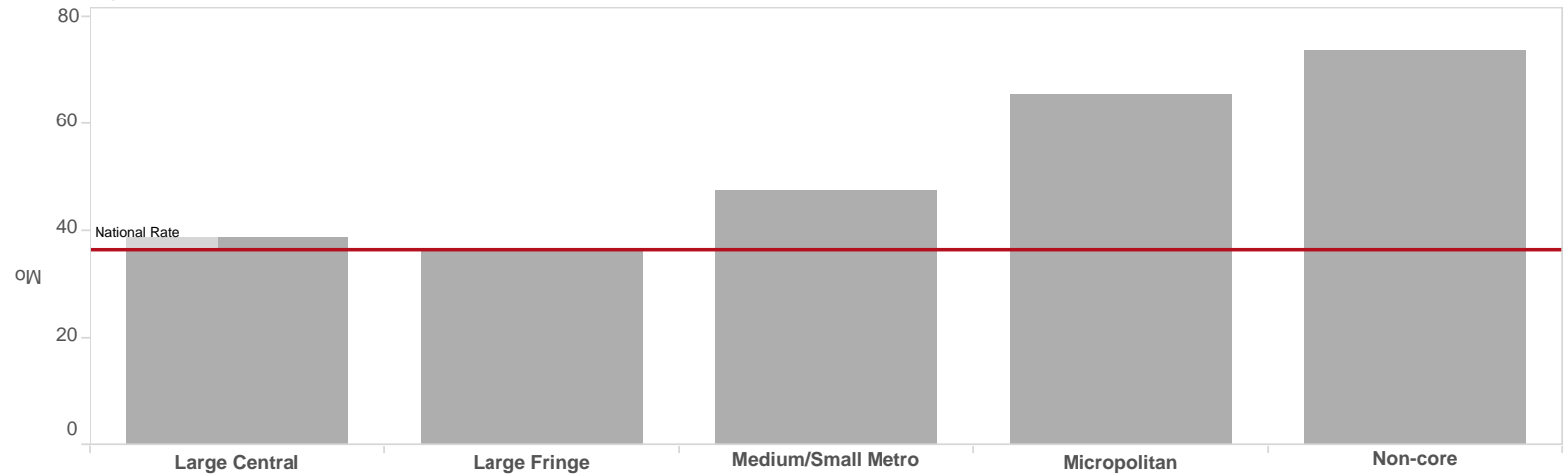
HHS Region #4 AL, FL, GA, KY, MS, NC, SC, TN

Mortality Index: Female; 25 to 64; Heart disease; HHS Region #4 AL, FL, GA, KY, MS, NC, SC, TN  
\*The line where Index=100 indicates the point at which the Regional and National rates are equal.



- Rural-Urban Status**
- Large Central
  - Large Fringe
  - Medium/Small Metro
  - Micropolitan
  - Non-core

Mortality Rates: Female; 25 to 64; Heart disease; HHS Region #4 AL, FL, GA, KY, MS, NC, SC, TN



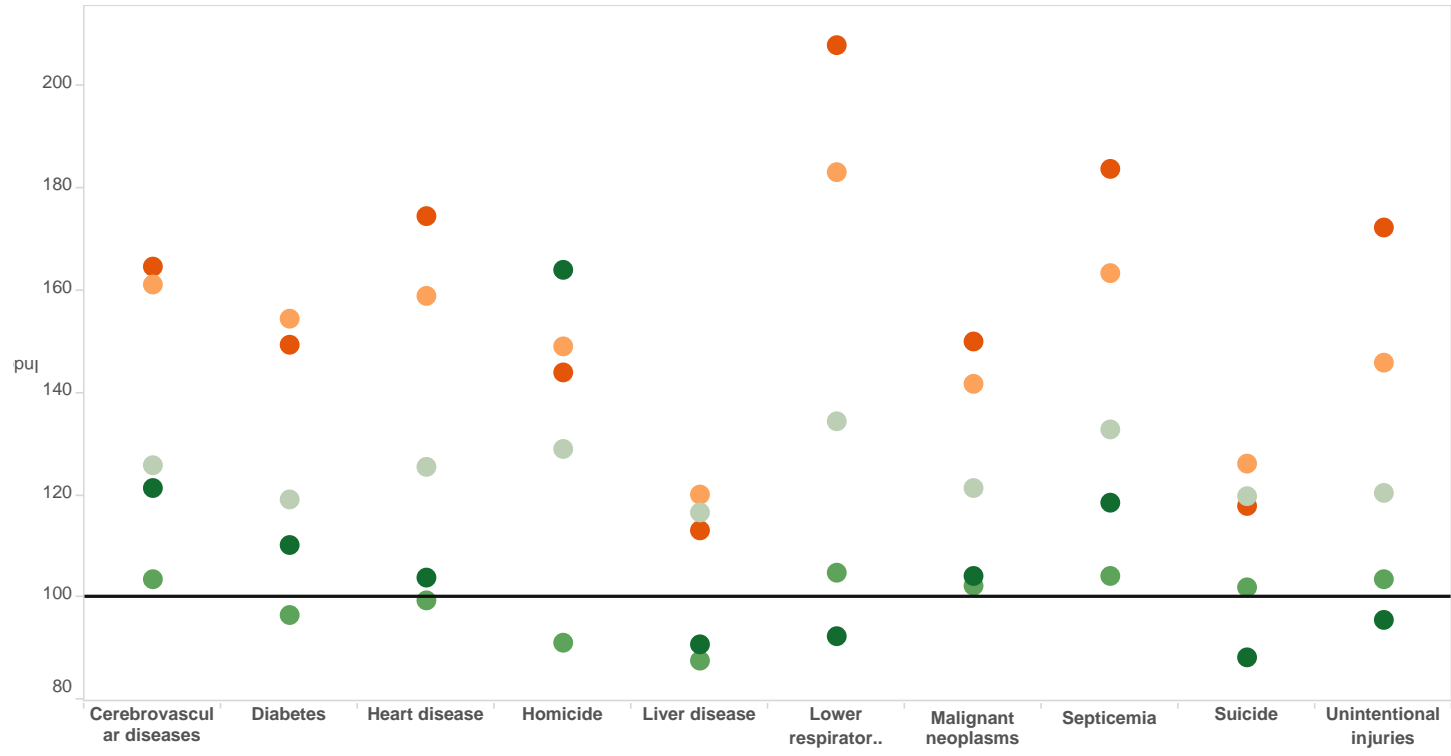
# Regional Differences in Mortality: Males; 25-64; HHS Region 4

Age: 25 to 64  
 Male  
 HHS Region #4 AL, FL, GA, KY, MS, NC, SC, TN

**Rural-Urban Status**

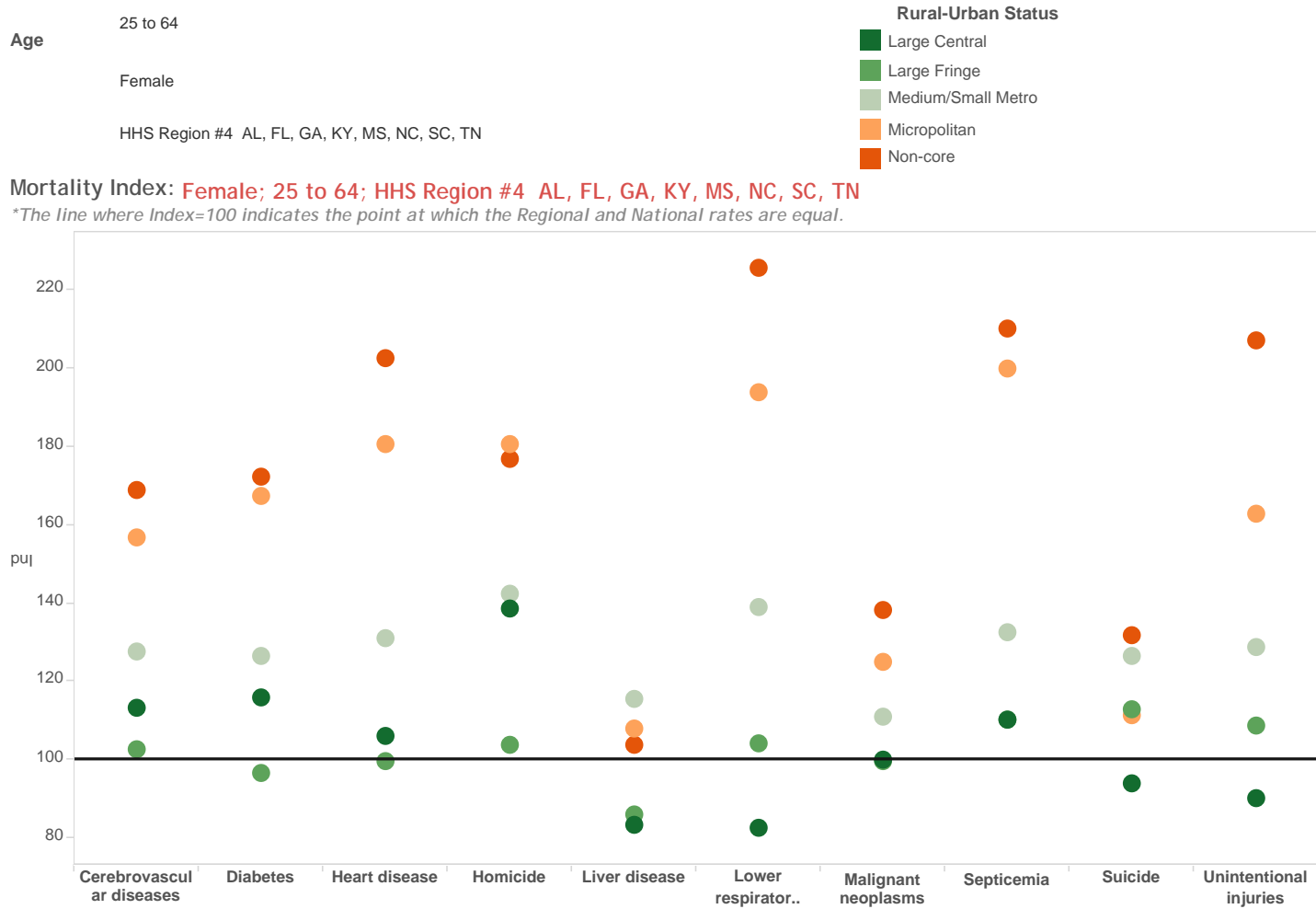
- Large Central
- Large Fringe
- Medium/Small Metro
- Micropolitan
- Non-core

Mortality Index: Male; 25 to 64; HHS Region #4 AL, FL, GA, KY, MS, NC, SC, TN  
 \*The line where Index=100 indicates the point at which the Regional and National rates are equal.



\* National rates are the mortality rates for the entire U.S. for the age-range, gender, and cause specified, regardless of urban-rural status.

# Regional Differences in Mortality: Females; 25-64; HHS Region 4



\* National rates are the mortality rates for the entire U.S. for the age-range, gender, and cause specified, regardless of urban-rural status.



# Mortality: Heart Disease – Males, 65+ yrs

## Mortality Rates (per 100,000 pop) by Age, Sex, HHS Region, Rural-Urban Status, and Cause

NOTE: Rates are age-adjusted; Areas of the US map without a color indicate that the data for that region are either unreliable or suppressed.

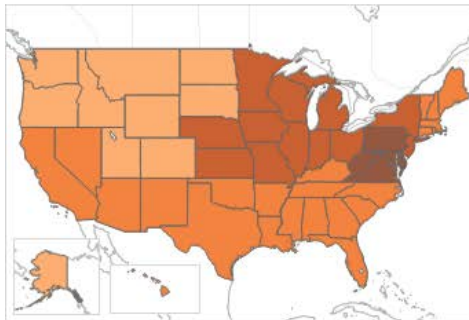
Age  
65 to 85

Gender  
Male

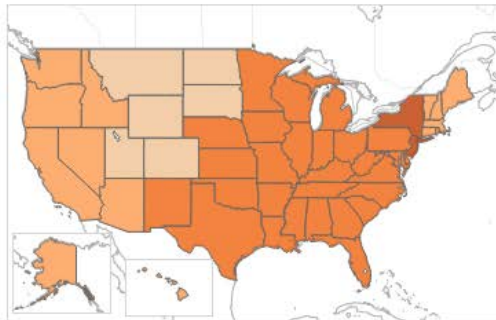
Cause of Death  
Heart disease



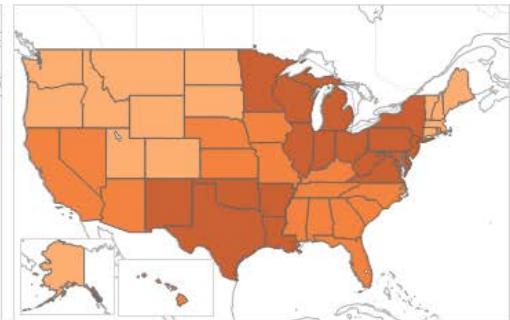
LARGE CENTRAL



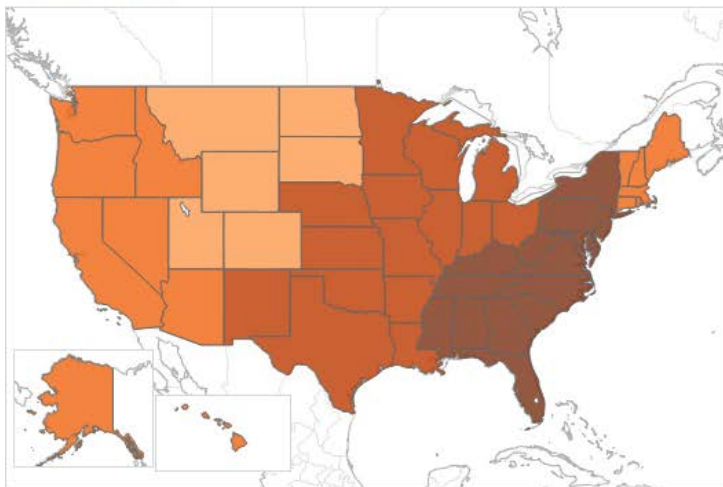
LARGE FRINGE



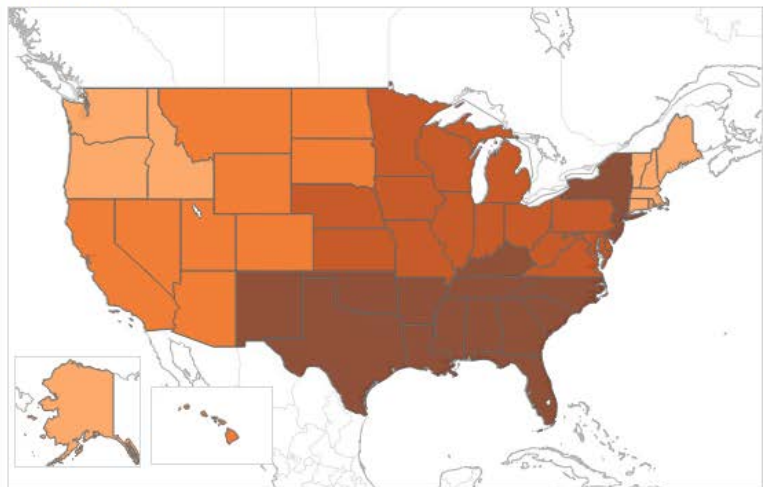
SMALL/MEDIUM METROPOLITAN



MICROPOLITAN



NON-CORE



# Mortality: Heart Disease – Females, 65+ yrs

## Mortality Rates (per 100,000 pop) by Age, Sex, HHS Region, Rural-Urban Status, and Cause

NOTE: Rates are age-adjusted; Areas of the US map without a color indicate that the data for that region are either unreliable or suppressed.

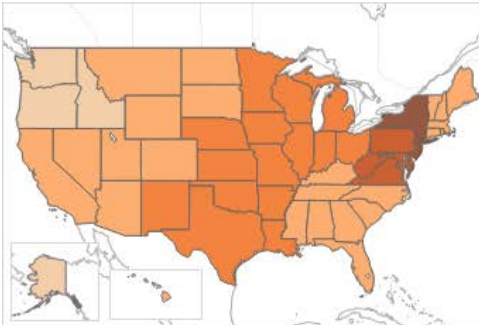
Age  
65 to 85

Gender  
Female

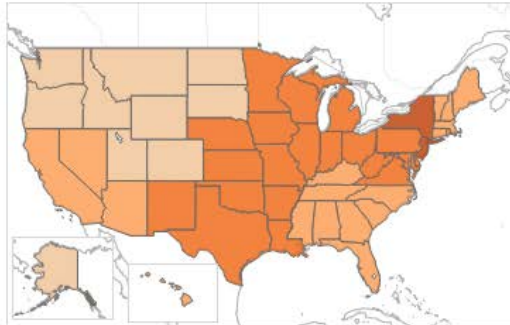
Cause of Death  
Heart disease



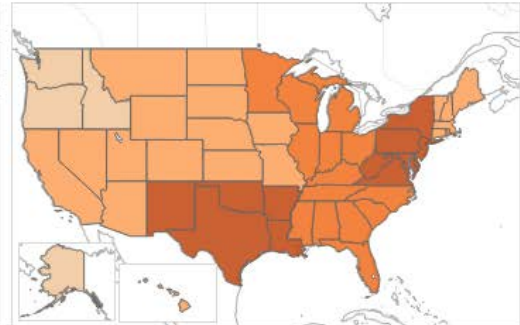
LARGE CENTRAL



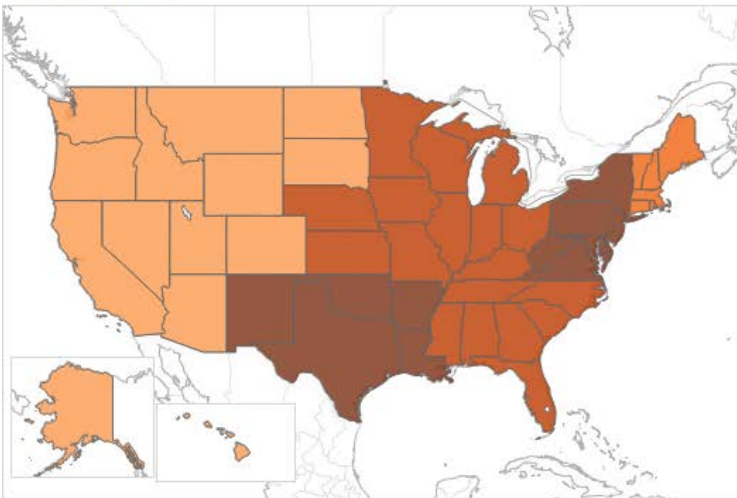
LARGE FRINGE



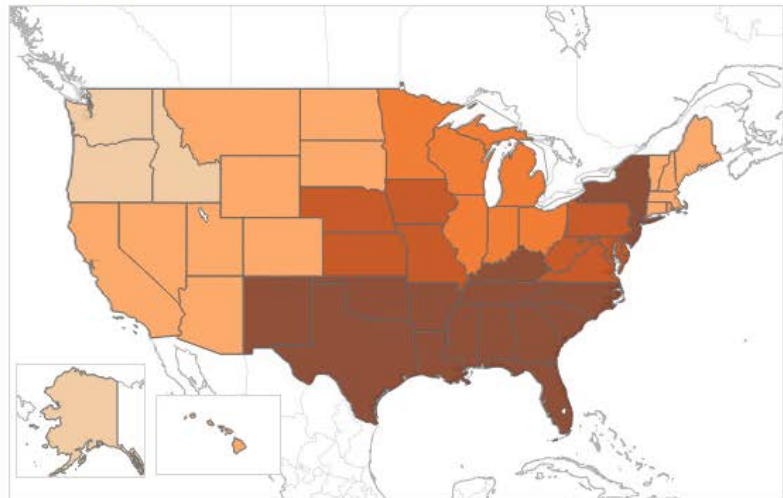
SMALL/MEDIUM METROPOLITAN



MICROPOLITAN



NON-CORE





# Mortality: Cerebrovascular Diseases – Males, 65+ yrs

## Mortality Rates (per 100,000 pop) by Age, Sex, HHS Region, Rural-Urban Status, and Cause

NOTE: Rates are age-adjusted; Areas of the US map without a color indicate that the data for that region are either unreliable or suppressed.

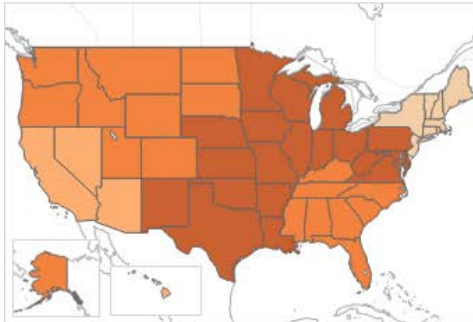
Age  
65 to 85

Gender  
Male

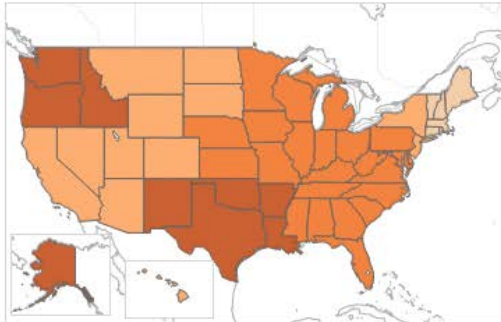
Cause of Death  
Cerebrovascular diseases



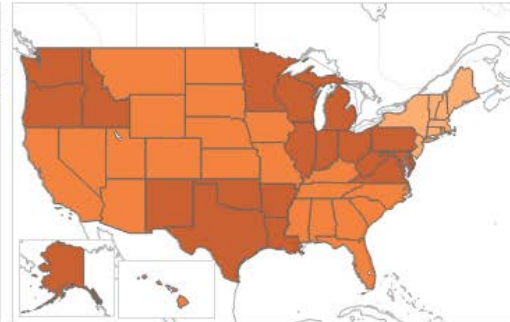
LARGE CENTRAL



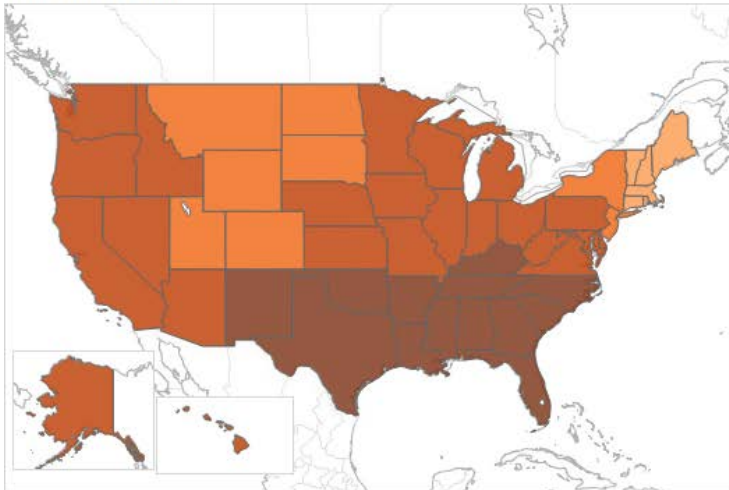
LARGE FRINGE



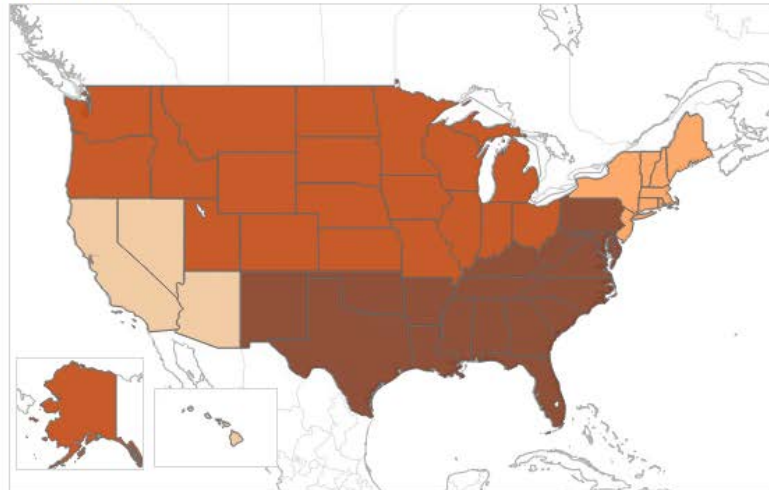
SMALL/MEDIUM METROPOLITAN



MICROPOLITAN



NON-CORE



# Mortality: Cerebrovascular Diseases – Females, 65+ yrs

**Mortality Rates (per 100,000 pop) by Age, Sex, HHS Region, Rural-Urban Status, and Cause**

*NOTE: Rates are age-adjusted; Areas of the US map without a color indicate that the data for that region are either unreliable or suppressed.*

Age  
65 to 85

Gender  
Female

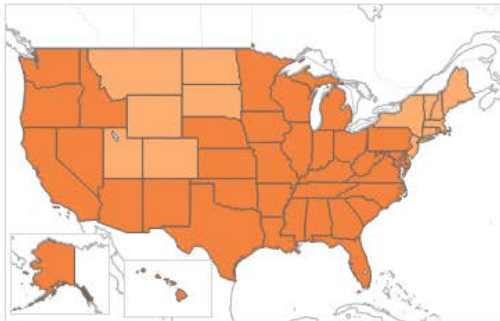
Cause of Death  
Cerebrovascular diseases



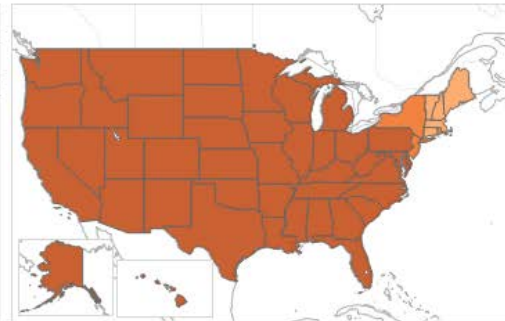
**LARGE CENTRAL**



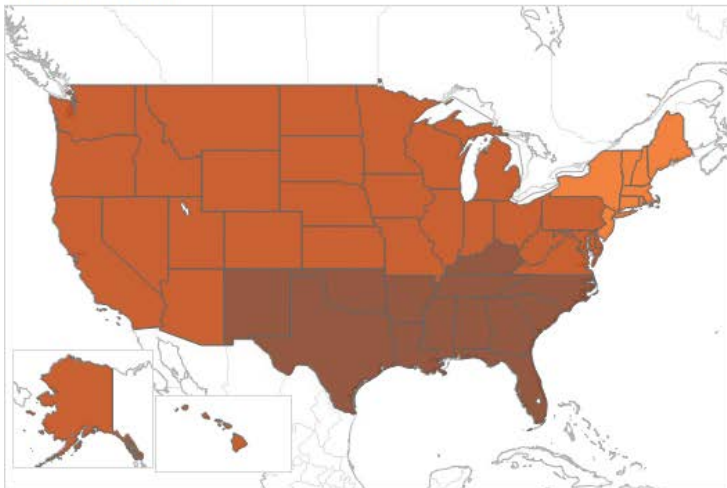
**LARGE FRINGE**



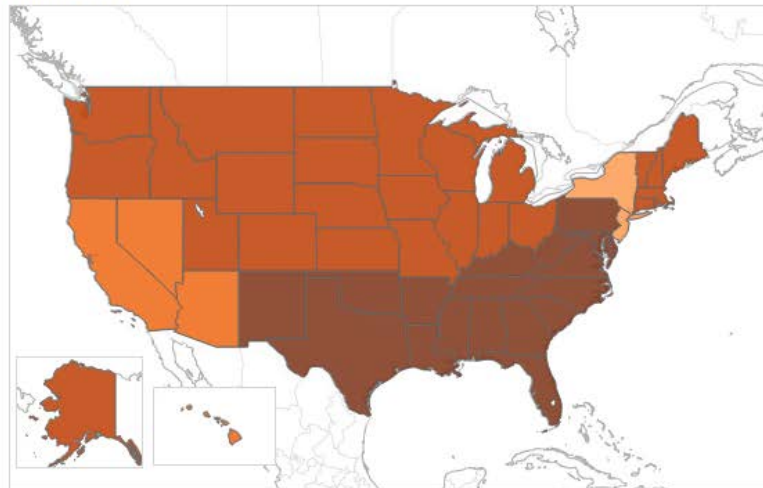
**SMALL/MEDIUM METROPOLITAN**



**MICROPOLITAN**



**NON-CORE**



## Evidence-Based Models Toolkit Series

- Conducted on behalf of the Health Resources and Services Administration (HRSA) Federal Office of Rural Health Policy (ORHP)
- A compilation of evidence-based practices and resources that can strengthen rural health programs
- New toolkits each year on different topics that target ORHP grantees, future applicants, and rural communities
- Applicable to organizations with different levels of knowledge and at different stages of implementation
- Hosted by the Rural Assistance Center on the Community Health Gateway

### Build What Works

The Rural Community Health Gateway can help you build effective community health programs and improve services you offer. Resources and examples in this Gateway are chosen for effectiveness and adaptability and drawn from programs with a strong history of service and community success. By starting from approaches that are known to be effective, you can make the best use of limited funding and resources.

### Evidence-Based Toolkits

- [Care Coordination Toolkit](#)  
Resources and best practices to help you identify and implement a care coordination program.
- [Community Health Workers Toolkit](#)  
Resources to help you develop a community health worker (CHW) program to reach underserved populations, using evidence-based approaches from other rural communities.
- [Mental Health and Substance Abuse Toolkit](#)  
Resources to develop and implement programs to improve community mental health using proven approaches and strategies.
- [Obesity Prevention Toolkit](#)  
Resources to help you develop an obesity prevention program, building on best practices of successful obesity prevention programs.
- [Oral Health Toolkit](#)  
Resources and best practices to help you develop and implement a program to address oral health disparities in your community.

*Future Toolkits:* Health Promotion and Education

### Evidence-Based Program Examples

The Rural Health Models and Innovations Hub provides access to program models that have been shown to be effective:

- [Browse for programs by level of evidence](#)
- Learn about the [criteria and evidence-base](#) for included programs

You may also be interested in [other collections of program examples](#) from reputable sources, each of which use their own criteria for what types of programs are included.

### About the *Rural Community Health Gateway*

The Rural Community Health Gateway showcases program approaches that you can adapt to fit your community and the people you serve, allowing you to:

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

Gateway resources 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 Assistance Center. Funding is provided by the Office of Rural Health Policy (ORHP), Health Resources and Services Administration.

### More Useful Tools

#### [Economic Impact Analysis](#)

Show how your program's grant funding affects your community's economic well-being and share this information with sponsors, funders and your community

#### [Planning for Sustainability](#)

Tools to help you plan and position your grant-funded projects so that services can be sustained over the long term.

#### [Rural Health Models and Innovations Hub](#)

Find examples of approaches you can adapt for your program, including models shown to be effective, as well as new and emerging ideas.

Thank You!



**NORC**  
*at the UNIVERSITY of CHICAGO*

 insight for informed decisions™