



knowledge changing life

ONCOLOGY HEALTH DISPARITIES IN WISCONSIN

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Wisconsin Association of Hematology and Oncology Annual Conference
Hilton Milwaukee City Center; Milwaukee, WI*

September 24, 2022

DISCLOSURE OF CONFLICTS OF INTEREST

- Kristen Beyer, PhD, MPH, MS, has no relevant financial relationships to disclose.

OVERVIEW

- Summarize statewide cancer incidence and mortality rates
 - Cancer site
 - Sex
 - Race and ethnicity
- Summarize M7 region
- Understand Site specific geospatial patterns
 - Wisconsin and Southeastern Wisconsin M7 region
 - Breast, Colorectal, Lung, Prostate, Cervical, Pancreatic, Multiple Myeloma
- How do our disparities compare?

STATEWIDE RATES

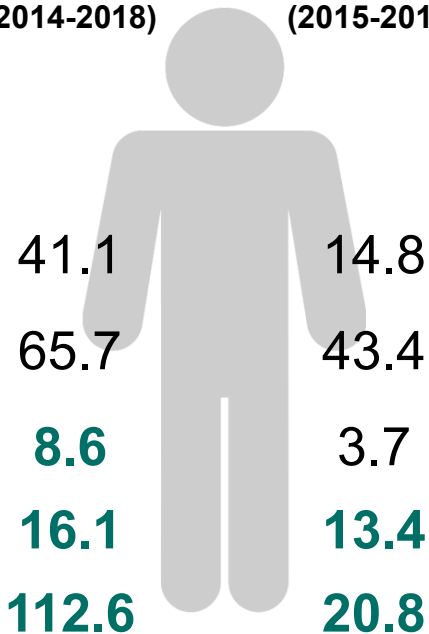
	Invasive Incidence Rate (2014-2018)		Mortality Rate (2015-2019)	
	WI	U.S.	WI	U.S.
Female Breast	132.9	126.9	18.5	19.9
Cervical	6.6	7.7	1.6	2.2
Colorectal	36.5	36.5	12.5	13.4
Lung & Bronchus	58.8	57.3	37.0	36.7
Myeloma	6.9	7.0	3.1	3.2
Pancreatic	13.7	13.1	11.5	11.1
Prostate	112.6	106.4	20.8	18.9

Invasive Incidence & Mortality Rates by Gender in Wisconsin

Rates in **Green** represent rates higher than the national average

**Incidence
Rate
(2014-2018)**

**Mortality
Rate
(2015-2019)**



**Incidence
Rate
(2014-2018)**

**Mortality
Rate
(2015-2019)**

Female Breast

132.9 18.5

Cervical

6.6 1.6

Colorectal

32.4 10.5

**Lung &
Bronchus**

53.6 **32.0**

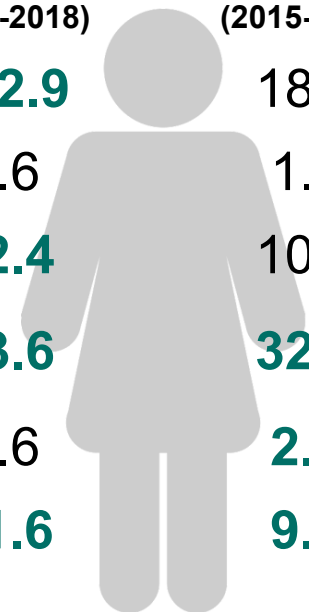
Myeloma

5.6 **2.6**

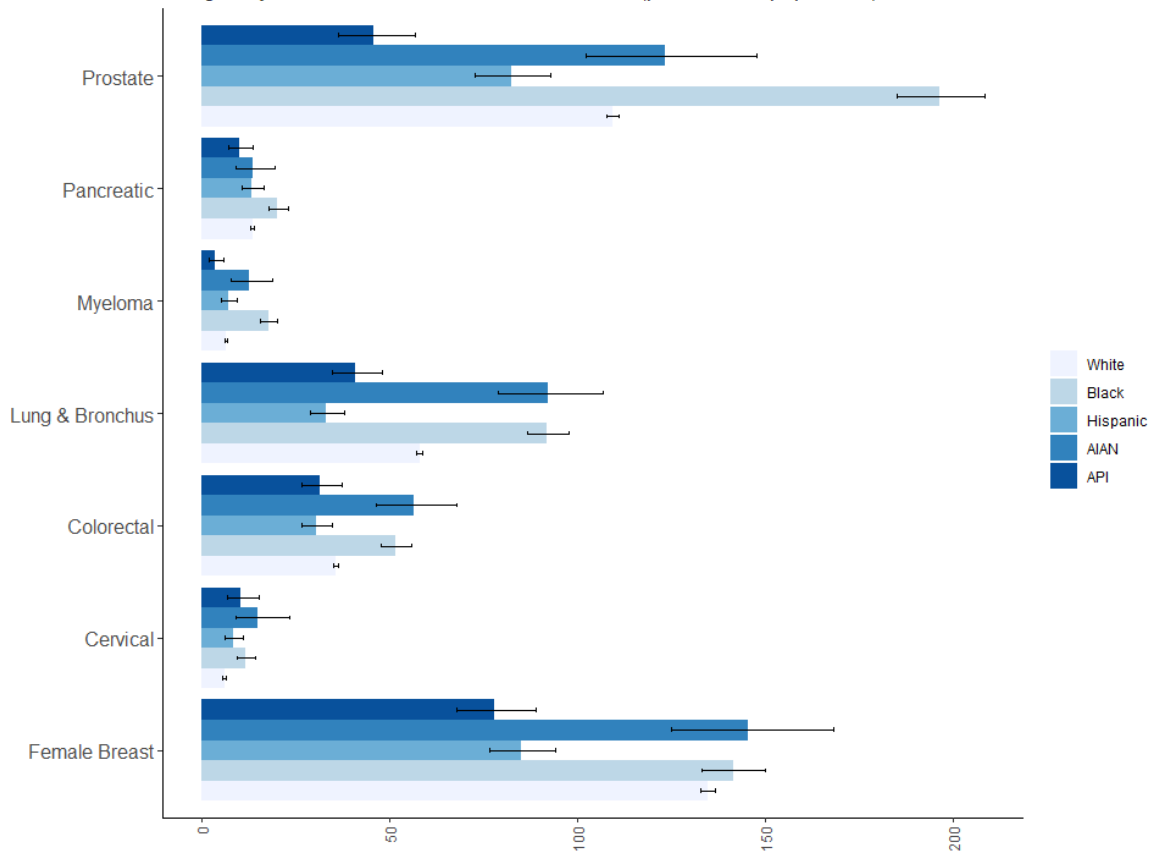
Pancreatic

11.6 **9.9**

Prostate



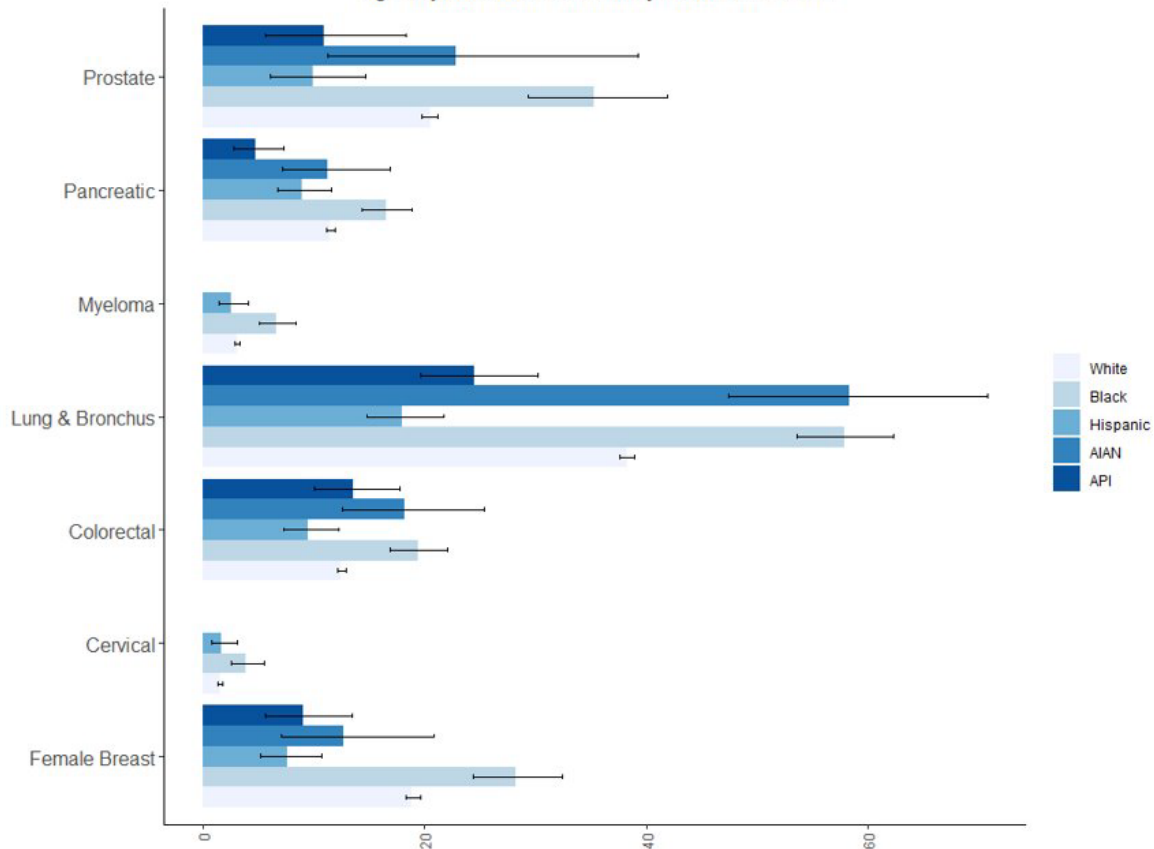
Age-Adjusted Invasive Cancer Incidence Rate (per 100,000 population), 2014-2018



Data: Wisconsin Interactive Statistics on Health (WISH)
Note: Denominator contains at-risk population

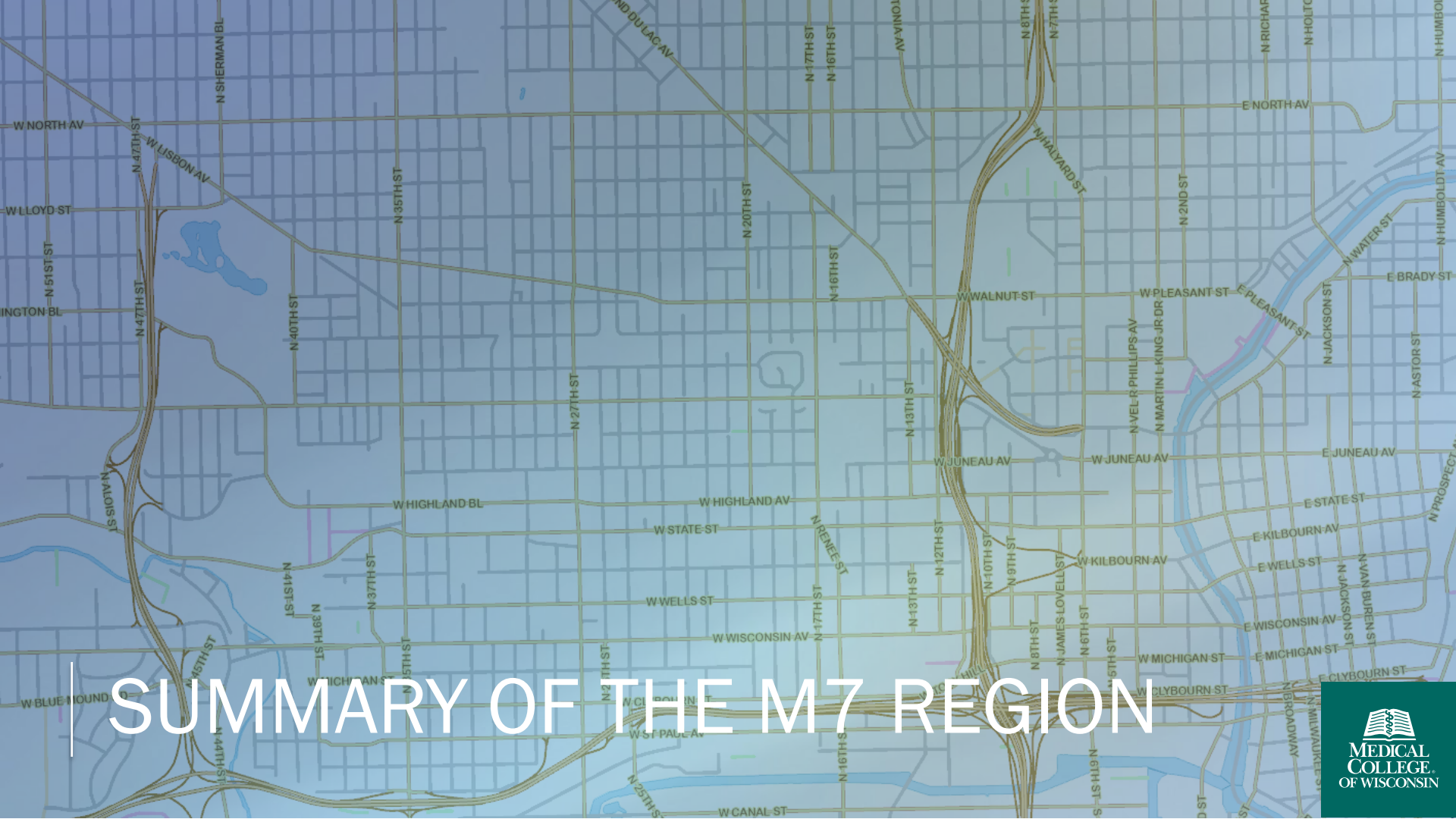
Age-Adjusted
Invasive Cancer
Incidence Rate
(per 100,000
population) in
Wisconsin,
2014-2018

Age-Adjusted Cancer Mortality Rate, 2014-2018



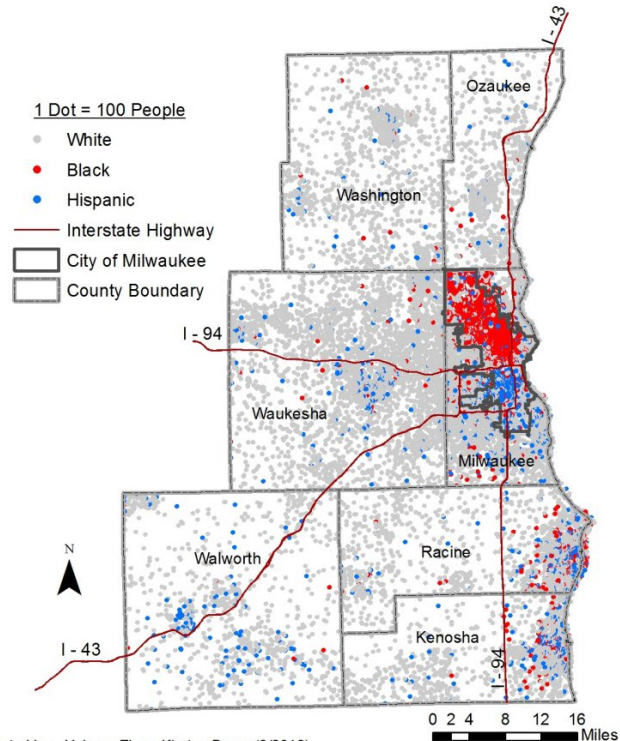
Data: Wisconsin Interactive Statistics on Health (WISH)
 Note: Denominator contains at-risk population

Age-Adjusted
 Invasive Cancer
 Mortality Rate
 (per 100,000
 population) in
 Wisconsin,
 2014-2018



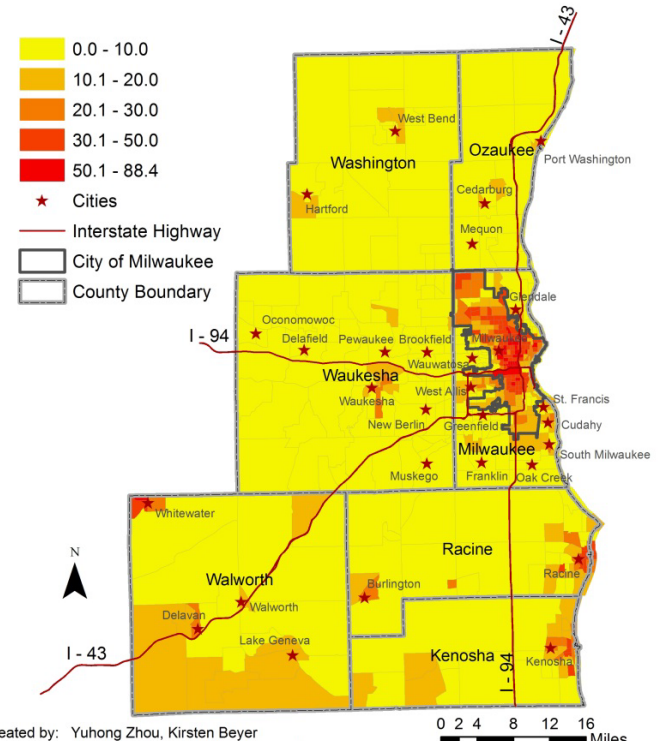
SUMMARY OF THE M7 REGION

Population by Race/Ethnicity by Census Tract, MCW Cancer Center Catchment Area 2009 - 2013



Created by: Yuhong Zhou, Kirsten Beyer (3/2016)
Data Source: 2009-2013 American Community Survey 5-Year Estimates by US Census Bureau

Percentage of the Population with Income Below the Poverty Level by Census Tract, MCW Cancer Center Catchment Area 2009-2013



Created by: Yuhong Zhou, Kirsten Beyer
Medical College of Wisconsin (3/2016)
Data Source: 2009-2013 American Community Survey 5-Year Estimates by US Census Bureau

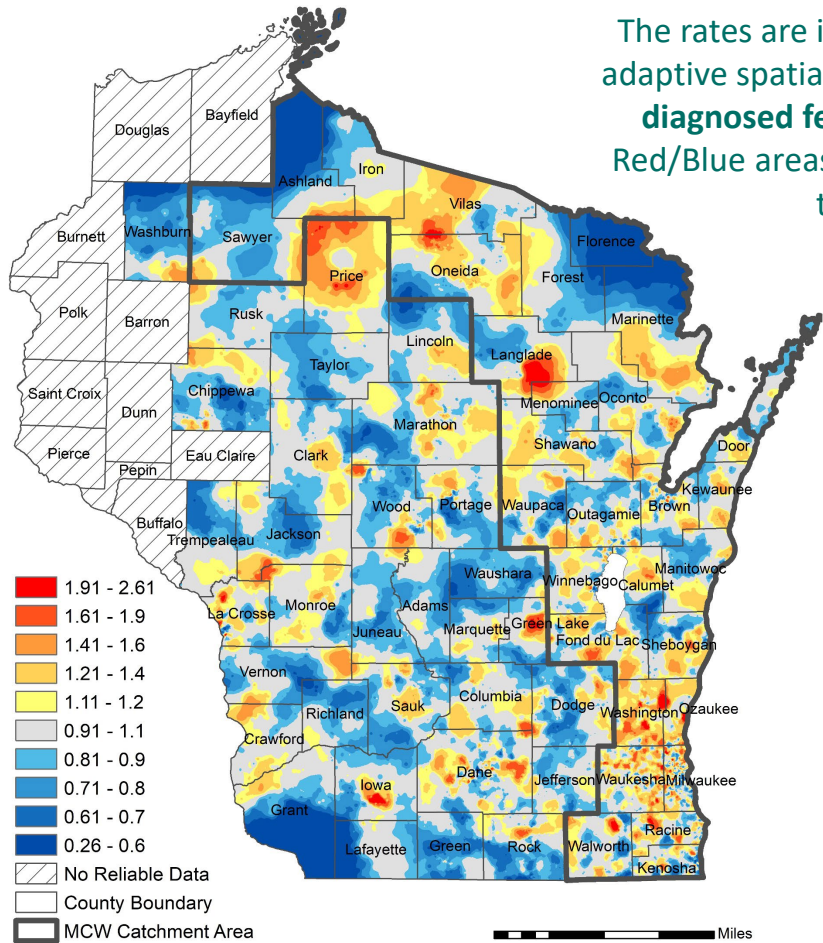
**“Back in time 60 years’:
America’s most
segregated city”**
Toronto Star, Jan 25,
2016

Employment Rate	
Black	58%
White	88%
Poverty rate	
Black	39%
White	8%
Residents living in extreme-poverty neighborhoods	
Black	32.9%
White	1.6%
Adult male incarceration rate	
Black	11.9%
White	0.9%
Median household income	
Black	\$26,036
White	\$62,100
Average poverty rate of school attended by a student who is...	
Black	78.1%
White	24.2%

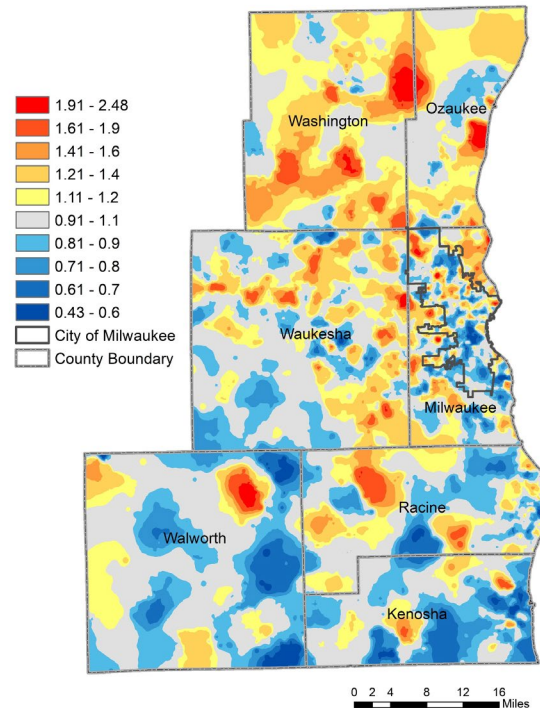
| SITE SPECIFIC SPATIAL PATTERNS

Female Breast Cancer Incidence Rate Wisconsin, 2014-2019

The rates are indirectly age adjusted using adaptive spatial filtering based on 20 closest **diagnosed female breast cancer cases**.
Red/Blue areas indicate higher/lower rates than expected.

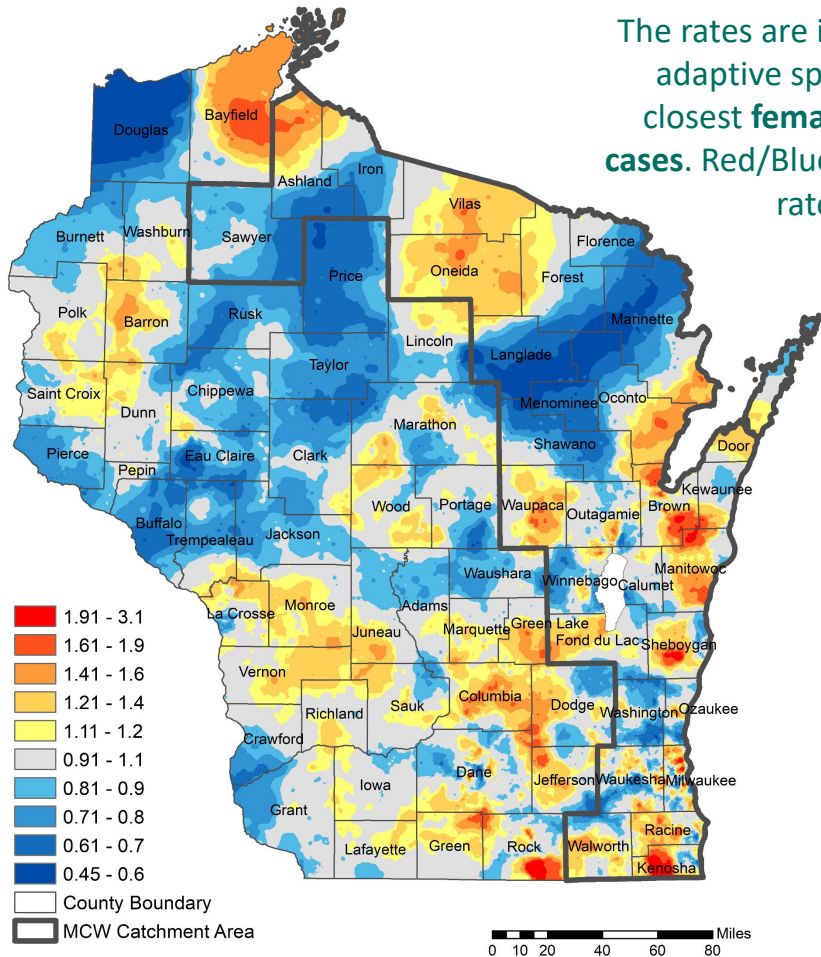


Female Breast Cancer Incidence Rate
Southeastern Wisconsin, 2014-2019

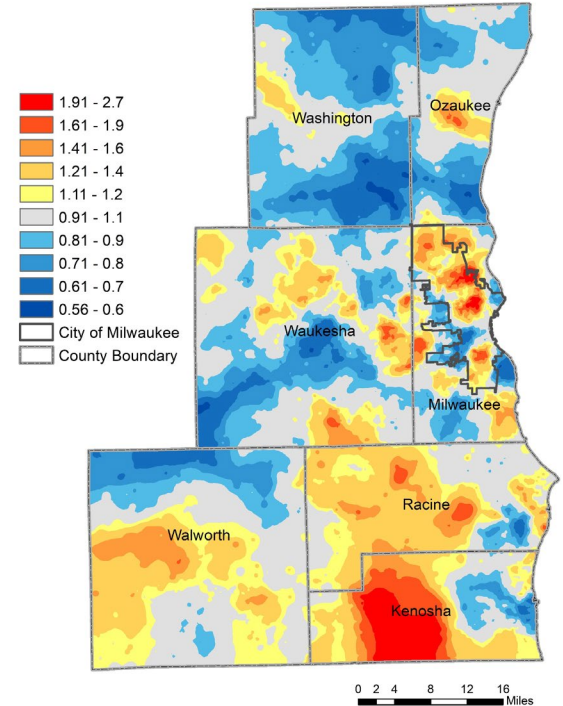


Female Breast Cancer Mortality Rate Wisconsin, 2015-2020

The rates are indirectly age adjusted using adaptive spatial filtering based on 20 closest **female breast cancer mortality cases**. Red/Blue areas indicate higher/lower rates than expected.

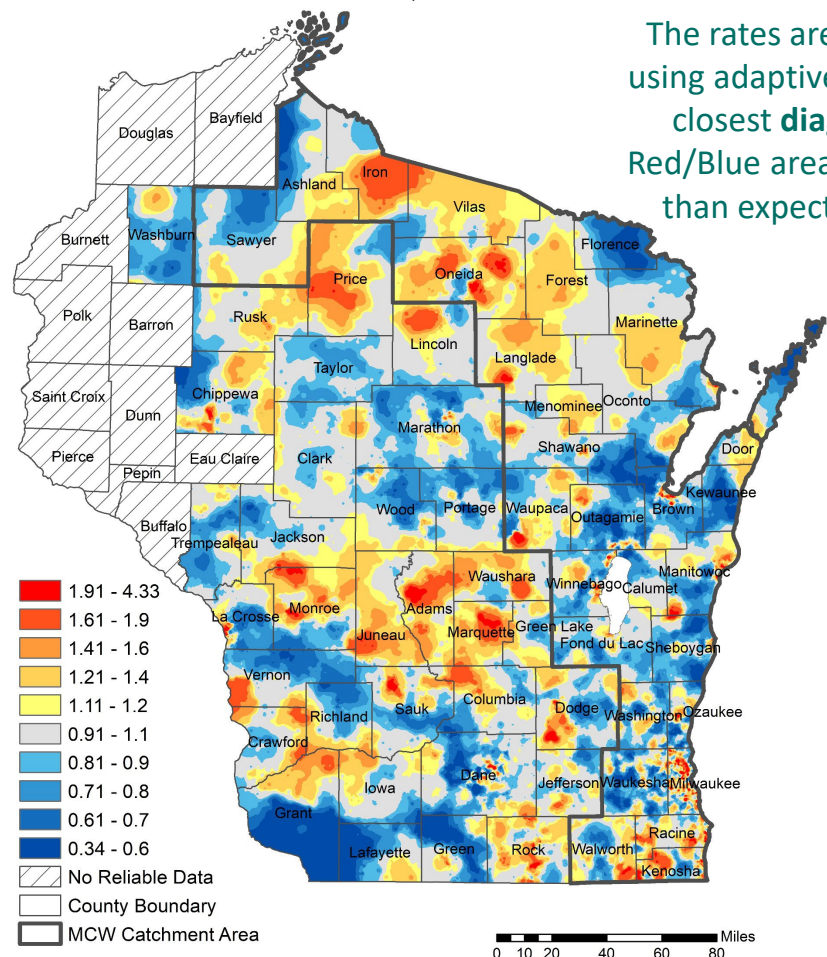


Female Breast Cancer Mortality Rate Southeastern Wisconsin, 2015-2020

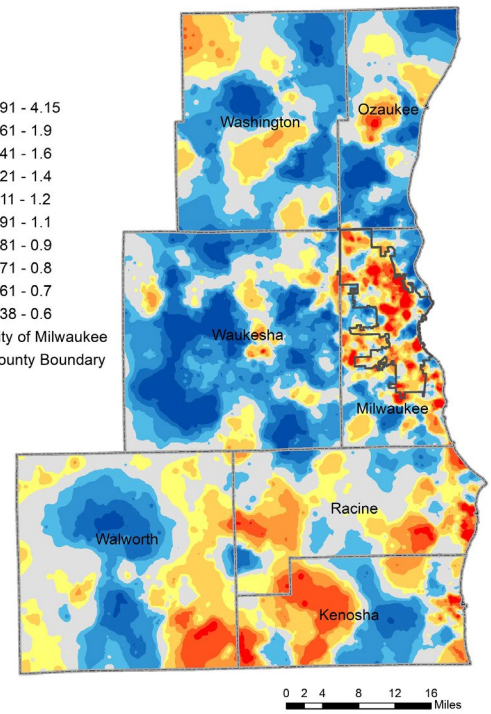
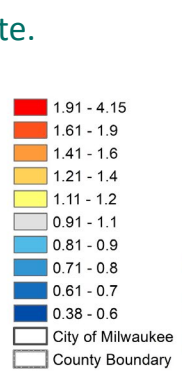


Lung Cancer Incidence Rate Wisconsin, 2014-2019

The rates are indirectly age-sex adjusted using adaptive spatial filtering based on 20 closest **diagnosed lung cancer cases**. Red/Blue areas indicate higher/lower rates than expected given the regional rate.



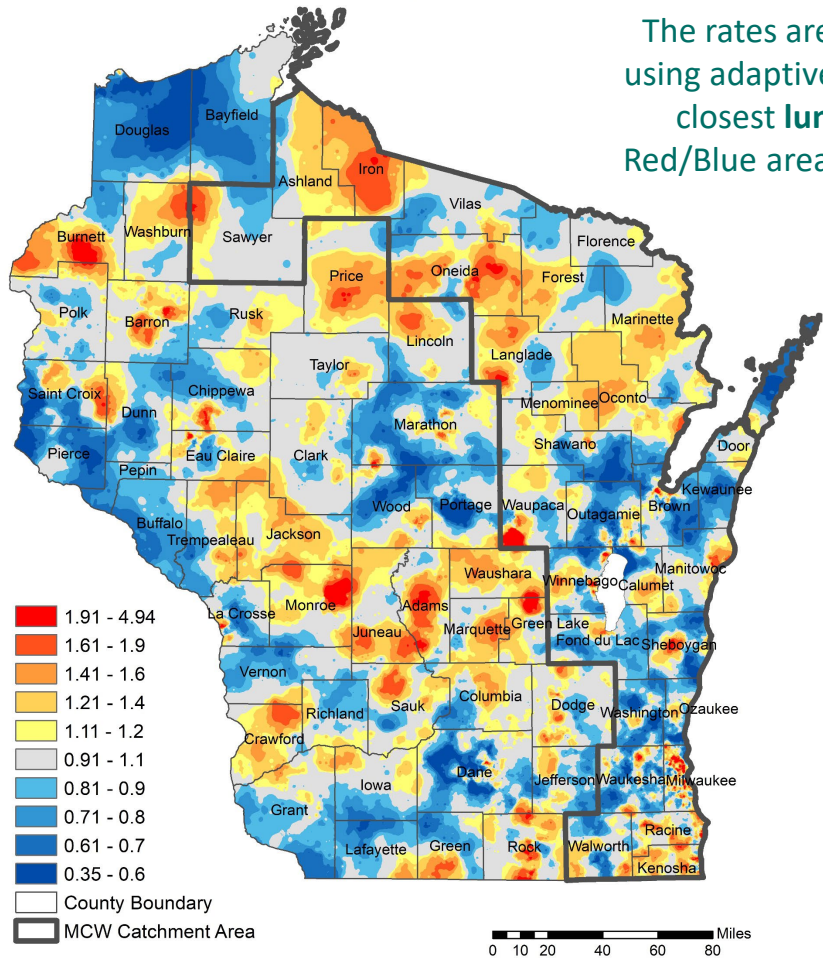
Lung Cancer Incidence Rate Southeastern Wisconsin, 2014-2019



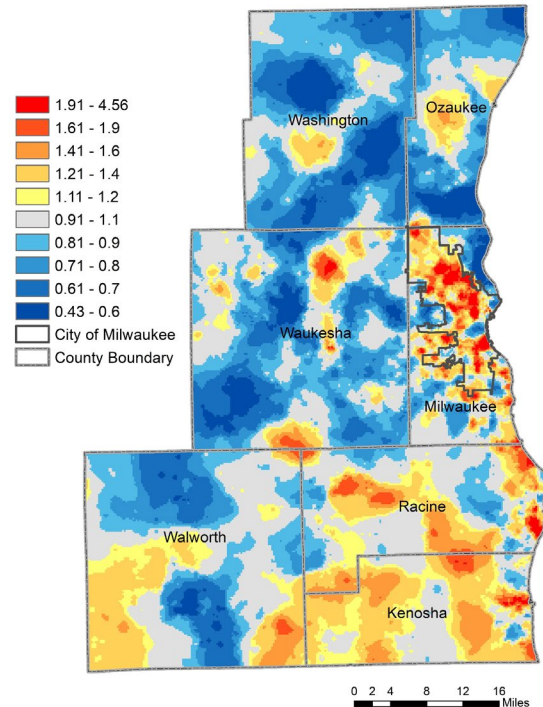
Data sources: Wisconsin Cancer Reporting System, Department of Health Services 2014-2019, 2019 American Community Survey, Census Bureau TIGER/Line Shapefile

Lung Cancer Mortality Rate Wisconsin, 2015-2020

The rates are indirectly age-sex adjusted using adaptive spatial filtering based on 20 closest **lung cancer mortality cases**. Red/Blue areas indicate higher/lower rates than expected.

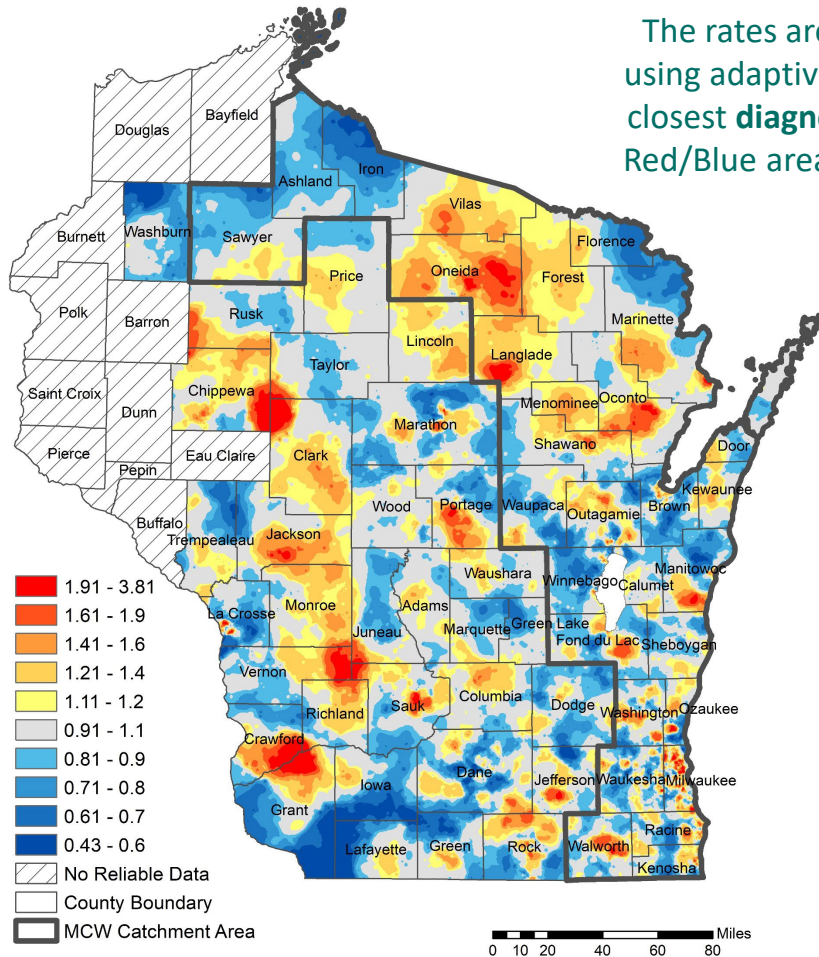


Lung Cancer Mortality Rate Southeastern Wisconsin, 2015-2020

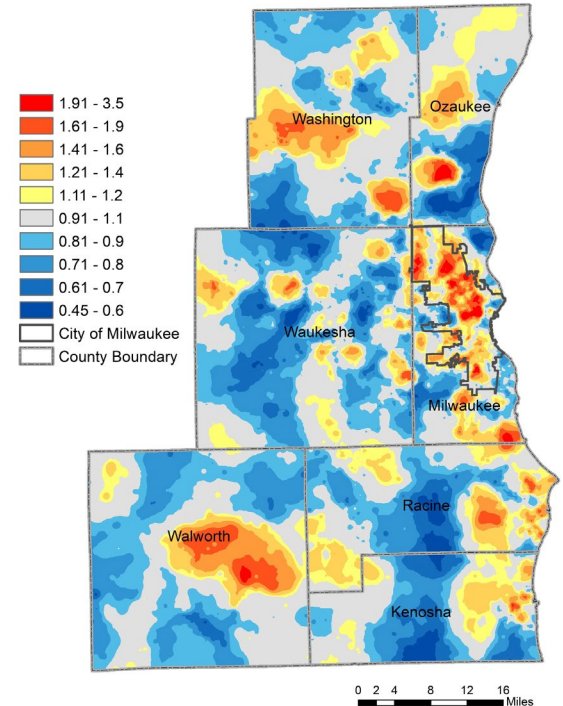


Colorectal Cancer Incidence Rate Wisconsin, 2014-2019

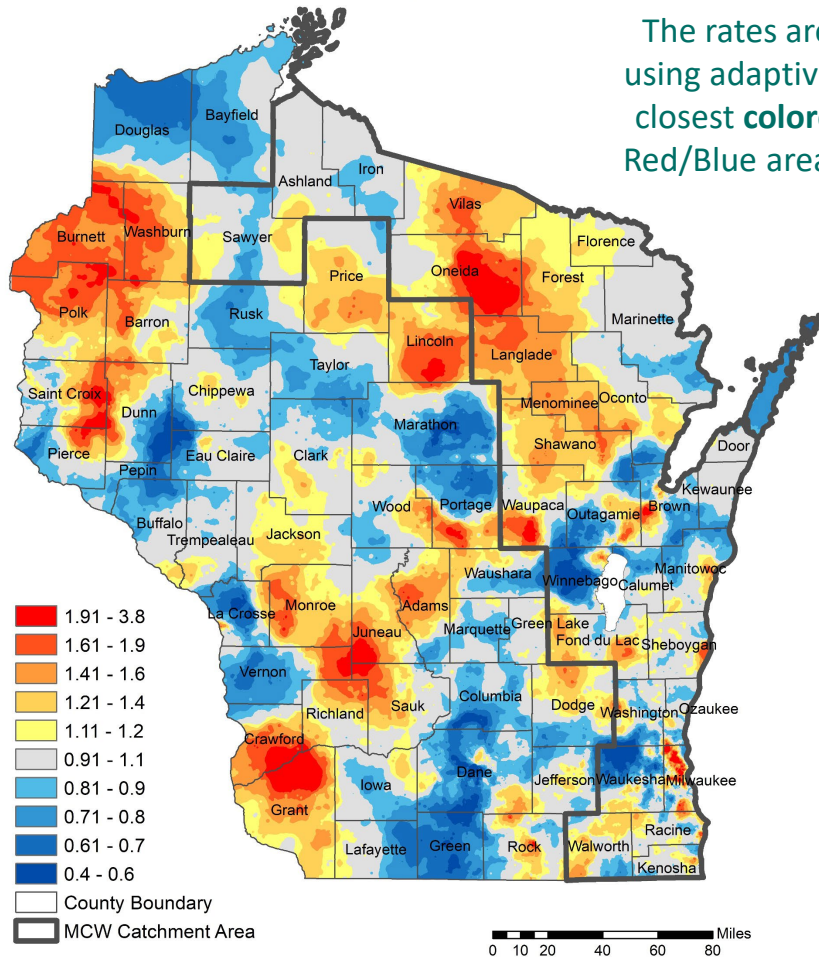
The rates are indirectly age-sex adjusted using adaptive spatial filtering based on 20 closest **diagnosed colorectal cancer cases**. Red/Blue areas indicate higher/lower rates than expected.



Colorectal Cancer Incidence Rate Southeastern Wisconsin, 2014-2019

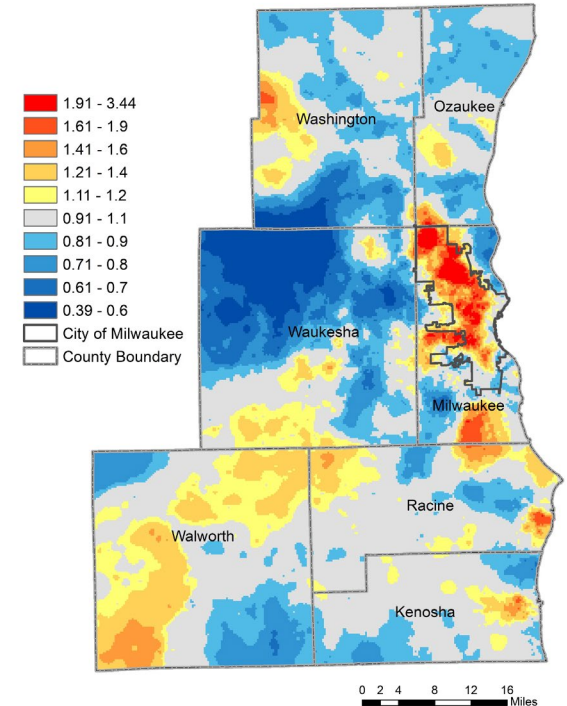


Colorectal Cancer Mortality Rate Wisconsin, 2015-2020



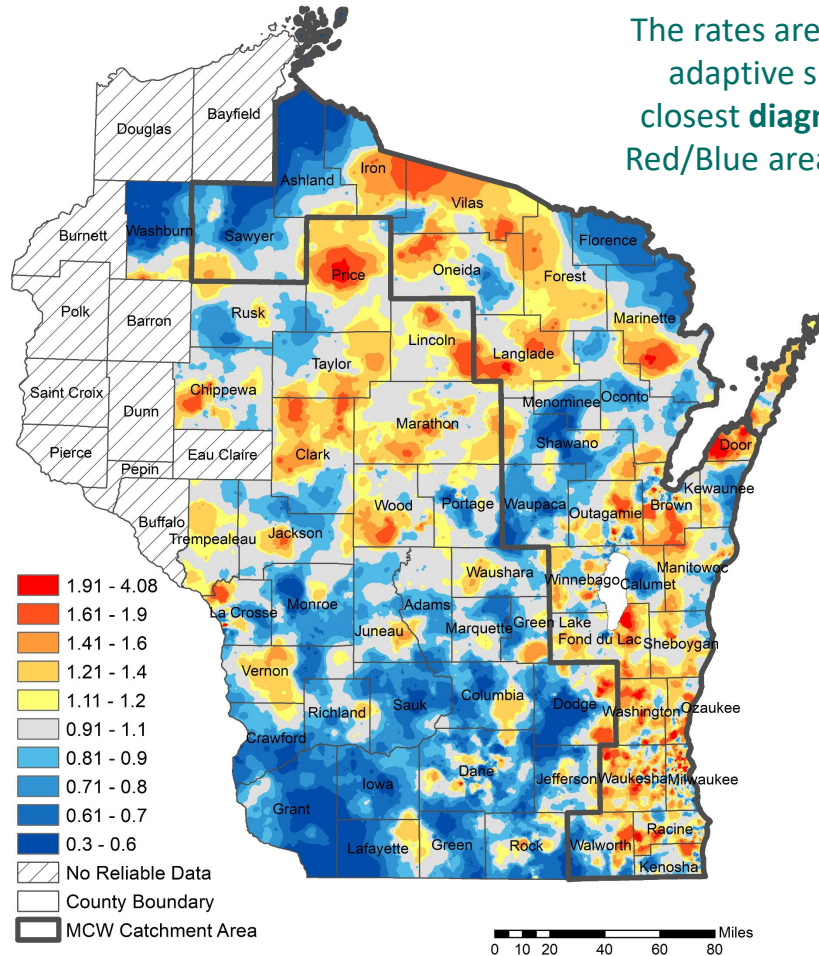
The rates are indirectly age-sex adjusted using adaptive spatial filtering based on 20 closest colorectal cancer mortality cases. Red/Blue areas indicate higher/lower rates than expected.

Colorectal Cancer Mortality Rate Southeastern Wisconsin, 2015-2020

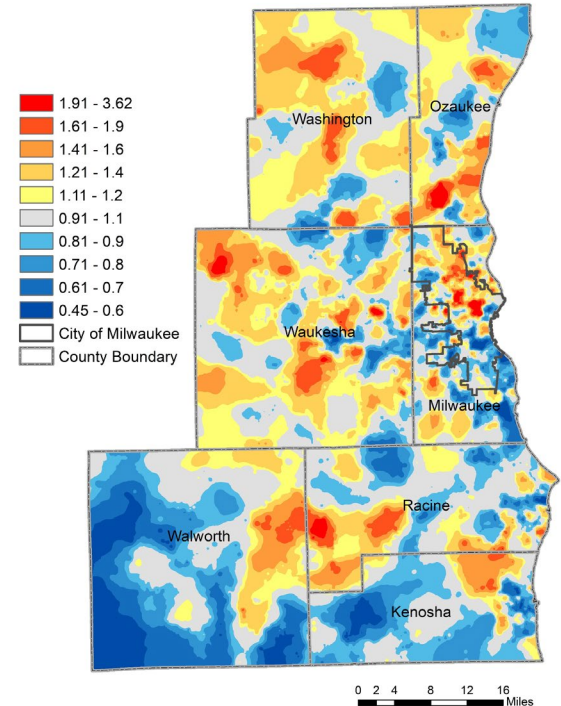


Prostate Cancer Incidence Rate Wisconsin, 2014-2019

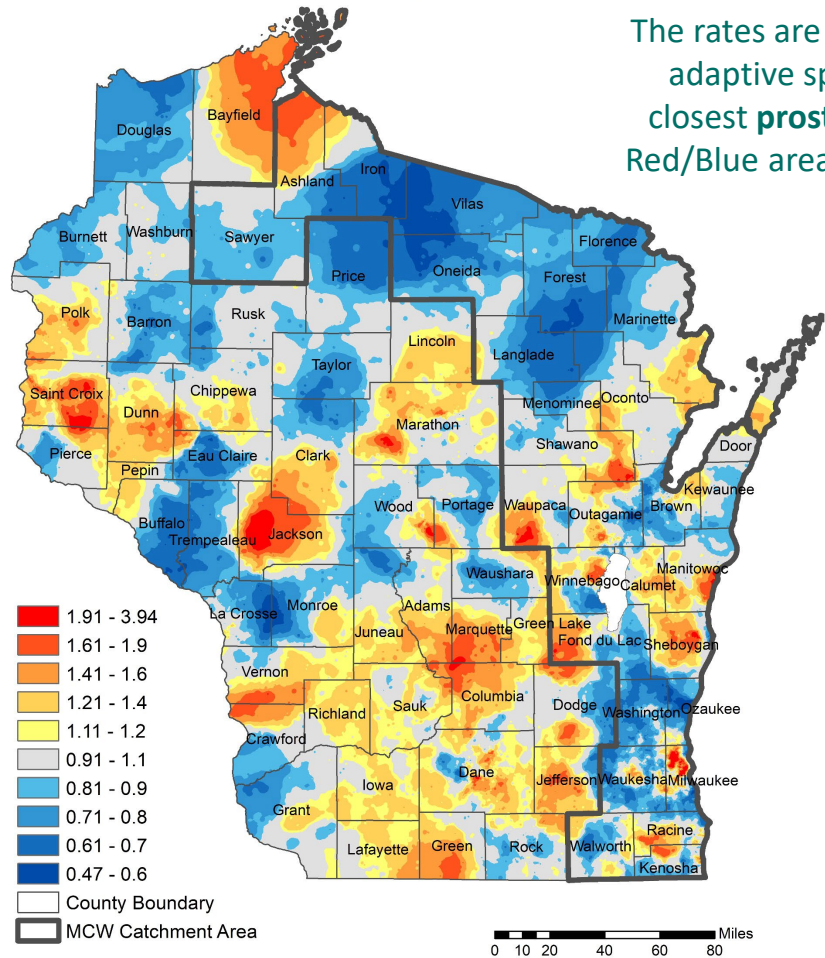
The rates are indirectly age adjusted using adaptive spatial filtering based on 20 closest **diagnosed prostate cancer cases**. Red/Blue areas indicate higher/lower rates than expected.



Prostate Cancer Incidence Rate Southeastern Wisconsin, 2014-2019

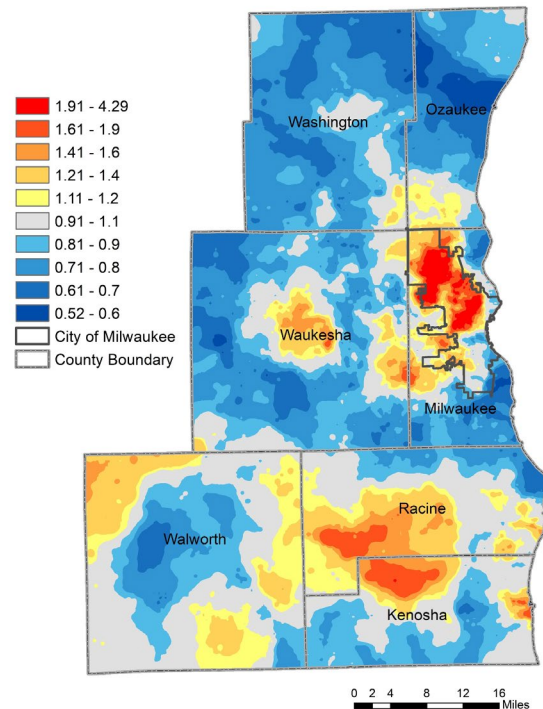


Prostate Cancer Mortality Rate Wisconsin, 2015-2020



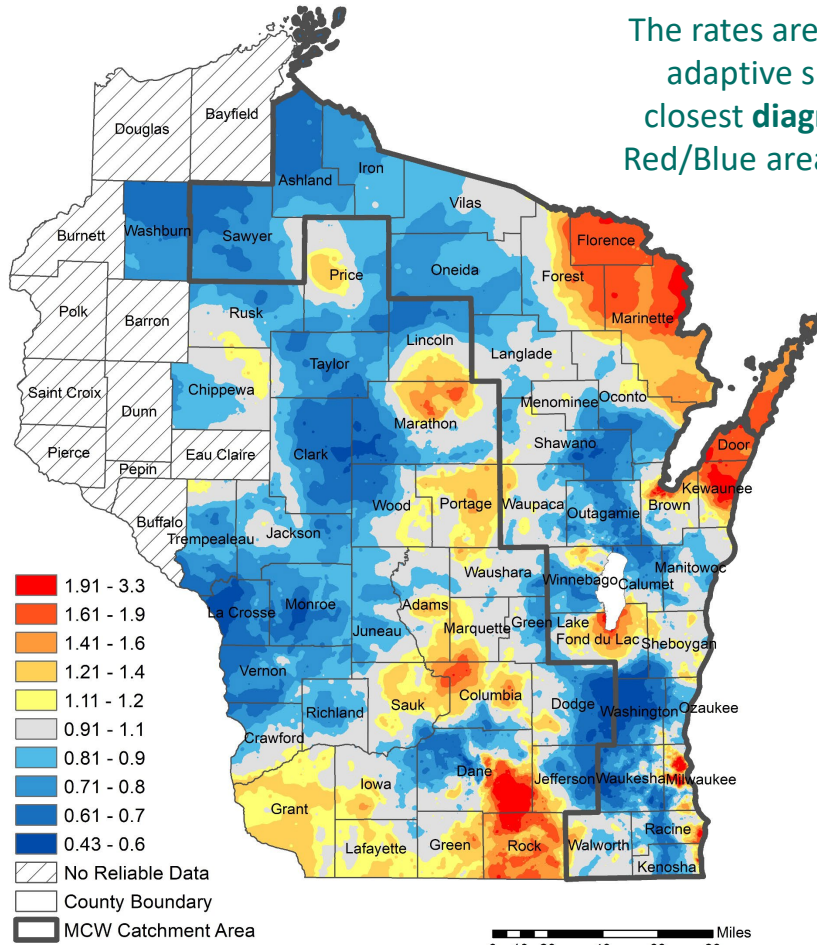
The rates are indirectly age adjusted using adaptive spatial filtering based on 20 closest **prostate cancer mortality cases**. Red/Blue areas indicate higher/lower rates than expected.

Prostate Cancer Mortality Rate Southeastern Wisconsin, 2015-2020

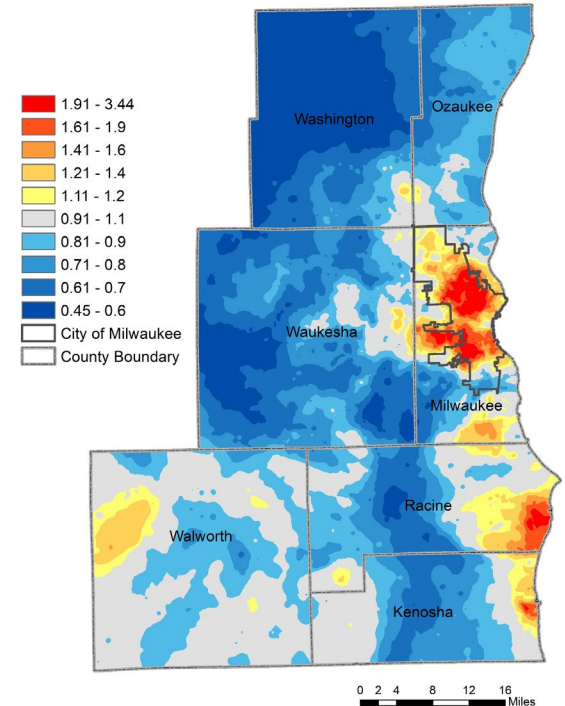


Cervical Cancer Incidence Rate Wisconsin, 2014-2019

The rates are indirectly age adjusted using adaptive spatial filtering based on 15 closest **diagnosed cervical cancer cases**.
Red/Blue areas indicate higher/lower rates than expected.



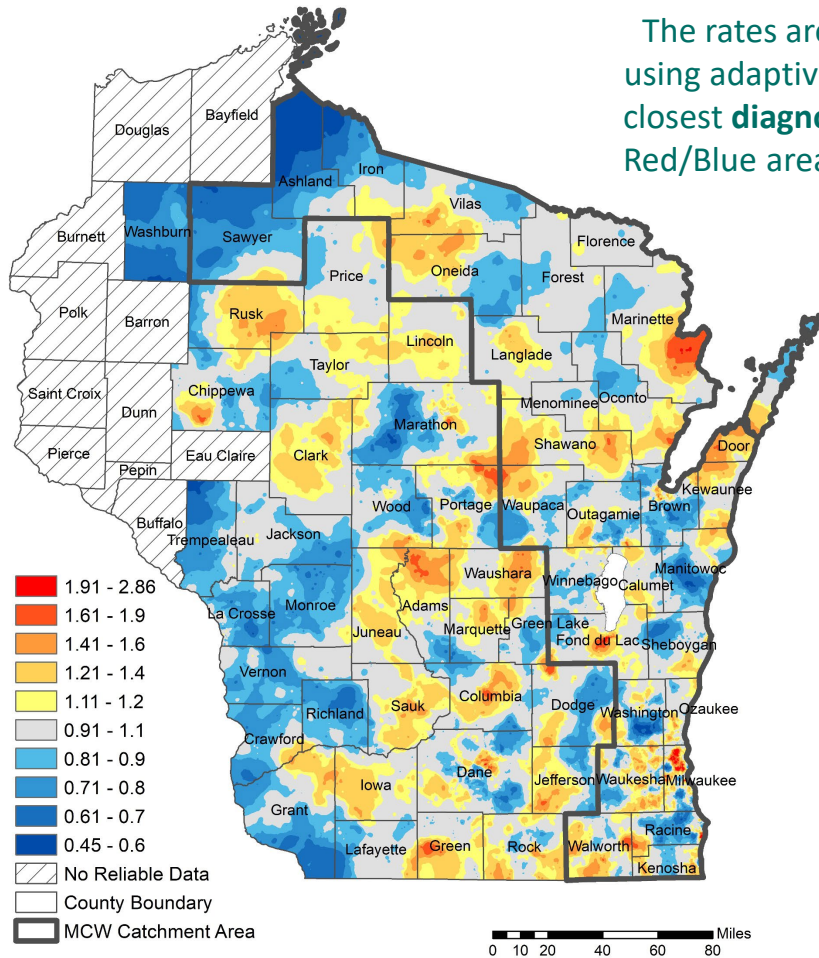
Cervical Cancer Incidence Rate Southeastern Wisconsin, 2014-2019



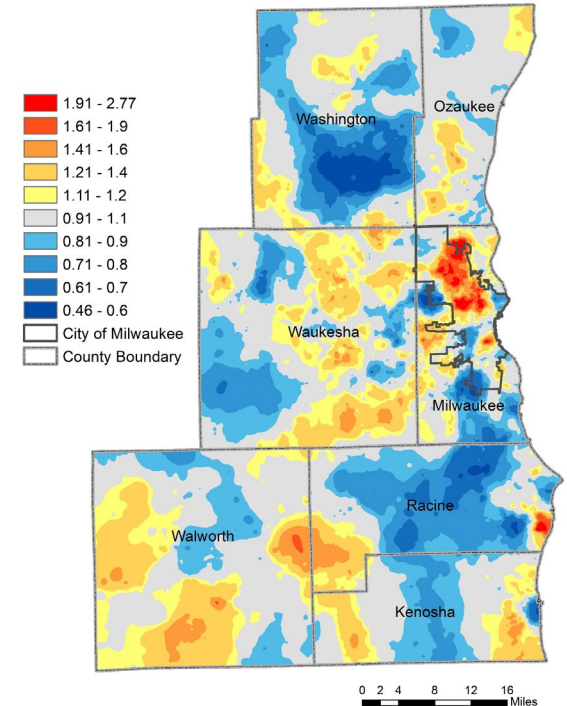
NO cervical cancer mortality map available due to small numbers

Pancreatic Cancer Incidence Rate Wisconsin, 2014-2019

The rates are indirectly age-sex adjusted using adaptive spatial filtering based on 20 closest **diagnosed pancreatic cancer cases**. Red/Blue areas indicate higher/lower rates than expected.

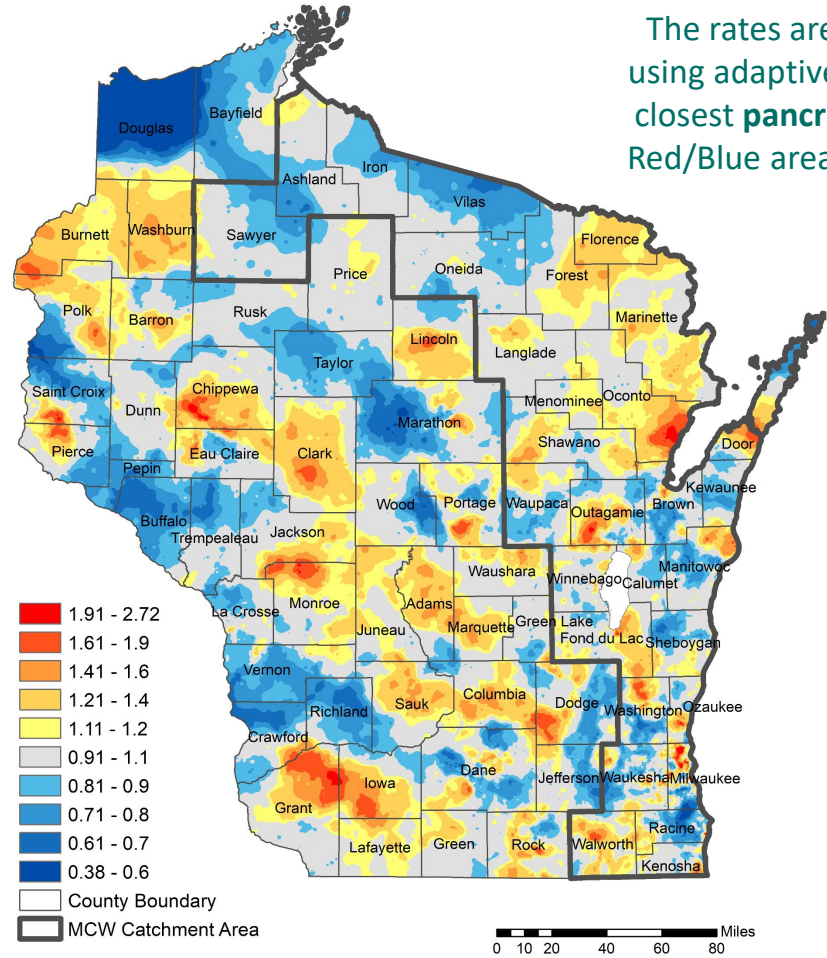


Pancreatic Cancer Incidence Rate Southeastern Wisconsin, 2014-2019

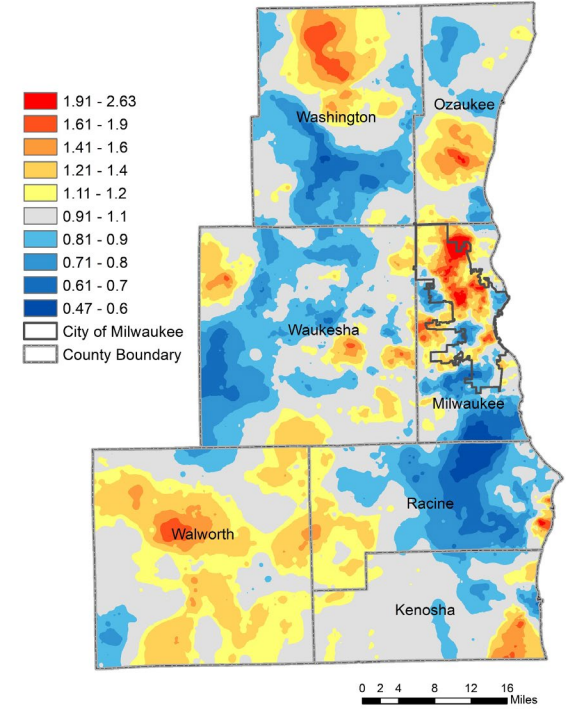


Pancreatic Cancer Mortality Rate Wisconsin, 2015-2020

The rates are indirectly age-sex adjusted using adaptive spatial filtering based on 20 closest **pancreatic cancer mortality cases**. Red/Blue areas indicate higher/lower rates than expected.



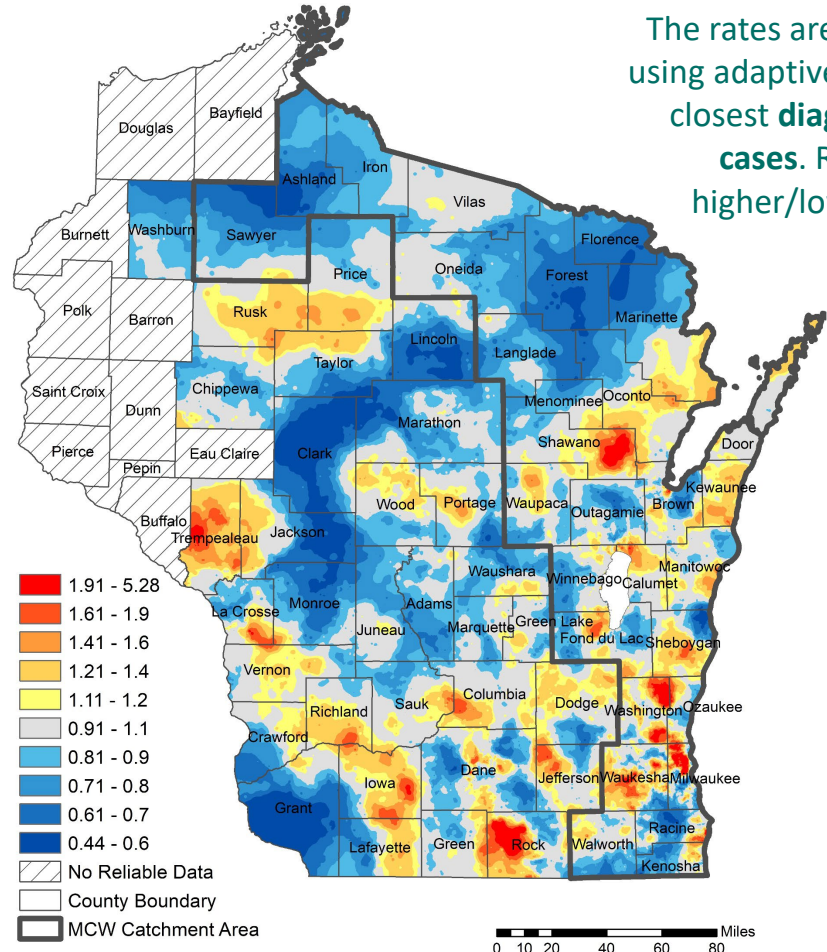
Pancreatic Cancer Mortality Rate Southeastern Wisconsin, 2015-2020



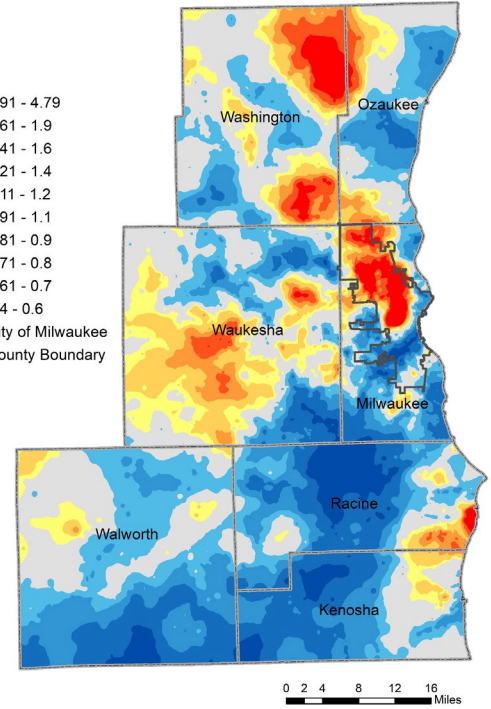
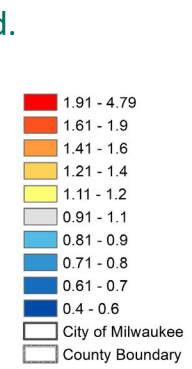
Data sources: State Vital Records Office, Department of Health Services 2015-2020, 2019 American Community Survey, Census Bureau TIGER/Line Shapefile

Multiple Myeloma Incidence Rate Wisconsin, 2014-2019

The rates are indirectly age-sex adjusted using adaptive spatial filtering based on 15 closest **diagnosed multiple myeloma cases**. Red/Blue areas indicate higher/lower rates than expected.

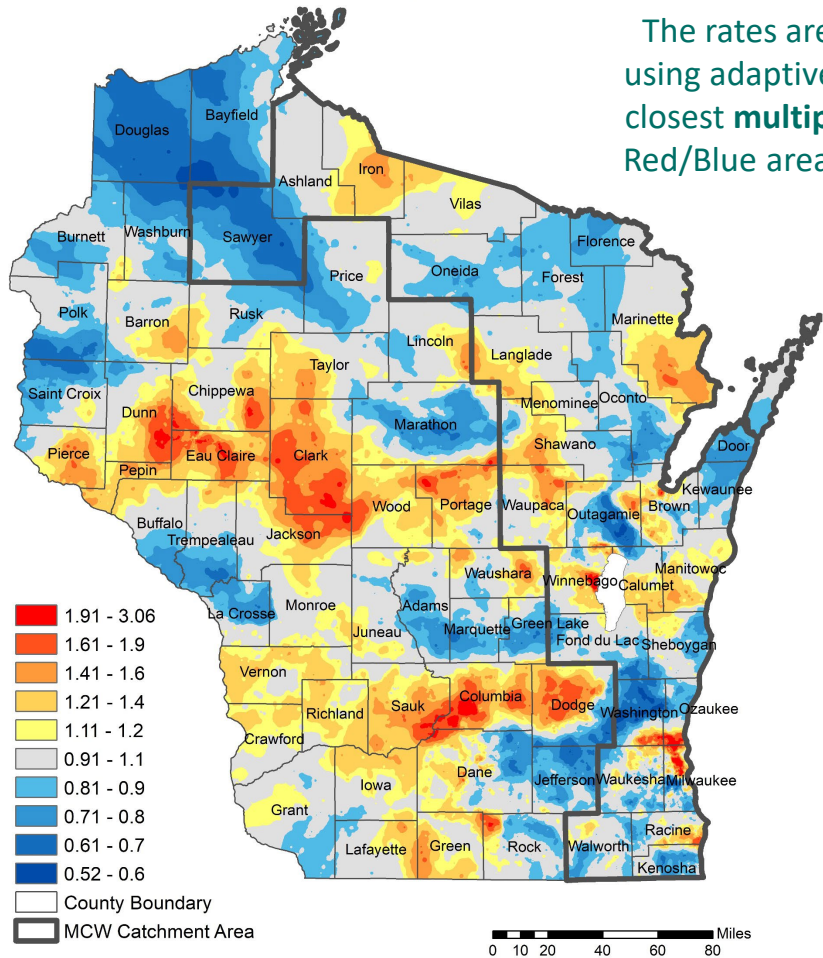


Multiple Myeloma Incidence Rate Southeastern Wisconsin, 2014-2019



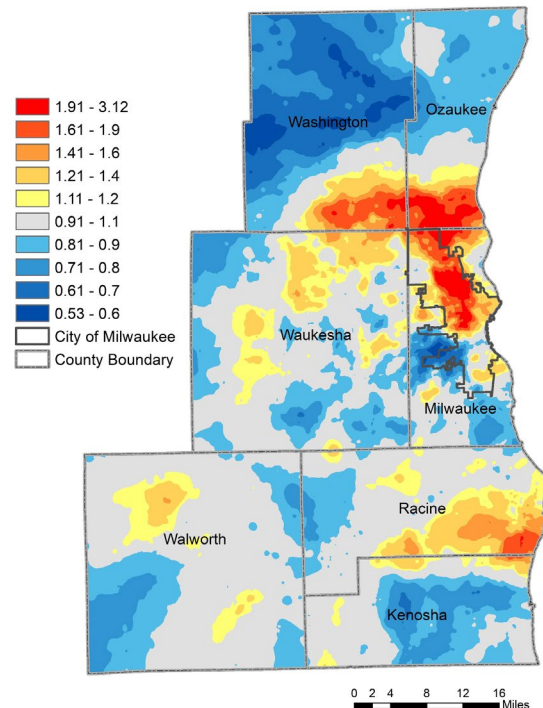
Data sources: Wisconsin Cancer Reporting System, Department of Health Services 2014-2019, 2019 American Community Survey, Census Bureau TIGER/Line Shapefile

Multiple Myeloma Mortality Rate Wisconsin, 2015-2020



The rates are indirectly age-sex adjusted using adaptive spatial filtering based on 15 closest **multiple myeloma mortality cases**. Red/Blue areas indicate higher/lower rates than expected.

Multiple Myeloma Mortality Rate Southeastern Wisconsin, 2015-2020





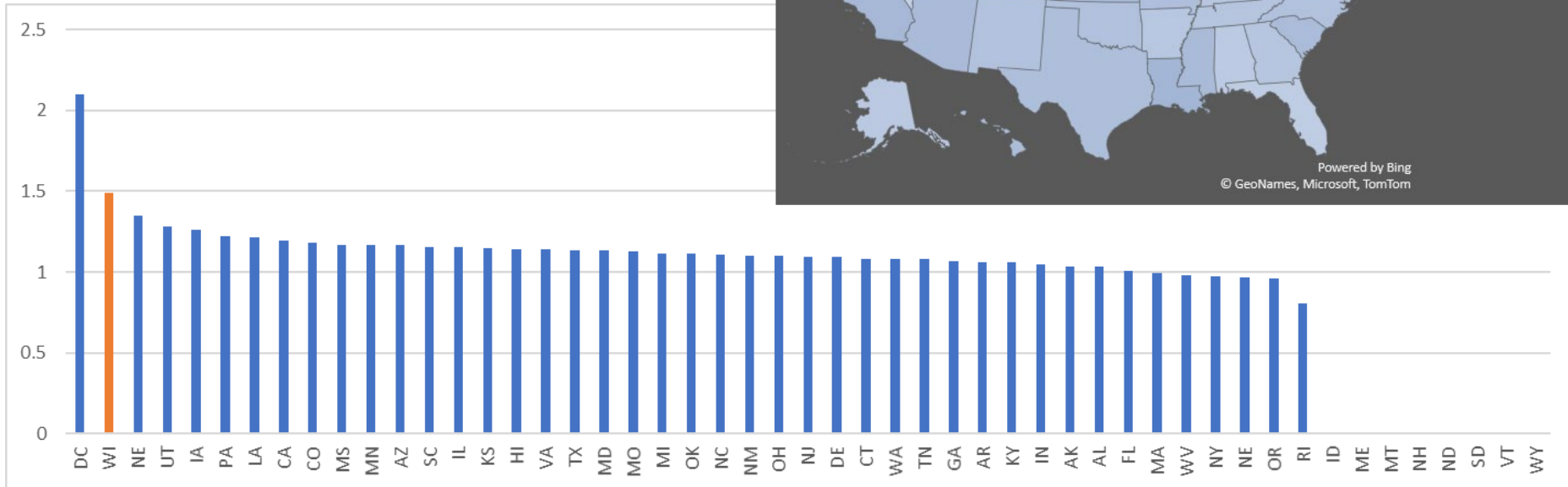
HOW DO OUR DISPARITIES COMPARE?

Black to White Cancer Mortality Disparities (Mortality Rate Ratio)

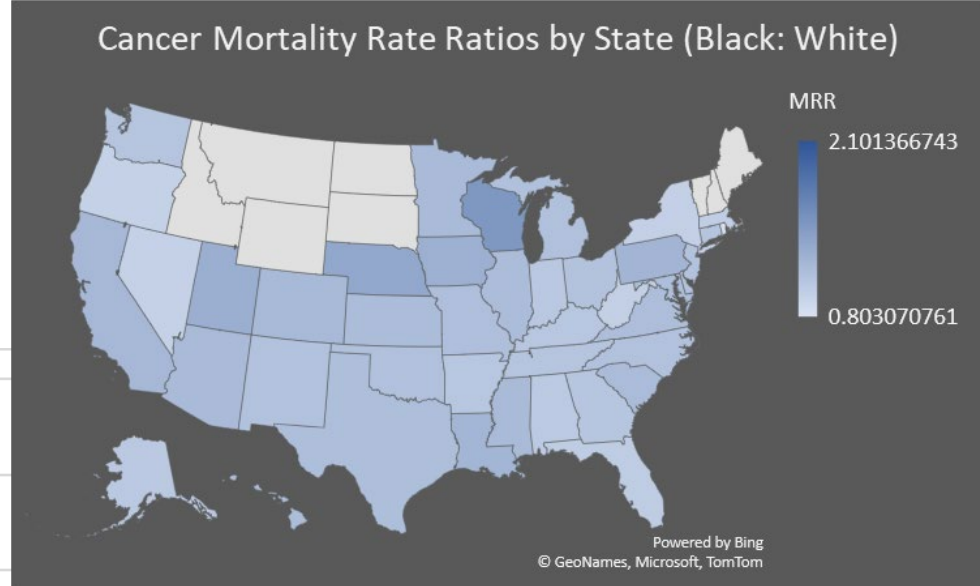
Kaiser Family Foundation

Number of Cancer Deaths per 100,000 Population by Race/Ethnicity, 2020

<https://www.kff.org/other/state-indicator/death-rate-by-raceethnicity>



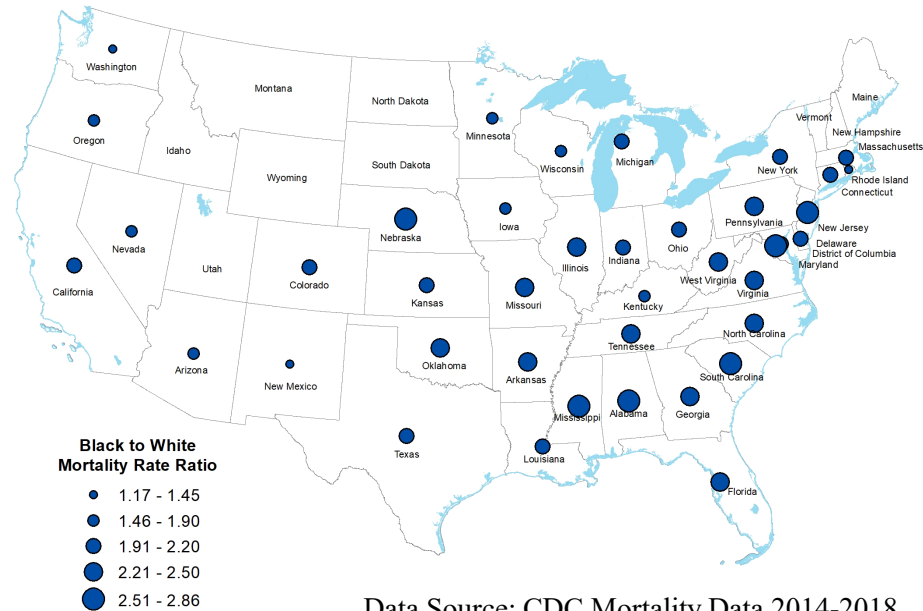
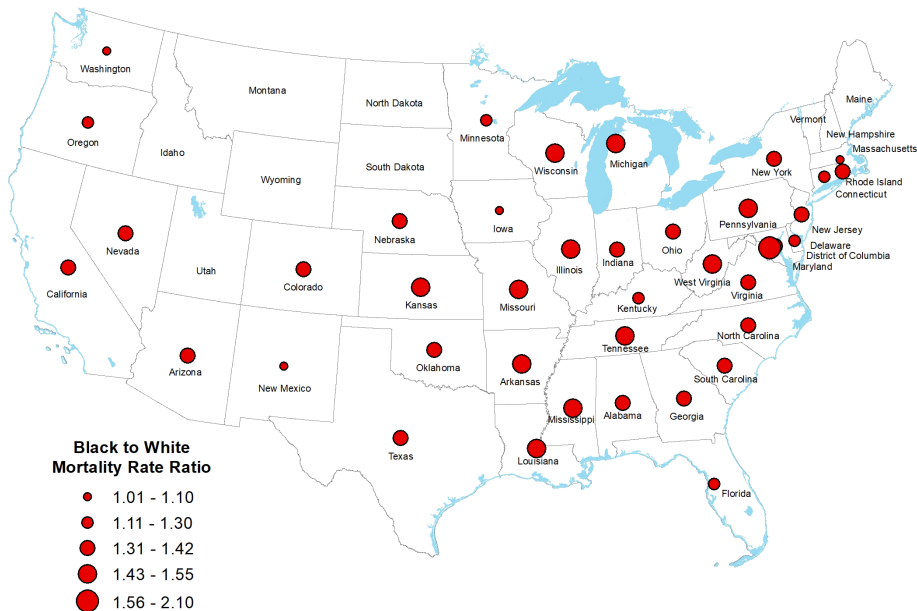
Cancer Mortality Rate Ratios by State (Black: White)



BLACK TO WHITE MORTALITY RATE RATIO

Breast Cancer
Wisconsin Ranks #7

Prostate Cancer
Wisconsin Ranks #35

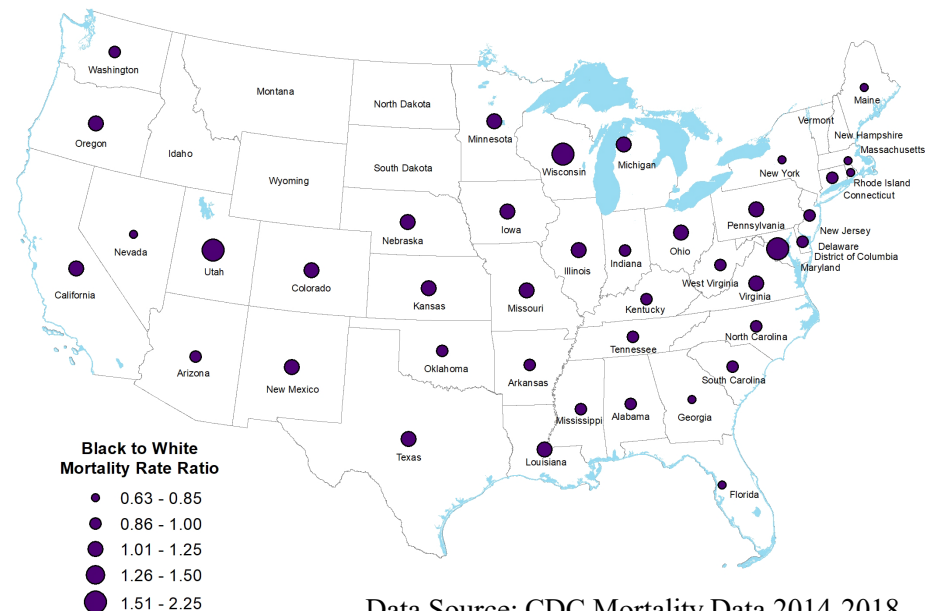
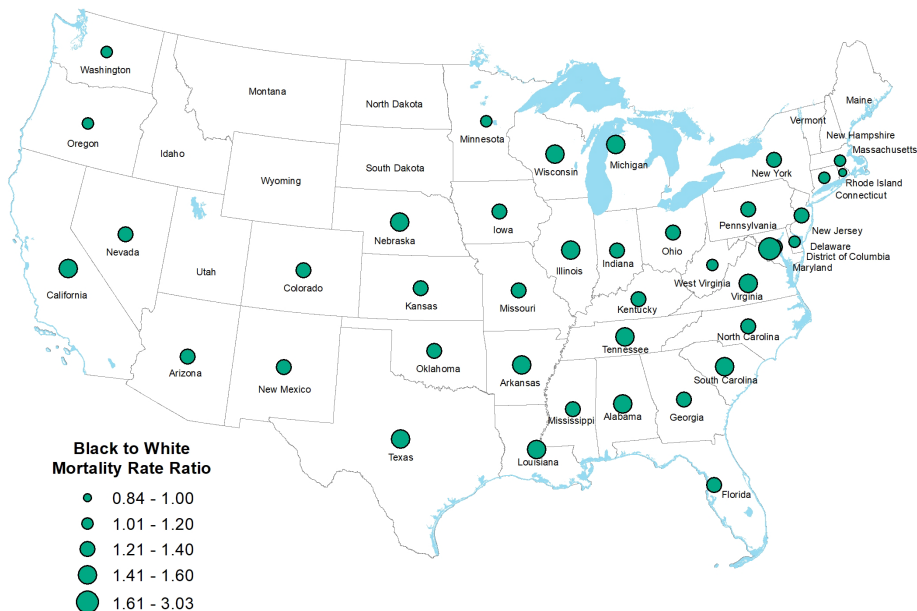


Data Source: CDC Mortality Data 2014-2018

BLACK TO WHITE MORTALITY RATE RATIO

Colorectal Cancer
Wisconsin Ranks #3

Lung Cancer
Wisconsin Ranks #3



Data Source: CDC Mortality Data 2014-2018

Mission: To catalyze population-based cancer research, with an emphasis on cancer disparities, by providing access to population-based data, cancer epidemiology and database expertise, information on the cancer burden in the catchment area, and geospatial mapping and analysis.



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| QUESTIONS?