



DataSpeak

Disparities in the Health and Well-Being of Children and Youth in Rural Areas of the United States

May 31, 2016

Today's Presenters

- **Janice C. Probst, PhD**, Director of the South Carolina Rural Health Research Center at the Arnold School of Public Health, University of South Carolina, will present new data on key indicators of access to health and dental care for children in rural areas.
- **Alana Knudson, PhD, EdM**, Principal Research Scientist and Co-Director of the Walsh Center for Rural Health Analysis for NORC at the University of Chicago, will present data on rural and urban mortality differences for children and youth.
- **Steve Holve, MD**, Chief Clinical Consultant in Pediatrics for the Indian Health Service, will present on the significant disparities faced by American Indian/Alaska Native (AI/AN) children compared to the general US population.

Trends in rural children's access to medical and dental services

Janice C. Probst, PhD

Director

Karen M. Jones, MSPH

Associate



South Carolina

Rural Health Research Center



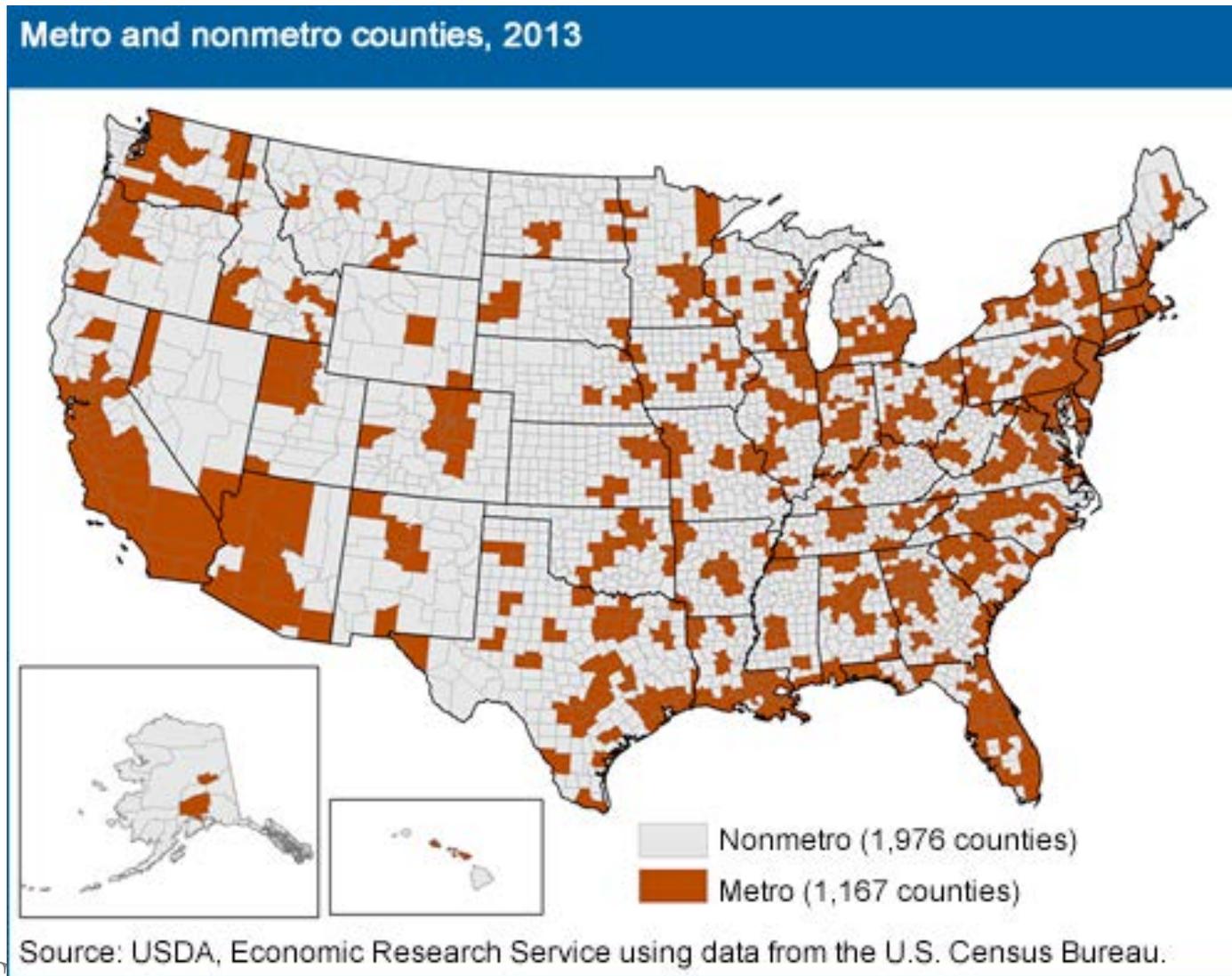
New data on children's health

- Trends over 3 waves of the National Survey of Children's Health (2003, 2007, 2011–2012)
- Social determinants
 - ◆ Poverty
- Health access
 - ◆ Preventive medical visit
 - ◆ Preventive oral health visit
- But first...

Definitions: what is rural?

- **County level definitions**
 - ◆ Short version: a county with no urbanized area of \geq 50,000 residents
 - ◆ Long version: multiple variations based on size of metro area or remoteness of rural area
- Advantage: counties are units of government
- Disadvantage: overbounds urban, particularly in the West

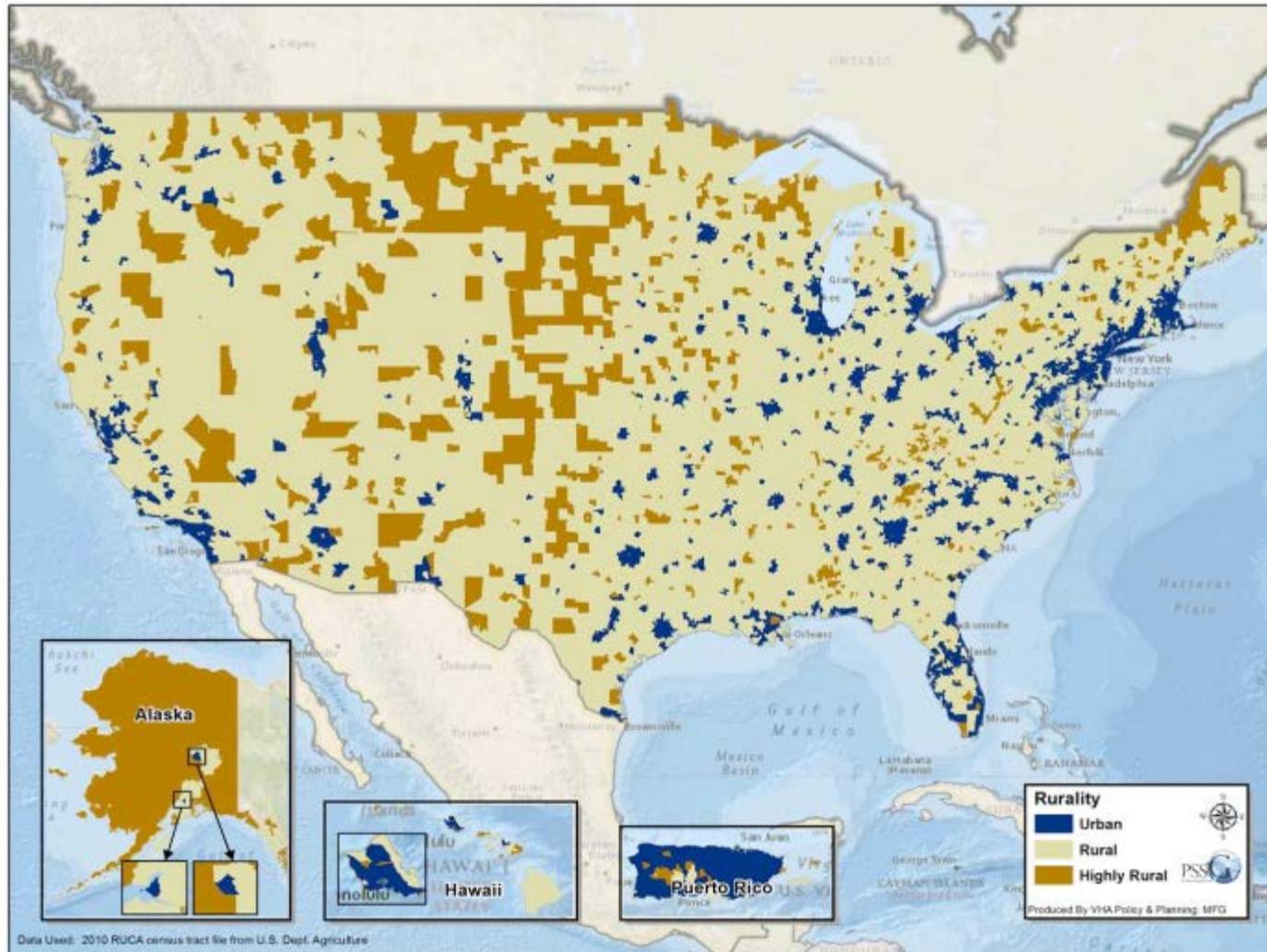
US Counties, by rural status



Definitions: what is rural?

- **Census tract level definitions** (and ZIP Code approximations or ZCTAs)
- Coding structure based on commuting patterns: Rural Urban Commuting Areas (RUCAs)
 - ◆ RUCA main categories range from 1 (highly urban) to 10 (remote), with subunits
- **Advantages:**
 - ◆ Works well in West
 - ◆ NCHS reports on rural children use this metric
- **Disadvantages:** not a unit of government; varies over time

U.S. by 3 Levels of RUCA (used today)



South Carolina

Rural Health Research Center

<http://www.ruralhealth.va.gov/images/RUCA-map-full.jpg>



National Survey of Children's Health

- Sponsored by Maternal and Child Health Bureau, HRSA, USDHHS; conducted by NORC at University of Chicago
- Telephone survey (landlines only) of households with at least one child age 0 – 17
- Large enough for state-level estimates (>90,000 observations each year)
- Use RUCAs to define rural
- Information available at <http://www.cdc.gov/nchs/slait/nsch.htm>

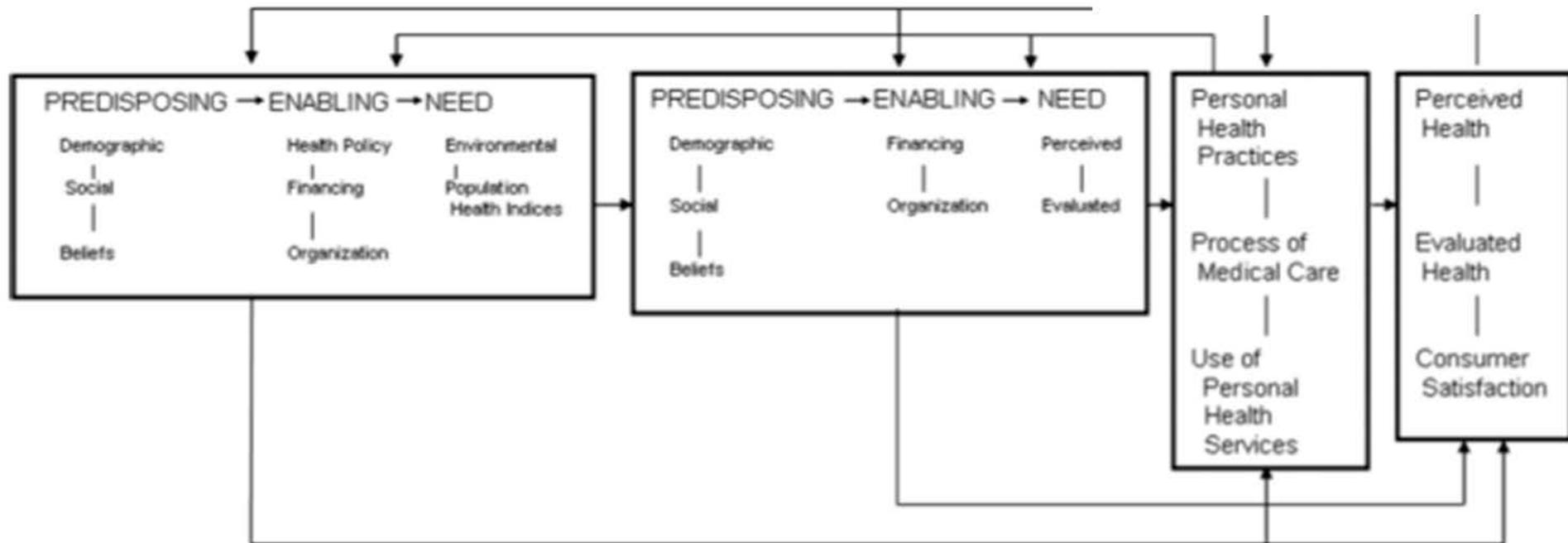
Rural: contextual characteristic

Contextual characteristics

Individual characteristics

Behaviors

Outcomes

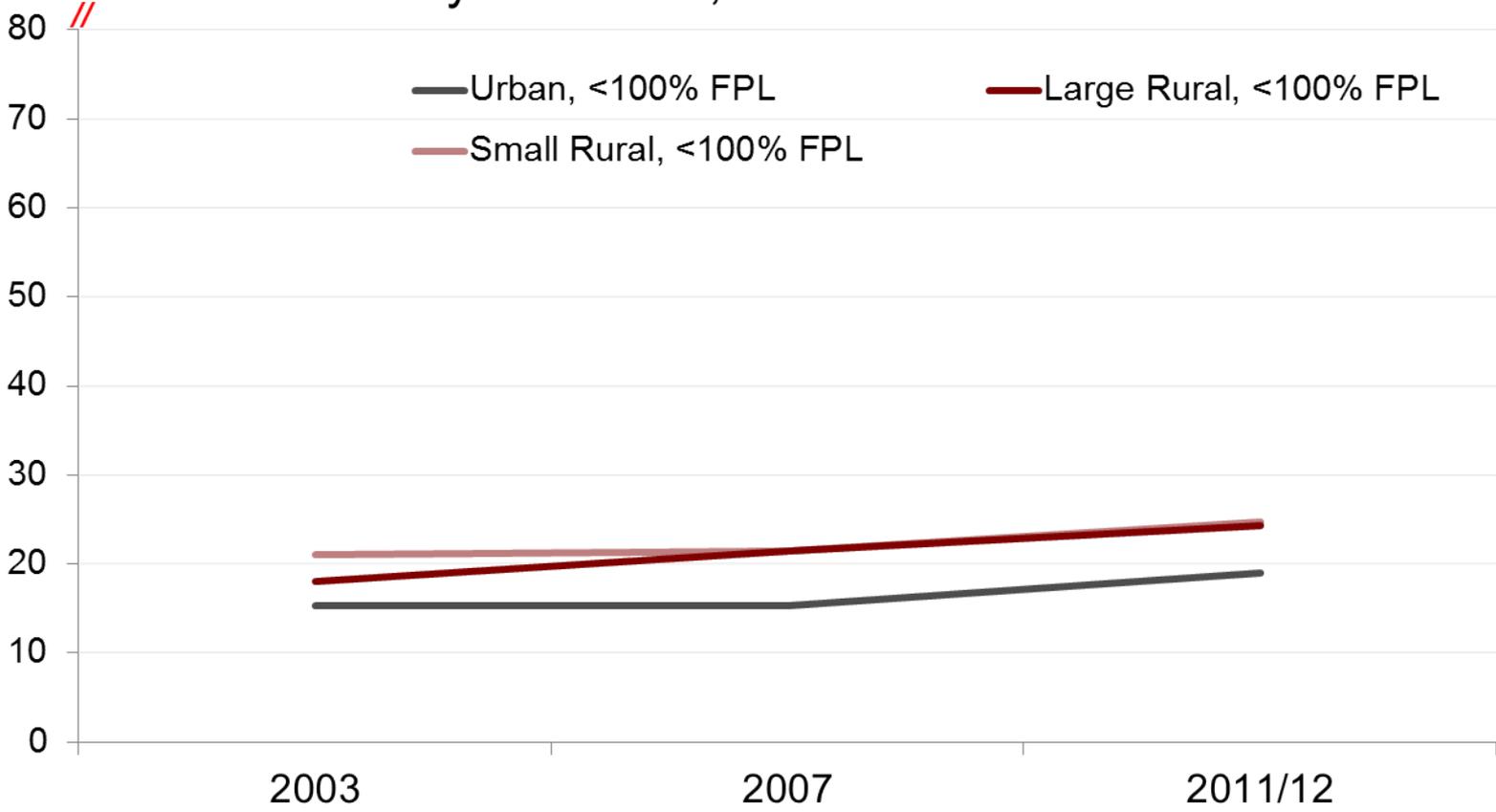


Andersen, Medical Care 2008

Context for Rural Children: Poverty

Rural Children: Increasing Disadvantage

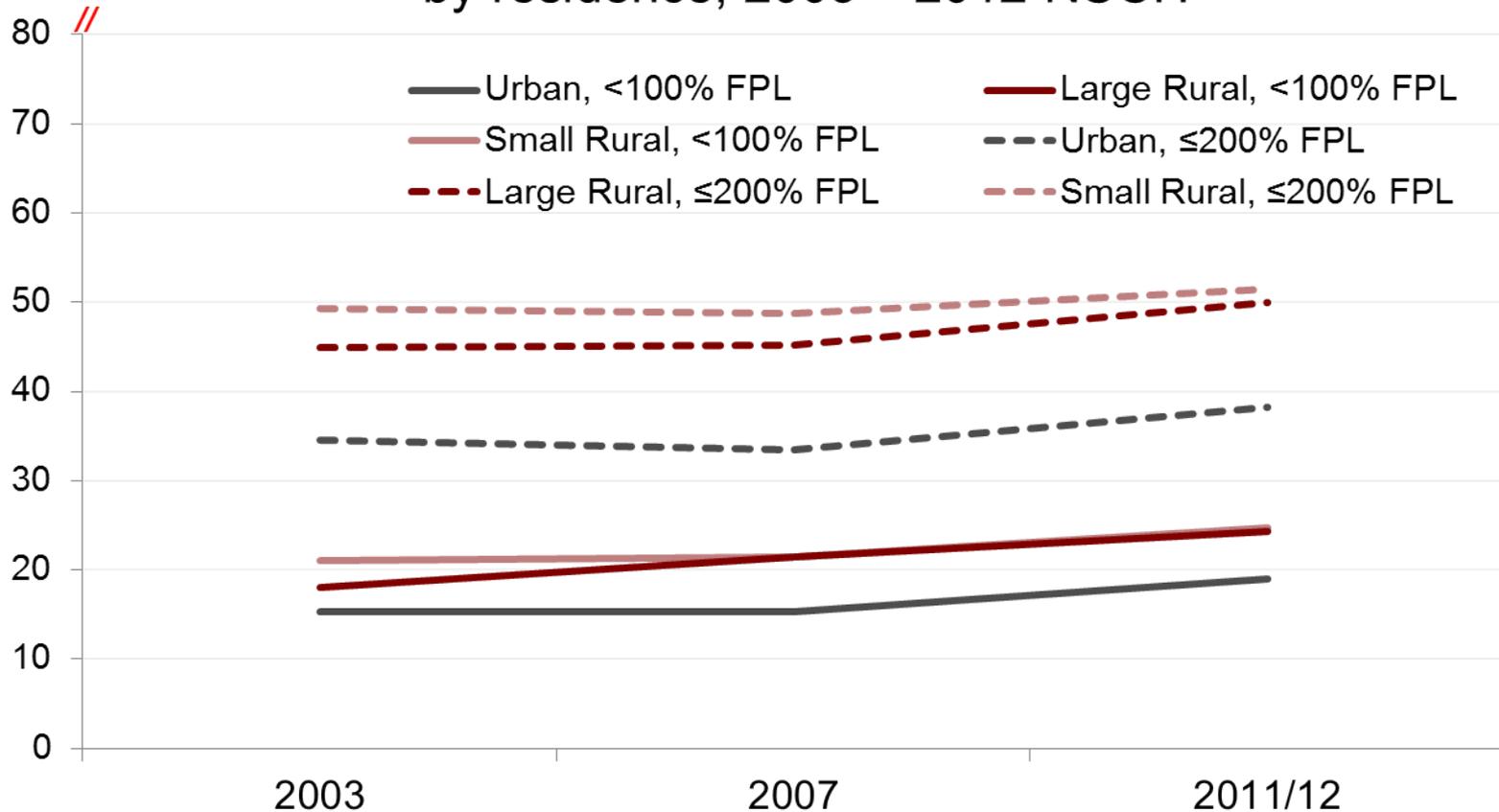
Percent of children living in poor families, by residence, 2003 – 2012 NSCH



Change significant over study periods

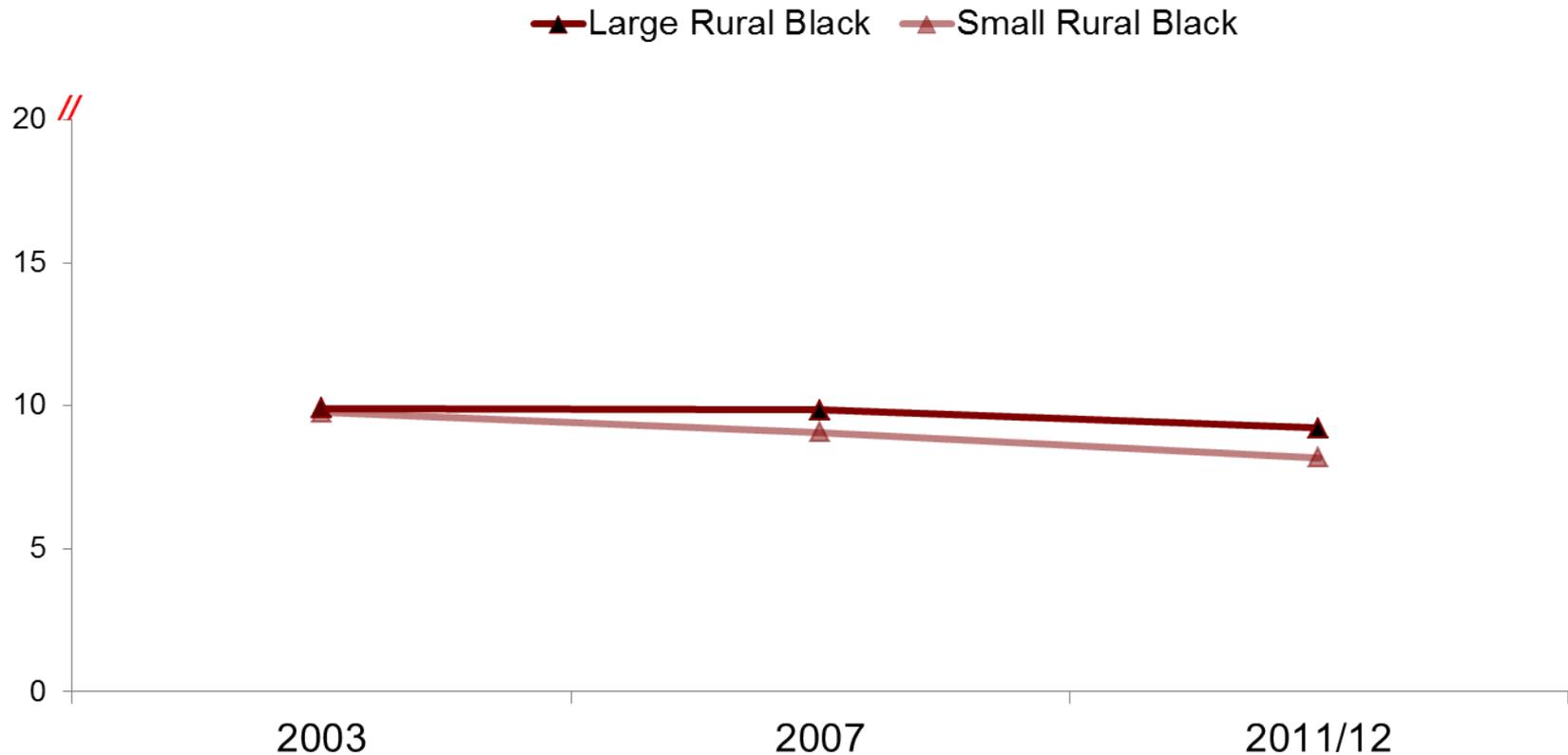
Rural Children: Increasing Disadvantage ⁽²⁾

Percent of children living in poor and near poor families, by residence, 2003 – 2012 NSCH



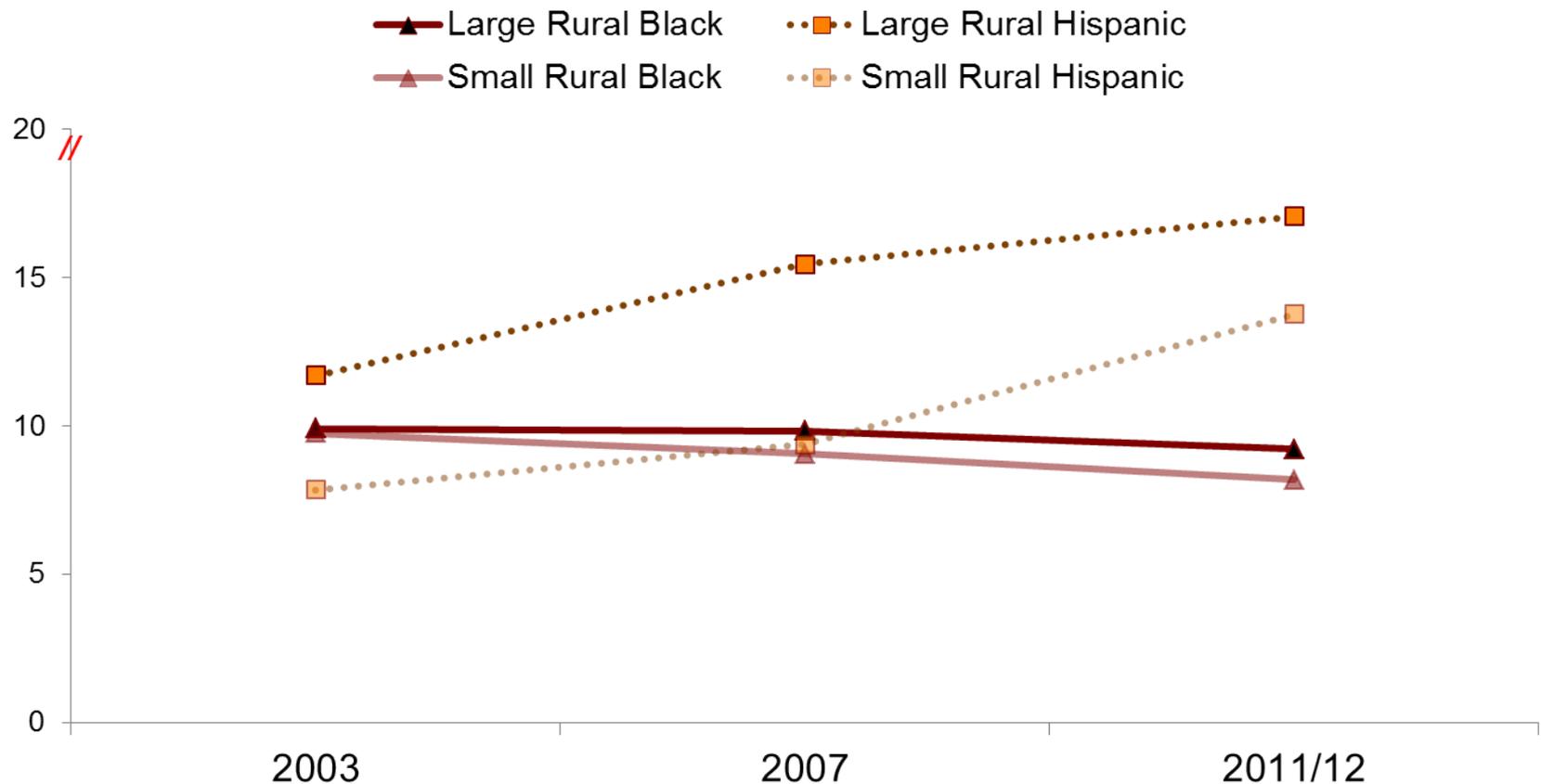
Changing Population Demographics

Percent minority children, by residence, 2003 – 2012,
NCSH



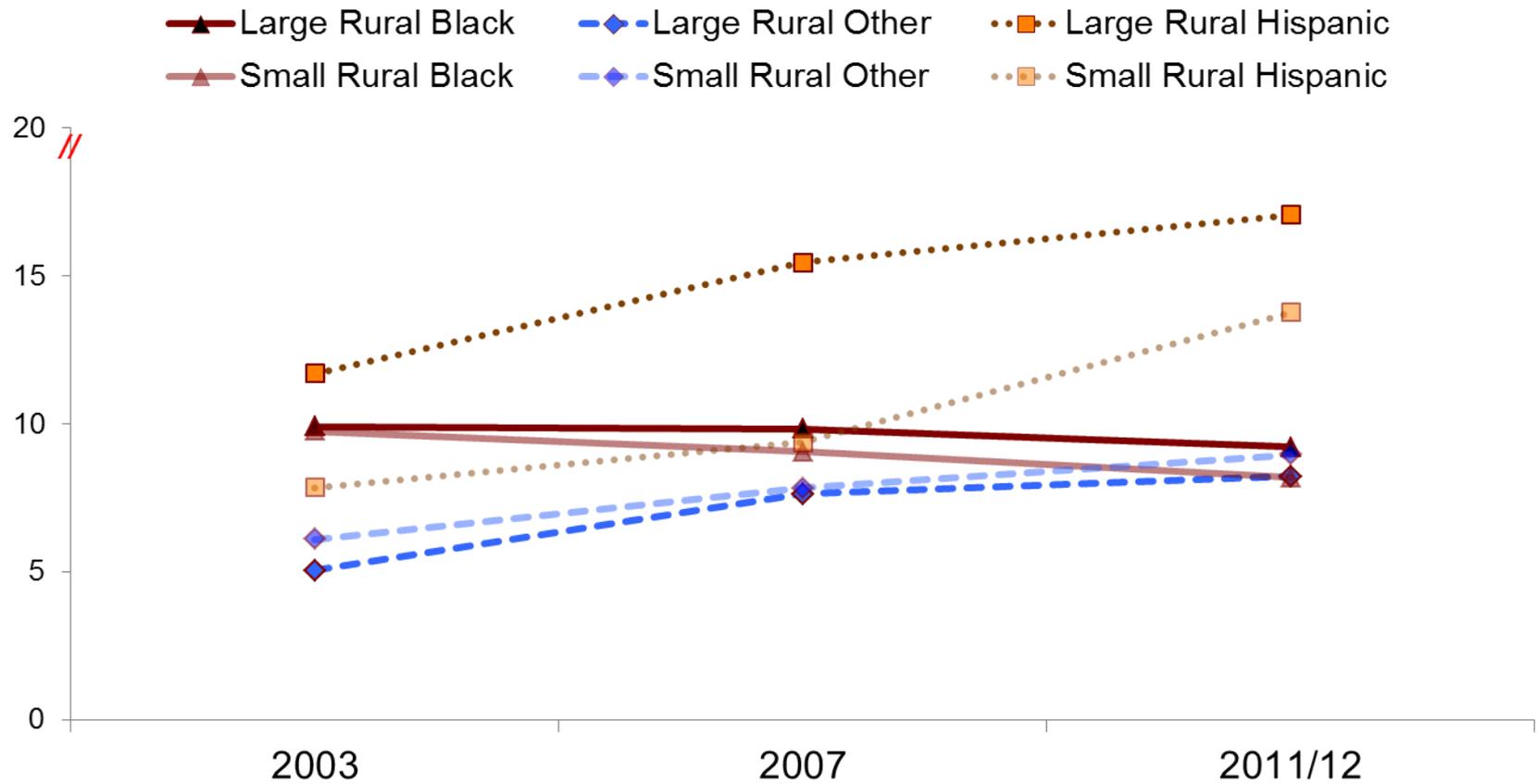
Increasing Diversity, Particularly Hispanic

Percent minority children, by residence, 2003 – 2012, NCSH



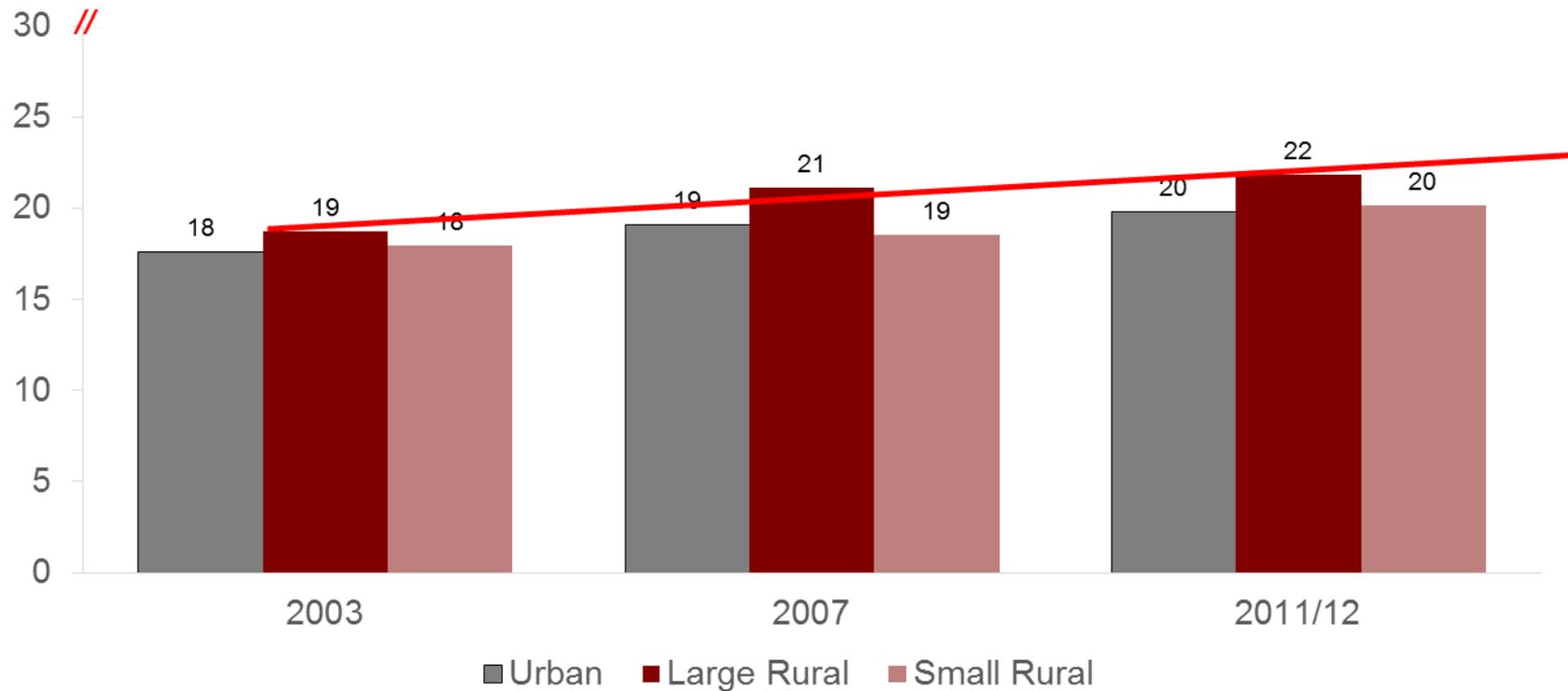
Increasing Diversity, Particularly Hispanic (2)

Percent minority children, by residence, 2003 – 2012, NCSH

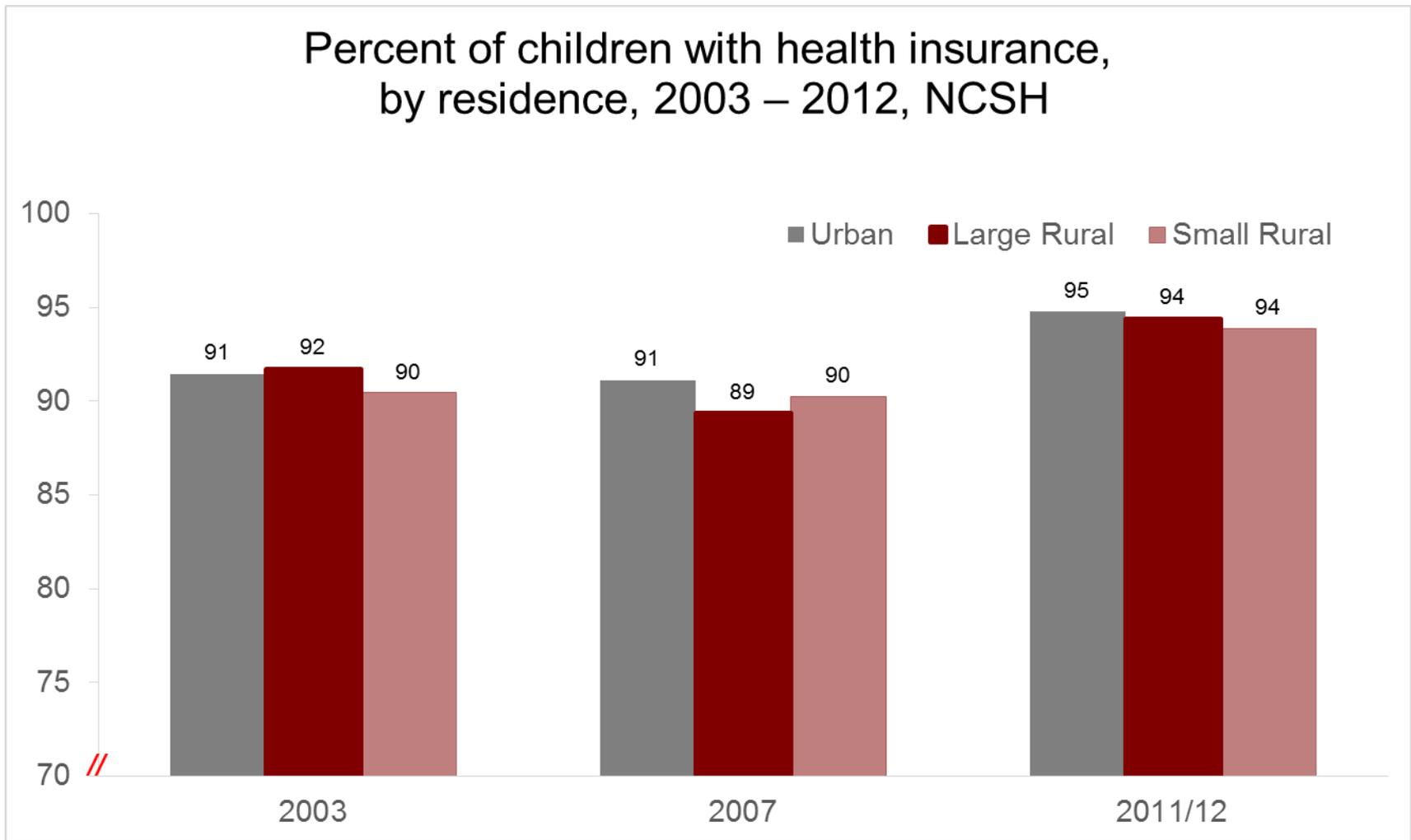


Proportion of Children with Special Health Care Needs Has Increased

Percent of children with special health care needs, by residence, 2003 – 2012, NSCH

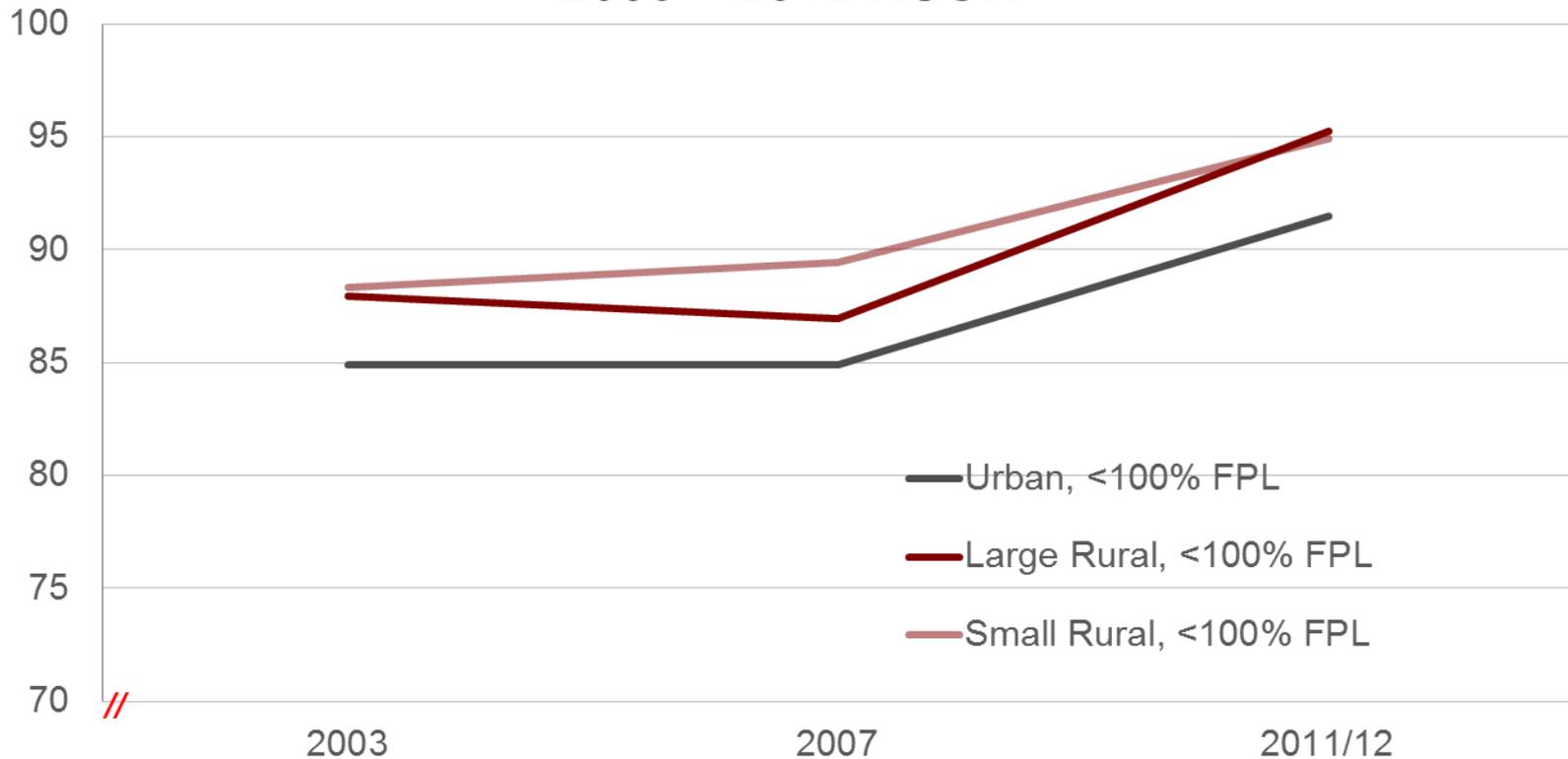


Insurance Coverage Has Improved

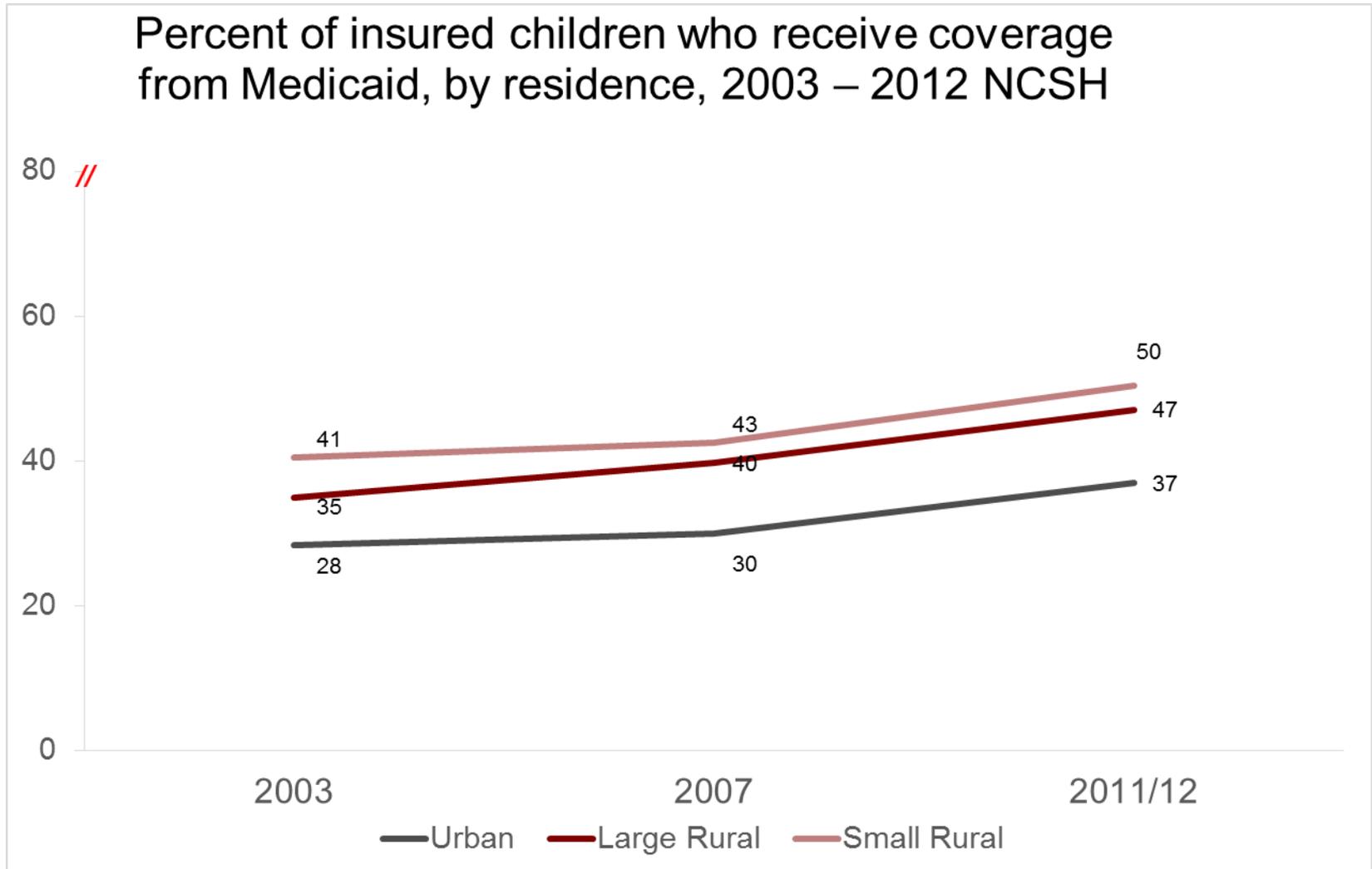


Gains for Children in Poverty

Proportion of children in poverty with health insurance coverage, 2003 – 2012 NSCH

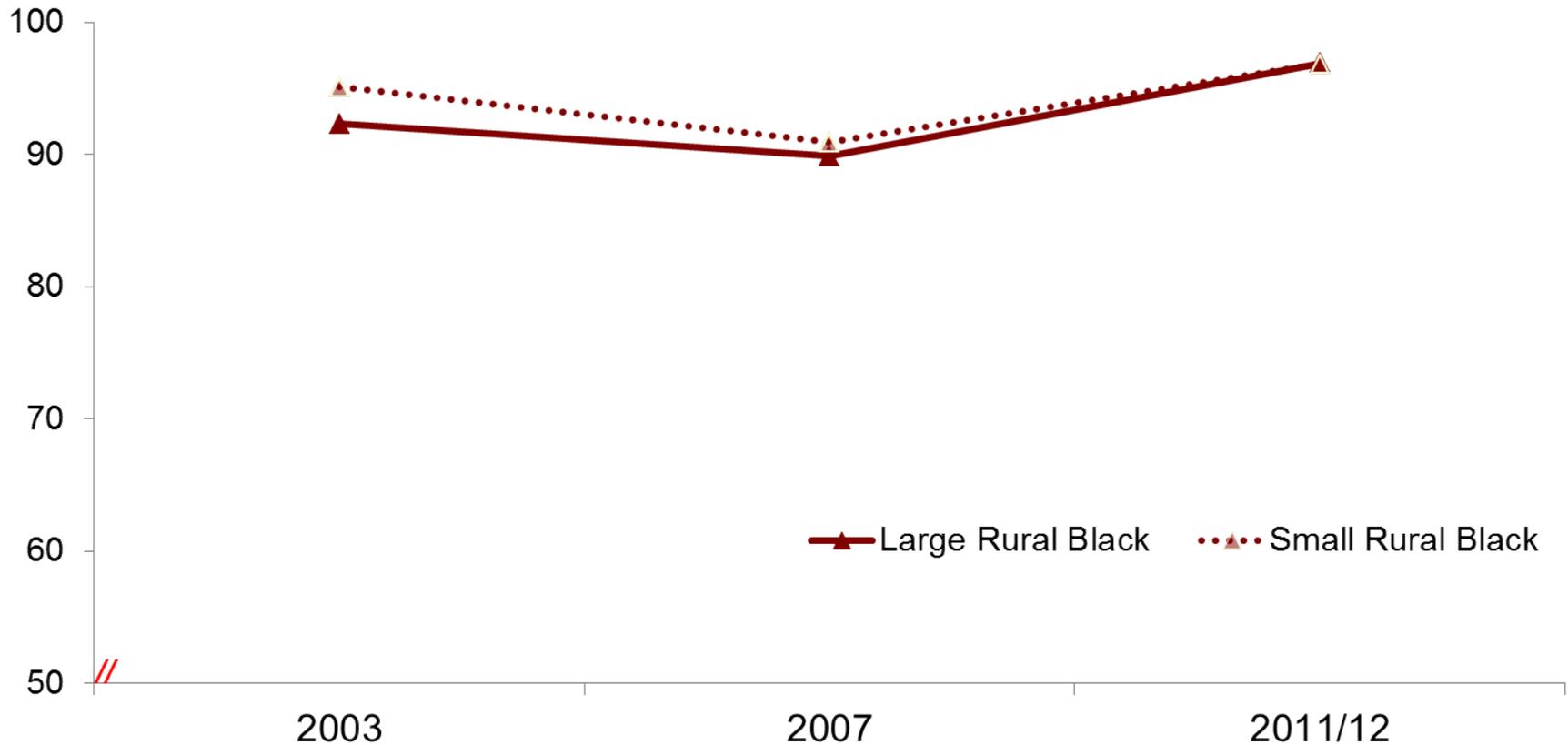


Medicaid More Important for Rural



African American Kids Well-Covered

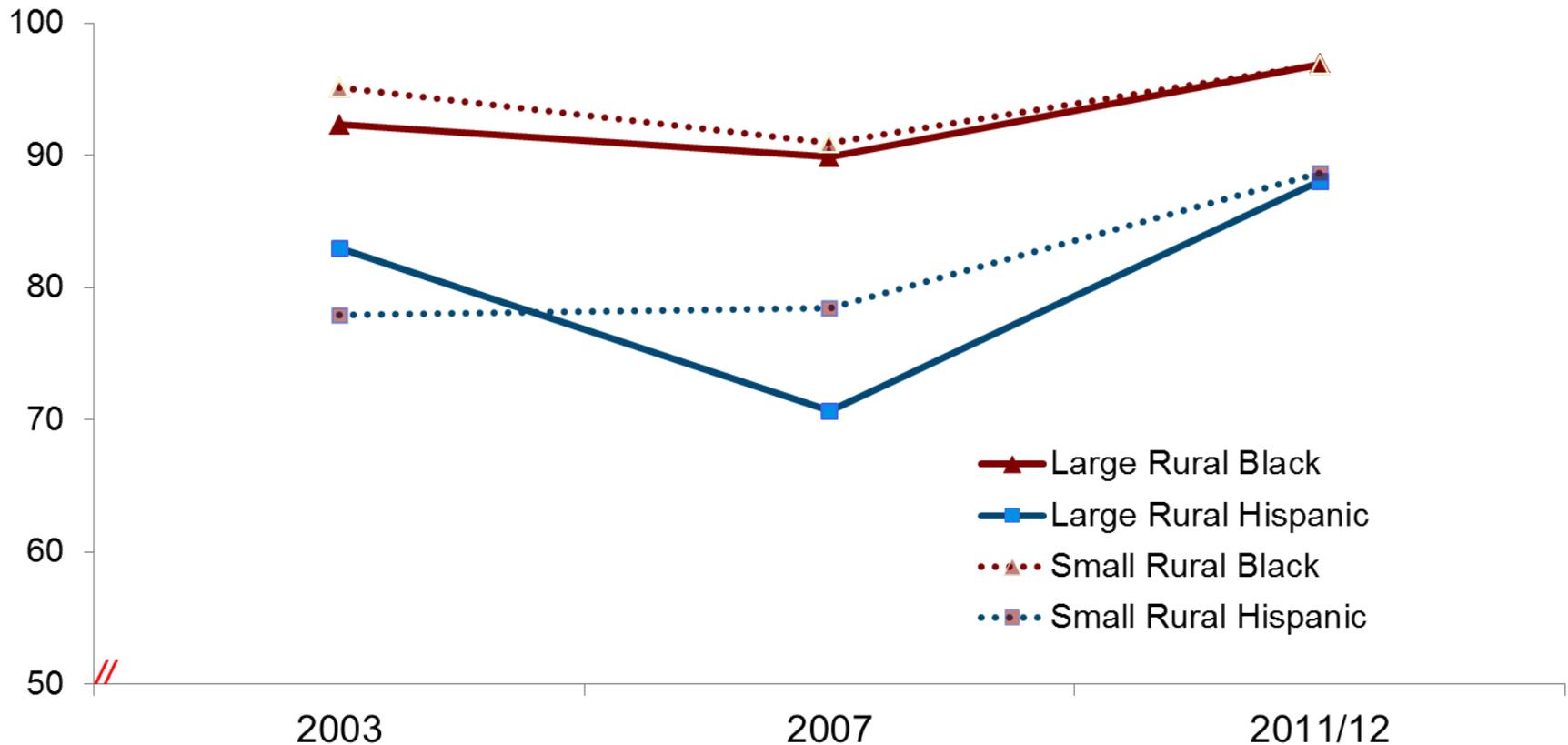
Percent of minority children with health insurance, by residence, 2003 – 2012, NSCH



Change in health insurance status across race/ethnicity over study periods were significant within residence

But Disparities for Hispanic Kids

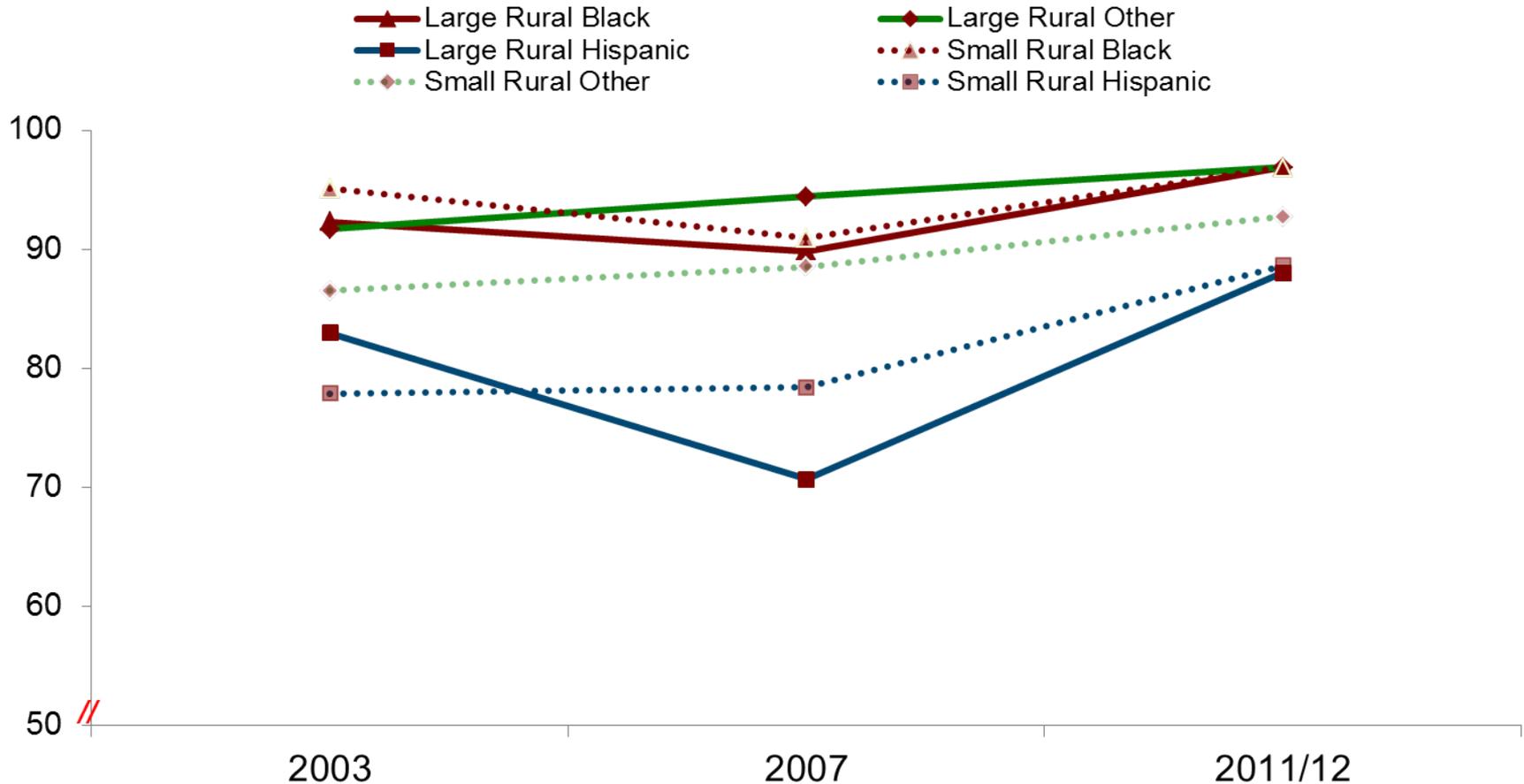
Percent of minority children with health insurance, by residence, 2003 – 2012, NSCH



Change in health insurance status across race/ethnicity over study periods were significant within residence

“Other” Children...

Percent of minority children with health insurance by residence, 2003 – 2012, NSCH

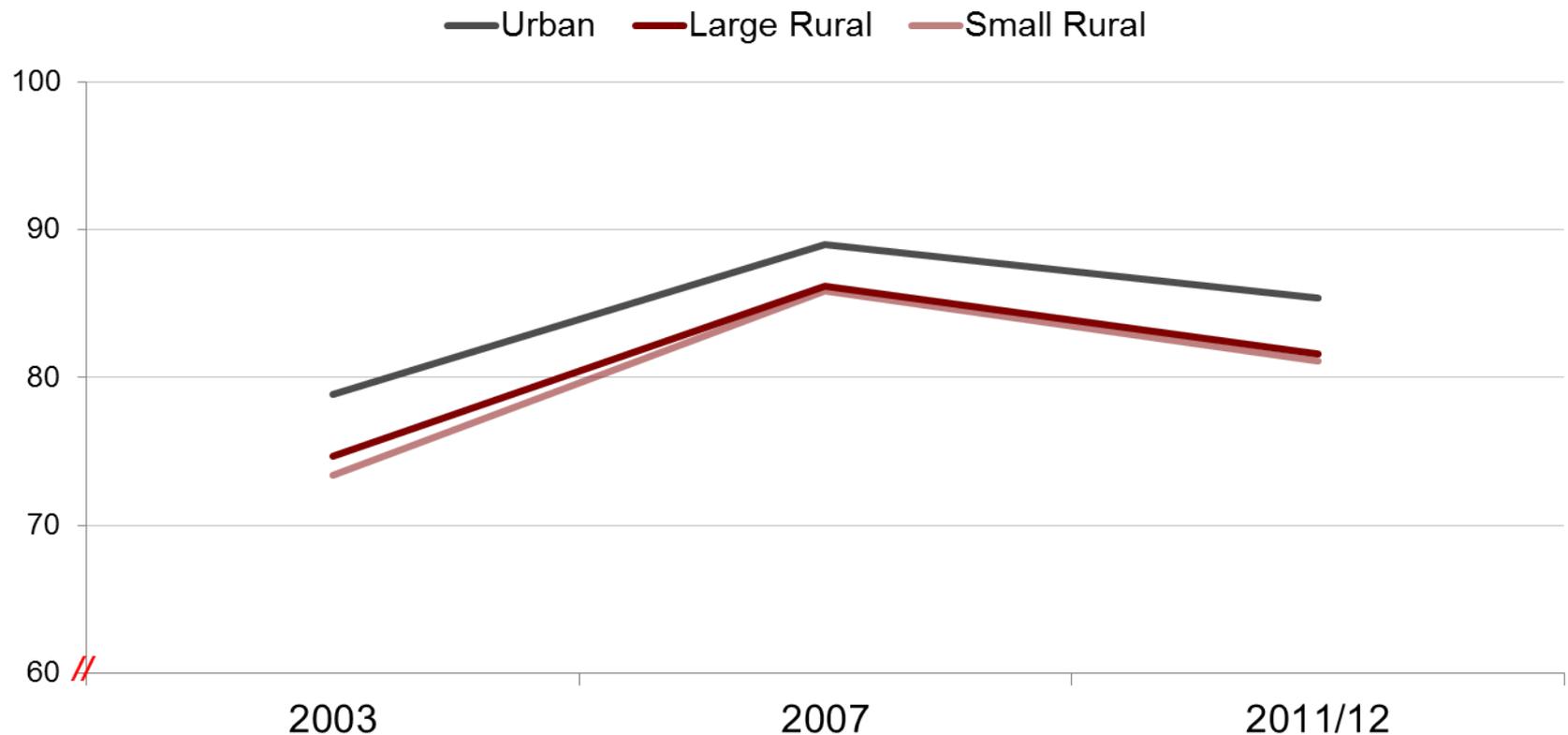


Change significant within residence

Rural Context: Access to Care

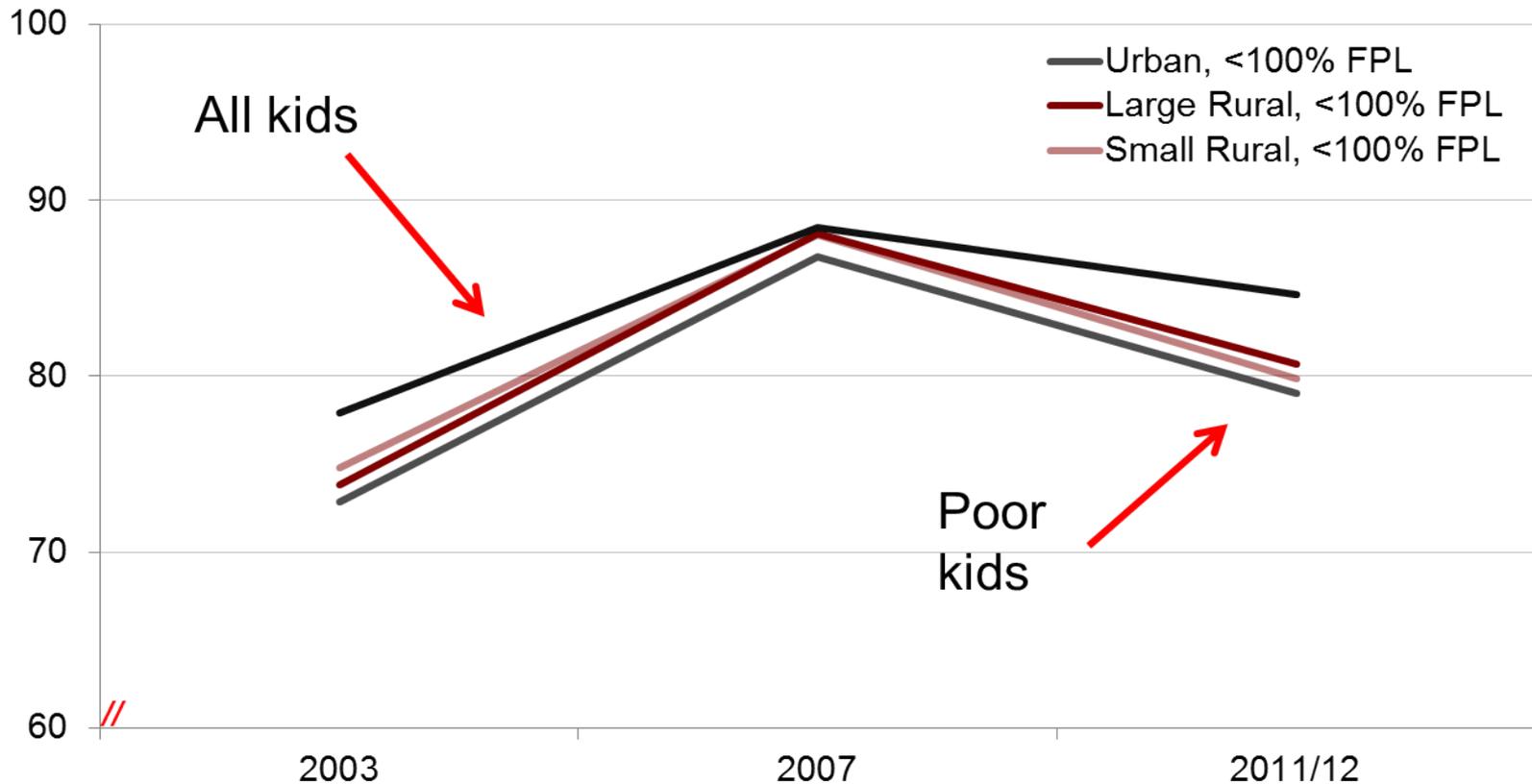
Preventive Medical Visits Lag

Percent of children who received a preventive medical visit during the past 12 months, by residence, 2003 – 2012 NSCH

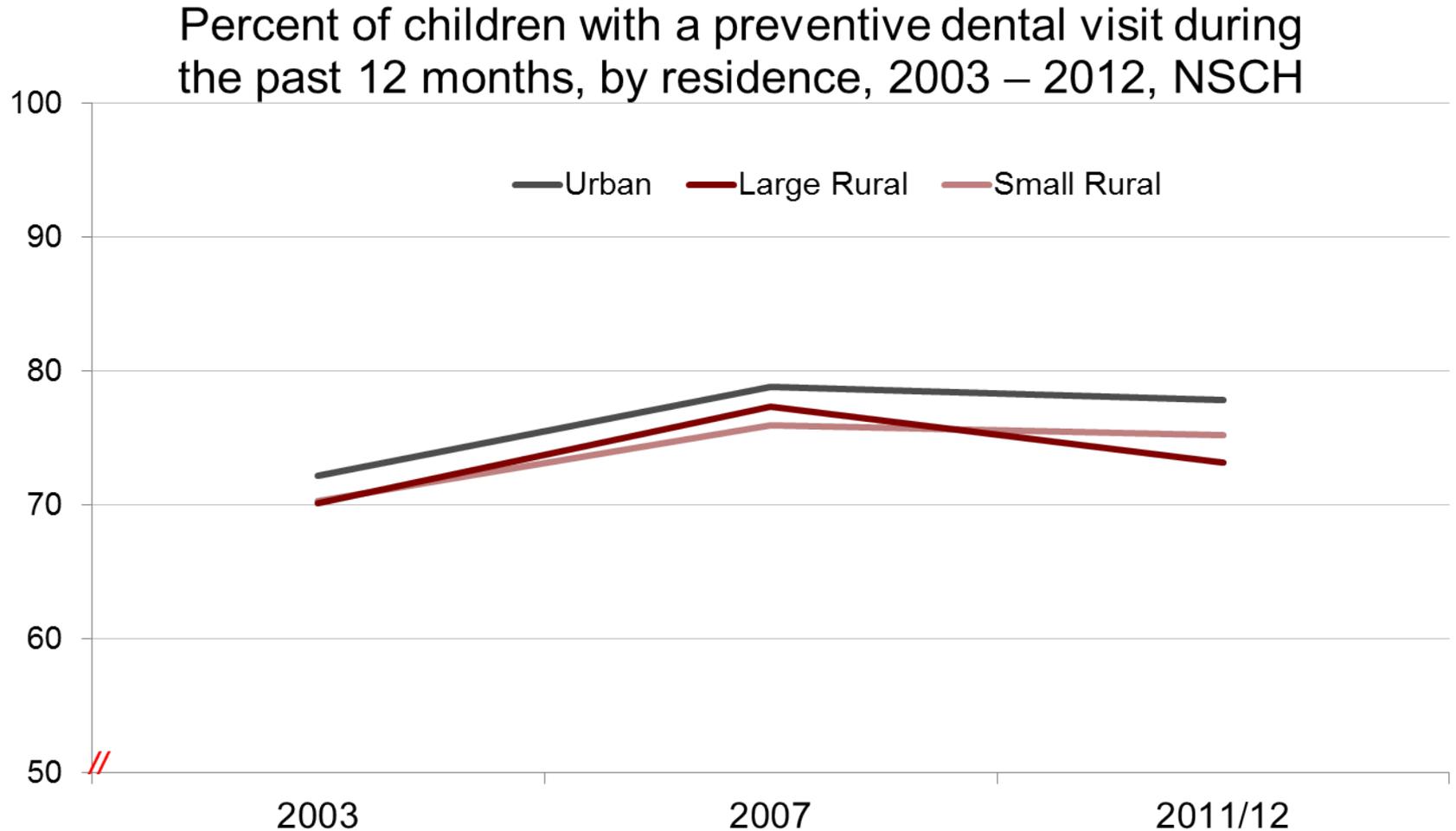


Gaps for All Children in Poverty

Preventive medical visit during past year, by residence, 2003 – 2012 NSCH

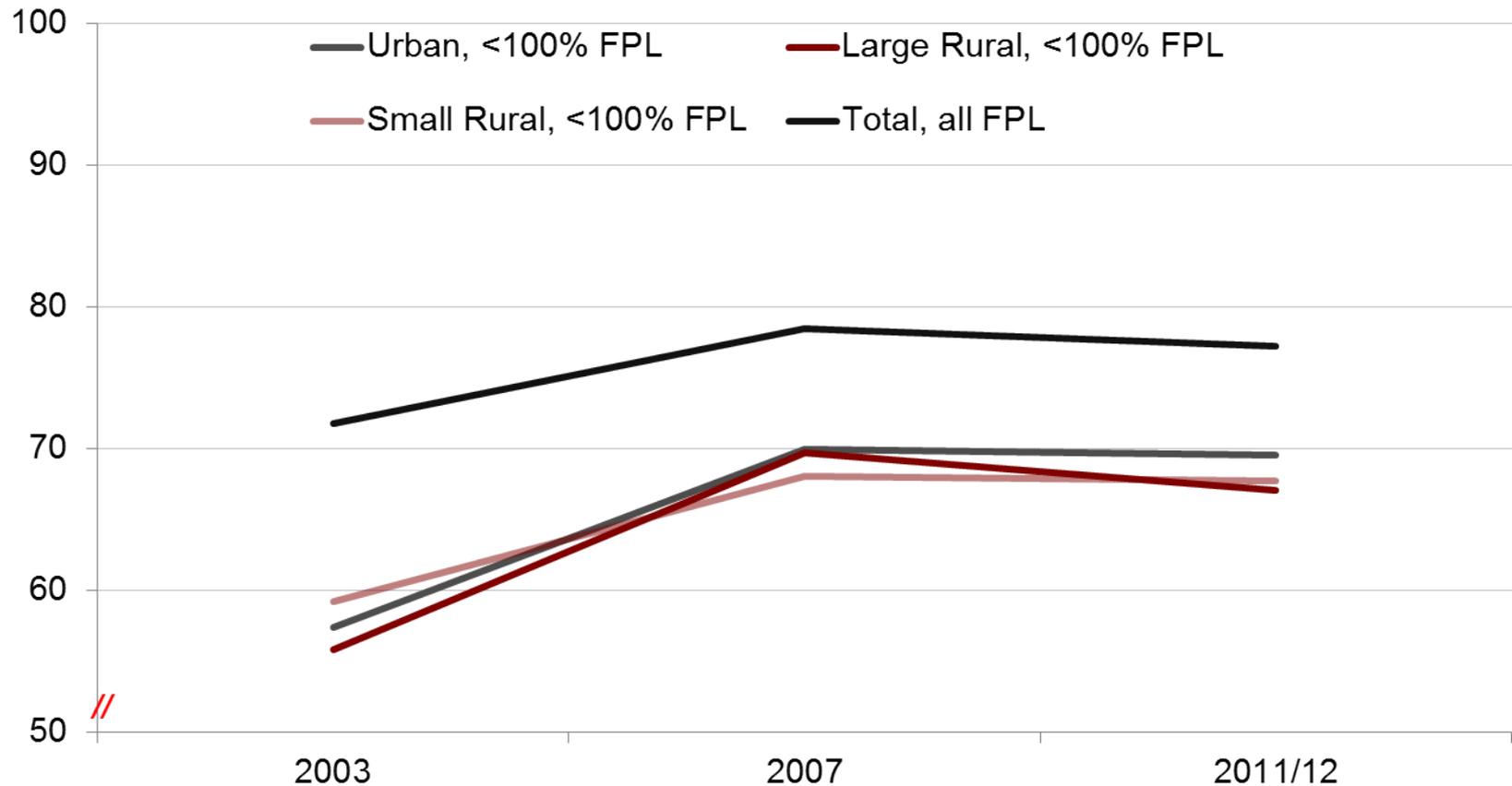


Preventive Dental Visits Lag in Rural



Particularly for Poor Children

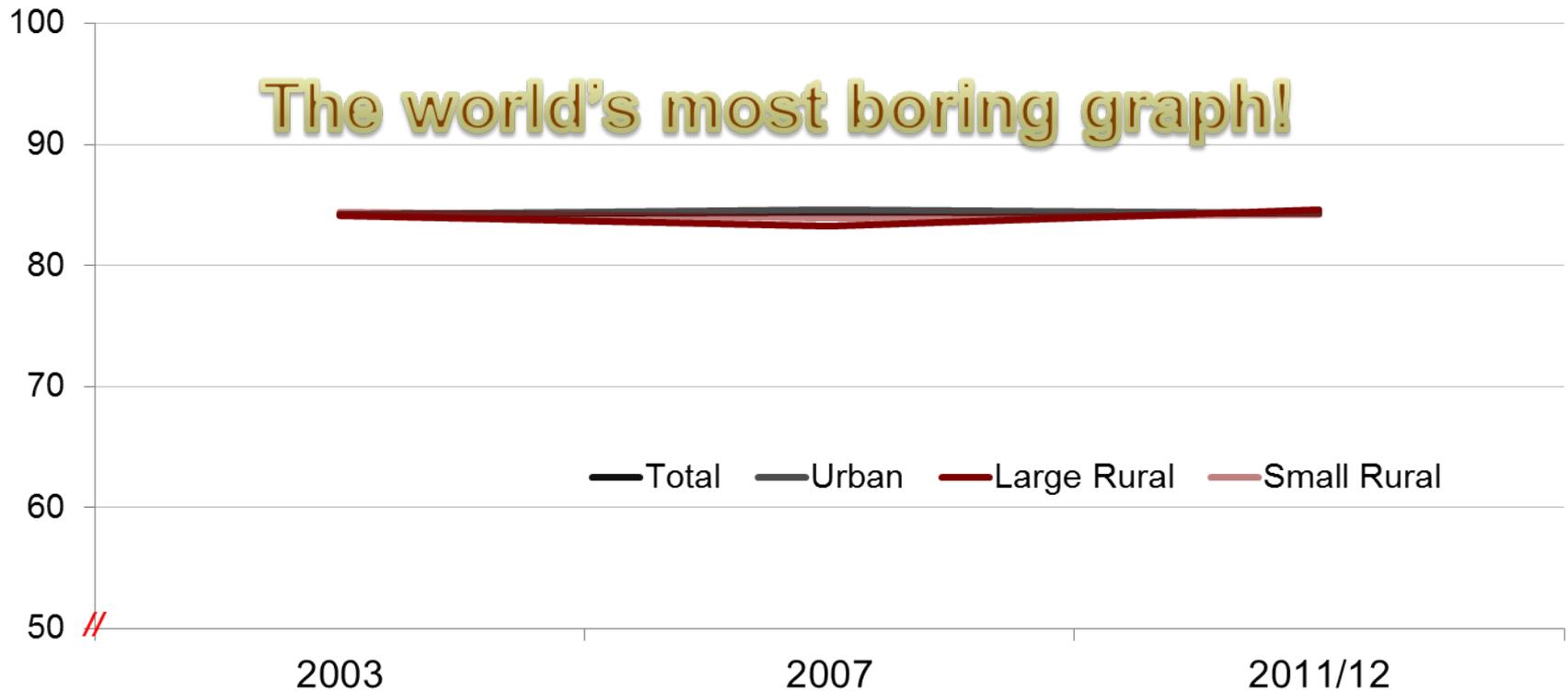
Percent of children with a preventive dental visit in the past year, by residence and income, 2003 – 2012 NSCH



Health Outcomes

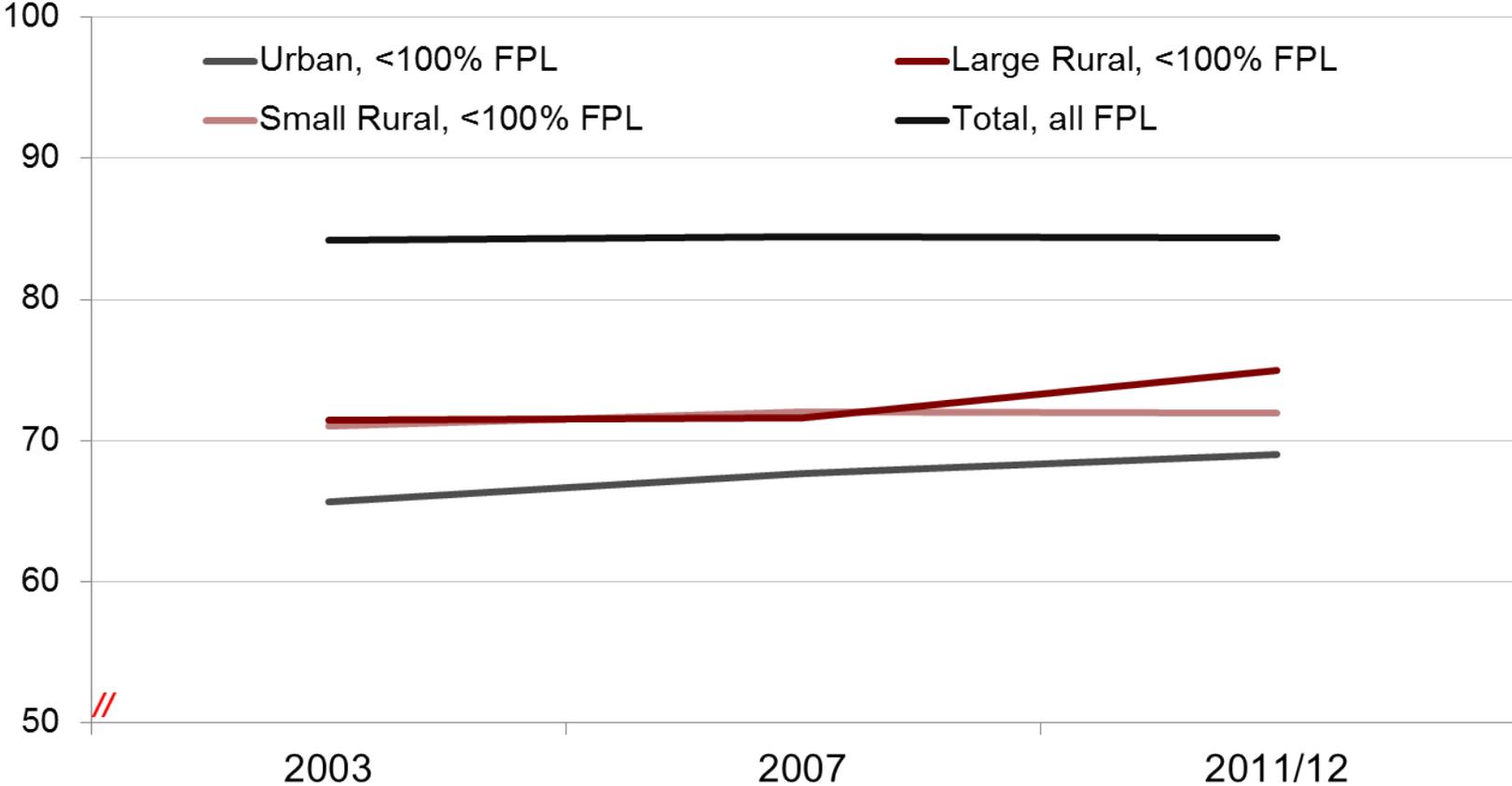
Most Parents Report Healthy Children

Percent of children with excellent or very good health status by residence, 2003 – 2012, NSCH



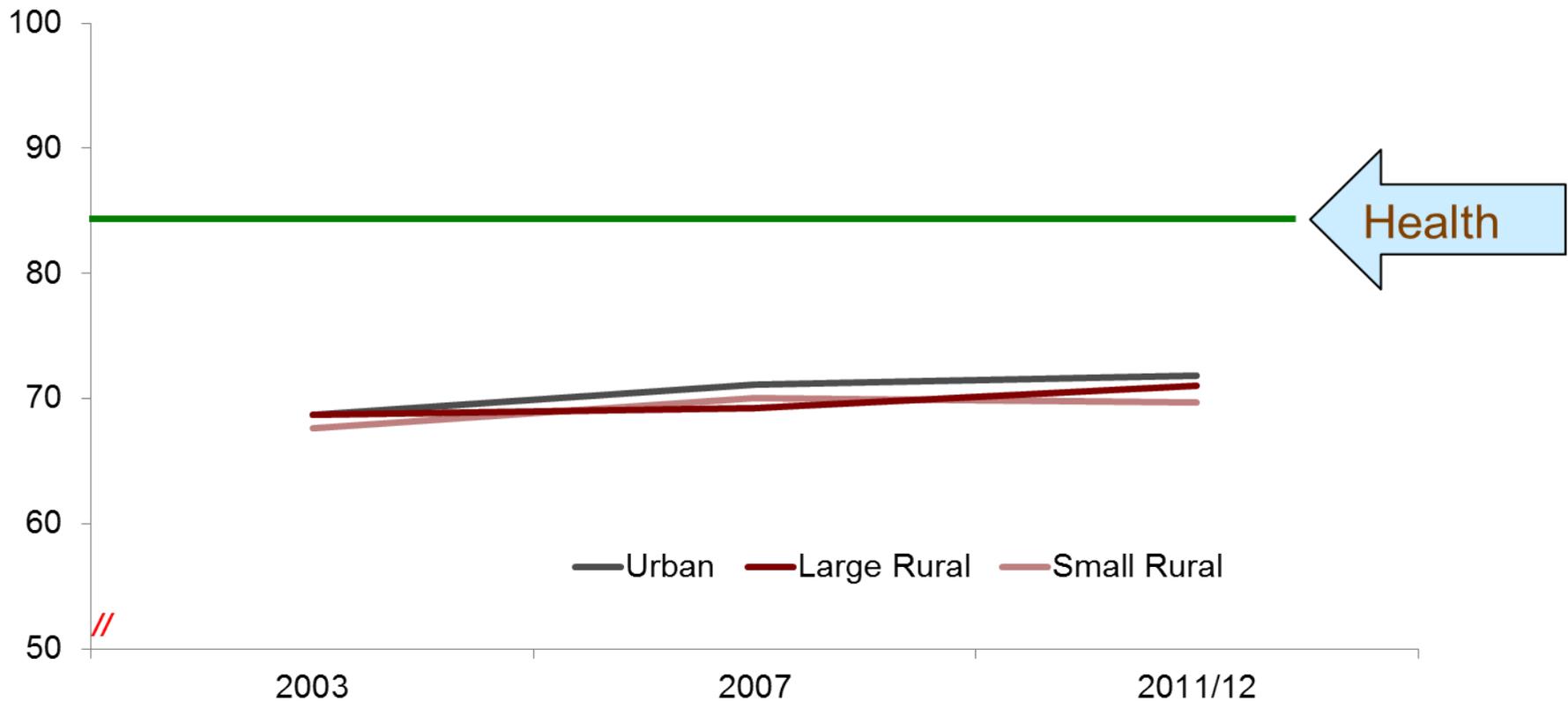
Poor Parents, Less So

Percent of parents reporting child's health is excellent or very good, by residence and poverty status, 2003 – 2012 NSCH



Oral Health: Condition of Teeth

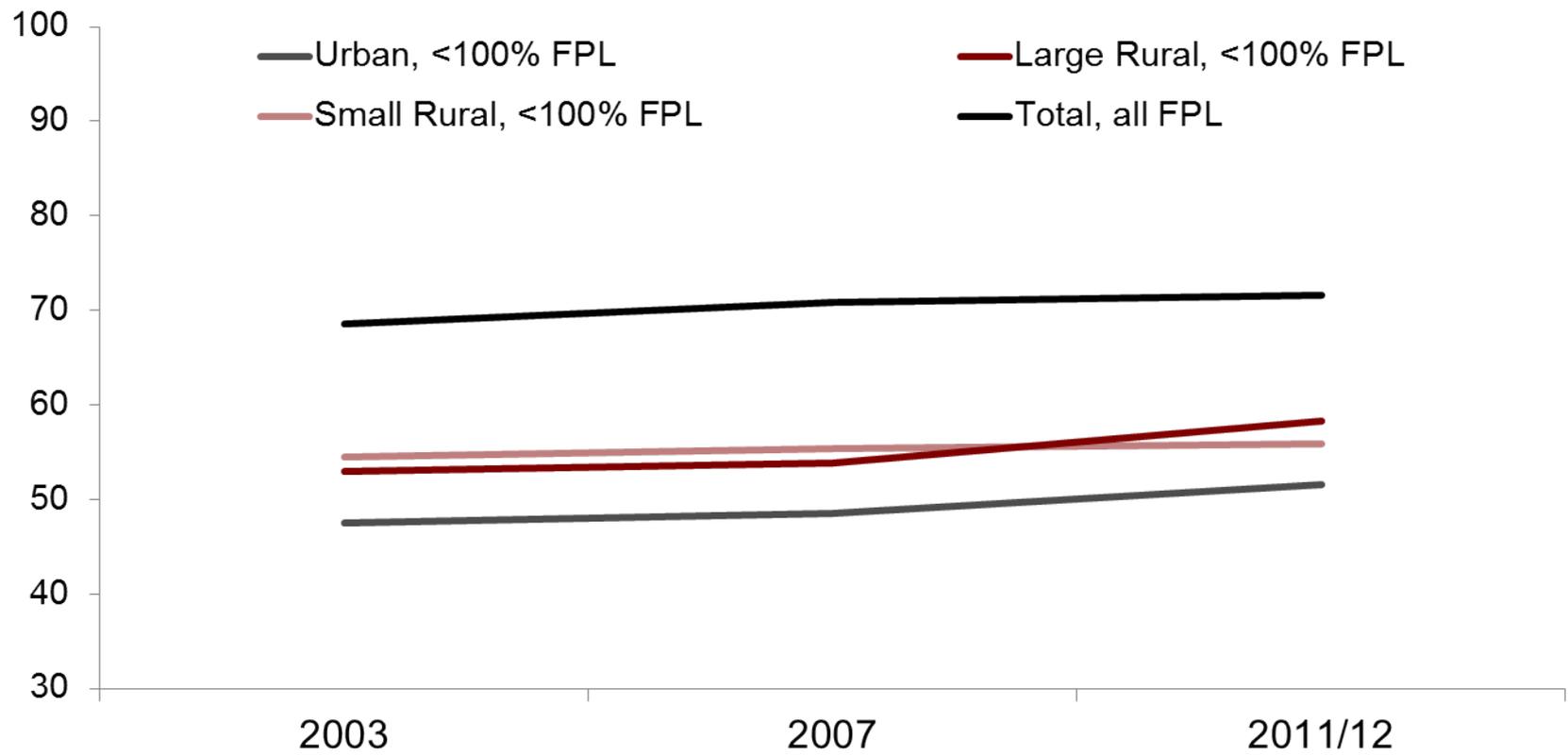
Percent of parents reporting excellent or very good condition of child's teeth, by residence, 2003 – 2012, NSCH



Change significant for Urban population only

Poverty and Oral Health

Proportion of parents reporting child's teeth are excellent or very good, by residence and poverty status, 2003 – 2012 NSCH



Change significant for Urban population only

Takeaway

- Progress in some areas:
 - ◆ Rural children increasingly have health insurance
- Not changed:
 - ◆ Rural disparities persist across most measures of access, although not in measures of health status
 - ◆ A substantial group of parents do not see their child's oral health as "excellent/very good"
- Getting worse:
 - ◆ Increasing poverty with no change in rural urban disparities
 - ◆ Declines in preventive visits

Thanks!

- Our web site:
 - ◆ rhr.sph.sc.edu
- Our funder for studying kids trends:
 - ◆ Federal Office of Rural Health Policy, Health Resources & Services Administration, USDHHS
- Contact:
 - ◆ jprobst@sc.edu



The Rural Health Research Gateway provides access to all publications and projects from eight different research centers. Visit our website for more information.

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Rural Health Indicators Data Speak

Alana Knudson, PhD

May 31, 2016

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

Rural Health Reform Policy Research Center

RHRPRC is a consortium that combines the resources of two premier institutions:

- 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

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

Methods

Source of Mortality data:

National Vital Statistics System (NVSS)

- Years 2011-2013

Data are grouped by:

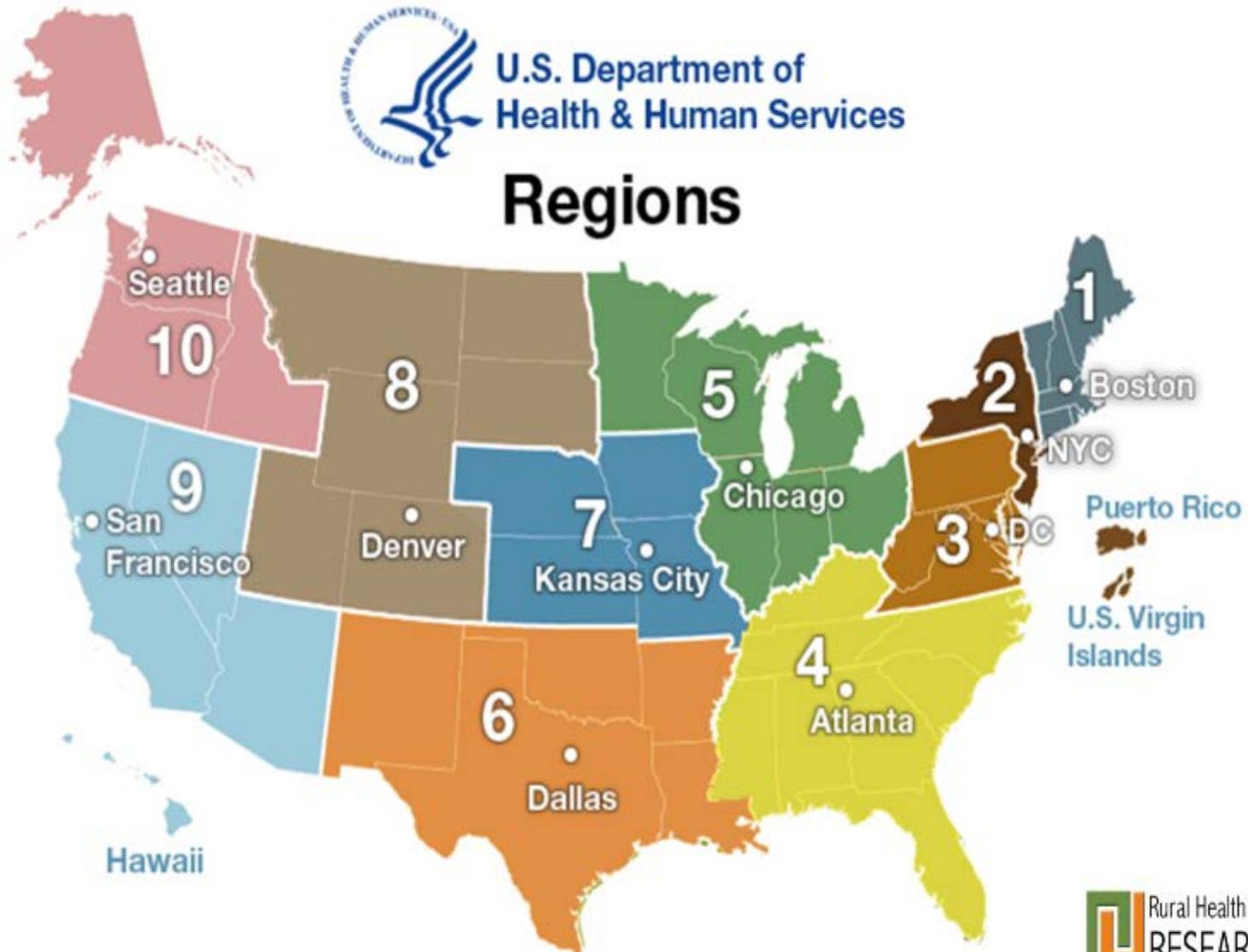
- 2013 NCHS Urban-Rural Classification Scheme for Counties
 - (Large Central, Large Fringe, Small/Medium Metro, Micropolitan, Non-core)
- HHS Regions
- Age
- Gender
- Cause of Death
 - Top 10 Nation-wide causes of death for each age group

2013 NCHS Urban-Rural Classification Scheme for Counties

2013 NCHS Urban-Rural Classifications

- **Large central** (inner cities)
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
- **Large Fringe** (suburban)
Counties in MSAs with a population of at least 1 million residents
- **Small Metro**
Counties in MSAs with a population of less than 1 million residents
- **Micropolitan** (large rural)
Counties with populations of 10,000 to 49,999 residents
- **Non-core** (small rural)
Remaining nonmetropolitan counties that are not in a micropolitan statistical area

HHS Regions



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

HHS Regions and States in Them

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

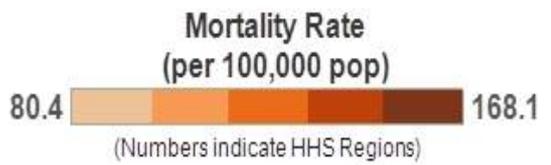
Region 9: Arizona, California, Hawaii, Nevada

Region 10: Alaska, Idaho, Oregon, Washington

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

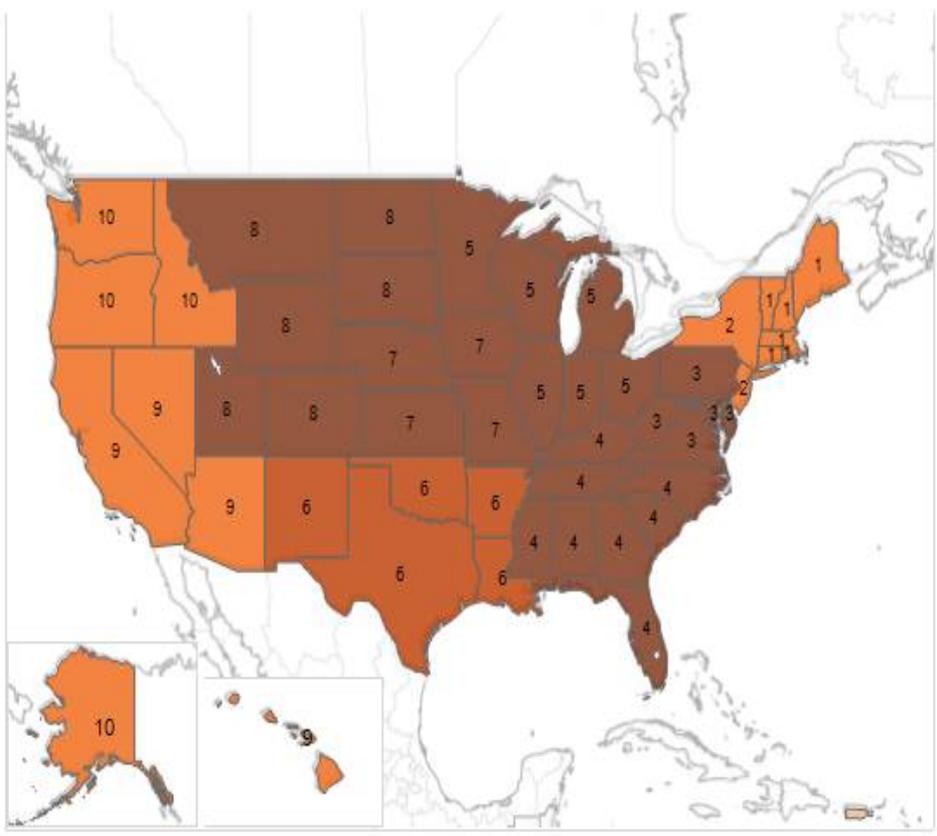
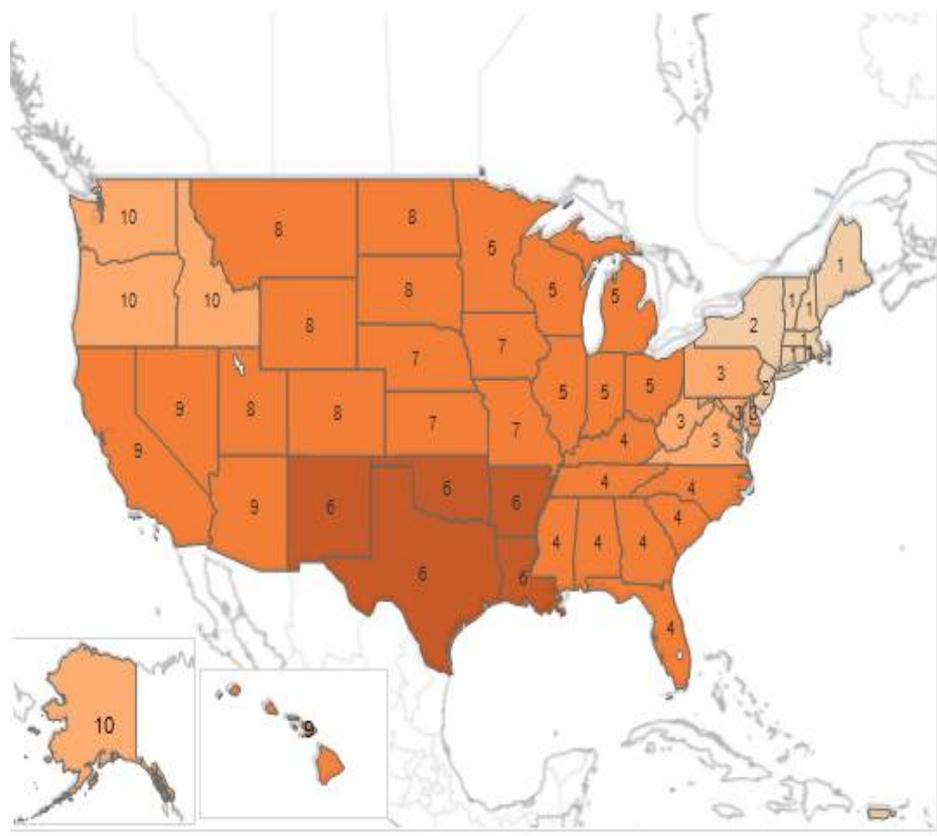
Age
Under 1

Cause of Death
Congenital malformations



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

RURAL (Micropolitan, Non-Core)

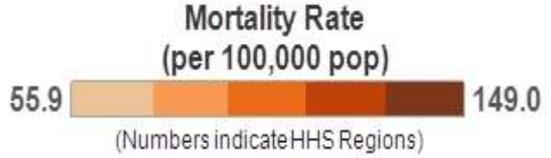


SOURCES: Centers for Disease Control and Prevention, National Center for Health Statistics, Multiple Cause of Death.
 SUGGESTED CITATION: Rural Health Reform Policy Research Center. Exploring Rural and Urban Mortality Differences, August 2015 Bethesda, MD. 2015.

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

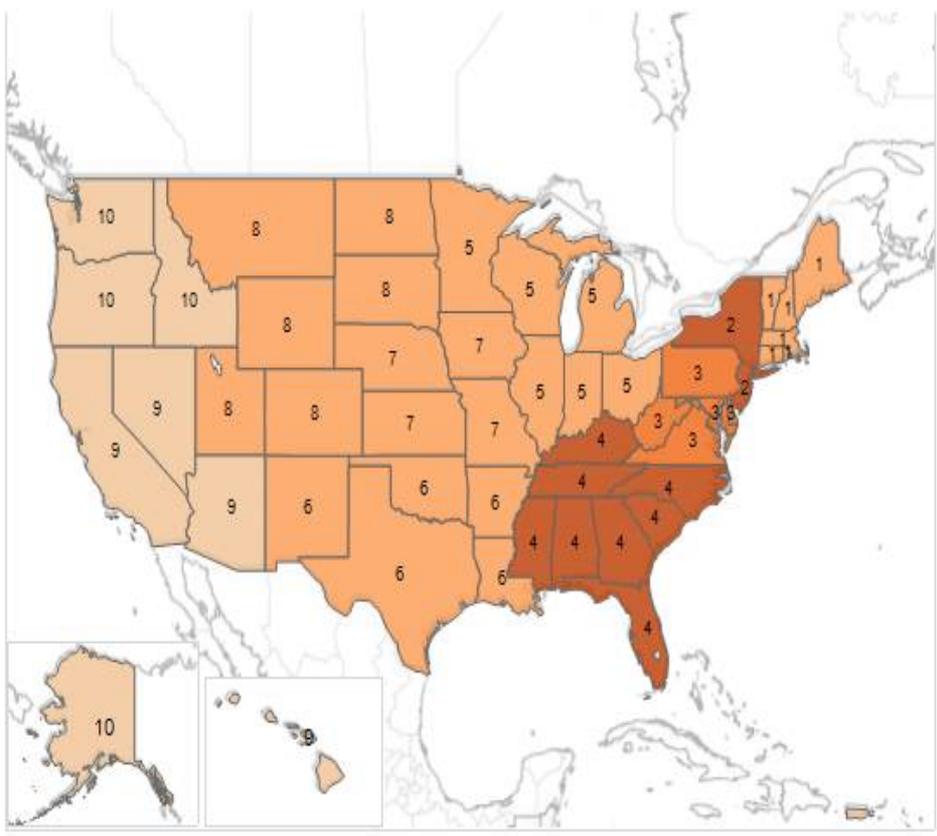
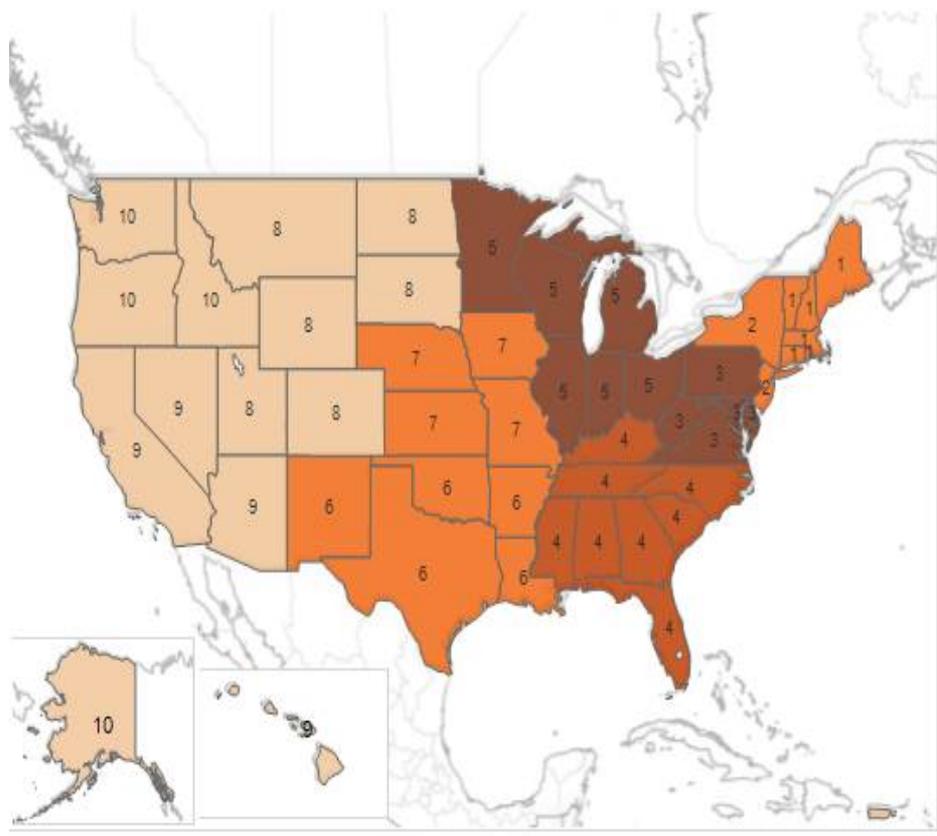
Age
Under 1

Cause of Death
Short gestation and low birth weight



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.
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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

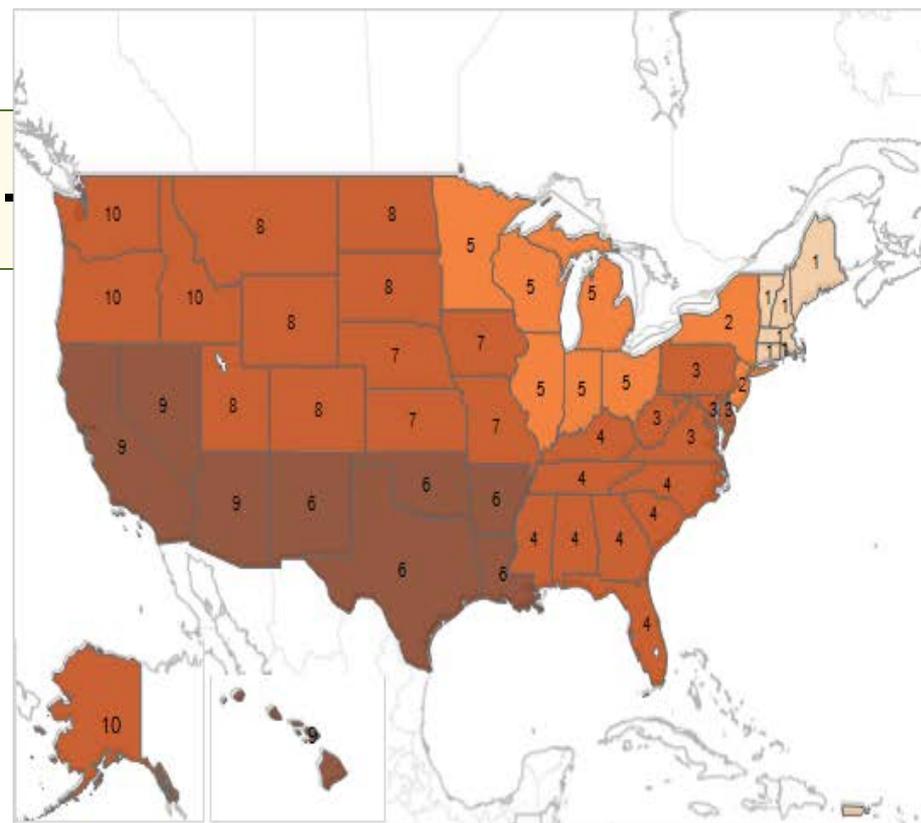
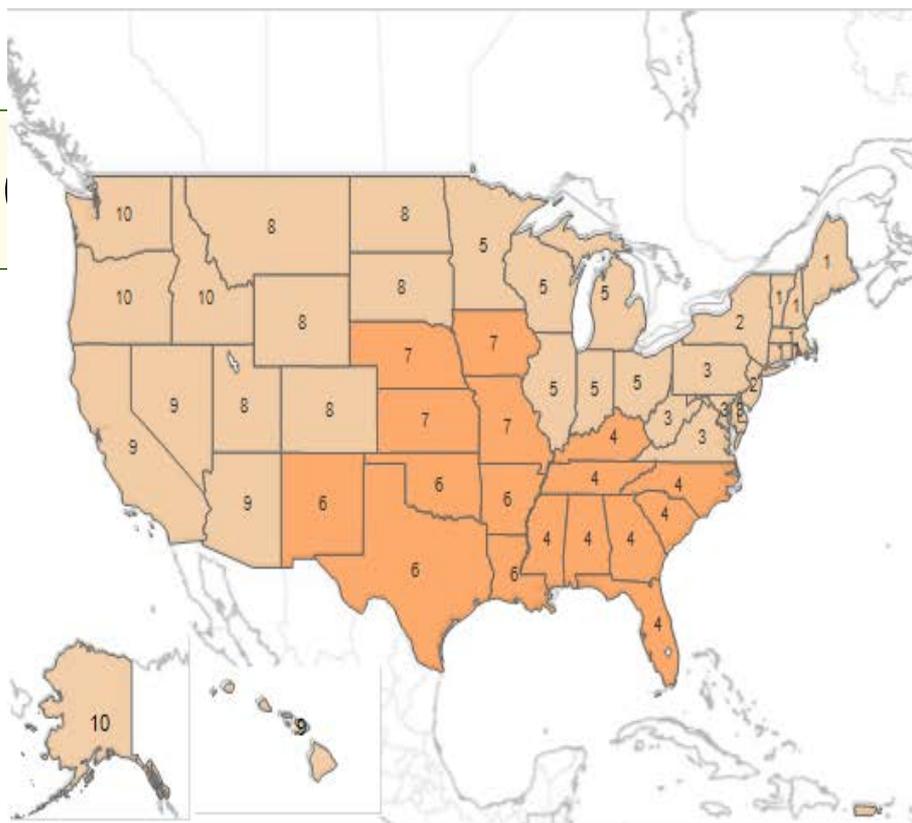
Age
1 to 14

Cause of Death
Unintentional injuries



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.

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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

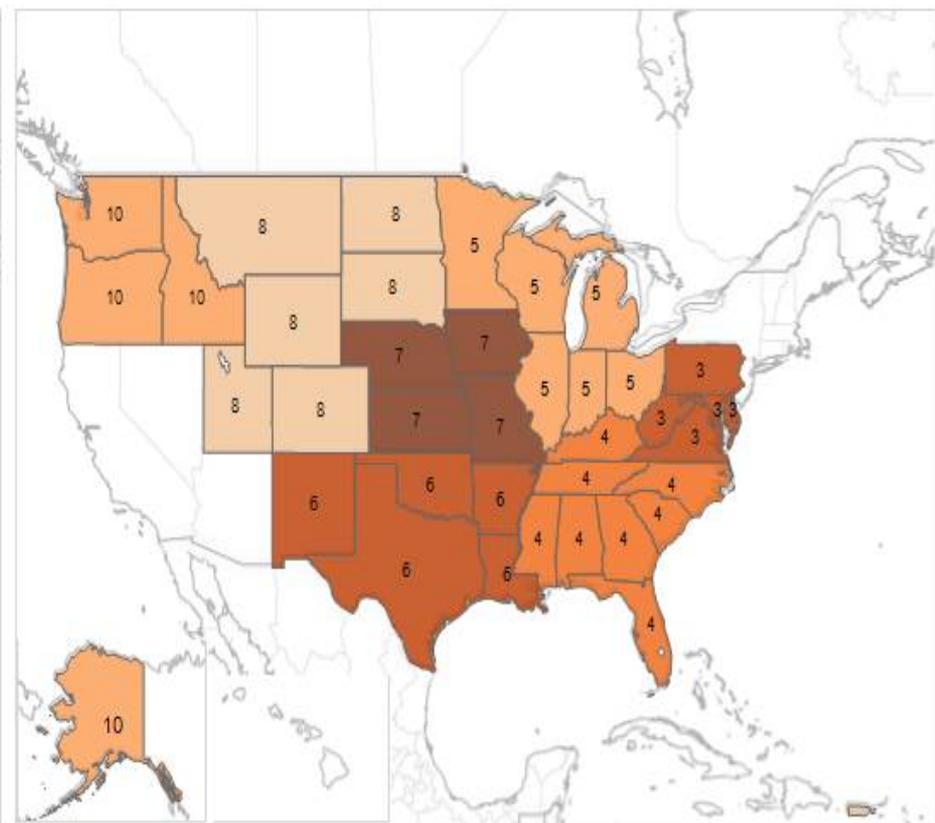
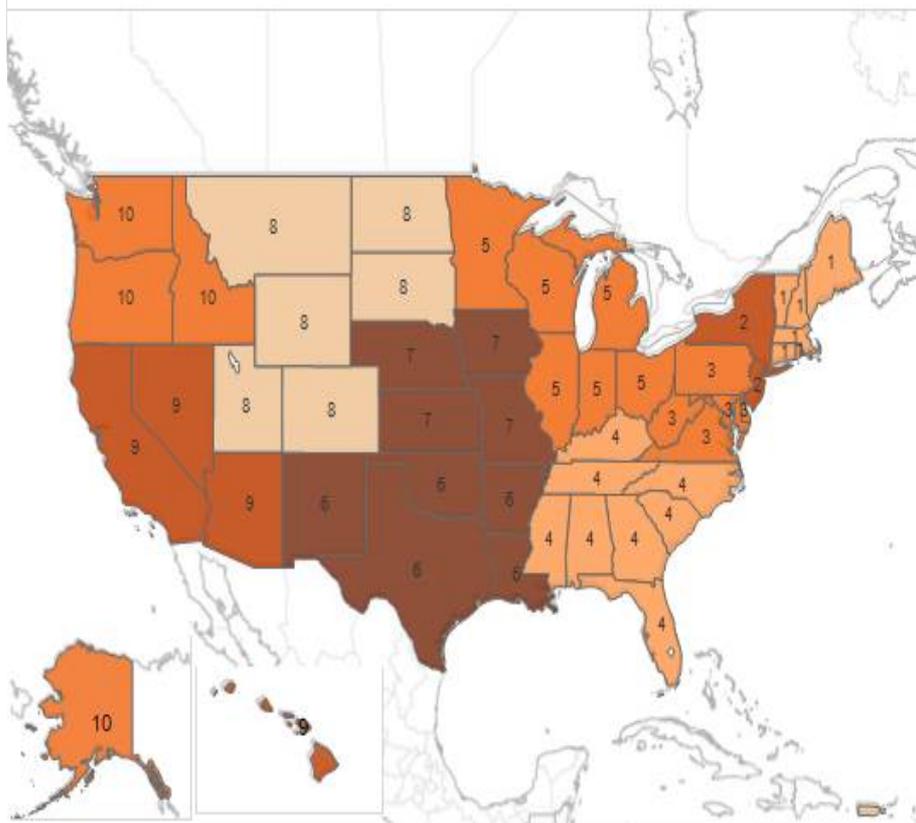
Cause of Death
Malignant neoplasms

Mortality Rate
(per 100,000 pop)



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

RURAL (Micropolitan, Non-Core)



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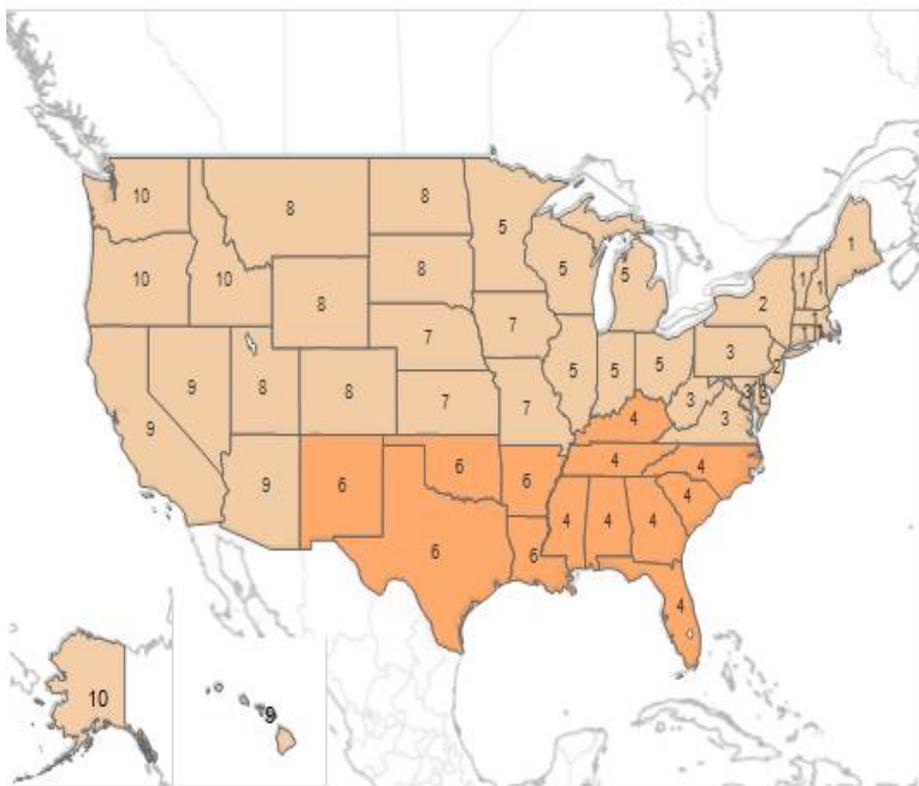
Mortality Rates by HHS Region and Urban-Rural Status: United States, 2011-2013; Age: 15 to 24; Cause of Death: Unintentional injuries; Sex: Male

Sex
Male

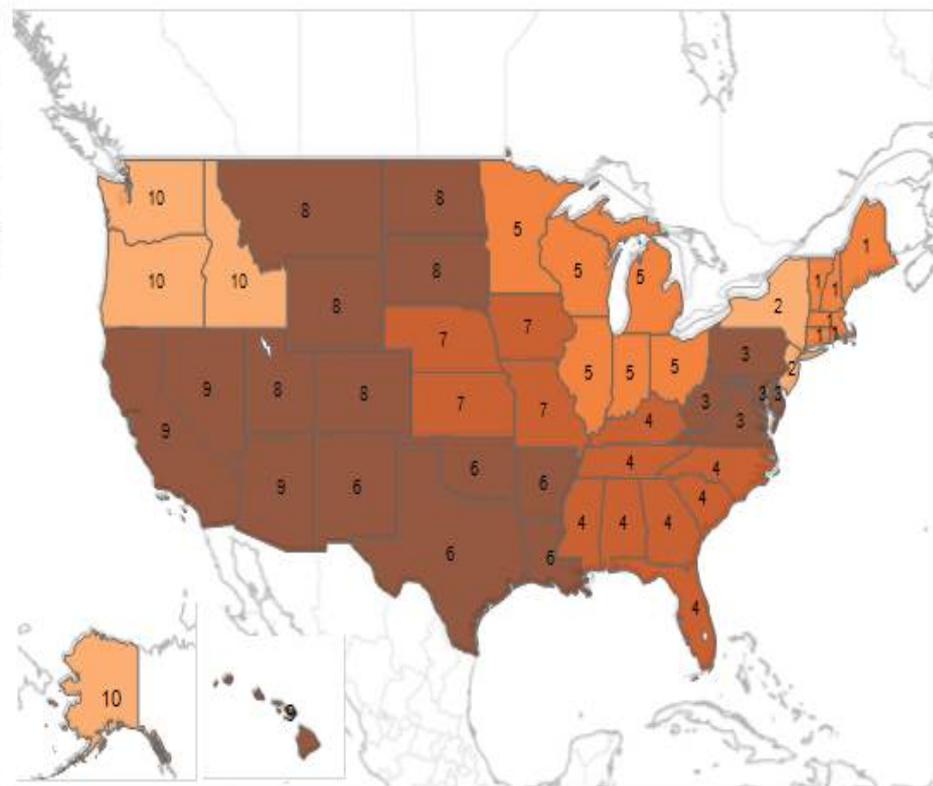
Cause of Death
Unintentional injuries



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.

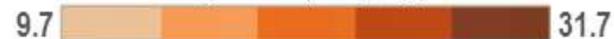
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Mortality Rates by HHS Region and Urban-Rural Status: United States, 2011-2013; Age: 15 to 24; Cause of Death: Unintentional injuries; Sex: Female

Sex
Female

Cause of Death
Unintentional injuries

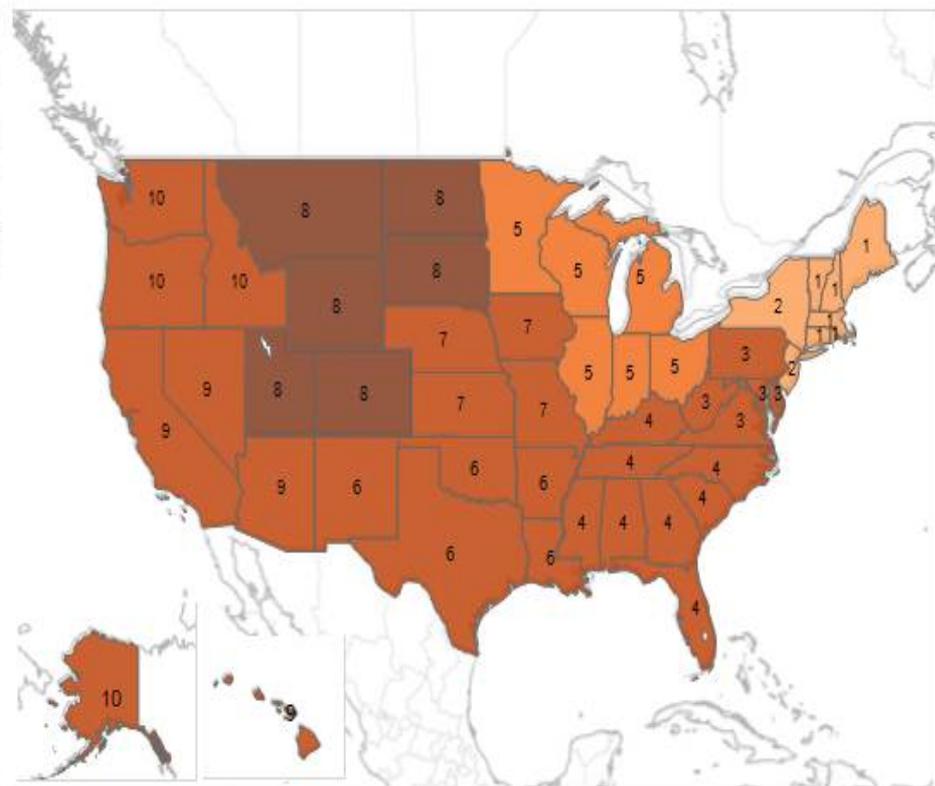
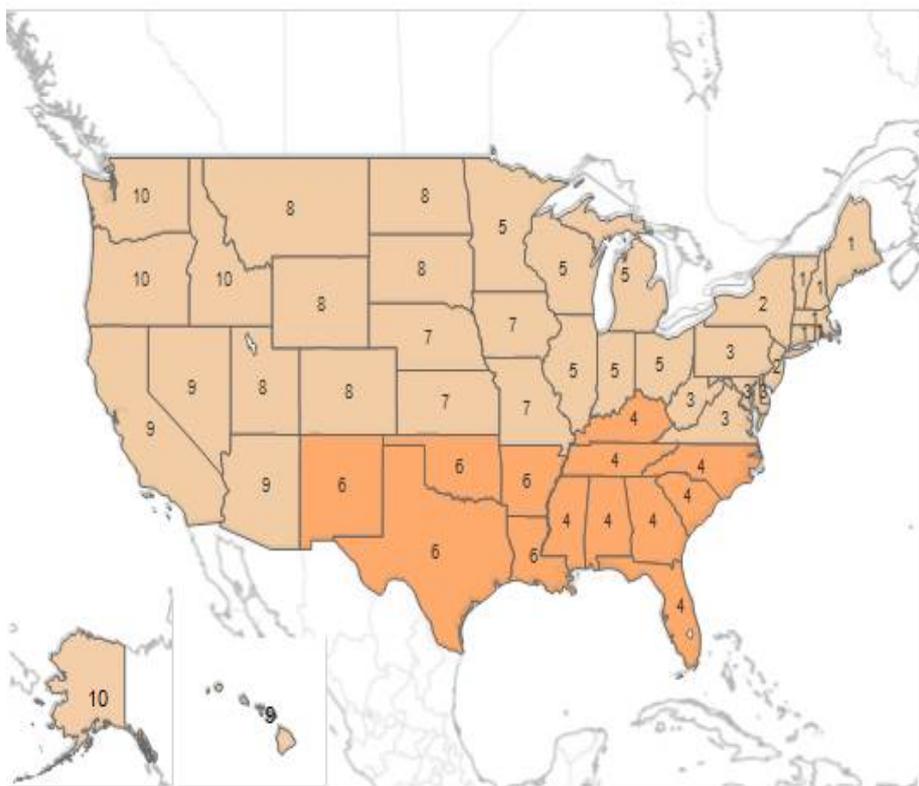
Mortality Rate
(per 100,000 pop)



(Numbers indicate HHS Regions)

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

RURAL (Micropolitan, Non-Core)



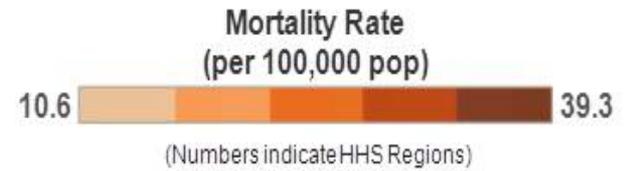
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Mortality Rates by HHS Region and Urban-Rural Status: United States, 2011-2013; Age: 15 to 24; Cause of Death: Suicide; Sex: Male

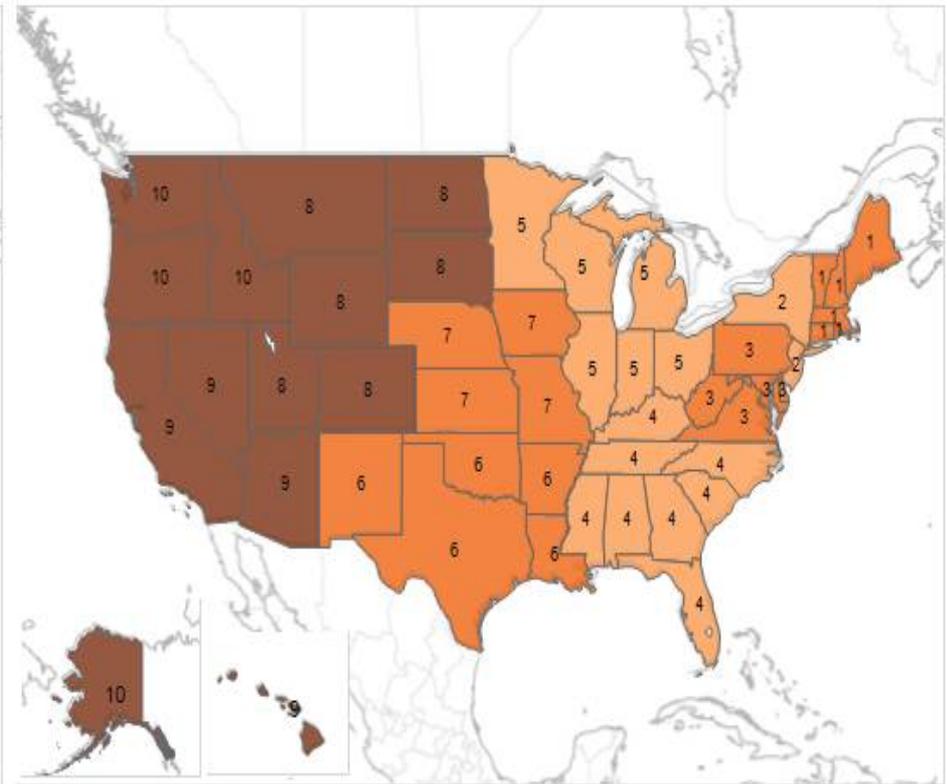
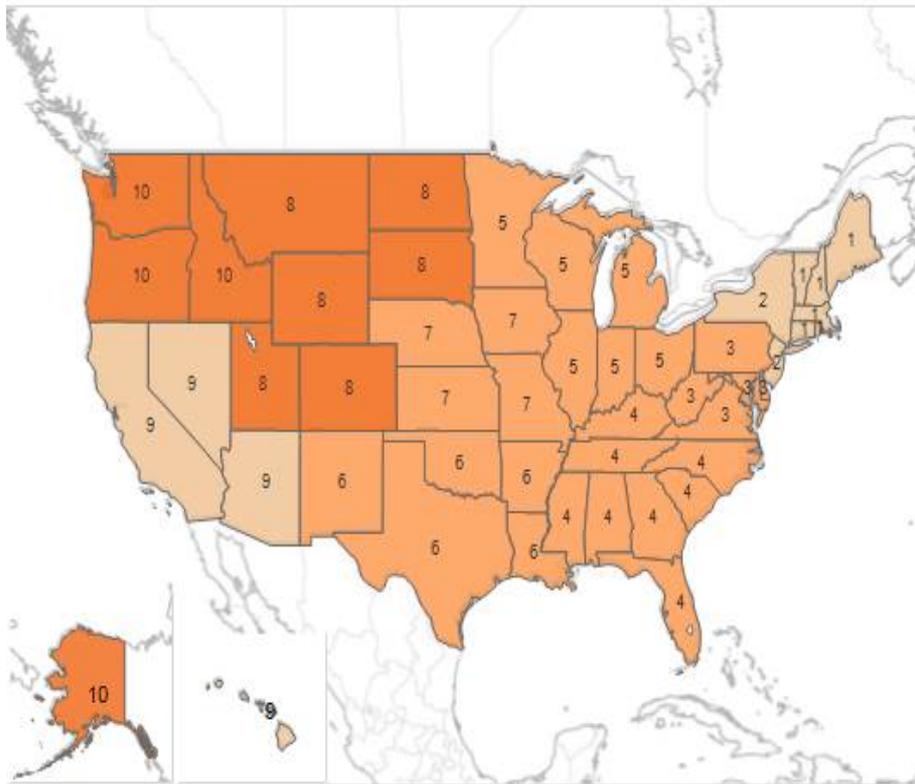
Sex
Male

Cause of Death
Suicide



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: 15 to 24; Cause of Death: Suicide; Sex: Female

Sex
Female

Cause of Death
Suicide

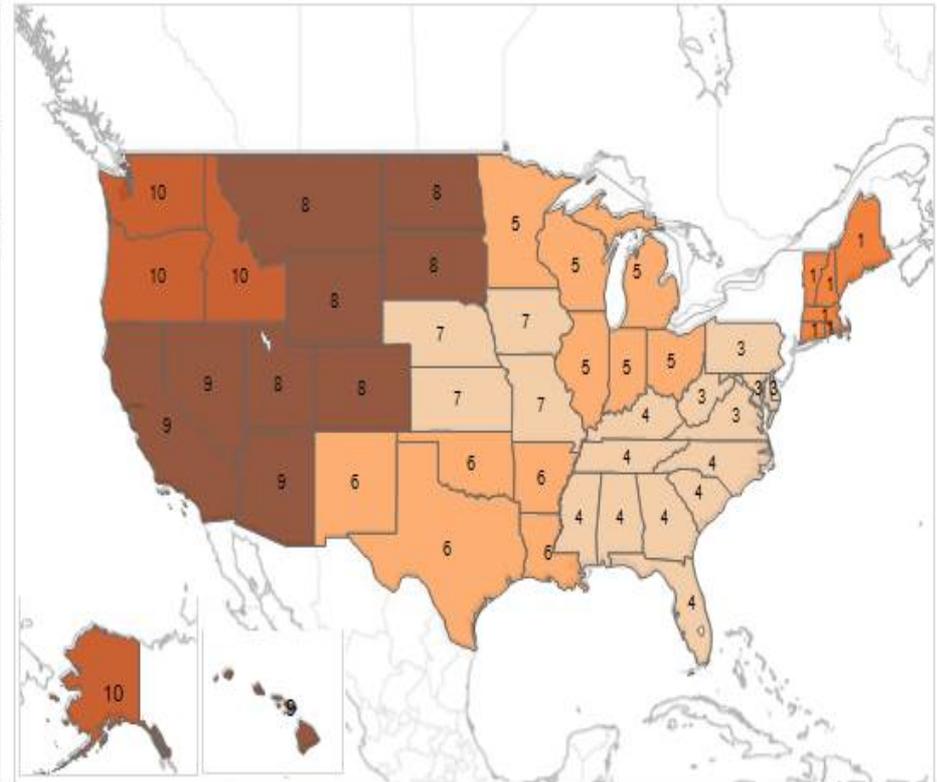
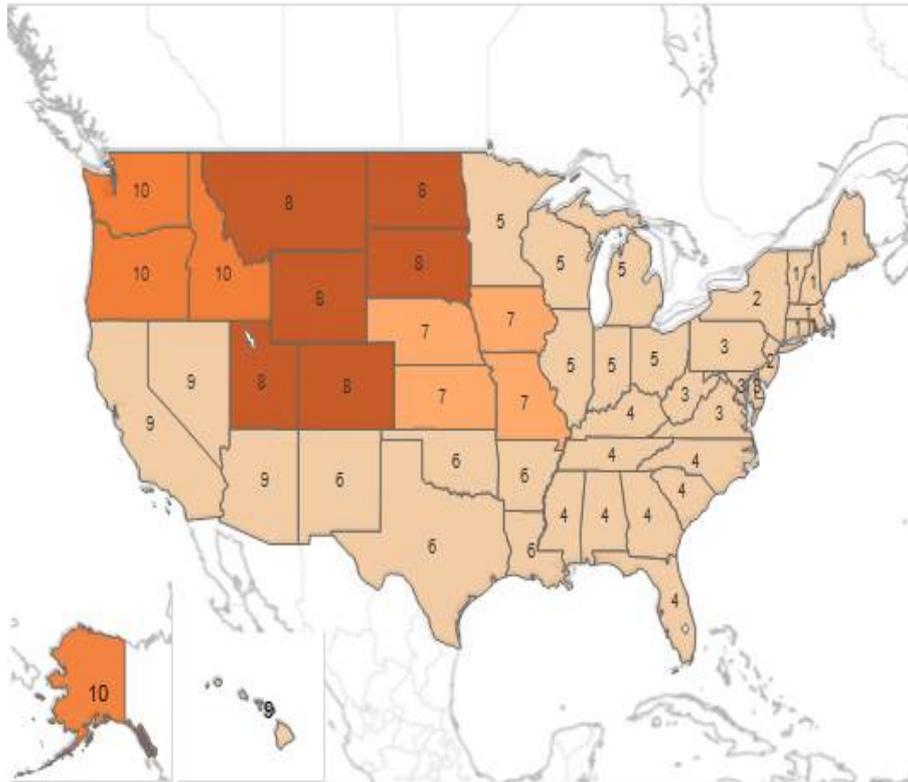
Mortality Rate
(per 100,000 pop)



(Numbers indicate HHS Regions)

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

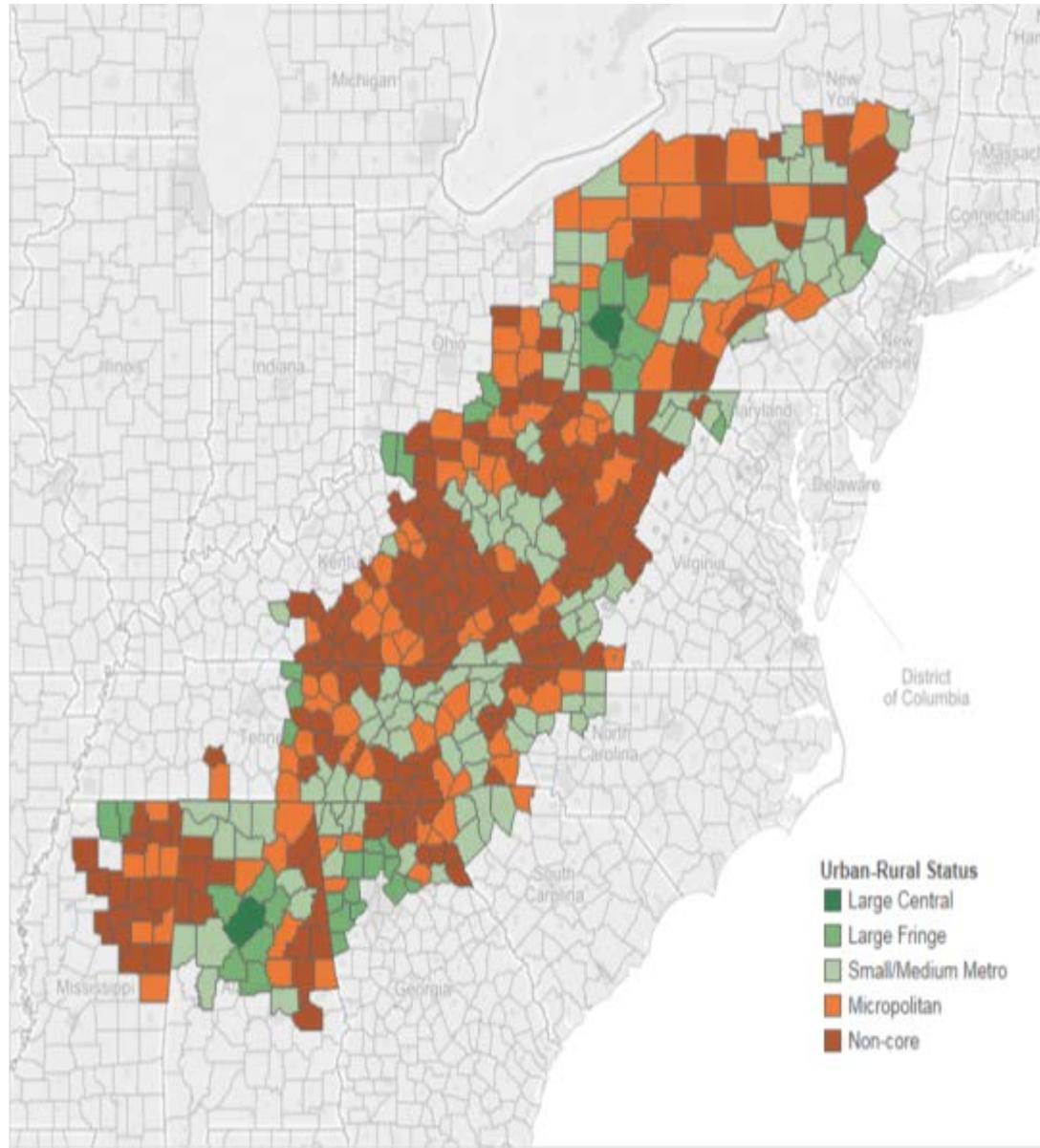
RURAL (Micropolitan, Non-Core)



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Appalachian Region



Please select:

Age Under 1 Year

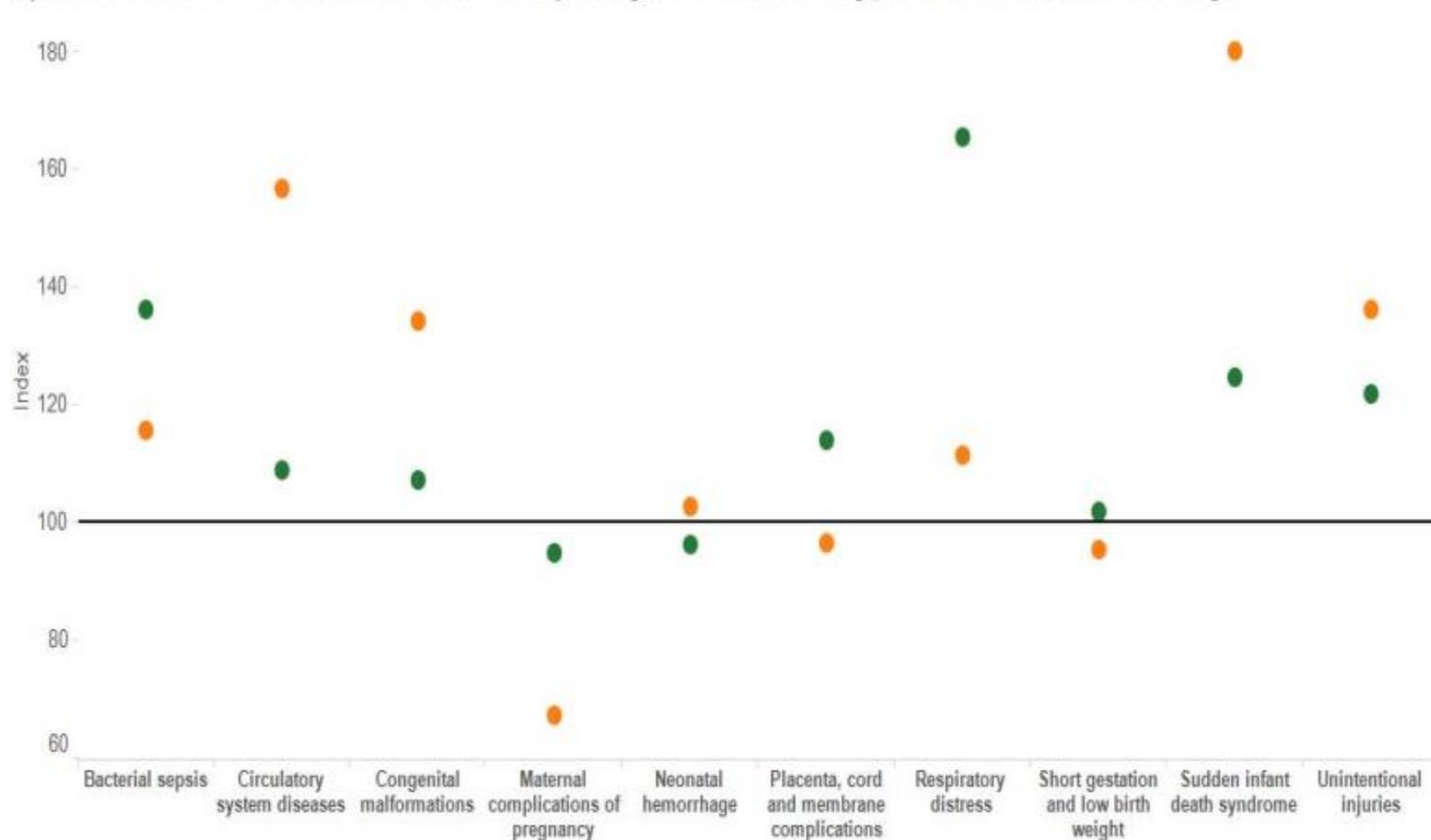
Sex Both Sexes

Region Appalachia Region

Rural-Urban Status
Rural
Urban

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.

SUGGESTED CITATION: Rural Health Reform Policy Research Center. Exploring Rural and Urban Mortality Differences, August 2015 Bethesda, MD. 2015.

Please select:

Age 1 to 14 Years

Sex Both Sexes

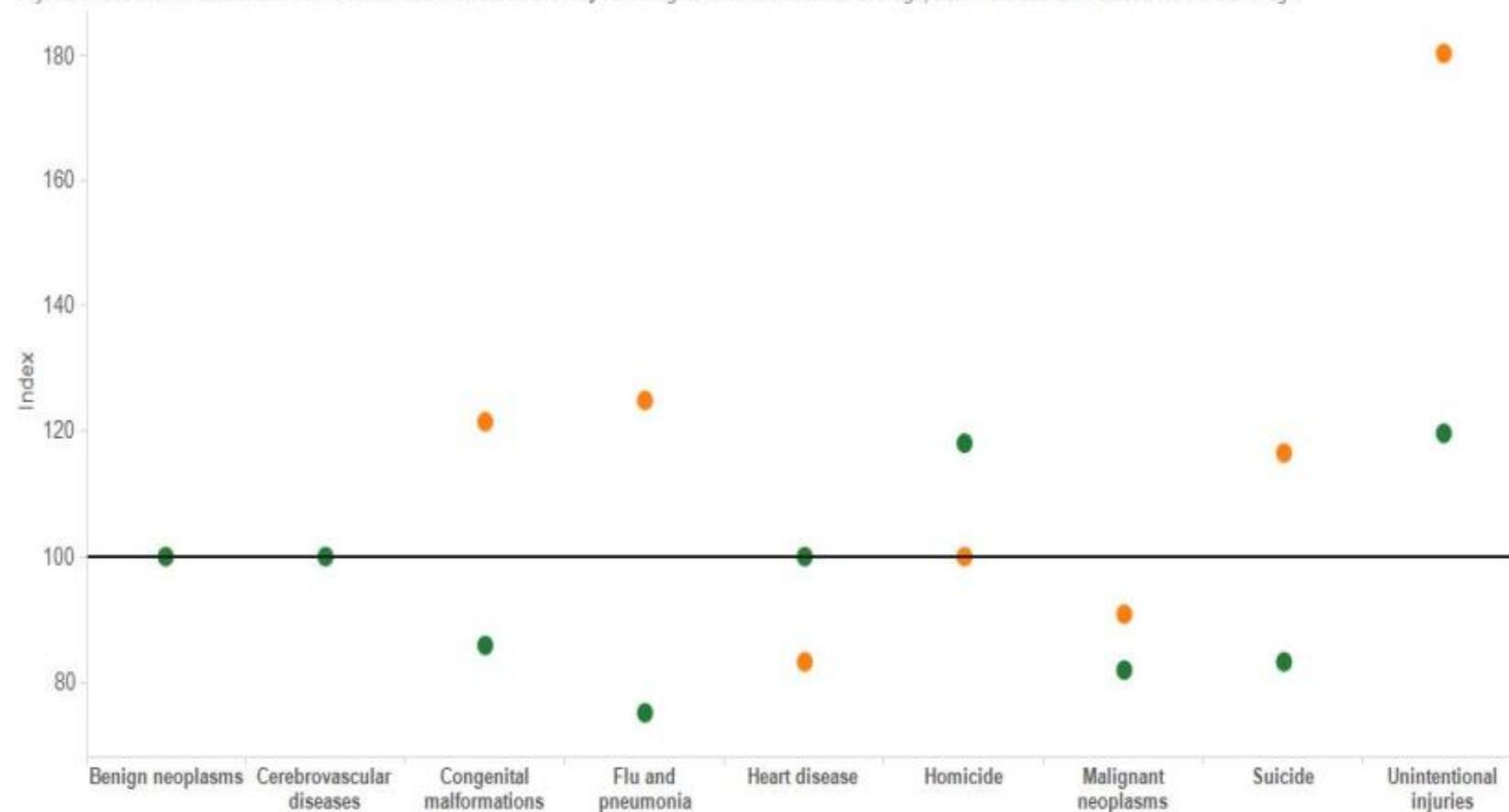
Region Appalachia Region

Rural-Urban Status

Rural
Urban

Index for Mortality Rates for Cause Related to the National Mortality Rate among Persons (Both Sexes) Age 1 to 14 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.



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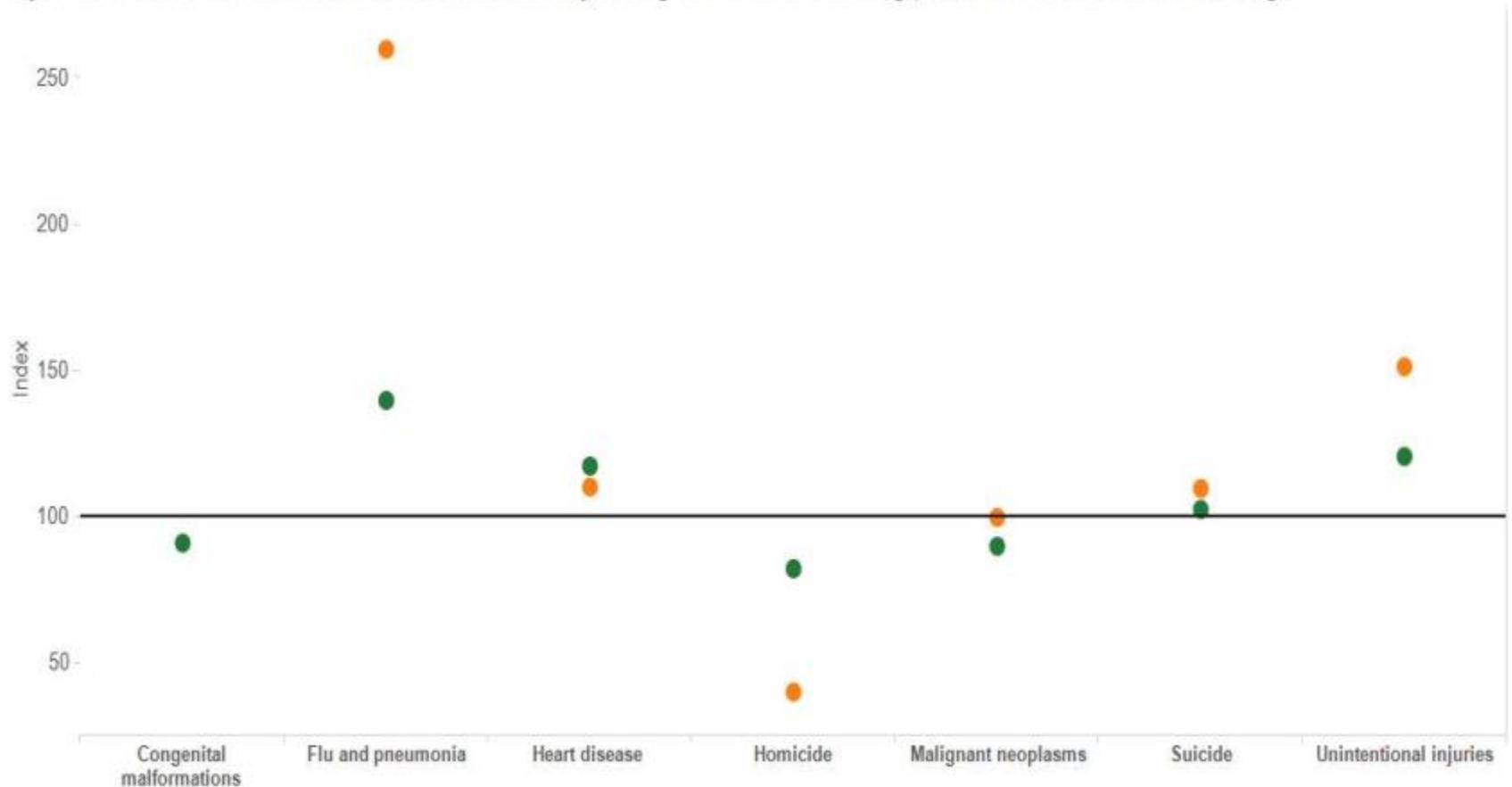
Please select:

Age 15 to 24 Years
Sex Males
Region Appalachia Region

Rural-Urban Status
Rural
Urban

Index for Mortality Rates for Cause Related to the National Mortality Rate among Persons (Males) Age 15 to 24 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.



Please select:

Age 15 to 24 Years

Sex Females

Region Appalachia Region

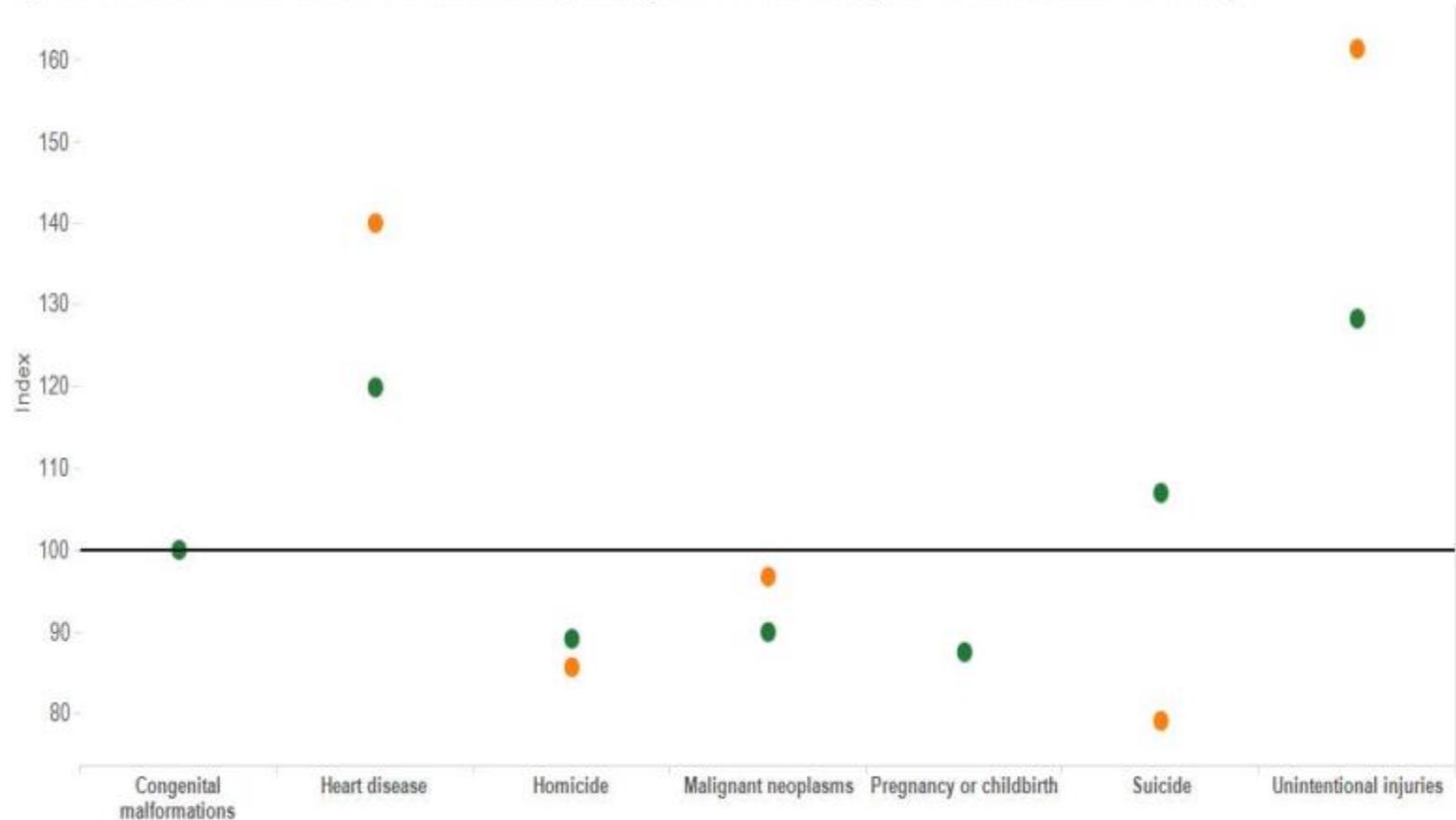
Rural-Urban Status

Rural

Urban

Index for Mortality Rates for Cause Related to the National Mortality Rate among Persons (Females) Age 15 to 24 Years, in Appalachia Region, by Rural-Urban Status: United States, 2011-2013

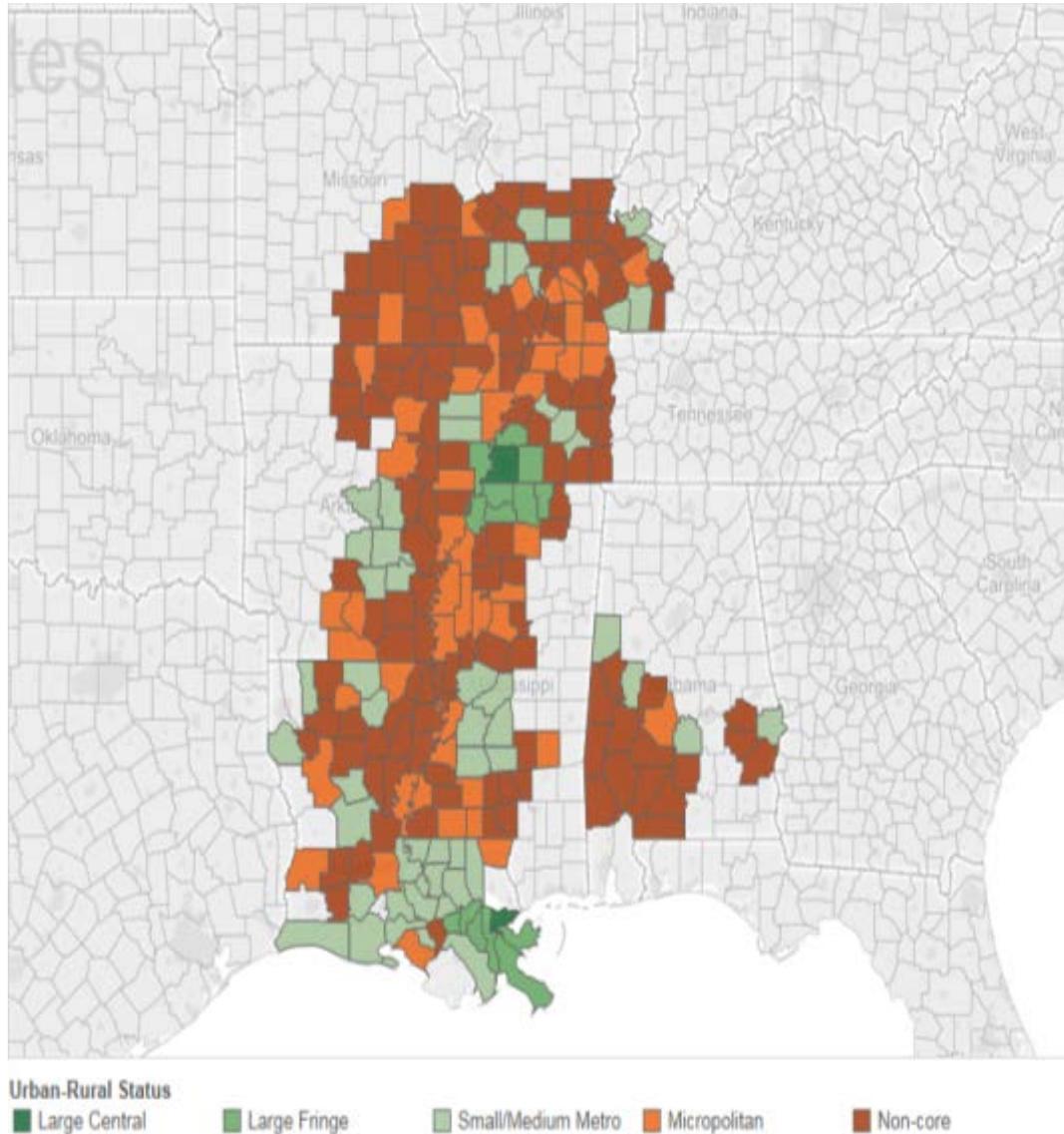
Objects above the horizontal line where index=100 indicates mortality rates higher than the national average, below the line are values below the average.



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

SUGGESTED CITATION: Rural Health Reform Policy Research Center. Exploring Rural and Urban Mortality Differences, August 2015 Bethesda, MD. 2015.

Delta Region



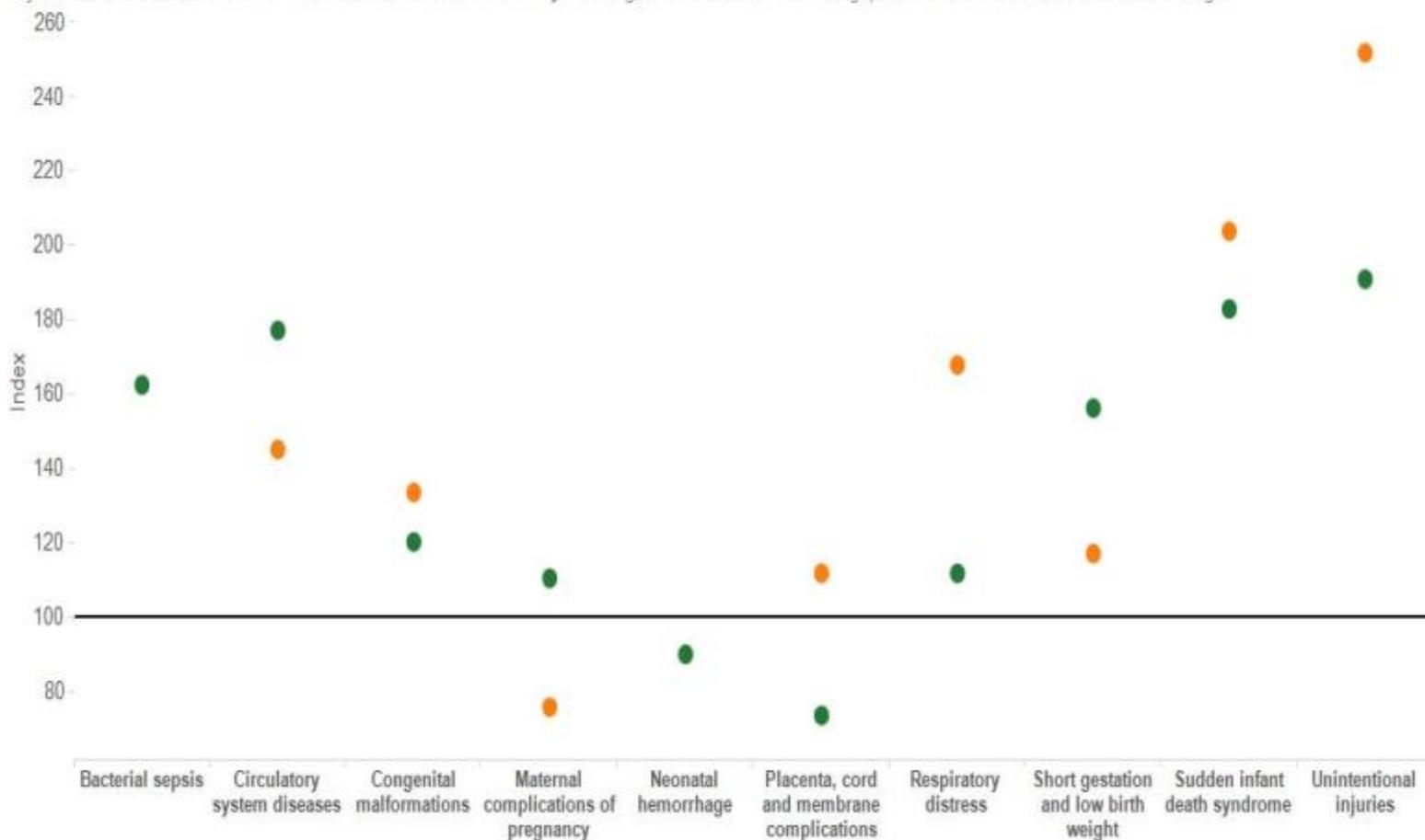
Please select:

Age Under 1 Year
Sex Both Sexes
Region Delta Region

Rural-Urban Status
Rural
Urban

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.

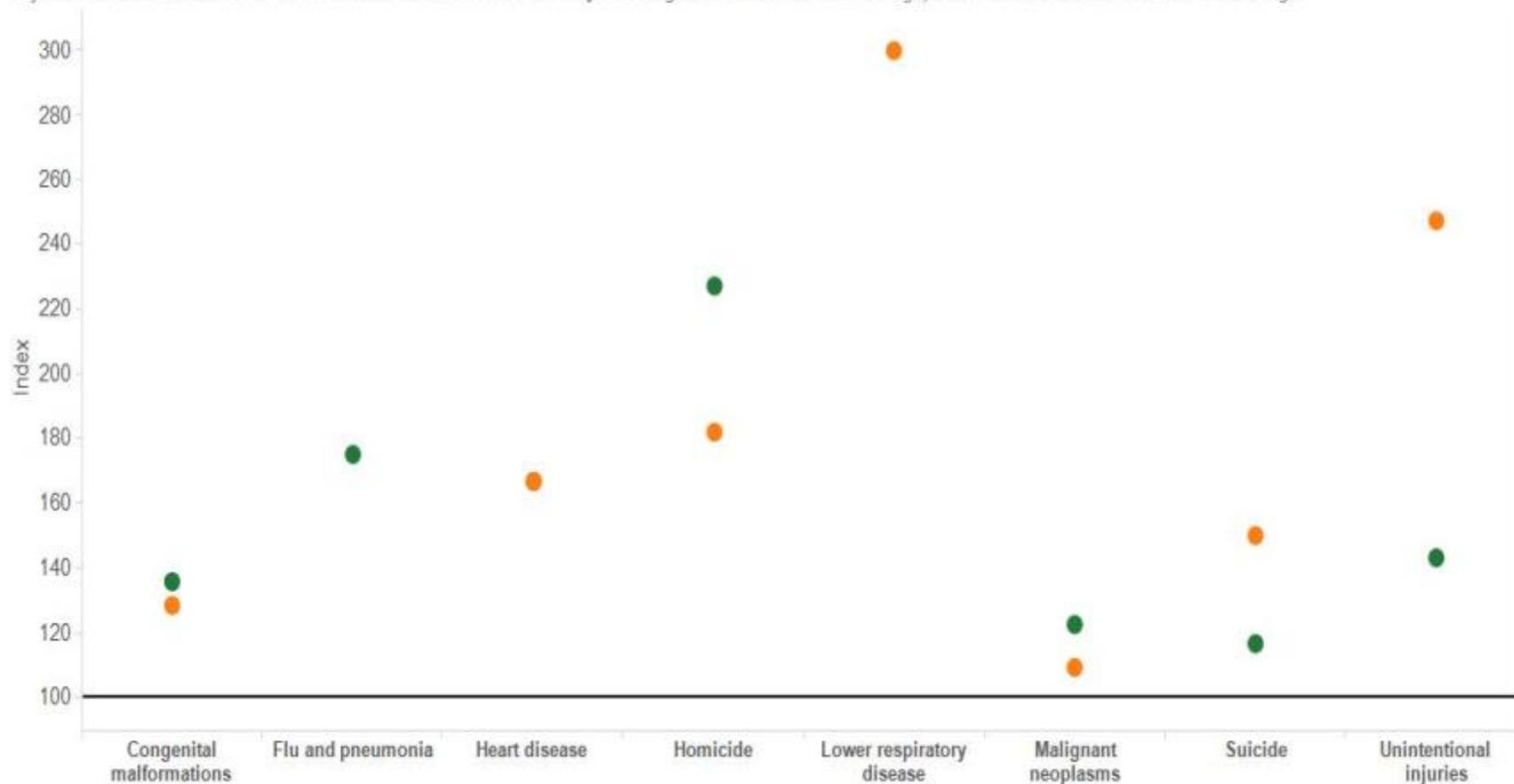
Please select:

Age 1 to 14 Years
Sex Both Sexes
Region Delta Region

Rural-Urban Status
Rural
Urban

Index for Mortality Rates for Cause Related to the National Mortality Rate among Persons (Both Sexes) Age 1 to 14 Years, 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.

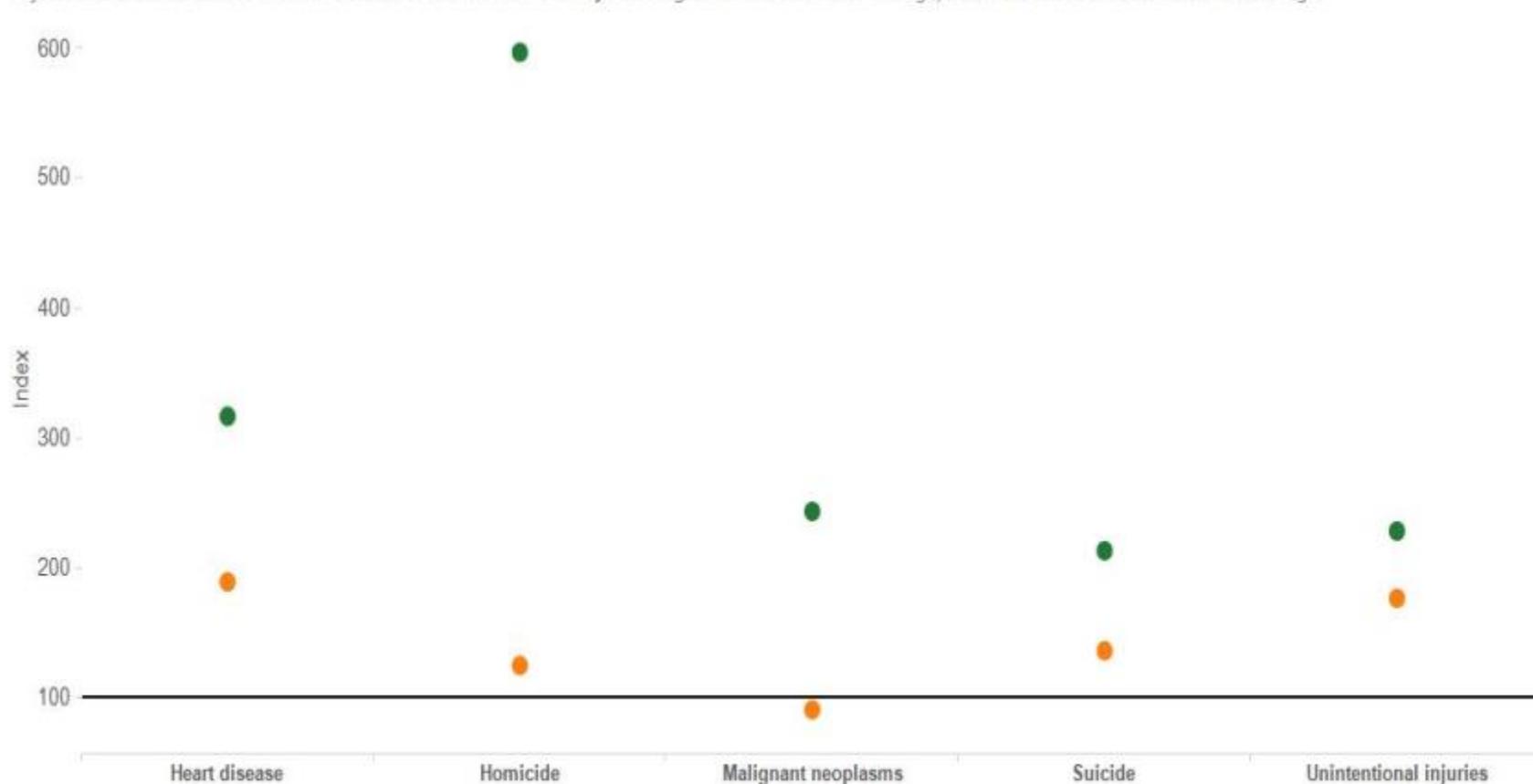
Please select:

Age 15 to 24 Years
Sex Males
Region Delta Region

Rural-Urban Status
Rural
Urban

Index for Mortality Rates for Cause Related to the National Mortality Rate among Persons (Males) Age 15 to 24 Years, 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.

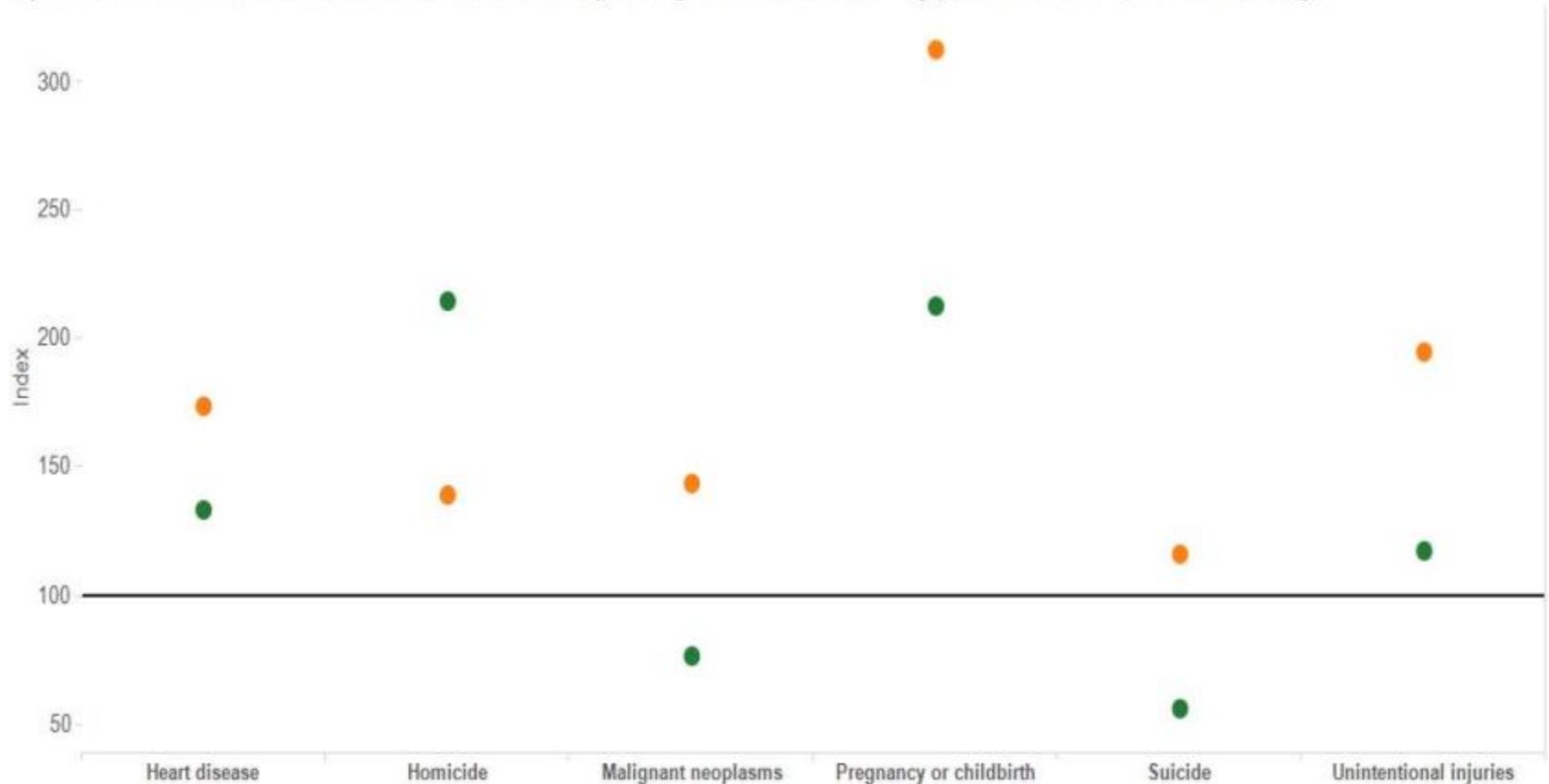
Please select:

Age 15 to 24 Years
Sex Females
Region Delta Region

Rural-Urban Status
Rural
Urban

Index for Mortality Rates for Cause Related to the National Mortality Rate among Persons (Females) Age 15 to 24 Years, 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.

RHI Hub's Community Health Gateway



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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.

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Building the Evidence...



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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.

Gary Hart, PhD, Director

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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



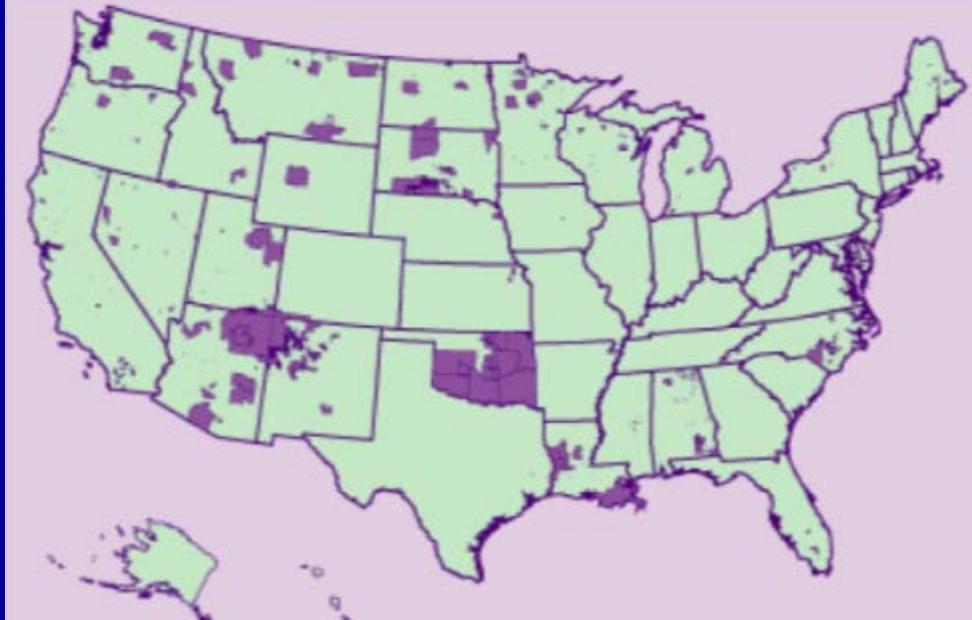
The Trajectory of an American Indian/Alaska Native Child from Birth to Teen Years

Steve Holve, MD

Pediatric Clinical Consultant for the IHS



Native American Lands



- 566 Federally-recognized tribes
- 5.2 million (1.7%) of U.S. self-identified as AI/AN alone or in combination with other race
- Less than 50% live in reservation areas
- Most of the following data is for AI/AN living on or near reservation areas

I Am Born

- If firstborn, chances are 40% my mother is < 20 years old
- 35% likelihood born to a family living in poverty



Infant Mortality Rate 1999-2009 per 1,000 Live-Born Infants

Race	Neonatal	Post-Neonatal	Infant
U.S. White	3.7	1.9	5.6
AI/AN	4.3	4.8	9.1

Wong et al AJPB 2014



**AI/AN Infants Are Born
Healthy But Often Go Home
to a Risk-Filled Environment**



As an Infant

Postneonatal Mortality Rates Relative Risk of AI/AN vs. U.S. White

- SIDS – 2.43
- Injuries – 3.07
- Flu & Pneumonia – 4.97
- Homicide – 3.32



Wong et al AJPB 2014

When I Am 5 Years Old

- Very unlikely to get a vaccine preventable disease
- Rates for pertussis, Varicella, Hep A, and Hep B are lower in AI/AN children than general U.S.



5-Year-Old Dangers

- 60% of deaths from unintentional injuries
- RR is 2.88
- Greatest risk is MVA
- Homicide RR is 3.48



When I Am 5 Years Old, I Will Have Early Childhood Caries

- 85% of AI/AN preschoolers have caries
- AI/AN Caries Rate is 5 times U.S. rate
- AI/AN children have 5000% higher rate of hospitalization for FMDR



1999 IHS Oral Health Survey

And I Am Likely to Be Obese or Overweight



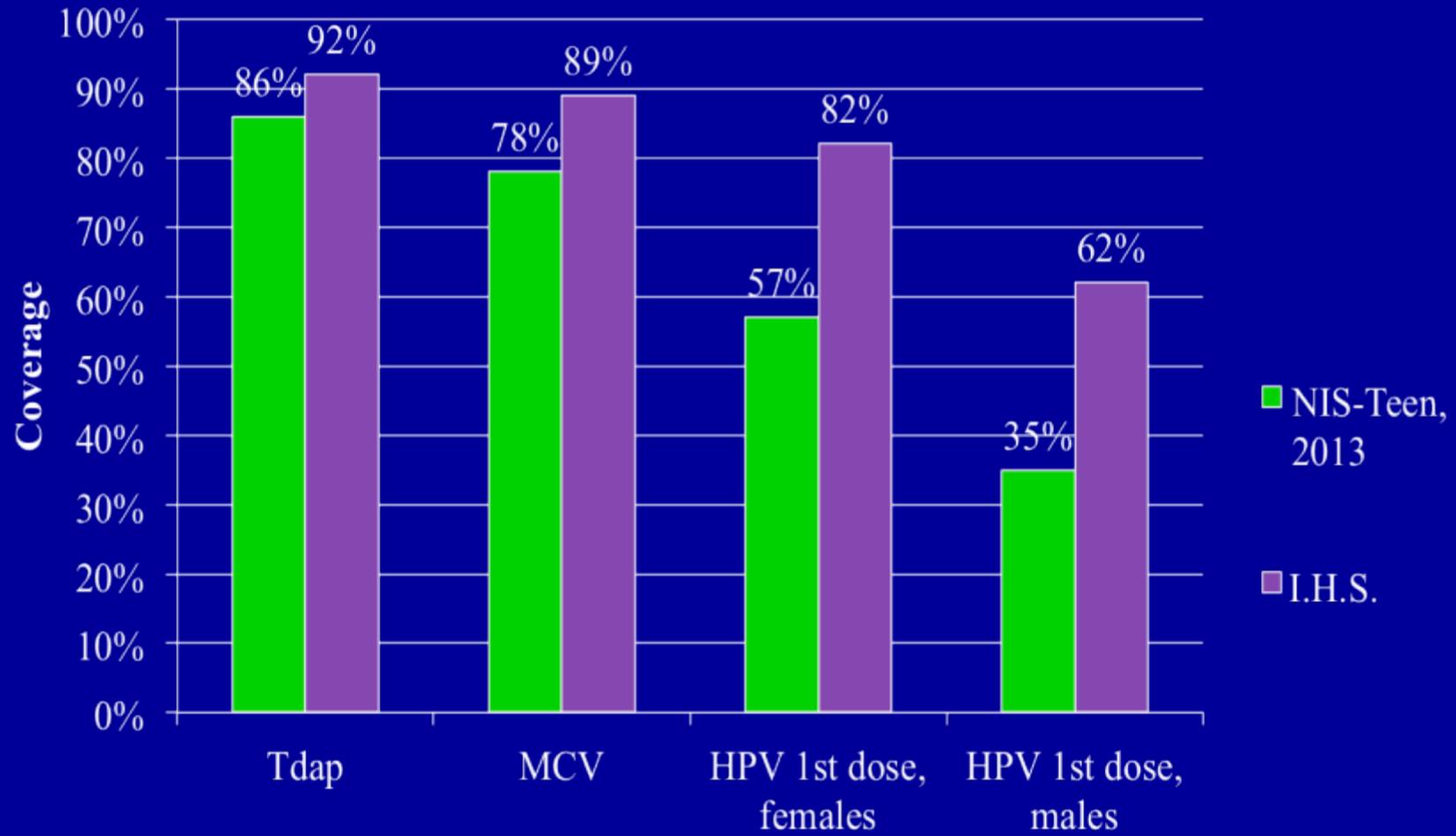
When I Become a Teenager





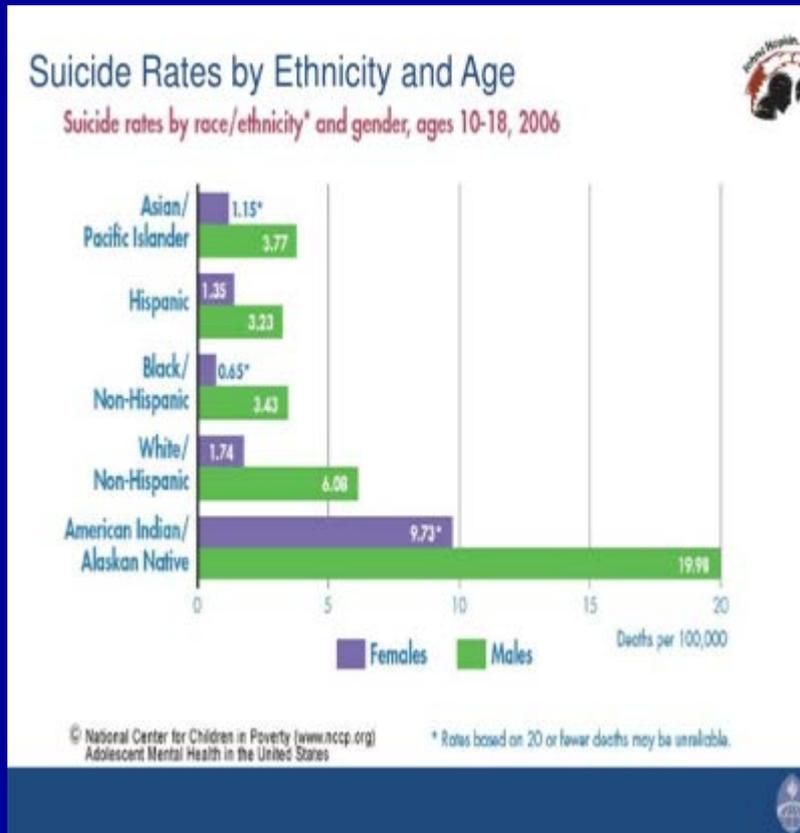
IHS vs. National Vaccination Coverage

United States, 2013, Ages 13-17 years



CDC. National Immunization Survey-Teen. Available at: [CDC NIS](#)
IHS Quarterly Immunization Reports. FY 2013 Quarter 4. Available at: [IHS FY 2013 Q4 Immuno Reports](#)

My Risk for Suicide Is 6 Times That of Other American Teens





I Am Likely Overweight or Obese



- 20% of AI/AN teens are overweight



- 31% of AI/AN teens are obese



- Type II DM rate in AI/AN youth is at least 2x U.S. rate



2008 IHS data

When I Am in High School

- 23% of AI/AN students will drop out of high school
- Teen pregnancy rate is 2x U.S. white rate

CDC 2009



Disparities

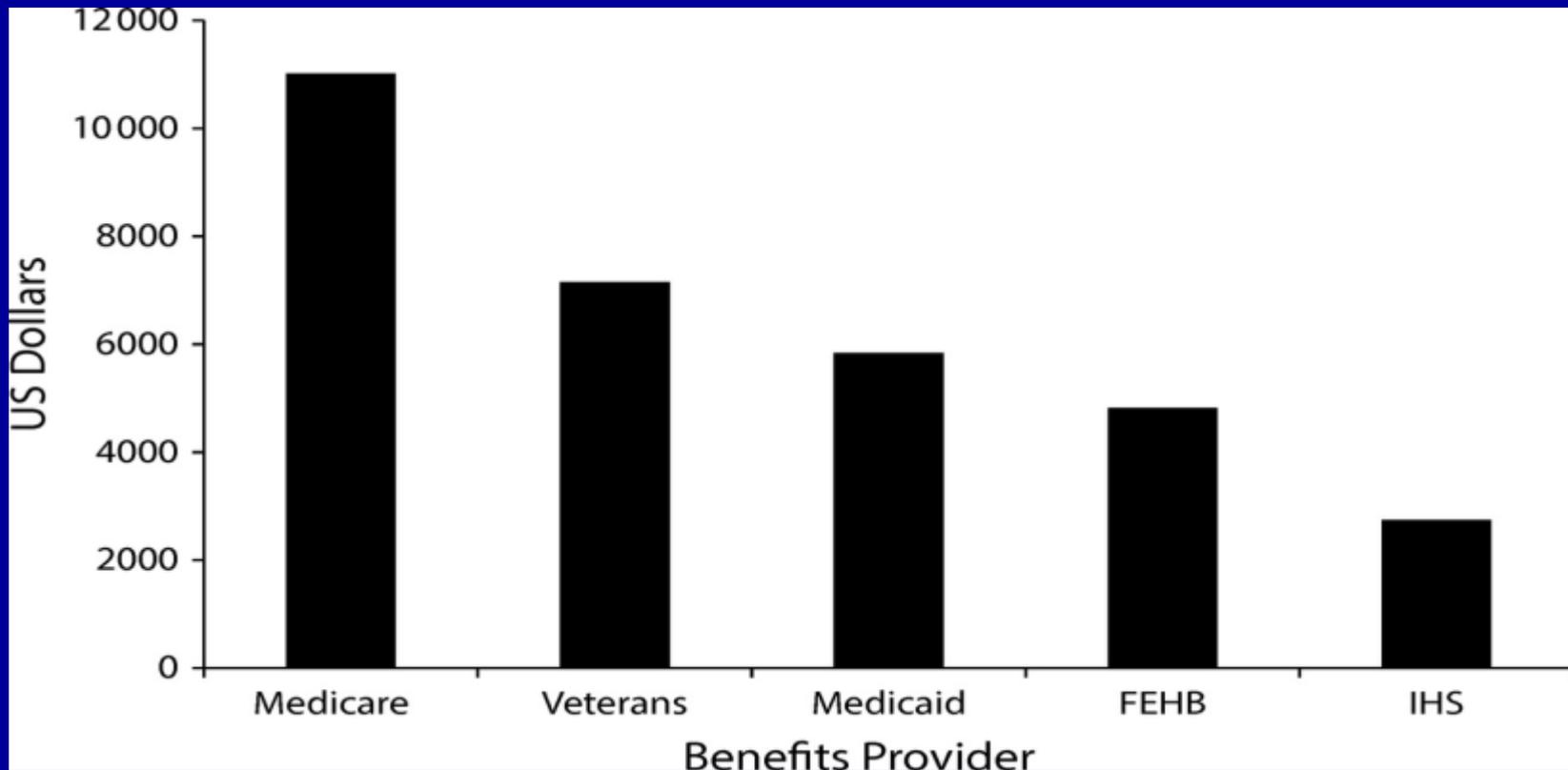
- Unintentional Injuries
- Overweight and Obesity
- Mental Health
- Teen Pregnancy
- Influenza and Pneumonia





What Can Be Done?

2010 Indian Health Expenditures per Capita Compared with Other Federal Programs



AI/AN Demographics

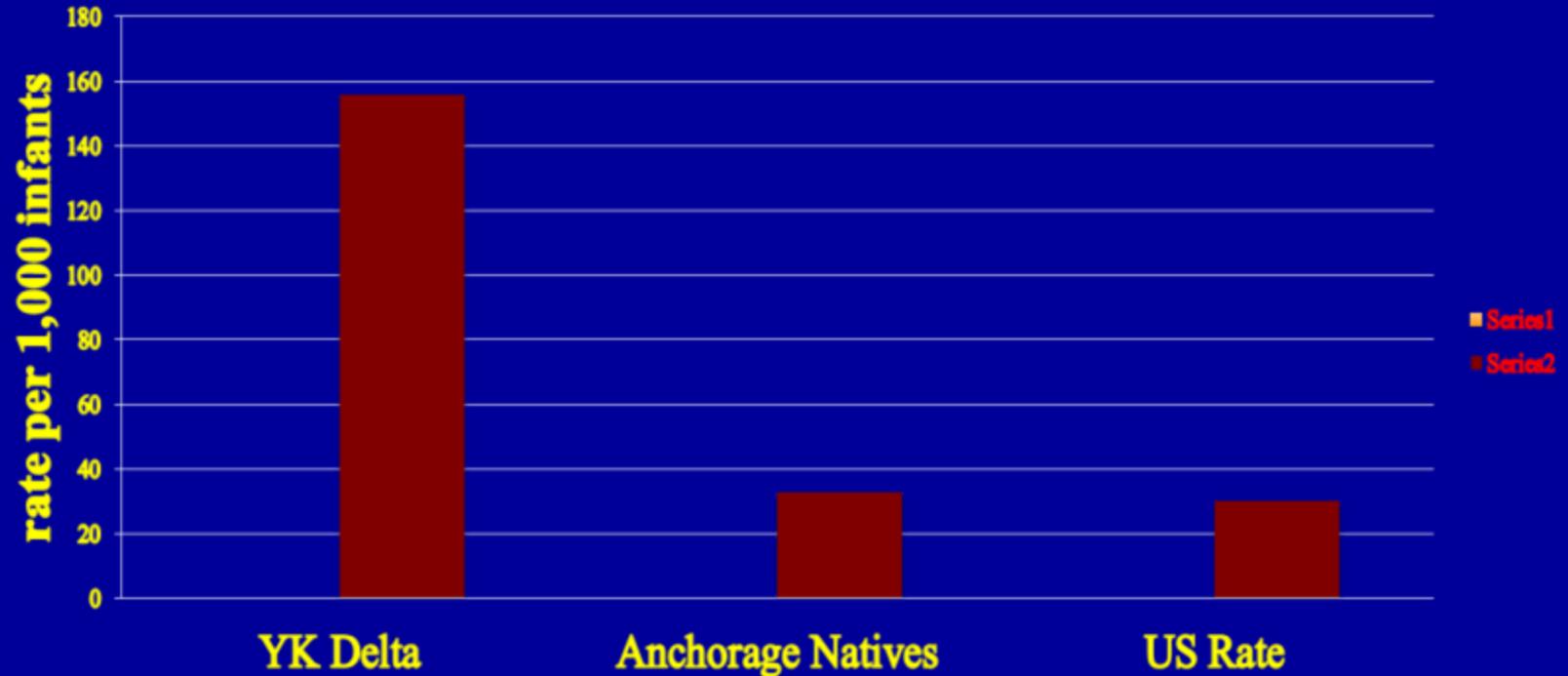
	AI/AN	US Average
Median Income	\$35,000	\$50,000
Poverty	28%	15%
Finished High School	77%	86%
Completed College	13%	28%
Crowding (> 1 person per room)	19%	6%
Lack safe water or indoor plumbing	12%	0.6%

U.S. 2010 Census



AK Native RSV Infant Hospitalization Rates by Home Location

**RSV Infant Hospitalization Rates
1993-1996**



Reducing Poverty Reduces Psychiatric Illnesses



ORIGINAL CONTRIBUTION

Association of Family Income Supplements in Adolescence With Development of Psychiatric and Substance Use Disorders in Adulthood Among an American Indian Population

E. Jane Costello, PhD

Alaattin Erkanli, PhD

William Copeland, PhD

Adrian Angold, MRCPsych

Context In a natural experiment in which some families received income supplements, prevalence of adolescent behavioral symptoms decreased significantly. These adolescents are now young adults.

Objective To examine the effects of income supplements in adolescence and adulthood on the prevalence of adult psychiatric disorders.

Design Quasi-experimental, longitudinal.

Population and Setting A representative sample of children aged 9, 11, or 13 years in 1993 (349 [25%] of whom are American Indian) were assessed for psychiatric and substance use disorders through age 21 years (1993-2006). Of the 1420 who participated in 1993, 1185 were interviewed as adults. From 1996, when a casino opened on the Indian reservation, every American Indian but no non-Indians received an annual income supplement that increased from \$500 to around \$9000.

Main Outcome Measures Prevalence of adult psychiatric disorders and substance use disorders based on the *Diagnostic and Statistical Manual of Mental Disorders* in 3 age cohorts, adjusted for age, sex, length of time in the family home, and number of Indian parents.

Results As adults, significantly fewer Indians than non-Indians had a psychiatric disorder (106 Indians [weighted 30.2%] vs 337 non-Indians [weighted 36.0%]; odds ratio [OR], 0.46; 95% confidence interval [CI], 0.30-0.72; $P=.001$), particularly alcohol and cannabis abuse, dependence, or both. The youngest age-cohort of Indian youth had the longest exposure to the family income. Interactions between race/ethnicity and age cohort were significant. Planned comparisons showed that fewer of the youngest Indian age-cohort had any psychiatric disorder (31.4%) than the Indian middle cohort (41.7%; OR, 0.43; 95% CI, 0.24-0.78; $P=.005$) or oldest cohort (41.3%; OR, 0.69; 95% CI, 0.51-0.94; $P=.01$) or the youngest non-Indian cohort (37.1%; OR, 0.66; 95% CI, 0.48-0.90; $P=.008$). Study hypotheses were not upheld for nicotine or

IN 2003 WE PUBLISHED THE RESULTS of a natural experiment in which an income supplement given to all members of one community but to none in another predicted significantly fewer adolescent psychiatric symptoms in the income-supplement group.¹ At the time of the earlier study, the participants were adolescents living at home. They are now adults and in receipt of their own income supplement. This article assesses whether the effects of the family income supplement persist into adulthood, controlling for past and current risk and protective factors, including poverty.

METHODS

Setting and Population

The Great Smoky Mountains Study is

Reducing Poverty Reduces Obesity



Original Investigation

Association Between Casino Opening or Expansion and Risk of Childhood Overweight and Obesity

Jessica C. Jones-Smith, PhD; William H. Dow, PhD; Krystal Chichlowska, PhD

IMPORTANCE Economic resources have been inversely associated with risk of childhood overweight/obesity. Few studies have evaluated whether this association is a direct effect of economic resources or is attributable to unmeasured confounding or reverse causation. American Indian-owned casinos have resulted in increased economic resources for some tribes and provide an opportunity to test whether these resources are associated with overweight/obesity.

OBJECTIVE To assess whether openings or expansions of American Indian-owned casinos were associated with childhood overweight/obesity risk.

DESIGN, SETTING, AND PARTICIPANTS We used repeated cross-sectional anthropometric measurements from fitness testing of American Indian children (aged 7-18 years) from 117 school districts that encompassed tribal lands in California between 2001 and 2012. Children in school districts encompassing American Indian tribal lands that either gained or expanded a casino were compared with children in districts with tribal lands that did not gain or expand a casino.

MAIN OUTCOMES AND MEASURES Per capita annual income, median annual household income, percentage of population in poverty, total population, child overweight/obesity (body mass index [BMI] \geq 85th age- and sex-specific percentile) and BMI z score.

RESULTS Of the 117 school districts, 57 gained or expanded a casino, 24 had a preexisting casino but did not expand, and 36 never had a casino. The mean slots per capita was 7 (SD, 12) and the median was 3 (interquartile range [IQR], 0.3-8). Among districts where a casino opened or expanded, the mean change in slots per capita was 13 (SD, 19) and the median was 3 (IQR, 1-11). Forty-eight percent of the anthropometric measurements were classified as overweight/obese (11,045/23,862). Every casino slot machine per capita gained was

Editorial page 915

Supplemental content at jama.com

JAMA March 2014



“The arc of the moral universe is long,
but it bends towards justice.”

- Rev. Martin Luther King Jr.

Question

Are the programs that are aimed at increasing the presence of health care professionals in rural areas making a difference in health status and health outcome?

Questions

How has telemedicine impacted rural clinics and access to healthcare?

Additional Questions

- If you have any additional questions, you can email them to:

dataspeak@altarum.org

Thank You