



CARDIOVASCULAR HEALTH PRESENTATION

Erie County, NY

SUMMER/FALL 2015



This project was developed by the Erie County Department of Health with substantial volunteer contribution, to explore potential factors related to cardiovascular health. The study may offer some insights into the design of cardiovascular health improvement efforts from a local perspective, with the objective of meeting the Million Hearts® goal of preventing 1 million heart attacks and strokes across the nation by 2017.

Leading Causes of Death 2012

	#1	#2	#3	#4	#5
# of Deaths	Cause of Death and # of Deaths Age-adjusted Death Rate				
Erie Co. Total: 9,315	Heart Disease 2,349 183 per 100,000	Cancer 2,247 188 per 100,000	Chronic Lower Respiratory Diseases (CLRD) 486 39 per 100,000		Diabetes 278 23 per 100,000
			Stroke 486 37 per 100,000		
New York State Total: 147,366	Heart Disease 43,256 184 per 100,000	Cancer 35,598 158 per 100,000	Chronic Lower Respiratory Diseases (CLRD) 6,986 31 per 100,000	Stroke 6,028 26 per 100,000	Unintentional Injury 5,451 26 per 100,000

Data Source:

https://www.health.ny.gov/statistics/leadingcauses_death/deaths_by_county.htm

Trend: Heart Disease, Stroke & Heart Attack in Erie County

Condition	Number of Deaths		Mortality Rate per 100,000				
	2011	2012	2010-12 Crude Rate	2010-12 Age Adj. Rate	2011 Age-Sex Adj. Rate	2012 Age-Sex Adj. Rate	2013 Age-Sex Adj. Rate
Heart attack I21-I22	597	501	59.9	43.2	NA	NA	NA
Stroke I60-I69	516	586	56.9	40.4	39.0	36.7	36.1
Disease of the heart I00-I09, I11, I13, I20-I51	2549	2349	264.5	191.3	195.8	178.4	184.2

MAJOR OBJECTIVES

- Studying epidemiological aspects of heart disease in the county
- Explore potential community strengths & weaknesses related to cardiovascular disease

“KEY” METHODS

- Epidemiological Concepts/ Techniques
- ArcGIS mapping

Mortality: Computed Standardized Mortality Ratio (SMR)

For this project, SMR for Heart Disease specifically!

SMR = Observed Deaths/Expected Deaths

Observed deaths data: Diseases of heart data (2008-12) EC Health Dept.

Expected deaths calculated utilizing

- i) 2010 Census population data of Erie County
- ii) 2010 Diseases of the heart National Mortality rate (CDC)

Morbidity: Computed metric; & term it Morbidity Rate Ratio (MRR)

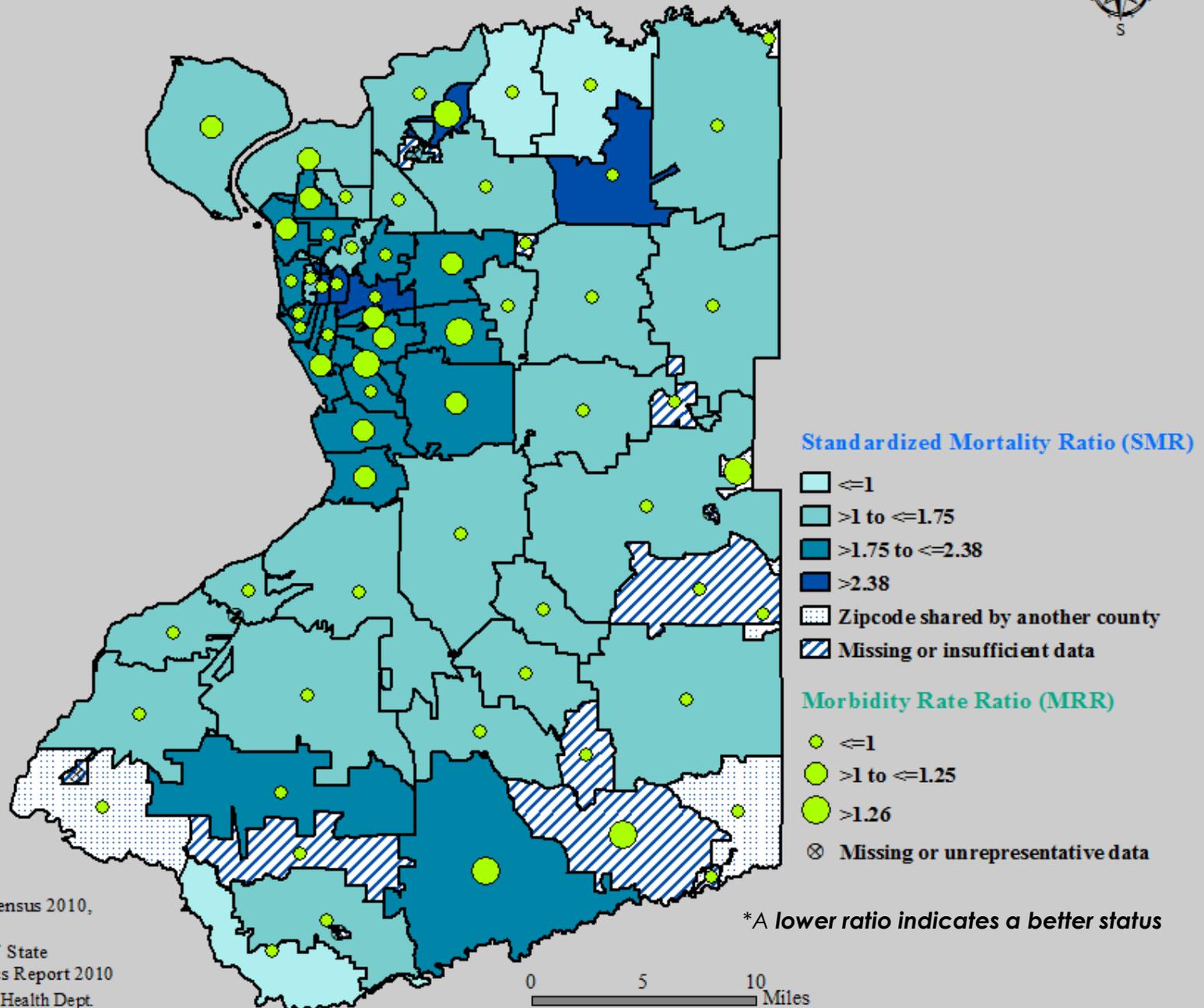
For this project, MRR related to heart disease specifically!

MRR = Observed rate/Expected rate

Data pertaining to rate from inpatient hospitalization due to composite circulatory conditions including hypertension, heart failure & angina w/o procedure collected from SPARCS data (2009-12), NYS.

**Note: Statistical analysis
(particularly 95%CI) not
performed; disease distribution
portrayed in several following
slides may be just due to
CHANCE !!!!!!!**

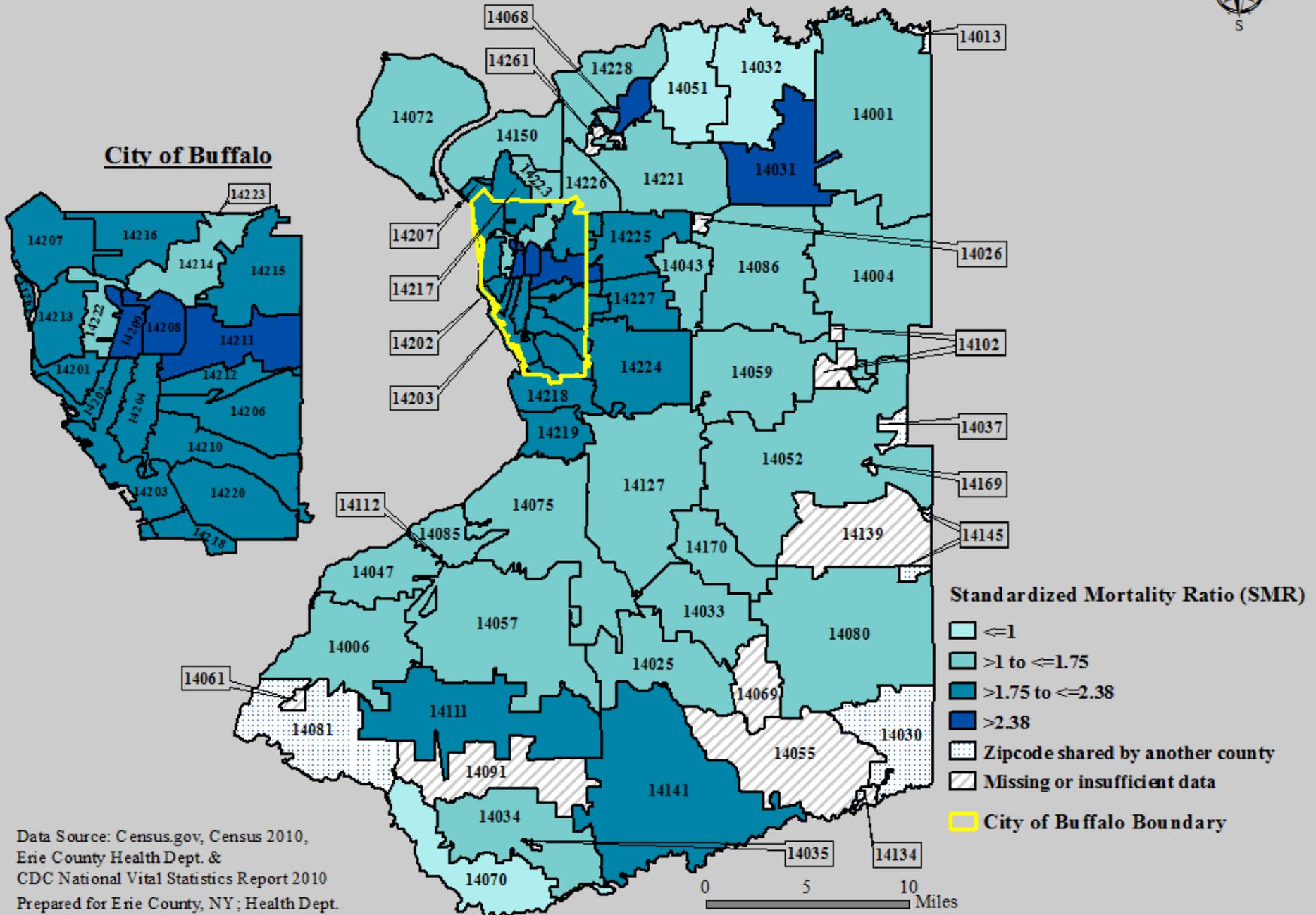
Heart Disease: Mortality & Morbidity



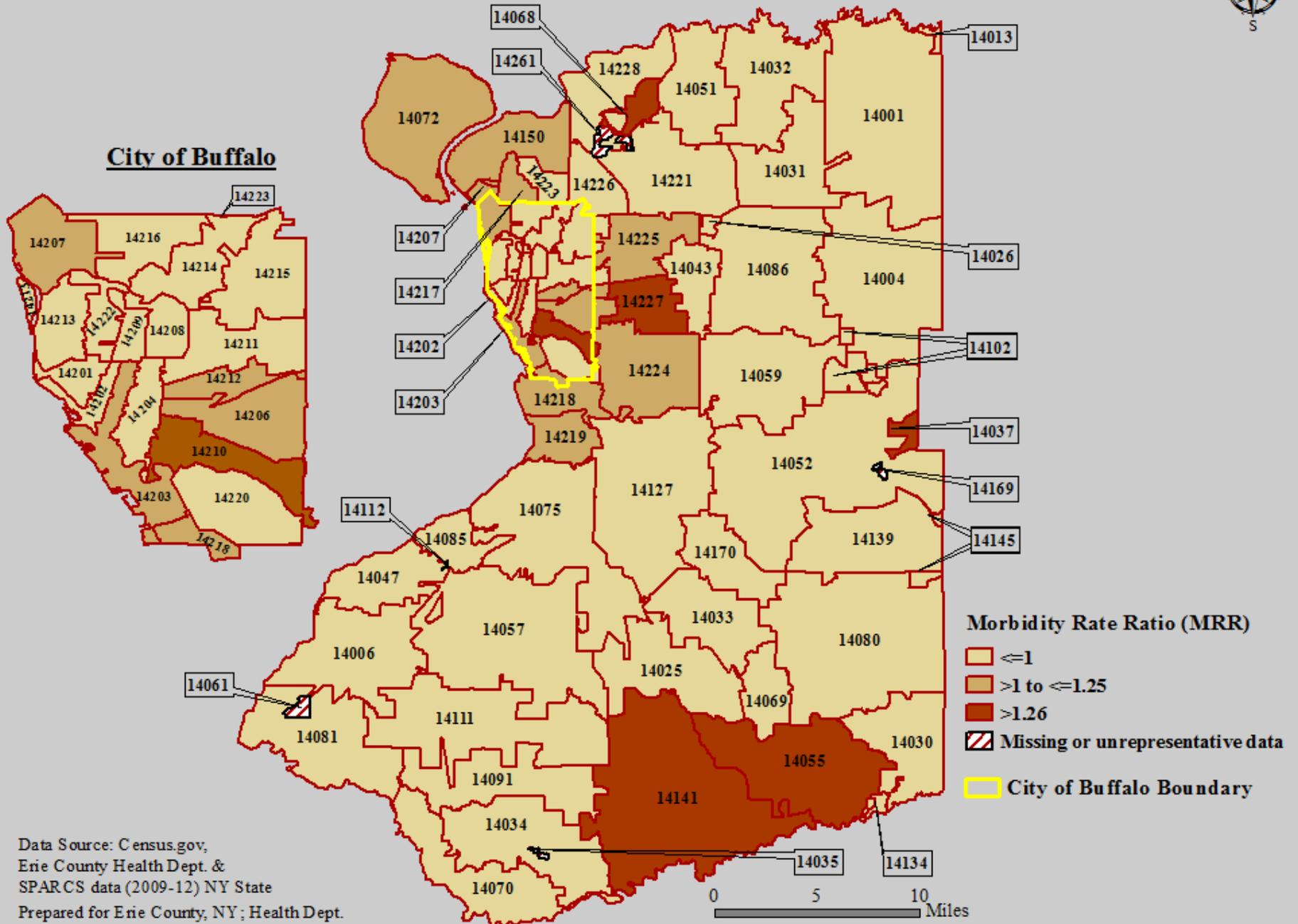
Data Source: Census.gov, Census 2010,
Erie County Health Dept. &
SPARCS data (2009-12) NY State
CDC National Vital Statistics Report 2010
Prepared for Erie County, NY; Health Dept.

*A lower ratio indicates a better status

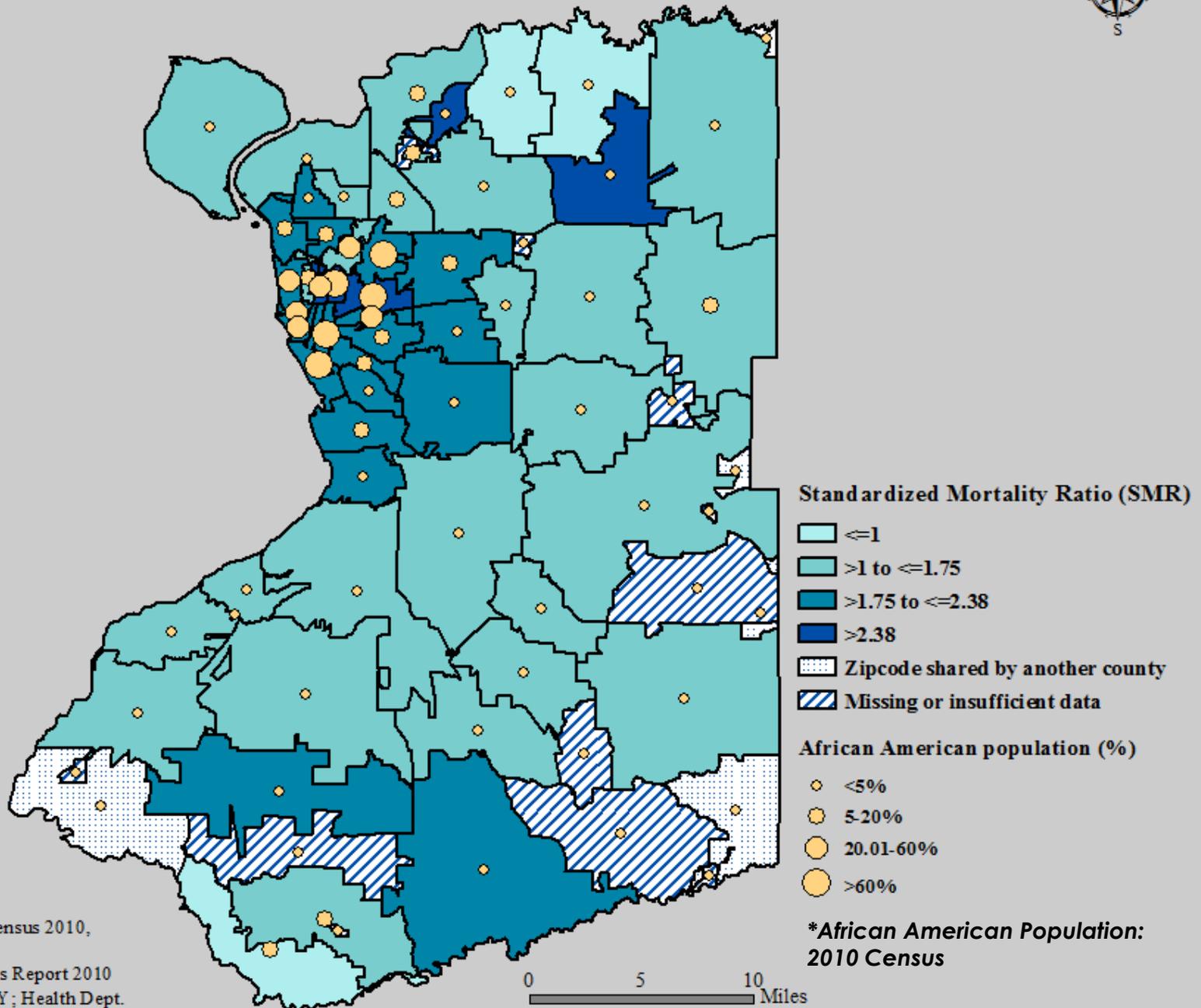
Heart Disease Mortality: Zip Code level



Heart Disease Morbidity: Zip Code level

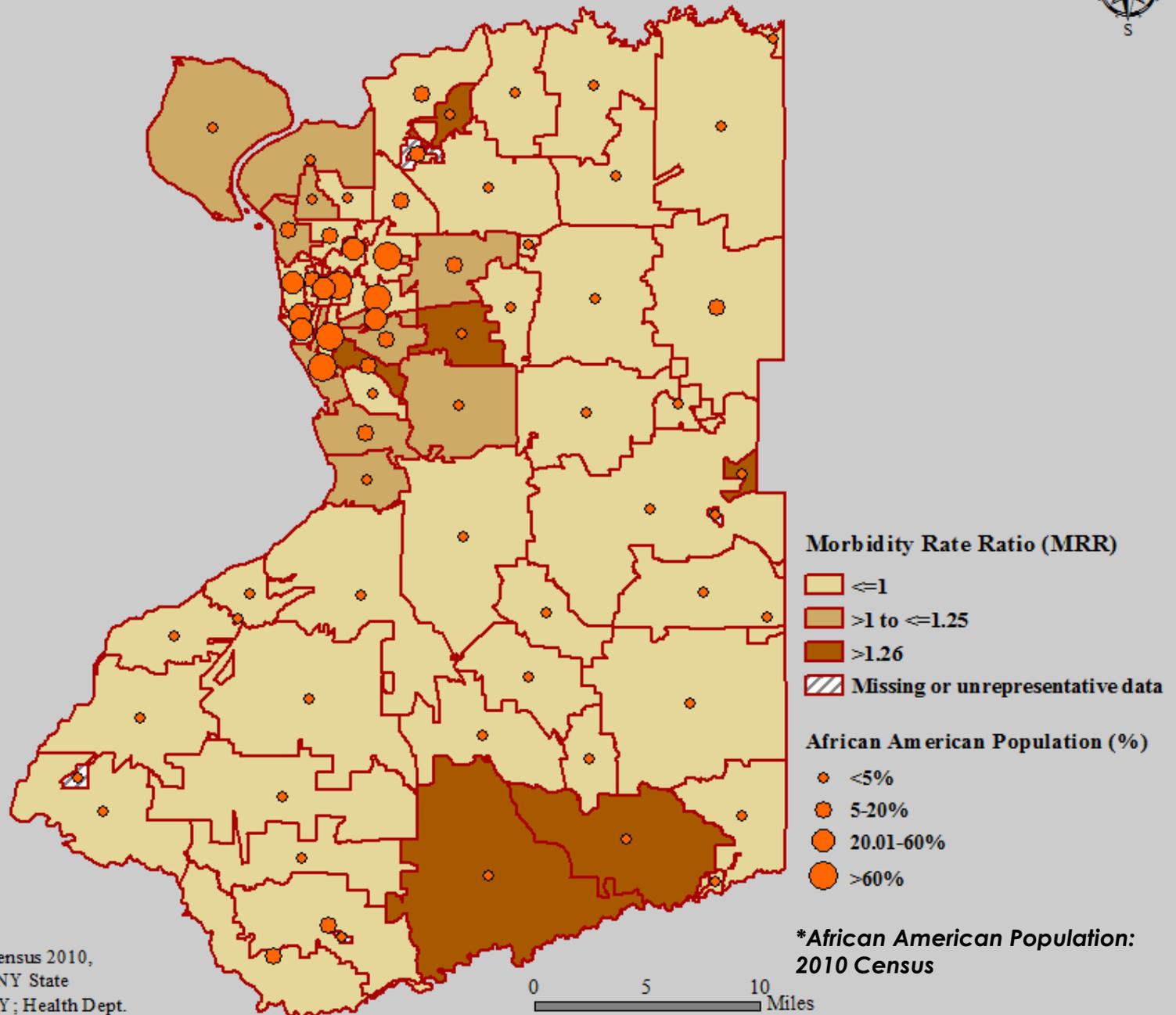


HeartD. Mortality: Racial Disparity



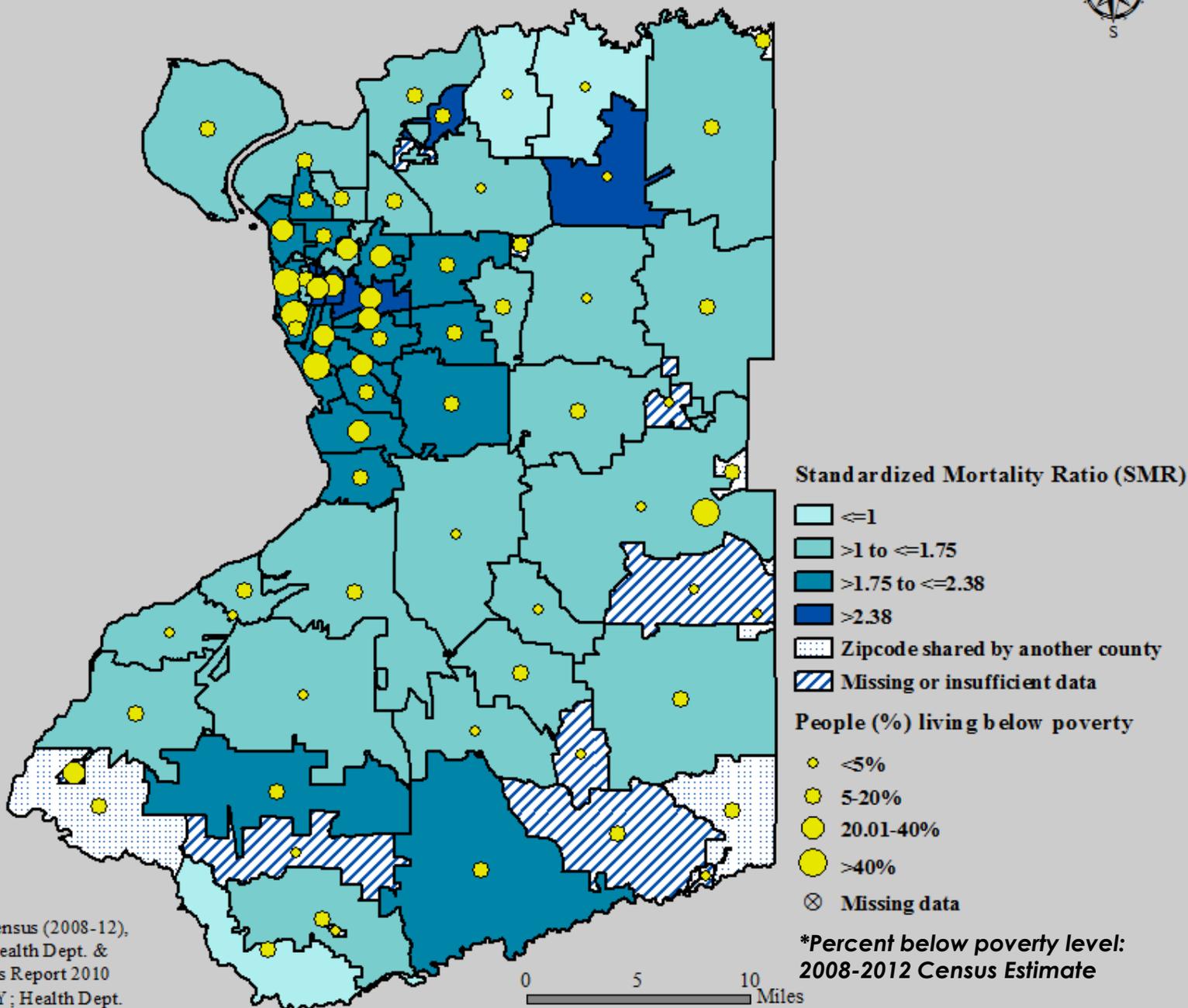
Data Source: Census.gov, Census 2010,
Erie County Health Dept. &
CDC National Vital Statistics Report 2010
Prepared for Erie County, NY; Health Dept.

HeartD. Morbidity: Racial Disparity



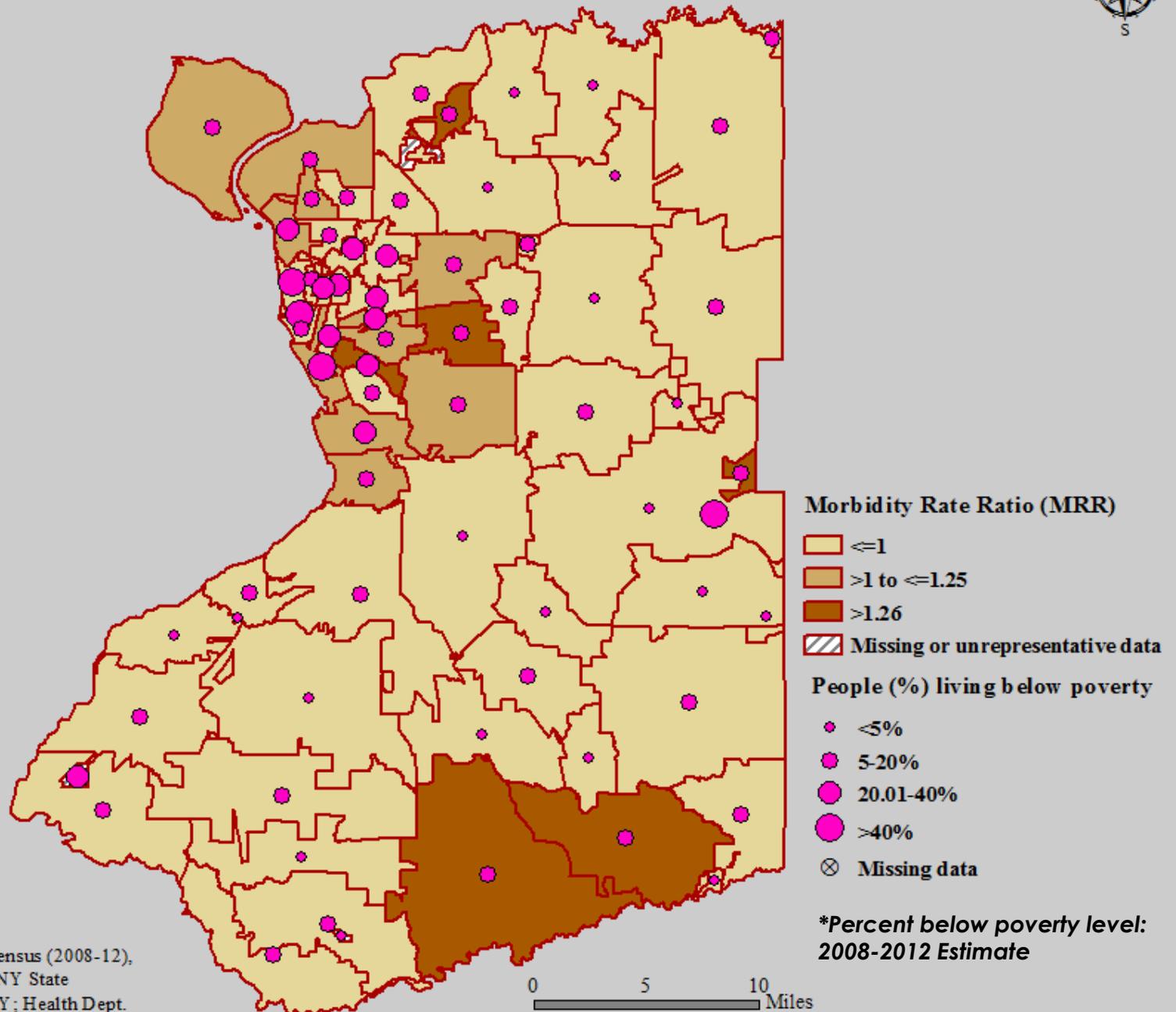
Data Source: Census.gov, Census 2010,
& SPARCS data (2009-12) NY State
Prepared for Erie County, NY; Health Dept.

HeartD. Mortality: Economic Inequality



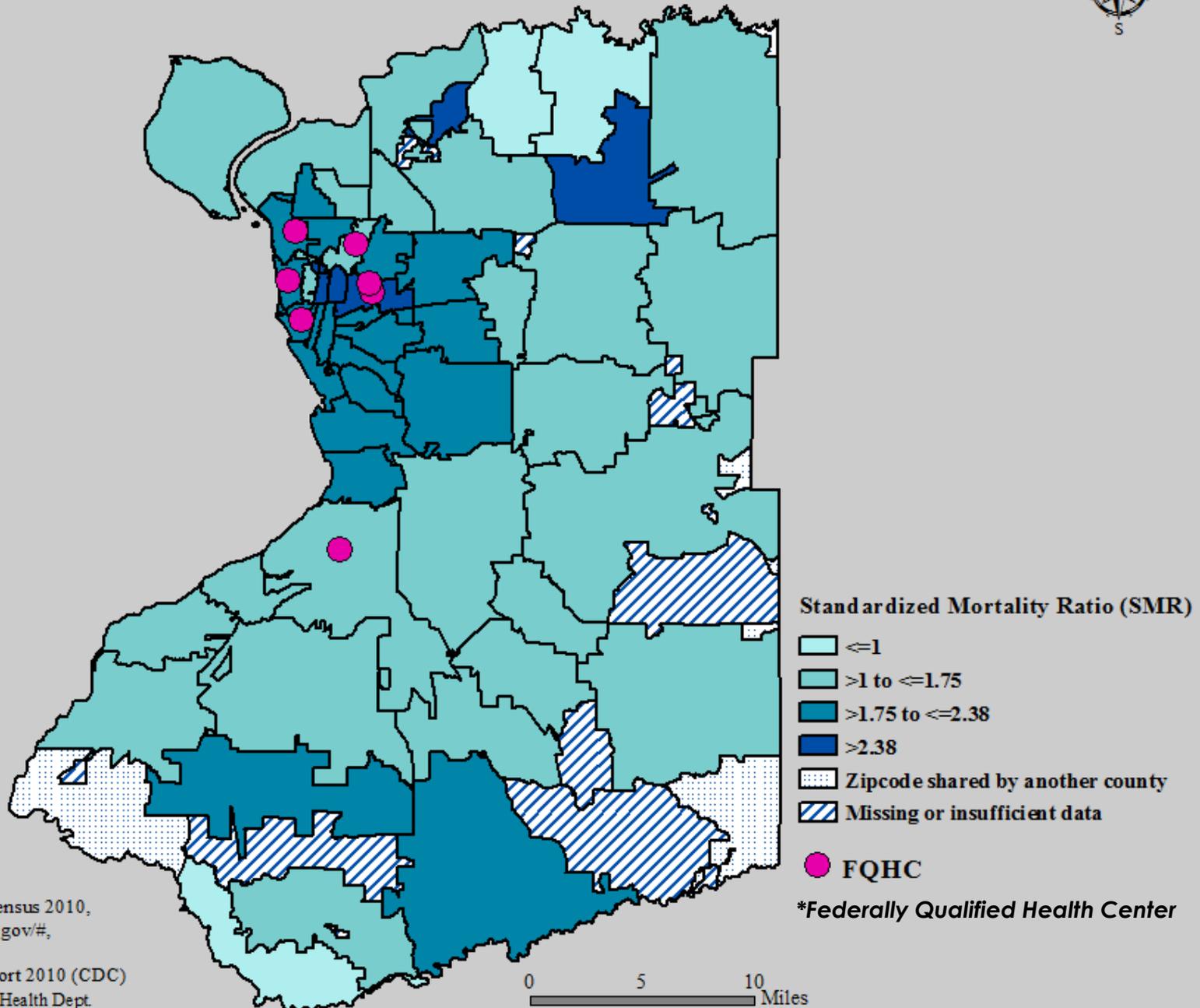
Data Source: Census.gov, Census (2008-12),
Census 2010, Erie County Health Dept. &
CDC National Vital Statistics Report 2010
Prepared for Erie County, NY; Health Dept.

HeartD. Morbidity: Economic Inequality



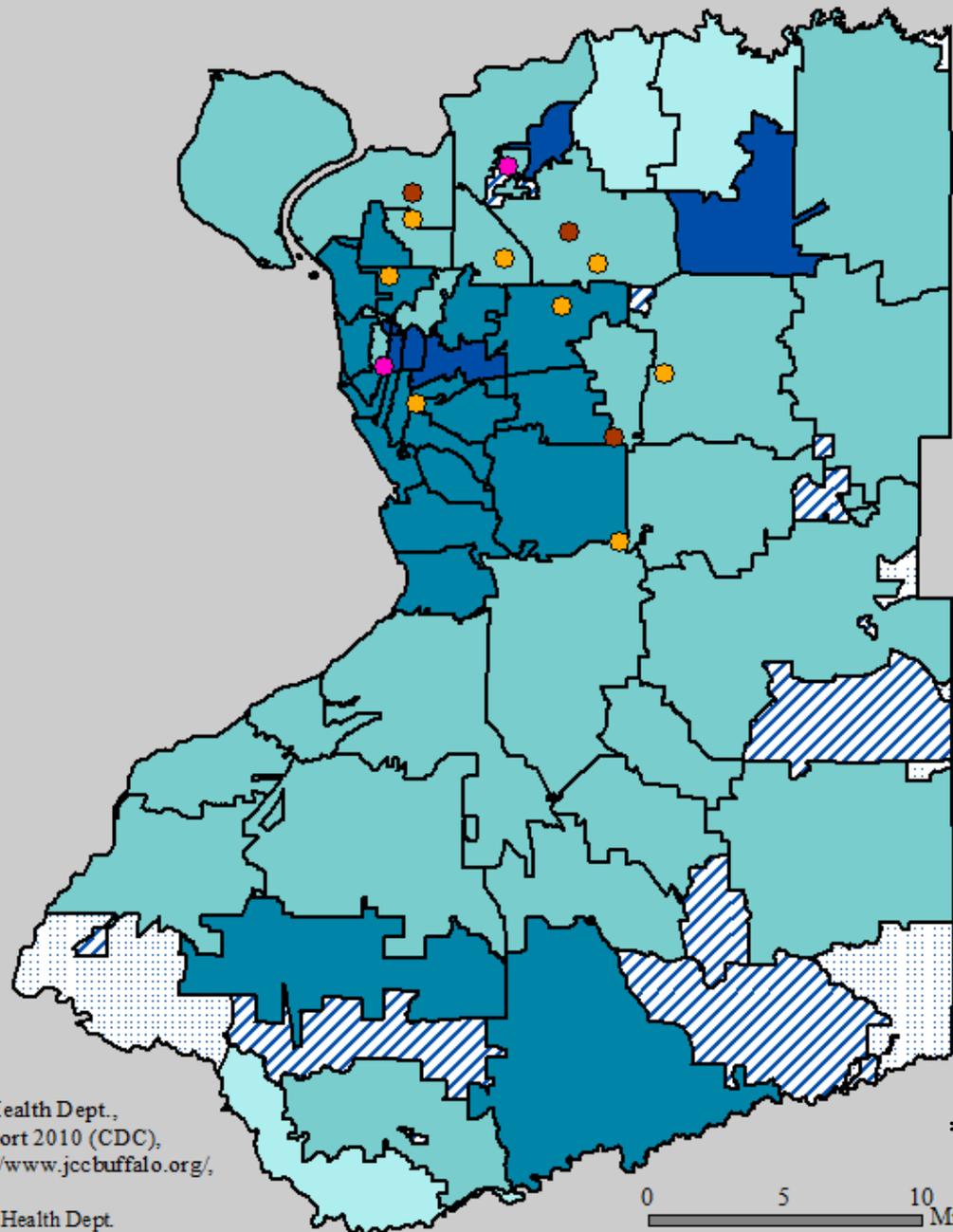
Data Source: Census.gov, Census (2008-12),
& SPARCS data (2009-12) NY State
Prepared for Erie County, NY; Health Dept.

Heart Disease Mortality: FQHC



Data Source: Census.gov, Census 2010,
<http://findahealthcenter.hrsa.gov/#>,
Erie County Health Dept.,
National Vital Statistics Report 2010 (CDC)
Prepared for Erie County, NY; Health Dept.

HeartD. Mortality: Physical Activity[★]



Standardized Mortality Ratio (SMR)

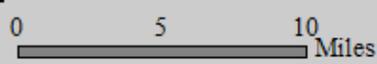
- ≤ 1
- > 1 to ≤ 1.75
- > 1.75 to ≤ 2.38
- > 2.38
- Zipcode shared by another county
- Missing or insufficient data

Potential Physical Activity Resource (other than Parks)

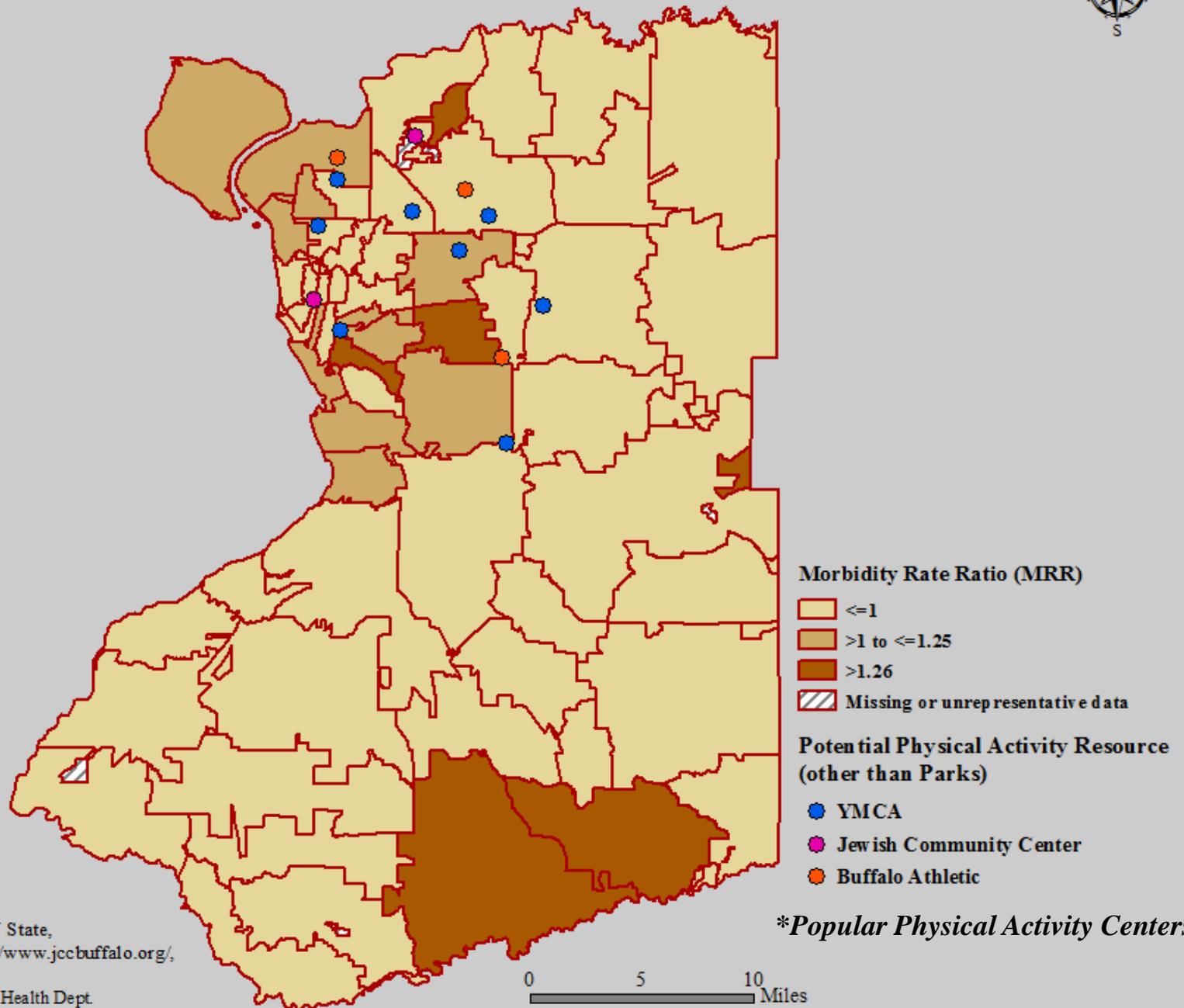
- YMCA
- Jewish Community Center
- Buffalo Athletic

**Popular Physical Activity Centers*

Data Source: Census.gov,
 Census 2010, Erie County Health Dept.,
 National Vital Statistics Report 2010 (CDC),
<http://www.ymca.net/>, <http://www.jccbuffalo.org/>,
<http://buffaloathletic.com/>
 Prepared for Erie County, NY; Health Dept.

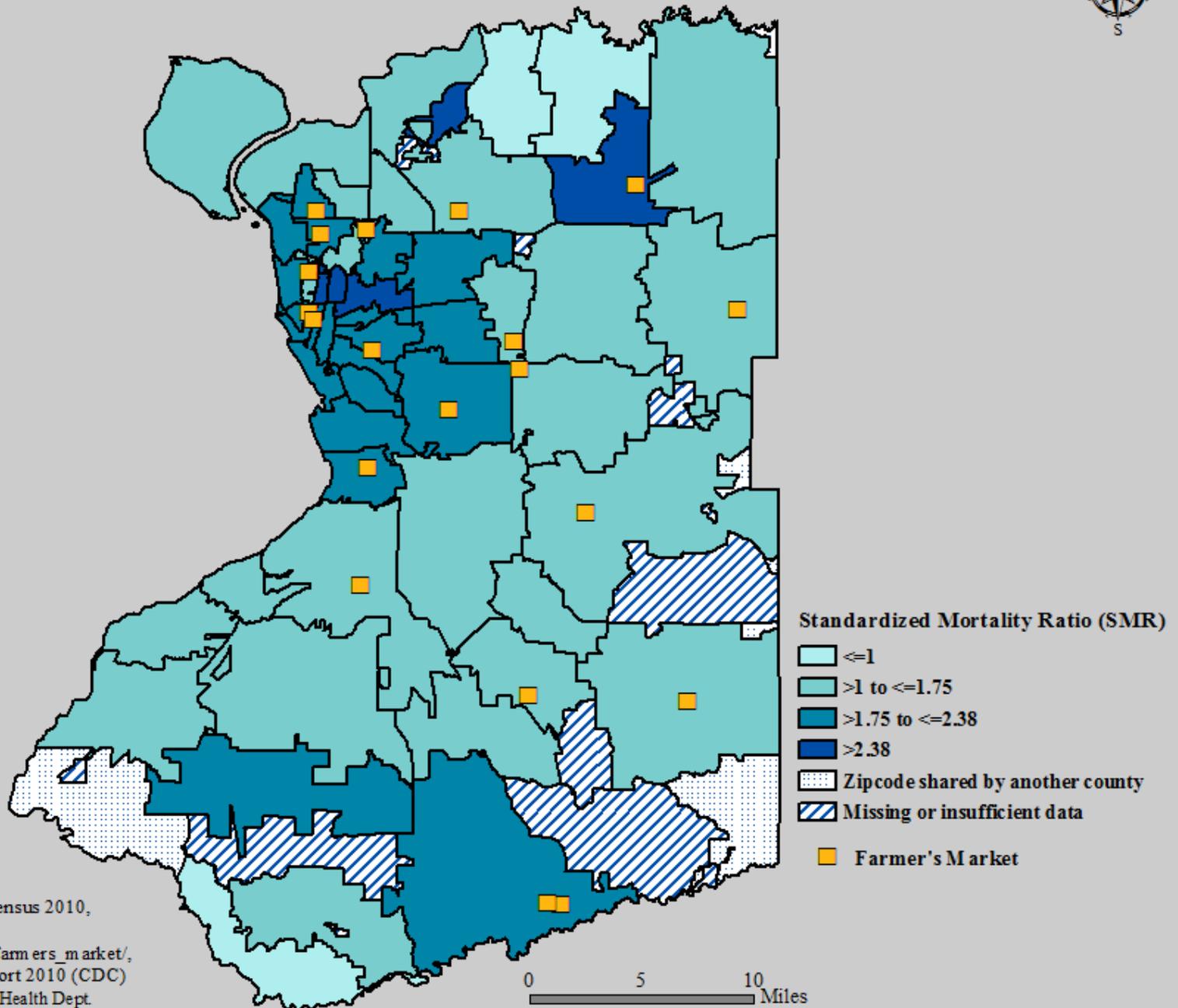


HeartD. Morbidity: Physical Activity[★]



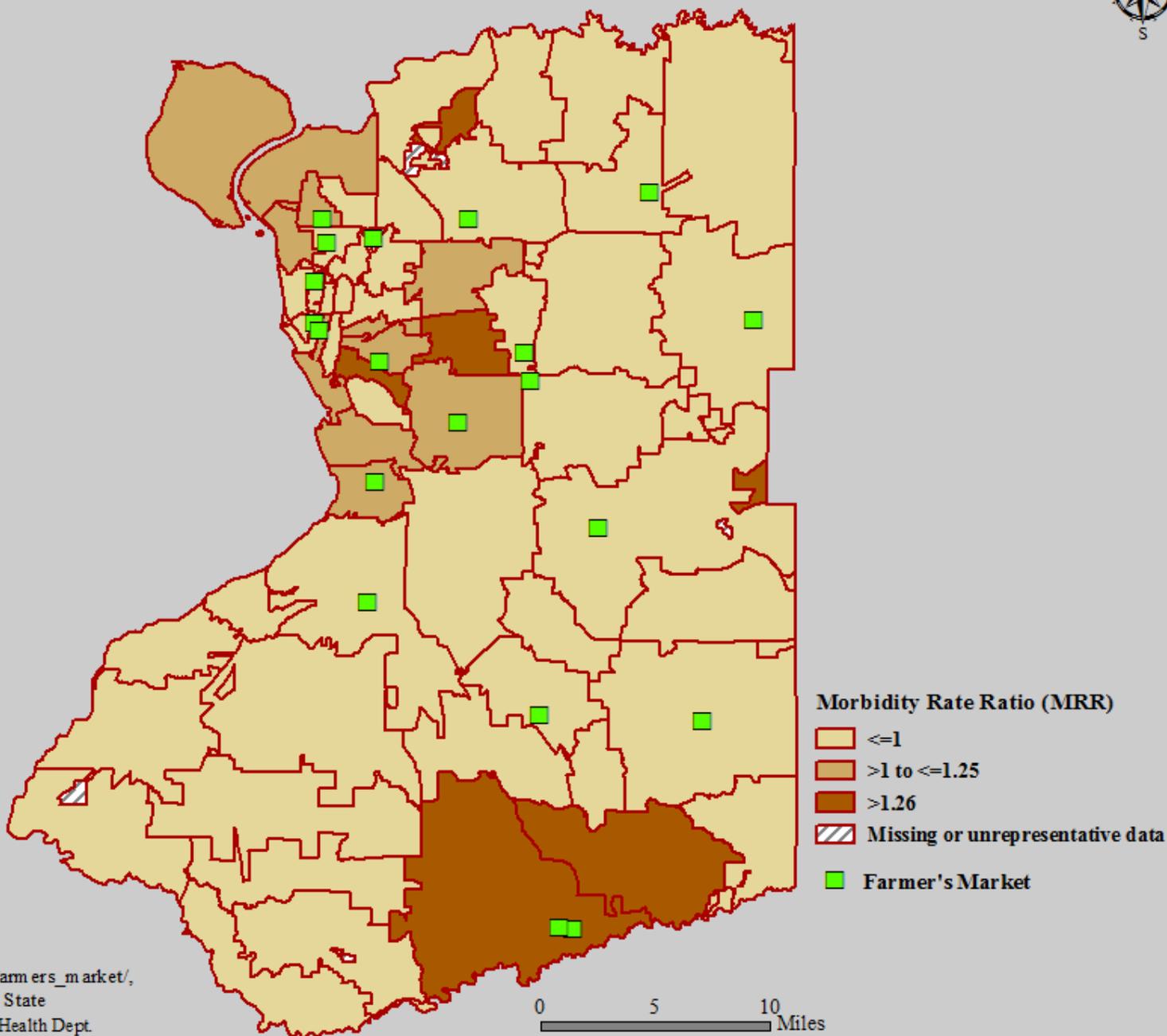
Data Source: Census.gov,
SPARCS data (2009-12) NY State,
<http://www.ymca.net/>, <http://www.jccbuffalo.org/>,
<http://buffaloathletic.com/>
Prepared for Erie County, NY; Health Dept.

HeartD. Mortality: Farmer's Market



Data Source: Census.gov, Census 2010,
Erie County Health Dept.,
http://www.bestofwny.com/farmers_market/,
National Vital Statistics Report 2010 (CDC)
Prepared for Erie County, NY; Health Dept.

HeartD. Morbidity: Farmer's Market

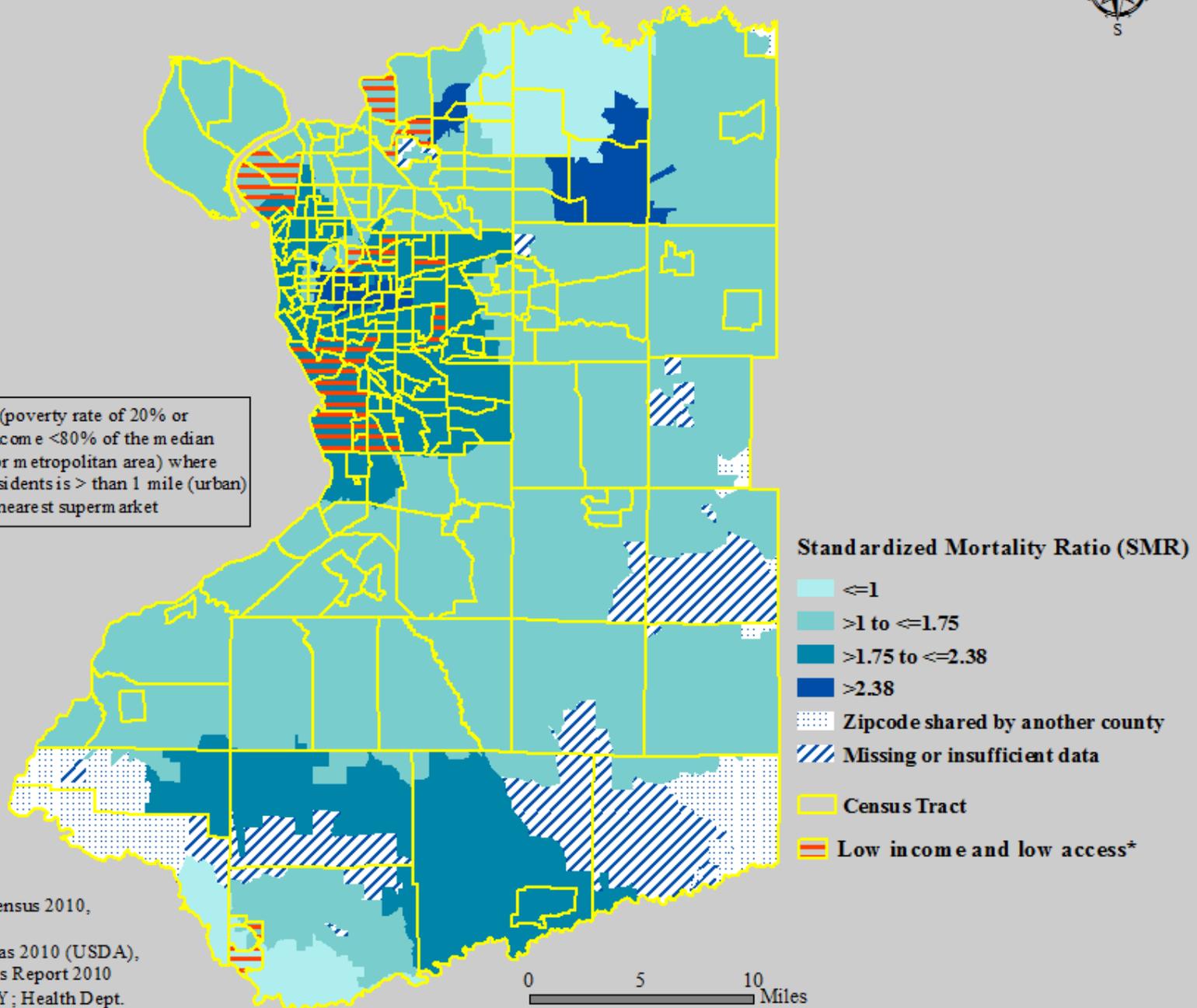


Data Source: Census.gov,
http://www.bestofwny.com/farmers_market/,
SPARCS data (2009-12) NY State
Prepared for Erie County, NY; Health Dept.

Heart Disease Mortality: Food Desert



* Low income census tracts (poverty rate of 20% or higher or a median family income <80% of the median family income for the state or metropolitan area) where a significant # or share of residents is > than 1 mile (urban) or 10 miles (rural) from the nearest super market

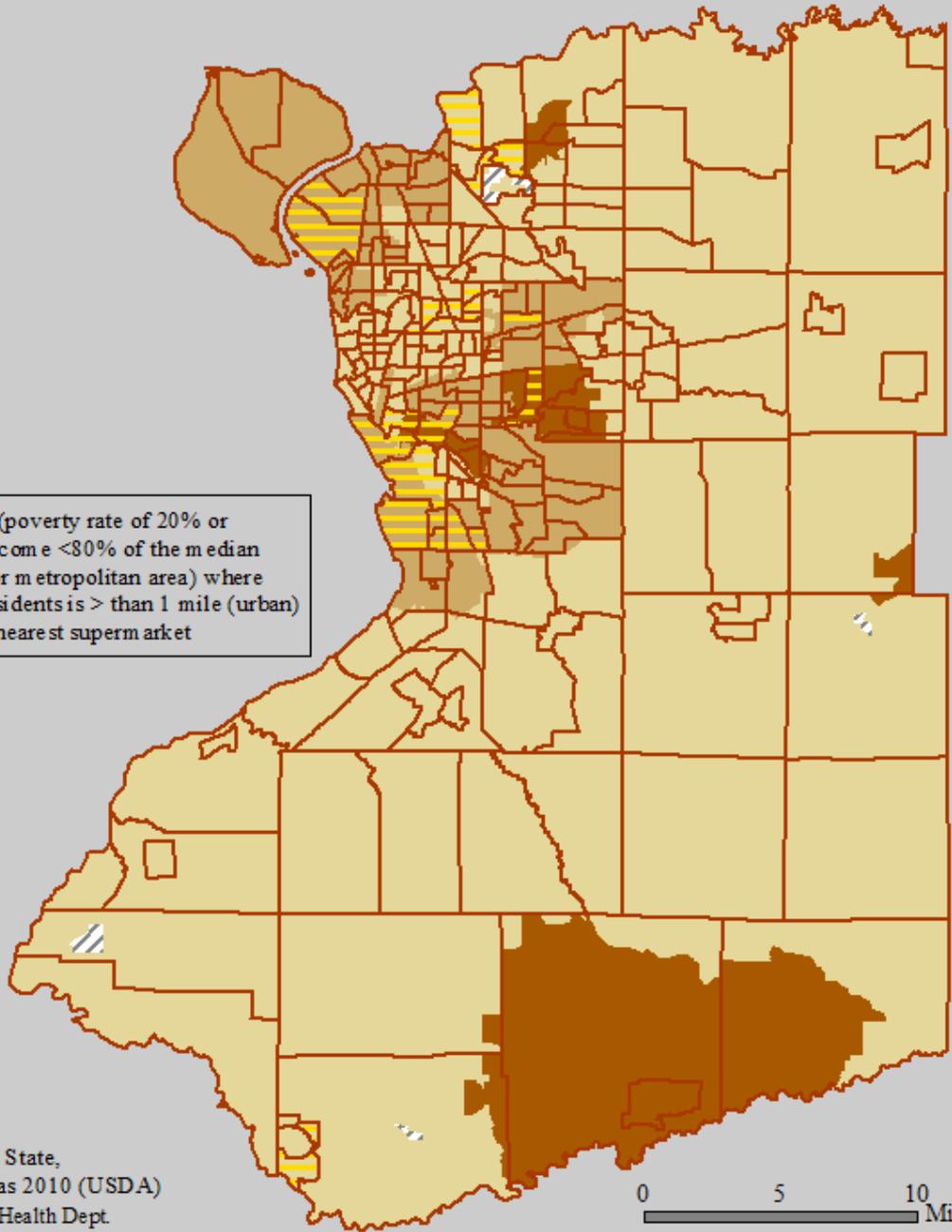


Data Source: Census.gov, Census 2010,
Erie County Health Dept. &
Food Access Research Atlas 2010 (USDA),
CDC National Vital Statistics Report 2010
Prepared for Erie County, NY; Health Dept.

Heart Disease Morbidity: Food Desert



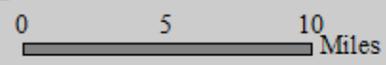
* Low income census tracts (poverty rate of 20% or higher or a median family income <80% of the median family income for the state or metropolitan area) where a significant # or share of residents is > than 1 mile (urban) or 10 miles (rural) from the nearest supermarket



Morbidity Rate Ratio (MRR)

- ≤1
- >1 to ≤1.25
- >1.26
- Missing or unrepresentative data
- Census Tract
- Low income and low access*

Data Source: Census.gov,
SPARCS data (2009-12) NY State,
Food_Access_Research_Atlas 2010 (USDA)
Prepared for Erie County, NY; Health Dept.



HeartD. Mortality: Food Landscape



* Modified Retail Food Environment Index (mRFEI)

$$mRFEI = 100 \times \frac{\# \text{ Healthy Food Retailers}}{\# \text{ Healthy Food Retailers} + \# \text{ Less Healthy Food Retailers}}$$

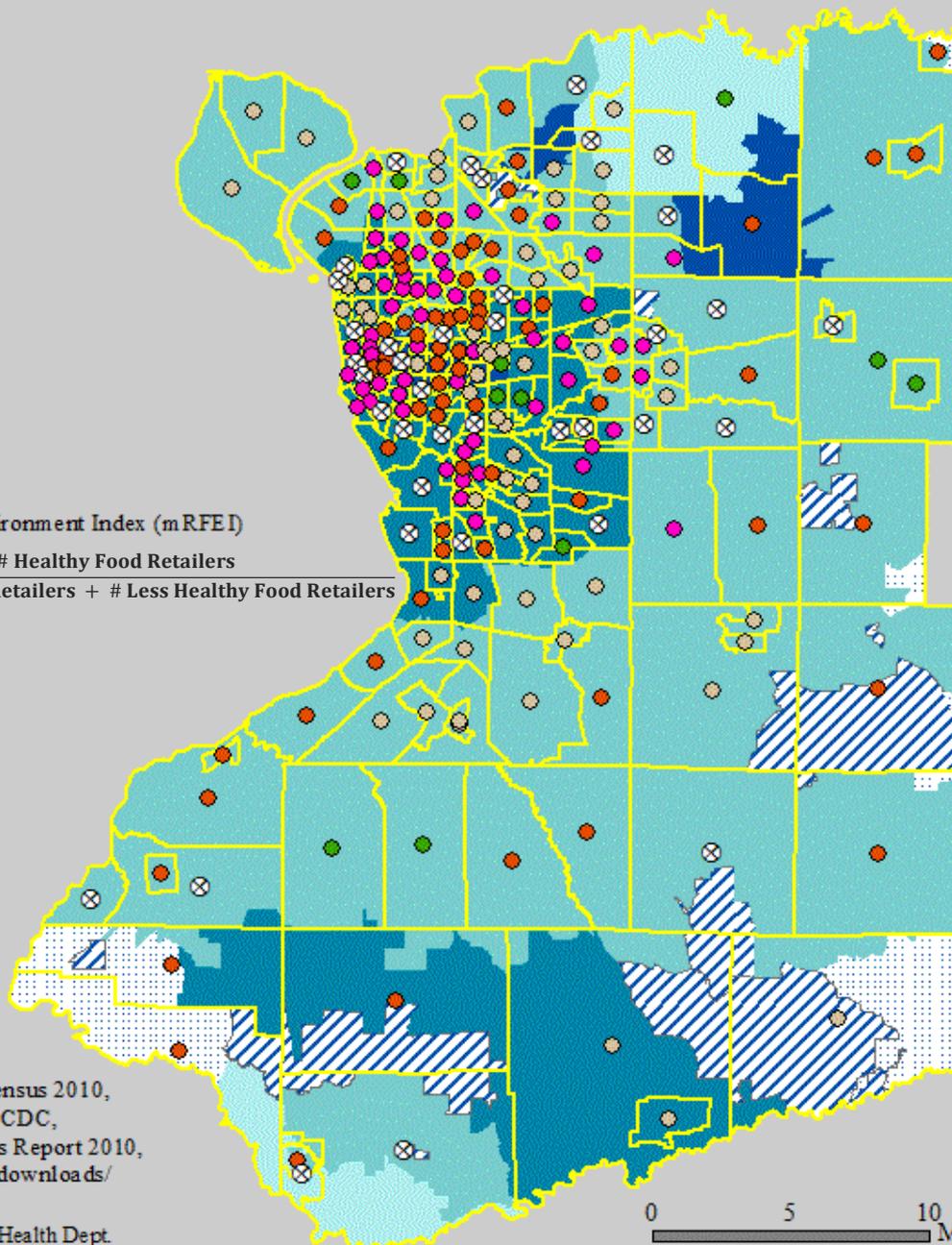
*The mRFEI integrates the concepts of "food desert" and "food swamp" into a single measure.

Standardized Mortality Ratio (SMR)

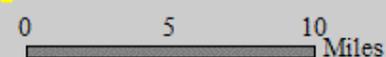
-  ≤ 1
-  >1 to ≤ 1.75
-  >1.75 to ≤ 2.38
-  >2.38
-  Zipcode shared by another county
-  Missing or insufficient data
-  Census Tract

mRFEI*

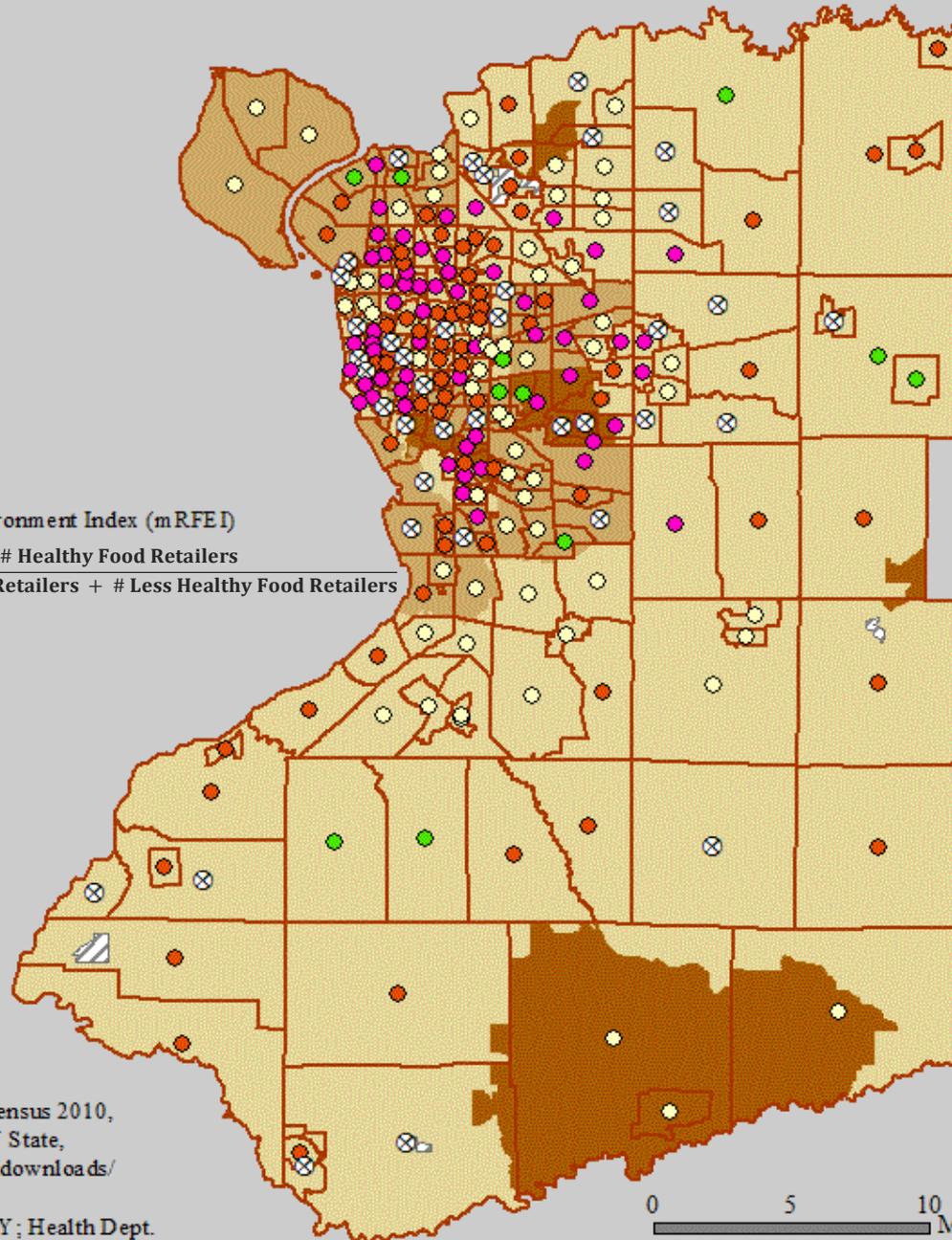
-  0
-  0.1 - 10
-  10.1 - 30
-  30.1 - 50
-  Missing data



Data Source: Census.gov, Census 2010,
 Erie County Health Dept. & CDC,
 CDC National Vital Statistics Report 2010,
http://www.cdc.gov/obesity/downloads/2_16_mrfei_data_table.xls
 Prepared for Erie County, NY; Health Dept.



HeartD. Morbidity: Food Landscape



* Modified Retail Food Environment Index (mRFEI)

$$\text{mRFEI} = 100 \times \frac{\# \text{ Healthy Food Retailers}}{\# \text{ Healthy Food Retailers} + \# \text{ Less Healthy Food Retailers}}$$

*The mRFEI integrates the concepts of “food desert” and “food swamp” into a single measure.

Morbidity Rate Ratio (MRR)

- ≤ 1
- >1 to ≤ 1.25
- >1.26
- Missing or unrepresentative data
- Census Tract

mRFEI Score*

- 0
- 0.1 - 10
- 10.1 - 30
- 30.1 - 50
- Missing data

Data Source: Census.gov, Census 2010,
SPARCS data (2009-12) NY State,
[http://www.cdc.gov/obesity/downloads/
2_16_mrfei_data_table.xls](http://www.cdc.gov/obesity/downloads/2_16_mrfei_data_table.xls)

Prepared for Erie County, NY; Health Dept.

0 5 10 Miles

PROJECT RESULTS: PROSPECTS

- Program planning
- Improving community capacity

LIMITATIONS:

- Confounders were not accounted for
- Data is ecological
- Multiple data sources might introduce bias
- Results do not imply causation
- Statistical significance not assessed

ABCS of Million Hearts

LOCAL PRACTICE ADHERENCE RATES

EC Practice	Aspirin NQF 0068			Blood Pressure NQF 0018			Blood Pressure NQF 0073			Cholesterol* NQF 0075			Tobacco Cessation NQF 0028		
	2013 Q3	2013 Q4	2014 Q1	2013 Q3	2013 Q4	2014 Q1	2013 Q3	2013 Q4	2014 Q1	2013 Q3	2013 Q4	2014 Q1	2013 Q3	2013 Q4	2014 Q1
23761	37	37	35.38	70	70	70	87	67	80.19	68	82	67.92	62	67	67.86
1c5a2	36	36	36.61	61	61	60.49	73	71	67.49	63	63	62.57	36	33	26.53
77ffa	61	60	60.43	64	64	64.37	78	74	73.19	78	78	74.89	0	0	0
01a4f	43	45	47.58	67	67	71.59	76	65	65.32	45	45	56.45	12	0	0
402e6	50	48	47.63	85	85	86.17	90	88	88.86	59	60	63.27	0	0	10.2
74a88	88	89	90.77	82	81	77.52	NA	NA	NA	67	68	72.31	75	73	73.77
e1830	47	46	45.62	75	75	71.11	74	73	67.12	62	63	66.16	NA	32	32
78004	29	26	26.46	85	85	87.65	92	89	91.07	51	49	51.55	11	15	12.2
3aa08	89	92	94.12	3	2	1.16	NA	NA	NA	NA	NA	NA	NA	67	NA
b1181	72	72	74.11	84	84	90.55	88	72	89.89	52	89	57.98	75	70	73.85
eb07d	31	33	32.97	71	71	73.71	77	79	79.46	55	59	58.38	43	67	100
8f4e1	47	48	49.62	77	77	78.27	82	85	81.2	52	53	54.44	29	1	0.56
c40f6	NA	NA	NA	100	74	72.26	NA	NA	NA	NA	NA	NA	NA	NA	NA
44c59	NA	NA	NA	99	57	45.34	NA	NA	NA	NA	NA	NA	NA	NA	NA



Goal Achieved



Goal Not Achieved



Data Not Available

*NQF 0074 not provided

ABCs of Million Hearts METRICS

Quality Data Measures-Practice Adherence Rates: [Explanation](#)

Aspirin NQF 0068	Blood Pressure NQF 0018	Blood Pressure NQF 0073	Cholesterol *NQF 0074	Cholesterol NQF 0075	Smoking (Tobacco) NQF 0028
Ischemic Vascular Disease: Use of Aspirin or Other Antithrombotic	Controlling High Blood pressure	Ischemic Vascular Disease (IVD): Blood Pressure Management	Coronary Artery Disease (CAD): Drug Therapy for Lowering LDL-Cholesterol	Ischemic Vascular Disease (IVD): Complete Lipid Panel/ LDL Control	Preventive Care & Screening: Tobacco Use: Screening and Cess Intervention (Measure)
Percentage of patients 18 years of age and older who were discharged alive for acute myocardial infarction (AMI), coronary artery bypass graft (CABG) or percutaneous coronary interventions (PCI) in the 12 months prior to the measurement period, or who had an active diagnosis of ischemic vascular disease (IVD) during the measurement period, and who had documentation of use of aspirin or another anti-platelet during the 12 month measurement period.	Percentage of patients 18-85 years of age who have a diagnosis of hypertension and whose most recent blood pressure during the 12 month measurement period was controlled (<140/<90mmHg)	Percentage of patients 18 years of age and older who were discharged alive for acute myocardial infarction (AMI), coronary artery bypass graft (CABG) or percutaneous coronary interventions (PCI) in the 12 months prior to the measurement period, or who had an active diagnosis of ischemic vascular disease (IVD) during the 12 month measurement period, and whose most recent blood pressure is in control (<140/<90 mmHg)	Percentage of patients aged 18 years and older with a diagnosis of CAD who were prescribed a lipid-lowering therapy (based on current ACC/AHA guidelines). *not on previous slide	Percentage of patients 18 years of age and older who were discharged alive for acute myocardial infarction (AMI), coronary artery bypass graft (CABG) or percutaneous coronary interventions (PCI) in the 12 months prior to the measurement period, or who had an active diagnosis of ischemic vascular disease (IVD) during the 12 month measurement period, and who had a complete lipid profile performed during the 12 month measurement period and whose LDL-C was <100mg/dl	Percent of patients aged 18 years and older who were screened for tobacco use one or more times within during the 24 month measurement period AND, among tobacco users, received cessation counseling intervention

For a given measure, a practice can ascertain its most recent adherence proportion and how it compares to other practices reporting the same measure. The web site displays a measure definition and summary statistics for each measure; number of submitting practices for that measure, the size of each submitting practice (number of clinicians), the individual practice site numerator and denominator, the median adherence proportion among the reporting practices, the minimum adherence proportion, the maximum proportion, a practice rank and benchmark information (the benchmark adherence rate is the average rate among the reporting practices in the top ten percent of the adherence proportion distribution). IPRO calculates the rank and benchmark using data for practice sites that had at least 30 patients in the denominator. Calculations are based upon the most recent available data (last-observation-carried-forward method). For example, if a practice submits data for quarter 1 2013, but not quarter 2 for 2013, IPRO uses the quarter 1 data in formulating the benchmark for quarter 2. There also is a map page to allow viewers to see the geographic distribution of the de-identified sites and their data.

Primary Prevention Strategies (Ideas)

- ▶ Health education
- ▶ Outreach events in high risk areas
- ▶ Tapping community strengths to foster primary prevention
- ▶ Engaging the community

CONCLUSION:

- Data presented strengthens the need for primary prevention.
- Multi-prong interventions **COULD** make a **DIFFERENCE!**

THE END

Prepared by Liese Ness MS ED
Erie County Department of Health
Contact: liese.ness@erie.gov (feedback welcome)
716-858-4752
September 2015