



Overview of Urban-Rural Classification Schemes Including the 2013 NCHS Urban-Rural Classification Scheme for Counties

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Objectives

- ❑ **Review major urban-rural classification schemes.**
- ❑ **Describe features of the NCHS Urban-Rural Classification Scheme that make it particularly suitable for use in studying health differences.**
- ❑ **Show examples of health differences using urban-rural schemes, with a focus on the NCHS scheme.**

Terminology

□ Common usage:

- “Metropolitan” and “urban” -- densely populated areas
- “Nonmetropolitan” and “rural” -- small towns, sparsely populated areas, farm land

□ Technical usage:

- OMB metropolitan-nonmetropolitan classification of counties
- Census Bureau urban and rural classification of census tracts

Terminology Continued

□ For this talk:

- **“Metropolitan” and “nonmetropolitan” – will refer to the OMB classification.**
- **“Urban” - colloquial meaning, will refer to metropolitan areas.**
- **“Rural” – colloquial meaning, will refer to nonmetropolitan areas.**

Current Urban-Rural Health Differences

- **For many health measures:**
 - **Rural residents fare worse than urban residents.**
 - **Residents of centers of large cities fare worse than residents of the suburbs and smaller cities.**
 - **Residents of suburbs fare better than residents of other urban-rural levels.**

County: Building Block of Most Urban-Rural Schemes

- **Reasons for using county:**
 - **Primary political unit of local government (in most parts of U.S.), has programmatic importance at federal and state levels.**
 - **Stable boundaries.**
 - **County-level health, economic, demographic, and environmental measures are widely available.**

OMB Metro-Nonmetro Classification

- **Classifies counties as:**
 - **Metropolitan or nonmetropolitan**
 - **Nonmetropolitan counties further differentiated as micropolitan or noncore.**
- **Classification based on published standards, revised prior to decennial census.**

OMB Metro-Nonmetro Classification Continued

- **Metropolitan counties:**
 - **In metropolitan statistical areas (MSA)**
 - MSA has a densely settled urban core $\geq 50,000$ population and surrounding less densely settled counties (suburban) linked to core by commuting.
 - Usually multi-county.
- **Nonmetropolitan counties:**
 - **In micropolitan statistical areas**
 - Smaller version of MSA with urban core of 10,000-49,999.
 - Sometimes multi-county.
 - **Noncore \rightarrow not micropolitan**
 - Urban population $< 10,000$
 - Single counties

Disadvantages of OMB Classification

- The single category for metro territory is too broad - important health differences can be missed.**

Alternative Urban-rural Schemes

- **Three schemes further differentiate the OMB metro-nonmetro classification:**
 - **NCHS Urban-Rural Classification Scheme for Counties (1990, 2006, 2013)**
 - **Department of Agriculture Economic Research Service schemes:**
 - **Rural Urban Continuum Codes (RUCC)**
 - **Urban Influence Codes (UIC).**

2013 NCHS Urban-Rural Scheme

- **6 levels: 4 metro, 2 nonmetro**
 - **Distinguishing feature – Separate categories for central and suburban counties of large MSAs.**

- **Derived using:**
 - **2010 census-based MSAs and micropolitan statistical areas (February 2013)**
 - **2010 census-based populations and variables used for confirmatory analyses**

2013 NCHS Urban-Rural Scheme Continued

U.S. counties and county-equivalents

Metropolitan

Nonmetropolitan

Large metro
(MSA population
 ≥ 1 million)

Large
central
metro

Large
fringe
metro

Medium
(MSA
population
250,000-
999,999)

Small
(MSA
population
< 250,000)

Micropolitan
(Urban cluster
population
10,000-49,999)

Noncore
(No
urban
cluster)

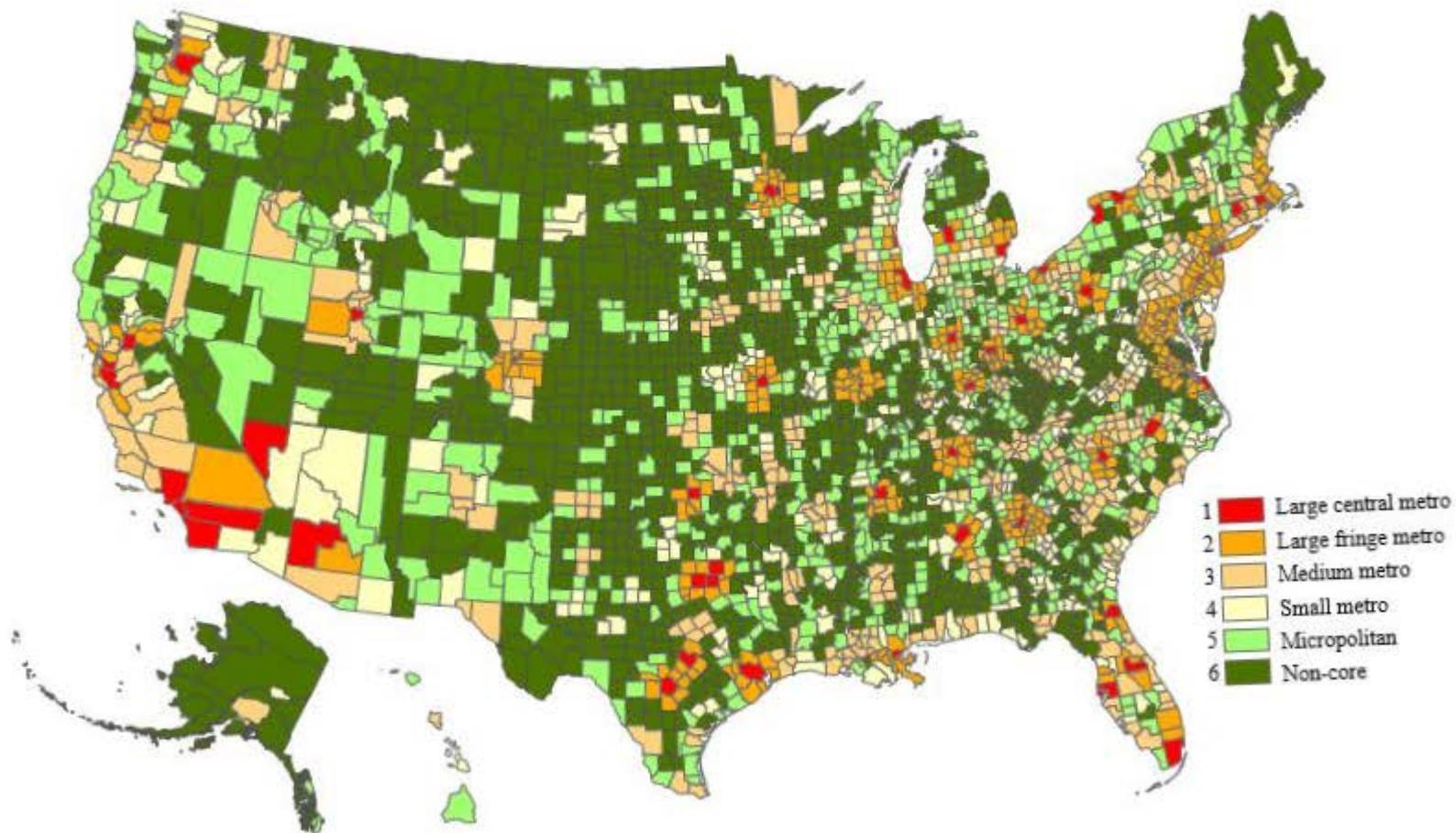
Classifying Large Metro Counties

Urbanization category	Classification rule
Large central metro (akin to center city)	Counties in MSA \geq1 million population that: 1) Contain the largest principal city of the MSA, <i>or</i> 2) Are completely contained within the largest principal city of the MSA, <i>or</i> 3) Contain at least 250,000 residents of any principal city of the MSA.
Large fringe metro (akin to suburbs)	Counties in MSA \geq1 million population that are not central.

2013 NCHS Scheme

	Number of counties	U.S. Population
Urbanization category	N	Percent
Metropolitan counties	1,167	85.2
Large central metro	68	30.5
Large fringe metro	368	24.7
Medium metro	373	20.9
Small metro	358	9.2
Nonmetropolitan counties	1,976	14.8
Micropolitan	641	8.7
Noncore	1,335	6.1

2013 NCHS Urban-Rural Scheme



USDA ERS Urban-Rural Schemes

□ Rural Urban Continuum Codes (RUCC) and Urban Influence Codes (UIC)

- Metro counties categorized based on MSA population:

RUCC:

L: ≥ 1 million

M: 250,000-999,999

S: $< 250,000$

UIC:

L: ≥ 1 million

M-S: < 1 million

- Nonmetro counties categorized based on urban population and proximity to metro and/or micropolitan counties.

RUCC: 6 categories

(20,000+, 2,500-19,999, $< 2,500$)

UIC: 10 categories

(10,000+, 2,500-9,999, $< 2,500$)

Disadvantages of ERS Schemes

- ❑ **Too few metro categories given size of metro population.**
- ❑ **Suburban counties of large MSAs not differentiated into central and fringe --> important health differences missed.**
- ❑ **Too many nonmetro categories --> many health databases cannot support them.**

Number of counties: Vital Statistics/NHIS

Urban-rural scheme and number of counties available DVS/NHIS						
M e t r o	NCHS	N(VS/NHIS)	UIC	N(VS/NHIS)	RUCC	N(VS/NHIS)
	Large central	68/68	Large	432/312	Large	432/312
	Large fringe	368/247				
	Medium	373/214	Medium-small	735/319	Medium	379/219
	Small	358/102			Small	356/100
N o n m e t r o	Micropolitan	641/110	Micro-3	130/25	4	214/54
			Micro-5	242/51	5	92/15
			Micro-8	269/34	6	593/64
	Noncore	1,335/110	Noncore-4	149/10	7	433/44
			Noncore-6	344/31	8	220/20
			Noncore-7	162/21	9	424/23
			Noncore-9	184/17		
			Noncore-10	189/14		
			Noncore-11	125/10		
			Noncore-12	182/7		

For the NCHS, RUCC, and UIC schemes, the number of counties for which data are available in the vital statistics system (VS) and in the combined 2012-2014 NHIS for each urban-rural category.

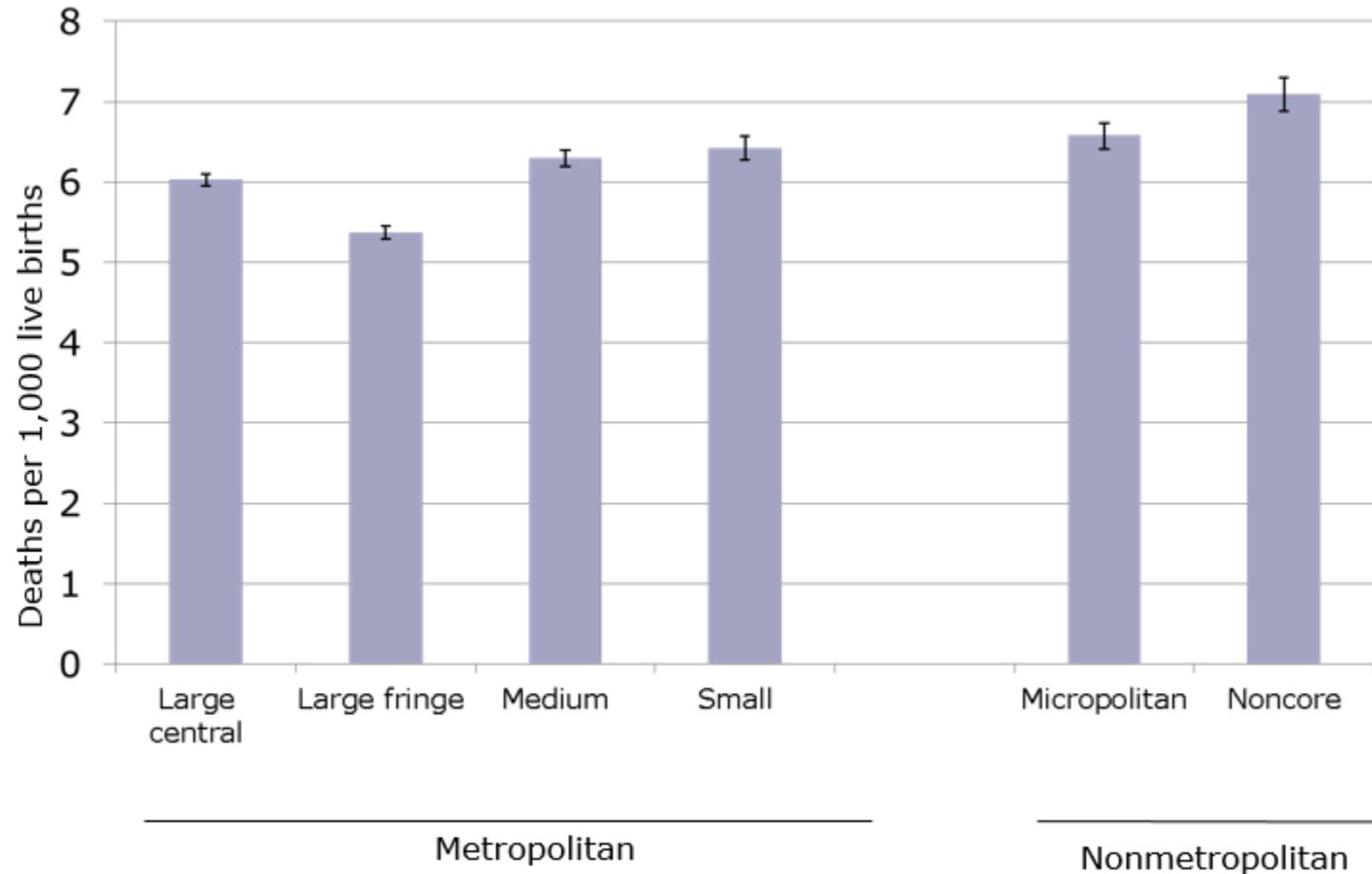
Number of counties in Categories

- ❑ **Vital Statistics System has data for all U.S. counties, and therefore, may be able to support the detailed nonmetro categories of the RUCC and UIC schemes.**
- ❑ **NHIS sample includes only a very small number of nonmetro counties -- insufficient to support use of the RUCC and UIC nonmetro categories.**

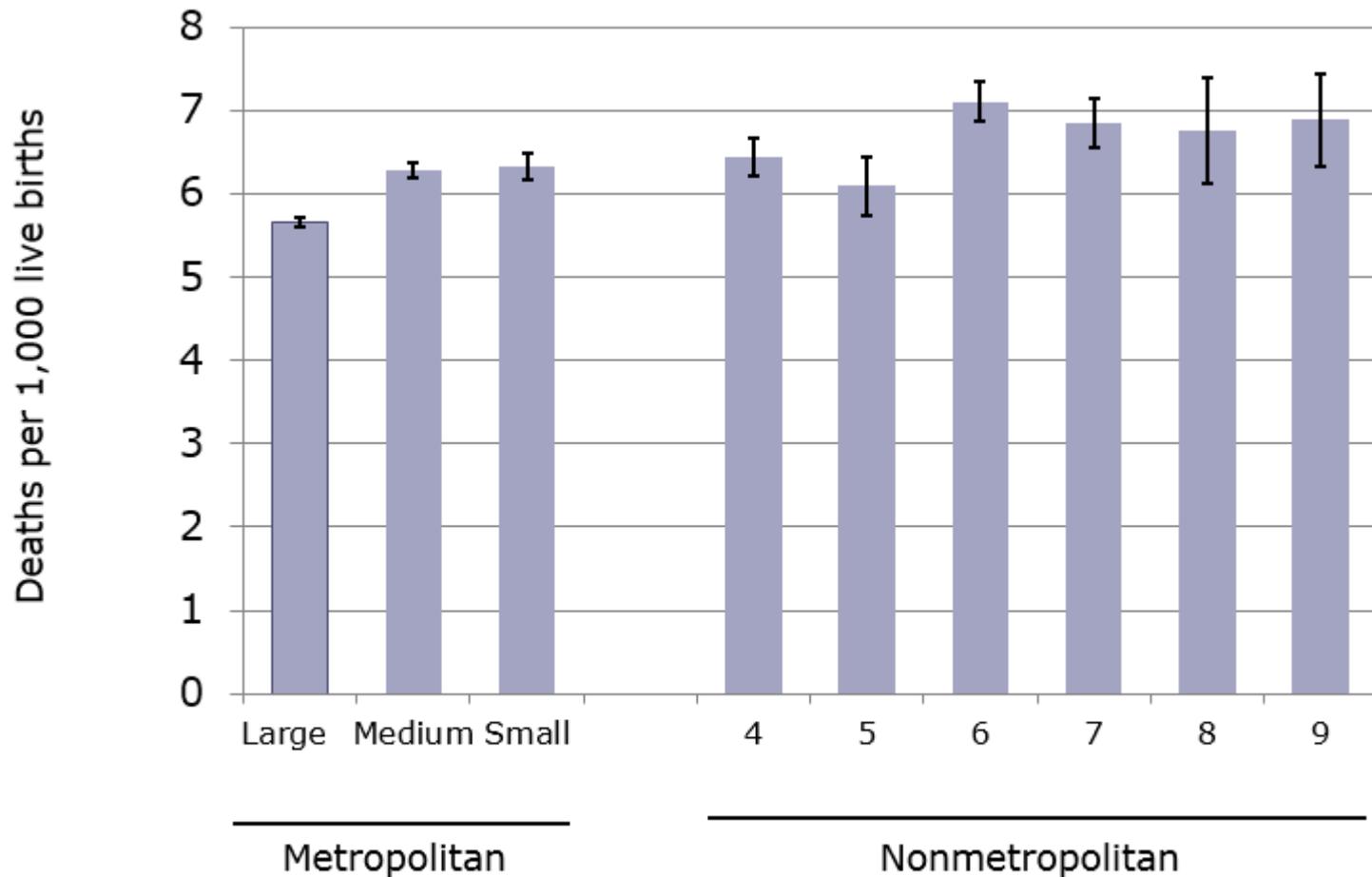
Mortality Data Examples

- **Mortality data from National Vital Statistics System – 2011-2013**
 - **Infant mortality**
 - **Homicide, males all ages**
 - **Stroke, 45+ years**
- **Rates plotted for NCHS, RUCC, and UIC urban-rural schemes**

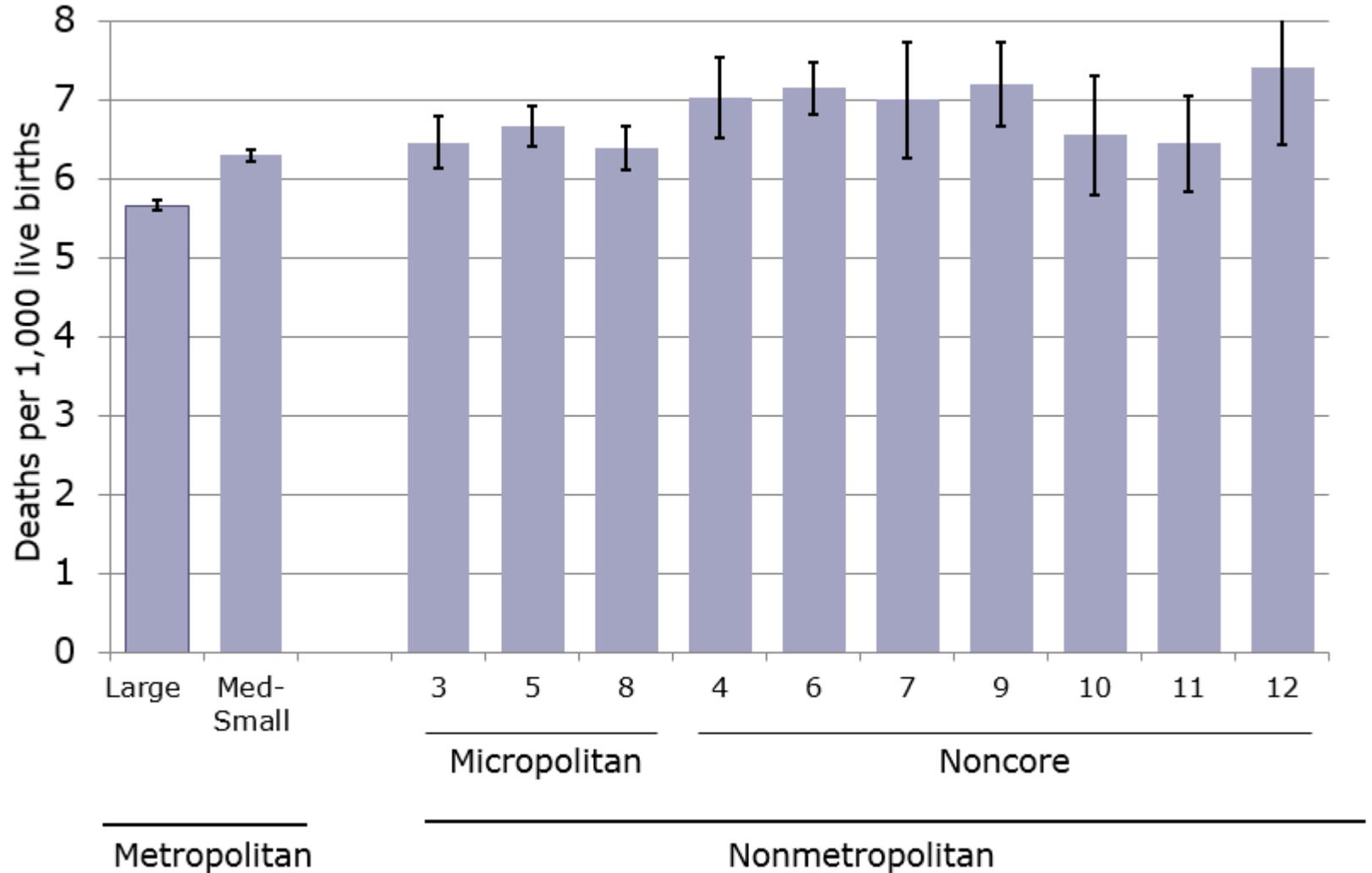
Infant mortality average annual, 2011-2013, NCHS



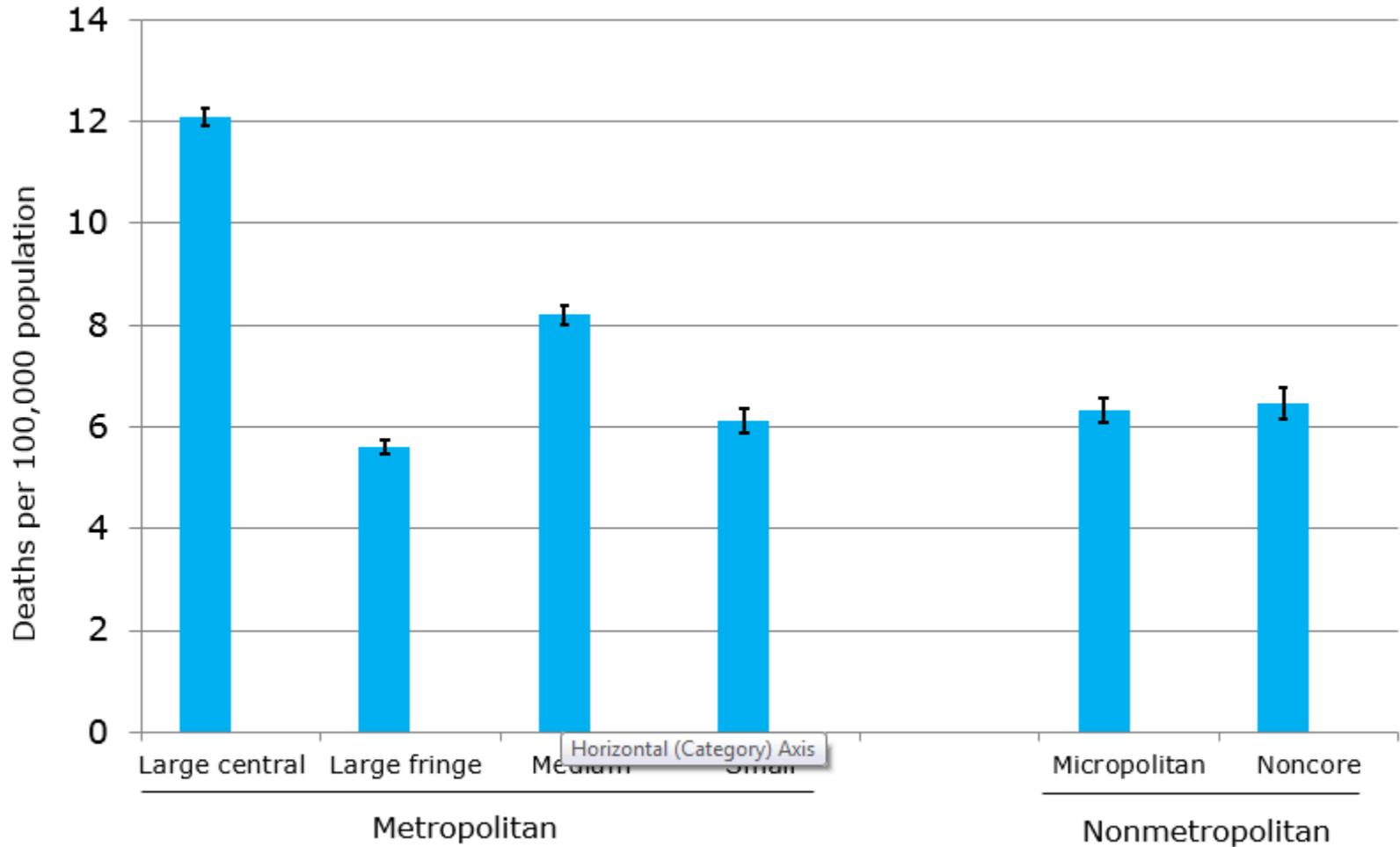
Infant mortality average annual, 2011-2013, RUCC



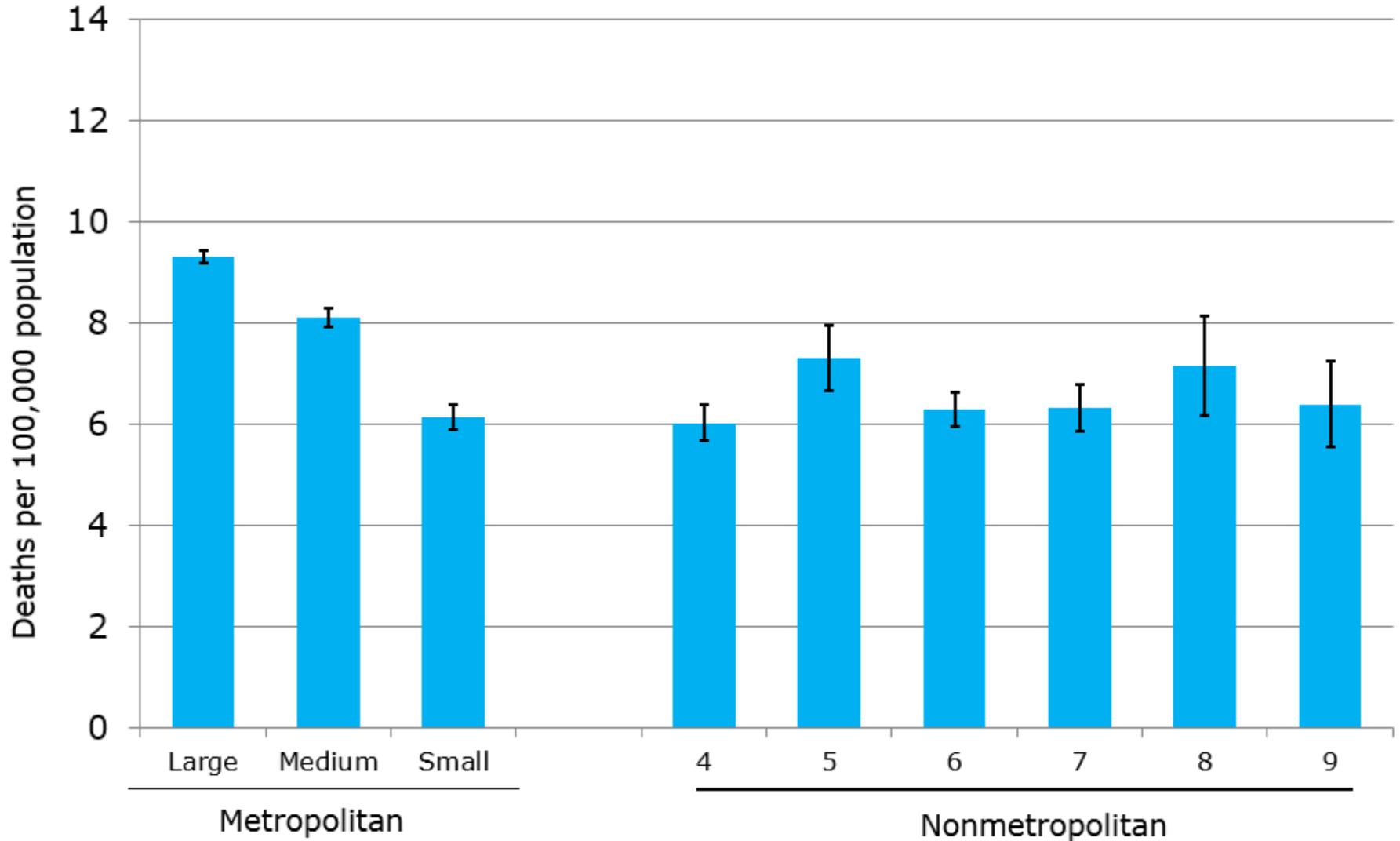
Infant mortality average annual, 2011-2013, UIC



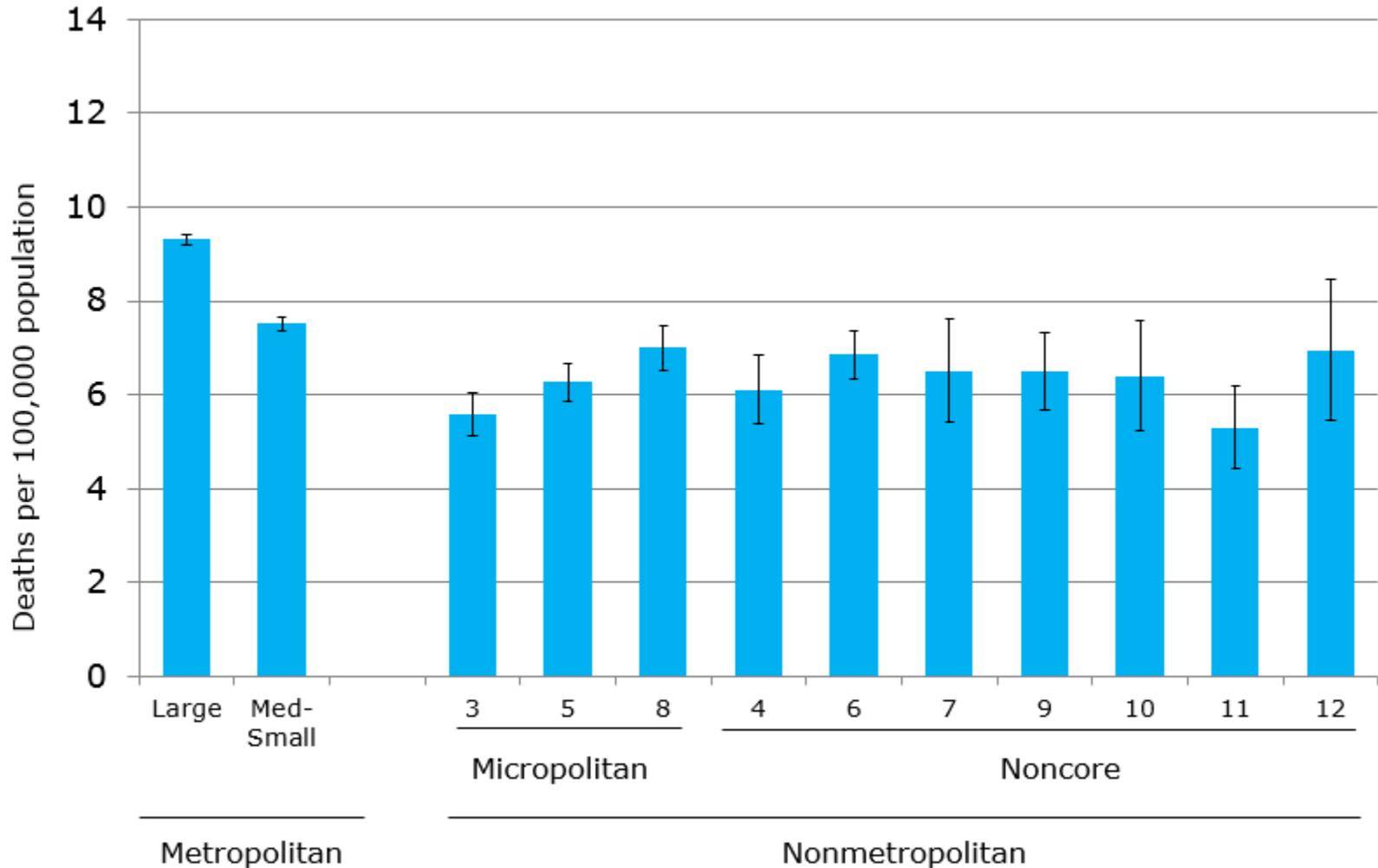
Homicide, males, all ages average annual, 2011-2013, NCHS



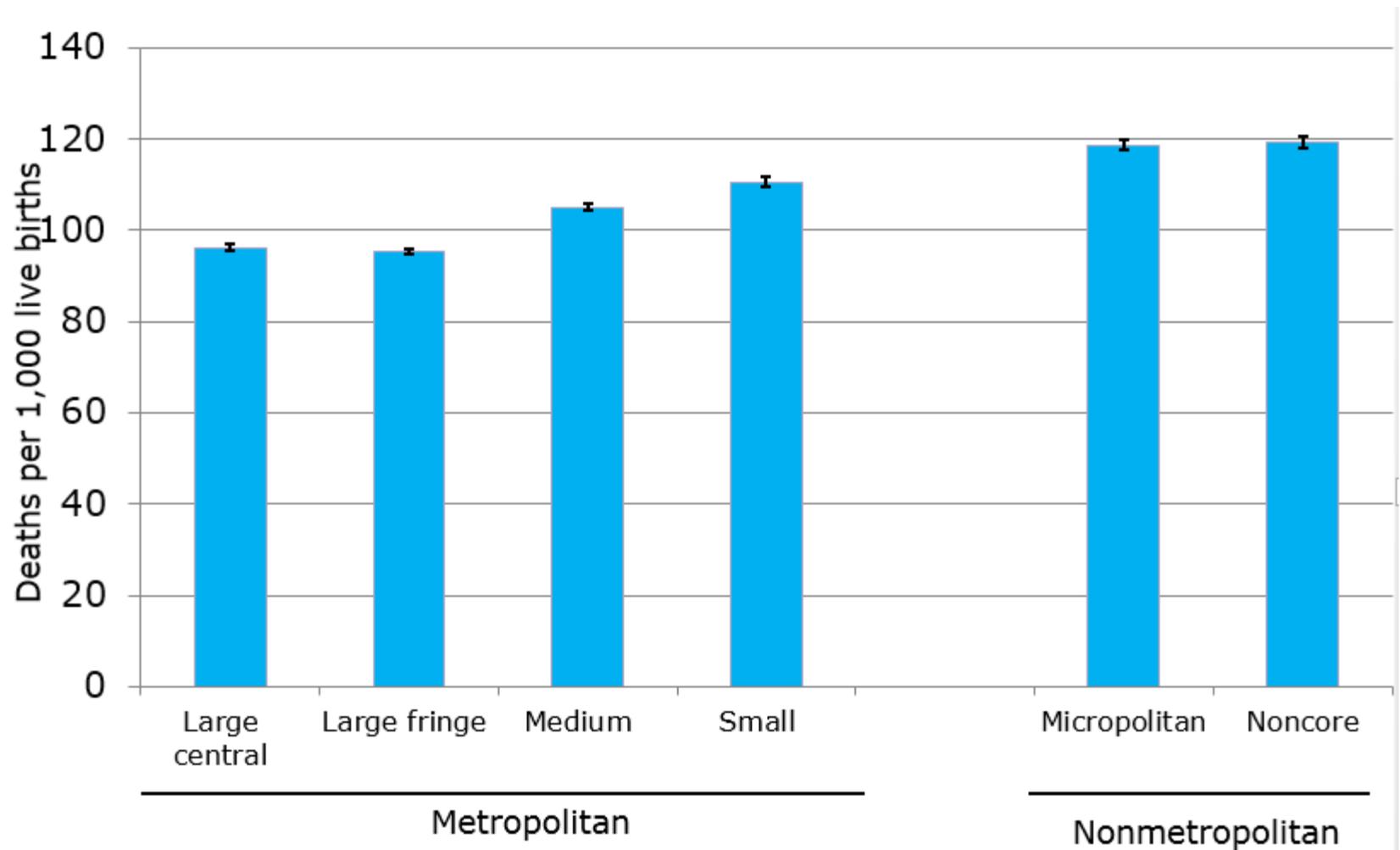
Homicide, males, all ages average annual , 2011-2013, RUCC



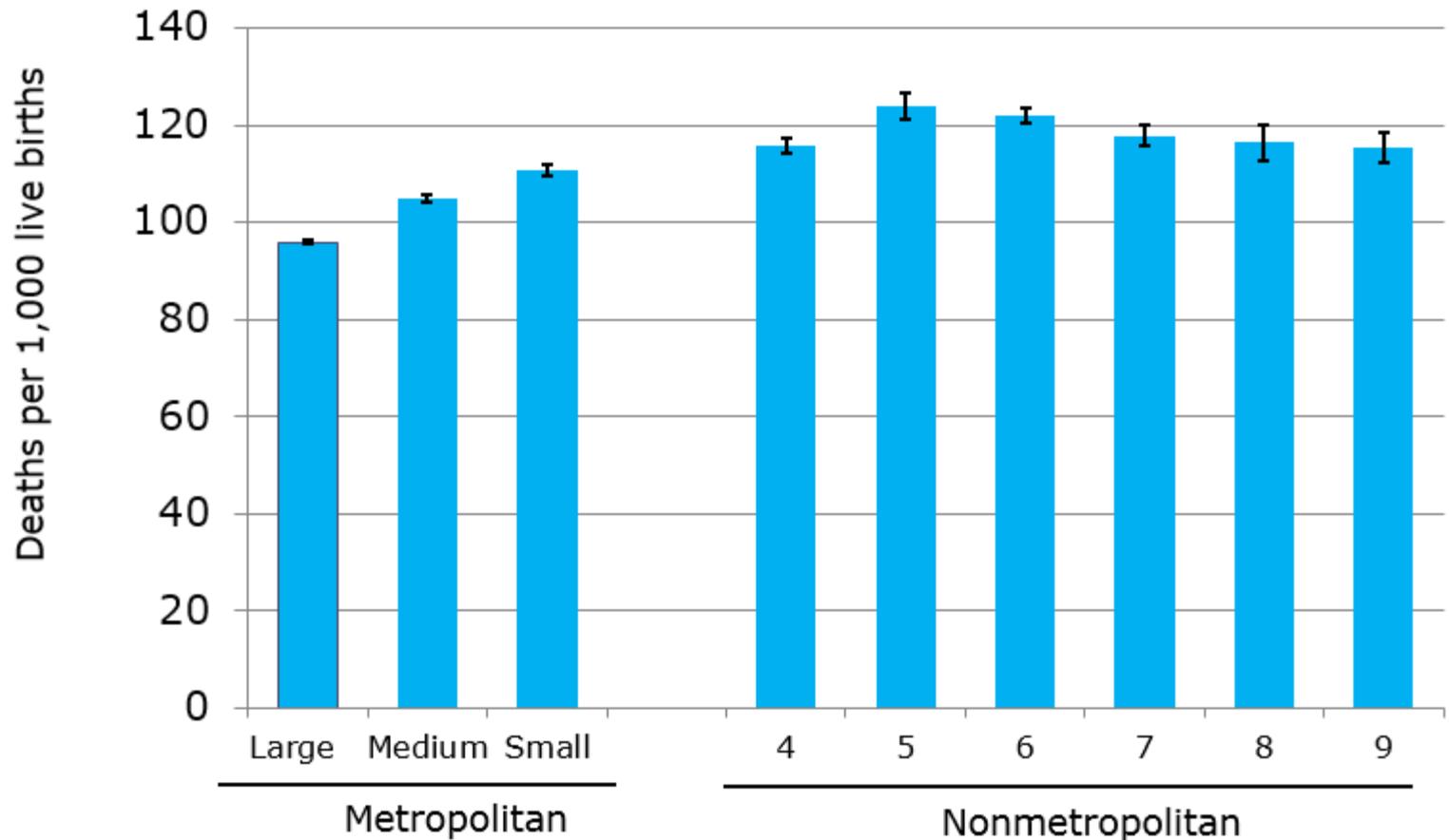
Homicide, males, all ages average annual , 2011-2013, UIC



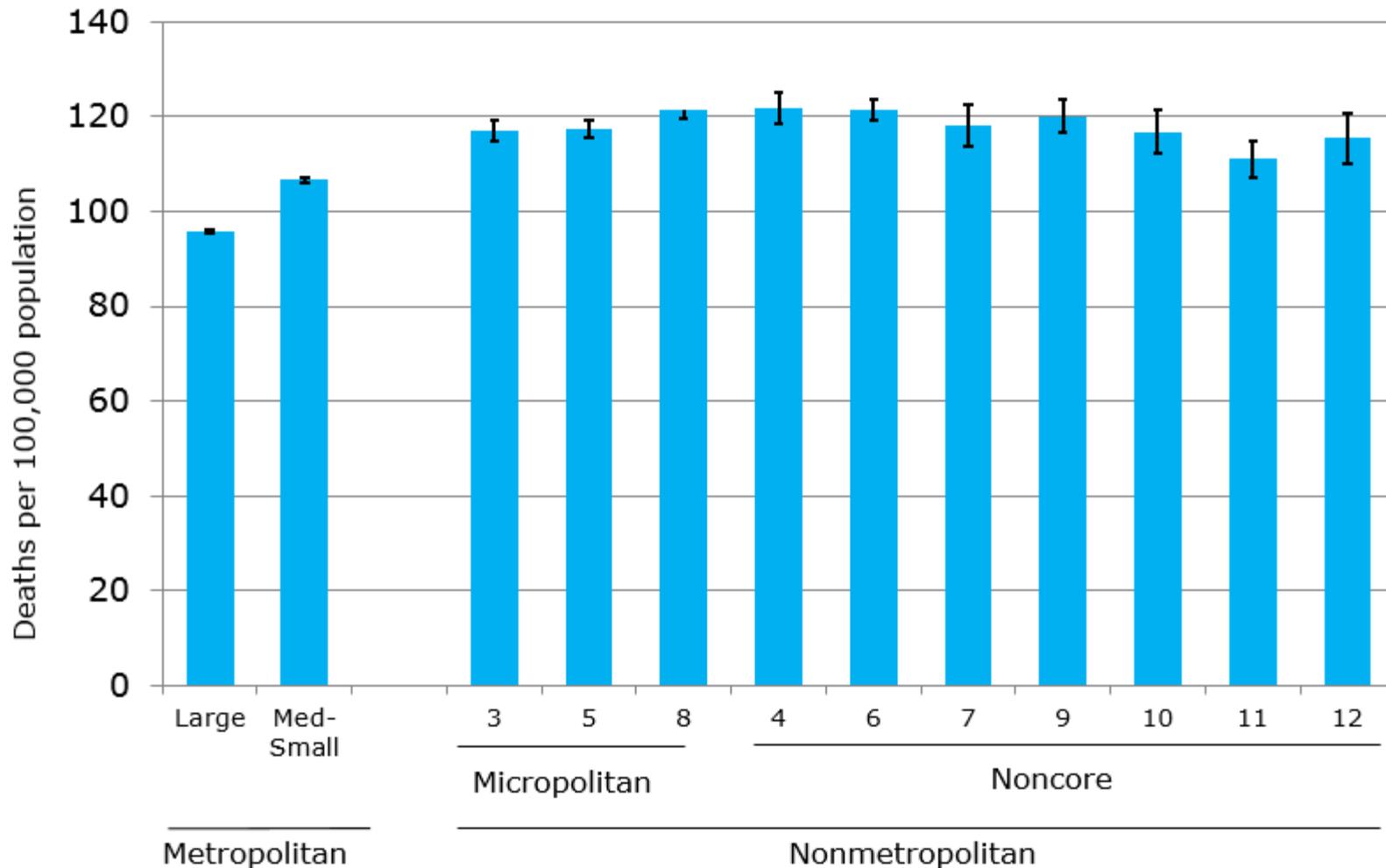
Stroke mortality, 45+ years average annual, 2011-2013, NCHS



Stroke mortality, 45+ years, average annual, 2011-2013, RUCC



Stroke mortality, 45+ years, average annual, 2011-2013, UIC



More Mortality Data Examples

- **NCHS scheme captures important mortality differences across urban areas and between large fringe metro areas and other areas.**
 - **RUCC and UIC schemes do not identify important differences between large central and large fringe metro areas.**
 - **UIC scheme cannot identify differences between medium and small metro areas.**
 - **RUC and UIC do not capture differences between large fringe metro and other areas.**
- **Confidence intervals around RUCC and UIC nonmetro category estimates so large that most differences not significantly different.**

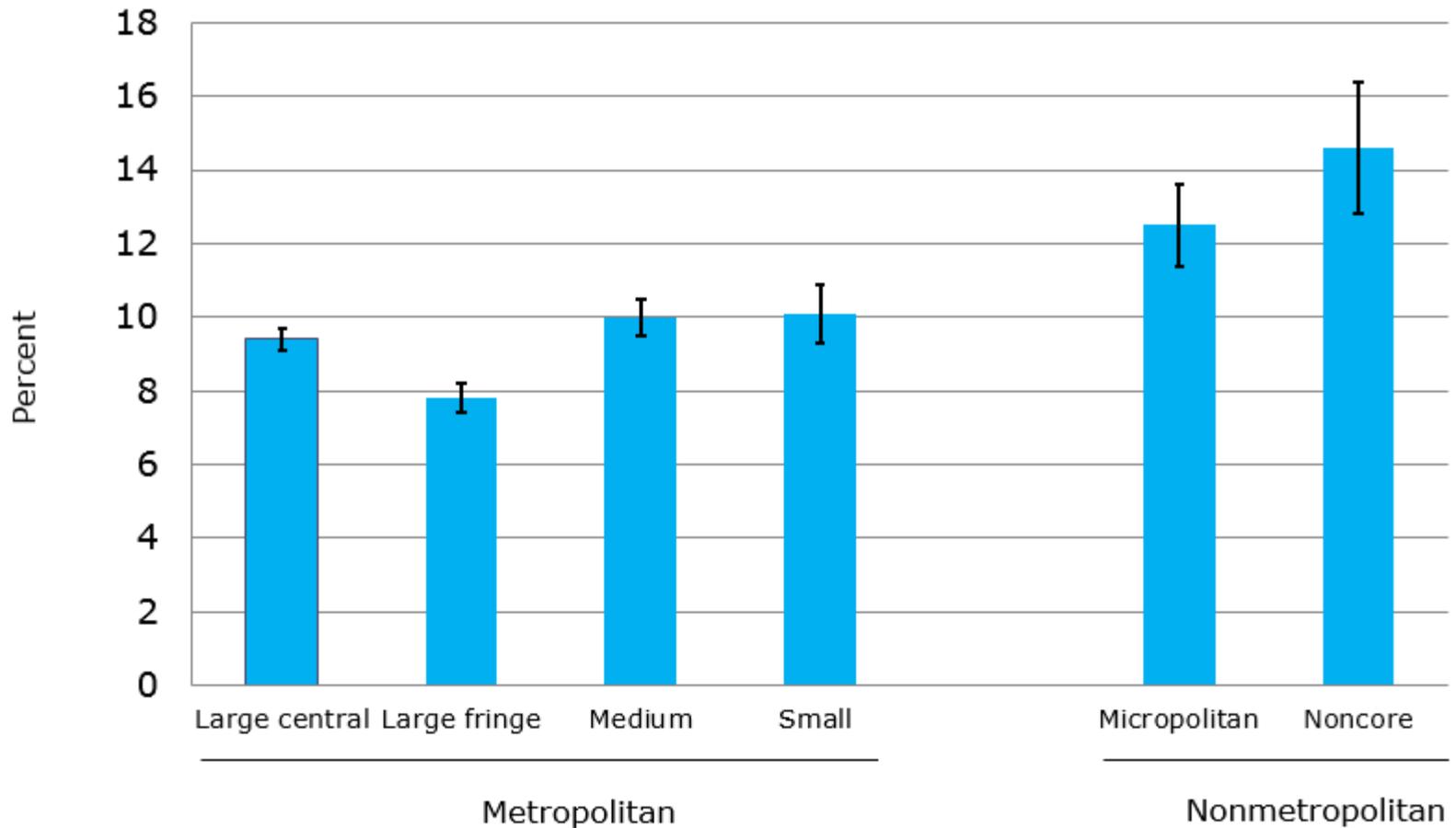
When Using Vital statistics Data

- ❑ **Because the vital statistics system has data for all U.S. counties, more detailed categories for nonmetro counties can be supported.**
- ❑ **Nonmetro categories derived from the RUCC or UIC could be substituted for the two nonmetro categories of the NCHS scheme when greater detail is desired.**

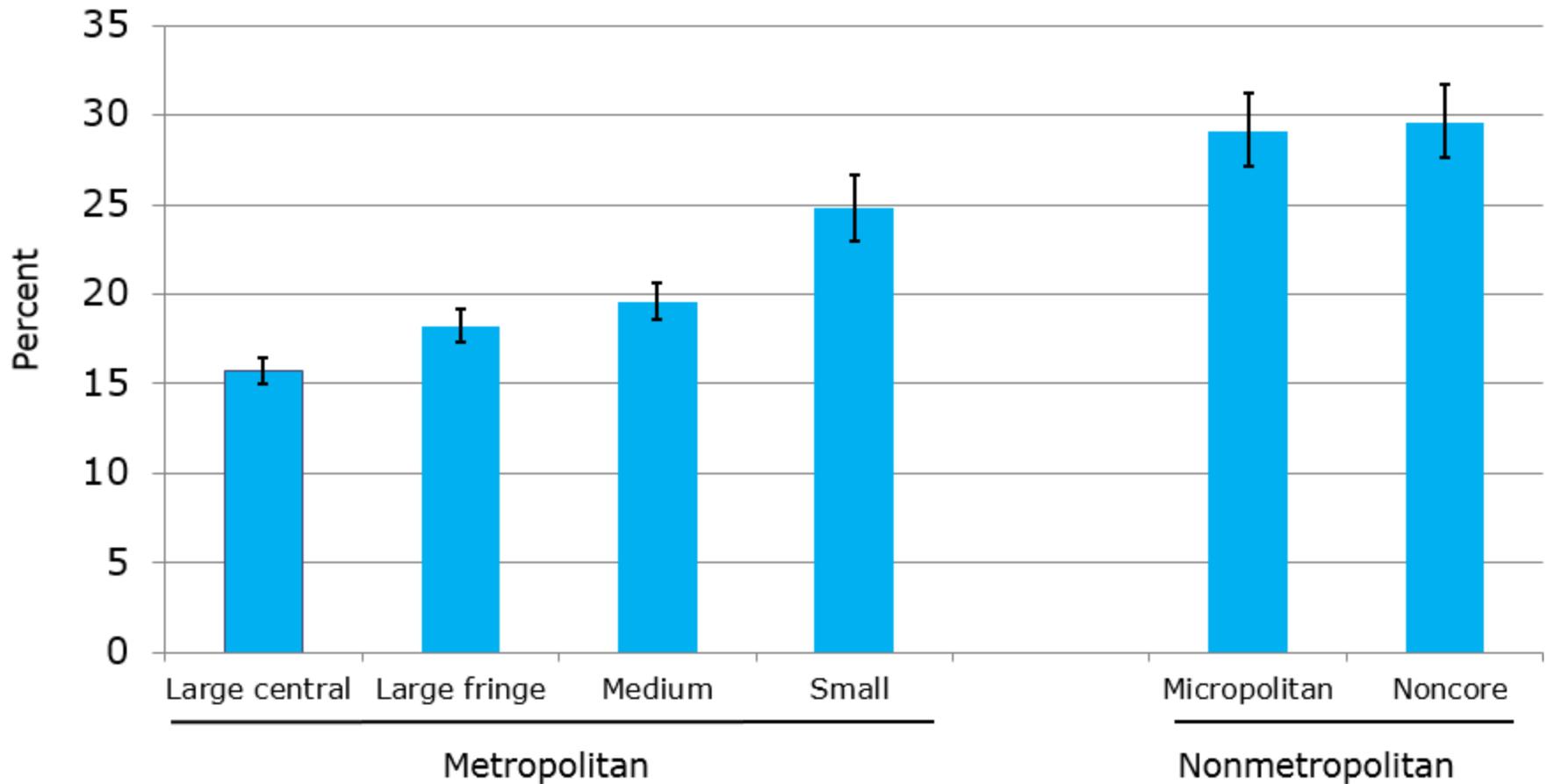
NHIS Data Examples

- **National Health Interview Survey – 2012-2014**
 - **Health status**
 - **Current smoking**
 - **Edentulism**
 - **Health insurance**
 - **Delayed or did not get medical care**
- **Percentages plotted for 2013 NCHS urban-rural schemes**

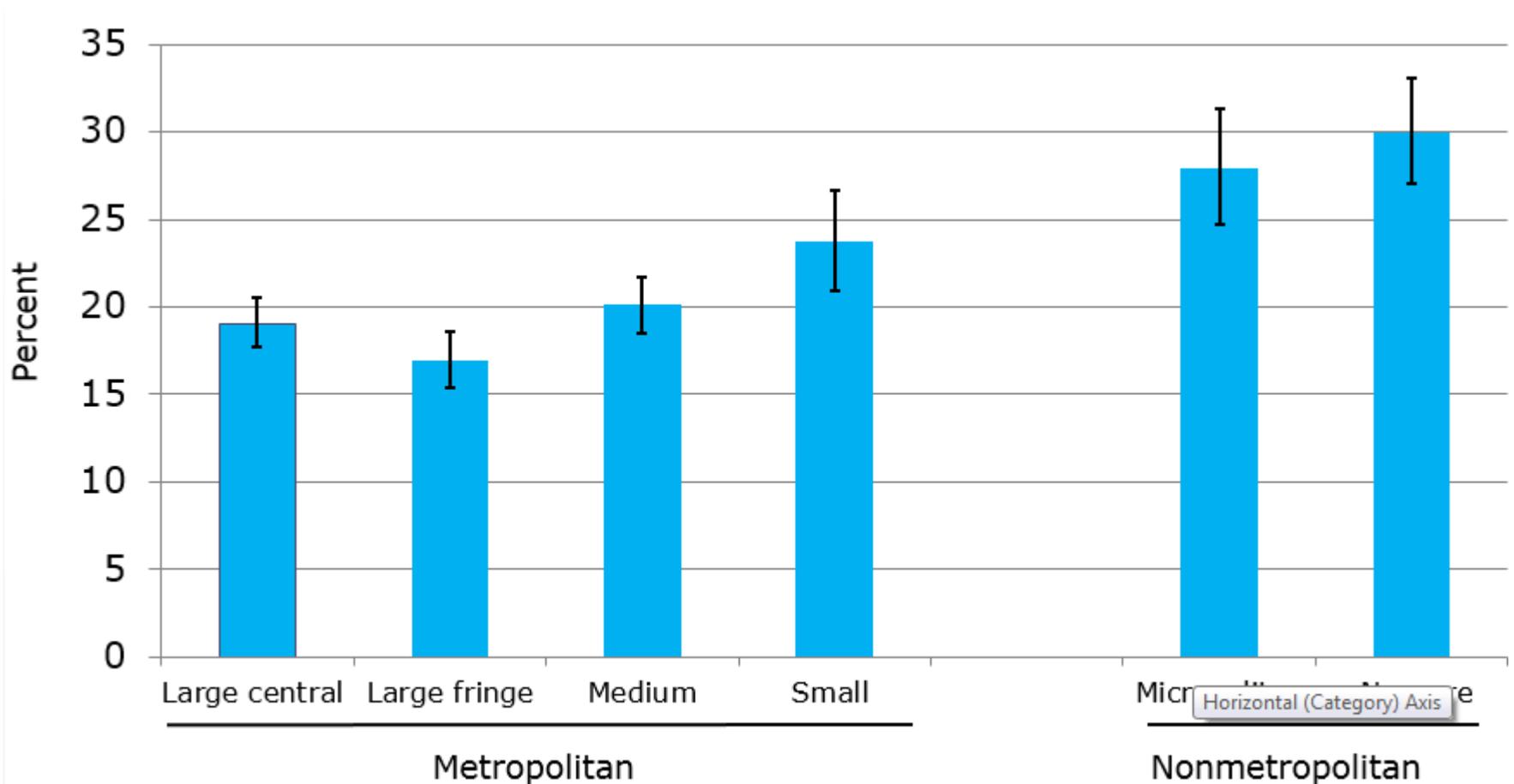
Fair/poor respondent-assessed health status, 18-64 years, NHIS 2012-2014



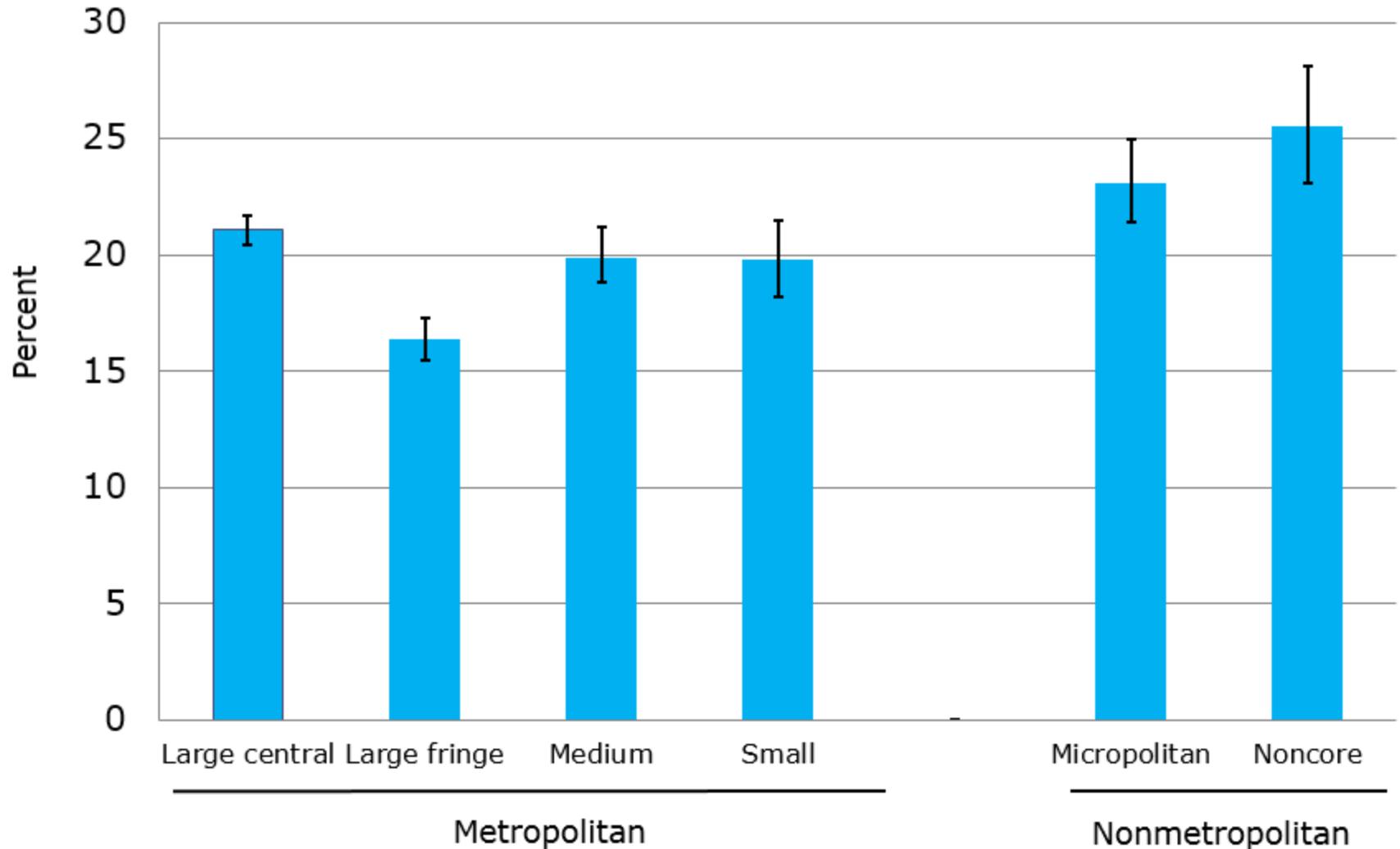
Current smokers 18-64 years, NHIS 2012-2014



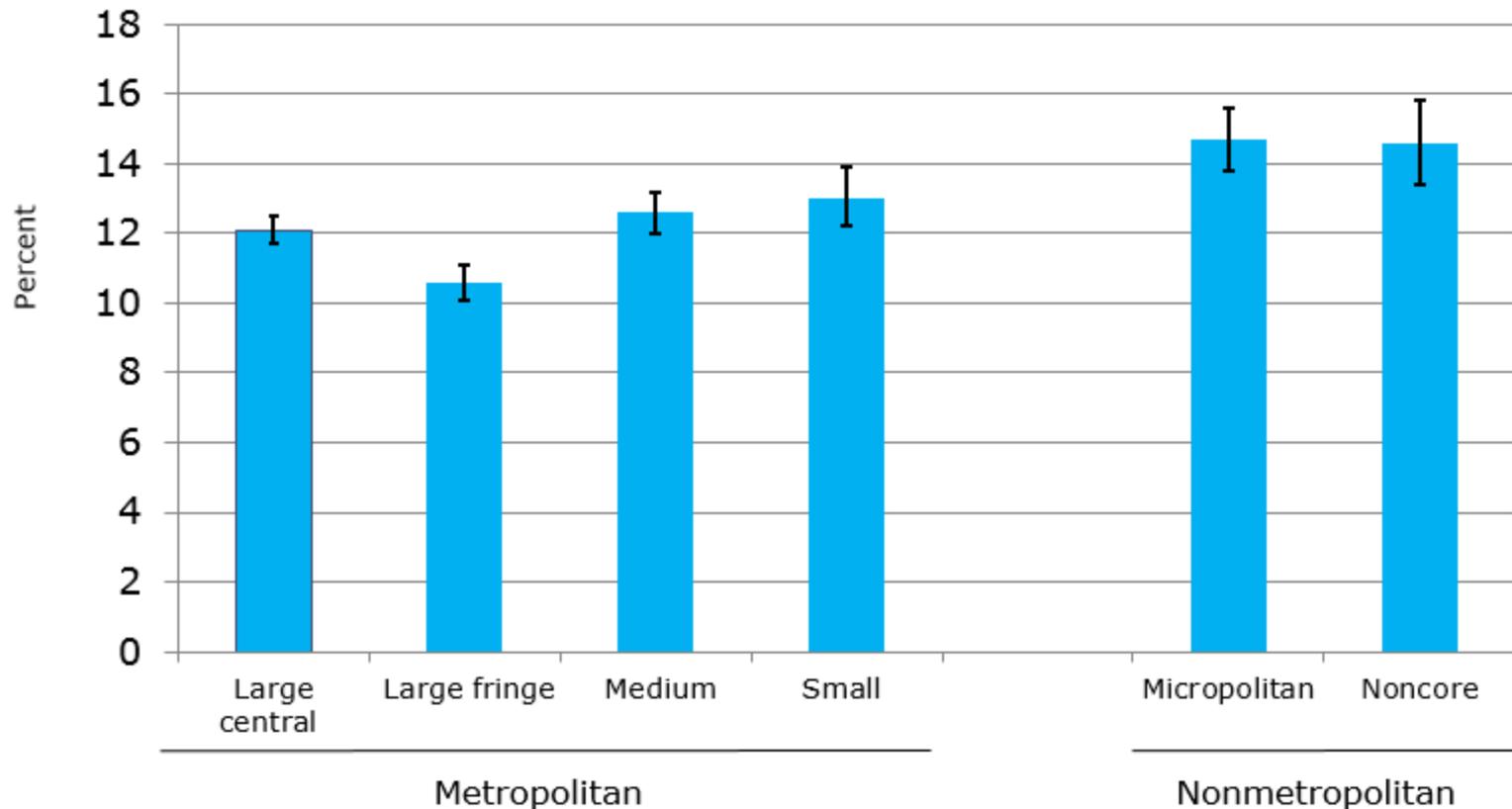
Edentulous 65+ years, NHIS 2012-2014



No health insurance coverage 18-64 years, NHIS 2012-2014



Did not get/delayed medical care in past year due to cost 18-64 years, NHIS 2012-2014



Advantages of NCHS Scheme

- **NCHS Urban-Rural Classification Scheme for Counties developed for use with health data.**
 - **Four metro categories differentiate metro territory.**
 - **Separate levels for large central and large fringe metro counties. Schemes which do not differentiate these counties cannot accurately represent important health disparities.**
 - **Only two nonmetro levels reflecting small nonmetro counts in health data files.**

Accessing NCHS Scheme

- **Description of scheme development:**
 - **2013 NCHS scheme, VHS Series 2 No. 166**
 - **2006 NCHS scheme, VHS Series 2 No. 154**
- **Data file with 1990-based, 2006, and 2013 scheme codes available for download.**
- **NCHS urban-rural Website:**
http://www.cdc.gov/nchs/data_access/urban_rural.htm
- **CDC WONDER mortality files**